

# Political Risk and Stock Return Predictability

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**Abstract**

The purpose of this project is to determine whether there is a statistically significant relationship between political risk and stock market performance and returns during major political events. In order to study this, first a list of major political events of varying types was formed and the events were researched. Data including the values of indices which represent the political risk and performance of the United States stock market at the times of these events was then collected. Statistical methods including regression analysis were then used with this data in order to find if there are significant relationships between them. The results of these analyses were then studied in order to determine if this data could be used to form a successful market timing strategy.

## **Acknowledgements**

I would like to thank Professor Dimitrios Koutmos of WPI for his guidance throughout the completion of this project. His knowledge and experience in the fields of finance and risk analysis, along with his ability to clearly communicate his understanding of these topics in the context of this project were an invaluable resource throughout the entire project. This project would not have been possible without him.

## **1.0 Introduction**

Stock prices are influenced by many factors to varying degrees, and this causes their future values to be difficult to predict. One factor which can both directly and indirectly affect the value of assets in the stock market is politics. A single political event or decision can have effects on a scale ranging from a specific company to the entire global economy. While it is easy to see the direct effects of some policy changes, such as revisions of taxation and trade laws, other political events can affect industries and economies through more indirect means. It has become increasingly easy, especially in recent history due to the expansion of the internet, for both casual and professional investors to obtain information about political events. This, combined with the fact that many individuals have strong opinions on certain policy areas, could lead political decisions to influence their investment decisions. This paper explores the different ways in which political events can affect stock market prices and whether this information can be used to predict stock prices.

### **1.1 Project Scope and Objectives**

The primary goal of this project is to find whether political events have a predictable effect on the stock market. If this effect is predictable, there would be a great potential for profit through the use of this information. However, political events come in many forms, and politics as a field encompasses many different elements. This project examines this question by selecting significant political events of varying types from the past decade and examining their effects on the performance of the United States stock market using indices which represent political risk and stock market performance. The data from this is then analysed with the goal of

creating a market timing strategy which yields higher than average returns by trading stocks based on available data about political events and political risk.

## **1.2 Multidisciplinary Importance**

Elements of many fields of study were used throughout the completion of this project. Specifically, this project combines the fields of economics and finance with the field of political science through the use of mathematics. This project is most relevant in the fields of economics and finance. This is because economists and financial professionals are constantly looking for ways to “beat the market” by finding a method of trading assets which can consistently result in a return greater than the average movement of that market. That is one of the goals of this project as well.

This project also involved the field of political science, largely in the form of researching past political events and how companies evaluated the risk of certain policy changes taking place. Finding new connections between political events and the stock market would have significant implications for both of these fields. A significant amount of mathematics were also used in this project, mainly in the form of statistics. For example, many linear regressions were performed to find if there were any relationships between indices representing political risk and the performance of the United States stock market. A combination of all of these disciplines was necessary in order to gain a full understanding of this topic.

### **1.3 Global Importance**

This project examines the effects not only of political events which occurred in the United States, but also international political events. While only United States stock market assets were used in the analysis, this project did examine how significant political events which occurred in foreign countries can affect the value of domestic stock market assets. These relationships can be used to find how international politics can affect the market and economy of individual countries, even if they are not directly affected by a given policy change or political event. Additionally, the data from this project can aid in understanding how the American public reacts to political events that occur overseas.

Finding that the political events of one country can have effects on the economies of other countries could also show how the economy is becoming more globalized. One possible cause of this is the rapid spread of the internet across the globe in recent history. As information becomes more available, citizens are able to become more informed about both domestic and international political issues. This information could influence the spending or investing of these citizens, which could have effects on foreign markets. This information could allow for a greater understanding of how the political events of one country can affect even individuals in another country.

## **2.0 Review of Literature**

In order to more fully understand the connections between political events and the stock market, it was necessary to research the topics of political risk and stock return predictability individually. Only after examining the existing research in these fields was it possible to find areas in which new findings could be made. It was also necessary to research if and how companies and financial institutions already consider this information. This research provided valuable context for the data that was analysed.

### **2.1 Political Risk**

Political risk refers to the possibility that a political event or change in a country's laws could affect the value of investments and assets held in that country. This term is most commonly used to describe the effects that new regulations or economic policies could have on an industry in that country. An example of this is that increased regulation on the products of an industry often require companies to alter their manufacturing process. This may increase the cost of production for the product and consequently lower the company's profits. When investors see this as a possibility, they associate an increased risk with investing in companies in that industry, which can lower the value of their stock shares.

A wide variety of political decisions from changes in taxation policies to new trade regulations can affect individual industries and even companies, in addition to the economy of the country as a whole. Some companies do consider and account for political risk, but many companies do not see it as a significant factor in their industry. This can cause unexpected policy decisions to have potentially drastic effects on the profitability and even viability of a



company. While the significance of political risk does vary by industry, no industry is entirely immune to the potential of a policy decision affecting how the industry functions.

Another factor to consider is that larger companies are more likely to take political risk into account than smaller ones. This is because large companies, especially financial institutions, have the resources to hire risk analysts which are able to quantify political risk and make useful suggestions based on that information. Evaluating not only the effect that a given policy change would have on a company's business model, but the probability of that policy being implemented requires significant knowledge and experience to do well, and hiring such an expert is often not an option for smaller businesses. Due to this, the effects of political risk can have particularly strong effects on small companies.

## **2.2 Stock Return Predictability**

Prices in the stock market are often considered to be unpredictable. The fact that the market is unpredictable is also the reason why it can be a source of great profit under the right circumstances. Many investors believe that they can make a profit in the stock market as a result of the wealth of information available to the public. However, what some investors do not consider is that this information is also available to all other investors interested in the stock market as well. While different methods of analysis can be performed on this information, it is rare for any single, simple method to be able to consistently yield a higher return than the average movement of the market.

One possible explanation for the difficulty of making extraordinary profits in the stock market is the efficient market hypothesis. This hypothesis states that the value of all assets in the stock market are based on the information available on that asset. It also implies that due to the

fact that all investors in the market are assumed to have the same information, any trading strategy based on that information is just as likely to work as any other. Even with the vast amount of information available to investors, the market tends to adjust to the implications of this information fairly quickly.

The efficient market hypothesis is supported by the fact that often when a trend in the stock market is found, that trend will subside shortly after information on it is published. This is due to the fact that investors will naturally act on information which they believe can be used to make a profit in the stock market. As more investors do this, the market will adjust such that trading based on that trend will no longer yield a greater profit than investing in other stocks. One common example of this is the January effect, an observation that stock prices tend to rise in the month of January. This effect was discovered decades ago, and as this effect became more well known to investors, the effectiveness of basing investment decisions on it lessened, and it is no longer considered to be a significant effect. The efficient market hypothesis is considered to be a likely explanation for the disappearance of the January effect, and similar observations after they become known to the public.

### **2.3 Gaps in Existing Literature**

There exists significant literature on political risk and its direct effects on specific industries. Many financial institutions and some companies take these effects into consideration. There is also a large amount of literature on stock return predictability and the efficient market hypothesis. However, there is relatively limited literature and studies on the effect that political events can have on the stock market as a whole through affecting factors such as market sentiment. This paper aims to describe how political events can have indirect effects on the

stock market as a whole. In order to do this, financial data must be analysed and interpreted in the context of both behavioral finance and politics. This analysis can then be used to find potential connections between these two fields which could be useful to academics in these fields as well as financial professionals and investors.

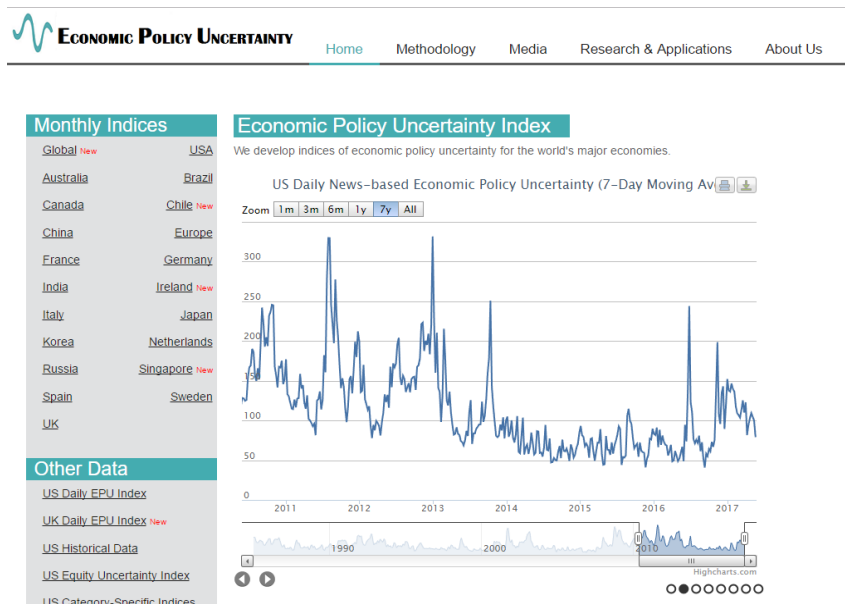
### 3.0 Data and Methodology

In order to quantitatively study the effects that political risk can have on the stock market, empirical data had to be gathered for both areas. The Dow Jones Industrial Index was selected to represent the United States stock market due to its reputation of reflecting the overall performance of the market. After research into methods of measuring political risk, the United States Economic Policy Uncertainty Index was selected to represent political risk. The values of these indices near the times of major political events were gathered and then analysed to find if

there were any meaningful

statistical relationships

between them.



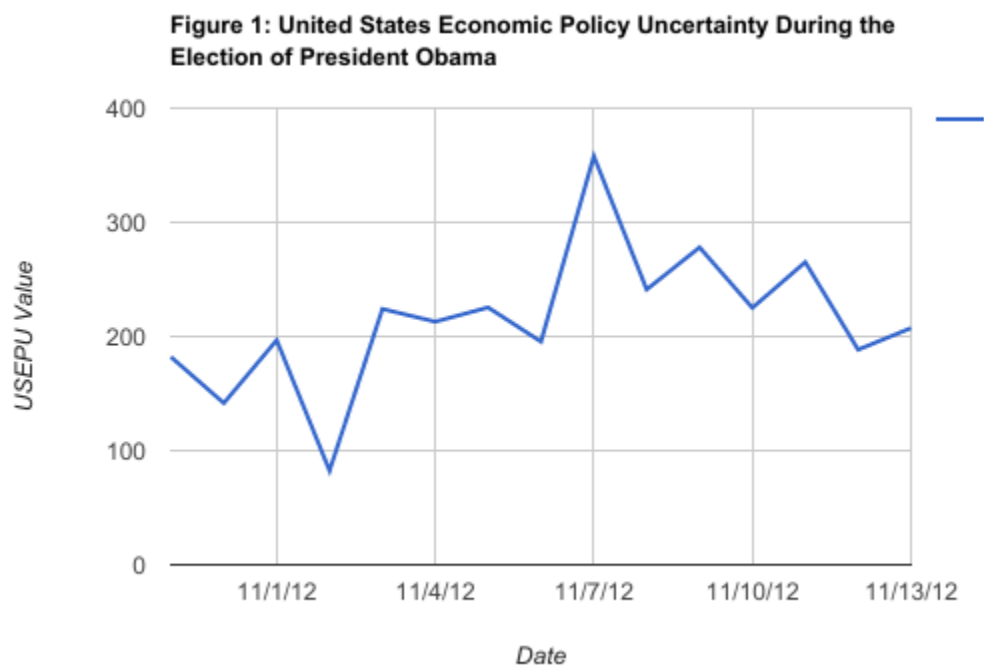
### 3.1 Data Sample

Date	USEPU	Dow Jones
10/30/12	182.04	13107.21
10/31/12	141.64	13096.46
11/1/12	196.81	13232.62
11/2/12	82.44	13093.16
11/3/12	224.11	13093.16
11/4/12	212.98	13093.16
11/5/12	225.43	13122.44
11/6/12	195.5	13245.68
11/7/12	358	12932.73
11/8/12	241.14	12811.32
11/9/12	278.07	12815.39
11/10/12	225.13	12815.39
11/11/12	265.14	12815.39
11/12/12	188.45	12815.08
11/13/12	207.36	12756.18

Above is a table of the values for the Dow Jones Industrial Index (DJI) and the United States Economic Policy Uncertainty Index at the time of the election of Barack Obama as president of The United States. Data was collected for both of these indices in a one week range of the event in order to observe trends in their values before and after the event. Data was collected in this form for all selected political events and organized into a spreadsheet for further analysis.

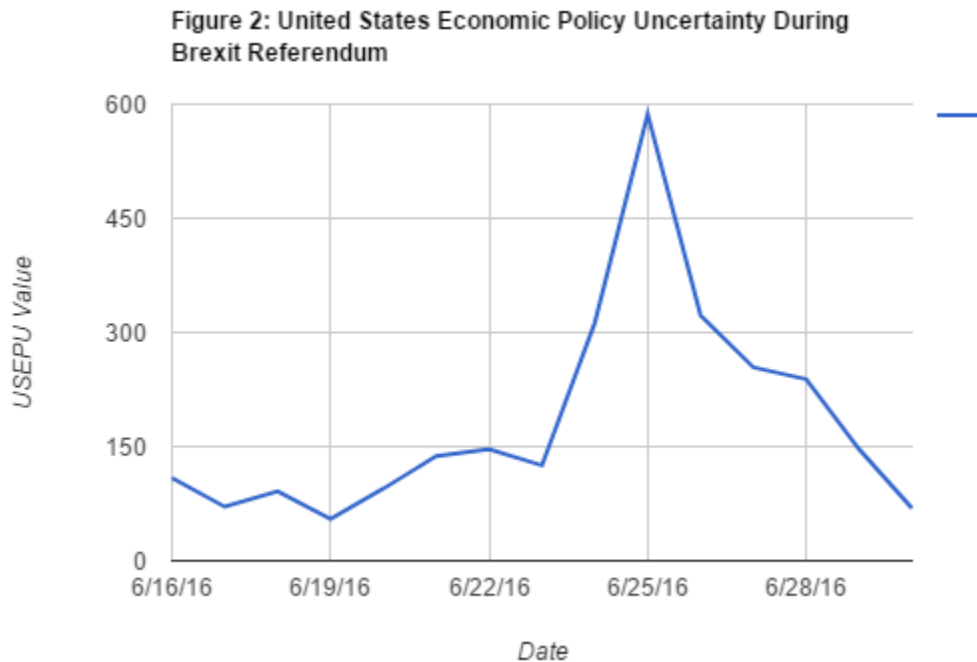
### 3.2 Political Risks

One important component of this project was to find a way to measure political risk over time. As stated earlier in the paper, the primary source for this was use of the United States Economic Policy Uncertainty Index (USEPU). There is a daily and a monthly version of this index, and the daily index was used for this project. The daily index allowed for more data points for each event, allowing for more specific events to be analysed. The value of this index is based on the frequency of politically relevant keywords appearing in major media sources. Considering that the main way political information could affect the decisions or sentiment of investors is through the media, this seemed like the most effective way to measure political risk for the purposes of this project.



As can be observed in figure 1, the USEPU rises in value greatly right after Barack Obama was elected for his second term as president. This is to be expected as news and media outlets are certain to cover the details of the results of a presidential election, and as a result will

likely mention the political terms which the index is based upon. This supports the claim that the USEPU does represent political risk because it rises so sharply during such a significant, domestic political event.



In figure 2 it can be observed that the USEPU also rose sharply after the British referendum to leave the European Union received a majority vote. This example demonstrates that in addition to domestic political events, major international political events can also influence the political risk in the United States. The magnitude of the rise in the index is likely due in part to the fact that this referendum was considered highly unlikely to pass. The fact that it did despite this could have caused it to have a stronger effect on perceived political risk than it otherwise would have. However, considering a rise in value of this size, and the significance of the event itself, it is likely that it would have had a considerable effect on political risk regardless.

### 3.3 Quantitative Approach

Once the values of the USEPU and DJI had been collected for each of the political events being examined, this data was analysed using statistical methods. The primary method used was regression analysis, which is used to find correlations between sets of data. In order to do this, first the percent change of both indices was calculated for each day in the time range. This is done so that the following analysis can compare how a change in the value of one of the indices tends to affect the value of the other. Then the regression analysis tool in Microsoft Excel was used generate a summary the relationship between the percent change of the USEPU and the percent change DJI. The results of these analyses varied greatly in significance. One example of a fairly low P-value of 0.146 can be seen in Figure 3, which displays the results of a regression analysis of the USEPU and DJI over the time of the United Kingdom general election which occurred in May of 2015. While these results show a fairly weak relationship, it does suggest that as political risk increases, the value of the DJI tends to decrease.

Figure 3

SUMMARY OUTPUT						
<i>Regression Statistics</i>						
Multiple R	0.39386443					
R Square	0.1551291892					
Adjusted R Squa	0.09013912685					
Standard Error	0.6651654281					
Observations	15					
<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	1.0561021	1.0561021	2.386967847	0.1463389675	
Residual	13	5.751785607	0.4424450467			
Total	14	6.807887707				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.07089024243	0.1717953966	0.4126434341	0.6865922255	-0.3002511478	0.4420316326
X Variable 1	-0.009148496914	0.005921428116	-1.544981504	0.1463389675	-0.02194096462	0.003643970789

The results of these regression analyses varied greatly though. Figure 4 is an example of a result with a quite high P-value of 0.65. The regression summarized in Figure 4 was performed on the index data from the time of the coup which took place in Turkey in July of 2016. The variation in the statistical significance of these tests is likely due to the high volatility of the USEPU relative to the DJI and other stock market value based indices. However, despite the high P-value, this regression analysis also shows a negative correlation between these indices. While not statistically significant, it does suggest that as political risk increases there may be a slight decrease in the performance of the stock market.

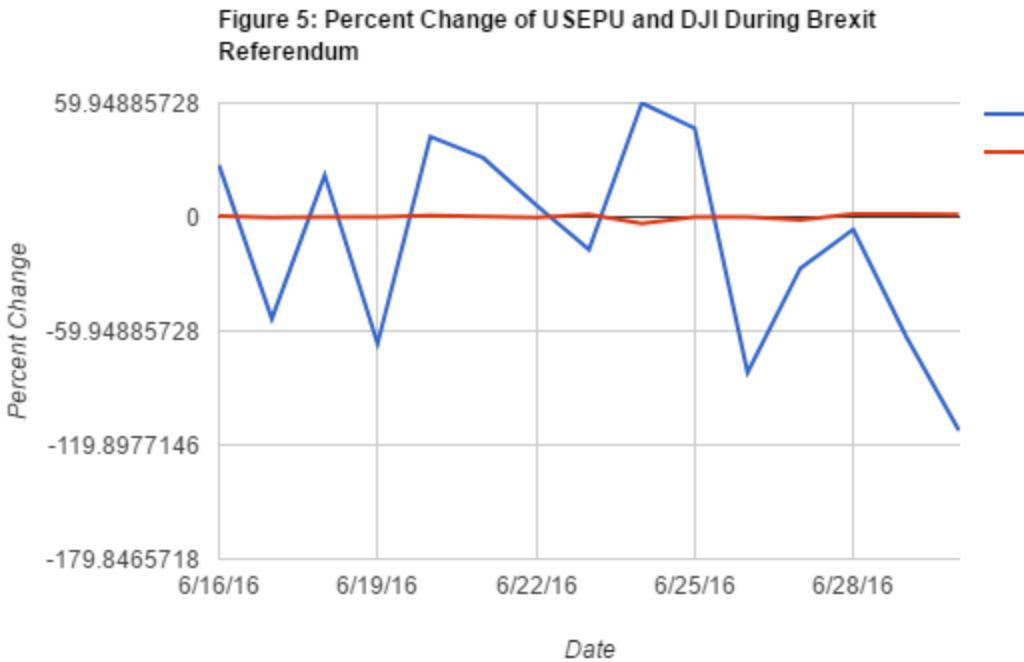


Figure 4

SUMMARY OUTPUT						
<i>Regression Statistics</i>						
Multiple R	0.1272230996					
R Square	0.01618571706					
Adjusted R Squa	-0.0594923047					
Standard Error	0.4413375589					
Observations	15					
<i>ANOVA</i>						
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>	
Regression	1	0.04165853092	0.04165853092	0.2138760592	0.6513914368	
Residual	13	2.532124932	0.1947788409			
Total	14	2.573783463				
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.228893094	0.1195749937	1.914222087	0.07786152841	-0.02943297451	0.4872191626
X Variable 1	-0.000786153928	0.001699912245	-0.4624673601	0.6513914368	-0.0044585910610	0.002886283204

#### 4.0 Findings and Importance to Investors

Through analysing indices representing United States political risk and stock market performance, it was found that there are generally not statistically significant relationships between these indices at the time of major political events. While the statistical significance of these relationships was quite low, there was a tendency for the weak correlation between the DJI and the USEPU to be negative. This could suggest that as political risk decreases, there is a slight tendency for stock market returns to slightly increase. However, this pattern did not hold for all events, likely due to the fact that political events vary greatly in nature.



Another factor to consider is that the USEPU is a much more volatile index than the DJI. This fact is shown clearly in Figure 5, which displays the percent change of the USEPU in blue and the percent change of the DJI in red. While the USEPU does effectively measure the political risk of a given day, its volatility lowers its usefulness as data for regression analysis, even though its percent change is used. This large difference in volatility is a direct consequence of how both of the indices are calculated. Also, political risk, especially at the time of a major political event, is naturally more volatile due to the fact that it is not based on the supply and demand of the market. The high volatility and range of the USEPU also causes it to be a poor choice for use in forming a market timing strategy. Due to this fact it would not be advisable to make investment decisions based on regression analyses of these indices.

## 5.0 Conclusion

There are clearly many connections between political risk and the stock market. The effects of these connection can be difficult to predict. While there were some slight trends in the data, none of them were statistically significant. Due to this and the fact that political risk is both difficult to measure and inherently volatile, there was not sufficient evidence to reject the efficient market hypothesis. Considering the fact that political information spreads so rapidly at this time, it is not surprising that the stock market has become efficient in accounting for new political information. However, it does appear that international political events can influence measured political risk in other countries. While it may be possible to use political risk as a predictive tool for stock trading, the analysis performed in this project suggests that the efficient market hypothesis is true.

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