



The effect of political instability in the international stock markets: the case of Greece

By postgraduate student Siotas Evangelos

Supervisor Professors: Spyridon Boikos, Theodoros Panagiotidis

University of Macedonia, Greece

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Abstract

This study examines the relationship between political instability and stock market volatility, having used daily time series data from the period of July 2014 to March 2016. The term stock market volatility refers to the impact of political events on the general indicators of 8 European countries as well as on some sectoral indicators of Germany. Meanwhile, three different political instability events are used in order to measure the political uncertainty. Furthermore, the empirical part utilizes the Event Study Methodology. The findings indicate a negative effect on the general indicators in the short run. The research contributes to literature by providing empirical evidence to policy makers on the effects that political instability has on stock markets.

Keywords: political instability, stock market volatility, event study methodology.

Contents

1. Introduction.....	2
2. Data and Methodology.....	4
2.1. Event Study Theory	4
2.2. Event Study Methodology	7
2.3. Data.....	9
3. Empirical Results	9
3.1 Event 1: Greek National Elections on the 25 th of January in 2015	10
Table 1 The impact of national elections in Greece on the 25 th of January in 2015 on the general indicators.....	10
Figure 1	11
Table 2 The impact of national elections in Greece on the 25 th of January in 2015 on the sectoral indicators of Germany.....	12
Figure 2	13
3.2 Event 2: Greek Referendum on the 5 th of July in 2015.....	13
Table 3 Stock market reaction to the Greek people's decision vote in the 5 th of July in 2015.....	14
Figure 3	15
Table 4 Stock market reaction to the Greek people's decision vote in the 5 th of July in 2015.....	16
Figure 4	17
3.3 Event 3: Greek National Elections on the 20 th of September in 2015.....	17
Table 5 The impact of the second parliamentary elections in Greece in the same year on the 20 th of September in 2015 on the general indicators.....	18
Figure 5	19
Table 6 The impact of the second parliamentary elections in Greece in the same year on the 20 th of September in 2015 on the sectoral indicators	20
Figure 6	20
4. Conclusion	21
5. References.....	22
T-Statistic.....	26
Appendix A.....	28
Appendix B	344
Appendix C	40

1. Introduction

It is often argued that the stock markets are affected considerably from the elections in several countries. As a consequence, Asteriou and Sarantidis (2016) check empirically the relationship between Political indicators and total stock market yields over the period 1993-2013 by producing five Political indicators of 27 different Political indicators variables from a large sample of 18 countries. Particularly, they find indications of a direct negative relationship between the Political indicators and the stock market yields. Likewise, Chau et al. (2014) examine the effect of civil uprisings in the Arab World known as “Arab Spring” and the associated political uncertainty on the volatility and integration of major stock markets in the MENA region. Their results indicate that Arab Spring and the political turbulence have contributed to volatility of MENA stock markets, especially for the Islamic Indices. However, Kim & Mei (2001) using political indicators for Hong Kong, find that unexpected returns to the market are closely linked to political news and that the impact of these news is asymmetrical with bad news to be more volatile than good news. Therefore, at the return level, they find that the larger market movements in Hong Kong are often associated with significant political news. It is vital to mention, that Asteriou & Siriopoulos (2000) developed the theoretical hypothesis that uncertain socio-political conditions affects adversely the economic growth, as well as the development of stock markets in Greece. For instance, the liberalization of the Greek tax system is expected to boost the growth of the stock market.

One of the biggest surveys which was conducted by Lobo (1999), tries to understand the dynamic return of the stock within the US political calendar. Their estimates reveal that stock returns are lower and volatility is higher in electoral years than non-election years. However, mid-term elections are a more important source of uncertainty and jump risk compared to presidential elections. They also find that small stocks work better under Democrats than Republicans. However, unexpected events are more frequent during democratic administrations and they increase the risk of jump for large stocks in these regimes. Meanwhile, Goodell (2013) also examines the effects of political uncertainty on stock market volatility during US presidential election cycles, because it was observed in previous studies that political electoral cycles are associated with periods of uncertainty about stock market volatility. The result was that political uncertainty around the US presidential election affects the volatility of the stock market. In addition, Mnif (2017) checked the financial impact of the Arab Spring movements, that is, to see what the relationship between political risk and asset

price would be. He finds that the movement of prices of financial assets is driven, at least partially, by political events other than common economic factors. It is crucial to inform, that Pantzalis et al. (2000) examine the behavior of stock exchanges around the political elections for 33 countries between 1974 and 1995 using the event study methodology. Eventually, they notice a positive and significant reaction on the market two weeks before the political elections.

It is necessary to mention, that there are and other important surveys which are relevant to political instability. First of all, Roe and Siegel (2011) find that democratic political instability belongs to a small number of contributors that determines the development of stock markets worldwide. Another study by Białkowski et. al (2008), shows the interaction between politics and finance by focusing on volatility of stock market around the national elections. They find that stock prices were reacting strongly to elections. They add that markets with a shorter trading history tend to have stronger abnormal returns. Furthermore, Boutchkova et. al (2012) report that global political uncertainty manifested through elections and higher political risk in trading partner countries are reflected in the return volatility. Nevertheless, according to Brooks et. al (1997) the announcement that South Africa could undergo a fundamental change in its political structure it resulted in the transformation of South Africa's financial markets from the state of segmentation to the degree of integration in world markets. Moreover, Mei and Guo (2004) evaluate the impact of political elections on currency values and market volatility across 22 countries. In particular, they find that there is a significant relationship between political uncertainty and financial crises. They have also discovered an increase on market volatility during political elections and transition periods. Last but not least, Bittlingmayer (1998) shows that the start of World War I and the political turbulence of 1920 drove the German stock market down and volatility up.

The rest of the study is organized as follows. Section 2 presents the proposed methodology and the dataset, section 3 reports and analyzes the empirical results, section 4 concludes. Finally Appendices A, B and C include the calculations that have been made in excel for the empirical part.

2. Data and Methodology

2.1. Event Study Theory

The financial markets reflect all the current data on the values of shares of stock markets. The researchers developed the «Event Study Methodology» in order to carry out this type of

analysis in its common form, with emphasis in stocks and indices returns of stock markets. In particular, it is a statistical method for the estimation of reaction from one fact on stock market. This is the reason for the development of several studies (Event Study), because the researches desired to monitor which would be the reaction of stock markets in facts which were happened in the whole economy and corporate events.

The first people who utilize the event study methodology were Ball & Brown (1968) and Fama et al. (1969). After this, the studies of events are applied continually in surveys of capital markets. Early methodology studies examined test statistic performance with monthly security returns data, e.g., Brown & Warner (1980), Larcker et al. (1980) and Shevlin (1981). These were quickly superseded by studies based on daily data. The best known among these is the study by Brown & Warner (1985), which is the study we have used in order to measure a market's abnormal performance. Other early studies in this genre include Collins & Dent (1984), Dyckman et al. (1984), Jain (1986), Bernard (1987) and Heinkel & Kraus (1988). These studies rely on parametric test statistic.

On the other hand, according to Corrado (2011) nonparametric statistics do not require stringent assumptions about return distributions as parametric tests. The sign test is a nonparametric test often used in events studies. The most successful nonparametric sign and rank tests are used in McConnell & Muscarella (1985), Corrado (1989), Lummer & McConnell (1989), Zivney & Thompson (1989) and Corrado & Zivney (1992). Well-known studies of this type are Chandra et al. (1992, 1995), Cowan (1992, 1993), Campbell & Wasley (1993,1996), Cowan and Sergeant (1996), Giaccotto & Sfiridis (1996), Affleck-Graves et al. (2000), Dombrow et al. (2000), Seiler (2000), Bartholdy et al. (2007), Corrado and Truong (2008). These studies generally conclude that sign and rank tests are well specified and provide an improvement in test power compared to standard parametric tests.¹

Actually, the last years in this methodology several upgrades have carried out, because the researchers have tried considerably to apply this method in many surveys. Upgraded versions the event study methodology there are in studies such as Peterson (1989), Henderson (1990), Armitage (1995), Thompson (1995), MacKinlay (1997), McWilliams & Siegel (1997), Binder (1998), Lamdin (2001), Cichello & Lamdin (2006) and Johnston (2007). However, the basic elements of event study methodology can detect in these first surveys.²

¹ Sign and rank test is a non parametric statistical hypothesis test used to compare two related samples. In other words that can be used to determine whether two dependent samples having the same distribution.

²See Corrado, C. J. (2011). Event studies: A methodology review. *Accounting & Finance*, 51(1), 207-234.

The event studies quantify the economic impacts of facts in the abnormal returns. According to Armitage (1995) the abnormal returns are just the real returns minus the expected returns. For the calculation of these abnormal returns are used the models of expected returns. The three significant are:

a. Market Model

The market model is used when we want to look primarily at corporate equity returns. We assume that the returns follow a simple parametric market model.

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

The R_{it} is the return of the stock of observation i the time t , R_{mt} is the return of index the time t and ε_{it} is the random term with average 0 and standard deviation 1. The market model assumes that the random term is not correlated with the market return as well as the return of the stock market. The coefficient β_i is the coefficient of regression. The market model calculates the abnormal returns:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i * R_{mt})$$

b. Market Adjusted Model or Index Model

In theory is the most simple model, because the abnormal returns are calculated if we subtract the return of market the day t from the return of the stock i the day t . This model can be used when we have to check indices instead of stocks.

$$AR_{it} = R_{it} - R_{mt}$$

c. Mean Adjusted Model or Average Return Model

In this model we suppose that the stock has the same return in comparison with the average return in the ‘event window’. In fact, this model is the simplest model, but the abnormal returns in event window are the returns of the stock i the day t minus the average return of stock i in ‘estimation period’.

$$AR_{it} = R_{it} - \bar{R}_i$$

This model can be used when we have to check indices instead of stocks, as well.

2.2. Event Study Methodology

We want to check the impact of 3 different facts in foreign stock markets. All the facts are relevant with significant political slowdown which was carried out in Greece. The first one fact was carried out on 25th of January in 2015 and the last one happened on 20th of September in 2015. Therefore, we set the facts:

Events	Dates
Results of First National Elections at Greece in 2015	25/1/2015
Results of Referendum	5/7/2015
Results of Second National Elections at Greece in 2015	20/9/2015

For each event we define the day the event took place within a time period [T1, T2] called the event window. In this study the event window will last 21 days, 10 days before and 10 days after the event. Event window is that period of time we want to check whether the political event that actually happened seemed to have any effect on the stock market. To arrive at this conclusion we first want to calculate the abnormal returns for each day of this period.

This may happen on application one of those models of expected return. Initially, we calculate the returns of each one index separately with the use of excel calculation pages:

$$R_{it} = \ln(index_{i,t}) - \ln(index_{i,t-1})$$

Where R_{it} is the price of the index i at the day t minus the same index i at one day earlier.

The indices which we will check are from the general tables of 8 European Countries:

COUNTRIES	GENERAL INDICES	SECTORAL INDICES
BELGIUM	BEL 20	-
FRANCE	CAC40	-
GERMANY	DAX	DAX BANKS
		DAX
		CONSTRUCTION
		DAX INDUSTRIAL
GREECE	ATHENS GENERAL COMPOSITE	DAX TECHNOLOGY
		-
ITALY	FTSE MIB	-
SPAIN	IBEX 35	-
PORTUGAL	PSI20	-
UNITED KINGDOM	FTSE 100	-

Because we examine international stock market indices rather than individual stocks, we follow the event study method described by Brown and Warner (1985) to measure a market's abnormal performance. This methodology allows us to statistically test the significance of an event's economic impact on world capital markets as measured by the deviation of index returns from their averages. In other words, we asked how widely the market's returns deviate from past averages following an event.

This model is called Mean Adjusted Model and we chose it, because we want to monitor the reaction of each one fact for each one index separately. In fact, the abnormal returns on the event window will be the return of index (i) at the day (t) minus the average of returns of the index (i) in Estimation Period.

$$AR_{it} = R_{it} - \bar{R}_i$$

Estimation period is the period before and after the event window. It starts 6 months before the event window and it uses in calculation of average of returns of each one index which will use the formula of Mean Adjusted Model for the calculation of abnormal returns.

$$\bar{R}_i = \frac{1}{120} * \sum_{t=-130}^{-11} R_{it}$$

Where \bar{R}_i is the average of the index (i) returns at the estimation period.

2.3. Data

The data are come from the webpage investing.com and they consist of daily closing prices of general and sectoral stock markets indices. The general stock markets index which we have monitored, are from 8 European countries, such as: Belgium, France, Germany, Greece, Italy, Portugal, Spain, United Kingdom and the sectoral are from Germany like as: Banks, Construction, Industrial and Technology. For each one stock market index we have chosen 3 specific dates which are relevant to political facts. From these political facts which have realized in Greece, we will check the effect of these facts on each one index separately. For this purpose, we have calculated the daily returns of each one index and the abnormal returns in accordance with the methodology which was mentioned previously (Appendix A, Appendix B and Appendix c).

3. Empirical Results

In this chapter, we empirically examine the impact of political instability in Greece on the indices of foreign European stock markets. For this control we use the event study methodology as mentioned in Chapter 2. More specifically, the term political instability refers to specific dates of political events that took place in the political arena and attracted public interest. We will look at three political events: Results of the Greek National Elections on the 25th of January in 2015 (Tables 1,2), Results of the Greek Referendum carried out on the 5th of July in 2015 (Tables 3,4) and Results of the Second Greek National Elections of the same year on the 20th of September in 2015 (Tables 5,6). Each political event is examined separately on each indicator.

Tables 1, 2, 3, 4, 5 and 6 shows the abnormal returns of all indicators for each political event we are considering separately. Basically, abnormal returns based on the event study methodology are the actual returns minus the expected returns. Therefore using the mean adjusted model we calculate the abnormal returns for each day in the event window. In this way, Tables 1, 3 and 5 shows the reaction of the general indicators of the 8 countries to the events we are examining, in contrast to tables 2, 4 and 6 which shows the reaction of the sectoral indicators of Germany. In addition it also includes a chart for each table showing the variation of the indicators.

3.1 Event 1: Greek National Elections on the 25th of January in 2015

In Table 1 and Table 2 we examine the impact of parliamentary elections in Greece on the 25th of January in 2015. As the announcement of the result, we declare the 26th of January because the stock markets were closed the previous day.

Table 1

Results from the event study methodology: The impact on the general indicators

Date	Belgium	France	Germany	Greece	Italy	Portugal	Spain	United Kingdon
12.01.2015	0,002790112	0,012068467	0,013821799	0,040606865	0,010452164	0,006426112	0,008805967	0,00032945
13.01.2015	0,01551271	0,014937538	0,016224402	0,035624619	0,02044862	0,027891196	0,017813498	0,006539267
14.01.2015	-0,011037121	-0,015378023	-0,012453371	-0,015629998	-0,015039097	0,016103037	-0,01135257	-0,023493881
15.01.2015	0,013347223	0,023764633	0,021807584	-0,014387887	0,024322146	0,015414395	0,014529728	0,017407611
16.01.2015	0,01462437	0,013337464	0,013472649	-0,014537531	0,022555643	0,014851547	0,006395435	0,008178185
19.01.2015	0,007923453	0,003861011	0,007398694	0,02997511	0,01269955	0,010606697	0,012506251	0,005654929
20.01.2015	0,001875098	0,01192908	0,00153251	-0,0084459	0,01013337	0,000908023	0,013128666	0,005522039
21.01.2015	0,005327918	0,009060417	0,004186584	-0,020753551	0,017315309	0,021869775	0,005747104	0,016459774
22.01.2015	0,009950948	0,015415438	0,013246341	0,014854652	0,025176278	0,025792271	0,0175805	0,010429415
23.01.2015	0,013473206	0,019492004	0,020386023	0,063141974	0,00347106	0,007621173	0,00748437	0,005598417
26.01.2015	0,01263775	0,007765278	0,01396156	-0,028992932	0,012513134	0,013582382	0,011533445	0,003146401
27.01.2015	-0,005631203	-0,010580054	-0,015754371	-0,034072792	-0,004326251	-0,013182768	-0,008367518	-0,005684065
28.01.2015	0,002724661	-0,002502435	0,007812373	-0,093428852	-0,007109331	-0,012704847	-0,012726726	0,002387933
29.01.2015	0,001806162	0,004805305	0,002598818	0,034647543	0,006644471	0,007790069	0,005598206	-0,001963457
30.01.2015	-0,005327635	-0,005514515	-0,003973464	-0,012524126	-0,003365503	-0,013210345	-0,009214292	-0,008740229
02.02.2015	0,002103534	0,005445082	0,012514058	0,048870949	0,000167765	0,015713768	-0,006493279	0,005185907
03.02.2015	0,004998025	0,01116716	0,005886396	0,110331592	0,026376614	0,019826061	0,026577288	0,013359325
04.02.2015	0,00224036	0,004297044	0,001959136	0,012372816	-0,002297546	-0,003211904	-0,001165261	-0,001429342
05.02.2015	-0,002634062	0,001860796	-0,000451264	-0,030708162	-0,004844465	0,002159816	-0,003245509	0,001147524
06.02.2015	-0,002253913	-0,002240845	-0,005336168	-0,016366221	-0,001773808	0,000739949	0,004323982	-0,001534402
09.02.2015	-0,011092446	-0,008181354	-0,01691415	-0,045114314	-0,018134513	-0,0059446	-0,019126493	-0,002093356

Table 1 presents the abnormal returns of the general indicators of the countries we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

We note that on the day of the announcement of the result only the general index of Greece was negatively affected, while all others reacted negatively the following day. This negative reaction did not last long with the exception of Greece, which lasted a total of 3 days from the announcement of the result. This shows that this political event has had a negative impact on the general indicators but in the short run.

Figure 1

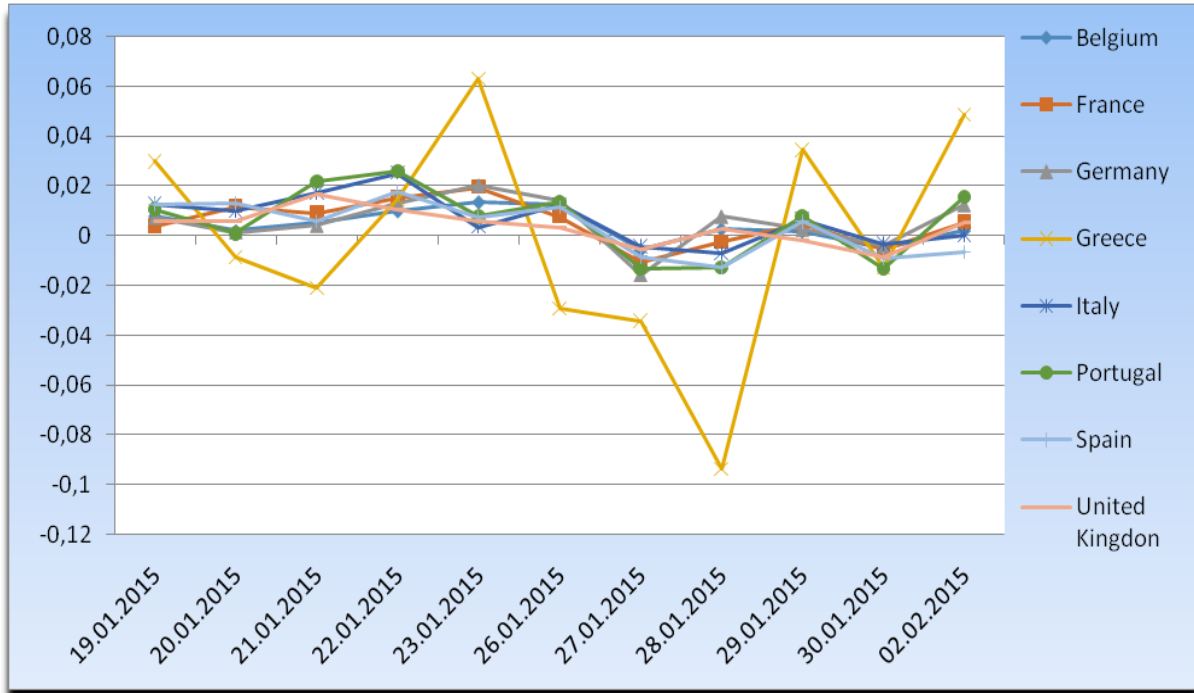


Figure 1 illustrates the effects of abnormal returns. In other words, it shows the variation of the general indicators from the impact of the national elections.

As it can be seen in the chart, we can see that the index of Greece has fluctuated a lot since the announcement of the result, while the other indicators have a small negative effect, but it wasn't for long.

According to the national elections in Greece, we have decided to check also the impact they will have on sectoral indicators. The sectoral indicators were chosen by Germany because Germany is the country with the highest GDP in Europe and we wanted to see if the political events in Greece could have a negative impact on Germany's sectoral indicators.

Table 2

Results from the event study methodology: The impact on the sectoral indicators

date	Banks	Construction	Industrial	Technology
12.01.2015	-0,002778123	0,015816655	0,009174316	0,00285579
13.01.2015	0,036714573	0,020805532	0,005602113	0,011021786
14.01.2015	-0,023811068	-0,002494785	-0,012922738	0,000351277
15.01.2015	0,021257185	0,01905206	0,020381745	0,006337551
16.01.2015	-0,003981501	-0,022094211	0,004929657	0,000172995
19.01.2015	0,016139033	0,006855831	0,012739522	0,015989755
20.01.2015	0,012931645	0,014833861	0,006968487	0,007063635
21.01.2015	0,012846317	-0,005902633	0,006903695	-0,000122399
22.01.2015	0,026820649	0,015028268	0,010906869	0,002377753
23.01.2015	-0,004989522	0,015356185	0,021050195	0,016820643
26.01.2015	0,001553907	0,0376104	0,015603433	0,021099306
27.01.2015	-0,030663545	-0,021990848	-0,023210545	-0,019339231
28.01.2015	-0,012602364	0,009313557	-0,002506459	0,021463552
29.01.2015	0,019792494	0,004141419	-0,011567236	0,007718521
30.01.2015	-5,84267E-05	-0,00011774	-0,004028655	0,001118944
02.02.2015	0,019757206	0,010159594	0,009495845	-0,011550335
03.02.2015	0,032635528	0,007587262	0,012078394	0,013146226
04.02.2015	-0,001577586	0,002624574	0,001410767	0,005183674
05.02.2015	0,000156729	0,005242873	0,009497545	0,003404645
06.02.2015	0,001534633	-0,005290483	-0,00744689	0,002972539
09.02.2015	-0,008145407	-0,003280888	-0,01232904	-0,026244265

Table 2 presents the abnormal returns of the sectoral indicators of Germany we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

Turns out in Table 2 the national elections held in January 2015 in Greece has had a negative impact on Germany's sectoral indicators just one day after the announcement of the result. Only the industry indicator proved to be negative for several days after the event. These results show that all indicators are affected by political elections on average but only in the short-run.

Figure 2

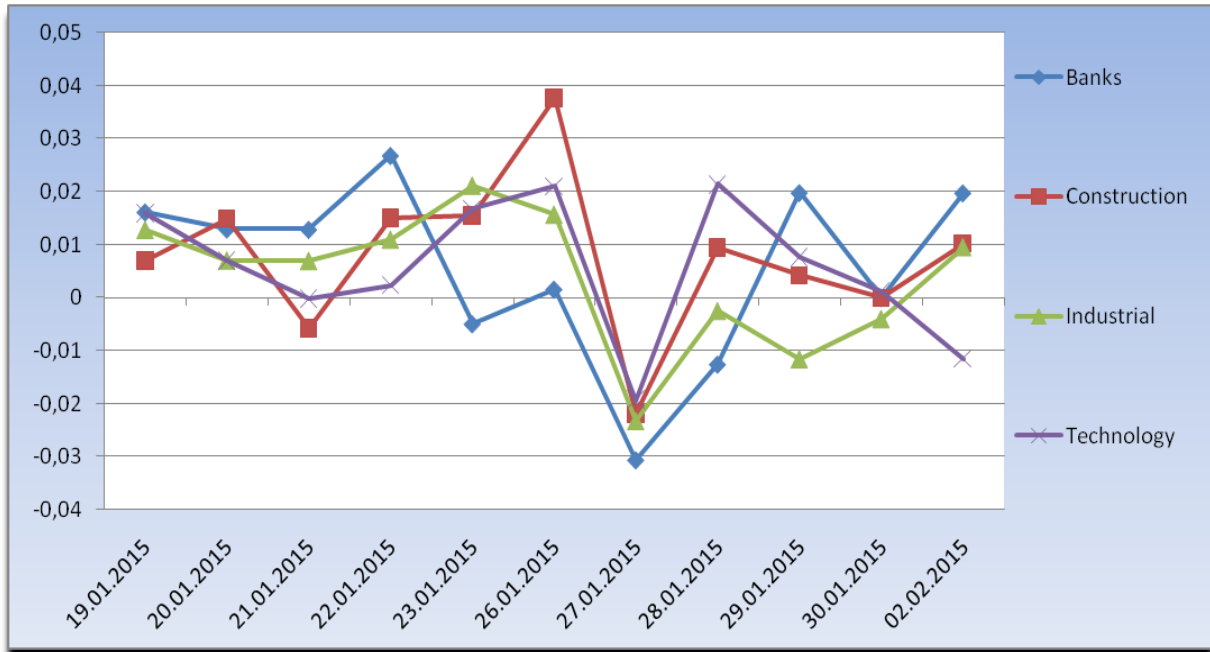


Figure 2 illustrates the effects of abnormal returns. In other words, it shows the variation of the sectoral indicators from the impact of the national elections.

The fluctuation of the indices is also shown in Chart 2. As previously mentioned, the industry index is moving negative since 27th of January, which is the day after the event until 2nd of February where the index starts to rise.

3.2 Event 2: Greek Referendum on the 5th of July in 2015

In Table 3 and Table 4 we examine the stock market reaction to the Greek people's decision vote in the 5th of July in 2015 referendum on whether or not to accept the draft agreement of the three institutions, the European Commission, the European Central Bank and the International Monetary Fund.³ As the announcement date of the result we announce 6th of July because the stock markets were closed the previous day.

³ The draft agreement, submitted by the European Commission, the European Central Bank and the International Monetary Fund to the Eurogroup on 25.06.2015, consists two parts: «Reforms for the completion of the Current Program and Beyond» and «Preliminary Debt sustainability analysis» for Greece.

Table 3

Results from the event study methodology: The impact on the general indicators

Date	Belgium	France	Germany	Greece	Italy	Portugal	Spain	United Kingdon
22.06.2015	0,024205815	0,036438349	0,036482504	-	0,032639546	0,020356569	0,037571454	0,016898717
23.06.2015	0,016913964	0,010839367	0,006243263	-	0,002030014	0,0291926	0,002582889	0,001221171
24.06.2015	-0,007306392	-0,003349493	-0,007084301	-	-0,00670876	-0,014539367	-0,007523483	0,001326015
25.06.2015	-0,002968131	-0,001630356	-0,000726735	-	0,007050434	-0,005436532	-0,001622848	-0,005543063
26.06.2015	0,00152657	0,002548488	0,000791041	-	0,00522866	0,001810708	0,005205005	-0,008107223
29.06.2015	-0,027459669	-0,039054103	-0,037147847	-	-0,054511606	-0,054751255	-0,047085868	-0,020048403
30.06.2015	-0,013555465	-0,017393451	-0,013440196	-	-0,006277468	0,002698548	-0,008236154	-0,015268978
01.07.2015	0,017740195	0,018317891	0,020401462	-	0,019847561	0,013359607	0,012669457	0,013219872
02.07.2015	-0,005291834	-0,01071039	-0,008174379	-	-0,015786698	-0,003924198	-0,006413808	0,003179599
03.07.2015	-0,009613726	-0,006578631	-0,00458687	-	-0,006228804	-0,00801709	-0,006588972	-0,006888687
06.07.2015	-0,016120279	-0,021220774	-0,016176367	-	-0,042575583	-0,040009019	-0,022916738	-0,007762157
07.07.2015	-0,016624401	-0,023858967	-0,020721234	-	-0,031608963	-0,023865889	-0,019016816	-0,016083991
08.07.2015	0,005707265	0,006530007	0,005693533	-	0,024660058	0,012841332	0,007685303	0,008926428
09.07.2015	0,023624982	0,024251687	0,022024558	-	0,033118872	0,037855303	0,025696905	0,013786277
10.07.2015	0,022847739	0,029289436	0,027726362	-	0,02816954	0,028736389	0,029900267	0,013718269
13.07.2015	0,019348542	0,018287661	0,013913158	-	0,00853616	0,016675767	0,016470687	0,009503472
14.07.2015	0,001305022	0,005944437	0,001937933	-	-0,004431412	-0,007359218	0,002603716	0,002216407
15.07.2015	0,007649818	0,002022002	0,001084539	-	0,011275673	0,00675009	0,006421646	-0,000125775
16.07.2015	0,012158464	0,013697166	0,01434076	-	0,015125128	0,012058559	0,014881555	0,006176736
17.07.2015	-0,00121438	-0,000344511	-0,00459557	-	-0,002171417	-0,005425688	-0,003030742	-0,003275017
20.07.2015	0,003182986	0,002617265	0,004432982	-	0,009695755	-0,000989931	0,006116315	0,001881043

Table 3 presents the abnormal returns of the general indicators of the countries we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

We note that due to the referendum wait all stock markets had negative results a few days before the announcement of the result. This negative reaction of the stock markets continued for several days after the announcement and then it appeared that the stock markets started to recover with positive results for all the indices. The exception was Greece, which is also the country that held the referendum for which we have no results because the stock market between the 26th of June until 3rd of August in 2015 remained closed.

Figure 3

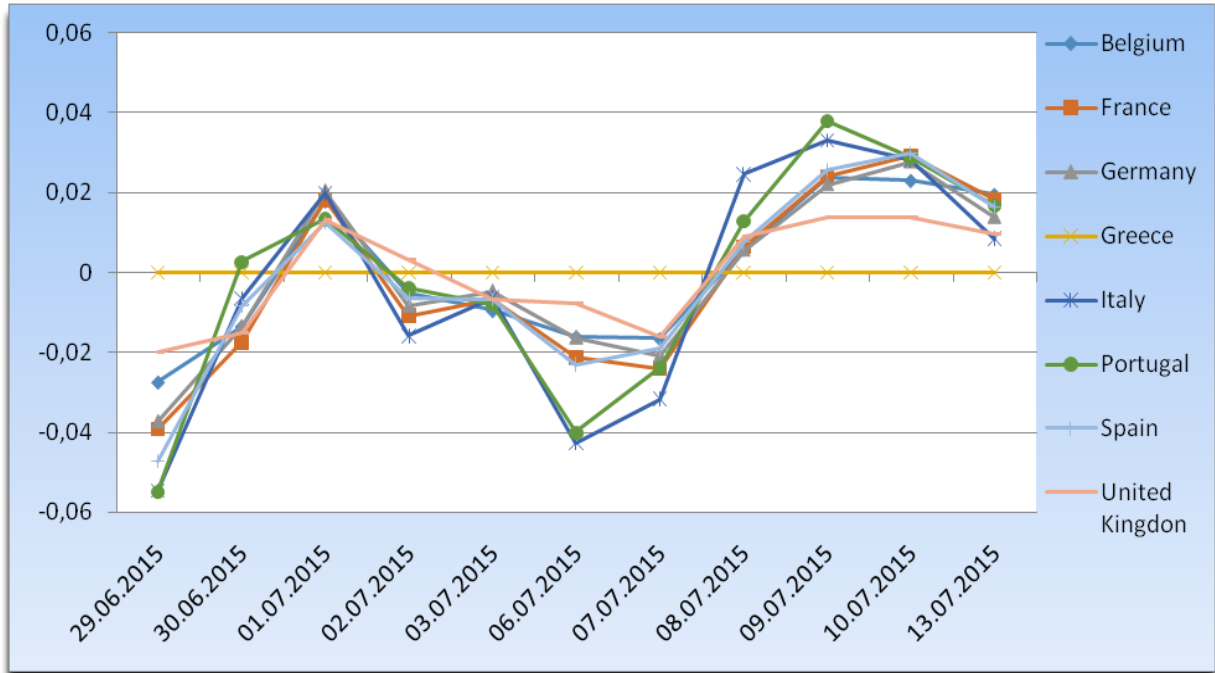


Figure 3 illustrates the effects of abnormal returns. In other words, it shows the variation of the general indicators from the impact of the referendum.

Further we are examining graphically the impact of the referendum on the stock markets with the exception of Greece which has had zero reaction because the stock market was closed at that time, the rest of the indices show a negative reaction from 2nd of July until 8th of July, 2015. After that all the indices started to recover with positive results.

Regarding to the referendum, we decided to check also the impact it will have on sectoral indicators, and in particular on Germany.

Table 4

Results from the event study methodology: The impact on the sectoral indicators

date	Banks	Construction	Industrial	Technology
22.06.2015	0,033502883	0,035743327	0,025311808	0,029264582
23.06.2015	0,010604755	0,009531081	0,007612334	0,003435546
24.06.2015	-0,002934583	-0,012249617	-0,005900242	-0,011147211
25.06.2015	0,010948686	0,003774331	-0,003609611	0,001043201
26.06.2015	0,010539935	-4,16284E-05	-0,00268276	-0,002633728
29.06.2015	-0,057133494	-0,034438902	-0,03044678	-0,041480689
30.06.2015	-0,008514107	-0,01365477	-0,015428223	-0,017683949
01.07.2015	0,040951481	0,016248877	0,018470664	0,023029814
02.07.2015	-0,002488207	-0,004500994	-0,010744771	-0,015950128
03.07.2015	-0,00407347	-0,012098705	-0,003812093	-0,004151093
06.07.2015	-0,032630396	-0,007315013	-0,014176707	-0,006446172
07.07.2015	-0,027728775	-0,031215257	-0,026296891	-0,033237006
08.07.2015	0,006604508	0,002440035	0,004977553	-0,012728391
09.07.2015	0,017662632	0,017357835	0,019694454	0,015730292
10.07.2015	0,035087986	0,02950925	0,023308979	0,021496255
13.07.2015	0,029756907	0,00666708	0,018964824	0,011459074
14.07.2015	0,00406254	-0,001461352	0,000935017	-0,012280166
15.07.2015	0,009822799	-0,00958099	0,00128552	0,001831771
16.07.2015	0,016940272	0,005874242	0,016394874	0,007027441
17.07.2015	-0,002276164	-0,006765352	-0,001938632	0,000753828
20.07.2015	0,013059595	0,008130921	0,006422225	-0,000722106

Table 4 presents the abnormal returns of the sectoral indicators of Germany we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

By creating a table with the results of abnormal returns we generally observed that the German sectoral indicators reacted to the same way as the German general indicator.

Figure 4

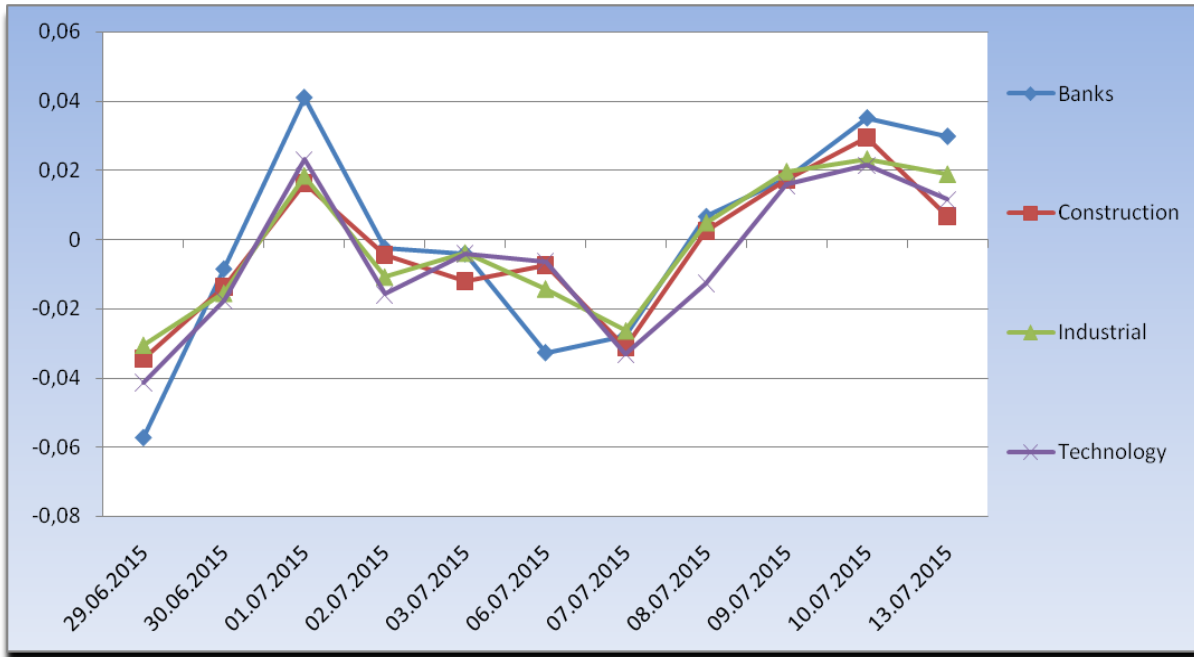


Figure 4 illustrates the effects of abnormal returns. In other words, it shows the variation of the sectoral indicators from the impact of the referendum.

As you can see in the chart, they appear to follow the same path as Germany's general index, with the negative effect starting on 2nd of July and ending on 8th of the same month in 2015. This indicates that the impact of the referendum was clear and affected almost all the indicators to the same degree.

3.3 Event 3: Greek National Elections on the 20th of September in 2015

In Table 5 and table 6 we examine the impact of new parliamentary elections in Greece that took place on the 20th of September in 2015. As the announcement of the result, we declare the 21st of January because the stock markets were closed the previous day.

Table 5

Results from the event study methodology: The impact on the general indicators

Date	Belgium	France	Germany	Greece	Italy	Portugal	Spain	United Kingdom
07.09.2015	0,004582642	0,006738382	0,008480057	0,015566142	0,007417267	-0,004328532	-0,000705799	0,006126124
08.09.2015	0,012343514	0,011513313	0,017446301	0,020541532	0,015115779	0,009206262	0,007146871	0,012625249
09.09.2015	0,013393899	0,015205421	0,004561719	0,004864191	0,008879644	0,004623729	0,018208544	0,014310166
10.09.2015	-0,007667879	-0,01381482	-0,007561639	0,010874216	-0,009754647	-0,005182346	-0,017007872	-0,010910572
11.09.2015	-0,008316389	-0,009572346	-0,007070948	0,000317878	-0,005886909	-0,005857048	-0,011393904	-0,005289846
14.09.2015	-0,005377665	-0,005859806	0,002282087	0,000938648	-0,009170487	-0,004839535	-0,003305455	-0,004526182
15.09.2015	0,003795784	0,012156172	0,007024644	0,015719576	0,016571898	0,005134206	0,009805744	0,00958493
16.09.2015	0,017189595	0,017480306	0,005302896	0,01712871	0,007549482	0,018541372	0,020632674	0,015726221
17.09.2015	-0,002951445	0,00288324	0,001706105	0,001983808	0,002297797	0,003185834	0,013891629	-0,00589033
18.09.2015	-0,013325949	-0,025076038	-0,029643377	0,009769491	-0,026338966	-0,005995726	-0,025036174	-0,012575897
21.09.2015	0,008960533	0,011770104	0,004731439	-0,003607939	0,011588861	0,012742007	0,001939773	0,001663795
22.09.2015	-0,028767114	-0,033952316	-0,037246225	-0,021257633	-0,033355687	-0,023236545	-0,030634124	-0,0027796582
23.09.2015	0,003414866	0,001858472	0,005849047	-0,011083029	0,002233149	0,004944078	-0,006982212	0,017020355
24.09.2015	-0,01629642	-0,018613595	-0,017956621	0,001108458	-0,022916766	-0,013366586	-0,018559941	-0,010887479
25.09.2015	0,024903807	0,031112647	0,028771309	0,013131847	0,036604549	0,021322921	0,025218437	0,025354769
28.09.2015	-0,017320354	-0,027091684	-0,019909596	-0,028601384	-0,027066391	-0,017516611	-0,012284498	-0,023975054
29.09.2015	-0,005600519	-0,002178346	-0,002027253	-0,004511177	-0,001106698	-0,013058692	0,000933416	-0,007451471
30.09.2015	0,015165389	0,026242179	0,023456524	0,008119201	0,027517885	0,031451336	0,018482076	0,026368702
01.10.2015	-0,00440075	-0,005590463	-0,01429979	-0,015533492	-0,006697447	0,013299226	0,001739119	0,002700489
02.10.2015	0,005507915	0,008162823	0,006071957	-0,000493743	0,012340201	0,021931551	0,004752345	0,010336534
05.10.2015	0,028880037	0,035709321	0,02850226	0,042097125	0,027437441	0,035223807	0,03853829	0,028097191

Table 5 presents the abnormal returns of the general indicators of the countries we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

The third and last event we are considering is Greece's second national elections in the same year. As in previous elections, we note that on the day of the announcement of the result only the general index of Greece was negatively affected, while all others reacted negatively the following day. This negative reaction did not last long with the exception of Greece, which lasted only 3 days after the announcement of the result. Therefore, it has a negative impact on all stock markets in the short run as it was mentioned in the analysis of the results of the previous national elections in Greece.

Figure 5

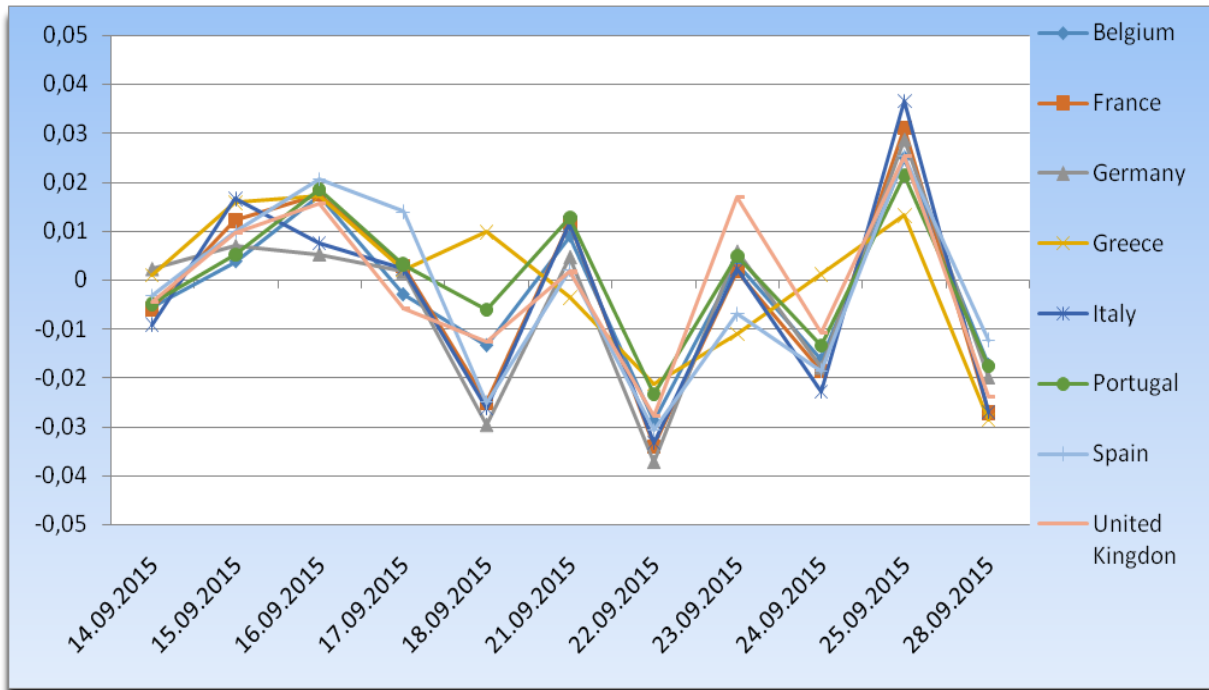


Figure 5 illustrates the effects of abnormal returns. In other words, it shows the variation of the general indicators from the impact of the second national elections in 2015.

The difference between these national elections and the previous elections (see Figure 1) is that the general indicators of the 8 countries shows bigger variation from one day to another, as shown in Figure 5. This has had a negative effect on the general indicators for only one day after the event and fluctuations are observed which may be caused by other factors.

In addition, we applied the same methodology to check in this case how the sectoral indicators of Germany will be affected by the second elections. The banking and technology indices have been showing negative results for several days compared to the industry and construction indices which react negatively only the day after the announcement of the result as you can see in the table 6 below.

Table 6

Results from the event study methodology: The impact on the sectoral indicators

date	Banks	Construction	Industrial	Technology
07.09.2015	0,004588759	0,006883938	0,003526019	0,006398654
08.09.2015	0,037126843	0,009517945	0,010088977	0,018621085
09.09.2015	0,001479983	0,016729611	0,012241926	-0,005585285
10.09.2015	-0,011216659	-0,00278525	-0,007186044	-0,002802041
11.09.2015	-0,005993627	0,00422814	-0,009742332	-0,018624518
14.09.2015	0,004722577	-0,003070573	-0,007644269	0,016209083
15.09.2015	0,013309356	0,00836206	0,006781839	0,030849707
16.09.2015	-0,005442444	0,006279808	0,007233011	0,012991358
17.09.2015	0,011905777	-0,000333277	-1,79097E-06	-0,008754571
18.09.2015	-0,041160006	-0,025933329	-0,029968342	-0,023894566
21.09.2015	0,010658056	0,003463882	0,009110645	-0,041075438
22.09.2015	-0,029605757	-0,034091893	-0,03030395	-0,035392935
23.09.2015	-0,004441453	0,00627772	0,002028713	-0,007376761
24.09.2015	-0,011730639	-0,029943131	-0,022069295	-0,015981435
25.09.2015	0,022746283	0,031504283	0,025572865	0,034190373
28.09.2015	-0,041141954	-0,025588378	-0,019311689	-0,014315548
29.09.2015	0,002011782	-0,00944868	0,004735518	0,015944228
30.09.2015	0,023060763	0,017153096	0,018043924	0,036229004
01.10.2015	-0,01292272	0,005379096	-0,001064553	-0,021664696
02.10.2015	0,008689651	-0,000577881	0,009398328	0,00287406
05.10.2015	0,046644743	0,037663699	0,030370182	0,024820423

Table 6 presents the abnormal returns of the sectoral indicators of Germany we want to examine. Abnormal returns were calculated based on the event study methodology and more specifically using the mean adjusted model, which gives us the abnormal returns that are the returns of each indicator within the event window minus the average returns of each indicator to the estimation period that is 120 days before the event window.

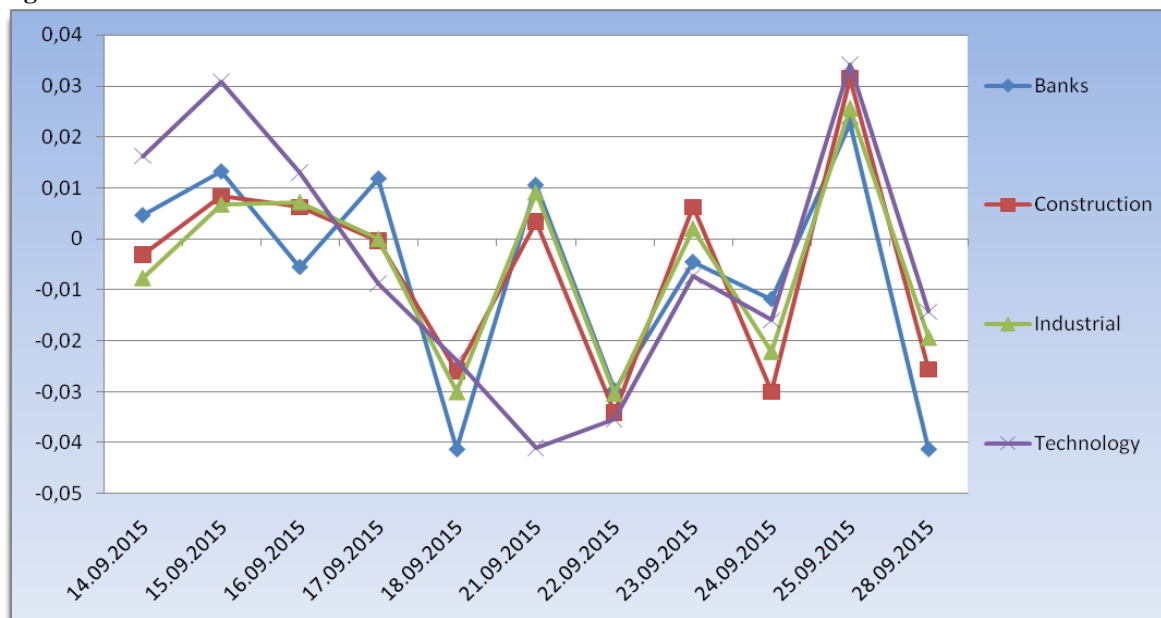
Figure 6

Figure 6 illustrates the effects of abnormal returns. In other words, it shows the variation of the sectoral indicators from the impact of the second national elections in 2015.

4. Conclusion

The current study examines empirically the relationship between political events in Greece and stock market volatility during the period of July in 2014 and March in 2016 using daily time series data for each country in the sample. We have checked three *Political events* which are mentioned in the empirical literature. As a consequence, we first noticed the existence of direct negative impact in the general indices of stock market. Particularly, we have no clear results on the political events surrounding the national elections because they were announced long ago, so the markets expected the outcome. On the other hand, the announcement of referendum shows that it has affected adversely the stock markets several days before its completion. However, by checking the statistical significance of these results, we find that abnormal returns are statistically insignificant. As a result the t-test we have performed for the abnormal returns shows that this event did not affect the stock indices at all. The only day on which the abnormal returns of the stock indices were statistically significant was on the day that the Greek Prime Minister announced a referendum, and on the day of the referendum, the Portuguese and Italian indices are statistical significant. As a result, we conclude that these political events ultimately did not appear to affect the stock markets.

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T-Statistic

The Null is: $H_0: AR_{i,t}=0$,

$$t_{AR_{i,t}} = \frac{AR_{i,t}}{S_{AR_i}}$$

where S_{AR_i} is the standard deviation of the abnormal returns in the estimation window.

$$T_{critical} = 1,72$$

General Indicators

T-Statistic								
Null Ypothesis: AR=0								
Date	Belgium	France	Germany	Greece	Italy	Portugal	Spain	United Kingdom
22.06.2015	1,631435904	1,981987563	2,13817948		1,410674969	0,914676259	2,004820958	1,62105839
23.06.2015	1,13997598	0,589584619	0,365907362		0,087736798	1,311703253	0,137823514	0,117144356
24.06.2015	-0,492439946	-0,182188638	-0,41519924		-0,289951346	-0,653293485	-0,401454696	0,127201836
25.06.2015	-0,200047633	-0,088679822	-0,042592723		0,304718405	-0,244278236	-0,086595501	-0,531734371
26.06.2015	0,102888522	0,138619675	0,046361584		0,225981689	0,081360071	0,277740188	-0,777708855
29.06.2015	-1,850740851	-2,124266013	-2,177174129		-2,355981203	-2,460123436	-2,51251216	-1,923201062
30.06.2015	-0,913618137	-0,946080291	-0,787707739		-0,27131096	0,12125312	-0,439482984	-1,464720929
01.07.2015	1,195662751	0,996363265	1,195696086		0,857807779	0,600283629	0,676044993	1,268154495
02.07.2015	-0,356661755	-0,582569217	-0,479086884		-0,682298093	-0,176324931	-0,342242189	0,305012246
03.07.2015	-0,647950813	-0,357830826	-0,268828876		-0,269207719	-0,360229732	-0,351588979	-0,660817241
06.07.2015	-1,086482806	-1,154259529	-0,94807022		-1,840108562	-1,797714512	-1,22284214	-0,744607387
07.07.2015	-1,120459896	-1,297758504	-1,214437401		-1,366133334	-1,072359572	-1,014741427	-1,542903379
08.07.2015	0,384661195	0,355186015	0,333688581		1,065802987	0,576996137	0,410089458	0,856293448
09.07.2015	1,592288642	1,319119676	1,290823081		1,431391323	1,700942173	1,371192425	1,322488566
10.07.2015	1,539903592	1,593137444	1,62499644		1,217482163	1,291204453	1,595484753	1,315964634
13.07.2015	1,304062958	0,994718971	0,81542727		0,368931203	0,749287757	0,878879447	0,911648027
14.07.2015	0,087956568	0,323335204	0,113579068		-0,191524791	-0,330669777	0,138934852	0,212615282
15.07.2015	0,515586359	0,109982573	0,06356302		0,487332434	0,303299968	0,34266045	-0,01206529
16.07.2015	0,819462391	0,745028621	0,840488326		0,653705153	0,541824001	0,794083032	0,592521312
17.07.2015	-0,081847384	-0,018738956	-0,269338813		-0,093848226	-0,24379098	-0,161721057	-0,314165469
20.07.2015	0,21452853	0,142360626	0,259809795		0,419048679	-0,044480321	0,326367877	0,180444476
STDEV	0,014837123	0,018384751	0,017062414		0,023137538	0,022255491	0,018740553	0,010424496

Sectoral Indicators

T-Statistic				
Null Ypothesis: AR=0				
Date	Banks	Construction	Industrial	Technology
22.06.2015	1,435144524	2,094157125	1,621077	1,67568862
23.06.2015	0,454270058	0,558414216	0,487527	0,19671919
24.06.2015	-0,125707096	-0,71768982	-0,377877	-0,6382888
25.06.2015	0,469002841	0,221133345	-0,231175	0,05973367
26.06.2015	0,451493384	-0,002438955	-0,171816	-0,1508071
29.06.2015	-2,447395961	-2,017732494	-1,949943	-2,3751823
30.06.2015	-0,364714084	-0,800016024	-0,98809	-1,0125821
01.07.2015	1,754216011	0,952001526	1,182941	1,31868609
02.07.2015	-0,106585968	-0,263707641	-0,688142	-0,9133036
03.07.2015	-0,174492987	-0,708848113	-0,244143	-0,2376914
06.07.2015	-1,397770253	-0,428577543	-0,907938	-0,3691075
07.07.2015	-1,187802211	-1,828863133	-1,684166	-1,9031494
08.07.2015	0,282913648	0,142958622	0,318784	-0,7288271
09.07.2015	0,756604423	1,016973961	1,261318	0,90071581
10.07.2015	1,503044673	1,728910324	1,492808	1,23087458
13.07.2015	1,274680184	0,39061591	1,214589	0,65614607
14.07.2015	0,174024795	-0,085618819	0,059883	-0,7031618
15.07.2015	0,42077383	-0,561338323	0,08233	0,10488711
16.07.2015	0,725661073	0,344164543	1,049999	0,40239094
17.07.2015	-0,097502762	-0,396373586	-0,124158	0,04316414
20.07.2015	0,559426677	0,476380551	0,411307	-0,0413478
STDEV	0,023344606	0,017068121	0,015614	0,01746421

Appendix A

In Appendix A is presented the abnormal returns calculation in excel for each index individually in the Greek national elections on the 26th of January in 2015.

General Indicators

Belgium				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000219341
12.01.2015	3.257,98	0,003009453	0,002790112	
13.01.2015	3.309,64	0,015732051	0,01551271	
14.01.2015	3.274,03	-0,01081778	-0,011037121	
15.01.2015	3.318,75	0,013566564	0,013347223	
16.01.2015	3.368,38	0,014843711	0,01462437	
19.01.2015	3.395,92	0,008142794	0,007923453	
20.01.2015	3.403,04	0,002094439	0,001875098	
21.01.2015	3.421,97	0,005547259	0,005327918	
22.01.2015	3.456,95	0,010170289	0,009950948	
23.01.2015	3.504,61	0,013692547	0,013473206	
26.01.2015	3.549,96	0,012857091	0,01263775	
27.01.2015	3.530,80	-0,005411862	-0,005631203	
28.01.2015	3.541,21	0,002944002	0,002724661	
29.01.2015	3.548,39	0,002025503	0,001806162	
30.01.2015	3.530,31	-0,005108294	-0,005327635	
02.02.2015	3.538,52	0,002322875	0,002103534	
03.02.2015	3.557,03	0,005217366	0,004998025	
04.02.2015	3.565,79	0,002459701	0,00224036	
05.02.2015	3.557,19	-0,002414721	-0,002634062	
06.02.2015	3.549,96	-0,002034572	-0,002253913	
09.02.2015	3.511,57	-0,010873105	-0,011092446	

France				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,00037137
12.01.2015	4.228,24	0,011697097	0,012068467	
13.01.2015	4.290,28	0,014566168	0,014937538	
14.01.2015	4.223,24	-0,015749393	-0,015378023	
15.01.2015	4.323,20	0,023393263	0,023764633	
16.01.2015	4.379,62	0,012966094	0,013337464	
19.01.2015	4.394,93	0,003489641	0,003861011	
20.01.2015	4.446,02	0,01155771	0,01192908	
21.01.2015	4.484,82	0,008689047	0,009060417	
22.01.2015	4.552,80	0,015044067	0,015415438	
23.01.2015	4.640,69	0,019120634	0,019492004	
26.01.2015	4.675,13	0,007393908	0,007765278	
27.01.2015	4.624,21	-0,010951424	-0,010580054	
28.01.2015	4.610,94	-0,002873805	-0,002502435	
29.01.2015	4.631,43	0,004433935	0,004805305	
30.01.2015	4.604,25	-0,005885886	-0,005514515	
02.02.2015	4.627,67	0,005073712	0,005445082	
03.02.2015	4.677,90	0,01079579	0,01116716	
04.02.2015	4.696,30	0,003925673	0,004297044	
05.02.2015	4.703,30	0,001489425	0,001860796	
06.02.2015	4.691,03	-0,002612215	-0,002240845	
09.02.2015	4.651,08	-0,008552724	-0,008181354	

Germany

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-9,05224E-05
12.01.2015	9.781,90	0,013731276	0,013821799	
13.01.2015	9.941,00	0,01613388	0,016224402	
14.01.2015	9.817,08	-0,012543893	-0,012453371	
15.01.2015	10.032,61	0,021717062	0,021807584	
16.01.2015	10.167,77	0,013382126	0,013472649	
19.01.2015	10.242,35	0,007308172	0,007398694	
20.01.2015	10.257,13	0,001441988	0,00153251	
21.01.2015	10.299,23	0,004096062	0,004186584	
22.01.2015	10.435,62	0,013155819	0,013246341	
23.01.2015	10.649,58	0,020295501	0,020386023	
26.01.2015	10.798,33	0,013871038	0,01396156	
27.01.2015	10.628,58	-0,015844893	-0,015754371	
28.01.2015	10.710,97	0,007721851	0,007812373	
29.01.2015	10.737,87	0,002508295	0,002598818	
30.01.2015	10.694,32	-0,004063986	-0,003973464	
02.02.2015	10.828,01	0,012423536	0,012514058	
03.02.2015	10.890,95	0,005795874	0,005886396	
04.02.2015	10.911,32	0,001868613	0,001959136	
05.02.2015	10.905,41	-0,000541786	-0,000451264	
06.02.2015	10.846,39	-0,005426691	-0,005336168	
09.02.2015	10.663,51	-0,017004673	-0,01691415	

Greece

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,003525245
12.01.2015	809,01	0,03708162	0,040606865	
13.01.2015	835,4	0,032099374	0,035624619	
14.01.2015	819,55	-0,019155243	-0,015629998	
15.01.2015	805	-0,017913132	-0,014387887	
16.01.2015	790,59	-0,018062775	-0,014537531	
19.01.2015	811,78	0,026449865	0,02997511	
20.01.2015	802,12	-0,011971145	-0,0084459	
21.01.2015	782,88	-0,024278795	-0,020753551	
22.01.2015	791,8	0,011329407	0,014854652	
23.01.2015	840,44	0,05961673	0,063141974	
26.01.2015	813,55	-0,032518177	-0,028992932	
27.01.2015	783,53	-0,037598037	-0,034072792	
28.01.2015	711,13	-0,096954097	-0,093428852	
29.01.2015	733,61	0,031122298	0,034647543	
30.01.2015	721,93	-0,016049371	-0,012524126	
02.02.2015	755,42	0,045345705	0,048870949	
03.02.2015	840,57	0,106806347	0,110331592	
04.02.2015	848,04	0,008847571	0,012372816	
05.02.2015	819,5	-0,034233406	-0,030708162	
06.02.2015	803,36	-0,019891466	-0,016366221	
09.02.2015	765,22	-0,048639558	-0,045114314	

Italy

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,001030922
12.01.2015	18.349,15	0,009421242	0,010452164	
13.01.2015	18.708,93	0,019417698	0,02044862	
14.01.2015	18.410,68	-0,016070019	-0,015039097	
15.01.2015	18.844,52	0,023291224	0,024322146	
16.01.2015	19.254,54	0,021524722	0,022555643	
19.01.2015	19.480,53	0,011668628	0,01269955	
20.01.2015	19.658,66	0,009102448	0,01013337	
21.01.2015	19.981,41	0,016284388	0,017315309	
22.01.2015	20.469,74	0,024145357	0,025176278	
23.01.2015	20.519,75	0,002440139	0,00347106	
26.01.2015	20.756,72	0,011482213	0,012513134	
27.01.2015	20.645,82	-0,005357172	-0,004326251	
28.01.2015	20.478,44	-0,008140252	-0,007109331	
29.01.2015	20.593,72	0,00561355	0,006644471	
30.01.2015	20.503,38	-0,004396424	-0,003365503	
02.02.2015	20.485,69	-0,000863157	0,000167765	
03.02.2015	21.011,55	0,025345693	0,026376614	
04.02.2015	20.941,73	-0,003328467	-0,002297546	
05.02.2015	20.819,05	-0,005875386	-0,004844465	
06.02.2015	20.760,74	-0,00280473	-0,001773808	
09.02.2015	20.366,64	-0,019165435	-0,018134513	

Portugal

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,002430945
12.01.2015	4.705,06	0,003995167	0,006426112	
13.01.2015	4.826,39	0,025460251	0,027891196	
14.01.2015	4.892,83	0,013672092	0,016103037	
15.01.2015	4.956,77	0,012983451	0,015414395	
16.01.2015	5.018,72	0,012420602	0,014851547	
19.01.2015	5.059,92	0,008175752	0,010606697	
20.01.2015	5.052,22	-0,001522922	0,000908023	
21.01.2015	5.151,39	0,019438831	0,021869775	
22.01.2015	5.273,15	0,023361326	0,025792271	
23.01.2015	5.300,59	0,005190228	0,007621173	
26.01.2015	5.360,03	0,011151437	0,013582382	
27.01.2015	5.276,99	-0,015613713	-0,013182768	
28.01.2015	5.197,72	-0,015135792	-0,012704847	
29.01.2015	5.225,65	0,005359124	0,007790069	
30.01.2015	5.144,55	-0,01564129	-0,013210345	
02.02.2015	5.213,34	0,013282823	0,015713768	
03.02.2015	5.304,82	0,017395116	0,019826061	
04.02.2015	5.274,97	-0,005642849	-0,003211904	
05.02.2015	5.273,54	-0,000271128	0,002159816	
06.02.2015	5.264,63	-0,001690996	0,000739949	
09.02.2015	5.220,72	-0,008375544	-0,0059446	

Spain

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,000761449
12.01.2015	9.797,50	0,008044519	0,008805967	
13.01.2015	9.966,00	0,017052049	0,017813498	
14.01.2015	9.846,00	-0,012114019	-0,01135257	
15.01.2015	9.982,50	0,013768279	0,014529728	
16.01.2015	10.038,90	0,005633987	0,006395435	
19.01.2015	10.157,50	0,011744802	0,012506251	
20.01.2015	10.283,90	0,012367217	0,013128666	
21.01.2015	10.335,30	0,004985655	0,005747104	
22.01.2015	10.510,60	0,016819051	0,0175805	
23.01.2015	10.581,50	0,006722922	0,00748437	
26.01.2015	10.696,10	0,010771996	0,011533445	
27.01.2015	10.598,90	-0,009128967	-0,008367518	
28.01.2015	10.456,90	-0,013488175	-0,012726726	
29.01.2015	10.507,60	0,004836757	0,005598206	
30.01.2015	10.403,30	-0,009975741	-0,009214292	
02.02.2015	10.328,10	-0,007254728	-0,006493279	
03.02.2015	10.598,20	0,025815839	0,026577288	
04.02.2015	10.577,80	-0,00192671	-0,001165261	
05.02.2015	10.535,50	-0,004006958	-0,003245509	
06.02.2015	10.573,10	0,003562533	0,004323982	
09.02.2015	10.364,90	-0,019887942	-0,019126493	

United Kingdom

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,000286381
12.01.2015	6.501,42	4,30684E-05	0,00032945	
13.01.2015	6.542,20	0,006252886	0,006539267	
14.01.2015	6.388,46	-0,023780263	-0,023493881	
15.01.2015	6.498,78	0,017121229	0,017407611	
16.01.2015	6.550,27	0,007891803	0,008178185	
19.01.2015	6.585,53	0,005368548	0,005654929	
20.01.2015	6.620,10	0,005235658	0,005522039	
21.01.2015	6.728,04	0,016173392	0,016459774	
22.01.2015	6.796,63	0,010143033	0,010429415	
23.01.2015	6.832,83	0,005312035	0,005598417	
26.01.2015	6.852,40	0,00286002	0,003146401	
27.01.2015	6.811,61	-0,005970447	-0,005684065	
28.01.2015	6.825,94	0,002101551	0,002387933	
29.01.2015	6.810,60	-0,002249839	-0,001963457	
30.01.2015	6.749,40	-0,00902661	-0,008740229	
02.02.2015	6.782,55	0,004899525	0,005185907	
03.02.2015	6.871,80	0,013072943	0,013359325	
04.02.2015	6.860,02	-0,001715723	-0,001429342	
05.02.2015	6.865,93	0,000861143	0,001147524	
06.02.2015	6.853,44	-0,001820784	-0,001534402	
09.02.2015	6.837,15	-0,002379738	-0,002093356	

Sectoral Indicators of Germany

Banks				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	
				-0,000695958
12/1/2015	149,42	-0,003474082	-0,002778123	
13/1/2015	154,9	0,036018615	0,036714573	
14/1/2015	151,15	-0,024507026	-0,023811068	
15/1/2015	154,29	0,020561227	0,021257185	
16/1/2015	153,57	-0,004677459	-0,003981501	
19/1/2015	155,96	0,015443075	0,016139033	
20/1/2015	157,88	0,012235687	0,012931645	
21/1/2015	159,81	0,012150359	0,012846317	
22/1/2015	164,04	0,026124691	0,026820649	
23/1/2015	163,11	-0,005685481	-0,004989522	
26/1/2015	163,25	0,000857948	0,001553907	
27/1/2015	158,21	-0,031359504	-0,030663545	
28/1/2015	156,12	-0,013298322	-0,012602364	
29/1/2015	159,13	0,019096536	0,019792494	
30/1/2015	159,01	-0,000754385	-5,84267E-05	
2/2/2015	162,07	0,019061247	0,019757206	
3/2/2015	167,33	0,03193957	0,032635528	
4/2/2015	166,95	-0,002273544	-0,001577586	
5/2/2015	166,86	-0,000539229	0,000156729	
6/2/2015	167	0,000838675	0,001534633	
9/2/2015	165,53	-0,008841365	-0,008145407	

Construction				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	
				-0,000296227
12.01.2015	731,14	0,01552	0,015816655	
13.01.2015	746,29	0,020509	0,020805532	
14.01.2015	744,21	-0,002791	-0,002494785	
15.01.2015	758,3	0,018756	0,01905206	
16.01.2015	741,51	-0,02239	-0,022094211	
19.01.2015	746,39	0,00656	0,006855831	
20.01.2015	757,32	0,014538	0,014833861	
21.01.2015	752,64	-0,006199	-0,005902633	
22.01.2015	763,81	0,014732	0,015028268	
23.01.2015	775,4	0,01506	0,015356185	
26.01.2015	804,88	0,037314	0,0376104	
27.01.2015	787,14	-0,022287	-0,021990848	
28.01.2015	794,27	0,009017	0,009313557	
29.01.2015	797,33	0,003845	0,004141419	
30.01.2015	797	-0,000414	-0,00011774	
02.02.2015	804,9	0,009863	0,010159594	
03.02.2015	810,79	0,007291	0,007587262	
04.02.2015	812,68	0,002328	0,002624574	
05.02.2015	816,71	0,004947	0,005242873	
06.02.2015	812,16	-0,005587	-0,005290483	
09.02.2015	809,26	-0,003577	-0,003280888	

Industrial

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-8,9138E-05
12/1/2015	4.303,39	0,009085178	0,009174316	
13/1/2015	4.327,18	0,005512975	0,005602113	
14/1/2015	4.271,24	-0,013011876	-0,012922738	
15/1/2015	4.358,80	0,020292607	0,020381745	
16/1/2015	4.379,95	0,004840519	0,004929657	
19/1/2015	4.435,71	0,012650384	0,012739522	
20/1/2015	4.466,33	0,006879349	0,006968487	
21/1/2015	4.496,87	0,006814557	0,006903695	
22/1/2015	4.545,78	0,010817731	0,010906869	
23/1/2015	4.642,07	0,020961057	0,021050195	
26/1/2015	4.714,65	0,015514295	0,015603433	
27/1/2015	4.606,07	-0,023299683	-0,023210545	
28/1/2015	4.594,13	-0,002595597	-0,002506459	
29/1/2015	4.540,89	-0,011656374	-0,011567236	
30/1/2015	4.522,23	-0,004117793	-0,004028655	
2/2/2015	4.564,97	0,009406707	0,009495845	
3/2/2015	4.620,03	0,011989256	0,012078394	
4/2/2015	4.626,14	0,001321628	0,001410767	
5/2/2015	4.669,87	0,009408407	0,009497545	
6/2/2015	4.634,81	-0,007536028	-0,00744689	
9/2/2015	4.577,61	-0,012418178	-0,01232904	

Technology

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-8,47078E-05
12.01.2015	556,51	0,002771082	0,00285579	
13.01.2015	562,63	0,010937078	0,011021786	
14.01.2015	562,78	0,00026657	0,000351277	
15.01.2015	566,31	0,006252843	0,006337551	
16.01.2015	566,36	8,8287E-05	0,000172995	
19.01.2015	575,44	0,015905047	0,015989755	
20.01.2015	579,47	0,006978927	0,007063635	
21.01.2015	579,35	-0,000207107	-0,000122399	
22.01.2015	580,68	0,002293045	0,002377753	
23.01.2015	590,48	0,016735935	0,016820643	
26.01.2015	603,02	0,021014598	0,021099306	
27.01.2015	591,42	-0,019423939	-0,019339231	
28.01.2015	604,2	0,021378844	0,021463552	
29.01.2015	608,83	0,007633814	0,007718521	
30.01.2015	609,46	0,001034237	0,001118944	
02.02.2015	602,41	-0,011635043	-0,011550335	
03.02.2015	610,33	0,013061518	0,013146226	
04.02.2015	613,45	0,005098967	0,005183674	
05.02.2015	615,49	0,003319937	0,003404645	
06.02.2015	617,27	0,002887831	0,002972539	
09.02.2015	601,23	-0,026328973	-0,026244265	

Appendix B

In Appendix B is presented the abnormal returns calculation in excel for each index individually in the referendum on the 6th of July in 2015.

General Indicators

Belgium				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000661636
22.06.2015	3.679,44	0,024867451	0,024205815	
23.06.2015	3.744,68	0,017575599	0,016913964	
24.06.2015	3.719,88	-0,006644756	-0,007306392	
25.06.2015	3.711,31	-0,002306496	-0,002968131	
26.06.2015	3.719,44	0,002188205	0,00152657	
29.06.2015	3.621,09	-0,026798034	-0,027459669	
30.06.2015	3.574,70	-0,012893829	-0,013555465	
01.07.2015	3.641,09	0,018401831	0,017740195	
02.07.2015	3.624,27	-0,004630199	-0,005291834	
03.07.2015	3.591,97	-0,00895209	-0,009613726	
06.07.2015	3.536,87	-0,015458643	-0,016120279	
07.07.2015	3.480,86	-0,015962766	-0,016624401	
08.07.2015	3.503,10	0,006368901	0,005707265	
09.07.2015	3.589,22	0,024286618	0,023624982	
10.07.2015	3.674,60	0,023509375	0,022847739	
13.07.2015	3.748,87	0,020010178	0,019348542	
14.07.2015	3.756,25	0,001966658	0,001305022	
15.07.2015	3.787,60	0,008311454	0,007649818	
16.07.2015	3.836,47	0,0128201	0,012158464	
17.07.2015	3.834,35	-0,000552744	-0,00121438	
20.07.2015	3.849,12	0,003844622	0,003182986	

France				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,00090864
22.06.2015	4.998,61	0,037346988	0,036438349	
23.06.2015	5.057,68	0,011748006	0,010839367	
24.06.2015	5.045,35	-0,002440853	-0,003349493	
25.06.2015	5.041,71	-0,000721717	-0,001630356	
26.06.2015	5.059,17	0,003457128	0,002548488	
29.06.2015	4.869,82	-0,038145463	-0,039054103	
30.06.2015	4.790,20	-0,016484811	-0,017393451	
01.07.2015	4.883,19	0,019226531	0,018317891	
02.07.2015	4.835,56	-0,00980175	-0,01071039	
03.07.2015	4.808,22	-0,005669991	-0,006578631	
06.07.2015	4.711,54	-0,020312135	-0,021220774	
07.07.2015	4.604,64	-0,022950328	-0,023858967	
08.07.2015	4.639,02	0,007438646	0,006530007	
09.07.2015	4.757,22	0,025160327	0,024251687	
10.07.2015	4.903,07	0,030198076	0,029289436	
13.07.2015	4.998,10	0,019196301	0,018287661	
14.07.2015	5.032,47	0,006853077	0,005944437	
15.07.2015	5.047,24	0,002930642	0,002022002	
16.07.2015	5.121,50	0,014605806	0,013697166	
17.07.2015	5.124,39	0,000564129	-0,000344511	
20.07.2015	5.142,49	0,003525904	0,002617265	

Germany

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000889737
22.06.2015	11.460,50	0,037372242	0,036482504	
23.06.2015	11.542,54	0,007133	0,006243263	
24.06.2015	11.471,26	-0,006194564	-0,007084301	
25.06.2015	11.473,13	0,000163003	-0,000726735	
26.06.2015	11.492,43	0,001680778	0,000791041	
29.06.2015	11.083,20	-0,036258109	-0,037147847	
30.06.2015	10.944,97	-0,012550458	-0,013440196	
01.07.2015	11.180,50	0,021291199	0,020401462	
02.07.2015	11.099,35	-0,007284641	-0,008174379	
03.07.2015	11.058,39	-0,003697132	-0,00458687	
06.07.2015	10.890,63	-0,015286629	-0,016176367	
07.07.2015	10.676,78	-0,019831497	-0,020721234	
08.07.2015	10.747,30	0,00658327	0,005693533	
09.07.2015	10.996,41	0,022914296	0,022024558	
10.07.2015	11.315,63	0,0286161	0,027726362	
13.07.2015	11.484,38	0,014802895	0,013913158	
14.07.2015	11.516,90	0,002827671	0,001937933	
15.07.2015	11.539,66	0,001974276	0,001084539	
16.07.2015	11.716,76	0,015230498	0,01434076	
17.07.2015	11.673,42	-0,003705833	-0,00459557	
20.07.2015	11.735,72	0,00532272	0,004432982	

Greece

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-
22.06.2015	-	-	-	
23.06.2015	-	-	-	
24.06.2015	-	-	-	
25.06.2015	-	-	-	
26.06.2015	-	-	-	
29.06.2015	-	-	-	
30.06.2015	-	-	-	
01.07.2015	-	-	-	
02.07.2015	-	-	-	
03.07.2015	-	-	-	
06.07.2015	-	-	-	
07.07.2015	-	-	-	
08.07.2015	-	-	-	
09.07.2015	-	-	-	
10.07.2015	-	-	-	
13.07.2015	-	-	-	
14.07.2015	-	-	-	
15.07.2015	-	-	-	
16.07.2015	-	-	-	
17.07.2015	-	-	-	
20.07.2015	-	-	-	

Italy				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,001425653
22.06.2015	23.485,95	0,034065199	0,032639546	
23.06.2015	23.567,25	0,003455666	0,002030014	
24.06.2015	23.443,07	-0,005283108	-0,00670876	
25.06.2015	23.642,62	0,008476087	0,007050434	
26.06.2015	23.800,47	0,006654313	0,00522866	
29.06.2015	22.569,95	-0,053085953	-0,054511606	
30.06.2015	22.460,71	-0,004851815	-0,006277468	
01.07.2015	22.943,64	0,021273213	0,019847561	
02.07.2015	22.616,50	-0,014361046	-0,015786698	
03.07.2015	22.508,13	-0,004803151	-0,006228804	
06.07.2015	21.600,72	-0,04114993	-0,042575583	
07.07.2015	20.958,48	-0,03018331	-0,031608963	
08.07.2015	21.512,39	0,02608571	0,024660058	
09.07.2015	22.268,51	0,034544525	0,033118872	
10.07.2015	22.937,40	0,029595193	0,02816954	
13.07.2015	23.167,04	0,009961813	0,00853616	
14.07.2015	23.097,51	-0,003005759	-0,004431412	
15.07.2015	23.392,75	0,012701326	0,011275673	
16.07.2015	23.783,14	0,016550781	0,015125128	
17.07.2015	23.765,41	-0,000745764	-0,002171417	
20.07.2015	24.031,19	0,011121408	0,009695755	

Portugal				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Reurns	0,001170641
22.06.2015	5.743,96	0,02152721	0,020356569	
23.06.2015	5.921,04	0,030363241	0,0291926	
24.06.2015	5.842,41	-0,013368726	-0,014539367	
25.06.2015	5.817,54	-0,004265891	-0,005436532	
26.06.2015	5.834,91	0,002981349	0,001810708	
29.06.2015	5.530,50	-0,053580614	-0,054751255	
30.06.2015	5.551,94	0,003869189	0,002698548	
01.07.2015	5.633,20	0,014530248	0,013359607	
02.07.2015	5.617,71	-0,002753557	-0,003924198	
03.07.2015	5.579,38	-0,006846448	-0,00801709	
06.07.2015	5.366,84	-0,038838378	-0,040009019	
07.07.2015	5.246,41	-0,022695248	-0,023865889	
08.07.2015	5.320,44	0,014011974	0,012841332	
09.07.2015	5.532,18	0,039025945	0,037855303	
10.07.2015	5.700,13	0,02990703	0,028736389	
13.07.2015	5.802,77	0,017846408	0,016675767	
14.07.2015	5.766,97	-0,006188577	-0,007359218	
15.07.2015	5.812,83	0,007920731	0,00675009	
16.07.2015	5.890,24	0,0132292	0,012058559	
17.07.2015	5.865,23	-0,004255047	-0,005425688	
20.07.2015	5.866,29	0,00018071	-0,000989931	

Spain

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000429757
22.06.2015	11.368,20	0,038001211	0,037571454	
23.06.2015	11.402,50	0,003012646	0,002582889	
24.06.2015	11.321,90	-0,007093726	-0,007523483	
25.06.2015	11.308,40	-0,001193091	-0,001622848	
26.06.2015	11.372,30	0,005634762	0,005205005	
29.06.2015	10.853,90	-0,046656112	-0,047085868	
30.06.2015	10.769,50	-0,007806398	-0,008236154	
01.07.2015	10.911,50	0,013099214	0,012669457	
02.07.2015	10.846,40	-0,005984051	-0,006413808	
03.07.2015	10.779,80	-0,006159215	-0,006588972	
06.07.2015	10.540,10	-0,022486982	-0,022916738	
07.07.2015	10.346,00	-0,018587059	-0,019016816	
08.07.2015	10.430,30	0,00811506	0,007685303	
09.07.2015	10.706,40	0,026126662	0,025696905	
10.07.2015	11.036,10	0,030330024	0,029900267	
13.07.2015	11.224,20	0,016900444	0,016470687	
14.07.2015	11.258,30	0,003033473	0,002603716	
15.07.2015	11.335,70	0,006851403	0,006421646	
16.07.2015	11.510,60	0,015311312	0,014881555	
17.07.2015	11.480,70	-0,002600985	-0,003030742	
20.07.2015	11.556,10	0,006546071	0,006116315	

United Kingdom

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000125775
22.06.2015	6.825,67	0,017024492	0,016898717	
23.06.2015	6.834,87	0,001346945	0,001221171	
24.06.2015	6.844,80	0,00145179	0,001326015	
25.06.2015	6.807,82	-0,005417288	-0,005543063	
26.06.2015	6.753,70	-0,007981449	-0,008107223	
29.06.2015	6.620,48	-0,019922628	-0,020048403	
30.06.2015	6.520,98	-0,015143203	-0,015268978	
01.07.2015	6.608,59	0,013345647	0,013219872	
02.07.2015	6.630,47	0,003305374	0,003179599	
03.07.2015	6.585,78	-0,006762912	-0,006888687	
06.07.2015	6.535,68	-0,007636382	-0,007762157	
07.07.2015	6.432,21	-0,015958216	-0,016083991	
08.07.2015	6.490,70	0,009052203	0,008926428	
09.07.2015	6.581,63	0,013912052	0,013786277	
10.07.2015	6.673,38	0,013844043	0,013718269	
13.07.2015	6.737,95	0,009629246	0,009503472	
14.07.2015	6.753,75	0,002342182	0,002216407	
15.07.2015	6.753,75	0	-0,000125775	
16.07.2015	6.796,45	0,006302511	0,006176736	
17.07.2015	6.775,08	-0,003149242	-0,003275017	
20.07.2015	6.788,69	0,002006817	0,001881043	

Sectoral Indicators of Germany

Banks				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,000686507
22/6/2015	176,13	0,03418939	0,033502883	
23/6/2015	178,13	0,011291262	0,010604755	
24/6/2015	177,73	-0,002248076	-0,002934583	
25/6/2015	179,81	0,011635193	0,010948686	
26/6/2015	181,84	0,011226442	0,010539935	
29/6/2015	171,86	-0,056446988	-0,057133494	
30/6/2015	170,52	-0,0078276	-0,008514107	
1/7/2015	177,77	0,041637988	0,040951481	
2/7/2015	177,45	-0,001801701	-0,002488207	
3/7/2015	176,85	-0,003386963	-0,00407347	
6/7/2015	171,29	-0,031943889	-0,032630396	
7/7/2015	166,72	-0,027042268	-0,027728775	
8/7/2015	167,94	0,007291014	0,006604508	
9/7/2015	171,05	0,018349139	0,017662632	
10/7/2015	177,28	0,035774492	0,035087986	
13/7/2015	182,76	0,030443413	0,029756907	
14/7/2015	183,63	0,004749047	0,00406254	
15/7/2015	185,57	0,010509306	0,009822799	
16/7/2015	188,87	0,017626778	0,016940272	
17/7/2015	188,57	-0,001589657	-0,002276164	
20/7/2015	191,18	0,013746102	0,013059595	

Construction				
Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,00182071
22.06.2015	920,6	0,037564037	0,035743327	
23.06.2015	931,11	0,011351791	0,009531081	
24.06.2015	921,45	-0,010428907	-0,012249617	
25.06.2015	926,62	0,005595041	0,003774331	
26.06.2015	928,27	0,001779082	-4,16284E-05	
29.06.2015	898,48	-0,032618192	-0,034438902	
30.06.2015	887,91	-0,01183406	-0,01365477	
01.07.2015	904,1	0,018069587	0,016248877	
02.07.2015	901,68	-0,002680284	-0,004500994	
03.07.2015	892,46	-0,010277995	-0,012098705	
06.07.2015	887,57	-0,005494303	-0,007315013	
07.07.2015	861,86	-0,029394547	-0,031215257	
08.07.2015	865,54	0,004260745	0,002440035	
09.07.2015	882,3	0,019178545	0,017357835	
10.07.2015	910,38	0,031329961	0,02950925	
13.07.2015	918,14	0,00848779	0,00666708	
14.07.2015	918,47	0,000359358	-0,001461352	
15.07.2015	911,37	-0,00776028	-0,00958099	
16.07.2015	918,41	0,007694952	0,005874242	
17.07.2015	913,88	-0,004944642	-0,006765352	
20.07.2015	923,02	0,009951631	0,008130921	

Industrial

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,00110947
22/6/2015	4.986,33	0,026421278	0,025311808	
23/6/2015	5.030,01	0,008721804	0,007612334	
24/6/2015	5.005,97	-0,004790772	-0,005900242	
25/6/2015	4.993,47	-0,002500141	-0,003609611	
26/6/2015	4.985,62	-0,00157329	-0,00268276	
29/6/2015	4.841,48	-0,02933731	-0,03044678	
30/6/2015	4.772,65	-0,014318753	-0,015428223	
1/7/2015	4.867,02	0,019580134	0,018470664	
2/7/2015	4.820,35	-0,009635301	-0,010744771	
3/7/2015	4.807,34	-0,002702623	-0,003812093	
6/7/2015	4.744,93	-0,013067237	-0,014176707	
7/7/2015	4.626,91	-0,025187421	-0,026296891	
8/7/2015	4.655,16	0,006087023	0,004977553	
9/7/2015	4.753,02	0,020803924	0,019694454	
10/7/2015	4.870,51	0,024418449	0,023308979	
13/7/2015	4.969,27	0,020074294	0,018964824	
14/7/2015	4.979,44	0,002044487	0,000935017	
15/7/2015	4.991,38	0,00239499	0,00128552	
16/7/2015	5.079,52	0,017504344	0,016394874	
17/7/2015	5.075,31	-0,000829162	-0,001938632	
20/7/2015	5.113,68	0,007531695	0,006422225	

Technology

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	0,002434924
22.06.2015	754,11	0,031699507	0,029264582	
23.06.2015	758,55	0,00587047	0,003435546	
24.06.2015	751,97	-0,008712287	-0,011147211	
25.06.2015	754,59	0,003478126	0,001043201	
26.06.2015	754,44	-0,000198803	-0,002633728	
29.06.2015	725,55	-0,039045764	-0,041480689	
30.06.2015	714,57	-0,015249025	-0,017683949	
01.07.2015	733	0,025464739	0,023029814	
02.07.2015	723,16	-0,013515204	-0,015950128	
03.07.2015	721,92	-0,001716168	-0,004151093	
06.07.2015	719,03	-0,004011248	-0,006446172	
07.07.2015	697,22	-0,030802082	-0,033237006	
08.07.2015	690,08	-0,010293467	-0,012728391	
09.07.2015	702,73	0,018165217	0,015730292	
10.07.2015	719,75	0,02393118	0,021496255	
13.07.2015	729,82	0,013893999	0,011459074	
14.07.2015	722,67	-0,009845242	-0,012280166	
15.07.2015	725,76	0,004266695	0,001831771	
16.07.2015	732,66	0,009462365	0,007027441	
17.07.2015	735	0,003188752	0,000753828	
20.07.2015	736,26	0,001712818	-0,000722106	

Appendix C

In Appendix C is presented the abnormal returns calculation in excel for each index individually in the second Greek national elections on the 21st of January in 2015.

General Indicators

Belgium				
Event Window			Average of Estimation Period	
date	price	returns	Abnormal Returns	-0,000788351
07.09.2015	3.411,58	0,003794291	0,004582642	
08.09.2015	3.451,23	0,011555162	0,012343514	
09.09.2015	3.495,01	0,012605548	0,013393899	
10.09.2015	3.465,58	-0,00845623	-0,007667879	
11.09.2015	3.434,17	-0,009104741	-0,008316389	
14.09.2015	3.413,06	-0,006166017	-0,005377665	
15.09.2015	3.423,34	0,003007433	0,003795784	
16.09.2015	3.479,95	0,016401243	0,017189595	
17.09.2015	3.466,96	-0,003739797	-0,002951445	
18.09.2015	3.418,37	-0,0141143	-0,013325949	
21.09.2015	3.446,42	0,008172182	0,008960533	
22.09.2015	3.346,05	-0,029555465	-0,028767114	
23.09.2015	3.354,85	0,002626514	0,003414866	
24.09.2015	3.298,02	-0,017084772	-0,01629642	
25.09.2015	3.378,52	0,024115455	0,024903807	
28.09.2015	3.317,89	-0,018108705	-0,017320354	
29.09.2015	3.296,76	-0,006388871	-0,005600519	
30.09.2015	3.344,50	0,014377038	0,015165389	
01.10.2015	3.327,19	-0,005189102	-0,00440075	
02.10.2015	3.342,93	0,004719564	0,005507915	
05.10.2015	3.438,17	0,028091685	0,028880037	

France				
Event Window			Average of Estimation Period	
date	price	returns	Abnormal Returns	-0,000883451
07.09.2015	4.549,64	0,005854931	0,006738382	
08.09.2015	4.598,26	0,010629862	0,011513313	
09.09.2015	4.664,59	0,014321971	0,015205421	
10.09.2015	4.596,53	-0,014698271	-0,01381482	
11.09.2015	4.548,72	-0,010455796	-0,009572346	
14.09.2015	4.518,15	-0,006743257	-0,005859806	
15.09.2015	4.569,37	0,011272722	0,012156172	
16.09.2015	4.645,84	0,016596856	0,017480306	
17.09.2015	4.655,14	0,00199979	0,00288324	
18.09.2015	4.535,85	-0,025959488	-0,025076038	
21.09.2015	4.585,50	0,010886654	0,011770104	
22.09.2015	4.428,51	-0,034835967	-0,033952516	
23.09.2015	4.432,83	0,000975022	0,001858472	
24.09.2015	4.347,24	-0,019497045	-0,018613595	
25.09.2015	4.480,66	0,030229196	0,031112647	
28.09.2015	4.357,05	-0,027975134	-0,027091684	
29.09.2015	4.343,73	-0,003061797	-0,002178346	
30.09.2015	4.455,29	0,025358728	0,026242179	
01.10.2015	4.426,54	-0,006473914	-0,005590463	
02.10.2015	4.458,88	0,007279373	0,008162823	
05.10.2015	4.616,90	0,034825871	0,035709321	

Germany

Event Window				Average of Estimation Period
date	price	returns	Abnormal Reurns	-0,001474397
07.09.2015	10.108,61	0,00700566	0,008480057	
08.09.2015	10.271,36	0,015971904	0,017446301	
09.09.2015	10.303,12	0,003087322	0,004561719	
10.09.2015	10.210,44	-0,009036036	-0,007561639	
11.09.2015	10.123,56	-0,008545346	-0,007070948	
14.09.2015	10.131,74	0,00080769	0,002282087	
15.09.2015	10.188,13	0,005550247	0,007024644	
16.09.2015	10.227,21	0,003828498	0,005302896	
17.09.2015	10.229,58	0,000231708	0,001706105	
18.09.2015	9.916,16	-0,031117774	-0,029643377	
21.09.2015	9.948,51	0,003257042	0,004731439	
22.09.2015	9.570,66	-0,038720623	-0,037246225	
23.09.2015	9.612,62	0,00437465	0,005849047	
24.09.2015	9.427,64	-0,019431018	-0,017956621	
25.09.2015	9.688,53	0,027296911	0,028771309	
28.09.2015	9.483,55	-0,021383993	-0,019909596	
29.09.2015	9.450,40	-0,00350165	-0,002027253	
30.09.2015	9.660,44	0,021982127	0,023456524	
01.10.2015	9.509,25	-0,015774187	-0,01429979	
02.10.2015	9.553,07	0,00459756	0,006071957	
05.10.2015	9.814,79	0,027027863	0,02850226	

Greece

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,002186012
07.09.2015	655,33	0,01338013	0,015566142	
08.09.2015	667,47	0,01835552	0,020541532	
09.09.2015	669,26	0,002678179	0,004864191	
10.09.2015	675,1	0,008688204	0,010874216	
11.09.2015	673,84	-0,001868134	0,000317878	
14.09.2015	673	-0,001247364	0,000938648	
15.09.2015	682,17	0,013533564	0,015719576	
16.09.2015	692,44	0,014942698	0,01712871	
17.09.2015	692,3	-0,000202204	0,001983808	
18.09.2015	697,57	0,007583479	0,009769491	
21.09.2015	693,54	-0,005793951	-0,003607939	
22.09.2015	677,47	-0,023443645	-0,021257633	
23.09.2015	668,54	-0,013269041	-0,011083029	
24.09.2015	667,82	-0,001077554	0,001108458	
25.09.2015	675,17	0,010945835	0,013131847	
28.09.2015	654,7	-0,030787396	-0,028601384	
29.09.2015	650,33	-0,006697189	-0,004511177	
30.09.2015	654,2	0,005933189	0,008119201	
01.10.2015	642,71	-0,017719503	-0,015533492	
02.10.2015	640,99	-0,002679755	-0,000493743	
05.10.2015	667,09	0,039911113	0,042097125	

Italy

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,000471657
07.09.2015	21.622,34	0,00694561	0,007417267	
08.09.2015	21.941,31	0,014644122	0,015115779	
09.09.2015	22.126,57	0,008407987	0,008879644	
10.09.2015	21.901,45	-0,010226304	-0,009754647	
11.09.2015	21.762,63	-0,006358566	-0,005886909	
14.09.2015	21.553,80	-0,009642144	-0,009170487	
15.09.2015	21.903,63	0,016100241	0,016571898	
16.09.2015	22.059,21	0,007077825	0,007549482	
17.09.2015	22.099,53	0,00182614	0,002297797	
18.09.2015	21.514,90	-0,026810623	-0,026338966	
21.09.2015	21.755,42	0,011117204	0,011588861	
22.09.2015	21.031,80	-0,033827344	-0,033355687	
23.09.2015	21.068,88	0,001761492	0,002233149	
24.09.2015	20.581,83	-0,023388423	-0,022916766	
25.09.2015	21.339,11	0,036132892	0,036604549	
28.09.2015	20.759,49	-0,027538048	-0,027066391	
29.09.2015	20.726,75	-0,001578355	-0,001106698	
30.09.2015	21.294,98	0,027046228	0,027517885	
01.10.2015	21.142,86	-0,007169104	-0,006697447	
02.10.2015	21.395,29	0,011868545	0,012340201	
05.10.2015	21.980,08	0,026965784	0,027437441	

Portugal

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,001098069
07.09.2015	5.030,00	-0,005426601	-0,004328532	
08.09.2015	5.070,95	0,008108193	0,009206262	
09.09.2015	5.088,86	0,00352566	0,004623729	
10.09.2015	5.057,00	-0,006280415	-0,005182346	
11.09.2015	5.021,95	-0,006955118	-0,005857048	
14.09.2015	4.992,22	-0,005937604	-0,004839535	
15.09.2015	5.012,41	0,004036137	0,005134206	
16.09.2015	5.100,61	0,017443303	0,018541372	
17.09.2015	5.111,27	0,002087765	0,003185834	
18.09.2015	5.075,14	-0,007093795	-0,005995726	
21.09.2015	5.134,58	0,011643938	0,012742007	
22.09.2015	5.011,14	-0,024334614	-0,023236545	
23.09.2015	5.030,45	0,003846009	0,004944078	
24.09.2015	4.958,21	-0,014464655	-0,013366586	
25.09.2015	5.059,51	0,020224852	0,021322921	
28.09.2015	4.966,20	-0,018614681	-0,017516611	
29.09.2015	4.896,39	-0,014156761	-0,013058692	
30.09.2015	5.047,29	0,030353267	0,031451336	
01.10.2015	5.109,25	0,012201157	0,013299226	
02.10.2015	5.216,81	0,020833482	0,021931551	
05.10.2015	5.397,91	0,034125738	0,035223807	

Spain

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,000965351
07.09.2015	9.805,40	-0,001671151	-0,000705799	
08.09.2015	9.866,20	0,00618152	0,007146871	
09.09.2015	10.037,80	0,017243193	0,018208544	
10.09.2015	9.859,00	-0,017973223	-0,017007872	
11.09.2015	9.737,90	-0,012359255	-0,011393904	
14.09.2015	9.696,40	-0,004270806	-0,003305455	
15.09.2015	9.782,50	0,008840393	0,009805744	
16.09.2015	9.976,80	0,019667323	0,020632674	
17.09.2015	10.106,60	0,012926278	0,013891629	
18.09.2015	9.847,20	-0,026001525	-0,025036174	
21.09.2015	9.856,80	0,000974422	0,001939773	
22.09.2015	9.550,20	-0,031599476	-0,030634124	
23.09.2015	9.474,60	-0,007947563	-0,006982212	
24.09.2015	9.291,40	-0,019525293	-0,018559941	
25.09.2015	9.519,50	0,024253085	0,025218437	
28.09.2015	9.394,20	-0,013249849	-0,012284498	
29.09.2015	9.393,90	-3,19351E-05	0,000933416	
30.09.2015	9.559,90	0,017516724	0,018482076	
01.10.2015	9.567,30	0,000773767	0,001739119	
02.10.2015	9.603,60	0,003786994	0,004752345	
05.10.2015	9.971,30	0,037572938	0,03853829	

United Kingdom

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,000910489
07.09.2015	6.074,52	0,005215635	0,006126124	
08.09.2015	6.146,10	0,011714761	0,012625249	
09.09.2015	6.229,01	0,013399677	0,014310166	
10.09.2015	6.155,81	-0,01182106	-0,010910572	
11.09.2015	6.117,76	-0,006200335	-0,005289846	
14.09.2015	6.084,59	-0,005436671	-0,004526182	
15.09.2015	6.137,60	0,008674441	0,00958493	
16.09.2015	6.229,21	0,014815733	0,015726221	
17.09.2015	6.186,99	-0,006800819	-0,00589033	
18.09.2015	6.104,11	-0,013486385	-0,012575897	
21.09.2015	6.108,71	0,000753307	0,001663795	
22.09.2015	5.935,84	-0,02870707	-0,027796582	
23.09.2015	6.032,24	0,016109866	0,017020355	
24.09.2015	5.961,49	-0,011797968	-0,010887479	
25.09.2015	6.109,01	0,024444281	0,025354769	
28.09.2015	5.958,86	-0,024885543	-0,023975054	
29.09.2015	5.909,24	-0,00836196	-0,007451471	
30.09.2015	6.061,61	0,025458214	0,026368702	
01.10.2015	6.072,47	0,00179	0,002700489	
02.10.2015	6.129,98	0,009426046	0,010336534	
05.10.2015	6.298,92	0,027186703	0,028097191	

Sectoral Indicators of Germany

Banks				
Event Window			Average of Estimation Period	
date	price	returns	Abnormal Returns	
				-0,001602449
7/9/2015	157,62	0,00298631	0,004588759	
8/9/2015	163,32	0,035524394	0,037126843	
9/9/2015	163,3	-0,000122466	0,001479983	
10/9/2015	161,22	-0,012819108	-0,011216659	
11/9/2015	160	-0,007596077	-0,005993627	
14/9/2015	160,5	0,003120127	0,004722577	
15/9/2015	162,39	0,011706907	0,013309356	
16/9/2015	161,25	-0,007044894	-0,005442444	
17/9/2015	162,92	0,010303327	0,011905777	
18/9/2015	156,1	-0,042762455	-0,041160006	
21/9/2015	157,52	0,009055607	0,010658056	
22/9/2015	152,68	-0,031208206	-0,029605757	
23/9/2015	151,76	-0,006043902	-0,004441453	
24/9/2015	149,75	-0,013333089	-0,011730639	
25/9/2015	152,95	0,021143834	0,022746283	
28/9/2015	146,55	-0,042744403	-0,041141954	
29/9/2015	146,61	0,000409333	0,002011782	
30/9/2015	149,79	0,021458313	0,023060763	
1/10/2015	147,63	-0,01452517	-0,01292272	
2/10/2015	148,68	0,007087202	0,008689651	
5/10/2015	155,53	0,045042294	0,046644743	

Construction				
Event Window			Average of Estimation Period	
date	price	returns	Abnormal Returns	
				-0,000780576
07.09.2015	825,01	0,006103362	0,006883938	
08.09.2015	832,25	0,008737369	0,009517945	
09.09.2015	845,63	0,015949035	0,016729611	
10.09.2015	842,62	-0,003565826	-0,00278525	
11.09.2015	845,53	0,003447564	0,00422814	
14.09.2015	842,28	-0,003851149	-0,003070573	
15.09.2015	848,69	0,007581484	0,00836206	
16.09.2015	853,37	0,005499232	0,006279808	
17.09.2015	852,42	-0,001113854	-0,000333277	
18.09.2015	829,95	-0,026713905	-0,025933329	
21.09.2015	832,18	0,002683306	0,003463882	
22.09.2015	803,66	-0,034872469	-0,034091893	
23.09.2015	808,09	0,005497144	0,00627772	
24.09.2015	783,64	-0,030723707	-0,029943131	
25.09.2015	808,09	0,030723707	0,031504283	
28.09.2015	787,06	-0,026368954	-0,025588378	
29.09.2015	779,05	-0,010229256	-0,00944868	
30.09.2015	791,91	0,01637252	0,017153096	
01.10.2015	795,56	0,00459852	0,005379096	
02.10.2015	794,48	-0,001358457	-0,000577881	
05.10.2015	824,33	0,036883123	0,037663699	

Industrial

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,001273515
7/9/2015	4.537,84	0,002252504	0,003526019	
8/9/2015	4.578,02	0,008815462	0,010088977	
9/9/2015	4.628,51	0,010968412	0,012241926	
10/9/2015	4.589,52	-0,008459559	-0,007186044	
11/9/2015	4.539,24	-0,011015846	-0,009742332	
14/9/2015	4.498,94	-0,008917784	-0,007644269	
15/9/2015	4.523,79	0,005508325	0,006781839	
16/9/2015	4.550,83	0,005959496	0,007233011	
17/9/2015	4.545,03	-0,001275306	-1,79097E-06	
18/9/2015	4.405,23	-0,031241857	-0,029968342	
21/9/2015	4.439,89	0,00783713	0,009110645	
22/9/2015	4.301,88	-0,031577465	-0,03030395	
23/9/2015	4.305,13	0,000755198	0,002028713	
24/9/2015	4.205,80	-0,02334281	-0,022069295	
25/9/2015	4.309,25	0,02429935	0,025572865	
28/9/2015	4.221,45	-0,020585204	-0,019311689	
29/9/2015	4.236,09	0,003462003	0,004735518	
30/9/2015	4.307,73	0,016770409	0,018043924	
1/10/2015	4.297,67	-0,002338068	-0,001064553	
2/10/2015	4.332,73	0,008124813	0,009398328	
5/10/2015	4.460,65	0,029096667	0,030370182	

Technology

Event Window				Average of Estimation Period
date	price	returns	Abnormal Returns	-0,0009645
07.09.2015	636,6	0,005434154	0,006398654	
08.09.2015	647,94	0,017656585	0,018621085	
09.09.2015	643,71	-0,006549785	-0,005585285	
10.09.2015	641,29	-0,003766541	-0,002802041	
11.09.2015	628,85	-0,019589018	-0,018624518	
14.09.2015	638,51	0,015244583	0,016209083	
15.09.2015	657,88	0,029885207	0,030849707	
16.09.2015	665,84	0,012026858	0,012991358	
17.09.2015	659,4	-0,009719071	-0,008754571	
18.09.2015	643,21	-0,024859066	-0,023894566	
21.09.2015	616,73	-0,042039938	-0,041075438	
22.09.2015	594,71	-0,036357435	-0,035392935	
23.09.2015	589,77	-0,008341261	-0,007376761	
24.09.2015	579,86	-0,016945935	-0,015981435	
25.09.2015	599,45	0,033225873	0,034190373	
28.09.2015	590,36	-0,015280048	-0,014315548	
29.09.2015	599,27	0,014979727	0,015944228	
30.09.2015	620,78	0,035264504	0,036229004	
01.10.2015	606,89	-0,022629196	-0,021664696	
02.10.2015	608,05	0,00190956	0,00287406	
05.10.2015	622,73	0,023855923	0,024820423	