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Stock Market reaction to Election Results: an Event Study Analysis

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ABSTRACT

The aim of this paper is to find the possible effect that estimation vote surveys have over the share prices of public companies listed in the Spanish stock market.

To test this effect, we used the event study methodology. For the event study, daily data from 6 firms listed on the IBEX35 index are analyzed over the period of 1st January 2000 to 31st December 2015. Alongside the event study, another analysis has been conducted to test the economic literature that finds a positive relation between right-wing parties and the stock market.

The results of this paper have not shown significant changes for the days surrounding the publication of estimation vote, known as event day. Although it can be observed a positive reaction to PP vote increases, confirming what the literature suggests.

This indicates that the event indeed does affect the stock market depending on which party outcomes the other. The results also indicate that certain companies were more exposed to the political results than others.

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1. INTRODUCTION

Market shares consider all available information and expectations about the future and, even though prices are determined by the forces of supply and demand, macroeconomic events external to the company can also affect their price.

In this case, the event we are going to study is the estimation vote survey, which reveals what political party the Spanish population will vote for. These surveys started in the early 60s and throughout the years the Institution in charge of them has become what we know today as CIS (Centro de Investigaciones Sociológicas, 2017). The main survey is the estimation of vote, traditionally published on the months of January, April, July and October every year.

The aim of this paper is to examine the short-run effect of the political point of view on the stock market. This is based on the Market Model (MM) or also known as the Efficient Market Hypothesis (EMH), which states that an asset's price fully reflects all available information (Fama & E., 1970).

Thus, we are going to examine the stock markets to analyze if the information concerning the CIS surveys is incorporated in the stock prices. Research shows investors react negatively to left wing parties and otherwise to right wing parties. With the results, our study will focus on testing if there is an existing relation between the increase of the stock prices and the estimation of vote of the Spanish party PP (right wing) going up.

To evaluate this relation, we will apply an event case study method observing the possible variations in the stock prices of six public Spanish corporations listed on IBEX35: INDRA SISTEMAS, FERROVIAL, NATURGY, TECNOCOM, FCC and ACS; all calculated and illustrated through STATA program.

Such program performs an event study that lets us work with multiple variables, computing Abnormal Returns as well as Cumulative Abnormal Returns and Cumulative Average Abnormal Returns among other tasks.

One of the functions that characterizes the program is the chance to create a do-file. This is a text file containing commands that instruct the program and explains the steps used to obtain all the results.

Overall, the outcome of this study is limited due to the small sample size analysed as well as our short estimation window which reduces statistical significant results.

2. DATA

To perform such study, data has been gathered from CIS for the surveys as well as daily price shares have been extracted for each company to be examined.

How does CIS work? The Center of Sociological Investigation follows the necessary procedures to obtain representative samples that accurately reflects the characteristics of the larger group in the country. The surveys normally use samples of minimum 2500 individuals and, in this case, they must be over 18 years old and have a Spanish nationality. Once all the surveys are answered the results are published on the official web page. Some of the questions included could be “Who would you vote for if tomorrow we had elections?” and so on, which leaves the outcome in the hands of the citizens. (Centro de Investigaciones Sociológicas, 2017)

The percentual results over one year are shown, where we can see as mentioned before, the survey takes place on the months of January, April, July and October. We will need to extract all results over the period being studied, that is from 2000 to 2015.

Month	PP	PSOE	CIU	PNV	IU
oct-15	29,1	25,3		0,7	4,7
jul-15	28,2	24,9	3,3	1,3	3,7
abr-15	25,6	24,3	3,2	0,7	4,8
ene-15	27,3	22,2	3	0,7	5,2

Table 1. Vote Estimation on 2015.

On the other hand, in order to perform the event study, daily stock prices have also been obtained for every firm to then test their fluctuations. These can be found on the Stock Exchange Market.

In the period chosen, a series of political and economic events took place where both right-and left-wing parties had an important role in the market, and it will also guarantee a broader number of securities to test.

The six companies chosen are a few of the main public firms listed on the Spanish Market Index known as IBEX 35. Their expected profitability depends in a way of government policies.

With this data, we will be able to observe the investors of these six companies’ response to the results of each survey.

3. METHODOLOGY: EVENT STUDY

Event studies have been used over the years by many researchers and first introduced by Fisher, Jensen and Roll (1969). Since then, the method has been widely used to examine the impact economic events can have regarding the value of a firm. Because all these events are unknown and therefore their results unexpected, by knowing the date they are going to take place we can see how fast the prices will react to the new released information. This way, we can explain the stock price variations of a corporation.

In his paper, MacKinlay (1997) reviews event study methods. He states that by using financial market data, an event study can "measure the impact of a specific event on the value of a firm". The basis of this hypothesis comes from the Efficient Market Model (Fama & E., 1970), as mentioned before. Event studies are also useful for the financial study and impact of mergers and acquisitions.

The event affecting the firm can be within its control or not. In this case, we are talking about an event the firm cannot control: the estimated election results in Spain. In this study, to be more accurate and have a proper interpretation of the results, we are going to analyze the daily returns of the six companies mentioned above and their fluctuations between year 2000 to 2015.

We are going to discuss how abnormal returns are measured depending on the statistical model chosen, as well as calculating their cumulative.

The first task is to define the event of interest and the period, known as event window, over which the security prices of the determined firms will be examined. The event window can include a couple of days before or/and after the event, including the day of the event itself, helping this way capture preceding or late reactions to it.

Because we're talking about a short-time event -where all the new information is given and known by the investors on an exact date and time, therefore, it is quickly incorporated into the stock prices- we are going to work with a shorter event window. Also, because the firms we are going to study are large and significant, events must happen quite frequently. Therefore, we apply this window to make sure the event affecting their stock prices is the one we are analyzing. This way, the results will be more precise.

Our event window will be seven days: three days prior to the event, the event date itself and three days after.

Once we have our event window, the next step is to establish an estimation window. This window uses the information of normal returns prior to the event date. The aim is to choose it in a way we make sure the returns in it are not being affected by the event and, therefore calculate the normal returns. To make the estimation window and the event window overlap can cause distortion on the estimation parameters.

Because we have more than one event occurring, we will set the estimation window as the period between the day after the event window and the day prior to the next one. This way we can proceed to calculate the abnormal returns.

Although, these multiple events limit the size of estimation window- usually it ranges from 100 to 300 observations-, increasing forecast error bias. A larger estimation period would provide an accurate estimation of the parameters, but it must also be short enough to provide relevant estimation of the recent time. Making the estimation window too large will include data from a too distant past that may not be relevant anymore, as well as making it too short will not provide accurate results. (MacKinlay, 1997)

3.1. ABNORMAL RETURN MEASUREMENT

This model is used to deduct the abnormal returns (AR) on the specific day of an event -or event window- by adjusting the difference between the stock's return on that day versus the expected/normal return. Any significant or unusual difference is the effect the event has had on the company.

We understand the normal returns as the ones we would expect if the event had not taken place, hence the previous calculation of an estimation window.

Returns are calculated using the daily stock prices extracted from the Stock Exchange Market where we take the difference between the closing price of day t and day t-1 and extract the percentual variation that has taken place:

$$R_{i,t} = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

There are several practices to estimate the normal return. The simplest is the constant mean:

$$R_{i,t} = E\left[R_{i,t} \middle| X_t\right] + \varepsilon_{i,t}$$

where $E[R_{i,t} \,| X_t]$ is the normal return, $R_{i,t}$ is the actual return of firm i at time t and X_t is the conditioning information at time t. In this model, X_t is a constant. The resultant is known as the abnormal return.

The constant mean return model, assumes that the mean return of a given security is constant through time. (Brown and Warner, 1980).

The other and most popular model is called the Market Model (MacKinlay, 1997), and it assumes a stable linear relation between the market return and the share's price return:

$$R_{i,t} = \alpha + ßR_{mt} + \varepsilon_{it}$$

where $R_{i,t}$ is the actual return, R_{mt} is the market return -in this case IBEX35- and the resultant is the abnormal return. As we can see, the normal return -$E(R_{it})$- depends on the parameters α and ß and the market return. Once we have calculated the normal return, abnormal performance is shown as:

$$AR_{it} = R_{it} - E(R_{it})$$

MacKinlay states that the main advantage of this last model is that we get to remove from the return the portion that is related to changes or variations in the market's return. This will lead to more accurate results; hence, we are going to use it for our study.

First, to obtain the Market Model parameters, we will calculate the mean return of IBEX 35 and run a separate regression for each event using the data within the estimation windows. In this case, the first event occurs on the 25th of February 2000, so the regression will take place up to the day before, that is the 24th. For example, for the first event of company 1 (INDRA):

Source	SS	df	MS			
				Number of obs	=	37
				F(1, 35)	=	0.02
Model	.000038047	1	.000038047	Prob > F	=	0.8992
Residual	.081808737	35	.002337392	R-squared	=	0.0005
				Adj R-squared	=	-0.0281
Total	.081846784	36	.002273522	Root MSE	=	.04835

R	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
R_MEAN	-.0202658	.1588433	-0.13	0.899	-.3427349	.3022033
_cons	.0119657	.0079545	1.50	0.141	-.0041829	.0281143

Table 2. OLS regression with STATA, INDRA

Then, we save the alphas (intercept) and betas (coefficient of the independent variable). We then use these parameters to predict normal performance during the event window. Because our event window is 3 days, the prediction will be until 2nd of March -taking into account that we are working with a labor calendar-.

The number of observations, as we can see on the table, is limited as mentioned before, causing the results to not be significant and the R-squared to be very low. The estimation window should be wider to get more accurate results.

The next event date is on the 23rd of May, so we run a new regression for the returns between 2nd of March and 23rd of May (second estimation window) to obtain the new parameters and so on for the rest of events left.

This way, we estimate the normal returns of each event.

Because we have the same events occurring for six different companies, we have created a new variable in STATA that associates each one with a number (EMPR). This way, once we have calculated normal returns for all events happening, we simply substitute the variable for the number of the company it relates to.

Once all normal returns are computed, it is possible to obtain the abnormal returns by subtracting the actual returns. Any difference we see between the normal and actual return will be the abnormal return (AR).

In STATA, because we are only interested in the ARs included in each event window, we created two variables to obtain these results. One variable, called “event time” counts the number of days between each individual observation and the event day. For example, the first event will be displayed as:

Date	R	RMEAN	Rnorm	Event time	Event window	AR
18feb2000	.0259598	.0023273	-.0060869	-5	0	-
21feb2000	.0071276	.0091058	-.0059037	-4	0	-
22feb2000	.0084926	-.0243234	-.0068074	-3	1	.0153
23feb2000	.0035088	-.0129005	-.0064986	-2	1	.0100074
24feb2000	.0034965	.0039403	-.0060433	-1	1	.0095398
25feb2000	.0344948	.0069529	-.0059619	0	1	.0404566
28feb2000	-.0003368	.0143036	-.0057631	1	1	.0054263
29feb2000	.0040431	0	-.0061498	2	1	.010193
01mar2000	-.0100671	0	-.0061498	3	1	-.003917
02mar2000	-.000339	-.006651	-.0063296	-55	0	-
03mar2000	-.003730	.0049013	-.0060173	-54	0	-

Table 3. Calculation of Abnormal Returns with STATA.

As we can see on the table, the other variable is “event window” that follows a dummy variable format, being 1 when returns are in event window (-3 to 3) and 0 when not.

Because in the study we also analyze the impact of these events over several companies at once, a cross-section aggregation must be computed. To do so, we must calculate the average abnormal return (AAR) of each security and event period. (Kothari, S. P., & Warner, J. B. ,2007).

The calculation can be performed with the equation:

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

where $AR_{i,t}$ represents the abnormal return estimated on the i-th security and N the securities’ population.

With the information we have gathered in STATA, knowing that our event window is t= (-3,3), the returns in our equation will correspond to those located in each day of the event window. Our two variables that identify the event window period (event time) and each company (EMPR) will help us through the calculation.

For example, if we want to know the average abnormal returns on security i three days prior to each event and belonging to INDRA, we just filter the returns through the variables mentioned above, choosing those with event window=-3 and belonging to EMPR=1, creating a new variable that calculates their average.

This method will be used to calculate all securities for each of the six companies we have in the study, helping us analyze the results separately.

3.2. CUMULATIVE ABNORMAL CALCULATION

As we mentioned above, because the study aims to analyze the global effect of the event over a pool of firms, once we have our average abnormal returns we can assume that the effect of the announcement concerns a longer period than the event date. The cumulative abnormal return (CAR) is used to measure this impact. This calculation is known as the sum of the abnormal returns for a firm over the event window period:

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

Lastly, when the focus is on the average effect over multiple days it is necessary to perform both aggregations described and compute the Cumulative Average Abnormal Returns. The average abnormal returns can then be aggregated over the event windows using the same approach as that used to calculate the Cumulative Abnormal return for each security i. (MacKinlay, 1997)

$$CAAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AAR_{it}$$

To perform this calculation with STATA, the same filters are used. In this case, using the same example as before, we create a new variable for the AAR of security i three days prior to the event and belonging to the first company.

The next step is to sum the AAR of the security mentioned above to the next one, in this case, with event window=-2 and EMPR=1. We repeat this procedure, adding and accumulating every AAR in the event window for every company.

Once all calculations are done, we would have the Cumulative Average Abnormal Returns.

3.3. EFFECT POLITICAL PARTIES HAVE ON THE STOCK MARKET

In the study, we also test what effect the results of determined parties have on the share prices.

To do so, we have summarized the percentual results of estimation of vote for our period (2000-2015) to see which are the most influential political parties.

The most relevant parties are PP, PSOE, CIU, PNV and IU. With this information, to test how these results can affect the stock prices, we have created a variable for each party that measures the increase/decrease that takes place between one survey and the next. The aim is to test if, for example, an increase on estimation of votes of one specific party explains the variation on the share prices of the firms. A simple formula is used to calculate these percentual variations:

$$Var = (EstimationVote_t - EstimationVote_{t-1}) \cdot 100$$

where t is the time between one survey and the next.

We follow this step until we obtain all the variations from years 2000 to 2015:

Month	PP	PSOE	CIU	PNV	IU	Var PP	Var PSOE	Var CIU	Var PNV	Var IU
oct-15	29,1	25,3		0,7	4,7	0,9	0,4		-0,6	1
jul-15	28,2	24,9	3,3	1,3	3,7	2,6	0,6	0,1	0,6	-1,1
abr-15	25,6	24,3	3,2	0,7	4,8	-1,7	2,1	0,2	0	-0,4
ene-15	27,3	22,2	3	0,7	5,2	-0,2	-1,7	-0,8	-0,3	0,4
oct-14	27,5	23,9	3,8	1	4,8	-2,5	2,7	0,9	0	-3,4
jul-14	30	21,2	2,9	1	8,2	-1,9	-5	-0,1	-0,1	-2,7
abr-14	31,9	26,2	3	1,1	10,9	-0,2	-0,4	-0,4	-0,4	-0,4
ene-14	32,1	26,6	3,4	1,5	11,3	-1,9	-0,2	0,5	0,3	0
oct-13	34	26,8	2,9	1,2	11,3	1,5	-0,4	-0,2	-0,2	-0,2
jul-13	32,5	27,2	3,1	1,4	11,5	-1,5	-1	-0,3	0,2	1,6
abr-13	34	28,2	3,4	1,2	9,9	-1	-2	-0,2	-0,1	0,5
ene-13	35	30,2	3,6	1,3	9,4	-0,9	1,6	-0,3	-0,1	0
oct-12	35,9	28,6	3,9	1,4	9,4	-0,7	-1,3	-0,1	-0,1	0,8
jul-12	36,6	29,9	4	1,5	8,6	-4	0,3	0,2	0,3	0
abr-12	40,6	29,6	3,8	1,2	8,6	-2,1	1,6	0,4	-0,2	0,7
ene-12	42,7	28	3,4	1,4	7,9	-3,9	-1,9	0,1	0,2	1,7
oct-11	46,6	29,9	3,3	1,2	6,2	3,5	-6,1	0,2	0,2	1,1
jul-11	43,1	36	3,1	1	5,1	-0,7	2,6	-0,4	-0,3	-0,1
abr-11	43,8	33,4	3,5	1,3	5,2	-0,3	-0,6	-0,4	0,1	-0,5
ene-11	44,1	34	3,9	1,2	5,7	1,9	-0,3	0,4	0	-0,5
oct-10	42,2	34,3	3,5	1,2	6,2	1	-0,6	-0,6	-0,1	0,8
jul-10	41,2	34,9	4,1	1,3	5,4	1,7	-3,1	0,5	0	-0,4
abr-10	39,5	38	3,6	1,3	5,8	-0,5	1,8	-0,1	0,3	-0,3
ene-10	40	36,2	3,7	1	6,1	-1	-1,5	0	-0,3	1,4
oct-09	41	37,7	3,7	1,3	4,7	0,8	-1,3	0,3	0,1	0
jul-09	40,2	39	3,4	1,2	4,7	0,2	-1,8	0	0,2	0,2
abr-09	40	40,8	3,4	1	4,5	0,5	10,1	0	-0,1	0
ene-09	39,5	30,7	3,4	1,1	4,5	-0,2	-9	-0,4	0	0,2
oct-08	39,7	39,7	3,8	1,1	4,3	0,4	0,2	0,5	0,1	-0,5
jul-08	39,3	39,5	3,3	1	4,8	1,7	-4,1	0,1	-0,5	0,9
abr-08	37,6	43,6	3,2	1,5	3,9	-1,1	3,4	0,2	-0,2	-1,9
ene-08	38,7	40,2	3	1,7	5,8	1,3	0,5	-0,1	0,2	0,3
oct-07	37,4	39,7	3,1	1,5	5,5	0,4	-0,8	0,2	0	-0,6
jul-07	37	40,5	2,9	1,5	6,1	0,4	0,9	-0,1	-0,1	0,5
abr-07	36,6	39,6	3	1,6	5,6	-1	0,8	-0,2	0,2	-0,9
ene-07	37,6	38,8	3,2	1,4	6,5	-0,3	-0,5	0,1	-0,3	1,4
oct-06	37,9	39,3	3,1	1,7	5,1	1	-1,3	-0,1	0,3	0,1
jul-06	36,9	40,6	3,2	1,4	5	-1,3	0,3	0,3	0	-0,4
abr-06	38,2	40,3	2,9	1,4	5,4	0,2	0,7	-0,7	-0,1	0,5
ene-06	38	39,6	3,6	1,5	4,9	0,3	-0,1	0,2	0	0,1
oct-05	37,7	39,7	3,4	1,5	4,8	1,3	-2,2	0,2	-0,3	-0,3
jul-05	36,4	41,9	3,2	1,8	5,1	-0,2	0,7	0,1	0,2	-0,1
abr-05	36,6	41,2	3,1	1,6	5,2	0,9	-1,2	0,2	0,1	-0,2
ene-05	35,7	42,4	2,9	1,5	5,4	-0,4	0,3	-0,4	-0,2	-0,1
oct-04	36,1	42,1	3,3	1,7	5,5	-0,7	-1,9	0,5	0,2	0,5
jul-04	36,8	44	2,8	1,5	5	1,4	-1,8	0,1	0,2	0,1

abr-04	35,4	45,8	2,7	1,3	4,9	-6,8	10,3	-1	-0,5	-1,7
ene-04	42,2	35,5	3,7	1,8	6,6	-0,2	0,8	-0,3	0,4	0,7
oct-03	42,4	34,7	4	1,4	5,9	1,3	-0,5	0,2	0,2	-0,4
jul-03	41,1	35,2	3,8	1,2	6,3	3,8	-4,3	0,5	-0,1	0
abr-03	37,3	39,5	3,3	1,3	6,3	-2,5	2,2	-0,4	-0,2	0,8
ene-03	39,8	37,3	3,7	1,5	5,5	-1,7	0	0	0,1	0,9
oct-02	41,5	37,3	3,7	1,4	4,6	0,5	0,5	-0,5	0	-0,4
jul-02	41	36,8	4,2	1,4	5	-1,4	2,4	-0,2	-0,1	-0,4
abr-02	42,4	34,4	4,4	1,5	5,4	-1,5	0,2	0,4	0	-0,4
ene-02	43,9	34,2	4	1,5	5,8	0,4	0,2	-0,5	0,1	0,3
oct-01	43,5	34	4,5	1,4	5,5	-0,1	-0,9	0,8	-0,1	-0,1
jul-01	43,6	34,9	3,7	1,5	5,6	0,1	-0,3	-0,3	0,2	0,7
abr-01	43,5	35,2	4	1,3	4,9	0	-1	0,1	-0,1	-0,2
ene-01	43,5	36,2	3,9	1,4	5,1	-0,2	0	0,1	-0,1	-0,4
oct-00	43,7	36,2	3,8	1,5	5,5	-2,9	4,6	-0,5	0,1	-0,4
jul-00	46,6	31,6	4,3	1,4	5,9	1,3	-1,1	0,3	0,2	0
abr-00	45,3	32,7	4	1,2	5,9	3,7	-3,9	-0,1	-0,1	-1,5
ene-00	41,6	36,6	4,1	1,3	7,4	1	0,8	-0,4	0,1	0,6

Table 4. Variations of vote estimations from 2000-2015.

3.3.1. DO MARKETS FAVOR RIGHT GOVERNMENTS?

As mentioned before, research on politics and financial markets show that investors react to political information. They find that stock markets often respond positively on incoming right-wing governments and an increase on stock prices take place after their electoral victory.

This is due primarily to the fact that their policies are usually more beneficial for financial returns. If so, investors will expect a rise on the profitability of the firm, which will consequently make the prices also rise. Even though the profitability of large companies -like the ones to be analyzed- depend on many factors, they also depend to a considerable extent of government policies (Sattler, T.,2013).

The variable included in the study to test this relation is VarPP (right-wing party). To measure the impact it might have, the same steps as before are followed using STATA to calculate the Average Abnormal Returns (AARs).The first step is to create two new dummy variables: one called pp_up for when an increase of VarPP takes place and equal to 1; and another called pp_down for when a decrease takes place and also equal to 1. With these two new variables created, the next step is to calculate the Average Abnormal returns adding one or another as a new filter. For example, it is displayed when an increase occurs as:

EMPR	VarPP	Date	event_time	AR	pp_up	pp_down
1	1.3	25feb2000	0	.04045663	1	-

Table 5. Dummy variable display for an increase of PP.

For example, using the same procedure, if we want to know the new average abnormal returns on security i the day of event of the first company, we calculate the average of the abnormal returns filtered through the variables mentioned before (event_time=0, EMPR=1) and adding this time pp_up if we want to know the AARs for an increase of PP and pp_down for a decrease of PP.

Once the AARs for all companies are calculated, the cumulative abnormal returns are computed to test if indeed fluctuations on PP affect the share prices.

4. RESULTS

Analyzing the results, we can observe with an overview that the ARs and CARs do not show enough evidence to prove a significant positive relation between the publication of the surveys and the stock prices. On the other hand, the results confirm the hypothesis based on CARs expecting to be positive when the right-wing party increases in votes.

The results of Abnormal and Cumulative Abnormal calculations are shown, as well as a further analysis of how fluctuations on variable VarPP affect the share prices for each company. The tables consist of a total of 60 CIS announcements, distributed at a quarterly rate every year over a fifteen-year period (January 2000 to December 2015). Calculated through the Market Model, where AR is the sample abnormal return for the specified day in event time and CAR is the sample cumulative abnormal return from three days prior to the event until three days later.

4.1. INDRA SISTEMAS S.A.

Indra is one of the leading global technology and consulting companies. It is organized around three business areas: information technologies, simulation & automatic test equipment, and defense electronic equipment. (INDRA SISTEMAS S.A., 2020)

Event time	AR	CAR
-3	-.0030159	-.0030159
-2	-.0022865	-.0053024
-1	.0012545	-.004048

0	-.0003372	-.0043852
1	.0019795	-.0024057
2	-.0005512	-.0029569
3	-.0007246	-.0036815

Table 6. Summary Abnormal and Cumulative Returns around CIS announcement, INDRA.

Focusing on the average abnormal return on event day (day 0), we can observe a slight increase from the event day to the next (day 1). Specifically, the returns go from -0.00033 to 0.00197.

On the other hand, the CAR summary shows that after the peak on event day 1, it gradually starts to decrease the next days. This might be because the market tends to regulate after certain short horizon events, as the CIS publication in this case, making the response take place also in a very short horizon. It could also be because, as we are talking about a big firm, many other events affecting the stock prices can take place.

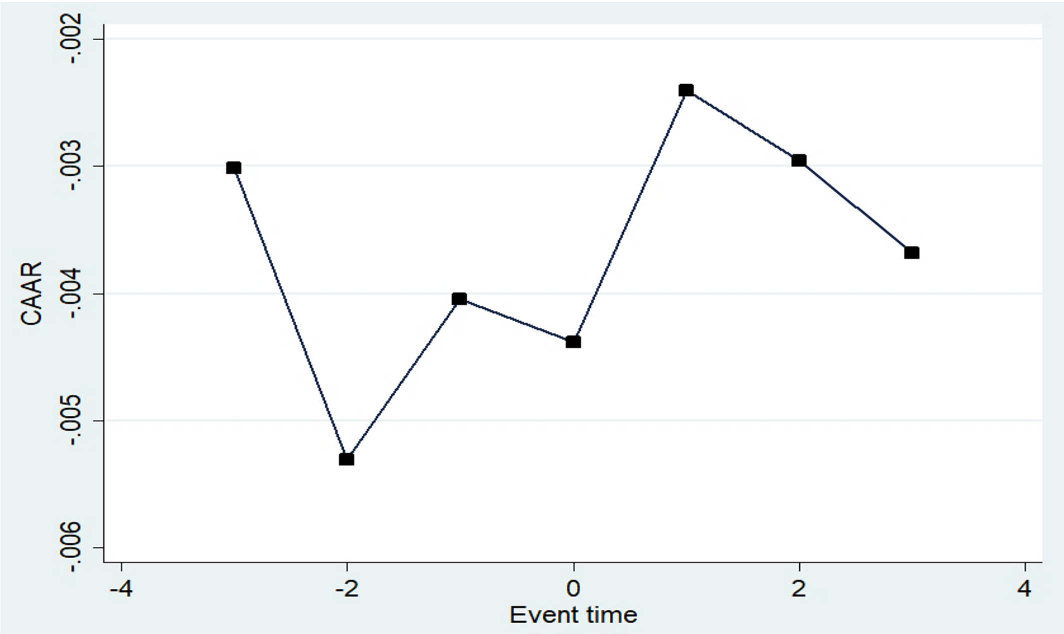

Table 7. Graphic CAR results, INDRA.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of INDRA are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	.00215596	.00215596	-.00256301	-.00256301

1	.00443548	.00659143	.00053208	-.00203094
2	-.00040687	.00618456	-.00121832	-.00324926
3	.00297717	.00916173	-.00418133	-.00743059

Table 8. Summary Abnormal and Cumulative Returns for PP fluctuations, INDRA.

As seen on the table, a slight increase on the share prices take place when the estimation of vote for the political party PP increases. On the day of the event (day 0), the ARs go from 0.0021 to 0.0044 on the next day. With the CARs calculation a continuous but moderate increase can be observed.

On the other side, ARs when PP's vote estimation decreases change from -0.0025 on event day to 0.0005. Apart from the slight increase on day 1, CARs results show a subtle but continuous decrease following the next days.

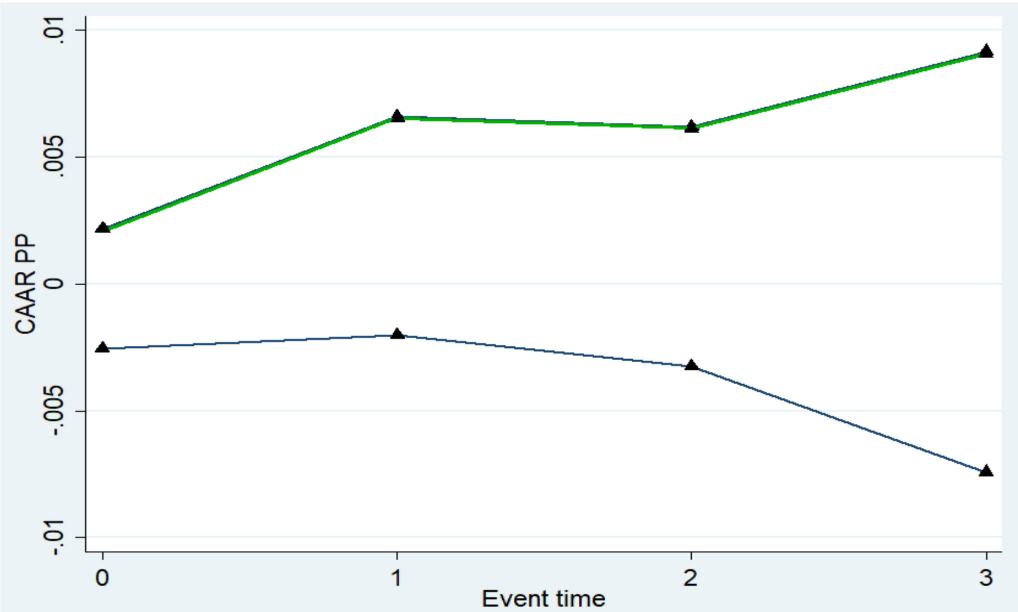

Table 9. Graphic CARs of PP fluctuations, INDRA.

4.2. FERROVIAL S.A

Ferrovial is one of the main global infrastructure operators for transport. The firm designs and constructs public and private works such as roads, highways and airports. Its services englobe the maintenance and conservation of infrastructures, facilities and buildings, the collection and treatment of waste, and other types of public services. (FERROVIAL, S.A., 2020)

Event time	AR	CAR
-3	.00602558	.00602558
-2	-.00210342	.00392216
-1	-.00010844	.00381371
0	.00031013	.00412384
1	.00397008	.00809392
2	-.00075965	.00733427
3	.00061712	.00795138

Table 10. Summary Abnormal and Cumulative Returns around CIS announcement, FERROVIAL.

Average Abnormal returns on the table show an increase after the event announcement, changing from 0.00031 on day 0 to 0.00039 on day 1.

Analyzing the CAR summary, the same results as INDRA are shown, where after the peak on day one, a slight decrease takes place on day 2. These reactions can be explained as mentioned before.

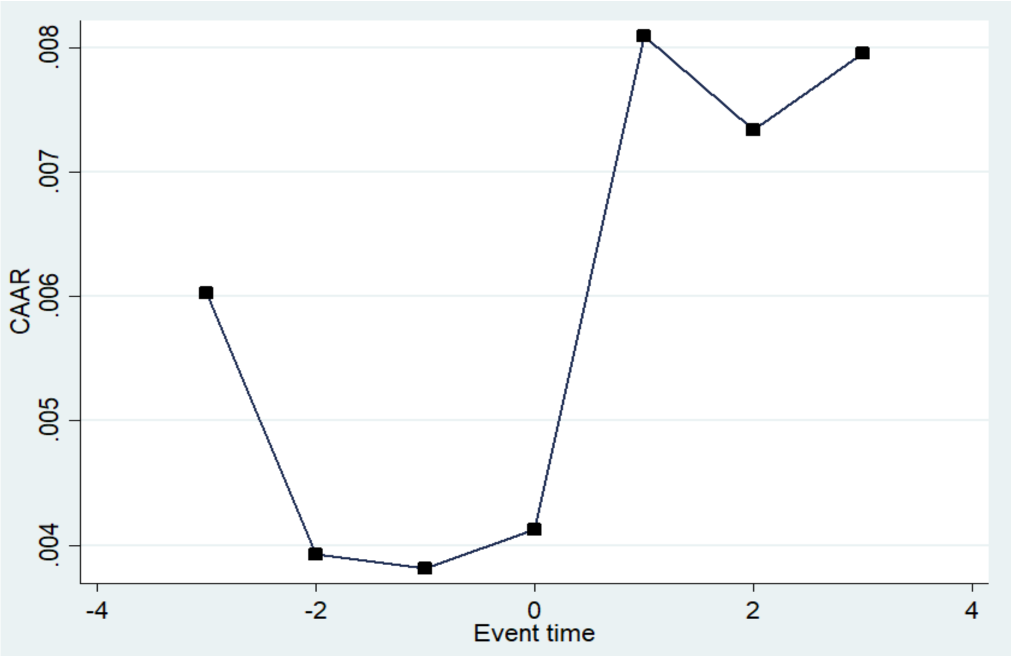

Table 11. Graphic CAR results, FERROVIAL.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of FERROVIAL are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	.00233155	.00233155	-.00161348	-.00161348
1	.00467719	.00700874	.00352311	.00190963
2	.00282433	.00983307	-.00334796	-.00143833
3	.00284781	.01268088	-.00203242	-.00347075

Table 12. Summary Abnormal and Cumulative Returns for PP fluctuations, FERROVIAL.

CARs show a constant increase when PP's vote of estimation also increases, arriving to a peak on day 3. This peak also occurs on day 1 when PP decreases, but it instantly drops for day 2. The reactions to PP fluctuations could have taken place the day after the announcement or, the information did not arrive until the day later as it also happens to INDRA. Either way, results prove a significant relation between these two variables.

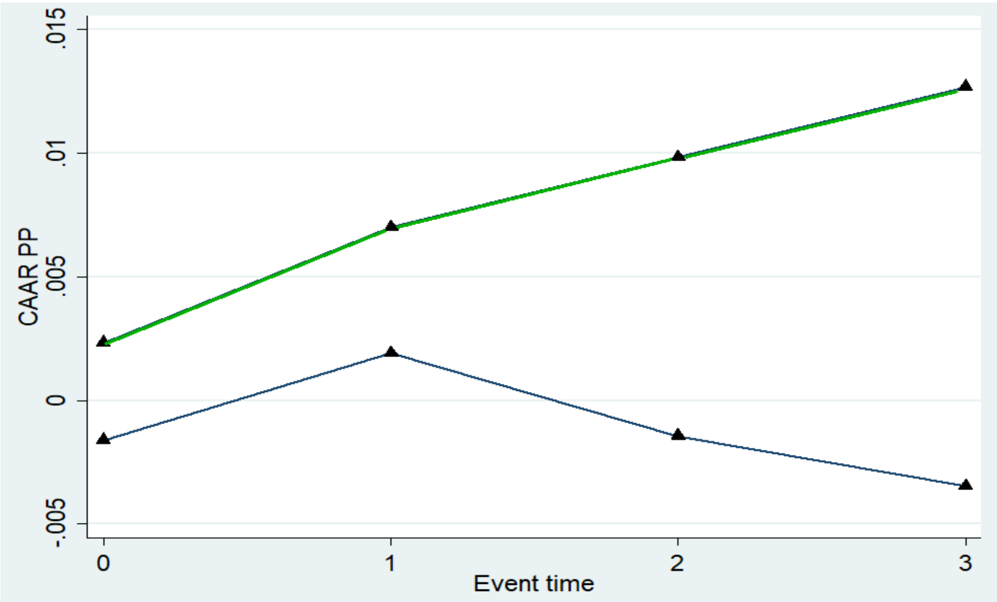

Table 13. Graphic CARs of PP fluctuations, FERROVIAL.

4.3. NATURGY S.A. (GAS NATURAL)

Naturgy is a multinational group of the energy sector and pioneer in the gas and electricity integration. The firm has approximately 10,000,000 energy clients worldwide. It has around 6,700 employees, of which approximately 50% work within Spain. (NATURGY S.A., 2020)

Event time	AR	CAR
-3	-.0083562	-.0083562
-2	-.0062936	-.0146498
-1	-.0080144	-.0226642
0	-.0085747	-.0312389
1	-.0045844	-.0358232
2	-.0079465	-.0437697
3	-.0046439	-.0484136

Table 14. Summary Abnormal and Cumulative Returns around CIS announcement, NATURGY.

The firm’s negative results cannot give enough information to test if the Abnormal Returns are due to the event or if there is another issue affecting the share prices of the company.

As seen on the graph the decrease in prices is a constant.

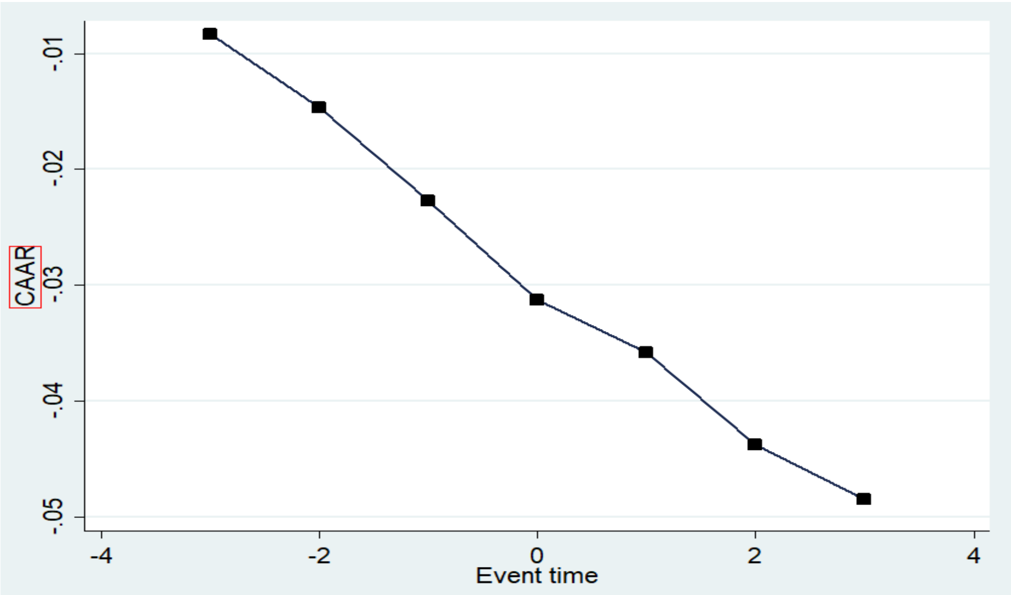

Table 15. Graphic CAR results, NATURGY.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of NATURGY are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	-.0176618	-.0176618	-.0015239	-.0015239
1	-.0099079	-.0275696	-.0001911	-.0017151
2	-.0154122	-.0429819	-.0013568	-.0030718
3	-.0103362	-.0533181	.0001127	-.0029591

Table 16. Summary Abnormal and Cumulative Returns for PP fluctuations, NATURGY.

Results show that when there is an increase of votes for PP, prices tend to fall. Although, this negative response could be as mentioned above due to another event that took place.

On the other hand, when PPs estimation of vote decreases it does not seem to have a big impact on the companies share prices, as we can observe in the graph.

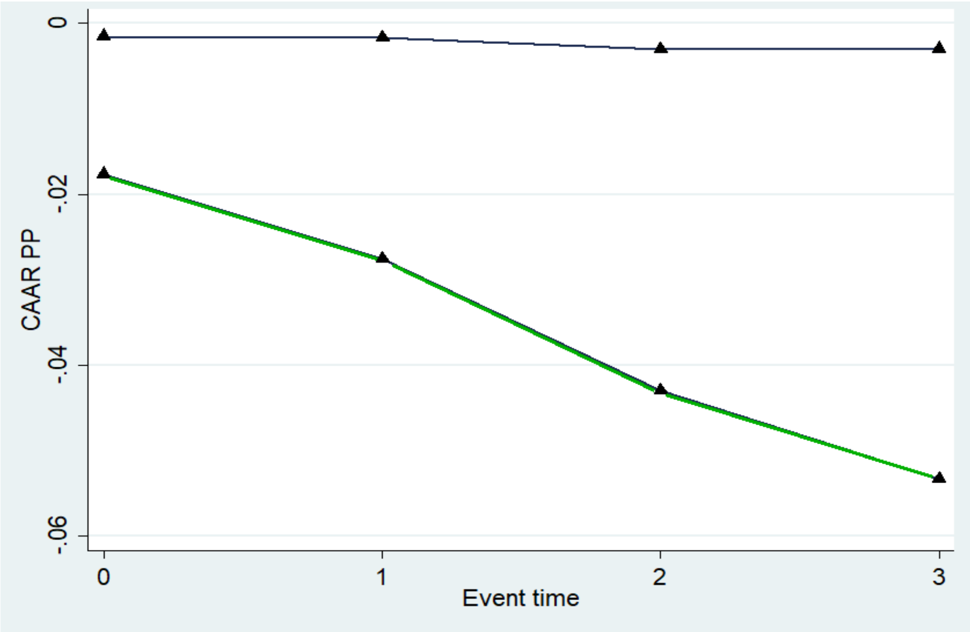

Table 17. Graphic CARs of PP fluctuations, NATURGY.

4.4. TECNOCOM, S.A

Tecnocom is one of the main global companies of consultancy and technology and leading firm in Spain. It is currently part of Indra since its integration back in 2018. (INDRA S.A., 2020)

Event time	AR	CAR
-3	-.0006503	-.0006503
-2	-.0009006	-.001551
-1	-.0022247	-.0037757
0	.0020397	-.001736
1	.0006772	-.0010588
2	.001052	-6.80e-06
3	.0042881	.0042813

Table 18. Summary Abnormal and Cumulative Returns around CIS announcement, TECNOCOM.

The table shows an increase starting one day prior to the event. This could be due to the information being known before hand and therefore incorporated in the market. From the day of the event, a rise in the prices continues until it reaches its peak on day 2 as seen on the graph.

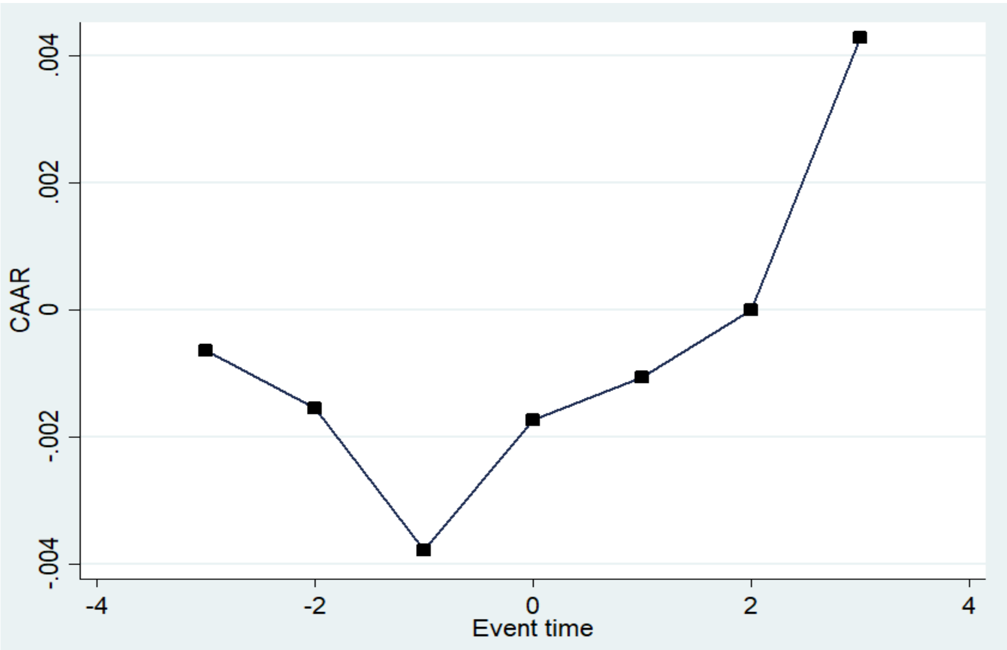

Table 19. Graphic CAR results, TECNOCOM.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of TECNOCOM are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	.0043642	.0043642	-.0007895	-.0007895
1	.0031966	.0075609	.0001064	-.0006831
2	.0009402	.0085011	.0011878	-.0005047
3	.0157726	.0242737	-.0059763	-.0054716

Table 20. Summary Abnormal and Cumulative Returns for PP fluctuations, TECNOCOM.

We can observe a positive relation between the variables, but a late response in the market, taking place the highest increase and decrease on day 2 after the event. Specifically, changing from 0.008 to 0.24 when estimation vote goes up, and changing from -0.0005 to 0.0054 when otherwise.

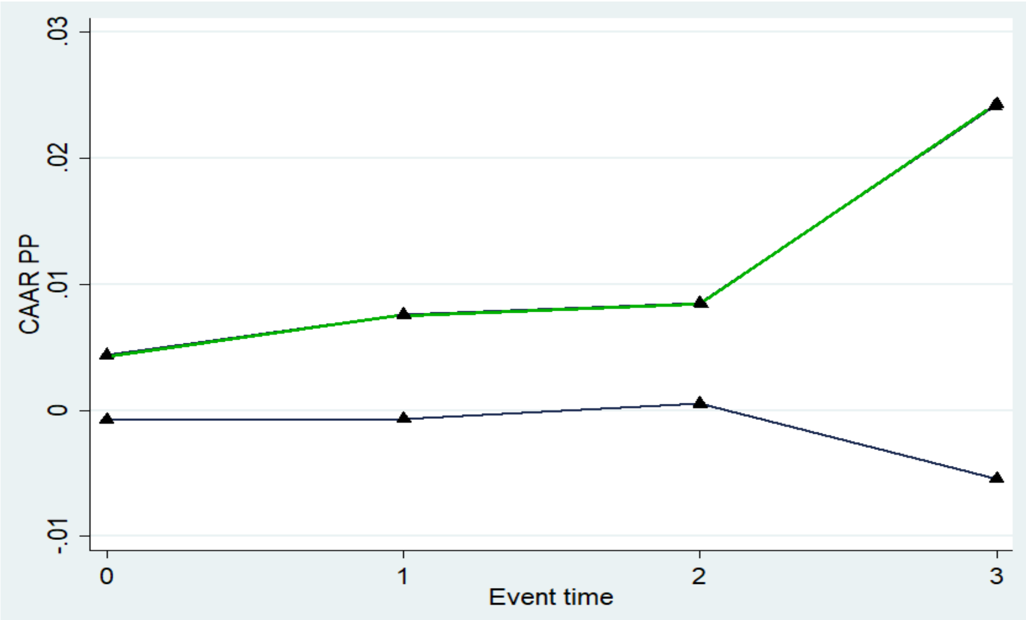

Table 21. Graphic CARs of PP fluctuations, TECNOCOM.

4.5. FOMENTO DE CONSTRUCCIONES Y CONTRATAS (FCC)

FCC is one of the biggest European groups of infrastructure and public services. It was initially a construction firm, until it started offering maintenance contracts for the sewerage system. Its basic activities are taking care of water and environment services, construction of big infrastructures, production of cement and to generate renewable energies. (FCC S.A.,2020)

Event time	AR	CAR
-3	-.0049037	-.0049037
-2	-.001449	-.0063527
-1	.0056744	-.0006782
0	-.0008967	-.001575
1	.0009923	-.0005827
2	.0007242	.0001415
3	-.0011288	-.0009872

Table 22. Summary Abnormal and Cumulative Returns around CIS announcement, FCC.

The table shows a rise in the abnormal prices starting one day prior to the event, where it reaches its peak as well as an increase on day of the event. ARs change from -0.0008 to a positive 0.0009 after the announcement takes place.

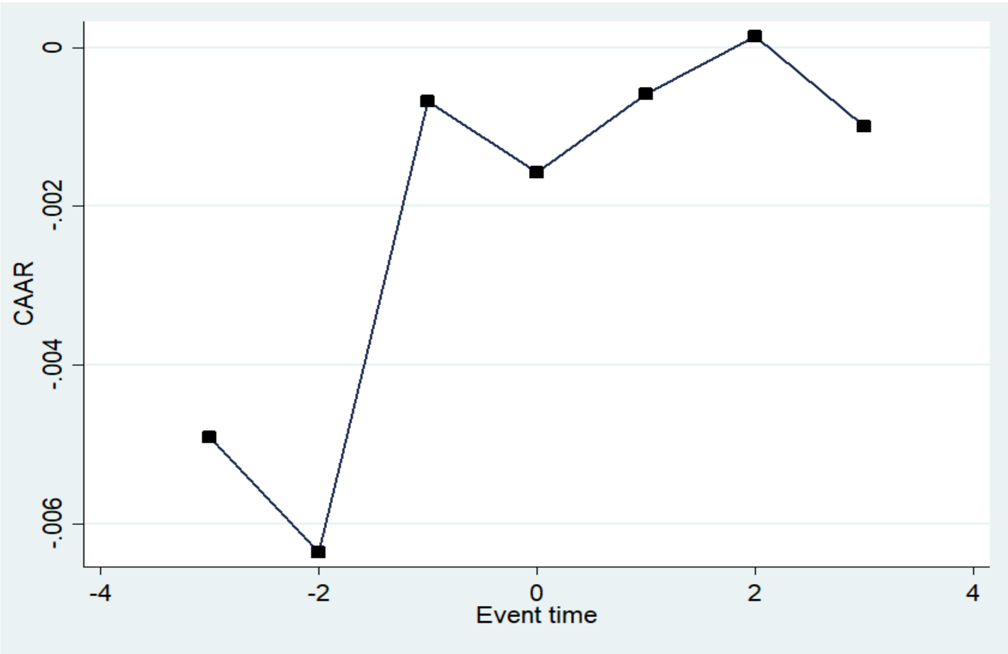

Table 23. Graphic CAR results, FCC.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of FCC are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	.0046898	.0046898	-.0058879	-.0058879
1	.0058409	.0105307	-.002609	-.0084969
2	-.0008193	.0097114	.001872	-.0066249
3	.0011281	.0108395	-.0030966	-.0097215

Table 24. Summary Abnormal and Cumulative Returns for PP fluctuations, FCC.

Results on the table prove variations on prices do occur when PP goes up or down on votes, where the maximum and minimum take place one day after the event, as we can see on the graph.

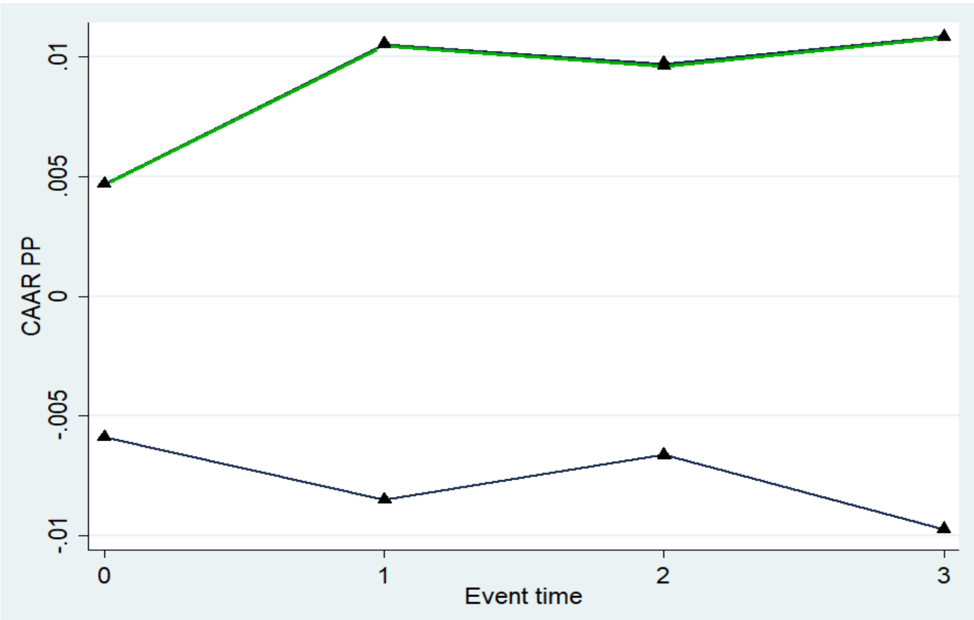

Table 25. Graphic CARs of PP fluctuations, FCC.

4.6. ACS S.A.

ACS group is a global reference in the construction activity/services. The group participates in the development of key sectors for the economy such as building infrastructures and energy services. (ACS, 2020)

Event time	AR	CAR
-3	.0013133	.0003731
-2	-.0053327	.0011715
-1	-.0043599	.0023703
0	-.0103216	.0006103
1	.0073011	.0044759
2	-.0096951	.0067501
3	-.0013352	.005047

Table 26. Summary Abnormal and Cumulative Returns around CIS announcement, ACS.

The Abnormal returns vary from -0.01 on day of event to 0.007 on the day after. Observing the CARs, increase tends to continue on day 2, reaching to 0.0067.

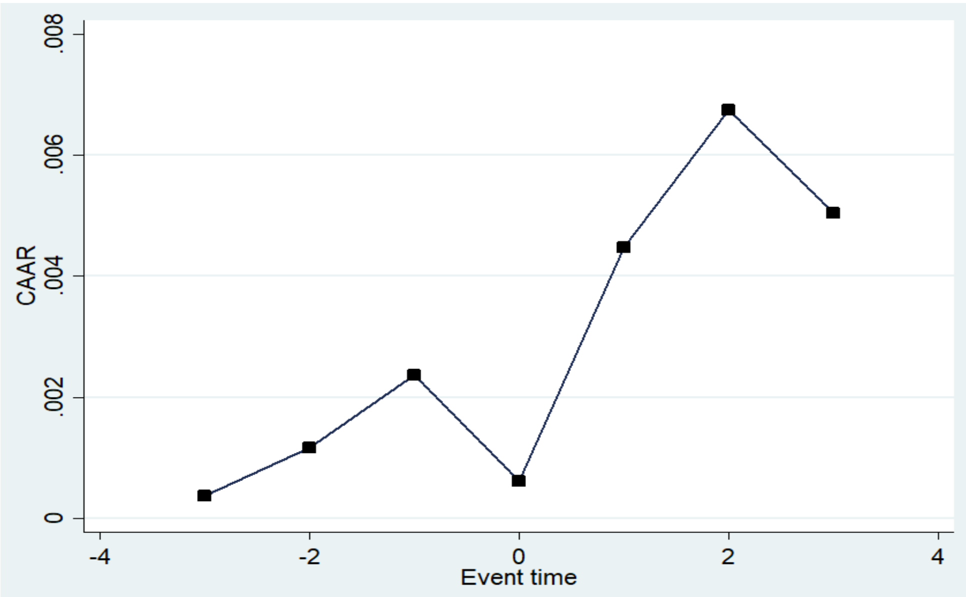

Table 27. Graphic CAR results, ACS.

The results to test if fluctuations regarding estimation of vote of PP can affect the stock prices of ACS are shown as:

Event time	AR (up)	CAR (up)	AR (down)	CAR (down)
0	-.0010809	-.0010809	-.0027753	-.0027753

1	.0015637	.0004828	.0059559	.0031807
2	.0050975	.0055803	8.29e-06	.003189
3	-.0008233	.004757	-.002925	.000264

Table 28. Summary Abnormal and Cumulative Returns for PP fluctuations, ACS.

Table shows that the market response to the announcement also does not happen until one day after the event. We can observe an increase when PP goes up, going from -0.001 on day 0 to 0.004 on day 1.

On the other side, there isn't a clear response for when PP decreases, as the variations aren't noticeable, as seen on the graph.

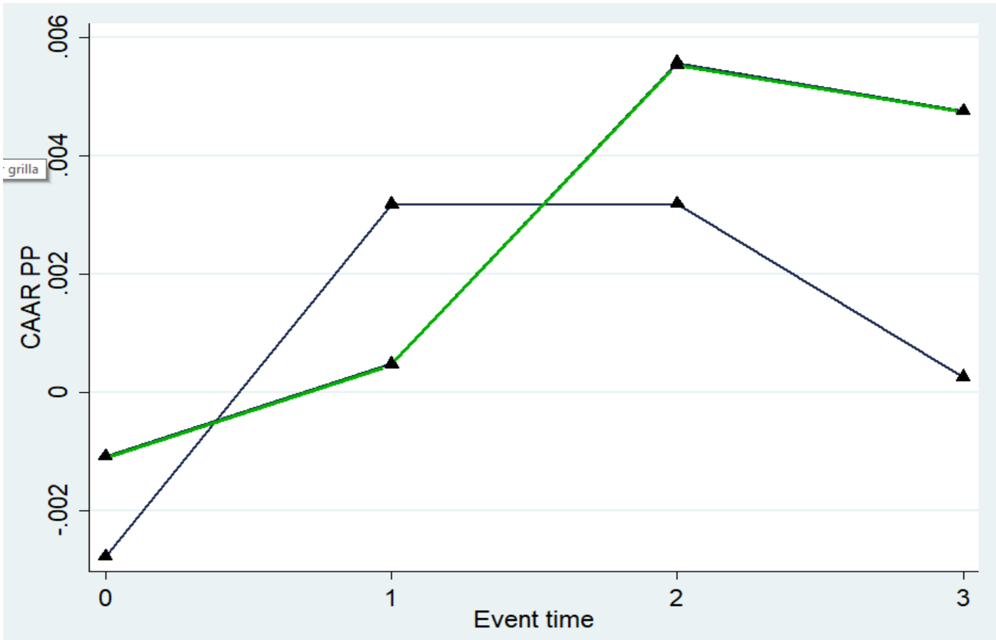

Table 29. Graphic CARs of PP fluctuations, ACS.

5. CONCLUSION

The aim of the study was to test the effect vote surveys can have over the stock prices of the six companies examined and specifically, how right-wing victories affect their shares in a positive way.

Although a significance test has not been conducted due to the sample size not been sufficiently large to obtain accurate results, we can observe through the CARs how they don’t fully explain a relation between publication of CIS surveys and the companies’ share prices.

Some biases can take place while performing the event study. In this case, the event date has been easily identified, hence the majority of the responses taking place on day of the announcement. But for example, CIS announcements are commonly known because of appearing on newspapers or the news directly. In this case it is hard to know if the information has been received on a Friday but not incorporated until Monday morning, or also if the market was informed prior to its closing on the prior trading day. In this case the actual event date would be day -1. This is the reason we created an event window of, in this case, three days. This event window, alongside the estimation window are both another limitation when performing the event study, which do not allow us to get to more accurate results.

Because the firms in this study are large and therefore, events affecting them directly or indirectly must happen quite frequently, other fluctuations can take place and are seen reflected later on the share prices.

Regarding the results on VarPP, a rise in the estimation of vote from the right wing does indeed increase share prices of the six firms. The main reasons regarding this hypothesis is due to the fact that PP would have more tendency to reinforce political laws that benefit the markets. For example, by lowering taxes, a larger amount of profits can be used to be redistributed as share dividends or also limiting labour rights so the firms can have a more a flexible workforce.

Although we suppose the same information arrives at the same time for all companies, reactions take place at different times. To prove that indeed PP affects the market, a significance test should be computed, arriving to the same problem as before, as the sample is not large enough to obtain accurate results.

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APPENDIX

This appendix gives additional details of the procedures used to calculate the results within the event study methodology.

A.1. Return measures.

Historic share prices of each company are subtracted and imported to STATA to calculate returns as:

gen R=(COTIZ[_n]-COTIZ[_n-1])/COTIZ[_n-1] (A.1)

; as well as the market mean return:

gen R_MEAN=(IBEX35[_n]-IBEX35[_n-1])/IBEX35[_n-1] (A.2)

A.2. Abnormal calculation.

OLS regressions are made using STATA to estimate parameters α and ß from the Market Model and for each event date:

reg R R_MEAN if EMPR==1 &fecha < date("t_0", "DMY") (A.3)

where t_0 is the event date. To predict normal returns:

predict Rnorm if EMPR==1 & fecha < date("t_3 ", "DMY"), xb (A.4)

where t_3 corresponds to three days after the event (event window).

With the two variables created, abnormal returns are calculated as:

gen event_window=1 if event_time>=-3
& event_time<=3 (A.5)

gen AR=R-Rnorm if event_window==1 (A.6)

A.3. AARs and CAARs.

Abnormal Average Returns are calculated as:

egen AR_MEAN_prov= mean(AR) if event_window==1
& EMPR==N (A.7)

where with the results CAARs can be calculated:

gen CARdif_0= AR_MEAN if EMPR==1 & event_time==0 (A.8)

gen CARdif_1=CARdif_0 + AR_MEAN if EMPR==1
& event_time==1 (A.9)

and so on until event_time=3.