Parliamentary Elections' Impact on Stock Market Returns

An event study investigating the impact of European parliamentary elections on short-term stock market performance

Sofia Lehander [1] ***Frida Lönnqvist*** [2]

Stockholm School of Economics
Department of Finance
Master Thesis
Tutor: Roméo Tédongap
Fall 2011

Abstract
We perform an event study where we investigate 47 parliamentary elections' impact on short-term stock market returns from 1999 to 2011 in 16 developed countries in Europe. We focus on small-cap indices and the results suggest that parliamentary elections have significant negative impact on small-cap stock market returns. We suggest that this can be explained by the increase in market uncertainty due to the political uncertainty. Hence, investors tend to avoid small-cap stocks in uncertain times because of their lack of liquidity and since larger stocks are seen as a safer alternative. We also find significant negative abnormal returns when looking at small-cap indices and considering only the elections with a centre government outcome, while we neither see a significant reaction when investigating the elections with a right-wing government outcome nor when considering the ones with a left-wing government outcome. Moreover, when considering all the elections that had a non-majority government outcome we find significant negative abnormal returns when considering the small-cap stock market indices. On the contrary, elections with a majority outcome did not generate any significant abnormal returns. We suggest that confusion about what political agenda the new government will adopt can lead to market uncertainty and hence increased investor risk aversion and thereby lower returns, when a non-majority government wins the elections. For mid-cap and large-cap firms we see no significant reaction and the same holds when considering indices including stocks of all market capitalizations. We perform robustness checks and non-parametric tests to ensure the validity of our significant findings. Thus, our findings propose that this type of political event can create market uncertainty that impact investor risk aversion and thereby significantly impact small-cap stock market returns negatively in the short run.

Keywords: Event Study, Abnormal Returns, Investor Risk Aversion, European Stock Indices, Small-Cap

First and foremost, we would like to thank out tutor, Roméo Tédongap for invaluable guidance and support throughout the writing of this thesis. Moreover, we would like to thank Laurent Bach for sharing his expertise on the event study methodology in STATA.

[1] 21261@student.hhs.se
[2] 21393@student.hhs.se

TABLE OF CONTENTS

1. INTRODUCTION

1.1 BACKGROUND

How stock markets are influenced by various events and how abnormal returns occur have always been of investors' and researchers' interest. The relationship between politics and investor behavior has been studied in numerous countries and in various contexts. Though, there is little consensus among previous studies and many of these have been concentrated on political events in a single country. Previous research suggests that the political uncertainty around elections creates economic uncertainty, which increases investors' risk aversion. Though, the conclusions about how stock prices are affected by political events vary a lot depending on type of event and depending on the country investigated. We attempt to fill this gap in the literature by investigating several elections in developed European countries through a cross-country study. Thereby, we hope to provide evidence of how political uncertainty surrounding national parliamentary elections may impact investor beliefs and thus stock returns in the short run.

1.2 PURPOSE AND FOCUS

The purpose of this thesis is to investigate parliamentary elections' impact on short-term stock returns, with a focus on small-cap stocks. We aim to investigate if a political event can create market uncertainty that impact investor risk aversion and thereby significantly impact small-cap stock market returns the days around the election, and if so, in what way returns are affected. We limit our research to the 16 developed countries[3] in Europe and investigate parliamentary elections from 1999 to 2011. We intend to contribute to the current research on the relationship between governmental politics and stock market returns. Previous research provides no clear consensus on this relationship, and the studies made on European countries are very limited. Though, researchers have found proof of small-cap firms being more volatile and more easily affected by economic events, hence small-cap market indices will be the focus in this thesis. Moreover, our focus on short-term asset returns is not commonly seen in previous papers and we hence hope to contribute to fill this gap.

---

[3] According to the MSCI (Morgan Stanley Capital International)

Furthermore, we will also investigate if abnormal returns for the small-cap indices differ depending on a couple of factors that characterize each election. These factors are; what type of government that has won (left-wing, right-wing or centre) and if the election resulted in a majority government or a non-majority government. Finally, we will also investigate if we find abnormal returns when investigating mid-cap and large-cap firms and also when including indices consisting of the entire stock market in each country.

The study is performed using an event study methodology. We benchmark each individual country's stock market index against the MSCI World index, using the market model to generate abnormal returns. By using the MSCI World index we control for global macroeconomic effects, and hence increase the probability that the abnormal returns we see are actually caused by the elections. Our hope is that the conclusions we draw from our results will show if there are abnormal returns the days around the parliamentary elections and if these returns are positive or negative. Our main null hypothesis is:

> H_0*: There are no significant abnormal returns the days around the 47 parliamentary elections when investigating* ***small-cap stocks*** *in each country's stock market index.*

The election outcome-dependent null hypotheses for the small-cap indices are:

> H_{01}: *There are no significant abnormal returns the days around the 27 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***right-wing governments****.*

> H_{02}: *There are no significant abnormal returns the days around the 15 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***left-wing governments****.*

> H_{03}: *There are no significant abnormal returns the days around the 5 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***centre governments****.*

> H_{04}: *There are no significant abnormal returns the days around the 38 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***non-majority governments****.*

> H_{05}*: There are no significant abnormal returns the days around the 9 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***majority governments.***

The firm size-dependent null hypotheses for mid-cap and large-cap indices are:

H_{06}: *There are no significant abnormal returns the days around the 47 parliamentary elections, when investigating* ***mid-cap stocks*** *in each country's stock market index.*

H_{07}: *There are no significant abnormal returns the days around the 47 parliamentary elections, when investigating* ***large-cap stocks*** *in each country's stock market index.*

The null hypothesis when including the index consisting of the whole stock market in each country is:

H_{08}: *There are no significant abnormal returns the days around the 47 parliamentary elections when including* ***all stocks*** *in each country's stock market index.*

In this study, we define a non-majority government outcome as the elections where no party got an own majority in the parliament. Thus, a non-majority government can consist of either a coalition government that has majority or a minority government (consisting of either one political party or a coalition). By majority government we mean when the party that forms the government has gotten an absolute majority regarding the seats in the parliament.

1.3 EXPECTED RESULTS

We expect to find that the returns of the stock indices change differently depending on the size of the firms in the indices. We believe we will find negative abnormal returns when we test on small-cap firms as we expect them to show stronger reactions around the events since they tend to be more volatile and less liquid (Goldman Sachs, 2011) and since previous research shows that new governmental regulations impact small-cap firms to a larger extent (Crain & Crain, 2010). Uncertainty about the election outcome can create further uncertainty in the fiscal policy stance (Morgan Stanley, 2010). This uncertainty around elections can impact share prices negatively in the short run (Dagens Industri, 2010).

Moreover, we expect to find different results depending on the outcome of the election. When a right-wing government has won, we expect markets to react less negatively or even positively, as conservative governments historically have been more market-oriented (Hudson, Keasey and Dempsey, 1998). Conversely, when a left-wing government has won we expect markets to show a more negative reaction, comparing to a right-wing government outcome.

We find it less probable that we would be able to reject our null hypotheses when considering mid-cap, large-cap and all capitalizations, as these indices include less sensitive stocks. Though, we will also test these indices after we have investigated the small-cap indices.

Before we go into the hypothesis testing, we will in detail describe the methodology we use. We will then describe the data before going into the section of previous research. Then follows the section where we present our empirical findings. This is followed by the analysis where we evaluate the results of our hypothesis testing. Then we go into the methodological and empirical issues and evaluate the credibility of our findings. Finally, we will present our conclusions.

2. METHODOLOGY

2.1 THE EVENT STUDY

The event study methodology is extensively applicable and hence widely used. It is often used both for firm-specific and economy-wide events (MacKinlay, 1997). We are investigating the effect of an economic event on stock prices using financial market data. Assuming markets are rational, the informational content in the event must be incorporated into prices instantaneously and therefore we should be able to see the effect of the event on prices over a relatively short time period[4].

We choose to perform our study on index level instead of on individual stocks. This will help reduce firm specific noise and will allow us to easier do cross-country analysis. We use the returns of stock indices from 16 European countries and benchmark against a larger index, the MSCI World Index. A reason why we choose the MSCI World Index rather than the MSCI Europe Index is because of the fact that the larger countries in our sample comprise a substantial share of the European index, and hence have a large covariance with the index. Another reason why we consider the MSCI World index a good benchmark in this study is that it allows us to control for global macroeconomic effects, and thereby increase the probability that the abnormal returns we find are actually caused by the elections.

2.1.1 Event Definition

Our event dates ($\tau = 0$) are defined as the first trading day after each of the 47 parliamentary elections since the stock exchanges are closed during the evenings when the election results are published. We use *event windows* of five days (see *Figure 1)* as the period over which the returns will be examined in order to capture the price effects. In other words, the event window is defined as the period where the abnormal returns are accumulated. As we use daily data, the event window should only have to include the day of the announcement. Though, in practice the event window is normally expanded to include at least one day after the announcement (MacKinlay, 1997). It has been proved empirically that a short event window will usually capture the significant effect of an

[4] Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

event (Ryngaert & Netter, 1990). After discussions with our tutor, Roméo Tédongap[5], and following common practice, we decided to use an event window of five days, starting the trading day before the event day in an attempt to best capture whether the market has anticipated the outcome before the actual election. We also perform robustness checks with other lengths of the event windows (see section *2.1.6 Robustness Check*).

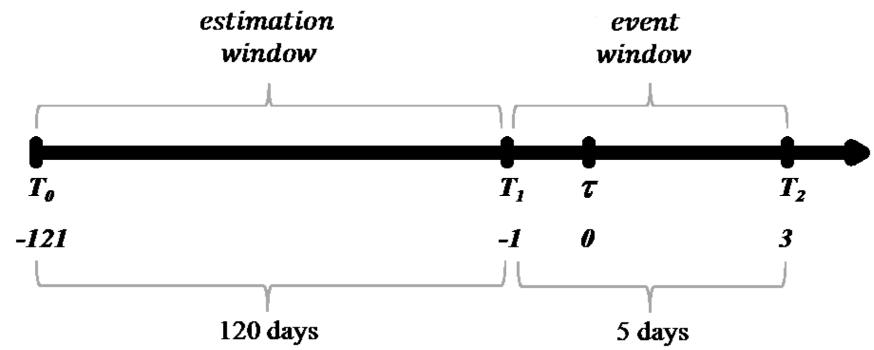


Figure 1- Time Line over Estimation and Event Windows

The *estimation window* will consist of 120 trading days prior to the event window. This is suggested by MacKinlay (1997) and is in line with common practice in previous studies of similar nature. 120 trading days is approximately half a year and can be considered a sufficiently long period to estimate normal returns. For the robustness checks we also use estimation windows of 80 and 160 days (see section *2.1.6 Robustness Check*).

Knowledge of the exact date when the outcome of the event is announced is argued to be important when performing an event study. The event should also be unexpected (MacKinlay, 1997). Even though the elections themselves are not unexpected, the election outcomes can be considered to be uncertain prior to the publication of the election results.

2.1.2 Confounding Effects

A problem with other event study methodologies using a longer event window is that it becomes difficult to isolate the effect of the event from the effect of other events that might impact stock returns. The shorter the event window, the less likely it is that confounding events will occur. When performing an event study one assumes that the effect of the event is isolated from the effects of

[5] Assistant Professor, Department of Finance, Stockholm School of Economics

other events (McWilliams et al, 1999). In our case, the election results are known the evening before the event date ($\tau = 0$) but there can still persist substantial uncertainty regarding the formation of the government and its politics. Thus, we have made the decision to include five days in our event window. Still, an event window of five days can be considered to be relatively short and hence we assume no confounding effects.

2.1.3 Cumulative Abnormal Returns and Their Variance

When measuring the impact of an event, we need to calculate the abnormal returns. In order to identify abnormal returns we must assume efficient markets (McWilliams & Siegel, 1997). Abnormal returns are defined as actual ex post returns over the event window minus the normal returns over the event window. Hence, for a country's stock index i and event date τ we calculate abnormal returns as follows (MacKinlay, 1997):

$$AR_{i\tau} = R_{i\tau} - E(R_{i\tau}|\, X_{\tau})$$

$R_{i\tau}$ stands for the actual return and $E(R_{i\tau}|\, X_{\tau})$ denotes the normal return, which is equivalent to the expected return if the event would not occur. The expected normal return is estimated using the market model in our estimation window of 120 trading days prior to the event window.

We use logarithmic returns (using simple returns would not change the results significantly as the frequency is daily), and hence we employ the following specification to calculate index returns:

$$R_{it} = ln\left[\frac{P_{it}}{P_{i,t-1}}\right]$$

P_{it} is the closing price of index i on day t. We calculate log-returns for our benchmark, the MSCI World Index using the same methodology as for the stock index returns, and the results are then used in the market model to calculate abnormal returns. The market model is defined as:

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

Above, R_{mt} is the market return observed in t and α_i and β_i are estimated using the ordinary least squares regression (MacKinlay, 1997), hence we get $\hat{\alpha}_i$ and $\hat{\beta}_i$ which are used to calculate the sample abnormal returns:

$$AR_{it} = \hat{\varepsilon}_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

Compared to the constant mean return model, which is the other common model used to model normal returns, the market model has the advantage that it removes the portion of the return that is related to variation in the market's returns[6] (in our case the MSCI World Index). Thus, this reduces the variance of the abnormal returns and we get an increased ability to find the true effects from the events. With a higher R^2 we get a greater reduction in the variance of the abnormal returns (Campbell, Lo, MacKinlay, 1997).

Under the null hypothesis that the events have no impact on the means or the variances of the returns the distribution of the sample abnormal returns of the observations in the event window is (MacKinlay, 1997):

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

This assumption will be further discussed in section *7.2 Econometric Issues*.

The variance of the abnormal returns is calculated by dividing the sum of the squared abnormal returns with the number of days in the event window (L_1) adjusted for the loss of the degrees of freedom:

$$Var(AR_{it}) = \frac{\sum_t (AR_{it})^2}{(L_1 - 2)}$$

To be able to draw overall inferences of the events, the abnormal returns need to be aggregated over time and across securities (Campbell, Lo, MacKinlay, 1997). Firstly, we aggregate across time for an individual index. We define the sample cumulative abnormal return (*CAR)* from τ_1 to τ_2 where $T_1 < \tau_1 \leq \tau_2 \leq T_2$. We calculate the sum of the abnormal returns from τ_1 to τ_2 and get the *CAR*:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{it}$$

[6] Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

When L_1 increases, the variance of CAR_i approaches $\sigma_i^2\,(\tau_1, \tau_2) = (\tau_2 - \tau_1 + 1)\sigma_{\varepsilon_i}^2$. Secondly, we aggregate over the event window and across event observations. This requires an assumption of no clustering, e.g. no overlap in the event windows of the included indices (Campbell, Lo, MacKinlay, 1997). Elections rarely take place during the same week in two European countries; hence the probability of overlap is low. This assumption will be further discussed in section *7.2 Econometric Issues*. We use the individual indices abnormal returns (AR_{it}) for each event period and calculate the average abnormal return ($\overline{AR}_t$) for N events:

$$\overline{AR}_t = \frac{\sum_t AR_{it}}{N}$$

In our case, we are looking at 47 events, and we need to aggregate abnormal returns across both events and across indices. To get the average variance of the abnormal returns we take the sum of the variances of the individual abnormal returns and divide it by the square of the number of events:

$$Var(\overline{AR}_t) = \frac{\sum_{i=1}^{N} Var(AR_{it})}{N^2}$$

Then we can aggregate the average abnormal returns (as we did with the individual abnormal returns) in order to obtain the cumulative average abnormal returns over the event window (from τ_1 to τ_2) as:

$$\overline{CAR}(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_t$$

Next, the variance of the $\overline{CAR}$ can be calculated by summing the variances of the $\overline{AR}_t$ over the event window (MacKinlay, 1997):

$$Var(\overline{CAR}(\tau_1, \tau_2)) = \sum_{\tau=\tau_1}^{\tau_2} Var(\overline{AR}_t)$$

Since we have assumed that the event windows are not overlapping, we can set the covariance terms to zero. Therefore, we can test our null hypothesis that the abnormal returns are zero since the cumulative average abnormal returns follow the following distribution:

$$\overline{CAR}(\tau_1, \tau_2) \sim N\left[0, Var\left(\overline{CAR}(\tau_1, \tau_2)\right)\right]$$

2.1.4 T-statistics

Our null hypothesis, that abnormal returns are not significantly different from zero during the event window can be tested using the following t-statistic (MacKinlay, 1997):

$$J_1 = t_{\overline{CAR}} = \frac{\overline{CAR}(\tau_1, \tau_2)}{Var(\overline{CAR}(\tau_1, \tau_2))^{1/2}} \overset{a}{\sim} N(0,1)$$

The results will be more reliable with a longer estimation window and a larger number of securities, or in our case, indices. The results are not exact since an estimator of the variance is used in the denominator. We have also used a second method of aggregation to compare the results. This method gives equal weighting to the individual standardized cumulative abnormal returns (*$SCAR_i$)* with the following definition (Campbell, Lo, MacKinlay, 1997):

$$SCAR_i(\tau_1, \tau_2) = \frac{CAR_i(\tau_1, \tau_2)}{Var(\overline{CAR}(\tau_1, \tau_2))^{1/2}}$$

The distribution of $SCAR_i$ is (under the null hypothesis) Student t with $L_1 - 2$ degrees of freedom. Following the properties of this distribution, the mean of $SCAR_i$ is zero and the variance is $\frac{(L_1-2)}{(L_1-4)}$. As in our case, when the estimation window is large ($L_1 > 30$), the distribution of $SCAR_i$ can be approximated by the standard normal distribution (MacKinlay, 1997). We define $\overline{SCAR}(\tau_1, \tau_2)$ as the average over *N* securities from τ_1 to τ_2:

$$\overline{SCAR}(\tau_1, \tau_2) = \frac{1}{N}\sum_{i=1}^{N} \widehat{SCAR}(\tau_1, \tau_2)$$

We still assume that the event windows do not overlap. Thus, under our null hypothesis, $\overline{SCAR}(\tau_1, \tau_2)$ will be normally distributed in large samples with a mean of zero and a variance of $\frac{(L_1-2)}{N(L_1-4)}$, where L_1 is the length of the event window and *N* represents the number of events (Campbell, Lo, MacKinlay, 1997).

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

2.1.5 The Statistical Tests

To secure the statistical validity of our results, we perform several tests on our abnormal returns. Since we have chosen the market model to specify returns the residual test we use is a standard regression residual test. The main statistical tests we use are J_1 and J_2 (as explained above) to identify whether the average cumulative abnormal returns are statistically significant.

Moreover, we will perform a test to see whether the difference of the means between the positive abnormal returns and the absolute value of the negative abnormal returns is statistically different from zero.

If the assumption of normality in our abnormal returns would be violated one can perform a non-parametric test. We use the Wilcoxon sign and sign-rank tests, which do not assume normal distribution of the abnormal returns.

We only undertake these tests for the samples where we get significant results of the J_1 test, as they are only meant to check the validity of our test results, not suggest further findings. The tests are mainly used to check the robustness of our findings from the regular J_1 test on the $\overline{CAR}$ and the $\overline{SCAR}$.

We use STATA 9.2 as the statistical software. The econometric issues of our findings and tests will be discussed in section *7.2 Econometric Issues*. The tests mentioned above will now be further explained.

Difference in Means Test

We want to investigate if the average mean of the positive abnormal returns and of the absolute value of the negative abnormal returns are different. We split the abnormal returns and make one group of the positive abnormal returns and another group of the absolute value of the negative abnormal returns. Then we will compare the means of these two samples and see if we can reject the null hypothesis that the difference in means is zero, i.e. to see if there is a statistically significant difference in means. If we find significant *negative* abnormal returns, we want to show that the mean of the absolute value of the negative abnormal returns is higher than the mean of the positive abnormal returns. If we find significant *positive* abnormal returns, we want to show that the mean of the positive abnormal returns is higher than the mean of the absolute value of the negative abnormal returns.

Wilcoxon Sign and Sign-Rank Test

Furthermore, we will perform non-parametric tests on our significant findings, using the Wilcoxon sign and sign-rank tests. These tests can be used as an alternative to the standard test statistics when one cannot for sure assume the population to be normally distributed (McWilliams & Siegel, 1997). The sign test is a non-parametric binominal test used to verify that only a few observations are not responsible for the results (Seiler, 2000). The sign-rank test is a development of the sign test and is used to analyse paired data. It tests the hypothesis that the median of the differences between the pairs of observations is equal to zero and accounts for the distribution of the data (MacKinlay, 1997). We will use these Wilcoxon tests as a complement to further validate our possible significant findings.

2.1.6 Robustness Check

To confirm the robustness in our significant results on the sample of the 47 elections when using small-cap indices we use three different estimation windows consisting of 80, 120 and 160 trading days prior to the event windows. Moreover, we test the robustness in our results by controlling for different lengths of the event windows. Through all these tests we use our standard estimation window of 120 days. Our standard event window consists of five trading days around the election date (-1,3) as described in section *2.1.1 Event Definition.* In the robustness checks we use event windows of one day (0,0), and also event windows extended before the event date of two days (-1,0), three days (-2,0), five days (-4,0). Thereto, we use event windows extended after the event date of seven days (-1,5) and ten days (-1,8).

2.1.7 Estimation Error

As we have seen in section *2.1.3 Cumulative Abnormal Returns and Their Variance,* the variance of a *CAR* is estimated as the sum of the variances of the individual *ARs*. This way of calculating the variance of *CAR* requires the assumption that estimated the *ARs* are intertemporally uncorrelated. Under the efficient market hypothesis, true *ARs* can be considered intertemporally uncorrelated. Though, the *ARs* we use are estimated using the market model. Since the same market model parameters are used to calculate the *ARs*, these will be correlated with each other (Salinger, 1992). To find out how significant this problem is in our study, we have used the following formula to measure the size of the estimation errors when calculating the variance of the *ARs*.

$$\sigma^2(AR_{i\tau}) = \underbrace{\sigma^2_{\epsilon,i}}_{\text{“Real” Disturbances}} + \underbrace{\frac{\sigma^2_{\epsilon,i}}{L_1}\left[1+\frac{(R_{m\tau}-\widehat{\mu_m})^2}{\hat{\sigma}^2_m}\right]}_{\text{Estimation Error}}$$

Source: Salinger (1992)

Here, σ^2 $(AR_{i\tau})$ is the true variance of abnormal returns in our sample. The "real" disturbances, $\sigma^2_{\epsilon,i}$, is used to calculate the variance of *CAR*. By programming the estimation error in the formula and comparing it to these "real" disturbances we can ensure that it is sufficiently small not to bring problems when calculating the variance of *CAR* and thereby in the calculation of the t-statistics. Here, L_1 is the length of the estimation window, $\widehat{\mu_m}$ is the average market return in the estimation window, $\widehat{\sigma_m}$ is the standard deviation of the market return in the estimation window and $R_{m\tau}$ is the market return in the event window.

2.2 SUB-SAMPLE TESTS

We split the country indices into sub-indices depending on the size of the firms in the indices; small-cap, mid-cap and large-cap. We use the definition of these indices from the MSCI, which takes into account market capitalization and free-float adjustments (MSCI, 2011e). As we focus on the small-cap indices, we will perform tests on sub-samples regarding the political outcome of the elections for these indices (we will split the sample according to left-wing, right-wing or centre government outcome and non-majority or majority government outcome). Furthermore, we will also perform tests on mid-cap, large-cap and on the entire sample including indices with stocks of all market capitalizations.

3. DATA

The study will be based on a sample of European stock indices using the MSCI as source. The MSCI is a widely used provider of products and services to institutional investors and the MSCI indices where launched over 40 years ago (MSCI, 2011a). The data is collected from Datastream, which is a reliable secondary source.

We will use the daily closing prices of the indices, with an estimation window of 120 days (80 and 160 days in the robustness checks) and an event window of five days (other lengths are tested in the robustness checks).

3.1 DATA SELECTION

3.1.1 MSCI Country Indices

The 16 countries we have selected to use in this study are the countries that are defined as developed markets countries in Europe according to the classification made by MSCI. These countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the UK. Together these indices include more than 2,600 stocks across small, mid and large capitalizations (MSCI, 2011b).

We consider the parliamentary elections between 1999 and 2011, which means that we investigate three elections from each country, with an exception for France where we consider the latest two elections. Here, when going back three elections in time, there are no available data on the MSCI France Indices.

The MSCI country indices include every listed security in the specific market. The securities are free-float adjusted; hence the stocks included are weighted by the total value of shares that are available to trade, e.g. excluding shares that are held by strategic shareholders. MSCI also consider minimum size, liquidity and length of trading requirements. Once the investable securities for a market are defined, they are then segmented into size-based indices with target ranges (MSCI, 2011c).

3.1.2 MSCI Size Indices

In this study, we will focus on investigating the small-cap indices in each country as we expect to find negative abnormal returns when considering the more liquid small-cap stocks. Though, after considering the small-cap indices, we will also perform tests on mid-cap, large-cap and on the entire sample including indices with stocks of all market capitalizations. The different size indices we will look at are thus the following:

The MSCI Small Cap Indices cover all investable small-cap securities with a market capitalization below that of the companies in the MSCI Standard Indices, and target approximately 14% of each market's free-float adjusted market capitalization.

The MSCI Mid Cap Indices cover all investable mid-cap securities and target approximately 15% of each market's free-float adjusted market capitalization.

The MSCI Large Cap Indices target a coverage range of around 70% of each market's free-float adjusted market capitalization (MSCI, 2011d).

Together, the relevant MSCI Large Cap, MSCI Mid Cap and MSCI Small Cap Indices make up the MSCI Investable Market Index for each country (MSCI, 2011e).

3.1.3 The Benchmark Index

We choose to use the MSCI World Index as benchmark index in the market model. This index is free-float adjusted, market capitalization weighted and is designed to measure the stock market performance of developed markets in 24 countries. The countries included are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States (MSCI, 2011f).

4. PREVIOUS RESEARCH

In this section we will present the overall conclusions from previous research on the subject of this thesis. We will go through the impact of parliamentary politics on stock returns, we will continue with research on small-cap firms and then go into the previous findings on how political uncertainty and investor risk aversion impact stock market returns.

4.1 PARLIAMENTARY POLITICS' IMPACT ON STOCK MARKET RETURNS

The search for abnormal returns has driven the research and is the reason behind the curiosity of understanding how stock markets are influenced by various events. One specific subject that has been given a lot of attention, especially in the US but also internationally, is the political cycle in general and the parliamentary elections in particular. This thesis investigates if political events can create market uncertainty that impact investor risk aversion and thereby significantly impact small-cap stock market returns negatively in the short run. Market reactions are however likely to be built on previous experience and knowledge, which is why we now will investigate what previous studies have found regarding how firms perform during different types of governments.

It seems that the majority of authors of previous studies on this subject find some link between politics and the market performance. The common view is that stock markets perform better during right-leaning governments. Hudson, Keasey and Dempsey (1998) analysed the UK stock market over the post-war period and found that it reacts both on polls prior to the election as well as on the election results. Regarding the short-term share prices the authors found evidence that there is a clear preference for a Tory government, e.g. a right-wing government. Though, when investigating whole government terms, they did not find any statistically significant results of the share prices being higher for the Tory governments.

The findings of Booth and Booth (2003) support the theory of a political business cycle, since they found a pattern in both large-cap and small-cap stock returns in the US, depending on the presidential cycle. Moreover, they found that fixed-income securities, which are highly dependent on the government's monetary policy and the national bank's price of the risk-free rate, had significantly higher returns under conservative governments.

On the other hand, in the New Zealand stock market Cahan et al (2005) found returns (without considering differences in firm size) to be lower on ruling terms of the left-wing Labour Party. Though, the authors suggest that it is hard to transfer conclusions between countries, even though the countries might have similar party structure and political composition.

4.1.1 Small-cap Firms

There are several researchers that have found that small-cap stocks are more sensitive to events with economic impact. In their paper from 2003, Booth and Booth made significant findings on excess returns from small-cap stocks being significantly higher under left-leaning Democratic presidents in the US. These findings were in line with the findings of Hensel and Ziemba (1995) who confirmed this effect on small-cap firms, while the large-cap firms had statistically identical returns during both Democratic and Republican administrations. Hensel and Ziemba suggest this could be due to that less conservative governments might have a stronger focus on helping smaller businesses. In addition, Santa-Clara and Valkanov (2003) also found that smaller companies in the US show larger excess returns under a less conservative government. Though, they found this effect for larger companies as well, but not as big as for the smaller firms. In contrast, Füss & Bechtel (2006) discovered that German small-cap firms performed better under right-leaning governments and worse under left-leaning governments. Dixon et al (2006) found that small businesses in the US often get special treatment in the policy making process, thus political regulations impact small-cap firms differently than large-cap businesses. Moreover, the cost of adapting to government regulations is considerably higher per employee for smaller firms than for larger firms according to an American study from 2010 by Crain and Crain. These findings are supported in a paper by ACCA (2005) concluding that, due to regulatory reasons, UK small-cap firms carry a heavier cost burden than larger firms when it comes to regulatory changes.

4.2 MINORITY GOVERNMENTS

Minority governments are common in many democracies. Many previous studies show a positive correlation between the level of parliamentary instability and the occurrence of minority governments (Strom, 1990). Blais, Blake and Dion (1993) found that there is a link between which parties a government consists of and the government spending. They also identified two types of effects caused by minority governments:

1. *Minority governments spend more than majority governments.*

   The authors partly explain this effect by increases in public spending which increases due to minority government having to try to agree with other parties.

2. *Differences between parties tend to decrease under minority governments.*

   This is explained by the minority governments not controlling the decision-making process fully and may therefore be prevented to execute their ideologies.

Hence, even though minority governments seem to spend more than majority governments, it does not seem to matter what kind of party is ruling (Blais, Blake and Dion, 1993).

4.3 VOLATILITY

Boutchkova et al (2007) investigated how politics affect stock market volatility. They found that when the democratic system is weak the volatility increases for stocks in industries that are sensitive to governance. Moreover, when there is uncertainty about future government policies, stock market volatility tend to increase. This rise in volatility is caused by increases in systematic risk rather than firm-specific risk. In a paper 2006, Bialkowski, Gottschalk and Wisniewski investigated 27 OECD countries and found that stock market volatility increases around national elections. The week around the election day, the country specific stock market volatility increases significantly, which indicates that investors tend to be surprised by election outcomes. They also identified a couple of factors that significantly contribute to the severity of the election shock. They find an increased volatility when there has been a small margin of victory, a change in political orientation of the government or when a coalition government, not having a majority of the seats, is formed. Veronesi (2002) found that in an environment of high uncertainty, investors tend to be more responsive to news, and hence the investors also expect stock markets to be more volatile which self-fulfillingly can give a more volatile stock market. The increased volatility makes investors demand a higher return for holding the more volatile stocks, hence prices on these stocks are lower in uncertain times. Small-cap stocks are often more volatile and less liquid than stocks of larger companies. They can therefore be more risky compared to the larger ones (Goldman Sachs, 2011). In uncertain times, investors tend to avoid small-cap stocks since larger stocks are seen as safer and also pay dividends (Hodges, 2011).

4.4 POLITICAL UNCERTAINTY AND INVESTOR RISK AVERSION

Several studies have been made with the aim to investigate the impact of changes in the political landscape on economies and stock market returns. One can see two main orientations on these types of studies; one looking for a correlation between the market and the political cycle, and the other one investigating the market reactions in direct connection with an election event. The latter orientation is the focus of this study. Following the methodology for an event study, we know that we need to have uncertainty regarding the outcome of the election in advance. Uncertainty about the election outcome can create further uncertainty in the fiscal policy stance (Morgan Stanley, 2010). For example, in connection with the most recent Swedish election, investment advisors feared that there would be uncertainty regarding the constitution of the coalition parties. This could negatively impact share prices as the uncertainty of the situation might make investors anxious (Dagens Industri, 2010). Moreover, the following is a statement made by a fund manager, before the most recent parliamentary election in the UK:

> *"Stock markets dislike uncertainty, and there is nervousness surrounding the UK economy due to the possibility of a hung parliament and the lack of fiscal clarity this entails, the likelihood of rising public sector unemployment - something that would hit consumer sensitive stocks particularly hard - inflationary trends, and mixed signals from the housing market."*
>
> *David Clark, Fund Manager, UK, 2010*

Political uncertainty has also been an issue of importance in previous research. In a study by Bernhard and Leblang (1999) the authors argued that political uncertainty is significant in explaining forward rate bias. They found that elections that generate uncertainty about the future government constellation and its commitment to the exchange rate could cause an increase in forward rate bias. They investigated 49 different elections in eight countries in Europe, North America and Asia between 1974 and 1994. Doukas, Chansog and Pantzalis (2011) found that mispricing of stocks tend to occur when there is high information uncertainty in the market and that this increases risk aversion of investors.

The Efficient Market Hypothesis (EMH) has been analysed several times, but Brown, Harlow, and Tinic (1988) also discussed an Uncertain Information Hypothesis (UIH) which is a further development of the EMH. What UIH does is to show how risk averse investors behave when new vital information is gained. The authors stated that these investors often let their expectations set stock prices before the full implications of a dramatic financial event are known. Moreover, the authors found that following an announcement of a dramatic financial event, the risk of the associated companies increase, and they also concluded that prices react more strongly to negative news than to positive news. Furthermore, the authors suggested that asset prices rise as uncertainty is resolved. Ortega and Tornero (2009) found support for this suggestion and propose that the negative return seen on the first trading day following an election could be interpreted as the market's need of time to assess the elections' impact following the vote count and the coming change in policies.

The theory of what actual effect an election have on stock market returns can be divided into two parts; one short-term arbitrary opportunity (due to irrational decisions associated with expectations of the outcome of the election) and one long-term effect. Bialkowski, Gottschalk and Wisniewski (2006) found, contrary to previous presented research, that investors were shocked by the outcome of an election even if the outcome was fairly certain before. This gave arbitrage opportunities around the election date. However, Jacobsen (1999) argued that these irrational investment decisions are insignificant. Additionally, Jacobsen found that this effect is often less than 1% of total returns and that any arbitrary opportunity that is presented will be used and eliminated by rational investors, causing it only to exist in the short run.

As we have seen, there is no evident consensus how parliamentary elections impact short-term stock returns. Moreover, the research made on a large sample of countries in Europe is very limited. Therefore, we believe that this thesis contribute to bring clarity to this complex subject.

5. EMPIRICAL FINDINGS

Summary over Empirical Findings

Related Hypothesis	Significans	Capitalization	Government Outcome	Estimation Window	Event Window	T-statistic J_1	T-statistic J_2	Average CAR	Average daily price	Paired t test t-statistic	W sign prob. [Neg > Pos]	W sign-rank prob.	W sign-rank t-statistic
H_0	Yes (5%)	Small-cap		80 days	5 days, (-1,3)	-1.99	-1.97	-0.00626	-0.125%	-1.85	99%	96%	-2.01
H_0	Yes (5%)	Small-cap		120 days	5 days, (-1,3)	-1.98	-1.96	-0.00629	-0.126%	-1.86	97%	95%	-1.97
H_0	Yes (5%)	Small-cap		160 days	5 days, (-1,3)	-2.02	-2.01	-0.00639	-0.128%	-1.88	98%	96%	-2.06
H_{01}	No	Small-cap	Right-wing	120 days	5 days, (-1,3)	-0.90	-0.89						
H_{02}	No	Small-cap	Left-wing	120 days	5 days, (-1,3)	-0.83	-0.83						
H_{03}	Yes (10%)	Small-cap	Centre	120 days	5 days, (-1,3)	-1.77	-1.76	-0.01434	-0.287%	-2.29	87%	97%	-2.20
H_{04}	Yes (5%)	Small-cap	Non-majority	120 days	5 days, (-1,3)	-1.96	-1.95	-0.00676	-0.135%	-1.71	95%	90%	-1.66
H_{05}	No	Small-cap	Majority	120 days	5 days, (-1,3)	-1.15	-1.14						
H_0	Yes (10%)	Small-cap		120 days	1 day, (0,0)	-1.78	-1.76	-0.00253	-0.253%	-1.54	88%	86%	-1.46
H_0	Yes (5%)	Small-cap		120 days	2 days, (-1,0)	-2.07	-2.05	-0.00416	-0.208%	-1.80	96%	93%	-1.83
H_0	Yes (10%)	Small-cap		120 days	3 days, (-2,0)	-1.82	-1.81	-0.00449	-0.150%	-1.77	95%	92%	-1.77
H_0	Yes (10%)	Small-cap		120 days	5 days, (-4,0)	-1.70	-1.68	-0.00540	-0.108%	-1.74	94%	88%	-1.55
H_0	No	Small-cap		120 days	7 days, (-1,5)	0.082	0.081						
H_0	No	Small-cap		120 days	10 days, (-1,8)	-1.25	-1.24						
H_{06}	No	Mid-cap		120 days	5 days, (-1,3)	-1.25	-1.24						
H_{07}	No	Large-cap		120 days	5 days, (-1,3)	-1.18	-1.17						
H_{08}	No	All Capitalizations		120 days	5 days, (-1,3)	-1.40	-1.39						

Figure 2- Summary over Empirical Findings

In *Figure 2* we summarize all the empirical finding that will be presented in this section. More detailed information about our empirical findings can be found in *10. Appendix.*

5.1 SMALL-CAP WITH DIFFERENT ESTIMATION WINDOWS

Firstly, we test the small-cap sample including all the 47 European parliamentary elections in order to see if investor risk aversion impact stock returns the days around the elections. In this first test we benchmark each individual country's small-cap stock market index against the MSCI World index, in order to estimate the abnormal returns. The stock market index for each country in this test is thus represented by the 16 different MSCI country's small-cap indices. Firstly, we consider the entire small-cap indices and perform robustness checks by looking at three different estimation windows.

5.1.1 Estimation Window of 80 Days

In order to reject our main null hypothesis H_0 we perform the tests J_1 and J_2 according to the formulas described in section *2.1.4 T-statistics*. When we perform the test on the small-cap stocks, benchmarking against the MSCI World index and use an estimation window of 80 days, we get significance on a five percent significance level with a J_1 and a J_2 of -1.99 and -1.97 respectively (*Table 1* in section *10. Appendix*). Thus, when we use an estimation window of 80 days we can indeed reject our main null hypothesis H_0.

As seen in *Table 1*, the average price impact in the event window when we test on small-cap is -0.63 percent ($\overline{CAR}$ = -0.00626097). This implies that the average daily price impact during the event window when using an estimation window of 80 days is approximately -0.125 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.29048756. By looking at *Graph 1* in *10. Appendix* we note that the $\overline{CAR}$ for the event window is clearly negative and below zero during the entire event window.

To check the validity our results we perform additional tests, a difference in means test and two non-parametrical Wilcoxon tests. The difference in means test gives us a t-statistics of -1.85, which implies that the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s on a ten percent significance level (*Table 1* in *10. Appendix*). The Wilcoxon sign test (*Table 2* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 3* in *10. Appendix*) showed one-sided p-values of 99.1 percent and 95.5 percent respectively. The Wilcoxon sign-rank test further confirms significance on a five percent level with a z-test of -2.01. These non-parametric tests support our previous findings that the $\overline{CAR}$ for the entire sample is negative.

5.1.2 Estimation Window of 120 Days

When performing the same tests as in 5.1.1 but instead using our standard estimation window of 120 days (and our standard event window of five days), we get the t-statistics J_1 = -1.98 and J_2 = -1.96 (*Table 4* in *10. Appendix*). Thus, the results are significant on a five percent level and we can thereby reject our main null hypothesis H_0 also when we use an estimation window of 120 days.

According to *Graph 2* in section *10. Appendix*, there is a negative cumulative average abnormal return through the entire event window. The average price impact is -0.63 percent ($\overline{CAR}$ = -0.0062886). This represents an average daily price impact during the event window of approximately -0.126 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.28889373.

The difference in means test (*Table 4* in *10. Appendix*) further supports our findings, with a t-statistic of -1.86, which implies significance on a ten percent level. This implies that the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s on a ten percent significance level. Furthermore, the Wilcoxon sign (*Table 5* in *10. Appendix*) and the

Wilcoxon sign-rank tests (*Table 6* in *10. Appendix*) give us one-sided p-values of 97.5 percent and 95.1 percent. The z-test of the Wilcoxon sign-rank test further validate significance on a five percent level (z-test = -1.97).

As this is our standard estimation window consisting of 120 days, we also want to take a closer look at the regressions we perform of each country's small-cap stock market index over the MSCI World Index. We look at the regressions for the 47 estimation windows, each consisting of 120 days. We can see that the MSCI World Index significantly explain each of the 47 small-cap indices on a five percent level (except for the last estimation window in Portugal, where the significance level is ten percent). Moreover, the values of the R^2 ranges from 2.95 percent to 55.91 percent with an average value of 28.44 percent (see *Table 37*).

5.1.3 Estimation Window of 160 Days

When using the small-cap indices and an estimation window of 160 days, we find significant cumulative average abnormal return on a five percent significance level. As seen in *Table 7* in *10. Appendix*, the t-statistics J_1 and J_2 are -2.02 and -2.01 respectively. Therefore, we can reject our main null hypothesis H_0, even when we use a larger estimation window of 160 days. According to *Graph 3*, the cumulative average abnormal return is clearly negative through the whole event window. The cumulative average abnormal return ($\overline{CAR}$) is -0.00639235 and thus the approximate average price impact is -0.64 percent. This implies that the average daily price impact during the event window when using an estimation window of 160 days is approximately -0.128 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.29446226 (see *Table 7* in *10. Appendix*).

When comparing the mean of the positive abnormal returns with the mean of the absolute value of the negative abnormal returns in the difference in means test, we get a t-statistic of -1.88 (*Table 7* in *10. Appendix*). In consequence, on a ten percent significance level, the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s.

Moreover, the Wilcoxon sign test (*Table 8* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 9* in *10. Appendix*) result in one-sided p-values of 98.2 percent and 96.1 percent respectively. The z-test (-2.06) of the Wilcoxon sign-rank test further confirms significance on a five percent level.

5.2 SMALL-CAP WITH DIFFERENT GOVERNMENT OUTCOMES

We also investigate if abnormal returns differ depending on a couple of factors that characterize each election. These factors includes what type of government that won the election (i.e. left-wing, right-wing or centre government) and if the election resulted in a majority government or a non-majority government.

5.2.1 Right-wing Government

When we perform the test on the small-cap stocks, benchmarking against the MSCI World index, but only including the 27 elections that led to a right-wing government we found no significant abnormal return on a ten percent significance level (*Table 36* in *10. Appendix* shows the countries and the election dates for these 27 right-wing government elections). The average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event period are shown in *Graph 4* in section *10. Appendix*. The standardized cumulative average abnormal return ($\overline{SCAR}$ = -0.17668964) and the cumulative average abnormal return ($\overline{CAR}$ = -0.00343461) can be seen in *Table 10* in section *10. Appendix*. Though, as none of the t-statistics J_1 (-0.90) and J_2 (-0.89) are significant on a ten percent level we cannot reject our first election outcome-dependent null hypothesis H_{01} (*Table 13*).

5.2.2 Left-wing Government

When only testing for the 15 elections that had a left-wing government outcome we get t-statistics of J_1 = -0.84 and J_2 = -0.83 (*Table 11* in section *10. Appendix*). This shows that we get no significance on a ten percent significance level. Thus we cannot reject our second outcome dependent null hypothesis H_{02} (*Table 36* in *10. Appendix* shows the countries and election dates for these 15 left-wing government elections).

The cumulative average abnormal return ($\overline{CAR}$ = -0.00572415) and the standardized cumulative average abnormal return ($\overline{SCAR}$ = -0.21632585) are shown in *Table 11* in section *10. Appendix*. The average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event period are shown in *Graph 5* in section *10. Appendix.*

5.2.3 Centre Government

When we test only for the five elections that had a centre government outcome we find significant negative abnormal returns on a ten percent significance level (*Table 36* in *10. Appendix* shows the countries and election dates for these 5 centre government elections). The t-statistics J_1 and J_2, are -1.77 and -1.76 respectively (*Table 12* in *10. Appendix*). This shows that we can reject our third outcome dependent null hypothesis, H_{03}, on a ten percent significance level.

As seen in *Graph 6* in the section *10. Appendix*, there is a negative cumulative average abnormal return through the entire event window. The cumulative average abnormal return ($\overline{CAR}$) over the event window is -0.01434005 and thus the average price impact over this five days event window is approximately -1.43 percent. Hence, the average daily price impact is approximately -0.287 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.88620335 (*Table 12* in *10. Appendix*).

The difference in means test (*Table 12* in *10. Appendix*), shows a t-statistic of -2.29, implying that the mean of the absolute value of the negative $\overline{AR}$s is higher than the mean of the positive $\overline{AR}$s on a five percent significance level. Additionally, the Wilcoxon sign test (*Table 13* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 14* in *10. Appendix*) result in one-sided p-values of 86.8 percent and 97.2 percent respectively. The z-test (-2.20) of the Wilcoxon sign-rank test confirms significance on a five percent level.

5.2.4 Non-majority Government

We then consider which governmental elections that resulted in majority governments and which elections resulted in non-majority governments. The non-majority governments in this study are represented by the elections where no party got an own majority and can thus consist of a minority government or a coalition government with majority. 38 out of our 47 elections had a non-majority government outcome (*Table 36* in *10. Appendix*). *Table 15*, shows the t-statistics J_1 = -1.96 and J_2 = -1.95 and thus when looking at J_1 we can conclude that this test is significant on a five percent level and we can reject our fourth outcome dependent null hypothesis H_{04}.

The average price impact in the event window when we consider the non-majority government outcomes is -0.68 percent ($\overline{CAR}$ = -0.00675603). This means that there is an average daily price impact during the event window when focusing on non-majority governments of approximately

-0.135 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.32268971 (*Table 15* in *10. Appendix*). By looking at *Graph 7* in *10. Appendix* we note that the $\overline{CAR}$ is clearly negative during the whole event window.

The difference in means test (*Table 15* in *10. Appendix*) further supports our findings, with a t-statistic of -1.71, which implies significance on a ten percent level. Thus, the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s.

Furthermore, the Wilcoxon sign test (*Table 16* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 27* in *10. Appendix*) result in one-sided p-values of 94.7 percent and 90.3 percent. The z-test of the one-sided Wilcoxon sign-rank test confirms significance on a ten percent level (-1.66).

5.2.5 Majority Government

When we consider only the nine elections with a majority outcome, the t-statistics J_1 = -1.15 and J_2 = -1.14 (*Table 18* in *10. Appendix*) show no significant abnormal returns even on a ten percent level. Thus, we cannot reject our fifth outcome dependent null hypothesis, H_{05}. *Table 36* in *10. Appendix* shows which these nine majority outcome elections are.

The average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event period are shown in *Graph 8* in section *10. Appendix.* The cumulative average abnormal return ($\overline{CAR}$ = -0.00830047) and the standardized cumulative average abnormal return ($\overline{SCAR}$ = -0.38345364) are shown in *Table 18* in section *10. Appendix*.

5.3 SMALL-CAP WITH DIFFERENT EVENT WINDOWS

5.3.1 Event Window: Only the Event Date (0,0)

When performing the test on the small-cap stocks, benchmarking against the MSCI World index and using an event window consisting of only the event date, we get significance on a ten percent level with a J_1 and a J_2 of -1.78 and 1.76 respectively (*Table 19* in *10. Appendix*). Consequently, we can reject our main null hypothesis H_0 on a ten percent significance level.

According to *Table 19*, the average price impact in the event is -0.25 percent ($\overline{CAR}$ = -0.00253042). The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.25918576. This implies that the average daily price impact when using an event window consisting of only the event date itself is approximately -0.253 percent.

When performing the difference in means test, we get a t-statistic of -1.54 (*Table 19* in *10. Appendix*). In consequence, this test does *not* support that the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s, even on a ten percent significance level.

Moreover, the Wilcoxon sign test (*Table 20* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 21* in *10. Appendix*) result in one-sided p-values of 87.9 percent and 85.6 percent respectively. The z-test (-1.46) of the Wilcoxon sign-rank test cannot confirm any significance even on a ten percent level.

5.3.2 Event Window: the Event Date and the Day Before (-1,0)

When we perform the same test as in 5.1.2 but instead using an event window consisting of only the event date and the day before we get t-statistics of J_1 = -2.07 and J_2 = -2.05 (Table *22* in *10. Appendix*). Thus, we get significance on a five percent level and we can thereby reject our main null hypothesis H_0 also when we use this event window.

According to *Graph 9* in section *10. Appendix*, there is a negative cumulative average abnormal return through the entire event window. The average price impact is -0.42 percent ($\overline{CAR}$ = -0.00415719). This corresponds to an average daily price impact of approximately -0.208 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.30196357. The difference in means test (*Table 22* in *10. Appendix*) further supports our findings, with a t-statistic of -1.80 implying significance on a ten percent level. Thus, the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s.

Additionally, the Wilcoxon sign test (*Table 23* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 24* in *10. Appendix*) result in p-values of 96.1 percent and 93.2 percent respectively. The Wilcoxon sign-rank test confirms significance on a ten percent level (z = -1.83).

5.3.3 Event Window: the Event Date and Two Days Before (-2,0)

We find significant cumulative average abnormal return on a ten percent level when using the small-cap indices and an event window consisting of the event date and two days before the event date. As seen in *Table 25* in *10. Appendix* the t-statistics J_1 and J_2 are -1.82 and -1.81 respectively. Therefore, with this event window we can reject our main null hypothesis, H_0, on a ten percent significance level. The cumulative average abnormal return ($\overline{CAR}$), is -0.0044855 and thus the approximate average price impact over the event window is -0.45 percent. According to *Graph 10*, $\overline{CAR}$ is clearly negative through the whole event window. This implies that the average daily price impact is approximately -0.150 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.26560754 (*Table 25* in *10. Appendix*).

When performing the difference in means test, we get a t-statistic of -1.77 (*Table 25* in *10. Appendix*). Consequently, the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s, on a ten percent significance level.

Furthermore, the Wilcoxon sign test (*Table 26* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 27* in *10. Appendix*) result in one-sided p-values of 95.4 percent and 92.3 percent respectively. The z-test (-1.77) of the Wilcoxon sign-rank test confirms significance on a ten percent level.

5.3.4 Event Window: the Event Date and Four Days Before (-4,0)

When we increase the number of days in the event window before the election and use an event window consisting of the event date and four days before the event date, we get significance on a ten percent level with a J_1 and a J_2 of -1.70 and -1.68 respectively (*Table 28* in section *10. Appendix*). As a result, when using this event window we can reject our main null hypothesis H_0 on a ten percent significance level.

According to *Table 28*, the average price impact when we test on small-cap in this event window is -0.54 percent ($\overline{CAR}$ = -0.00539606)**.** This means that the average daily price impact is around 0.108 percent. The standardized cumulative average abnormal return ($\overline{SCAR}$) is -0.24727051. *Graph 11* in section *10. Appendix* shows the average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event window. The difference in means test (*Table 28*) results in a t-statistic of -1.74 implying significance on a ten percent level. Thus, the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s.

The Wilcoxon sign test (*Table 29* in *10. Appendix*) and the Wilcoxon sign-rank test (*Table 30* in *10. Appendix*) give us one-sided p-values of 94.2 percent and 87.9 percent. Though, the z-test (-1.55) of the Wilcoxon sign-rank test cannot confirm any significance even on a ten percent level.

5.3.5 Event Window: One Day before the Event Date and Five Days After (-1,+5)

When considering an event window including one day before the event date and as far as five days after the event date, we get a J_1 = 0.082 and a J_2 = 0.081 (*Table 31* in section *10. Appendix*). Consequently, we get no significance on a ten percent level. Thus, we cannot reject our main null hypothesis, H_0, for this event window.

The cumulative average abnormal return ($\overline{CAR}$ = 0.00030795) and the standardized cumulative average abnormal return ($\overline{SCAR}$ = 0.01195637) are shown in *Table 31* in section *10. Appendix*. The average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event period are shown in *Graph 12* in section *10. Appendix.*

5.3.6 Event Window: One Day before the Event Date and Eight Days After (-1,+8)

If we increase the event window even further ahead and use an event window including one day before the event date and 8 days after the event date, we get no significance on a ten percent level (J_1 = 1.2471229 and a J_2 = 1.2365085, see *Table 32* in section *10. Appendix*). As a result, we cannot reject our main null hypothesis, H_0.

Graph 13 in section *10. Appendix* shows the average abnormal returns ($\overline{AR}$) and the cumulative average abnormal returns ($\overline{CAR}$) over the event window. The cumulative average abnormal return ($\overline{CAR}$ = -0.00560004) and the standardized cumulative average abnormal return ($\overline{SCAR}$ = -0.18191151) are shown in *Table 32* in section *10. Appendix*.

5.4 MID-CAP

When performing a test on the mid-cap indices we cannot test for the Austrian parliamentary election the 24th of November 2002, as there is no MSCI Mid Cap index available for the period around this election. When we investigate the MSCI Mid Cap indices and use an estimation window of 120 days and an event window five days we get t-statistics of J_1 = -1.25 and J_2 = -1.24 (*Table 33* in *10. Appendix*). The average abnormal return ($\overline{AR}$) and the cumulative average abnormal return

($\overline{CAR}$) can be seen in *Graph 14*. Though, as none of the t-statistics are significant on a ten percent level we cannot reject our null hypothesis when considering mid-cap stock indices, H_{06}.

5.5 LARGE-CAP

Then we consider the large-cap stock indices, i.e. the MSCI Large Cap indices for the 45 European countries. Here we can neither test for Austria during the parliamentary election the 24th of November 2002, nor for Greece around the parliamentary election the 7th of March 2004 as there are no MSCI Large Cap indices available for the periods around these parliamentary elections. Similar to the test including mid-cap stock indices we here use our standard estimation window of 120 days and our standard event window of five days.

The average abnormal return ($\overline{AR}$) and the cumulative average abnormal return ($\overline{CAR}$) when testing for the large-cap indices are shown in *Graph 15* in *10. Appendix*. As none of the t-statistics J_1 (-1.18) and J_2 (-1.17) are significant on a ten percent level we cannot reject our null hypothesis considering large-cap stock indices, H_{07} (see *Table 34* for these t-statistics).

5.6 STOCKS OF ALL CAPITALIZATIONS

Finally, we consider all capitalizations and thus we benchmark each individual country's entire stock market index against the MSCI World index. We calculate the average abnormal return ($\overline{AR}$) and the cumulative average abnormal return ($\overline{CAR}$), shown in *Graph 16* in section *10. Appendix*. In order to reject our null hypothesis considering all capitalizations, H_{08}, we perform the tests J_1 and J_2. Neither J_1 nor J_2 show any significant results on a ten percent level as they are -1.40 and -1.39 respectively (*Table 35* in *10. Appendix*). Hence, we cannot reject our null hypothesis considering all capitalizations, H_{08}.

5.7 ESTIMATION ERROR

After the above tests we want to make sure that we do not have too large estimation errors when calculating the variance of the abnormal returns. We program the estimation error according to the formula in *2.1.7 Estimation Error* and compare it to the "real" disturbances, $\sigma^2_{\epsilon,i}$, which are used to calculate the variance of *CAR* and hence in the t-statistics. According to this calculation, the estimation error amounts to 2.01 percent of these "real" disturbances.

6. ANALYSIS

Parliamentary elections create uncertainty about future governmental constellation and policies. Some factors that contribute to an increased uncertainty and therefore also increased stock market volatility around the elections are when there has been a small margin of victory, a change in political orientation of the government or when a coalition government not having a majority of the seats is formed (Bialkowski, Gottschalk & Wisniewski, 2006). From our empirical findings we conclude that some of the analyzed subsamples show greater sensitivity to the uncertainty around parliamentary elections, while others show no significant reactions.

In the results discussed below, we use a standard estimation window of 120 days and a standard event window of five days. In the robustness checks we confirm the robustness of our significant findings by using three different lengths of the estimation windows and several different lengths of our event windows, see section *6.3 Confirming Robustness of Our Small-cap Findings*.

6.1 SMALL-CAP STOCK INDICES

Many previous studies show that small-cap stocks are more sensitive to events with economic impact than stocks with larger market capitalization.

Our main null hypothesis is:

> H_0: *There are no significant abnormal returns the days around the 47 parliamentary elections when investigating* ***small-cap stocks*** *in each country's stock market index.*

We can reject H_0 and hence find that there are negative cumulative abnormal returns for the sample consisting of small-cap firm indices. Our robustness checks as well as the additional tests indicate validity in these results (see *Table 1-9)*. This is in line with several previous studies, that small firms are sensitive to economic events.

Political uncertainty can impact investors and markets in several ways. For example, political uncertainty have generated forward rate bias in countries in Europe, Asia and in the US (Bernhard and Leblang, 1999). Moreover, Doukas, Chansog and Pantzalis (2011) found that mispricing of stocks tends to occur when there is high information uncertainty and that this will increase the risk aversion of investors which causes lower stock prices. Furthermore, as discussed by Clark (2010), investors dislike the uncertainty that parliamentary elections bring. Moreover, Ortega and Tornero (2009) found negative returns closely after elections and suggest that this could show that the market needs time to assess the elections' impact following the vote count and the coming change in policies. Our results suggest that this might be reflected into small-cap stocks' returns in the short run.

As Bialkowski, Gottschalk and Wisniewski (2006) showed, stock market volatility increases the days around a parliamentary election and investors can be shocked by the outcome of an election even if the outcome was fairly certain before. Moreover, Boutchkova et al (2007) also found that uncertainty about future government policies can increase stock market volatility. Hence, this increased volatility might be what we find as negative cumulative abnormal returns for small-cap firms the days around the elections, since investors in small-cap firms are particularly averse to volatility as stocks in these firms are less liquid (Goldman Sachs, 2011). As Veronesi (2002) found, an environment of high uncertainty makes investors more responsive to news, which makes stock markets more volatile. Since investors demand a higher return for holding more volatile stocks, prices on these stocks must be lower in uncertain times, which can explain the decrease we see in returns for the small-cap stocks around the elections. Moreover, in uncertain times, investors tend to avoid small-cap stocks since larger stocks are seen as safer and also pay dividends (Hodges, 2011), thus this can also help explaining the negative abnormal returns for small-cap indices, because of the uncertainty that can arise around an election. Thereto, Hensel and Ziemba (1995) found that small-cap firms where significantly impacted by the type of government while the larger firms were not. To conclude, the negative price reaction observed on small-cap firms can be seen as reasonable considering the discussion above.

The average price impact over the benchmark event window consisting of five days is -0.63 percent (when we use an estimation window of 80 and 120 days) and -0.64 percent (when we use an event window of 160 days). Hence, if you would have invested one million EUR in a small-cap index fund in one of the 16 European countries in our sample when there is a parliamentary election, you would on average lose approximately 6,300 EUR over the five trading-days around the election, or 1,250 EUR on average per day, which is not a very large loss. Notice that statistical significance is not the same as substantive significance. Even though our substantive significance is not very large, we can still have a reliable statistical significance. Therefore, even a small price impact can be statistically significant if we are confident that it reflects a real price impact in the population.

6.2 SMALL-CAP STOCK INDICES DEPENDING ON ELECTION OUTCOME

Here we investigate if abnormal returns differ depending on what type of government that has won (left-wing, right-wing or centre) and if the election resulted in a majority government or a non-majority government. We keep the focus on small-cap stock indices and test the five election outcome-dependent null hypotheses:

H_{01}: *There are no significant abnormal returns the days around the 27 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***right-wing governments****.*

H_{02}: *There are no significant abnormal returns the days around the 15 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***left-wing governments****.*

H_{03}: *There are no significant abnormal returns the days around the 5 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***centre governments****.*

H_{04}: *There are no significant abnormal returns the days around the 38 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***non-majority governments****.*

H_{05}*: There are no significant abnormal returns the days around the 9 parliamentary elections when investigating small-cap stocks in each country's stock market index, when the elections resulted in* ***majority governments.***

6.2.1 Elections with a Right-wing Outcome

We do not find significant cumulative abnormal returns when considering the small-cap stock market indices in the 27 elections with a right-wing government outcome. Though, there are several previous studies that conclude that one can see a link between types of governments and stock market performance, both in the short run and in the long run. Füss & Bechtel (2006) found that German small-cap firms performed better under right-leaning governments. Though, Booth and Booth (2003) found that small-cap stocks in the US had higher returns under left-leaning Democratic presidents. These findings were also confirmed by Hensel and Ziemba (1995) who suggest this could be explained by left-leaning governments having a stronger focus on helping smaller businesses. In all these three studies, the authors were investigating long-term stock market performance. We can see that there are different conclusions on different stock markets in the previous research on this matter. In this study we investigate many countries and one has to take into account that the political situation is unique in every country. For example, a right-wing government in Sweden might have a very different political agenda than a right-wing government in Austria. Moreover, we are investigating the short-term stock returns, and this could explain why our findings are not in line with the ones in previous studies investigating long-term stock returns.

A study made on short-term stock returns by Hudson, Keasey and Dempsey (1998) analysed the UK stock market and found that the short-term share prices are higher the days around the election when the election had a right-wing government outcome. Though, this study was only made in the UK and is therefore hardly applicable for all the developed countries in Europe. In our study we find no such pattern, and can draw no conclusions about the impact of right-wing government politics on stock market returns in the short run.

Other possible explanations to the lack of significant findings in this sub-sample could be of econometric characteristics. In this sub-sample consisting of the elections with a right-wing outcome, the elections that give positive abnormal returns may make up a larger share of the total of the 27 elections than they do when we consider all the 47 elections. Hence, the previous seen effect with significant negative abnormal returns is not visible in this sample, even though we use a majority of the elections from the sample where we did find significant abnormal returns. Moreover, when we now use a smaller number of elections and this may imply a lower t-statistic by definition (see *2.1.4 T-statistics*).

6.2.2 Elections with a Left-wing Outcome

To a large extent, the discussion in the previous section is applicable to this section as well. Here we use a sub-sample of the 15 elections that had a left-wing government outcome and we do not find significant abnormal returns.

There are several previous studies that state that small-cap firms tend to react positively during left-wing governments. Booth and Booth (2003) found that small-cap stocks in the US had higher returns under left-leaning Democratic Presidents and Hensel and Ziemba (1995) and also Santa-Clara and Valkanov (2003) found that smaller companies in the US show larger excess returns under a less conservative government. In contrast, as mentioned above, Füss & Bechtel (2006) found that

German small-cap firms performed worse under left-leaning governments. Hence, it is not obvious which effect to expect when making a study across countries, since there is an apparent lack of consensus of the effect of governmental politics on stock returns, both in the long run and in the short run. In this study, we can conclude that we find no evident link between stock market performance and the political orientation of the stock markets in the short run, e.g. during the event window consisting of five days around the election.

Just as in the previous sub-sample, other possible explanations to the lack of significant findings could be of econometric characteristics. In this sub-sample we use an even smaller number of elections, which may imply a lower t-statistic by definition (see *2.1.4 T-statistics*).

To conclude, there seem to be different conclusions about how stock returns are impacted by government orientation in different countries under varying circumstances. This is also in line with the findings made by Cahan et al (2005). Hence, we believe that the political variation across countries makes it hard to draw conclusions about what impact a certain government type might have on stock markets in Europe in general. This could explain why we do not get significant results on these two sub-samples.

We also looked at when the elections resulted in a change in government, both to left-wing governments and to right-wing governments, but we saw no significant results and hence chose to exclude it from this study.

6.2.3 Elections with a Centre Outcome

We find significant negative cumulative abnormal returns when considering the small-cap stock market indices in the five elections (in Finland, Ireland and Norway, see *Table 36)* with a centre government outcome. The additional tests confirm these results (see *Table 12 - 14)*.

The average price impact over the event window is relatively large (-1.43%) in this sample compared to our significant findings on the whole sample of 47 elections (-0.63%). This is a daily price impact of -0.29% on average, compared to -0.13 % for the whole sample of 47 elections.

As stated by Clark (2010), investors dislike uncertainty, which leads to lower stock returns. When a centre government wins an election, this government often consists of a coalition government (as in the case with four out of our five elections in this sub-sample). We believe that this brings further uncertainty that can be a reason to why we find significant negative cumulative abnormal returns in this sample that are larger than in our previous significant findings.

Bialkowski, Gottschalk and Wisniewski (2006) found that investors were shocked by the outcome of an election even if the outcome was fairly certain before. We believe that in these centre-outcome elections, the results might not have been clear before the publications (as four out of five were coalition governments, see *Table 36*). There might even have been uncertainty remaining after the election outcome was published (about how to form the government etc.). This can further have caused uncertainty and anxiousness amongst the investors, which can explain our negative abnormal returns. This leads us into our next hypothesis testing about non-majority governments.

6.2.4 Elections with a Non-majority Outcome

As we find significant results in the sub-sample consisting of elections with a centre government outcome (where a large part were coalition governments), we realize it can be interesting to consider all elections that had a non-majority outcome.

Here, we find significant negative abnormal returns when considering the small-cap stock market indices in the 38 elections (see *Table 36)* with a non-majority outcome. The additional tests confirm these results (see *Table 15 - 17)*.

The average price impact over the event window is slightly bigger in this sample (-0.68%) compared to our significant findings on the whole sample of 47 elections (-0.63%). This is a daily price impact of -0.14 % on average, compared to -0.13% for the whole sample of 47 elections. The reason why we see a slightly bigger negative cumulative abnormal return when looking at this sample could be, once again, the increased uncertainty associated with minority governments. Though, the difference is very small.

As Strom (1990) states, there is a higher level of parliamentary instability under minority governments. This can probably explain the uncertainty felt by investors around these types of elections. Uncertainty about the election outcome can create further uncertainty in the fiscal policy stance (Morgan Stanley, 2010), which might lead to uncertainty in the market. One example of this was seen in connection with the most recent Swedish election, when investment advisors feared that there would be uncertainty regarding the constitution of the coalition parties (Dagens Industri, 2010). Our results suggest that share prices are impacted negatively by this kind of uncertainty.

Though, Blais, Blake and Dion (1993) found that government spending increased under minority governments, which could be seen positively by investors. Our research only captures the reaction a few days around the election; hence this effect might not be seen here. On the other hand, the second effect of minority governments found by Blais, Blake and Dion, that the difference between parties decreases under minority governments, could help explain the market uncertainty. This uncertainty might be caused by confusion about what political agenda the new government will adapt and could be one reason behind our negative abnormal returns.

As we saw above, the difference from the whole small-cap sample is small, but on the other hand we use the majority (38 out of 47) of the elections in the entire sample and hence it is not surprising that the results are similar. In fact, the elections with a non-majority outcome comprise over 80 percent of the entire sample. Hence, the effect we observe in the whole sample could, to a large extent, be explained by the effect from the non-majority elections.

6.2.5 Elections with a Majority Outcome

Now, we are interested in comparing our above results with the results from a sample where we use the nine out of the 47 elections that have had a majority outcome. We do not find significant abnormal returns in this sample.

Comparing these results to the results in the previous section, the difference could possibly be explained by the fact that there is less uncertainty in connection with these types of elections. Hence, investors might be less anxious, at least after the election outcome is known, which could be why we do not find significant negative cumulative abnormal returns.

Though, as discussed earlier, since this is a smaller sample, this may imply a lower t-statistic by definition (see *2.1.4 T-statistics*).

6.3 CONFIRMING ROBUSTNESS OF OUR SMALL-CAP FINDINGS

6.3.1 Length of the Estimation Window

To confirm the robustness of our significant results on the sample of 47 elections when using small-cap indices we use three different estimation windows consisting of 80, 120 and 160 trading days prior to the event window. Here we find that we can reject H_0 and that we get significant negative cumulative abnormal returns on a five percent significance level with all these three estimation windows and we can therefore conclude with more certainty that there are abnormal returns around the parliamentary elections when we test on a small-cap sample.

6.3.2 Length of the Event Window

Here we test the robustness in our results by controlling for different lengths of the event window. Through all these tests we use our standard estimation window of 120 days. Our standard event window consists of five trading days around the election date (-1, 3) as described in section *2.1.1 Event Definition.* We can see that when adding days in the event window *before* the election we find significant negative abnormal returns up to four days before the election (see *Table 22, 25 and 28)*. We believe that this indicates that there is uncertainty in the markets before the parliamentary elections and that this causes negative returns.

If we consider an event window of only one day, the event day, (e.g. the first trading day after the election results are published) we find the largest negative average daily abnormal return of -0.25% (see *Table 19*). Thus, if you would have invested one million EUR in a small-cap index fund in one of the 16 European countries in our sample when there was a parliamentary election, you would have a daily loss of approximately 2,500 EUR. This is twice the daily loss we found in our standard five-day event window (1,250 EUR on average per day). Though, when using this one day event window, the difference in means test does not support that the mean of the absolute value of the negative $\overline{AR}$s is significantly higher than the mean of the positive $\overline{AR}$s, even on a ten percent significance level.

When also including the day before the event date we get a negative average daily abnormal return of -0.21% (see *Table 22*). When we increase the event window to four days before the event date, the average daily abnormal return changes to -0.11%. Hence, we conclude that the highest impact on abnormal returns is found on the election date and on the day before. Therefore, we believe this reflects that the level of uncertainty in the stock market is highest during these two days. The Uncertain Information Hypothesis discussed by Brown, Harlow, and Tinic (1988) shows that investors often let their expectations set stock prices before the full implications of a dramatic financial event are known. Likewise, Hudson, Keasey and Dempsey (1998) find that the stock market reacts both on polls prior to the election as well as on the election results. This can further explain our significant negative results even several days before the event.

We also see that when adding more days than three to the event window after the elections, we do not find significant cumulative abnormal returns (see *Table 31* and *32).* We believe this implies that stock markets recover rapidly after the uncertainty around an election and that movements in returns go back to normal levels. This is in line with the Uncertain Information Hypothesis that suggests that asset prices rise as uncertainty is resolved (Brown, Harlow & Tinic, 1988). It is also in line with the findings of Jacobsen (1999) who suggested that the arbitrary opportunities around elections only exists in the short run.

6.4 MID-CAP AND LARGE-CAP INDICES

In the next step, we investigate if the abnormal returns are different depending on the size of the firms in each country's stock market index.

> H_{06}*: There are no significant abnormal returns the days around the 47 parliamentary elections, when investigating* ***mid-cap stocks*** *in each country's stock market index.*
>
> H_{07}*: There are no significant abnormal returns the days around the 47 parliamentary elections, when investigating* ***large-cap stocks*** *in each country's stock market index.*

We cannot reject any of the above hypotheses for mid-cap and large-cap stocks. Hence, out of the three firm size-dependent null hypotheses we can only reject H_0 where we find that there are negative cumulative abnormal returns for the sample consisting of small-cap firm indices. For mid-cap and large-cap stocks we find no significant effect and hence our findings suggest that stock returns of larger firms are insensitive to political uncertainty. This is in line with our previous beliefs, that the effect on firms with larger market capitalizations is limited. Dixon et al (2006) find that small businesses often get special treatment in the policy making process, thus political regulations impact US small-cap firms differently than US large-cap firms. Moreover, the cost of adapting to government regulations is considerably higher per employee for smaller firms than for larger firms (Crain & Crain, 2010). These findings are supported in a paper by ACCA (2005) that concludes that, due to regulatory reasons, UK small-cap firms carry a heavier cost burden than larger firms. Even though these studies not were conducted on European firms (except for firms in the UK), they could still provide possible explanations to why we observe a difference between small-cap firms and stocks of larger market capitalization in Europe.

6.5 ALL STOCKS IN EACH COUNTRY'S STOCK MARKET INDEX

When considering the entire stock market index in each country we do not find any significant cumulative abnormal returns.

> H_{08}: *There are no significant abnormal returns the days around the 47 parliamentary elections when including* ***all stocks*** *in each country's stock market index.*

Reasons for this lack of significant market reactions could be that the larger firms in each country's stock market are not sensitive to changes in government politics and hence even though we have a significant effect on smaller firms it cannot be seen when considering all firms.

There could also be reactions but with different signs on the abnormal returns in different elections, hence the positive reactions could set off the negative reactions when aggregating abnormal returns across the 47 events. Moreover, the previous research shows that there is no clear consensus of which market reaction to expect in general around governmental elections.

7. FURTHER DISCUSSION

7.1 METHODOLOGICAL ISSUES

An event study methodology can have several problematic parts which we will now take a closer look at. While writing this thesis we have discovered some areas where we find it necessary to further discuss underlying empirical issues and motivate our chosen approach. This is done in order to prove the credibility of our results, and clarify how the results might have been affected by the way we conducted this study.

7.1.1 Using indices

The securities included in the MSCI indices are free-float adjusted. This implies that we are able to better capture the effect on stocks that are available for trade, since these are the only ones where we can find an impact from such events as elections. This is a clear advantage of using indices. Moreover, by using indices, we are also able to reduce firm-specific noise and we are able to do cross-country analysis on a large sample of elections within the timeline of this thesis.

Though, since an index has a lower variance than the underlying stocks, this can potentially give a problem when calculating the variance of the abnormal returns. We discuss this further in section *7.2 Econometric Issues*.

We consider Datastream a reliable secondary source and we regard the MSCI a reliable data provider of equity indices, as it is well-established and broadly used.

7.1.2 Defining the Events

Knowing the exact date when the event occurred is important when performing an event study (MacKinlay, 1997). This condition is fulfilled as we know the exact date of each election. Furthermore, according to MacKinlay an event needs to be unexpected. The occurrence of a government election is always known, but the outcome of the election is not. However, in some elections the opinion polls prior to the election might have been giving a hint which party or coalition that would win. This violates the assumption of the event being entirely unexpected and the outcome could in that case already be reflected into stock prices in the indices. Though, in this study we have to assume that the election results were, to some extent, unexpected as it was difficult to define which election results were truly unexpected or not. Moreover, the majority of the election outcomes are coalition governments. Hence, it might have been hard to predict which parties that were going to form the government coalition, even if opinion polls pointed in a certain direction. Moreover, Bialkowski, Gottschalk and Wisniewski (2006) found that investors were shocked by the outcome of an election even if the outcome was fairly certain before.

7.1.3 Using Daily Returns

Another point necessary to highlight is how fast we believe information is incorporated into prices. We have chosen to use daily returns as we believe the change in market uncertainty before the elections or from the outcome of the elections can be incorporated into prices on a daily basis. A shorter interval would create difficulties regarding data accessibility and data handling. If we would use longer intervals we would not be able to capture the short-term effect around the event.

7.1.4 Horizon of the Event Study

As motivated in section *2. Methodology* we have chosen a short-horizon event study. Hence, we investigate how parliamentary elections impact short-term asset returns. If we would use a longer horizon we would instead see the true effect of the new governments and how their new policies impacted stock markets, but that is not what this paper aims to investigate. A study with a longer horizon can also be complicated since it is hard to isolate which effects that truly depend on the governmental politics.

7.1.5 Confounding Effects

When performing an event study a common assumption is that the effect of the event is isolated from the effects of other events. This is a crucial assumption in this methodology. The longer event window used, the more difficult it is to control for confounding effects. (McWilliams & Siegel, 1997). Since our event window is relatively short, we believe this problem is limited in our study, but we will still take it into consideration when drawing conclusions from our results.

7.1.6 The Market Model

We chose to use the market model as the method to calculate abnormal returns. This is the most popular method for event studies[7]. It can sometimes be hard to measure the "normal" returns, since these are the returns we would have gotten if the events had not occurred. Though, we consider the approximation (during the 120 trading days in our standard estimation windows) to be sufficiently reliable since we also do robustness checks with other lengths of the estimation window and still get the same outcome. As we do cross-country analysis over different stock markets and an event that impact normal returns in one market hence is relatively isolated from other markets, this helps assuring that we have been able to find the most accurate abnormal returns. Furthermore, we use events that are not overlapping in time. Thus, if there have been a large event impacting all stock markets in Europe, this would have a limited impact to only one or a few of the events in this study. In addition, we have the benefit of normalization when using returns instead of prices since we measure all variables in a comparable metric. Moreover, we use log returns which gives us several benefits compared to using simple returns, both theoretic and algorithmic (Bach, 2011).

We can conclude that we have performed an event study according to common practice. Though, we still need to take into account potential problems due to confounding effects, potential misspecification of normal returns, measurement errors in the variance or errors in the STATA code.

7.2 ECONOMETRIC ISSUES

There are several econometric problems to be considered when conducting an event study. These can be divided into two main categories. Firstly, the potential problem of misspecification of expected returns can cause incorrect interpretation and bias in the estimates of abnormal returns. Secondly, we have the potential problem of a non-random sample leading to non-normal distributions, which can cause incorrect analysis of the findings, due to incorrect calculations of the standard errors[8].

Since this is a short-term event study the problem of misspecification of expected returns is not as severe as in a long-term event study. This is due to the fact that the probability of expected returns

[7] Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

[8] Ibid.

changing over the event window is low, as it consists of only five days (Mitchell and Stafford, 1999). Furthermore, elections rarely take place during the same week in two European countries, unless a specific political issue leads to an unanticipated election. This reduces the probability of clustering. Moreover, in this study we know that none of the event windows are overlapping. The absence of any overlap implies that the abnormal returns and the cumulative abnormal returns will be independent across indices (MacKinlay, 1997). Moreover, the issue of clustering is more of a problem in long-term event studies (Mitchell and Stafford, 1999).

The common abnormal return detection methods tend to reject the null hypothesis of zero abnormal returns too often (Seiler, 2000). This can therefore lead to finding abnormal returns when in fact none is present. This implies that there is a need to perform further tests on our significant findings to validate the results. The difference in means test confirm that the mean of the absolute value of the negative abnormal returns is larger than the mean of our positive abnormal returns, for all our significant findings (except for when we have an event window consisting of only the first trading after the election). This helps to ensure the reliability of our results.

Since we chose the market model to specify returns, the residual test we use is a standard regression residual test. The residuals we obtain are the abnormal returns of each index. This method has some limitations as it does not consider the cross-correlation of residuals over time and since it does not take into consideration the possibility of event-induced variance (Seiler, 2000). Though, the non-parametric tests (the sign test and the sign-rank test described below) we use to confirm our significant findings are found to be less affected by event-induced variance (Ibid).

Under the null hypothesis that the events have no impact on the means or the variances of the returns, the distribution of the sample abnormal returns of the observations in the event window is normally distributed with $AR_{it} \sim N(0, \sigma^2(AR_{it}))$ (MacKinlay, 1997). The test statistics we use in this event study framework are based on these normality assumptions associated with large samples and hence, sample size is a concern. Since we have a relatively small sample (as we use indices instead of using all the underlying stocks) we fear that the assumption of normality in abnormal returns could be violated. Therefore, we have performed non-parametric tests, which can be useful since we cannot be certain that the assumption of normality is not violated. The sign test and the sign-rank test are commonly used in event studies to solve these kinds of issues (MacKinlay, 1997).

Moreover, test statistics used in event studies tend to be sensitive to outliers, especially in small samples. It is important to find out whether the results are driven by outliers, which can be done by using one of these non-parametric tests (McWilliams & Siegel, 1997). Otherwise, the interpretation of significance can be problematic. The reason we decided to use the Wilcoxon sign test and the Wilcoxon sign-rank test is that these tests together consider both the sign and the magnitude of abnormal returns.

To compensate for a small sample one can also use bootstrapping methods, which do not require normality assumptions (McWilliams & Siegel, 1997). Though, since we perform other nonparametric tests in this study, we consider the results fairly reliable.

There are several advantages of using *CARs* (cumulative abnormal returns) instead of for example *BHARs* (buy and hold abnormal returns). The potential problem of skewness in the data is not a severe problem when using *CARs* as it can be when using *BHARs* (MacKinlay, 1997). Moreover, also the issue of rebalancing bias is avoided when using *CARs*[9]. In addition, the issue of clustering is more of a problem when looking at *BHARs* than when using *CARs* (Mitchell and Stafford, 1999).

As described in section *2. Methodology* the testing framework we use is:

$$J_1 = t_{\overline{CAR}} = \frac{\overline{CAR}(\tau_1, \tau_2)}{Var(\overline{CAR}(\tau_1, \tau_2))^{1/2}} \sim N(0,1)$$

Here we use an estimator of the variance in the denominator, and hence the results are not exact. Moreover, since we use indices and these have lower variances than the underlying stocks, this can potentially give a problem when calculating the variance of the abnormal returns. When calculating the variance of the cumulative average abnormal returns we assume homoskedasticity. This might be a strong assumption, though, as we do a short-term event study, it is less likely that we have a heteroskedastic variance than if we had made a long-horizon study. In a short-term event study the problem of heteroskedasticity is lower, but not necessarily neglectable. Though, it is very complicated to control for this problem in a short-horizon study (Bach, 2011). At least, the calculation of the estimation errors in the variance of the *ARs* described below, indicates that the

---

[9] Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

problem on intertemporal correlation is limited, since the size of the estimation errors can be considered relatively small.

$$\sigma^2(AR_{i\tau}) = \underbrace{\sigma^2_{\epsilon,i}}_{\text{"Real" Disturbances}} + \underbrace{\frac{\sigma^2_{\epsilon,i}}{L_1}\left[1 + \frac{(R_{m\tau} - \widehat{\mu_m})^2}{\hat{\sigma}^2_m}\right]}_{\text{Estimation Error}}$$

Source: Salinger (1992)

Here, σ^2 $(AR_{i\tau})$ is the true variance of abnormal returns in our sample. The "real" disturbances, $\sigma^2_{\epsilon,i}$, is what we use to calculate the variance of *CAR*. By programming the estimation error in the formula and comparing it to these "real" disturbances we can ensure that it is sufficiently small not to bring problems when calculating the variance of *CAR* and thereby in the calculation of the t-statistics. The findings show us that the estimation errors are significantly smaller than the so-called "real" disturbances, hence our t-statistic can be considered reliable. The estimation error only amounts to 2.01 percent of the "real" disturbances.

For our standard estimation window consisting of 120 days we wanted to take a closer look at the R^2 of the regressions we perform of each country's small-cap stock market index over the MSCI World Index. We can see that the MSCI World Index significantly explain each of the 47 small-cap indices on a five percent level (except for the last estimation window in Portugal, where the significance level is ten percent). Furthermore, the values of the R^2 ranges from 2.95 percent to 55.91 percent with an average value of 28.44 percent (see *Table 37*). This tells us that the world index have a relatively large part in explaining the country index returns, but that there are much left to be explained by other factors. A high R^2 helps reducing the variance of abnormal returns, which increases the power to identify abnormal stock return performance[10].

[10] Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

8. CONCLUSION

To come back to the original intention of our study we will now state the conclusions we draw from our analysis. Following the purpose of this thesis, to investigate parliamentary elections' impact on short-term stock returns, with a focus on small-cap stocks, we see that our results suggest that parliamentary elections have significant negative impact on small-cap stock market returns the days around the elections. We include 47 elections in 16 developed countries in Europe. Hence, we contribute to the current research on this relationship, especially by conducting a study on a large sample of European countries, which is something that is missing in previous research. Moreover, our focus on short-term asset returns is not commonly seen in previous papers and hence we contribute to this topic as well.

We suggest that the negative impact of parliamentary elections on small-cap stock returns can be explained by the increase in market uncertainty due to political uncertainty. When there is high information uncertainty this can lead to mispricing of stocks and that this will increase the risk aversion of investors, which causes lower stock prices. Moreover, a negative price reaction observed on small-cap firms can be seen as reasonable considering their increased volatility in uncertain times. Investors tend to avoid small-cap stocks in uncertain times because of their lack of liquidity and since larger stocks are seen as safer alternatives.

When considering the sample of elections with a *right-wing government outcome* or the sample of elections with a *left-wing government outcome*, we do not find significant cumulative abnormal returns when considering the small-cap stock market indices. In the previous literature, there are different conclusions about the impact of governmental politics on different stock markets. Some previous studies have shown a link between short-term stock performance and the political outcome of an election. Though, since the political situation is unique in every country, it is hard to draw inferences across borders. In this study we can draw no conclusion about the impact of right-wing or left-wing government politics on stock market returns in the short run.

However, when considering only the elections with a *centre government outcome,* we find significant negative cumulative abnormal returns when considering the small-cap stock market indices. We believe that the coalitions that makes up the main part of these centre governments bring further uncertainty, which causes the significant negative cumulative abnormal returns in this sample to be larger than in our previous sample with significant negative cumulative abnormal returns.

Moreover, when considering all the elections that had a *non-majority government outcome,* we find significant negative cumulative abnormal returns when considering the small-cap stock market indices. We get a slightly larger average price impact in this sample, compared to the whole sample of 47 elections and the reason behind this could be, once again, the increased uncertainty associated with non-majority governments. Confusion about what political agenda the new government will adapt can be one example that leads to negative returns since the market needs time to assess the elections' impact following the change in policies. It should be noted that the elections with a non-majority outcome cover over 80 percent of the whole sample. Thus, the effect we observe in the entire sample could, to a large extent, be explained by the effect from the non-majority elections.

Furthermore, when looking at the elections with a *majority government outcome,* we cannot conclude that there are abnormal returns in this sample. We believe that this could possibly be explained by the fact that there is less uncertainty in connection with these types of elections and hence less grounds for negative abnormal returns.

When performing a robustness check of the ability to reject the main null hypothesis, H_0, we see that our significant results are reliable for changes in the length of the estimation window. When controlling for different lengths of the event window we find that significant negative cumulative abnormal returns can be found the days before the event date, which we see a sign of market uncertainty. Though, after the event, stock markets recover rapidly.

When regarding the two samples of mid-cap and large-cap stock indices we see no significant reaction in stock markets around the elections. We conclude that the effect on firms with larger market capitalizations is limited, which is in line with previous research. Our results suggest that investors' increased risk aversion due to the political uncertainty might be reflected into small-cap stocks' returns, while the larger firms are seemingly unaffected.

Likewise, when considering the whole stock market index in each of the 16 countries, we do not find significant cumulative abnormal returns. We believe that the reason for this lack of significant market reaction is explained by the findings in the mid-cap and large-cap samples. Even though we have a significant effect when only including smaller firms, it cannot be seen when considering all firms.

Finally, this methodology provides a good measure of the financial impact of an event only if the research design is properly executed. We have conducted this event study according to common practice and we have discussed the potential impact of methodological and econometric issues. Even though our significant findings are supported by the non-parametric tests and by the robustness checks, we are aware of the limitations of the event study methodology.

All in all, we have seen that parliamentary elections have significant negative impact on stock market returns when considering small-cap indices. We believe that our findings can be considered reliable, at least the result that we can reject our main hypothesis, H_0, since we perform thorough robustness checks on this sample. Thus, we can provide evidence that suggest that this type of political event can create uncertainty that significantly impact stock market returns.

8.1 SUGGESTED FURTHER RESEARCH

It would have been interesting to further increase the sample to contain all European countries, to see differences and similarities in the findings. One could investigate if there are abnormal returns around elections in unstable economies and how these differ from the negative abnormal returns we found for the developed European countries, and try to explain the reasons behind. Furthermore, one could extend the study to include other types of elections (for example President elections or European Parliament elections) to see if these types of elections also have a significant impact on stock market returns.

Moreover, it could have been interesting to conduct similar studies on other parts of the world to see if parliamentary elections in general cause negative abnormal returns, or if one can find a different relationship in other parts of the world.

9. REFERENCES

ACCA (2005) Improving the Regulatort Environment for Small Businesses, *Policy Briefing Paper, The Global Body For Professional Accountants*. [Online] Available from: http://www2.accaglobal.com/pubs/general/activities/library/small_business/sme_policy/improvingregs.pdf [Accessed: 2011-11-23]

Dagens Industri (2010). Sverigedemokrater kan skapa osäkerhetm på börsen, Fredrik Öjemar, [Online] Available from: http://di.se/Templates/Public/Pages/ArticlePrint.aspx?pl=212125__ArticlePageProvider [Accessed: 2011-10-18]

Bach, L. (2011), Empirical Methods in Corporate Finance, Lecture material in Empirical Methods in Corporate Finance, January – April 2011

Bach, L. (2011), Assistant Professor, Department of Finance, Stockholm School of Economics, 2011-10-14

Bernhard, W., Leblang, D., (1999), Democratic Processes, Political Risk, and Foreign Exchange Markets. *American Journal of Political Science*. Vol. 46. Issue. 2. p. 316 – 333, [Online] Available from: http://web.ebscohost.com.ez.hhs.se/ehost/pdfviewer/pdfviewer?vid=4&hid=123&sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114 [Accessed: 2011-10-03]

Bialkowski, J., Gottschalk, K., & Wisniewski, T. (2006). Stock market volatility around national elections. *Journal of Banking and Finance*, Vol. 32, Issue 1, p. 1941-1953, [Online] Available from: http://ir.canterbury.ac.nz/bitstream/10092/4524/1/12624570_bialkowski2007.pdf [Accessed: 2011-11-14]

Blais, A., Blake, D. and Dion, S., (1993) Do Parties Make a Difference? Parties and the Size of Government in Liberal Democracies, *American Journal of Political Science*, Vol. 37. No. 1, p. 40-62, University of Texas Press. [Online] Available from: http://www.jstor.org/stable/pdfplus/2111523.pdf?acceptTC=true [Accessed: 2011-11-08]

Booth, J., & Booth, L. 2003. Is the presidential cycle in security returns merely a reflection of business conditions? *Review of Financial Economics,* Vol. 12, Issue 1, p. 131-159*,* [Online] Available from: http://www.sciencedirect.com/science/article/pii/S1058330002000617 [Accessed: 2011-11-03]

Boutchkova, M., Doshi, H., Durnev, A., Molchanov, A., (2007) Politics and Volatility. *CEI Working Paper Series*, No. 2008-10. Institute of Economic Research, Hitotsubashi University. [Online] Available from: http://cei.ier.hit-u.ac.jp/English/events/documents/ArtDurnev_000.pdf [Accessed: 2011-11-14]

Brown, K., Harlow, W., & Tinic, S., 1988, 'Risk Aversion, Uncertain Information, and Market Efficiency', Journal of Financial Economics, Vol. 22, p. 355-385. [Online] Available from: http://www2.mccombs.utexas.edu/faculty/keith.brown/Research/JFE-12.88.pdf [Accessed: 2011-10-04]

Campbell, J., Lo, A.W, MacKinlay, C., (1997). The Econometrics of Financial Markets. Princeton University Press, Vol. 2, p. 149-180.

Cahan, J., Malone, C., Powell, J., & Choti, W. (2005) Stock market political cycles in a small, two-party democracy. *Applied Economic Letters*, Vol. 12, Issue 12, p. 735-740, [Online] Available from:

http://web.ebscohost.com.ez.hhs.se/ehost/detail?vid=4&hid=122&sid=fe9068eb-9e5e-4b9f-bc34-e58233b97c6d%40sessionmgr112&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=19059057 [Accessed: 2011-10-03]

Clark, D (2010) Citation from David Clark, Ignis Asset Management, manager of the Ignis UK Smaller Companies Fund, [Online] Available from: http://www.ignisasset.com/financial-advisers/news/press-releases/uk-small-cap-fears.aspx [Accessed: 2011-11-04]

Crain, N. & Crain, W. (2010) The Impact of Regulatory Costs on Small Firms, *Small Business Administration Office of Advocacy.* [Online] Available from: http://archive.sba.gov/advo/research/rs371tot.pdf [Accessed: 2011-11-23]

Dixon. L., Gates. S., Kapur. K., Seabury. S., & Talley. E. (2006), The Impact of Regulation and Litigation on Small Business and Entrepreneurship, *Working paper*, Kauffman – RAND Center for the Study of Small Business and Regulation, [Online] Available from: http://www.rand.org/pubs/working_papers/2006/RAND_WR317.pdf [Accessed: 2011-11-23]

Doukas, J., Chansog, K., and Pantzalis, C. (2011) Arbitrage Risk and Stock Mispricing, *CFA Digest,* Vol. 41, Issue 2, p. 37-39, [Online] Available from: http://web.ebscohost.com.ez.hhs.se/ehost/detail?vid=42&hid=123&sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=62988089 [Accessed: 2011-11-22]

European Election Database [Online], Norsk samfunnsvitenskapelig datatjeneste AS, [Online] Available from: http://www.nsd.uib.no/european_election_database/ [Accessed: 2011-09-13]

Füss R., & Bechtel M., (2006) Partisan Politics and Stock Market Performance: The Effect of Expected Government Partisanship on Stock Returns in the 2002 German Federal Election, *Working Paper*, Albert-Ludwigs-Universität Freiburg, [Online] Available from: http://www.vwl.uni-freiburg.de/iwipol/faculty_seminar/Partisan_Politics.pdf [Accessed: 2011-11-14]

Goldman Sachs Asset Management (2011), *Goldman Sachs Small Cap Value Fund Closes to New Investors*, March 31, [Online] Available from: http://www2.goldmansachs.com/gsam/docs/funds/investor_education/investor_education/46238mf_finalscvclosing33111.pdf [Accessed: 2011-11-14]

Hensel, C., & Ziemba, W. 1995. United states investment returns during democratic and republican administrations, 1928-1993. Financial Analysis Journal, Vol. 51, Issue 2, p. 61-70, [Online] Available from: http://web.ebscohost.com.ez.hhs.se/ehost/pdfviewer/pdfviewer?vid=10&hid=122&sid=fe9068eb-9e5e-4b9f-bc34-e58233b97c6d%40sessionmgr112 [Accessed: 2011-10-03]

Hodges, C., (2011) Co-manager Hodges Small Cap Fund, Hodges Capital Management, [Online] Available from: http://www.marketwatch.com/video/asset/investors-may-be-overlooking-small-cap-plays-2011-11-04/4DC0FEB3-26F0-41E0-89C5-DF608033A600#!4DC0FEB3-26F0-41E0-89C5-DF608033A600 [Accessed: 2011-11-14]

Hudson, R., Keasey, K., Dempsey, M., (1998). Share prices under Tory and Labour governments in the UK since 1945. *Applied Financial Economics.* Vol. 8, Issue 4, p. 389–400. [Online] Available from: http://www.tandfonline.com/doi/abs/10.1080/096031098332925 [Accessed: 2011-11-03]

Jacobsen, B. (1999) Irrational trading in a financial market, *Working Papers Yale School of Management's Economics Research Network;* [Online] Available from:
http://web.ebscohost.com.ez.hhs.se/ehost/detail?vid=21&hid=123&sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=8797916 [Accessed: 2011-11-03]

MacKinlay, A. C. (1997) "Event Studies in Economics and Finance," *Journal of Economic Literature* Vol. 35, Issue 1, p. 13-39, [Online] Available from:
http://web.ebscohost.com.ez.hhs.se/ehost/pdfviewer/pdfviewer?vid=36&hid=123&sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114 [Accessed: 2011-09-12]

McWilliams, A., & Siegel, D. (1997) *Event Studies in Management Research: Theoretical and Empirical Issues.* Academy of Management Journal 1997, Vol. 40, No. 3, p. 626-657. [Online] Available from:
http://web.ebscohost.com.ez.hhs.se/ehost/pdfviewer/pdfviewer?sid=fe9068eb-9e5e-4b9f-bc34-e58233b97c6d%40sessionmgr112&vid=14&hid=122 [Accessed: 2011-11-03]

McWilliams, A., & Siegel, D. Teoh, S. H. (1999) Issues in the Use of the Event Study Methodology: A Critical Analysis of Corporate Social Responsibility Studies. *Organizational Research Methods,* Vol. 2, Issue 4, p. 340-365, Sage Publications, Inc. [Online] Available from:
http://web.ebscohost.com.ez.hhs.se/ehost/detail?vid=23&hid=123&sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d%3d#db=buh&AN=4594484 [Accessed: 2011-11-16]

Mitchell, M. L., & Stafford, E. (1999) *Managerial Decisions and Long-Term Stock Price Performance,* Harvard University, Journal of Business, 2000, Vol. 73, Issue 3, p. 287, [Online] Available from:
http://web.ebscohost.com.ez.hhs.se/ehost/pdfviewer/pdfviewer?sid=cecab652-5053-444e-a8f9-af8803551c2c%40sessionmgr114&vid=29&hid=123 [Accessed: 2011-11-16]

Morgan Stanley Research (2010), Elga Bartsch, The Global Monetary Analyst, *Central Bank Watch,* (2010-09-22) Available from: Thomson One [Accessed: 2011-10-02]

MSCI (2011a) [Online] Available from: http://www.msci.com/about/ [Accessed: 2011-11-02]

MSCI (2011b), MSCI Europe All Cap Factsheet, MSCI Inc. [Online] Available from www.msci.com/resources [Accessed: 2011-11-02]

MSCI (2011c) [Online] Available from: http://www.msci.com/products/indices/tools/index.html#Country [Accessed: 2011-11-02]

MSCI (2011d) [Online] Available from: http://www.msci.com/products/indices/size [Accessed: 2011-11-02]

MSCI (2011e) [Online] Available from: http://www.msci.com/products/indices/tools/ [Accessed: 2011-11-02]

MSCI (2011f) [Online] Available from: http://www.msci.com/products/indices/tools/index.html#WORLD [Accessed: 2011-11-02]

Ortega. D. & Tornero. Á. (2009), Politics and Elections at the Spanish Stock Exchange, 9th Global Conference on Business & Economics, Cambridge University, [Online] Available from:

http://www.google.se/url?sa=t&rct=j&q=politics%20and%20elections%20at%20the%20spanish%20stock%20exchange&source=web&cd=4&ved=0CDgQFjAD&url=http%3A%2F%2Fwww.gcbe.us%2F9th_GCBE%2Fdata%2FDolores%2520Furio%2520Ortega%2C%2520Angel%2520Pardo%2520Tornero.doc&ei=GZjLTsHULcnc4QTwvJlf&usg=AFQjCNEDuEDeP15Kiga4tMjhBWFid44UKw [Accessed: 2011-11-22]

Salinger, M. (1992) Standard Errors in Event Studies, *University of Washington School of Business Administration*, [Online] Available from:
ftp://www.econ.bgu.ac.il/Courses/Signaling_in_Financial_Markets/Readings/Articles/2009-02-11%20Event%20study/Standard%20Errors%20in%20Event%20Studies.pdf [Accessed: 2011-10-25]

Santa-Clara, P., & Valkanov, R. (2003) The presidential puzzle: political cycles and the stock market. *The Journal of Finance*, Vol. 58, Issue 5. [Online] Available from:
http://docentes.fe.unl.pt/~psc/Politics.pdf [Accessed: 2011-11-04]

Seiler, M. J. (2000), The Efficacy of event-study methodologies: Measuring EREIT abnormal performance under conditions of induced variance, Journal of Financial and Strategic Decisions, Vol. 13, Issue 1, [Online] Availabe from: http://www.studyfinance.com/jfsd/pdffiles/v13n1/seiler.pdf [Accessed: 2011-09-30]

Strom, K (1990), Minority Government and Majority Rule, Cambridge University Press. [Online] Available from:
http://books.google.co.uk/books?hl=en&lr=&id=QWkeg5qvTiAC&oi=fnd&pg=PA1&dq=Minority+Government+and+Majority+Rule.&ots=HAjIskDqB5&sig=xV9mrNh3hqTr0rq13O7w2o6Ya2o#v=onepage&q&f=false [Accessed: 2011-11-07]

Tédongap, R., (2011) Assistant Professor, Department of Finance, Stockholm School of Economics, *Some Methods and Issues in Applied Work,* Lecture material in Advanced Empirical Methods in Finance

Veronesi, P., (2002), The Peso Problem Hypothesis and Stock Market Returns, University of Chicago, [Online] Available from: http://faculty.chicagobooth.edu/pietro.veronesi/research/peso3.pdf [Accessed: 2011-11-14]

10. APPENDIX

10.1 Tables

Small Cap: Estimation window: 80, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.006261	.0243929	-.0942426	.0406282
variance	47	.0000929	.0000761	.00002	.0004377

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.9914833	-1.9657847	-.00626097	-.29048756

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000463	6.28e-06	.0007851	.000034	.0000586
neg_ar	15646	.0000651	8.00e-06	.001001	.0000494	.0000808
diff	15646	-.0000188	.0000102	.0012745	-.0000388	1.16e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.8458
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0325	Pr(T > t) = 0.0649	Pr(T > t) = 0.9675

Table 1

Wilcoxon sign test

sign	observed	expected
positive	99	117.5
negative	136	117.5
zero	0	0
all	235	235

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9935
Prob [Pos > Neg] = 0.0065

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0093
Prob [Neg > Pos] = 0.9907

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.0187

Table 2

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	99	11773	13865
negative	136	15957	13865
zero	0	0	0
all	235	27730	27730

unadjusted variance	1088402.5
adjusted variance	1088402.5
z (Ho: ar=0)	-2.005
prob > |z|	.0449
prob [Neg>Pos]	.9551

Table 3

Small Cap: Estimation window: 120, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0062886	.0242551	-.0951221	.0360167
variance	47	.0000948	.0000753	.0000189	.0003669

T-statistics		CAAR	SCAAR
J_1	**J_2**		
-1.9805557	-1.9636995	-.0062886	-.28889373

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000464	6.25e-06	.0007815	.0000341	.0000586
neg_ar	15646	.0000653	8.00e-06	.0010013	.0000496	.000081
diff	15646	-.0000189	.0000102	.0012725	-.0000388	1.05e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.8569
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0317	Pr(T > t) = 0.0633	Pr(T > t) = 0.9683

Table 4

Wilcoxon sign test

sign	observed	expected
positive	102	117.5
negative	133	117.5
zero	0	0
all	235	235

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9817
Prob [Pos > Neg] = 0.0183

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0251
Prob [Neg > Pos] = 0.9749

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.0501

Table 5

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	102	11809	13865
negative	133	15921	13865
zero	0	0	0
all	235	27730	27730

unadjusted variance	1088402.5
adjusted variance	1088402.5
z (Ho: ar=0)	-1.971
prob > |z|	.0488
prob [Neg>Pos]	.9512

Table 6

Small Cap: Estimation window: 160, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0063923	.0244575	-.0982246	.0361184
variance	47	.0000943	.0000741	.0000215	.0004262

T-statistics		CAAR	SCAAR
J_1	J_2		
-2.0187323	-2.0059141	-.00639235	-.29446226

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000461	6.25e-06	.0007821	.0000339	.0000584
neg_ar	15646	.0000653	8.03e-06	.0010045	.0000496	.0000811
diff	15646	-.0000192	.0000102	.0012754	-.0000392	7.84e-07

mean(diff) = mean(pos_ar - neg_ar) t = -1.8832
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0298	Pr(T > t) = 0.0597	Pr(T > t) = 0.9702

Table 7

Wilcoxon sign test

sign	observed	expected
positive	101	117.5
negative	134	117.5
zero	0	0
all	235	235

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9868
Prob [Pos > Neg] = 0.0132

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0183
Prob [Neg > Pos] = 0.9817

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.0366

Table 8

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	101	11715	13865
negative	134	16015	13865
zero	0	0	0
all	235	27730	27730

unadjusted variance	1088402.5
adjusted variance	1088402.5
z (Ho: ar=0)	-2.061
prob > |z|	.0393
prob [Neg>Pos]	.9607

Table 9

Small Cap: Estimation window: 120, Event window: (-1,+3), Outcome: Right-wing

Variable	Obs	Mean	Std. Dev.	Min	Max
car	27	-.0037089	.0267409	-.0951221	.0360167
variance	27	.0000749	.0000481	.0000189	.0002252

T-statistics		CAAR	SCAAR
J_1	J_2		
-.99594552	-.98746924	-.00370885	-.19166981

Table 10

Small Cap: Estimation window: 120, Event window: (-1,+3), Outcome: Left-wing

Variable	Obs	Mean	Std. Dev.	Min	Max
car	15	-.0057241	.0211786	-.0590428	.0328436
variance	15	.00014	.0001045	.0000346	.0003669

T-statistics		CAAR	SCAAR
J_1	J_2		
-.83782651	-.83069584	-.00572415	-.21632585

Table 11

Small Cap: Estimation window: 120, Event window: (-1,+3), Outcome: Centre

Variable	Obs	Mean	Std. Dev.	Min	Max
car	5	-.0143401	.0134614	-.0307703	0
variance	5	.0000524	.0000371	0	.0001046

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.7724067	-1.7573221	-.01434005	-.88620335

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	1685	.0000124	6.37e-06	.0002613	-3.98e-08	.0000249
neg_ar	1685	.000055	.0000174	.0007139	.0000209	.0000891
diff	1685	-.0000426	.0000185	.0007611	-.0000789	-6.18e-06

mean(diff) = mean(pos_ar - neg_ar) t = -2.2949
Ho: mean(diff) = 0 degrees of freedom = 1684

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0109	Pr(T > t) = 0.0219	Pr(T > t) = 0.9891

Table 12

Wilcoxon sign test

sign	observed	expected
positive	7	10
negative	13	10
zero	0	0
all	20	20

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 10) = Binomial (n = 25, x >= 10, p = 0.5) = 0.9423
Prob [Pos > Neg] = 0.0577

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 15) = Binomial(n = 25, x >= 15, p = 0.5) = 0.1316
Prob [Neg > Pos] = 0.8684

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 15 or #negative >= 15) =
min(1, 2*Binomial(n = 25, x >= 15, p = 0.5)) = 0.2632

Table 13

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	7	46	105
negative	13	164	105
zero	0	0	0
all	20	210	210

unadjusted variance	717.5
adjusted variance	717.5
z (Ho: ar=0)	-2.203
prob > |z|	.0276
prob [Neg>Pos]	.9724

Table 14

Small Cap: Estimation window: 120, Event window: (-1,+3), Outcome: Non-majority Government

Variable	Obs	Mean	Std. Dev.	Min	Max
car	38	-.006756	.0245072	-.0951221	.0360167
variance	38	.0000877	.0000526	.0000189	.0002252

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.9628443	-1.9461395	-.00675603	-.32268971

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	12268	.0000475	7.13e-06	.0007894	.0000335	.0000615
neg_ar	12268	.0000679	9.51e-06	.0010535	.0000492	.0000865
diff	12268	-.0000204	.0000119	.0013188	-.0000437	2.96e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.7113
Ho: mean(diff) = 0 degrees of freedom = 12267

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0435	Pr(T > t) = 0.0871	Pr(T > t) = 0.9565

Table 15

Wilcoxon sign test

sign	observed	expected
positive	81	92,5
negative	104	92,5
zero	0	0
all	185	185

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 10) = Binomial (n = 25, x >= 10, p = 0.5) = 0.9613
Prob [Pos > Neg] = 0.0387

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 15) = Binomial(n = 25, x >= 15, p = 0.5) = 0.0528
Prob [Neg > Pos] = 0.9472

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 15 or #negative >= 15) =
min(1, 2*Binomial(n = 25, x >= 15, p = 0.5)) = 0.1055

Table 16

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	81	7394	8602.5
negative	104	9811	8602.5
zero	0	0	0
all	185	17205	17205

unadjusted variance	717.5
adjusted variance	717.5
z (Ho: ar=0)	-1.657
prob > |z|	.0975
prob [Neg>Pos]	.9025

Table 17

Small Cap: Estimation window: 120, Event window: (-1,+3), Outcome: Majority Government

Variable	Obs	Mean	Std. Dev.	Min	Max
car	9	-.0083005	.0227564	-.0471923	.0328436
variance	9	.0000937	.0001031	.0000304	.0003626

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.150361	-1.1405704	-.00830047	-.38345364

Table 18

Small Cap: Estimation window: 120, Event window: (0,0)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0025304	.0111051	-.0423418	.0203737
variance	47	.0000953	.0000746	.000019	.0003641

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.7768878	-1.7617653	-.00253042	-.25918576

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	7.54e-06	2.30e-06	.0002872	3.04e-06	.000012
neg_ar	15646	.0000151	4.37e-06	.0005469	6.57e-06	.0000237
diff	15646	-7.60e-06	4.94e-06	.0006179	-.0000173	2.08e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.5388
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0619	Pr(T > t) = 0.1239	Pr(T > t) = 0.9381

Table 19

Wilcoxon sign test

sign	observed	expected
positive	19	23.5
negative	28	23.5
zero	0	0
all	47	47

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9281
Prob [Pos > Neg] = 0.0719

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.1215
Prob [Neg > Pos] = 0.8785

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.2430

Table 20

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	19	426	564
negative	28	702	564
zero	0	0	0
all	47	1128	1128

unadjusted variance	8930
adjusted variance	8930
z (Ho: ar=0)	-1.460
prob > |z|	.1442
prob [Neg>Pos]	.8558

Table 21

Small Cap: Estimation window: 120, Event window: (-1,0)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0041572	.0142417	-.052577	.0257957
variance	47	.0000948	.0000753	.0000189	.0003669

T-statistics		CAAR	SCAAR
J_1	J_2		
-2.0701571	-2.0525392	-.00415719	-.30196357

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000171	3.87e-06	.0004843	9.49e-06	.0000247
neg_ar	15646	.0000296	5.74e-06	.0007174	.0000183	.0000408
diff	15646	-.0000125	6.92e-06	.0008661	-.0000261	1.08e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.8035
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0357	Pr(T > t) = 0.0713	Pr(T > t) = 0.9643

Table 22

Wilcoxon sign test

sign	observed	expected
positive	38	47
negative	56	47
zero	0	0
all	94	94

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9753
Prob [Pos > Neg] = 0.0247

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0395
Prob [Neg > Pos] = 0.9605

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.0790

Table 23

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	38	1748	2232.5
negative	56	2717	2232.5
zero	0	0	0
all	94	4465	4465

unadjusted variance	70323.75
adjusted variance	70323.75
z (Ho: ar=0)	-1.827
prob > |z|	.0677
prob [Neg>Pos]	.9323

Table 24

Small Cap: Estimation window: 120, Event window: (-2,0)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0044855	.0165274	-.0467078	.0275852
variance	47	.0000951	.0000753	.0000191	.0003687

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.8209129	-1.8054161	-.0044855	-.26560754

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000255	4.44e-06	.0005551	.0000168	.0000342
neg_ar	15646	.0000389	6.16e-06	.00077	.0000269	.000051
diff	15646	-.0000135	7.60e-06	.0009502	-.0000284	1.42e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.7737
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0381	Pr(T > t) = 0.0761	Pr(T > t) = 0.9619

Table 25

Wilcoxon sign test

sign	observed	expected
positive	60	70.5
negative	81	70.5
zero	0	0
all	141	141

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9682
Prob [Pos > Neg] = 0.0318

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0459
Prob [Neg > Pos] = 0.9541

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.0918

Table 26

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	60	4146	5005.5
negative	81	5865	5005.5
zero	0	0	0
all	141	10011	10011

unadjusted variance	236092.75
adjusted variance	236092.75
z (Ho: ar=0)	-1.769
prob > |z|	.0769
prob [Neg>Pos]	.9231

Table 27

Small Cap: Estimation window: 120, Event window: (-4, 0)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0053961	.0208706	-.0593915	.0355254
variance	47	.0000952	.0000747	.0000203	.0003651

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.6952002	-1.6807737	-.00539606	-.24727051

Paired t test Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
pos_ar	15646	.0000426	5.61e-06	.0007018	.0000316	.0000536
neg_ar	15646	.0000588	7.44e-06	.0009304	.0000442	.0000734
diff	15646	-.0000162	9.33e-06	.0011676	-.0000345	2.09e-06

mean(diff) = mean(pos_ar - neg_ar) t = -1.7365
Ho: mean(diff) = 0 degrees of freedom = 15645

Ha: mean(diff) < 0	Ha: mean(diff) != 0	Ha: mean(diff) > 0
Pr(T < t) = 0.0412	Pr(T > t) = 0.0825	Pr(T > t) = 0.9588

Table 28

Wilcoxon sign test

sign	observed	expected
positive	105	117.5
negative	130	117.5
zero	0	0
all	235	235

One-sided tests:
Ho: median of ar = 0 vs. Ha: median of ar > 0
Pr(#positive >= 107) = Binomial (n = 235, x >= 107, p = 0.5) = 0.9552
Prob [Pos > Neg] = 0.0448

Ho: median of ar = 0 vs. Ha: median of ar < 0
Pr(#negative >= 128) = Binomial(n = 235, x >= 128, p = 0.5) = 0.0586
Prob [Neg > Pos] = 0.9414

Two-sided test:
Ho: median of ar = 0 vs. Ha: median of ar != 0
Pr(#positive >= 128 or #negative >= 128) =
min(1, 2*Binomial(n = 235, x >= 128, p = 0.5)) = 0.1173

Table 29

Wilcoxon sign-rank test

sign	observed	sum ranks	expected
positive	105	12249	13865
negative	130	15481	13865
zero	0	0	0
all	235	27730	27730

unadjusted variance	1088402.5
adjusted variance	1088402.5
z (Ho: ar=0)	-1.549
prob > |z|	.1214
prob [Neg>Pos]	.8786

Table 30

Small Cap: Estimation window: 120, Event window: (-1,+5)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	.0003079	.0508412	-.1148307	.2578241
variance	47	.0000948	.0000753	.0000189	.0003669

T-statistics		CAAR	SCAAR
J_1	J_2		
.08196877	.08127114	.00030795	.01195637

Table 31

Small Cap: Estimation window: 120, Event window: (-1,+8)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0056	.0585279	-.1925603	.2505439
variance	47	.0000948	.0000753	.0000189	.0003669

T-statistics		CAAR	SCAAR
J_1	J_2		
-1.2471229	-1.2365085	-.00560004	-.18191151

Table 32

Mid Cap: Estimation window: 120, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	46	-.0047603	.030059	-.0940982	.0754088
variance	46	.0001327	.0001193	.0000245	.0007214

T-statistics		CAAR	SCAAR
J_1	**J_2**		
-1.2536161	-1.2429464	-.00476025	-.18483554

Table 33

Large Cap: Estimation window: 120, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	45	-.0050902	.0283424	-.1616735	.0315757
variance	45	.0001661	.0001605	.0000225	.0006682

T-statistics		CAAR	SCAAR
J_1	**J_2**		
-1.1847692	-1.1746853	-.00509025	-.17661488

Table 34

All Cap: Estimation window: 120, Event window: (-1,+3)

Variable	Obs	Mean	Std. Dev.	Min	Max
car	47	-.0050277	.0245906	-.1297918	.0309762
variance	47	.0001207	.0001003	.0000211	.000437

T-statistics		CAAR	SCAAR
J_1	**J_2**		
-1.40324	-1.3912974	-.00502771	-.2046836

Table 35

Elections, Events and Outcomes

	Election Date	Event date (first trading day after election)	Political orientation	Type of government
Austria	2002-11-24	2002-11-25	Right-wing	Non-majority
	2006-10-01	2006-10-02	Left-wing	Non-majority
	2008-09-28	2008-09-29	Left-wing	Non-majority
Belgium	2003-05-18	2003-05-19	Right-wing	Non-majority
	2007-06-10	2007-06-11	Right-wing	Non-majority
	2010-06-13	2010-06-14	Right-wing	Non-majority
Denmark	2001-11-20	2001-11-21	Left-wing	Non-majority
	2005-02-08	2005-02-09	Right-wing	Non-majority
	2007-11-13	2007-11-14	Right-wing	Non-majority
Finland	2003-03-16	2003-03-17	Centre	Non-majority
	2007-03-18	2007-03-19	Centre	Non-majority
	2011-04-17	2011-04-18	Right-wing	Non-majority
France	2002-06-09, 2002-06-16	2002-06-17	Right-wing	Majority
	2007-06-10, 2007-06-17	2007-06-18	Right-wing	Majority
Germany	2002-09-22	2002-09-23	Left-wing	Non-majority
	2005-09-18	2005-09-19	Right-wing	Non-majority
	2009-09-27	2009-09-28	Left-wing	Non-majority
Greece	2004-03-07	2004-03-08	Right-wing	Majority
	2007-09-16	2007-09-17	Right-wing	Majority
	2009-10-04	2009-10-05	Left-wing	Majority
Ireland	2002-05-17	2002-05-20	Centre	Majority
	2007-05-24	2007-05-25	Centre	Non-majority
	2011-02-25	2011-02-28	Right-wing	Non-majority
Italy	2001-05-13	2001-05-14	Right-wing	Non-majority
	2006-04-09, 2006-04-10	2006-04-11	Left-wing	Non-majority
	2008-04-13, 2008-04-14	2008-04-15	Right-wing	Non-majority
Netherlands	2003-01-22	2003-01-23	Right-wing	Non-majority
	2006-11-22	2006-11-23	Right-wing	Non-majority
	2010-06-09	2010-06-10	Right-wing	Non-majority
Norway	2001-09-10	2001-09-11	Centre	Non-majority
	2005-09-12	2005-09-13	Left-wing	Non-majority
	2009-09-14	2009-09-15	Left-wing	Non-majority
Portugal	2005-02-20	2005-02-21	Left-wing	Non-majority
	2009-09-27	2009-09-28	Left-wing	Non-majority
	2011-06-05	2011-06-06	Right-wing	Non-majority
Spain	2000-03-12	2000-03-13	Right-wing	Majority
	2004-04-14	2004-04-15	Right-wing	Non-majority
	2008-03-09	2008-03-10	Left-wing	Non-majority
Sweden	2002-09-15	2002-09-16	Left-wing	Non-majority
	2006-09-17	2006-09-18	Right-wing	Non-majority
	2010-09-19	2010-09-20	Right-wing	Non-majority
Switzerland	1999-10-24	1999-10-25	Right-wing	Non-majority
	2003-10-19	2003-10-20	Right-wing	Non-majority
	2007-10-21	2007-10-22	Right-wing	Non-majority
UK	2001-06-07	2001-06-08	Left-wing	Majority
	2005-05-05	2005-05-06	Left-wing	Majority
	2010-05-06	2010-05-07	Right-wing	Non-majority

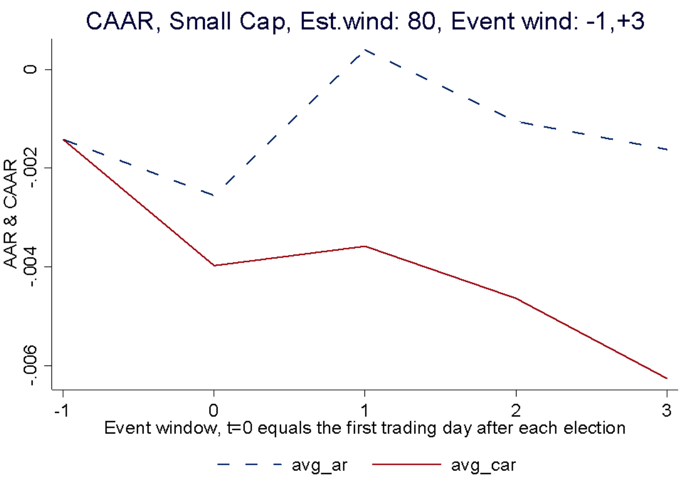
Source: European Election Database
http://www.nsd.uib.no/european_election_database/ [Accessed: 2011-09-13]

Table 36

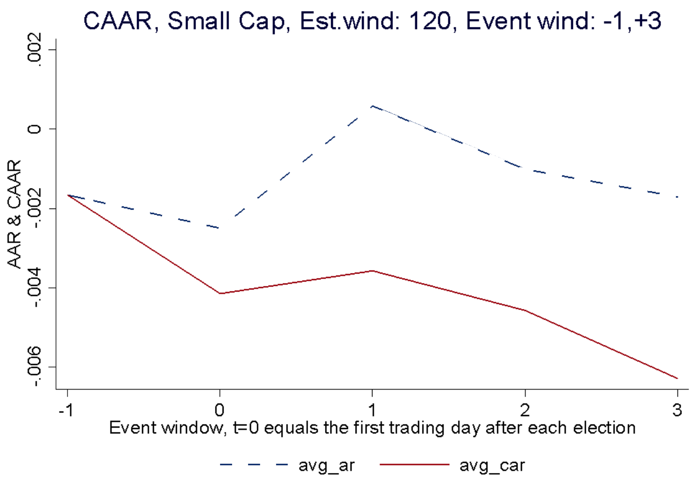
Overview of the regressions of the small-cap indices' returns over the MSCI World Index return, during estimation windows of 120 days				
$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$				
Country	**Election**	**t-statistic**	**R^2**	**Adjusted R^2**
Austria	1	4.24	0.1323	0.1251
	2	5.99	0.2331	0.2266
	3	6.50	0.2638	0.2575
Belgium	4	7.03	0.2952	0.2893
	5	8.53	0.3815	0.3763
	6	10.35	0.4759	0.4715
Denmark	7	9.10	0.4125	0.4075
	8	2.87	0.0613	0.0533
	9	7.79	0.3395	0.3339
Finland	10	3.93	0.1158	0.1083
	11	7.80	0.3401	0.3345
	12	6.59	0.2688	0.2626
France	13	7.38	0.3156	0.3098
	14	10.52	0.4839	0.4795
Germany	15	9.96	0.4567	0.4520
	16	6.42	0.2589	0.2526
	17	11.05	0.5084	0.5042
Greece	18	2.17	0.0385	0.0303
	19	6.01	0.2344	0.2279
	20	5.08	0.1792	0.1722
Ireland	21	3.82	0.1099	0.1024
	22	5.23	0.1884	0.1816
	23	4.05	0.1218	0.1144
Italy	24	6.03	0.2356	0.2291
	25	5.29	0.1915	0.1846
	26	9.07	0.4109	0.4059
Netherlands	27	9.02	0.4084	0.4033
	28	8.48	0.3785	0.3732
	29	12.23	0.5591	0.5554
Norway	30	7.50	0.3228	0.3170
	31	5.50	0.2038	0.1971
	32	8.67	0.3892	0.3840
Portugal	33	3.04	0.0728	0.0649
	34	8.06	0.3550	0.3495
	35	1.89	0.0295	0.0213
Spain	36	2.44	0.0479	0.0398
	37	6.78	0.2802	0.2741
	38	7.89	0.3456	0.3400
Sweden	39	6.51	0.2641	0.2578
	40	8.25	0.3660	0.3606
	41	10.97	0.5049	0.5007
Switzerland	42	5.74	0.2183	0.2116
	43	8.02	0.3526	0.3471
	44	6.04	0.2359	0.2294
UK	45	6.99	0.2926	0.2866
	46	5.61	0.2103	0.2036
	47	10.34	0.4756	0.4711
	Average	6.86	0.2844	0.2783
	Minimum	1.89	0.0295	0.0213
	Maximum	12.23	0.5591	0.5554

Table 37

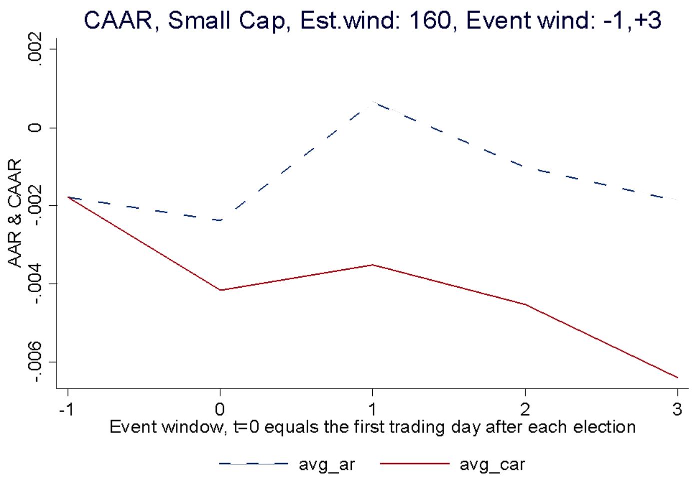
10.2 GRAPHS



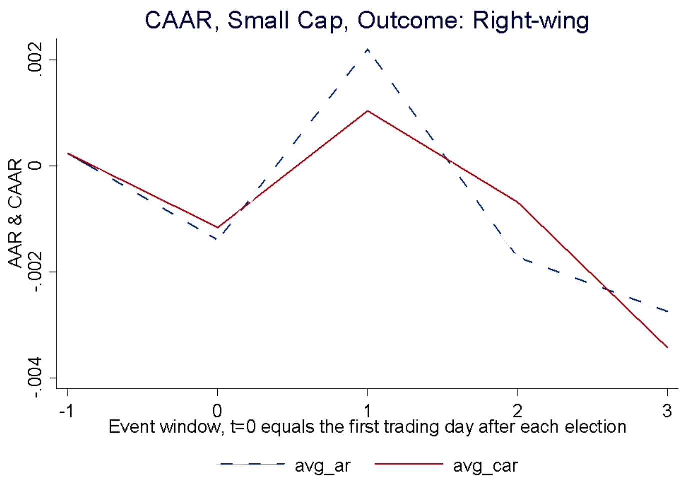
Graph 1



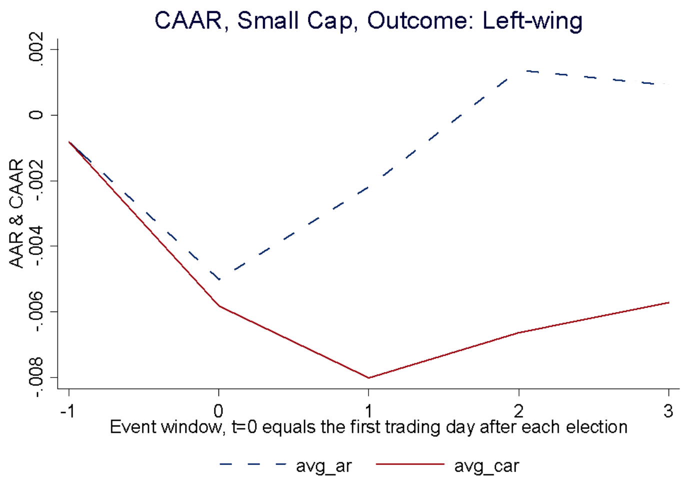
Graph 2



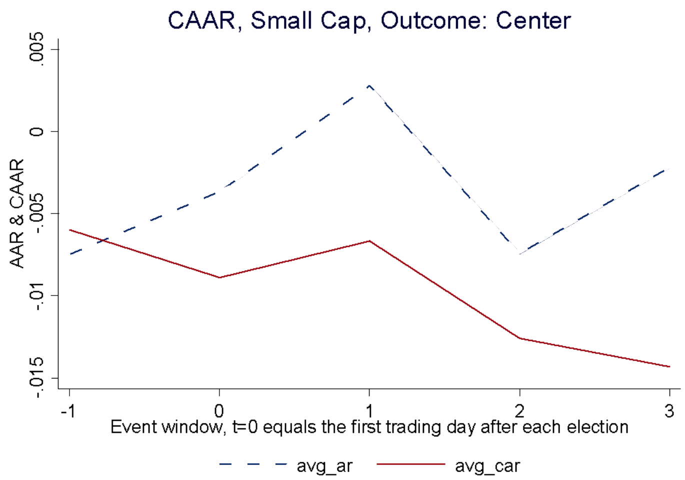
Graph 3



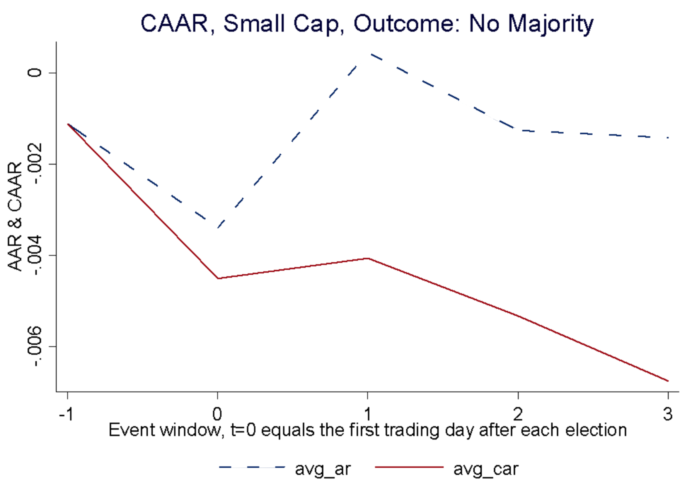
Graph 4



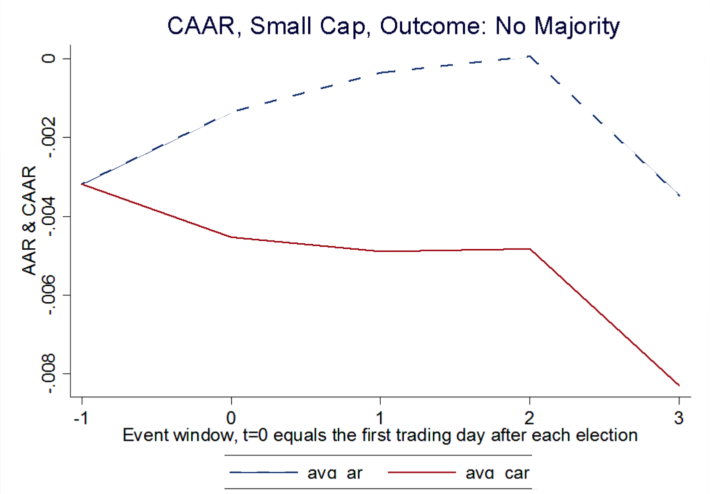
Graph 5



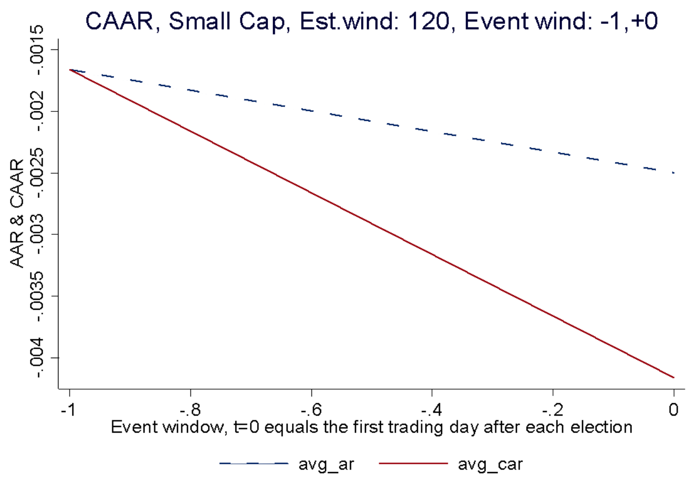
Graph 6



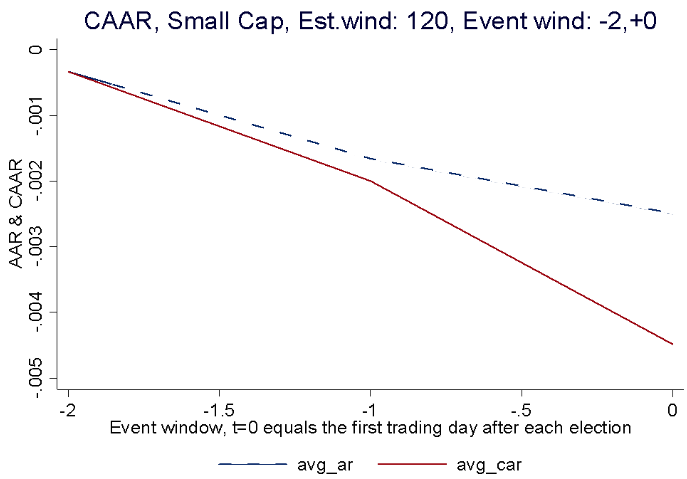
Graph 7



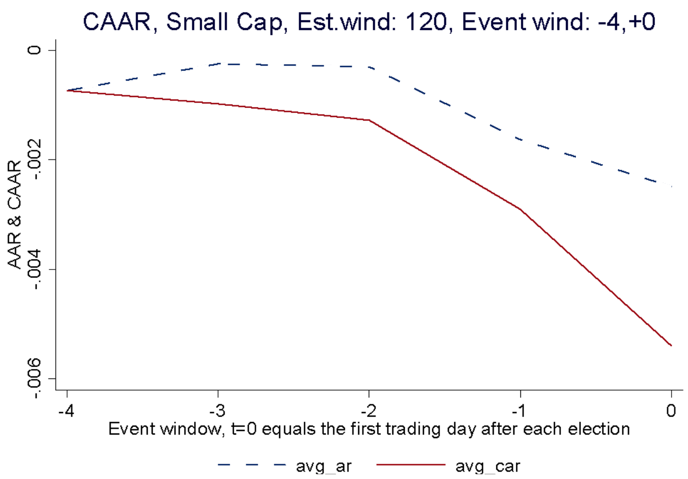
Graph 8



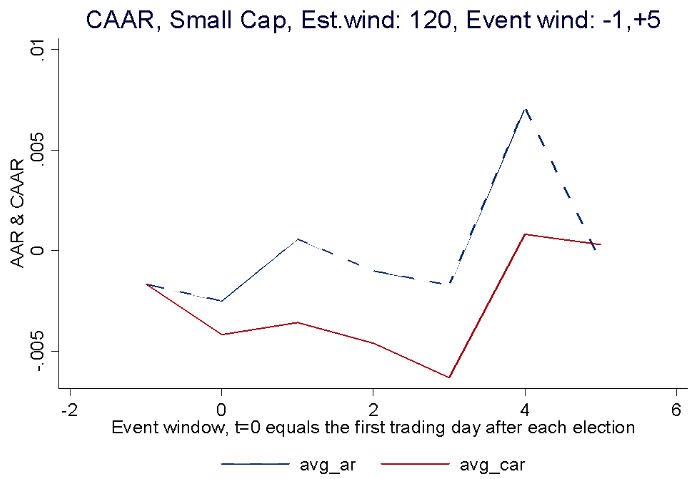
Graph 9



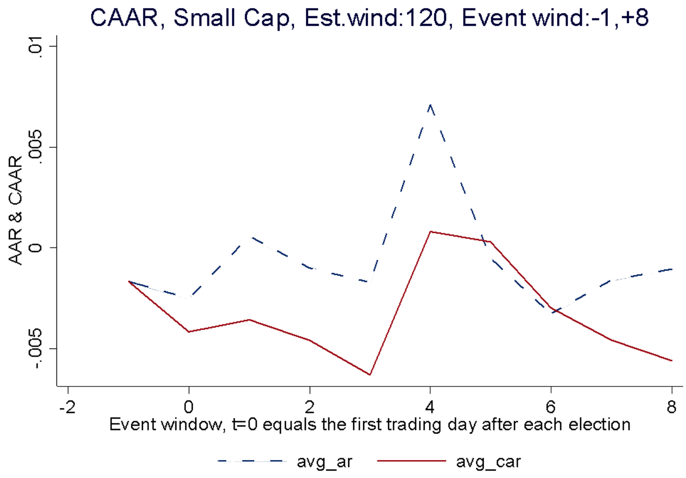
Graph 10



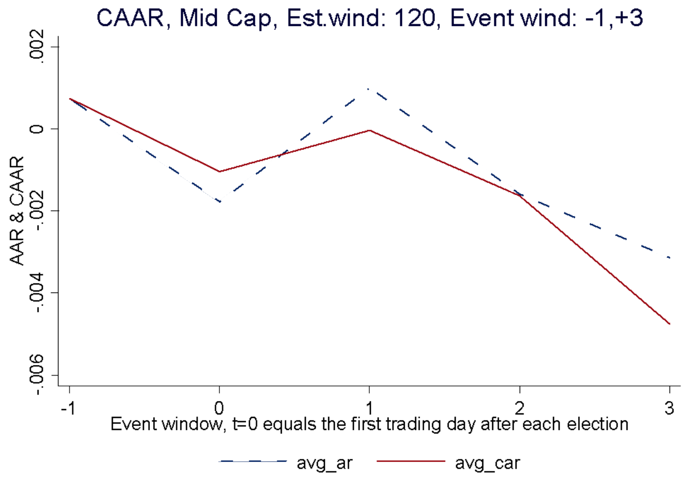
Graph 11



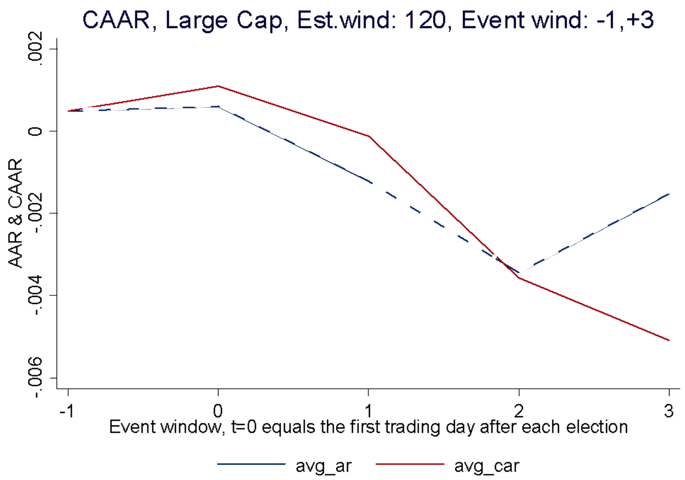
Graph 12



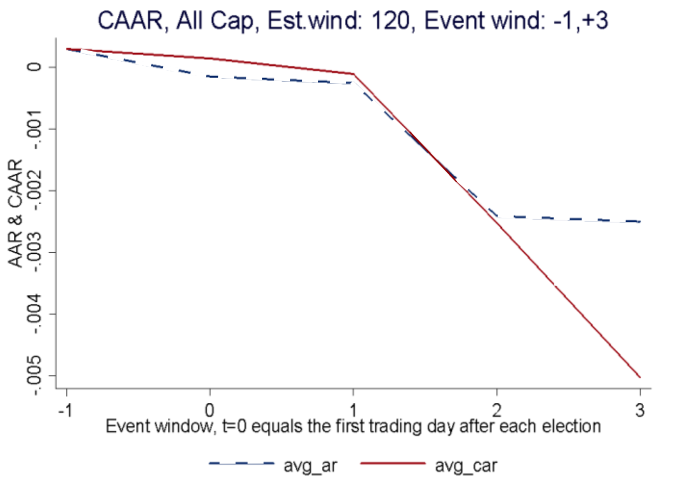
Graph 13



Graph 14



Graph 15



Graph 16