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Rational partisan theory and other partisan effects in the EU: an event study

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Abstract

This paper uses election data from 15 E.U. member nations and S&P 350 Europe stock price data to analyse possible partisan effects in European elections from 1998-2018. Partisan effect on stock prices is a contested topic in academic finance literature. This paper adds to that controversy by concluding that partisan effects on European stock markets do exist. However, similar to conclusions in academic literature, the existence, direction and magnitude of the effects found in this paper are highly dependent on the statistical model and policy variables used for the analysis. Apart from the traditional left-wing vs. right-wing partisan controversy, this paper looks into three other policy dimensions.

1. Introduction

The economy is not a fully self-steering vehicle of humanity's productivity. Macro-economic and socio-economic policy is executed by the world's governments. Their aim is to steer the economy into the direction most beneficial to their interests. These interests can be nation-wide or even worldwide, but governments always look out for the interests of their electorate because of re-election purposes (Nordhaus, 1975). Since different electorates have different economic and policy preferences, government's policies adapt to match them. A political party setting its policy in accordance with the preferences of their core constituency has been further theorised and called rational partisan theory (Hibbs, 1977).

Numerous theoretical and empirical studies have looked into the implications of the rational partisan theory. Studies into the United States' elections empirically proved the existence of partisan effects on stock prices. The partisan effect caused significantly higher returns under a democratic administration than under a republican administration (Santa-Clara & Valkanov, 2003). Other studies into the U.S. elections, or different countries yield mixed results. Some papers find proof of the rational partisan theory, others find proof of the opposite effect and some don't find an effect at all.

A common denominator amongst studies into the market's valuation of government partisan standpoints can be found. All studies exclusively focus on the left-wing opposed to the right-wing policy dimension. While other dimensions may create impact in similar ways. Recent Brexit developments showed that European stock markets value European stability.[1] This insinuates possible partisan effects on the pro-European and Eurosceptic policy dimension. Furthermore, a philosophical view on liberalism argued that liberalism endorses consumerism (Paden, 1996). A possible partisan effect may therefore arise on the liberal vs. conservative policy dimension. Additionally, empirical research on stock price reactions to tax-cuts and public spending raises questions on what side of that policy dimension is preferred by the market.

This paper adds to existing literature because it tests the existence and direction of effects flowing form the rational partisan theory on a new set of countries. No earlier research has been done focusing solely on EU member nations. Furthermore, this paper adds to literature because it goes beyond the much discussed left/right policy dimension by including three other policy dimensions.

Because of the controversy on the existence and direction of partisan effects on stock prices, the research question of this paper is:

"How do European stock markets' reactions to national elections conform to the rational partisan theory and do other political policy dimensions show similar effects?"

[1] Financial Times "The 'Brexit effect' on UK domestic stocks" 17 Jan 2018

Literature on rational partisan theory states that expectations of higher inflation for a left-wing win lead to higher stock returns. This reasoning is used to hypothesise that left-wing political victories result in higher returns in stock markets. Additionally, previously conducted empirical research is used to hypothesise that investors prefer tax-cut endorsing political climates over government spending preferring parliaments. Furthermore, the view on consumerism is used to hypothesise that liberalism has investors' preference over conservatism. Lastly, it is hypothesised that pro-European political climates are favoured over Euroscepticism.

Because literature reports disparity in results amongst studied nations, it is also hypothesised that election effects on stock markets are not homogenous amongst European nations. These disparities are also looked into per policy dimension, arguing that European Nations show heterogeneous partisan effects.

Research is conducted using the Parlgov database by the University of Bremen. This database holds election data for all elections held in European Union member countries. It utilises expert surveys into political parties to construct the four policy dimensions that are investigated. Additionally, the S&P 350 Europe is used to evaluate stock market reactions to elections. Analyses were conducted using and event study methodology. Results of the event study are analysed using OLS, interaction effect and fixed effect regression models.

The remainder of this paper is structured as follows; Chapter 2 reviews relevant literature. Subsequently, considerations concerning the used data are discussed in chapter 3. Methodology and hypotheses are discussed in chapter 4, where section 5 will provide the results to the performed analyses. Chapter 6 offers a conclusion and discusses limitations and suggestions for further research.

2. Literature review

2.1 Existence of anomalies

Ever since the invention of publicly traded securities, humans have tried to explain stock price variations and tried to profit of them. One of the classical efficient market theories that explains stock price developments is the random walk theory, which explains stock price as a random walk with a drift (Fama, 1995). According to the random walk hypothesis, only the underlying drift, not the actual stock prices can be predicted. Nonetheless, many researchers have successfully contested the random walk hypothesis by finding patterns and cycles in stock prices. One example is the 'day-of-the-week-effect', which finds that stock returns are consistently lower on Mondays (Cross, 1973) (French, 1981). Another is the 'holiday-effect', which leads to higher stock returns before Christmas or thanksgiving (Lkonishok & Schmidt, 1988) (Brockman & Michayluk, 2010). And a third example is the 'January effect', which shows that returns are higher during the first month of the year (Thaler, 1987).

Potential political drivers of stock price anomalies soon caught the attention of researchers. For example, research has been conducted concerning stock market anomalies around international conflicts or the wealth impact of the congressional passing of NAFTA[2] (Schneider & Troeger, 2006) (Hanson & Song, 1998). However, the most extensive research has been done into the effect of electoral cycles and the effect of policy standpoints on investors' behaviour. This type of research knows a long and rich history and is still topic of research in papers today (Nordhaus, 1975) (Sheffrin, 1985) (Chien, Mayer, & Wang, 2016). Originating in the United States, this topic inspired many to do similar researches in, amongst others, Brazil, Germany and Nigeria (Jensen & Schmith, 2005) (Fuss & Bechtel, 2008) (Osuala, Onoh, & Nwansi, 2018).

Research has shown that stock markets display significant abnormal returns around several types of elections (Gemmill, 1992) (Santa-Clara & Valkanov, 2003). Abnormal returns can be attributed to many factors, like political uncertainty, investor preference for a party or macro-economic situation. In any case, stock prices alter because of newly available information. This research, and all previous researches on the topic, rely on the assumption that investors act upon new information and that an event's value is accurately represented by stock price changes.

This assumption relies on the efficient market hypothesis, which states that "stock prices provide accurate signals for resource allocation" and therefore fully reflect all available information on the security and economic conditions (Fama, 1970). It was realised that the efficient market hypothesis in its strictest form is unlikely to hold because information asymmetry cannot be ruled out in real world stock markets. Therefore, three levels of the efficient market hypothesis were introduced; the weak form, the semi-strong form and the

[2] North American Free Trade Agreement, creates a trade bloc between United States, Mexico and Canada.

strong form, each representing a higher level of information incorporation (Roberts, 1967). The weak form states that stock prices accurately reflect historical data, the semi-strong from explains the incorporation of all publicly available information, whereas the strong from incorporates all available information. Several studies concluded that the strong-form hypothesis is unlikely to hold, while the semi-strong form is likely to hold (Fama, 1970) (Burton, 2003). Pantzalis et al. found that stock markets react to newly published information regarding national fiscal and monetary policy, further ensuring the reliability of the semi-strong efficient market hypothesis for this paper (Pantzalis, Stangeland, & Turtle, 2000).

2.2 Partisan effect

Previously mentioned researches into the effects of election cycles and election outcomes generally discuss politically induced drivers of the macro-economy and stock market. Papers lean on the notion that macro-economic developments do not only rely on the economy itself, but also vary with different political short- and long term policies (Hibbs, 1977). A commonly discussed topic is whether investors prefer left-wing or right-wing parties to win elections. On the one hand, rational partisan theory dictates that stock prices flourish after a left-wing win and take a downturn after a right-wing win. Conversely, Wall Street folklore strongly suggest abnormal returns to be positive around republican wins, rather than a democratic win. Reasoning that right-wing parties are more business-oriented and stimulate stock returns with policy measures like tax cuts and deregulation (Niederhoffer, Gibbs, & Bullock, 1970) (Riley & Luksetich, 1980).

Rational partisan theory assumes that left-wing political parties tend to favour unemployment reduction and are willing to accept higher inflation rates (Hibbs, 1977). This assumption was tested and showed to be true for U.S. elections, where democratic administrations showed 2.5% higher inflation rates (Chappell & Keech, 1986). The rational partisan theory was further developed into a model, where voter's expectations of election results affect the economy (Alesina, 1987). In this model, economic agents expect higher levels of inflation for a left-wing win than a right wing win. At the moment of an election, the probability of both a left- and right-wing win are reflected in stock prices. According to the rational partisan theory, stock prices show positive returns after a left-wing win because the probability of a low-inflation period is dropped. Actual inflation will be higher than the average expected inflation, raising equity prices(Ferre & Manzano, 2014).

Literature confirming the rational partisan theory is extensive. Multiple studies concludes that it is a common misconception that U.S. stock markets prefer the Republican Party over the Democratic Party. It shows that mean stock returns are higher during democratic administrations (Huang, 1985) (Santa-Clara & Valkanov, 2003). One study limits partisan effects on stock prices to situations where the election outcome is a surprise. If an incumbent party is sure to be re-elected, its actual re-election will not cause partisan effects. If such cases are ignored, the paper finds that the rational partisan theory holds for OECD countries (Alesina, 1985). Lastly, a study into the presence of election cycles in the detrended Dow Jones Industrial Average index,

has shown that democratic administrations deviate from the random walk model (Alvarez-Ramirez & Rodriguez, 2012).

On the other hand, many other studies point towards a favourable effect on the stock market for right-wing election wins. Studies conducted into the Belgian and U.S. systems concluded that centre-right and republican election wins were beneficial to stock returns (Vuchelen, 2003) (Snowberg, Wolfers, & Zitzewitz, 2007). Another study on the U.S. elections also concluded that a right-wing/republican win was good for stock returns (Niederhoffer, Gibbs, & Bullock, 1970). However, their results were criticized for neglecting trend compensation in their methodology (Riley & Luksetich, 1980). Another example is a paper that looked at optimum trading strategies around elections, which found out maximum profits are higher for republican-won elections. Despite that conclusion, they showed that post-election day results were higher for democratic wins, which was attributed to the removal of uncertainty for investors (Hobbs & Riley, 1984).

Controversy on the existence of actual stock market effects because of the rational partisan theory has led many researchers to conclude that no actual effect exists. Some researchers find no systematic differences in left-wing/right-wing governments' stock returns, and fully attribute political stock price anomalies to the election cycle (Gartner & Wellersdorf, 1995). Others, criticise other researches' methodologies for assuming the outcome of an election is known ex-ante. If this mistake is compensated for, election outcome uncertainty is the dominant explanatory variable for abnormal returns (Li & Born, 2006). Santa-Clara and Valkanov, who found rational partisan theory to hold, also criticised it. When analysing four U.S. elections that were wrongly predicted by the media and election polls, they could not find "election shocks" in stock prices that would be expected conform the rational partisan theory (Santa-Clara & Valkanov, 2003).

Fewer research has been done on the relationship between other political policy dimensions and stock returns. Most researches are into the U.S. situation, where republican-democrat is the only observable contradicting policy dimension. Further research into other countries interpret the U.S. found partisan effect as the left/right dimension. Literature does provide some useful insights for the expected results for the other policy dimensions.

Apart from the right/left policy dimension contradiction, an antithesis can be distinguished between parties that prefer tax cuts or prefer government spending. Research into U.S. government spending and the return on military contractor stocks has shown that public spending increases stock prices (Fisher & Peters, 2010). Research by (Belo, Gala, & Li, 2013) finds that government spending effects on stock prices are highly dependent on industry, differentiated by the extent of exposure to government contracts. Furthermore, research shows that tax-cuts benefit market value as future capital gains that were priced as payable tax turn into additional return (Lang & Shackleford, 2000). As for public spending, the effect of tax-cuts is positive but dependent on a firms' exposure to tax rates (Auerbach & Hasset, 2005).

Political parties can also be differentiated by their standpoint on human liberties and progressiveness on human rights issues like abortion, gay rights and freedom of speech. There is no literature on the effect of this policy dimension on stock prices. Following the reasoning of the philosophical effects of liberalism, a more liberal country leads to consumerism (Paden, 1996). Enhanced consumerism leads to stronger consumption, in turn positively effecting the economy and stock market.

The last categorisation of European political parties is the standpoint on European integration. Again, not much research has been conducted on this type of partisan effect. However, literature concerning the Brexit shows that advanced forms of Euroscepticism lead to a significant decrease in stock prices in the United Kingdom (Cannon & Bacon, 2018). Meanwhile research by (Shahani & Subhan, 2018) showed that Brexit announcements caused significant breaks in stock returns in 4 out of 5 EU stock markets, outside of the U.K.

2.3 The price of uncertainty

Extensive research has been done into the way markets value political certainty and stability. It has been found that market return and risk levels are influenced by political factors, and by political uncertainty in particular (Gemmill, 1992). Political factors influence stock price and volatility because of systemic risk and home-bias induced unbalanced portfolios (Baxter & Jermann, 1997). Systemic risk affects risk-averse investors who dislike the policy uncertainty that flows from upcoming elections. Policy uncertainty makes it harder to make fully informed investment decisions, devaluing the potential investments. Insufficiently balanced portfolios in terms of country specific risks create additional uncertainty and reduced stock returns. A lack of diversification leads to lower diffusion and higher concentration of political risk, enhancing the uncertainty effect on stock returns.

Before the actual election date, this uncertainty leads to higher stock volatility and lower stock returns. Extensive amounts of literature that negatively relates stock returns to the degree of political uncertainty can be found (Hirshleifer, 2001) (Ozuguz, 2009). A study into the US presidential elections used polling data as certainty predictor and found that higher certainty of election outcomes lead to higher stock returns (Goodell & Vahamaa, 2013). Research on elections in 33 developed nations has shown that stock returns rise in the two weeks leading up to an election. The researchers argue that uncertainty declines as the election gets closer, because polling data is generally accurate. Additionally, they found that higher degrees of uncertainty led to higher stock returns after the election because the difference between uncertainty in advance and uncertainty on the day before the election is bigger (Pantzalis, Stangeland, & Turtle, 2000). This reasoning can extended by concluding that post-election day returns are generally positive since uncertainty is taken away.

2.4 Multi-party system

Since this paper looks into European elections, it is bound by restrictions of to the multi-party system. Partisan effects in the United States are arguably easier to distinguish because of the two party system, as either a left-

wing or right-wing party wins. Researchers argue that a two-party system leads to strategic policy convergence, where parties select standpoints that apply to the largest electoral group. This brings intended policy measures of both parties closer together (Lindbeck & Weibull, 1987). In Europe's multi-party system, partisan standpoints are more diverse because different parties can speak to specific electoral niches. This offers the opportunity for strategic extremism, selecting standpoints that clearly identify a party (Glaeser, Ponzetto, & Shapiro, 2006). Strategic extremism leads to a diverse set of parties that endorse different mixes of policy dimensions in order to gain the largest electorate.

Another implication of the multi-party system is that the legislative power is not exclusively controlled by the winning party. A coalition of parties is needed to ensure majority rule, but coalition formation implies negotiation with other political parties with different standpoints. Research shows that negotiations amongst party factions result in compromises which reflect overall policy standpoints as opposed to individual' party's points (Roemer, 1999). Larger parties have a larger influence on the negotiations, because the overall policy standpoint lies closer to their standpoint.

3. Data

An event study aims to estimate the effect of an event on another statistic. In the case of this research, stock data and data on national parliamentary elections were needed in order to determine a relationship between the two. The determination of the research period, stock and index selection, and the selection of relevant election data were the main data related challenges. The considerations to these challenges are described in this section.

3.1 Research period

Europe's political landscape is continuously changing due to factors like globalisation, environmental changes, societal developments or economic/ humanitarian crises. This implies that results from elections right after the establishment of the European Coal and Steel community in 1952, do not necessarily apply to the current day situation. When determining the starting point of this research, priority was given to a sufficiently long research period that could provide sound conclusions, while simultaneously holding the timespan short enough to keep findings relevant to the modern social and political arena.

The European Union was constituted by the Maastricht Treaty that was signed in 1992 and effectuated late 1993. The treaty intensified European integration and collaboration between the member states. Amongst others, the treaty created European citizenship, laid the foundation for the introduction of the Euro, established a common foreign and security policy and ensured cooperation in the fields of justice and internal affairs (Shaw, 1996). The treaty of Maastricht was abolished and replaced by the currently effective treaty of Lisbon. The Lisbon treaty intensified collaboration once more, albeit in a less extensive manner than Maastricht. It mostly saw to the change of legal structure and working of the European Union, instead of the creation of new European competences.

Because the Treaty of Maastricht established the European Union's competences and greatly shaped the way national parliaments and the EU relate to each other, this research focuses on the elections held after its effectuation. These elections are comparable and reflect the current level of European Integration accurately because the foundation of the treaties is still similar. Therefore, conclusions that are drawn from this empirical research have a larger likelihood of applying to the current-day situation and to all European countries.

Combining this consideration with the availability of election and stock price data has yielded the research period running from 1998 until 2018. Election data of elections held before 1998 was available, however stock data for the chosen stocks became scarcer. The first examined election was held on the 11th of March 1998 and the most recent examined election was held on the 5th of March 2018. Therefore the research period spans over 21 years and covers 78 national parliamentary elections. Most companies were analysed for multiple elections, leading to a total of 1,499 data points.

3.2 Stock price data

Earlier, this paper established that if it is assumed that the semi-strong form of the efficient market hypothesis holds, stock prices efficiently represent actual value of stocks. This statement yields a broad panel of choice in stock selection because all European stocks could have been used. However, the semi-strong efficient market hypothesis only holds if investors are always able to buy and sell using market information, meaning stock liquidity must be high. In order ensure the most accurate stock price, which correctly priced all available information, this research focused on the largest blue-chip stocks of Europe. Since larger stocks are more liquid, the efficient market hypothesis assumption is more likely to hold true which ensures the accurate pricing of election and partisan effects.

Stocks were found in the Standard & Poors Europe 350 (hereafter: S&P 350), which comprises of a list of 364 of Europe's largest publicly registered corporations from 18 different countries. The stock's country identifier was used to determine its home country. A selection among the stocks was made because not all countries were members of the European Union. EU membership is essential because of the comparability of the events and the external validity of the results. Since all observed nations were EU member states, it is more likely for the results of this research to also apply to the non-investigated EU member states. After selection, 33 Swiss, 1 Isle of Man, and 4 Jersey stocks were excluded from the research. Table 1 depicts the distribution of the number of stocks by country.

Table 1: S&P 350 stock division by country

Austria	4	Ireland	7
Belgium	8	Isle of Man*	1
Switserland*	33	Italy	18
Germany	45	Jersey*	4
Denmark	14	Luxembourg	4
Spain	19	Netherlands	24
Finland	10	Norway	7
France	48	Portugal	2
United Kingdom	87	Sweden	29

*Excluded from the research because the country is not a member of the European Union

Daily total return index data was extracted from Thomson Reuters Datastream (Datastream, 2018). Data was limitedly available for some stocks due to the fact that they went public during the research period. In order to guarantee enough stock data per election, the starting point of 1998 was chosen. At 1 January 1998, total return index data was available for 261 out of the 364 stocks. A company was included in the research if stock data

was available for at least 190 days before the election date. This results in a slightly higher concentration of observed elections later in the research period.

Daily total return index data was transformed into daily returns using equation (1):

$$(1)\quad R_t = \frac{total\ return\ index_t - total\ return\ index_{t-1}}{total\ return\ index_{t-1}}$$

Additionally, overall index return was extracted in the form of S&P 350 total return index. This index was chosen because it accurately describes the overall developments for Europe's largest stocks. Meanwhile, there are no other pan-European stock indices that we suited for this research. Total S&P 350 return data was also extracted from Datastream (Datastream, 2018). Finally, daily total return index data was transformed into daily return data using equation 1.

3.3 Election data

Because the research question aims to isolate the relationship between election outcomes and stock prices, national elections were chosen as the elections of interest. A base rule of international law is the sovereignty of a nation, meaning that only a nation itself determines what happens within its borders. This implies that the largest impact of policy measures can be expected after national elections. Despite continuous globalisation and growing interdependence between countries, policy measures tend to only affect companies within the nations' borders. So the strongest relationship between policy and stock price can be expected between national elections and stock's listed in that country.

Different European countries handle various political and judicial systems, so a choice had to be made concerning the type of national election that would be examined. Partisan effect studies that took place in the United States generally focus on the presidential elections (Snowberg, Wolfers, & Zitzewitz, 2007) (Leblang & Mukherjee, 2005). In the U.S. presidential elections, partisan effects can be profound since a high percentage of legislative power may move from one party to another. A change in legislative power implies change in policy setting power. Since this research aims to evaluate the effect of policy change, it focuses on the national parliamentary elections because they have the largest impact on legislative power.

Election data was retrieved from the Parliaments and Governments database (hereafter: Parlgov database) by the University of Bremen (Doring & Manow, 2018). The Parlgov database consists of election data on "all EU and most OECD democracies". Therefore it contains data on 1600 political parties, 930 elections and 8600 election results per political party. The Parlgov databases on election results and on political party information were merged to derive information on what type of political party had won or lost in the election. After this merger, data was selected to only contain information on the elections within the research period and the

countries which stock data was collected for. This selection yielded a total of 78 parliamentary elections (list of elections in appendix A). Table 2 depicts the amount of elections per country.

Table 2: Number of elections per country

Austria	6	Luxembourg	4
Belgium	5	Netherlands	7
Denmark	6	Norway	5
Finland	5	Portugal	6
France	4	Spain	6
Germany	6	Sweden	5
Ireland	4	United Kingdom	5
Italy	5		

Data on political parties was subject to some conditions. Primarily, only parties that had won more than 1.0% of voter share were included in the database. Regardless of the primary rule, parties were also included if they won more than 2 seats in an election, if an independent candidate won 1.0% of voter share or more, if parties won 1 seat in two successive elections or if a party was the 'first loser' by becoming the party with the highest voting share without winning a seat twice in a row.

Parlgov ranks political parties on 4 main policy dimensions; left/right orientation, state/market preference, liberty/authority stance and their anti/pro EU standpoint. These indicators are scaled from 0-10 and are static over time. The left/right dimension holds a low value for left-wing political parties and a high value for right-wing political parties. The state/market dimension determines the party's preference for lower taxes or higher public spending and holds a low value for parties that prefer low taxes and a high value for parties that prefer public spending. Liberty/authority dimension is interpreted as policies on matters such as abortion, gay rights and euthanasia. The variable takes a low value if a party's stance is liberal and a high value if it is conservative. The anti/pro EU variable takes on a low value if a party opposes further European integration and a high value if the party is an opponent of further European integration.

The values were determined by combining various researches that took surveys into parties' orientations (Mair & Castles, 1984) (Huber & Inglehart, 1995) (Benoit & Laver, 2006) (Bakker et Al, 2015). If a value for any of the four dimensions was missing from the expert surveys, it was determined using the mean value of the party's family. A missing value for a Christian democrat party was therefore determined by computing the mean value of all other Christian democrat parties. Policy dimension values were not available for independent

parliamentary members or political parties without a family affiliation. Missing values for political parties led to the exclusion of one election from the dataset because data on 103/630 seats was missing.[3]

Another check was done to ensure enough days between elections. Elections that are too close may have very strong influence on each other, or create problems in generating the estimation window in the event study. Table 3 shows that the minimum amount of days between the elections is 190. This is sufficient for an independent estimation of the event window. No elections were left out of the analysis because of this check.

Table 3: Days between elections descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
Days between elections	8,898,566	1458.885	351.1279	190	1841

3.4 Constructing variables

Different continuous and dummy variables were constructed in order to test the effect of the four policy dimensions on stock price developments around election dates. Firstly, the four policy dimensions were transformed into weighted averages of the whole parliament. This was done by multiplying each party's policy dimension parameter by the amount of seats it had in parliament, dividing that by the total amount of seats in parliament. Repeating this calculation for every party and adding up the result gives the weighted policy parameter for the whole parliament after a given election. The weighted average left/right, state/market, liberty/authority and anti/pro EU values were computed using this approach.

Secondly, the weighted average policy dimensions were compared to those of the parliament after the previous election. This resulted in the weighted average policy dimension difference. Changing number of total parliamentary seats, or missing data on policy dimensions led to distortion of the weighted average computations. Any discrepancies were compensated for if it entailed more than 1% of the total amount of parliamentary seats (see appendix A). The results of the computation of the weighted average policy dimension score were transformed into two sets of variables. The first set is a set of dummy variables, taking the value of 1 if the weighted policy dimension value increased, and took 0 if it decreased. The second is the percentage change in weighted policy dimension score.

Thirdly, a variable concerning the percentage of seats that was exchanged between parties was constructed. This variable takes on a higher value if more seats switched from one party to another. It was computed by dividing the sum of seats won of all parties in the election and dividing that by the total amount of parliamentary seats. The variable was constructed in such a way that if its value takes 1, 1% of the seats changed between parties. If the value took 100, all seats would change from one party to another.

[3] 13 March 2001 Italian election

Lastly, dummy variables concerning properties of the winning party were constructed. The winning party is identified as the party with the largest number of seats after the election. Policy dimension dummies were created, taking on the value of 1 if the winning party's policy dimension score was larger than 5. Therefore, the dummies indicate whether the largest party is left-wing or right-wing, state or market oriented, liberty or authority oriented or whether its pro- or anti EU. Lastly, a variable was created that indicates the relative size of the largest party within the parliament. This variable takes on the value of 1 if the party has 1% of the total seats, and a 100 if one party takes up all the seats in the parliament.

Descriptive statistics on the constructed variables and the dependent variable can be found in appendix B. When looking at the policy dimension dummies, it is striking that many elections (60%) swayed to the right and became less government-spending oriented. Additionally, it is remarkable that only 34% of parliaments swayed to a more pro-European parliament while the winning party was pro-European in 81% of the cases. Since all variables were known for all observations, none of the variables have reduced explanatory power.

4. Methodology

An event study was performed for the purposes of this research. This section elaborates on the choice for this statistical approach and the different choices that had to be made within the model. Subsequently, this section elaborates on the statistical tests that were used. Finally, the each hypothesis is presented with their corresponding statistical test and regression formula.

4.1 Event study

An event study is a useful way to assess the impact of economic- or other type of events on firm value because it analyses the immediate difference in pricing around the event date compared to a normal situation. Therefore an event study isolates the event's impact, as opposed to explaining all stock price movements (MacKinlay, 1997). Event impact can be measured because of the assumption of rationality in the marketplace, which leads to immediate and correct pricing of new information. Assuming that the semi-strong version of the efficient market hypothesis holds, the stock prices accurately reflect the real value. Any new information that comes out around the event date, is priced correctly and immediately. These corrections around the event days are measured and form the core of the event study; to use statistical testing to find correlations between event circumstances and abnormal stock return around the event dates.

An event study is performed using daily stock price information, market return information and dates on which the events of interest take place. Because many events can influence securities prices and stock and market returns are widely available, the study is used in a wide variety of circumstances. The first paper that uses a form of event study stems from 1933, and analyses the effect of stock splits on stock price (Dolley, 1933). Other applications of the event study methodology ranged from the effect of celebrity endorsers on firm value (Agrawal & Kamakura, 1995) to the effect of central banks' involvement in the foreign exchange market on securities prices (Fatum & Hutchison, 2003).

The event study methodology is diverse in each of the performed studies, and has been undergoing change since its first use in 1933. The groundworks for the methodology that is still used today, was laid by Fama, Fisher, Jensen and Roll in 1969. Their statistical approach became the standard in evaluating event impact (Binder, 1998). Therefore, their methodology was used for this research, following the research structure laid out by MacKinley (MacKinlay, 1997).

4.2 Event & estimation window

Following the structure of MacKinley, the first step in an event study is to establish the event date. For this research, the event day was defined as the election day, on which the actual voting took place. This day is

defined as t = 0 for the analyses. If in any case the election date was not on a trading day, it was moved to the next trading day. Next, the event window was established using the event day. The event window took up the two trading days before the election, the election day itself and the two trading days after the election. The event window was defined as t [-2, 2], where each t is a trading day.

The reason that the event window exceeds just the election day is twofold. First, slow diffusion of information or insider knowledge may result in the lead-lag effect (Hou, 2007). Due to this effect, some information is not priced correctly immediately, despite the assumption of the semi-strong efficient market hypothesis and the choice for blue-chip stocks. This phenomenon is likely to occur as it might take investors some time to fully grasp the implications of the election results. Secondly, the results of an election are hardly a real surprise to the capital markets and the general public since pre-election polls are relatively accurate in predicting election results (Jennings, 2018) (Forsythe, Frank, Krishnamurthy, & Ross, 1995). Therefore, a share of the expected partisan effects are already correctly priced in the capital markets before the actual election. A part of this effect is taken into account by also examining the two days before the election.

After selecting the event window, the estimation window was chosen. The estimation window is used to calculate the normal behaviour of a stock, when it is not under the influence of the event. It was determined to start 190 days before and end 10 days before the election date (t=0). The estimation window was therefore defined as t [-190, -10]. Polls start to become more accurate when elections get closer, already enlarging the degree of correct pricing of the final election results. Because the estimation window serves to find normal returns, the upper bound of 10 days before the election was chosen. In order to ensure enough days to compute the normal returns, the estimation window then looks back 190 days.

4.3 Computing returns

Abnormal returns are estimated by comparing normal return with actual return. The normal return pattern is computed by finding a stock's sensitivity to the market return. Many options are available when it comes to calculating the normal return, but this paper used the market model approach. The market model assumes a stable linear relationship between the market return and the stock return due to its assumed joint normality of asset returns (MacKinlay, 1997). This approach deletes potential error because of the influence of normal market returns. For any security *i* the market model follows equation (2):

$$(2)\quad R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

$$\text{With:}\quad E(\varepsilon_{it} = 0) \qquad var(\varepsilon_{it}) = \sigma^2_{\varepsilon_t}$$

Where R_{mt} and R_{it} are the market return and return on stock $_i$, ε_{it} is the zero-mean error term and α_i, β_i and σ^2 are the market model parameters. The parameters were computed using OLS regression.

Normal return parameters were used to predict the return of any stock during the event window. The β in equation 2 measures a stock's sensitivity to the market return. Multiplying the stock β by the market return of the days in the event window and adding the intercept value α, yields the predicted return.

Subsequently, abnormal return was calculated using the difference between predicted return and the actual return during the event period. Abnormal returns were calculated for each day within the event period using equation (3):

$$(3)\ AR_{i,\tau} = R_{i,\tau} - E\left(R_{i,\tau}\ |X_\tau\right)$$

In the Equation, R stands for the stock's actual return per day within the event window and E (R | X) stand for the predicted return over that same day.

Abnormal returns of the whole event window were aggregated to assess the full event impact. This creates cumulative abnormal return (hereafter: CAR). The CAR is computed using equation (4):

$$(4)\quad CAR_{i(\tau 1,\tau 2)} = \sum_{\tau=\tau 1}^{\tau 2} AR_{\tau,t}$$

Where τ_1 depicts the start of event window and τ_2 stands for the end of the event window. CAR values were computed for all 1,499 observations.

4.4 Statistical tests

T-test

A T-test was performed in order to determine whether the average cumulative abnormal return was different from 0. This shows whether or not, the average election creates abnormal stock returns. The t-test statistic follows equation (5):

$$(5)\quad t = \frac{\bar{x} - \mu}{s/\sqrt{n}}$$

Where t stand for the test statistic, $\bar{x}$ is the sample mean, s is the standard deviation of the sample and n the number of observations. μ is filled in as the mean that is tested for. In this case $\mu = 0$ because this test determines whether the mean average CARs are different from 0.

In order to draw any conclusions on the drivers of CARs, it first needs to be established that the t-test yields significant results. Therefore the first hypothesis is:

H1: Cumulative Abnormal returns are, on average, different from 0

Ordinary least squares

The aim of the study is to find out relations between the CARs and circumstances around the election. With the event study, CARs had been established and descriptive data on election events was stored in the independent variables. Ordinary least squares regressions (OLS) were run in order to detect the relationship between dependent and independent variables. OLS regressions utilise equations (6) and (7):

$$(6)\quad CAR_i = \alpha + \beta_1 x_i$$

$$(7)\quad CAR_i = \alpha + \beta_1 x_{i1} + \beta_2 x_{i2} + \cdots + \beta_p x_{ip} + \varepsilon_i.$$

Equation 6 depicts a simple OLS regression formula, where only one independent variable is taken into consideration. In this equation, α stands for the constant, or y-axis intercept value and x_i and β_1 stand for the dependent variable and regression coefficients respectively. Equation 7 shows the multivariate OLS regression formula where α stands for the constant, or y-axis intercept value. Variables $x_{i1} \ldots x_{ip}$ and $\beta_1 \ldots \beta p$ stand for the dependent variables 1 till *p* and their corresponding regression coefficient respectively.

Fixed Effect model

Because this research analyses multiple observations for the same company over time, the data has taken on the structure of panel data. Within this panel data, companies are clustered by country. Literature has shown that countries respond differently to election effects. The possibility of country specific effects is neglected using OLS regressions because it overlooks within-group variances, possibly devaluating the robustness of the results. A fixed effect regression corrects for potentially different means per unit like country or year. Difference within units causes correlation between the error term and the regression coefficients and needs to be corrected for. Equation (8) was used for the fixed effect regressions:

$$(8)\quad Y_{\mathrm{it}} = \beta_0 + \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + y_2 E_2 + \cdots + y_n E_n + \delta_2 T_2 + \cdots + \delta_t T_t + u_{it}$$

Y is the dependent variable per entity over time. X represents the independent variables, β is the independent variable's regression coefficient and *u* is the error term. E*2* till E*n* represent each country in the form of dummy variables. y*2* is the regression coefficient per country. T follow a similar structure, T*2* till T*n* are dummy variables for each year that was examined. δ is the regression coefficient for each year dummy. For regressions without a fixed-year element, the y and δ were left out.

Fixed effect regressions with fixed year component were run based on the outcome of a Wald test. Rejecting the null hypothesis that all year dummies are equal to 0 meant that year-fixed effects are present. A limitation of the fixed effect analysis is that the within variation of the countries is assumed to be fixed, or only slowly developing over time. If countries rapidly change their response to political news, results from the fixed effect analysis are less explanatory.

Interaction effects

An OLS regression with interaction terms aims to determine the effect of a moderator variable. A moderator variable is added as an independent variable, which also interacts with another independent variable in determining the dependent variable's value (Jaccard & Wan, 1996). This test will use equation (9):

$$(9)\ CAR_i = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 x_2 + \varepsilon_i.$$

Where X1 and X2 are calculated as the simple observation by observation product of the respective variable. These variables are considered to be the main terms. β_3 Represents the interaction effect of X1 and X2.

4.5 Hypotheses

Country homogeneity

The European Unions' member nations are heterogeneous in various aspects that might influence the existence and magnitude of stock market's reactions to partisan effects. A nation generally governed by a left-wing administration is bound to respond differently to a right-wing win than a more right-wing country. And a conservative nation may be shocked more when a liberal party wins than a liberal nation. These different responses to election results leads to time invariant characteristics of a nation. These are interesting in two ways; to find partisan effects on the level of individual nations and to determine whether OLS or fixed effect regressions must be run. Therefore hypothesis 2 was constructed:

H2a: Stock market reactions around elections are time-invariant and homogenous among European nations

H2b: Partisan effects are homogenous among European nations

In order to find out if stock markets react homogenously to election effects, fixed effect regressions using equation 8 were conducted. The dependent variable was cumulative abnormal return. All independent variables that are used throughout this paper were used as independent variables. The policy variables were run in sets, where each variable took part in the equation. Each analysis was also run with dummy variables per country and per year The regression equations are as follows:

$$CAR_i = \alpha + \beta_1 x_{\%seat\ change} + \ \beta_2 C_1 + \cdots + \beta_{17} C_{15} + \beta_{18} T_{1998} + \cdots + \beta_{39} T_{2018+}\ \varepsilon_i$$

$$CAR_i = \alpha + \beta_1 x_{\%seats\ won\ by\ largest\ party} + \ \beta_2 C_1 + \cdots + \beta_{17} C_{15} + \beta_{18} T_{1998} + \cdots + \beta_{39} T_{2018+}\ \varepsilon_i$$

$$CAR_i = \alpha + \beta_1 x_{left,right} + \cdots + \beta_4 x_{EU\ anti,pro} + \ \beta_5 C_1 + \cdots + \beta_{20} C_{15} + \beta_{21} T_{1998} + \cdots + \beta_{42} T_{2018+}\ \varepsilon_i$$

Where X % seat change and X% seats won by largest party represent the continuous variables on the amount of seats changed from one party to another and the amount of parliamentary seats obtained by the largest party respectively. X*left,right,* X*state,market*, X*liberty,authority* and X*EU,anti,pro* represent the policy variables in dummy form, as well as policy dummy for the winning party and the change in weighted average policy score. The C variable is a dummy variable for each country in the dataset and the T variable is a dummy variable for each year in the dataset.

Additionally, an Ordinary Least Square interaction effect regression was run to establish whether partisan effects differ per country. The dependent variable was CAR and independent variables were the separate parliamentary policy dummies, country dummies and an interaction term between country dummy and policy dummy. The regressions use the formula:

$$CAR_i = \alpha + \beta_1 x_{parliamentary\ policy\ dummy} + \ \beta_2 C_1 + \cdots + \beta_{17} C_{15} + \ \beta_{18} x_{dum=1} * C_1 + \cdots + \beta_{33} x_{dum=1} * C_{15} + \ \varepsilon_i$$

Where X represents each parliamentary policy dummy, C is a country dummy and C*x is the interaction effect.

Uncertainty

Literature indicates that stock returns leading up to an election are lower if uncertainty is higher because risk-averse investors dislike uncertainty. Conversely, the stock returns on the election day and days after the election

are arguably higher since uncertainty of the election outcome drops. Political uncertainty manifests itself in cabinet change or the volatility of the obtained seats in parliament. Since this research is unable to do analyses on the type of government, the latter was used as the political uncertainty determinant. Where it is assumed that a large number of seats changed from one party to another led to higher uncertainty for investors leading up to the elections. Hypothesis 3 evaluates the impact of political instability by establishing a relationship between the percentage of seats that change between parties and the CAR. Additionally, it aims to approach the value of political stability by testing for a relationship between the CAR and the percentage of seats that the largest party has in parliament. Therefore hypotheses 3a and 3b read:

H3a: A higher percentage of seats changed between parties lead to a lower cumulative abnormal return in the stock market

H3b: A larger share of seats for the winning party correlates positively with cumulative abnormal return in the stock market

These hypotheses are tested using OLS regressions and the fixed effect method from equations 6 and 8, by the following regression formulae:

$$CAR_i = \alpha + \beta_1 x_{\%seat\ change} + \varepsilon_i$$

$$CAR_i = \alpha + \beta_1 x_{\%seats\ won\ by\ largest\ party} + \varepsilon_i$$

$$CAR_i = \alpha + \beta_1 x_{\%seat\ change} + \beta_2 C_1 + \cdots + \beta_{17} C_{15} + \beta_{18} T_{1998} + \cdots + \beta_{39} T_{2018+}\ \varepsilon_i$$

$$CAR_i = \alpha + \beta_1 x_{\%seats\ won\ by\ largest\ party} + \beta_2 C_1 + \cdots + \beta_{17} C_{15} + \beta_{18} T_{1998} + \cdots + \beta_{39} T_{2018+}\ \varepsilon_i$$

The formulae follow earlier models, where β1 stands for the seat change variable's regression coefficient and C and T control for fixed-country and fixed-year effects. Because the analysis focuses on the explanatory power of the X variable, the E and T variables are left out in the results, they are merely controlled for.

Partisan effects

Hypothesis 4 assesses the existence, direction and magnitude of partisan effects along the four policy dimensions. According to the rational partisan theory, the left/right dimension results in lower stock returns for a right-wing win. Literature is inconclusive on the direction of partisan effects in the contradiction between parties that favour tax cuts over additional public spending. Because tax-cuts are more beneficial on the short term, it is hypothesised that tax-cut preferring parties create positive CARs. This hypothesis also analyses whether the notion that more liberal parties' consumerism leads to higher stock returns finds truth in the data. Finally, this analysis serves to test if European stock markets really value European integration and stability. Hypothesis 4 reads:

H4a: A right-wing win results in lower CARs on the stock market

H4b: A win by a party that prefers tax-cuts over public spending results in higher CARs on the stock market

H4c: A win by a liberal party instead of a conservative party results in higher CARs on the stock market

H4d: A win by a pro-European party results in higher CARs on the stock market

Firstly, all policy dummies were used as independent variables with CAR as the dependent variable in multivariate OLS and fixed effect regressions. These analyses followed equation 7 and 8, which formed the following formulae:

$$CAR_i = \alpha + \beta_1 x_{left,right} + \beta_2 x_{state,market} + \beta_3 x_{liberty,authority} + \beta_4 x_{EU\ anti,pro} + \varepsilon_i.$$

$$CAR_i = \beta_0 + \beta_1 x_{left,right} + \beta_2 x_{state,market} + \beta_3 x_{liberty,authority} + \beta_4 x_{EU\ anti,pro} + y_2 C_2 + \cdots + y_{15} C_{15} + \delta_2 T_2 + \cdots + \delta_{21} T_{21} + \varepsilon_i$$

Where X represent the policy dummies and E and T represent the country-specific and year-specific dummies respectively.

Secondly, a correlation matrix was constructed in order to determine the interdependence of the policy dimension variables. Large correlation amongst the variables leads to reduced explanatory power because of multicollinearity. Thirdly, the policy dimensions were analysed separately in different ways. Cumulative abnormal return was always the dependent variable. All the different forms of policy dimension variables that were constructed have been used. The parliamentary policy dummy shows whether the weighted average of the policy dimension score has gone up or down. The weighted average continuous variable shows the percentage change in weighted average policy dimension score. Finally, the winner orientation dummy variable indicates whether the largest party has an above-average or a below-average policy dimension score. The analyses were run using OLS regressions, fixed effect models that corrects for country-specific effects and fixed effect model that corrects for both country- and year-specific effects. Using the following formulae:

$$CAR_i = \alpha + \beta_1 x_{policy\ variable} + \varepsilon_i$$

$$CAR_i = \beta_0 + \beta_1 x_{policy\ variable} + y_2 E_2 + \cdots + y_{15} E_{15} + \varepsilon_i$$

$$CAR_i = \beta_0 + \beta_1 x_{policy\ variable} + y_2 E_2 + \cdots + y_{15} E_{15} + \delta_2 T_2 + \cdots + \delta_{21} T_{21} + \varepsilon_i$$

Where X stand for each individual policy dimension variable, and E and T stand for the controlling country and year dummies. Since the country and year-specific effects are not the variables of interest, their values have been left out in the result section.

Multi-party system

Europe national legislative bodies are typified by their multi-party systems, where coalitions have to be formed in order to constitute governments. Implying that a party with the largest amount of seats has a significant influence on policy. Forming a majority government forces the largest parties to negotiate and reach compromises, diminishing their influence on policy. However, the larger a party is, the larger its negotiation power and influence on policy. This notion is tested by hypothesis 5:

H5: Parties that won the election have a stronger influence on policy measures if the share of the seats won is larger

In order to capture the effect of the need to negotiate on partisan effect induced stock price change, interaction effect regressions were run. This analysis isolates the main effects of the largest party, and largest party policy orientation. In addition, it evaluates the interaction effect of the share of seats that the largest party has won and each policy dummy. The OLS regression with interaction terms follows equation 9, which results into the following regression formula:

$$CAR_i = \alpha + \beta_1 x_{\%seats\ by\ largest\ party} + \beta_2 x_{policy\ dummy} + \beta_3 x_{\%seats\ by\ largestparty} x_{policy\ dummy} + \varepsilon_i$$

Where β1 represent the coefficient of the percentage of seats won by the largest party, β2 represents each policy dummy's regression coefficient and β3 is the interaction term between the two independent variables.

5. Results

5.1 Election date returns

Determining whether elections actually show abnormal returns is a vital step because further analysis would be futile if no significant abnormal returns around elections were established. Analysing cumulative abnormal returns around all observed data points yields table 4. The t-test shows that mean average abnormal return in the event windows (2 days prior until 2 days after the election) is significantly below 0 at a 99% confidence level. Therefore, the first hypothesis proves to be true since cumulative abnormal returns are present.

The magnitude of the average abnormal returns of -0.95% is striking. Pre-election and post-election abnormal returns have been found to be positive in other researches. These papers argued that the disappearance of uncertainty during the event window [-2, 2] leads to lower volatility and higher stock returns. One paper on Greek election returns concluded that the election day itself shows negative returns (Koulakiotis, Papapanagos, & Papasyriopoulos, 2016). Another study into 33 developed nation's elections, lead to the conclusion that the two weeks prior to an election week outperformed the election week itself (Pantzalis, Stangeland, & Turtle, 2000). An explanation of Europe's negative abnormal returns around elections may be found in the much disliked uncertainty by investors combined with the consequences of the multi-party system (Riley & Luksetich, 1980). Uncertainty is only partly taken away during an election week because partisan effects are determined by the final formation of a majority government, not directly because of election results.

Table 4: Average abnormal return t-test

Variable	Observations	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
CAR	1,499	-.9505744	.1267023	4.905521	-1.199107	-.7020418

t = -7.5024 p = 0.0000

5.2 Effects by country

As mentioned before, researchers cannot find consensus on the direction and magnitude of partisan effects. Partly, this results from different research settings like a different set of observed countries. Hypothesis 2 tests whether fixed country effects or fixed-year effects exist and influence the OLS regression results. The regressions describes in section 4.4.4 were performed and their results are portrayed in appendix C table 1. The table shows the correlations between all independent variables and cumulative abnormal returns. This analysis' variables of interest are the country and year dummies because significant correlation with CARSs concludes the existence of country- and year-fixed effects. A significant coefficient depicts a significant influence of a particular country or year on CAR values.

Each analysis shows significant correlations between specific countries and specific years. Countries or years with significant coefficients in one analysis generally show significant results for the other analyses. This reinforces the existence of fixed effects because it shows they are persistent. Examples are Belgium, France, Ireland and Portugal who each show persistently higher CAR values than base country Austria. By year, examples are 2001, 2005 and 2006 that show significantly higher CARs than the base year 1999. Conversely the years 2003, 2011 and 2016 show significantly lower CARs than the base year.

The persistence of significant correlations amongst analyses shows that fixed effects exist. Particular countries respond differently to election periods and some years show significantly different results than other years. This result indicates the validity of using fixed effect models and rejects hypothesis 2a.

Previous results show that CAR levels are different per country and per year. However, these results do not indicate a nation's specific reaction to partisan changes after elections. Hypothesis 2b was tested using the previously described OLS interaction effect analysis. Results are stated in appendix C table 2.

The amount of significant correlations between the interaction term and CAR values differs per policy dummy. Parliamentary left/right policy dummy shows only one significant interaction term. Only a right-wing win in Finland has a significantly lower return than a left-wing win. The country-specific dummy yields a significant correlation with CAR too. This indicates that a right-wing win in Finland, on average, yields -2.47% from the policy dummy, +7,13% from the country dummy and -6.84% for the interaction effect. Totalling at negative 2.18% cumulative abnormal return. Following similar calculations, a left-wing win would result in a positive 7.13% return, which results in a 9.31% CAR difference. These results indicate that stock markets in Finland particularly prefer left-wing parliamentary victories and conform to the rational partisan theory.

More significant coefficients were found in the state/market dummy analysis. 8 out of 14 countries have significant interaction terms at a 90% confidence level. Germany, Denmark, France, Ireland, United Kingdom, Luxembourg, Netherlands, and Sweden show significantly higher CARs when a public-spending favoured party wins the election. Denmark and Germany are the only countries that show significant country dummy coefficients too. Computations analogue to the previous paragraph lead to 23.45% and 10.06% higher CARs respectively when a party that prefers government spending over tax cuts wins the election.

Analysing the liberty/authority policy dimension shows 4 significant interaction terms between the policy dummy and country at the 90% confidence level. Denmark, Ireland, Netherlands and Norway show significant interaction terms, indicating country-specific response to partisan effects. Lastly, the EU anti/pro policy dimension shows only two countries significantly sensitive to a pro-European parliamentary victory. Germany and the Netherlands have significant interaction terms. German stock markets perform 7.19% better, while Dutch markets underperform with an additional 5.92%.

Due to these results, hypothesis 2b must be partly rejected. Most observed nations react in similar fashion to partisan effects because they do not show significant interaction terms. However, it is clear that

countries are not homogenous in their reactions. Extrapolation of the results to the whole of Europe are mostly distorted in the case of the state/market policy dimension because of the eight out of 14 significant interaction terms. After that, the liberty/authority dummy has 4 out of 14, which also leads to distorted results. European-wide results are mostly intact for other policy dimension variables since only 1 and 2 countries have significant interaction terms.

5.3 Political uncertainty

Table 5 shows the results of the regression with CAR as dependent variable and the percentage of seats changed and seats obtained by the largest party as independent variables. No significant correlations between any of the variables was found. The OLS regression, fixed effect models that used fixed-country effects and fixed effect models that used fixed-country and fixed-year effects show now significant correlations. Meanwhile, literature has suggested that political uncertainty is disliked by investors because they are unsure what policy measures will be taken and how they might influence their investments (Riley & Luksetich, 1980). This does not stroke with the results in table 5 and leads to the rejection of hypotheses 3a and 3b.

A possible explanation is that stock markets are well aware of the magnitude of political change before the start of the event window (2 days before election). Another possible explanations lies in the multi-party nature of Europe's political systems. Because of the need to form coalitions and majority governments, real partisan uncertainty is only taken away when the new government announces its plans. At most, political uncertainty is disliked by investors, but that phenomenon is not captured by this data.

Table 5: Seat change & largest party correlation

VARIABLES	(1) OLS	(2) Fixed Effects	(3) Fixed Effects	(4) OLS	(5) Fixed Effects	(6) Fixed Effects
% Seats changed	-0.00150	-0.0333	-0.0454			
	(0.00568)	(0.0352)	(0.0382)			
% Share of largest party				0.00729	0.131	0.200
				(0.00946)	(0.137)	(0.160)
Constant	-0.922***	-0.317	-0.291	-1.255***	-6.410	-10.58
	(0.189)	(0.670)	(3.780)	(0.430)	(5.716)	(10.44)
Observations	1,499	1,499	1,499	1,499	1,499	1,499
R-squared	0.000	0.006	0.173	0.000	0.020	0.180
Number of companies		321	321		321	321
Country FE		YES	YES		YES	YES
Year FE		NO	YES		NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.4 Partisan effect

Section 5.1 established the existence of statistically significant CARs around elections. Subsequently, tests weree run on potential CAR influencers. Firstly, all four parliamentary policy dimension dummies were used as independent variables to the dependent variable CAR. The dummy variables took on the value of 1 if the weighted value of the policy dimension score for the whole parliament has increased. If it decreased, it took the value of 0. All stated dummy variables are written down from the low value to the high value. Therefore the left/right dummy takes on a low value for a left- and a high value for a right-wing party.

Table 6 shows that three policy dimension dummies have a significant relationship with the CAR level in the OLS regression. A parliamentary swing to the right significantly lowers CARs by 0.82% and a swing to the conservative side implies a 1.58% decrease in CARs in the OLS model. These results are consistent with the rational partisan theory and the notion that liberalism enhances consumption and therefore stock returns. Finally, CARs are 0.55% lower when parliament becomes more pro-European. This is inconsistent with the stock market's valuation of Brexit. The state/market policy dimension dummy shows no significant relation to the cumulative abnormal return.

The fixed effect model results show no significant correlations between the policy dummies and CARs. The OLS results may not be reflective of the real-world relationship because they are induced by country- and year-specific fixed effects.

Table 6: Policy dimensions combined

	(1)	(2)	(3)
VARIABLES	OLS	Fixed Effects	Fixed Effects
Left/right dummy	-0.824*	-1.029	-2.572
	(0.439)	(1.552)	(2.052)
State/market dummy	-0.0842	0.250	1.595
	(0.320)	(1.559)	(1.561)
Liberty/authority dummy	-1.581***	-1.592	-0.382
	(0.389)	(0.995)	(0.998)
EU anti/pro dummy	-0.552**	-0.766	-0.625
	(0.276)	(0.889)	(1.200)
Constant	0.645***	0.647	-0.214
	(0.248)	(0.696)	(3.378)
Observations	1,499	1,499	1,499
R-squared	0.050	0.055	0.198
Number of companies		321	321
Country FE		YES	YES
Year FE		NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Correlation between policy dimension dummies may distort the regression and diminish the explanatory power of the model due to multicollinearity. Correlated dummy variables show lower and less statistically significant parameters since a part of their impact is also captured by another dummy variable. Table 7 shows that the swing in policy dimension dummies are highly correlated. Since this research focusses on the direction of stock return change after a parliamentary policy swing, and does not attempt to estimate partisan effects in absolute terms, the focus is on the variable's explanatory power. Separate analysis of highly correlated dummy variables leads to better understanding of its impact on CAR values.

Table 7 shows the correlation coefficients between the dummy variables. The left/right and state/market dummies have a correlation value of 0.65. Correlation between the two dummies can be explained because left-wing parties tend to have a preference for expanding the public budget, rather than budget cuts. The state/market and liberty/authority variables are also correlated with by a correlation coefficient of 0.43. Similar to the previous example, a correlation coefficient of 0.76 between the left/right and liberty/ authority dummies is logical because left wing parties are usually more focused on human rights and civil liberties. Because political standpoints are inherently correlated, the remainder of this research focuses on the separate analysis of each policy dimension.

Table 7: Correlation matrix parliamentary policy dimension dummies

	Left right dummy	EU anti pro dummy	State market dummy	Liberty authority dummy
Left right dummy	1			
EU anti pro dummy	-0.2293	1		
State market dummy	0.6505	-0.0273	1	
Liberty authority dummy	0.763	-0.3081	0.4306	1

Regressing each policy dimension dummy variable separately, yielded the results stated in table 8. Once again, three out of four policy dimensions are significantly correlated with CARs in the OLS model. In contradiction to the results in table 6, the state/market parliamentary policy dummy does show a significant relationship with CAR values, while the EU standpoint dummy lost its significant explanatory power. Also contrary to the results in table 6, controlling for fixed country and fixed-year effects does not lead to insignificant coefficients for all policy dummies. The parliamentary left/right and liberty/authority dummies are consistently significant, even when controlled for fixed effects. Though, the confidence level of the significance is lowered in both cases. Controlling for both the fixed-year as well as the fixed-country effect lowers the confidence level from 99% to

90% for both dummies. Indicating that both dummies are partly explained by fixed-year effects. The parliamentary state/market dummy loses significance when controlled for fixed effects, indicating the OLS model's explanatory power is fuelled by fixed effects.

Over all the elections, a parliament that swings to the right is correlated with significantly lower stock returns than a parliament that swings to the left. This finding is consistent with rational partisan theory and the literature that confirms that theory. Depending on the research methodology and countries in the dataset, some researches did or did not find significant partisan effects. This result indicates that partisan effects exist in European elections. Similar to the previous analysis, the liberty/authority dummy analysis shows that a parliament that becomes more conservative in terms of human rights and civil liberties, lowers cumulative abnormal returns. Again, indicating that further individualism and liberalism enhance the economy through more consumerism.

Table 9 depicts the relationship between a 1% change in weighted policy dimension score after the election and CARs. In the OLS model, a swing to the right, an appetite for government spending and a more conservative parliament are significantly and negatively correlated with abnormal returns. Interestingly, table 9 does show a positive and significant correlation between a more pro-European parliament and CARs in the OLS model. When assessing the fixed effect model that only controls for fixed-country effects, the left/right and liberty authority policy variables keep a reduced significant correlation with CARs. All policy variables lose their significance once fixed-year effects are controlled for too. This implies that the correlation in the OLS model must be greatly attributed to within-country and within-year characteristics.

Much of previous research into partisan effects on stock prices has been conducted in the United States, which knows a two-party system. In such a system, only two political parties operate in the legislative bodies. Analysing election results therefore automatically focuses on the winning party, which has the largest influence on policy decisions. All the examined countries in this research are typified by multi-party systems. Because of this system, data on the whole parliament might not cover the true direction of a nation's policy since it is largely determined by the governing parties. Since multi-party systems use a coalition system in governing, a parliamentary majority needs to be obtained. It is very likely that the winning party, with the most seats after an election, is a part of this coalition and therefore has significant influence on policy.

With this in mind, an analysis of the relationship between the winning party's policy dimensions and CAR values is potentially more explanatory of partisan effects than an analysis of the whole parliament. Such an analysis was conducted and the results are presented in table 10. The results are partly consistent with the results of other policy variable analyses. The OLS model coefficients all show significant correlations with CARs, while controlling for fixed effects takes away that significance. A striking result is found in the winning party's European standpoint dummy variable coefficient. In the OLS model as well as in both fixed effect

Table 8: Parliamentary policy dimension dummies separated

VARIABLES	(1) OLS	(2) Fixed Effects	(3) Fixed Effects	(4) OLS	(5) Fixed Effects	(6) Fixed Effects	(7) OLS	(8) Fixed Effects	(9) Fixed Effects	(10) OLS	(11) Fixed Effects	(12) Fixed Effects
Parliament left/right dummy	-1.980***	-1.912***	-1.743*									
	(0.248)	(0.465)	(0.943)									
Parliament state/market dummy				-1.290***	-1.236	-0.648						
				(0.260)	(1.036)	(0.733)						
Parliament liberty/authority dummy							-2.067***	-2.111***	-1.526*			
							(0.244)	(0.507)	(0.780)			
Parliament EU anti/pro dummy										0.168	-0.0272	0.268
										(0.258)	(1.204)	(1.183)
Constant	0.246	0.205	-0.496	-0.173	-0.205	-0.994	0.169	0.193	-0.510	-1.008***	-0.941**	-1.024
	(0.182)	(0.281)	(3.749)	(0.205)	(0.625)	(4.360)	(0.160)	(0.275)	(3.753)	(0.162)	(0.415)	(4.310)
Observations	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499
R-squared	0.039	0.040	0.190	0.017	0.016	0.170	0.044	0.048	0.185	0.000	0.000	0.168
Number of companies		321	321		321	321		321	321		321	321
Country FE		YES	YES		YES	YES		YES	YES		YES	YES
Year FE		NO	YES		NO	YES		NO	YES		NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Policy dimension weighted average score change

VARIABLES	(1) OLS	(2) Fixed Effects	(3) Fixed Effects	(4) OLS	(5) Fixed Effects	(6) Fixed Effects	(7) OLS	(8) Fixed Effects	(9) Fixed Effects	(10) OLS	(11) Fixed Effects	(12) Fixed Effects
% Change left/right weighted average	-0.0550***	-0.0719*	-0.0452									
	(0.0112)	(0.0397)	(0.0630)									
% Change state/market weighted average				-0.0377***	-0.0608	-0.0395						
				(0.0118)	(0.0469)	(0.0534)						
% Change liberty/authority weighted average							-0.0957***	-0.101**	-0.0774			
							(0.0122)	(0.0407)	(0.0548)			
% Change EU anti/pro weighted average										0.111***	0.104	0.0893
										(0.0212)	(0.108)	(0.0998)
Constant	-0.842***	-0.809***	-1.141	-0.883***	-0.841***	-1.119	-0.852***	-0.847***	-1.065	-0.684***	-0.702**	-0.762
	(0.127)	(0.0781)	(4.354)	(0.127)	(0.0845)	(4.360)	(0.125)	(0.0418)	(4.124)	(0.139)	(0.259)	(3.892)
Observations	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499
R-squared	0.011	0.021	0.171	0.005	0.013	0.171	0.031	0.038	0.178	0.019	0.018	0.175
Number of companies		321	321		321	321		321	321		321	321
Country FE		YES	YES		YES	YES		YES	YES		YES	YES
Year FE		NO	YES		NO	YES		NO	YES		NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 10: Election winner policy dummy

VARIABLES	(1) OLS	(2) Fixed Effects	(3) Fixed Effects	(4) OLS	(5) Fixed Effects	(6) Fixed Effects	(7) OLS	(8) Fixed Effects	(9) Fixed Effects	(10) OLS	(11) Fixed Effects	(12) Fixed Effects
Winner left/right dummy	-0.887***	-1.636	-0.844									
	(0.265)	(1.547)	(1.700)									
Winner state/market dummy				-1.057***	-1.786	-1.128						
				(0.262)	(1.515)	(1.668)						
Winner liberty/authority dummy							-1.509***	-1.873	-0.823			
							(0.250)	(1.375)	(1.175)			
Winner EU anti/pro dummy										2.283***	4.970***	5.217***
										(0.268)	(0)	(1.458)
Constant	-0.423*	0.0221	-0.973	-0.343	0.0766	-0.984	-0.222	-0.0461	-0.876	-2.815***	-5.009***	-5.234
	(0.217)	(0.920)	(4.119)	(0.214)	(0.871)	(4.121)	(0.181)	(0.664)	(4.022)	(0.226)	(0)	(4.894)
Observations	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499	1,499
R-squared	0.008	0.023	0.170	0.011	0.027	0.172	0.024	0.032	0.171	0.032	0.079	0.193
Number of companies		321	321		321	321		321	321		321	321
Country FE		YES	YES		YES	YES		YES	YES		YES	YES
Year FE		NO	YES		NO	YES		NO	YES		NO	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

models, a pro-European party that wins the elections is significantly correlated with positive abnormal returns. This indicates that stock markets value the European Union and are relieved if a government is likely to be pro-European.

Overall, hypothesis 4 yield mixed results. Hypothesis 4a is the most likely to hold. A right wing win leads to lower abnormal returns in both the OLS and fixed effect model analysis of the parliamentary policy score dummy. The left/right dimension also shows significant results in the OLS and one of the fixed effect models in the analysis of the weighted average policy score percentage change. However, it does not show significant results in the fixed effect analysis of the largest party. Investors seem to favour a left-wing parliament, but are unaffected by the left/right-wing orientation of the largest party.

The state/market dummy only shows significant parameter in the OLS models of each policy dimension variable analysis. Regression coefficients are insignificant when controlled for fixed effects. Therefore, hypothesis 4b is unlikely to hold while OLS results are most likely caused by year- and country specific effects.

A conservative political win is likely to significantly lower abnormal returns. The liberty/authority coefficient is persistently significant, also when controlled for fixed effects. These results show in the parliamentary policy score dummy and percentage weighted average score change variable analyses. However, cumulative abnormal returns are not significantly lower if a more conservative party is the election winner. Hypothesis 4c can therefore only be partly accepted.

Lastly, the European policy dimension does not seem to create significant partisan effects when looking at the variables concerning the whole parliament. However, the market does show consistent significant abnormal returns when the election winner is a pro-European party. Hypothesis 4d is partly accepted.

5.5 Multi-party influence

Due to European nation's multi-party systems, the winning party has a large influence on policy because it has strong influence on the formation of a majority government. Table 11 shows the results of the interaction effect analysis performed on the percentage of seats won by the largest party and policy dimension dummies. Three out of four policy dimensions and their interaction effects show strongly significant correlations with CAR values.

The left/right, state/market and liberty/authority policy dimension and interaction effects show similar results. Firstly, a strongly significant correlation is found between the percentage of seats won by the largest party and cumulative abnormal returns. This contradicts the findings of section 5.2 but is more consistent with literature. Investors disfavour instability and insecurity because well-informed investment decisions are harder to make, leading to lower stock volatility and prices. An example in the results is that an additional 0.11% additional cumulative abnormal return is obtained in the left/right regression if the largest party has a 1% extra

share of seats in the parliament. These results are consistent for the state/market and liberty/authority dummies.

Secondly, each of the three significantly correlated dummies show high and significant policy dummy coefficients. CAR values are 5.99%, 4.60% and 3.51% higher when respectively, the left/right, state/market and liberty/authority dummies take on the value of 1. These main effects are highly significant at a 99% confidence level and show inverse parameters to the policy dimension parameters found before. Another consistent result from these three regressions is the mitigating effect of the interaction effect. Judged by the main effects, a win by a large party of which the policy dummy takes on the value of 1, relates to very high CARs. However, the interaction effect diminishes this effect.

Table 11: Largest party interaction effect of size and policy dimensions

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS
% Share of seats largest party	0.109***	0.0868***	0.0622***	0.0899
	(0.0157)	(0.0154)	(0.0113)	(0.119)
Left/right dummy	5.986***			
	(0.929)			
Left/right dummy (=1) * % Share of seats largest party	-0.161***			
	(0.0193)			
State/market dummy		4.598***		
		(0.907)		
State/market dummy (=1) * % Share of seats largest party		-0.134***		
		(0.0191)		
Liberty/authority dummy			3.510***	
			(0.854)	
Liberty/authority dummy (=1) * % Share of seats largest party			-0.120***	
			(0.0184)	
EU anti/pro dummy				5.471
				(5.907)
EU anti/pro dummy (=1) * % Share of seats largest party				-0.0609
				(0.120)
Constant	-5.169***	-4.065***	-2.789***	-7.173
	(0.788)	(0.761)	(0.538)	(5.891)
Observations	1,499	1,499	1,499	1,499
R-squared	0.041	0.036	0.044	0.037

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The diminishing effect of the interaction term can be interpreted as negotiation power of the largest party. Investors like a right-wing win, judged by the main effect alone. However, from previous results it has been established that investors' partisan preferences lie with a left-wing win. This analysis' results are still

consistent with that conclusion because of the interaction term. A win by a larger right-wing party results in lower cumulative abnormal returns. Reasoning from a left-wing party clarifies the negotiation power more easily. If a left-wing party wins, CARs are 5.99% lower than a right-wing party win. However, the larger the winning party, the more influence it has on policy. The negotiation power of the large left-wing party raises CARs by 0.16% per percent of parliamentary seats. The larger a winning left-wing party, the higher CARs.

Similar reasoning can be applied to the state/market and liberty/authority variable. Initial main effects seem to contradict previous results, but the interaction term shows investors preferences and the effect of larger party negotiation power. Because of these results, hypothesis 5 shows to be true.

6. Conclusion

Partisan effects on stock prices is a contested topic in academic finance literature. This paper adds to that controversy by concluding that partisan effects on European stock markets do exist. However, similar to conclusions in academic literature, the existence, direction and magnitude of the effects are highly dependent on the model and variables used for the analysis.

An uncontested topic in pre-existing literature is the existence of stock price anomalies around elections. This paper confirms earlier conclusions by showing that European stock markets exhibit significant abnormal returns around the date of national parliamentary elections. Contrary to the stated hypotheses, countries' stock markets are not homogenous in their reactions to election results. Also, mean abnormal returns are significantly different for some researched years. This induced the necessity for controlling for fixed-country and fixed-year effects using a fixed effect model.

Some literature suggested that partisan effects are non-existent and stock price anomalies are mainly driven by the effect of political uncertainty. This paper only finds some evidence for this presumption when analysing the interaction effect of the largest party and policy variables. No evidence was found when directly regressing the amount of parliamentary seats that changed or the relative size of the largest party on abnormal returns. A combination of the event window choice and the influence of the multi-party system may prohibit real uncertainty effects to show in this data. The event window starts close to the elections, risking that election results are already correctly priced by the stock market due to polling data. Additionally, real uncertainty may only be taken away after the presentation of the policy plans by a majority government. Because uncertainty is not the main driver of abnormal returns of this paper, partisan effects are likely to cause at least a share of the abnormal returns. Future research can control for polling information, or extend the event window to cover the whole period of uncertainty.

This paper finds evidence for the existence of partisan effects on EU stock markets and finds that the effects conform to the rational partisan theory. Rational partisan theory dictates that left-wing parliaments are valued over right-wing parliaments. The data shows that stock markets consistently shows positive abnormal returns when a parliament becomes more left-wing, even when controlled for fixed effects. This result is recurring when looking at the change in weighted average policy scores. However, stock prices are not significantly correlated with the left or right orientation of the winning party. So, rational partisan theory can only be confirmed on the parliamentary level.

Additional partisan effects are found for two of the new policy dimensions. A parliament that becomes more liberal consistently shows positive significant correlation with abnormal returns over the parliamentary policy variables. Similar to the effect on the left/right dimension, this effect can only be confirmed on the parliamentary level because the biggest party variable does not show significant correlation. The European

policy dimension shows that partisan effects exist on the winning party level. A win by a pro-European party significantly correlates with positive abnormal returns. In other cases, the policy dimensions only show significant correlations in the OLS models, and lose their significance when controlled for fixed effects.

The new policy dimensions add value to the research into partisan effects. This paper stepped away from the focus on left-wing and right-wing contradiction, and included more dimensions. As discussed, two of these dimensions show additional potential sources of partisan effects. Despite the strong correlation between some of the variables, they have individual explanatory power. However, the used policy variables also pose a limitation. The policy scores were time-invariant which is not reflective of real-world politics. A party's core standpoints may be relative stable over time, they do change their policy standpoints to accommodate to election-specific situations.

Previous conclusions lead to a partisan effect distinction on two levels. The parliamentary level represent a country's overall stance in politics. A link between overall political developments and exogenous factors that influence stock price might be the actual cause of correlations on the first level. A parliament that becomes more left wing, may be more informative of, for example, the point in the business cycle than actual partisan effects. The second level is that of the winning party. Due to the multi-party system, the second level might be more indicative of actual policy effects on stock prices because investors assume the biggest party is going to be an important policy setter. Further research into the effects of exogenous factors on election abnormal returns can clarify whether partisan effects are the main drivers of abnormal returns induced by parliamentary policy score changes.

Another distinction can be made by country. As literature suggested, partisan effects diverge per researched country. The interaction term analysis between policy variables and country dummies showed that some countries know significantly different partisan effects than others. The left/right policy dimension only showed Finland to be significantly different than other countries. But for the state/market dummy, 8 nations had significantly different reactions to a tax-cuts preferring party than a public spending favouring one. Therefore, results of this research can only be partly extrapolated to the whole of the European Union. Differing reactions to partisan effects harm the external validity.

Results of this event study may be mitigated or influenced in a couple of ways. The multi-party nature of European political systems may result in different processing of political uncertainty because of negotiations to form a majority government. Only the final presentation of policy measures by the majority government takes away real uncertainty. Future research can be done into stock returns around the announcement dates of coalition agreements. Additionally, the stock selection may have resulted into reduced coefficients because market return was based on the S&P 350. This index included, amongst others, 87 U.K. and 48 French stocks, meaning that normal returns computations were heavily influenced for elections in those countries.

Overall, it can be concluded that the answer to the research question is mixed. European stock markets show signs of conformity to rational partisan theory and show other partisan effects. However, the existence of these effects is dependent on the statistical model that was chosen and which variables were used to indicate a policy win or loss. This paper finds evidence that stock markets value left-wing and liberal parliaments while the stock market only values pro-European parties as election winners.

7. References

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Appendix A: Elections

Country	Election date	Days from previous election	Total seats up for election	Seats up for election previous election	Seat data from Parlgov	Comment
Denmark	3/11/1998	1267	175	174	179	4 seats not selected by Danish
Netherlands	5/6/1998	1464	150	143	150	data of 7 previous seats unavailable
Sweden	9/20/1998	1463	349	349	349	
Germany	9/27/1998	1442	669	672	669	3 fewer seats
Finland	3/21/1999	1463	200	199	200	
Belgium	6/13/1999	1484	150	150	150	
Luxembourg	6/13/1999	1827	60	60	60	
Austria	10/3/1999	1386	183	183	183	
Portugal	10/10/1999	1470	230	230	230	
Spain	3/12/2000	1470	350	347	350	
Italy	5/13/2001	1848				Excluded from research, 103/630 missing data points
United Kingdom	6/7/2001	1498	657	657	659	
Norway	9/10/2001	1455	165	165	165	
Denmark	11/20/2001	1350	175	175	179	4 members not selected by Danish
Portugal	3/17/2002	889	230	230	230	
Netherlands	5/15/2002	1470	150	150	150	
Ireland	5/17/2002	1806	153	156	166	1997 had 9 independents, 2002 had 12
France	6/16/2002	1841	577	579	577	
Sweden	9/15/2002	1456	349	349	349	
Germany	9/22/2002	1456	603	669	603	66 fewer seats

Austria	11/24/2002	1148	183	183	183	
Netherlands	1/22/2003	252	150	150	150	
Finland	3/16/2003	1456	200	199	200	
Belgium	5/18/2003	1435	150	150	150	
Spain	3/14/2004	1463	350	349	350	1 seat not under conditions
Luxembourg	6/13/2004	1827	60	60	60	
Denmark	2/8/2005	1176	175	175	179	4 members not selected by Danish
Portugal	2/20/2005	1071	230	230	230	
United Kingdom	5/5/2005	1428	643	657	646	13 fewer seats
Norway	9/12/2005	1463	169	165	169	5 new seats
Germany	9/18/2005	1092	614	603	614	11 new seats
Italy	4/9/2006	1792	630	627	630	3 seats not under conditions
Sweden	9/17/2006	1463	349	349	349	
Austria	10/1/2006	1407	183	183	183	
Netherlands	11/22/2006	1400	150	150	150	
Finland	3/18/2007	1463	200	200	200	
Ireland	5/24/2007	1833	160	152	165	2007 had 5 independents
Belgium	6/10/2007	1484	150	150	150	
France	6/17/2007	1827	576	577	577	1 seat not under conditions
Denmark	11/13/2007	1008	175	175	179	4 members not selected by Danish
Spain	3/9/2008	1456	350	348	350	
Italy	4/13/2008	735	630	630	630	
Austria	9/28/2008	728	183	183	183	
Luxembourg	6/7/2009	1820	60	60	60	
Norway	9/14/2009	1463	169	169	169	
Germany	9/27/2009	1470	622	614	622	8 new seats
Portugal	9/27/2009	1680	230	230	230	

United Kingdom	5/6/2010	1827	649	644	650	2005 had 1 independent and one speaker, 2010 had one speaker, 4 more seats
Netherlands	6/9/2010	1295	150	150	150	
Belgium	6/13/2010	1099	150	150	150	
Sweden	9/19/2010	1463	349	349	349	
Ireland	2/25/2011	1373	165	163	165	2011 had 2 independents, 2007 had 3
Finland	4/17/2011	1491	200	200	200	
Portugal	6/5/2011	616	230	230	230	
Denmark	9/15/2011	1402	175	175	179	4 members not selected by Danish
Spain	11/20/2011	1351	348	350	350	
France	6/17/2012	1827	577	575	577	
Netherlands	9/12/2012	826	150	150	150	
Italy	2/25/2013	1779	630	630	630	
Norway	9/9/2013	1456	169	169	169	
Germany	9/22/2013	1456	631	622	631	9 new seats
Austria	9/29/2013	1827	183	183	183	
Luxembourg	10/20/2013	1596	60	60	60	
Belgium	5/25/2014	1442	150	149	150	
Sweden	9/14/2014	1456	349	349	349	
Finland	4/19/2015	1463	200	199	200	
United Kingdom	5/7/2015	1827	650	649	650	
Denmark	6/18/2015	1372	179	178	179	
Portugal	10/4/2015	1582	230	230	230	
Spain	12/20/2015	1491	350	348	350	
Ireland	2/26/2016	1827	157	163	157	6 fewer seats
Spain	6/26/2016	189	350	348	350	
Netherlands	3/15/2017	1645	150	150	150	

United Kingdom	6/8/2017	763	650	645	650	
France	6/18/2017	1827	569	576	577	6 seats don't meet requirements
Norway	9/11/2017	1463	169	169	169	
Germany	9/24/2017	1463	709	631	709	78 new seats
Austria	10/15/2017	1477	183	183	183	
Italy	3/4/2018	1833	630	624	630	2013 has 6 seats that don't meet the requirements

Appendix B: Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Elections per country	5.26162	0.873442	4	7
Days between elections	1456.622	356.2598	190	1841
Weighed left/right	5.325248	0.472176	3.728095	6.055138
Weighed State/market	5.338964	0.451594	4.063325	6.127215
Weighed Liberty/authority	5.029279	0.515487	3.240438	6.212408
Weighed anti/pro EU	6.446818	1.264725	0	8.866712
Dif left/right	0.081942	0.476403	-1.83845	1.299089
Dif state/market	0.077154	0.443374	-1.12331	1.504583
Dif liberty/authority	0.034595	0.445835	-2.07537	1.252654
Dif anti/pro EU	-0.1551	0.388772	-1.09499	1.231138
Dum left/right	0.603586	0.489154	0	1
Dum state/market	0.602258	0.489433	0	1
Dum liberty/authority	0.541169	0.498304	0	1
Dum anti/pro EU	0.344622	0.475246	0	1
Seat change percentage	0.189948	0.174804	0.018209	0.868254
Largest party	213.0027	121.5344	19	412
Largest party share	0.418397	0.117473	0.153333	0.62519

Dum winner left/right	0.592962	0.491284	0	1
Dum winner state/market	0.573705	0.494539	0	1
Dum winner liberty/authority	0.482072	0.49968	0	1
Dum winner anti/pro EU	0.817397	0.386342	0	1
Abnormal return	-.3762579	1.952113	-12.45606	7.815936
Cumulative abnormal return	-.9505744	4.905521	-34.38568	21.95511

Appendix C: Country effect tables

Table 1: Country and year correlation

VARIABLES	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Parliament left/right dummy	-2.547***				
	(0.717)				
Parliament state/market dummy	1.590***				
	(0.543)				
Parliament liberty/authority dummy	-0.351				
	(0.589)				
Parliament EU anti/pro dummy	-0.600				
	(0.520)				
% Seats changed		-0.0475***			
		(0.0149)			
% Share of largest party			0.215***		
			(0.0571)		
Winner left/right dummy				3.398**	
				(1.718)	
Winner state/market dummy				-2.915*	
				(1.655)	
Winner liberty/authority dummy				-0.442	
				(0.580)	
Winner EU anti/pro dummy				5.065***	
				(0.698)	
% Change left/right weighted average					0.401***
					(0.0996)
% Change state/market weighted average					-0.307***
					(0.0720)
% Change liberty/authority weighted average					-0.231***
					(0.0530)
% Change EU anti/pro weighted average					0.0957**
					(0.0386)
Country = 2, Belgium	3.627**	4.821***	6.477***	3.314**	3.677**
	(1.762)	(1.667)	(1.796)	(1.657)	(1.565)
Country = 3, Germany	0.522	-0.224	-0.475	0.578	-0.311
	(1.620)	(1.554)	(1.434)	(1.545)	(1.541)

Country = 4, Denmark	0.139	-0.0713	1.253	0.450	0.180
	(1.732)	(1.658)	(1.668)	(1.719)	(1.609)
Country = 5, Spain	-0.856	-0.317	-2.869*	-0.576	-0.263
	(1.969)	(1.848)	(1.723)	(1.811)	(1.887)
Country = 6, Finland	3.835**	3.243*	4.799***	1.050	3.913**
	(1.834)	(1.780)	(1.811)	(1.735)	(1.776)
Country = 7, France	3.390**	4.239***	-2.364	2.323	3.153**
	(1.647)	(1.609)	(1.793)	(1.542)	(1.508)
Country = 8, United Kingdom	-0.622	-0.948	-4.973***	3.541**	0.497
	(1.610)	(1.564)	(1.695)	(1.626)	(1.488)
Country = 9, Ireland	5.747***	6.929***	3.969**	5.995***	5.835***
	(1.989)	(1.919)	(1.886)	(1.878)	(2.031)
Country = 10, Italy	-1.573	2.108	-1.719	-0.232	-2.868
	(2.060)	(1.877)	(1.639)	(1.778)	(1.903)
Country = 11, Luxembourg	2.010	3.085	2.251	8.439***	3.576*
	(2.193)	(2.091)	(2.040)	(2.186)	(2.123)
Country = 12, Netherlands	2.535	2.891*	3.779**	2.115	2.593*
	(1.685)	(1.572)	(1.567)	(1.606)	(1.553)
Country = 13, Norway	-1.409	-1.999	-1.566	-0.516	-2.195
	(1.764)	(1.745)	(1.644)	(1.705)	(1.715)
Country = 14, Portugal	4.368*	4.108*	1.366	4.472**	4.322*
	(2.441)	(2.320)	(2.353)	(2.187)	(2.257)
Country = 15, Sweden	2.520	1.573	1.102	1.461	0.746
	(1.665)	(1.637)	(1.531)	(1.655)	(1.548)
Year = 1999	-0.375	-1.494	0.521	-0.172	-1.880
	(1.473)	(1.469)	(1.487)	(1.566)	(1.457)
Year = 2000	1.012	-0.943	-1.179	-0.447	-0.102
	(2.815)	(2.654)	(2.649)	(2.781)	(2.733)
Year = 2001	3.290***	3.677***	3.286***	0.254	2.456**
	(1.112)	(1.138)	(1.094)	(1.292)	(1.105)
Year = 2002	-2.616**	-2.318*	-2.636**	-2.564**	-2.113*
	(1.145)	(1.194)	(1.138)	(1.267)	(1.174)
Year = 2003	-2.988*	-3.010*	-1.862	-2.777*	-3.457**
	(1.639)	(1.663)	(1.711)	(1.679)	(1.673)
Year = 2004	-3.141*	-3.653**	-2.982*	-3.458**	-5.025***
	(1.668)	(1.561)	(1.536)	(1.550)	(1.718)
Year = 2005	2.845***	3.056***	3.750***	0.233	2.256**
	(1.062)	(1.083)	(1.064)	(1.171)	(1.035)
Year = 2006	2.663**	2.304*	3.566***	2.614**	3.507***
	(1.246)	(1.206)	(1.253)	(1.272)	(1.200)
Year = 2007	-1.185	-1.902*	0.535	-0.799	-2.288**
	(1.134)	(1.140)	(1.184)	(1.293)	(1.073)
Year = 2008	1.364	-0.273	-0.146	-0.489	-1.317
	(2.141)	(1.640)	(1.527)	(1.775)	(1.942)
Year = 2009	1.674	1.820	3.258**	1.093	1.730
	(1.300)	(1.247)	(1.293)	(1.380)	(1.228)
Year = 2010	-1.706	-1.720	0.277	-1.388	-1.675
	(1.078)	(1.131)	(1.295)	(1.247)	(1.177)
Year = 2011	-2.372*	-2.560**	-2.081*	-2.357	-2.977**
	(1.282)	(1.270)	(1.247)	(1.467)	(1.252)
Year = 2012	-1.280	-1.049	2.136	0.0916	-2.470**
	(1.173)	(1.178)	(1.340)	(1.143)	(1.176)

Year = 2013	2.630**	1.573	1.502	0.898	1.469
	(1.201)	(1.126)	(1.075)	(1.236)	(1.079)
Year = 2014	0.614	-0.795	1.182	-0.100	0.0455
	(1.287)	(1.290)	(1.405)	(1.383)	(1.301)
Year = 2015	1.274	0.908	2.394**	1.136	0.0675
	(1.081)	(1.121)	(1.183)	(1.252)	(1.060)
Year = 2016	-6.489***	-7.573***	-4.599**	-7.082***	-6.546***
	(1.906)	(1.911)	(2.045)	(2.034)	(2.007)
Year = 2017	0.481	1.429	3.202***	1.287	0.0683
	(1.057)	(1.068)	(1.186)	(1.229)	(1.036)
Year = 2018	0.953	-1.900	0.991	-0.927	5.068***
	(1.634)	(1.374)	(1.437)	(1.427)	(1.947)
Constant	-1.139	-1.203	-10.09***	-6.973***	-1.423
	(1.865)	(1.839)	(3.033)	(1.966)	(1.725)
Observations	1,499	1,499	1,499	1,499	1,499
R-squared	0.226	0.206	0.214	0.224	0.224

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Policy & country interaction effect

VARIABLES	Left/ right dummy	State/ market dummy	Liberty/ authority dummy	EU anti/pro dummy
	(1) OLS	(2) OLS	(3) OLS	(4) OLS
Parliament left/right dummy = 1	-2.473			
	-2.471			
Parliament state/market dummy = 1		-7.523***		
		-2.725		
Parliament liberty/authority dummy = 1			-7.079**	
			-2.964	
Parliament EU anti/pro dummy = 1				2.473
				-2.47
Country = 2, Belgium	2.533***	0.116	0.0762	2.748
	-0.947	-1.208	-1.156	-2.513
Country = 3, Germany	0.922	-2.244**	-1.222	2.797
	-0.913	-1.056	-1.078	-2.43
Country = 4, Denmark	-1.698*	-5.089***	-3.551***	0.853
	-0.943	-1.157	-1.211	-2.482
Country = 5, Spain	-3.748***	-6.165***	-5.601***	-3.348
	-0.963	-1.221	-1.227	-2.563

Country = 6, Finland	7.312***	-0.27	5.008*	2.397
	-2.291	-1.895	-2.924	-2.608
Country = 7, France	0.667	-1.750*	-1.032	-0.612
	-0.652	-0.993	-0.981	-2.475
Country = 8, United Kingdom	-0.0304	-0.463	-1.884*	1.175
	-0.631	-1.023	-0.987	-2.415
Country = 9, Ireland	0.483	-1.934	-2.37	2.956
	-1.147	-1.37	-1.484	-2.598
		-	-	
Country = 10, Italy	-0.867	3.284***	2.721***	0.758
	-0.674	-1.009	-1.016	-2.43
Country = 11, Luxembourg	1.698	-1.826	2.059	3.353
	-1.301	-1.787	-1.445	-2.681
		-		
Country = 12, Netherlands	-0.846	4.096***	-2.534**	3.379
	-0.903	-1.252	-1.167	-2.431
			-	
Country = 13, Norway	0.653	-1.764	3.811***	-0.387
	-1.089	-1.322	-1.297	-2.933
Country = 14, Portugal	3.558	1.141	1.705	1.134
	-3.332	-3.415	-3.416	-2.524
		-		
Country = 15, Sweden	0.716	5.631***	-1.138	-0.637
	-1.054	-1.224	-1.299	-2.511
Policydum = 1*Belgium	-1.369	3.68	3.189	-2.113
	-2.667	-2.904	-3.13	-2.624
				-
Policydum = 1*Germany	-0.625	4.784*	3.502	7.187***
	-2.602	-2.814	-3.043	-2.585
Policydum = 1*Denmark	2.673	10.84***	7.278**	-2.373
	-2.709	-2.911	-3.165	-2.809
Policydum = 1*Spain	0.615	5.665*	5.221	-0.277
	-2.749	-2.979	-3.199	-2.789
Policydum = 1*Finland	-6.840**	3.552	0	-3.141
	-3.367	-3.248	0	-2.799
Policydum = 1*France	0.99	6.039**	3.173	1.433
	-2.521	-2.77	-3.032	-2.551
Policydum = 1*United Kingdom	0.249	3.444	4.854	-2.916
	-2.499	-2.761	-2.987	-2.49
Policydum = 1*Ireland	3.018	8.067***	9.329***	-1.929
	-2.858	-3.081	-3.339	-2.857
Policydum = 1*Italy	0.546	5.595**	5.152*	-3.052
	-2.541	-2.789	-3.023	-2.578
Policydum = 1*Luxembourg	-1.617	8.142**	2.945	0

	-4.078	-3.635	-3.467	0
Policydum = 1*Netherlands	4.205	10.21***	8.471***	-5.918**
	-2.599	-2.876	-3.073	-2.723
Policydum = 1*Norway	-0.695	4.355	7.621**	-0.875
	-2.798	-3.024	-3.588	-3.086
Policydum = 1*Portugal	-0.19	4.86	4.416	3.679
	-4.225	-4.378	-4.53	-3.375
Policydum = 1*Sweden	0.426	13.07***	5.032	2.925
	-2.7	-2.864	-3.157	-2.636
Constant	0.202	2.619***	2.055**	-2.272
	-0.577	-0.946	-0.954	-2.402
Observations	1,499	1,499	1,499	1,499
R-squared	0.123	0.163	0.129	0.146

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1