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MSc Accounting, Auditing, and Control
Master Specialisation Accounting and Finance

**On the US Stock Market's Reaction to the Presidential Elections:
1986-2016**

Author: Stefanos Papachristopoulos
Student number: 435393
Thesis supervisor: Dr. Jan Lemmen
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PREFACE AND ACKNOWLEDGEMENTS

This Master Thesis is part of my master studies in Accounting, Auditing, and Control with specialization in Accounting and Finance, at the Erasmus School of Economics in Rotterdam. This task has been demanding, challenging, and time-consuming. However, due to the interesting topic and my passion on this field turned it into an unforgettable experience, since it enabled me to implement the knowledge acquired from my studies, while the chance to investigate the shallow waters of academia, trying to maintain a high level of writing and high research standards. The reason I chose that topic, among others, is highly reflected by the fact that politics and finance area is one of the most intriguing areas in the modern economy, since it consists of two non-trivial components which have a strong impact on every individual. Contributing to the existing literature of Politics and Finance makes me undoubtedly proud of myself and my academic background, but the most important is whether will be able to contribute to the future research through this thesis. The main purpose of this thesis, is to solve any outstanding contradiction, to answer any unresolved questions, as well as to provide new insights to the academic literature through the innovative empirical methodology and the wide range of examination. I hope that this project will become a pivotal toolbox for academics, investors, colleagues, as well as any other individual with whom I share the same indefinite interest. Foremost, I would like to thank my supervisor, Jan Lemmen for the exceptional comprehension, collaboration, and partnership during these tough months. Throughout every step in the thesis writing procedure, he has been very communicative, providing fast and remarkable feedback, helping me developing my skills and self-confidence. In addition, I would like to thank all my family members for the boundless support to all this Master journey. A special thanks to my friends, who stood by me during difficult times.

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ABSTRACT

The present study aimed at investigating the relationship between Presidential Elections and the US Stock Market. A time series data set for the period between 1986 and 2016 on the US Stock Market's Reaction to the Presidential Elections was used. The main statistical tests used were Cumulative Abnormal Returns (CAR) and Cumulative Abnormal volatility (CAV). The study found that abnormal returns in association with the US presidential elections do not give significant effects and thus they are negligible, and the market returns are highly volatile. The contributions of this study would help investors who want to invest in one of the sectors discussed in this thesis by using the findings to decide on investment.

Keywords: Presidential Elections, Stock Market, Sectors, Returns, Volatility

JEL Classification: G14, G15, H11

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1. Introduction to Political Elections and US Stock Market

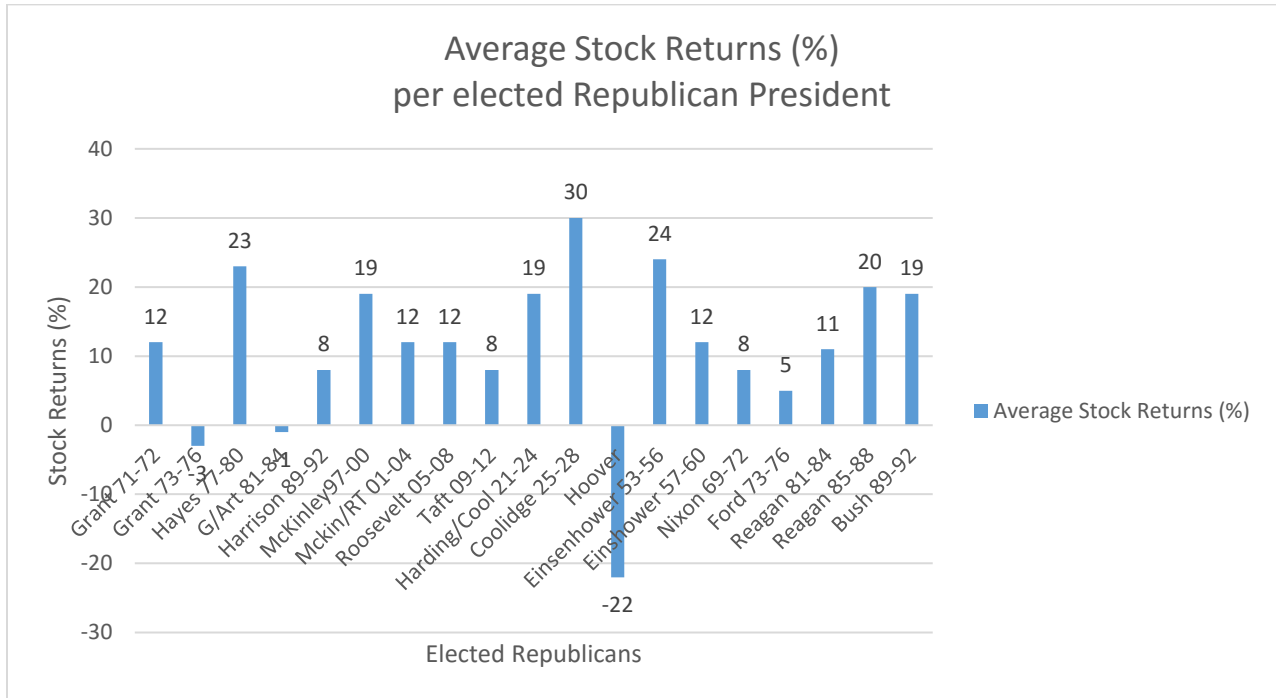
The current master thesis scrutinizes the relation between political elections and the stock market in United States (US), a topic which attracts a widespread interest among academics. Every four years, new presidential elections are held in the United States, where Americans should choose between a Democrat and a Republican. The research question I aim to investigate is: *“Do the political elections in the US relate to fluctuations of the US stock market in terms of volatility and returns (or of specific sectors), as well as the trading volume of investors?”* Volatility plays a fundamental role in the stock market, since it can influence the returns. A positive cumulative abnormal volatility may explain a positive cumulative abnormal return due to a risk premium as a measure of compensation for the investors for the increased volatility (Santa-Clara and Valkanov, 2003). Republican administrations often show higher stock market volatility than Democratic administrations (Santa-Clara and Valkanov, 2003; Siokis and Kapopoulos, 2007). Similarly, it is claimed that Republican administrations are related with higher stock market returns (Niederhoffer, Gibbs, & Bullock, 1970). Specifically, it exploits investors’ rationality, the level of information asymmetry prevailing in the stock market, the incorporated predictability of each election period’s winner, as well as the beliefs of each incumbent party in the US political scene, with a primary goal to judge, and therefore to accept or reject previous findings in terms to the elections’ impact on the US stock market in terms of returns and volatility. Additionally, it aims to capture the variety of the trading volume during the election period, which will also reveal the behaviour of investors. The current thesis, in addition, will test whether the null hypothesis, which represents the absence of any kind of relation between political elections and stock market, exists and therefore can be accepted. The growing amount of literature the last decades has added brand new interpretations upon that specific topic, introducing several parameters of the economic activity of the US and using a variety of statistical and econometrical models in order to achieve the maximum reliability and validity on each result. I contribute to the academic literature of politics and finance as well as to corporate finance through examining the volatility of returns in different event windows of the electorate range, through a wide timeframe, yet with a cutting-edge procedure. Furthermore, I investigate the progress in regard to the

development of the new political macroeconomics. Thus, I can gauge the reaction of the stock market to political elections by gauging the reaction of the sectoral and aggregate stock market distribution to political elections using the volatility-event study approach. It is accepted that stock prices increase when the election outcome is known (Brown et al., 1988; Pantzalis et al. 2000). When uncertainty is resolved, stock prices face a sharp growth, independent of the incumbent party (if it is a Republican or Democratic president).

I apply an event study with simple market model, Cumulative Abnormal Returns and Cumulative Abnormal Volatility, first to measure the abnormal returns and volatility of the aggregate US stock market and the sectoral returns, and second to calculate the abnormal volatility around national elections. Obviously, due to the practical unfeasibility to control for all the factors that influence the stock market, this topic remains and will remain a fruitful area of future research. Political and behavioural biases, undoubtedly stand in the way of proper economic interpretations, and might be in conflict with previous theories and findings with a stable and fundamental base. The aim of this thesis is to apply the toolbox of most popular finance theories to shed new light on variables that affect investing throughout political and information asymmetry and uncertainty.

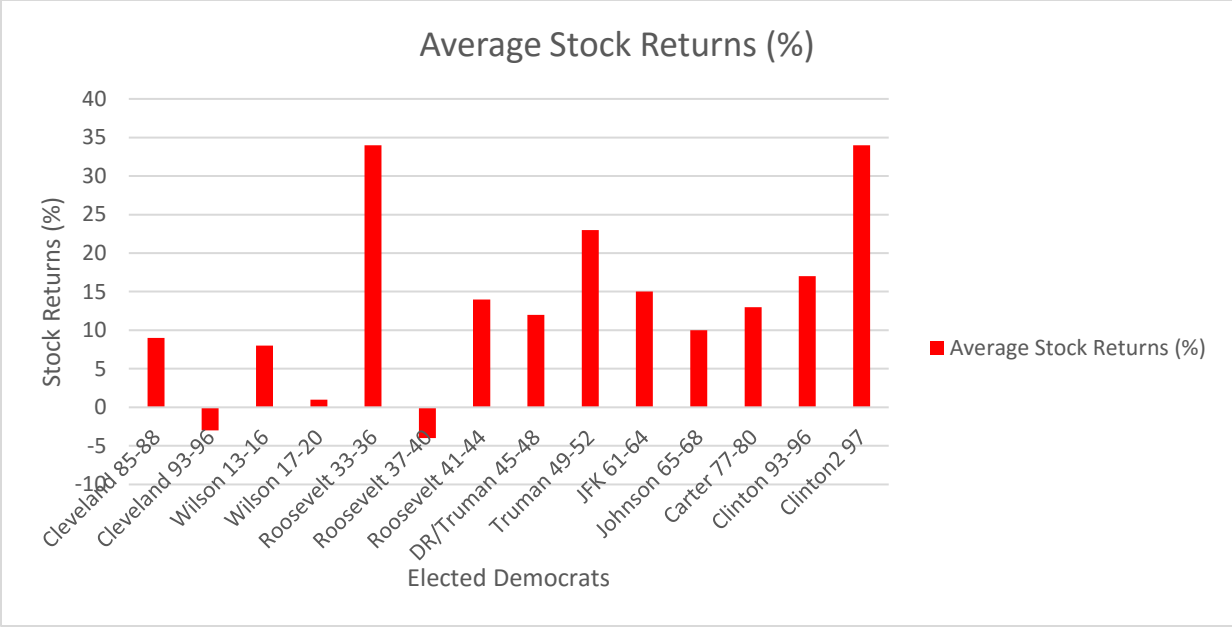
I exploit the remarkable theory of market efficiency to carefully examine whether stock prices fully incorporate all the available information on elections. A relatively low volatility in the market will impose smoother turbulences in the stock prices, which will pinpoint the effective incorporation of available information into the stock market. To continue, the findings of this thesis will provide an insight of the preference of the stock market. More accurately, a wide academic literature holds the belief that there is a Republican premium in the returns of the stock market, others advocate that there is a Democratic premium. Yet, among these contradicting findings, I offer evidence on a potential existence of any of these premiums. For information purposes, the Federal Reserve Bank of San Francisco's website (FRBSF), as well as the CRSP database, provides the following set of data of the average returns from the year 1871 to 1997 according to the stock returns registered under the leadership of the different presidents who have been in power since 1871 (Booth & Booth, 1998).

Figure 1. Stock market returns for Republican presidents as from 1871-1997.



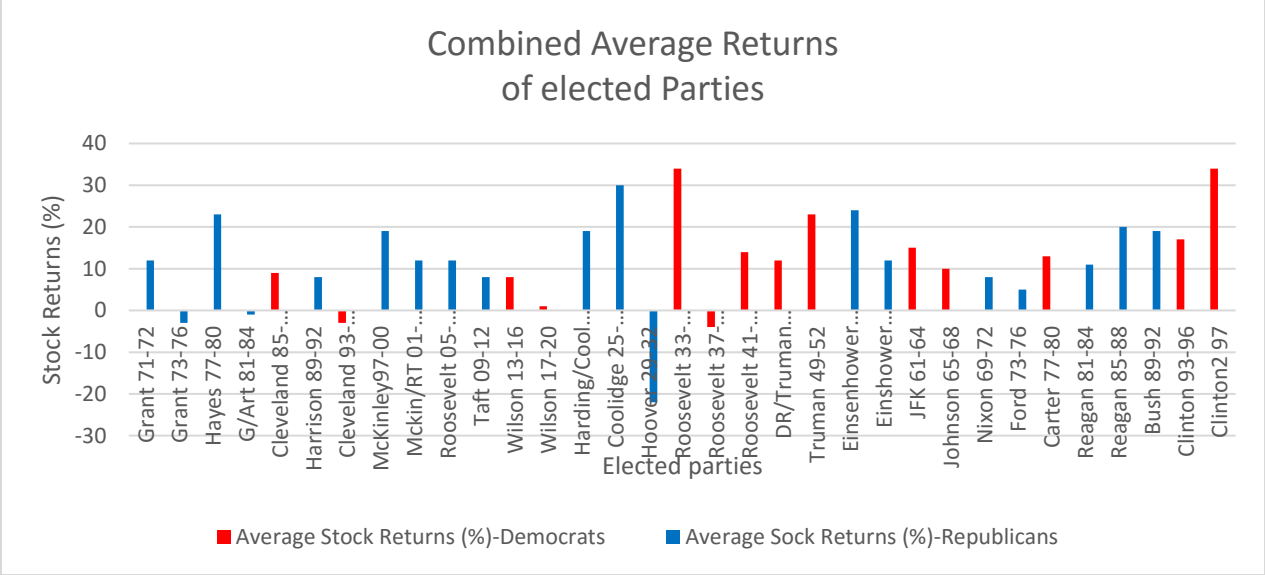
As one can observe from the graph above, the Y-axis represents the Average Stock Market Returns on a percentage basis, and X-axis represents the years of every Republican incumbent party. Thus, we can easily depict the average stock returns per US Republican president throughout a wide range of years. The columns are calculated from the average returns of each elected party on a monthly basis (monthly returns). Similarly, in the figure below, the Y-axis represents the Average Stock Market Returns on a percentage basis, and X-axis represents the years of every Democrat incumbent party. Hence, we can easily observe the average stock returns per US Democrat president throughout a wide range of years. The columns are calculated from the average returns of each elected party on a monthly basis, as well (monthly returns).

Figure 2. Stock market returns for Democratic presidents as from 1871-1997.



To make it more clear in a visual way, I provide below the combined figure of Democrat and Republican average stock returns in percentages, so one can easily compare and come to a conclusion.

Figure 3. Combined Stock market returns for all presidents as from 1871-1997.



From the above figures, we understand that Democrats have shown higher returns in percentage than Republicans. Republicans, also, have reported a sharp decrease in the early 19s, due to the Great Depression that the US Stock market has undergone in 1929.

Last, I investigate whether the generated abnormal returns, abnormal volatility along with the trading volume increase for specific market factors. So, this thesis captures not only the US stock market through an aggregate representative index, but also the deeper investigation of different sectors of the US economy.

Thus, in more clear words, the first endeavour to result in the first hypothesis is to identify whether all available information on elections is incorporated in changes into stock prices. Due to information asymmetry and investors' irrationality I expect that this would not be the case. Moreover, as stated above, the second hypothesis relates to the presence of a Democratic or Republican premium. In this case, I expect to find no relation between the stock prices movement and any electorate, since many macroeconomic factors as well as the companies' and the country's economic performance can play a vital role in the stock market. In addition, the third hypothesis tests the generated abnormal returns of different sectors, abnormal volatility and the respective trading volume, and I expect an affirmative outcome.

It is plausible to infer that the election outcome might have an impact on corporate performance in two ways. First, by government or fiscal decisions that have a direct impact on the country's economy as a whole, or secondly by altering regulations which affect the different sectors shaping an economy (Oehler, Walker, & Wendt, 2013).

I extract data from CRSP, through the access in Wharton Research Data Service (WRDS) via the university credentials. More precisely, data include daily returns from S&P500 in a thirty-year range from January 1986 reaching until December 2016. Respectively, I obtain daily returns for the same range, yet for some specific sectors of the US economy, so it enables me to identify any Democratic or Republican premium or preference to a specific industry-area. The reason for the daily returns is optimal for observing the short-term effect of presidential elections in such a large and wide range of thirty years. This is expected to give an accurate picture, since so many years are examined. The wide range will ensure valid results, since it includes eight different US

presidents capturing almost equally the two different major parties' incumbency in the United States. Applying daily data, allow me to identify the reaction and alteration in trends in a much faster way than weekly or monthly data would. It is worth to highlight that event studies require, in a way, daily data especially when examining short-term effects. The reason for daily data is not only to forecast or examine, but in many cases, it functions as an "early-warning" detection device of shifts in economy. Please make proper paragraphs by indenting

Briefly, the procedure in this thesis is as follows: first, I calculate the abnormal returns and volatility of firms listed in the S&P Index using the simple market model for predicted returns. Secondly, I use the econometric tool to calculate the Cumulative Abnormal Returns (CAR) and Cumulative Abnormal Volatility (CAV) in order to assess the return and volatility of the given index's stocks at specific times (e.g. prior, during, or post-election). Measuring the volatility in different event windows, will allow us to draw a conclusion about the volatility as well as the return performance of each portfolio. Finally, I will be in the position to provide complementary and robust results and see whether previous theories or hypotheses relate to my outcome. Also, despite discovering the abnormality of the US stock market in an aggregate way, I will attempt to apply the event study in some US sectors.

Long story short, finding and calculating the abnormal returns and abnormal volatility, will allow me to gather the Cumulative Abnormal Returns (CAR) and Cumulative Abnormal Volatility (CAV) in different event windows for the aggregate market as well as for the different sectors. Besides that, I implement many robustness tests (t-tests), so that I can infer a much more reliable outcome.

The examination of the relationship between Presidential Elections and US Stock Market is done upon a time-series investigation for the dates already described, that is, from 1986 to 2016. Through the major econometric tests used, like calculation of Cumulative Abnormal Returns (CAR) and Cumulative Abnormal Volatility (CAV), the main findings support that abnormal returns in accordance with the US Presidential elections do not infer any significant impact and thus they are trivial, while the volatility of the market returns is significantly great during elections.

The rest of the thesis is organized as follows: in chapter II there is a retrospect to the past literature, which is of high importance in order to formulate the three hypotheses examined in this thesis. In chapter III, I present the data and the methodology of this thesis. Specifically, I give some brief description of our data search and screening and I describe the procedure followed in this thesis. The next chapter, chapter IV, includes the descriptive statistics, the main results, the econometric and statistical process, and some robustness checks to validate our results in the most reliable way possible. Finally, chapter V draws a conclusion of the most significant findings and theories, derived from this thesis and provides limitations and recommendations for future research.

2. Literature Review

There seems to be no compelling reason to argue that, politics and finance have been an interesting but contradicting topic in the field of corporate finance. Gilpin (2001) characterizes the bond between those concepts as interactive. Several studies have widely investigated the relation, if any, between changes on the political stage and the economy in the sense of the stock market. As Riley and Luksetich (1980) assert, it is a well-known fact that the stock market is a leading indicator of economic activity, since it serves as a mirror of anticipation of future market conditions which reveals the voters' mood. The stock market also reveals future earnings of firms, which is more important than the voters' mood. Specifically, elections and stock markets are of high importance according to Wisniewski, Lightfoot, & Lilley (2012) since presidential decisions can shape the economy's wealth in general. As Kräussl et al. (2014) find, the presidential cycle effect, that is higher average stock market returns during the second two-year incumbency of US presidents, is an intertemporal fact that requires more surveillance from academics. Likewise, Pantzalis et al. (2000) highlight the pivotal impact of political events on financial markets and attributes the significance of elections to individuals' investments opportunities, media attraction, and market uncertainty. In their seminal paper, Levy and Yagil (2015) find that stock return and election polls are related with a positive co-movement. Consecutively, Addoum and Kumar (2012) find that shifts in the political climate cause systematic changes in the composition of investors' portfolio, yielding predictable stock returns. In their study for Greece, Siokis and Kapopoulos (2007) find that stock market index's mean and variance are related to the political environment and vary between different political regimes. Kaustia and Torstila (2011) suggest that individual political preferences and values can cause stock market participation or stock market aversion, providing evidence from left-wing and right-wing voters from Finland.

Much of the literature debate revolves around whether the prices in the market indeed absorb all the available information – thus, whether there is such a thing as market efficiency – or whether they do not follow a random walk (Fama, Fisher, Jensen, & Roll, 1969). Otherwise stated, the peak of academic's interest lies within the question of how stock prices respond to information (Fama, 1998). Stock prices are the partial reflection of traders' behaviour, since

according to Pathirawasam (2011) “(...) trading volume has predictive power on stock returns”. Hence, there are some key words of behavioural finance that play a fundamental role in determining the stock market as Baker and Wurgler (2006) find, and these are behaviour, sentiment, and rationality. For instance, rationality according to Barberis and Thaler (2003) involves the correction of noise traders’ beliefs (noise traders are assumed to be either irrational or non-informed, trend-followers who respond to pseudo market signals according to Sanders et al. (1996)), upon the emergence of new information through ‘limit to arbitrage’ and ‘psychology’. Limit to Arbitrage, on the one side, is a theory that states that price inefficiencies are maintained and rational investors cannot arbitrage them. Otherwise they could benefit the limitations on funds. On the other side, Psychology is one of the most important aspects of behavioral finance, since it can be the decisive factor of an investor.

A study that exploits the behaviour of traders to forecast stock prices is the one of Bollen et al. (2011), in which they refer to a ‘social contagion’ that might contain information susceptible to rumours and misleading information. It is an often phenomenon that when rumours are spread, some are true and some are false. The latter ones, or the fake news as Donald Trump calls them, might have an impact on traders, forcing them to invest on a stock or a security that otherwise would not. This happens at many times of everyone’s life, namely to be affected by signs, words, or information that can alter our decision on a specific matter. Sometimes, it might be beneficial for the decision-maker, but some other times might be disastrous.

Another example is the paper of Forsythe et al. (1992) in which the authors examine how efficiently the market aggregates information as well as whether traders’ behaviour is contaminated with judgement bias, and since their sample reflects the Efficient Market Hypothesis (EMH), they conclude that marginal traders affect the market, which is in line with the Hayek Hypothesis (Hayek, 1945). A marginal trader is the one who has much information on the market and is not affected by any bias. They estimate the stock prices and trade around the current price, moving the price towards the information interpretation. The Hayek Hypothesis supports that market prices are quickly and efficiently aggregating information that is diversely held by individual market participants. In plain English, if the election outcomes are predictable, the elections will not affect the stock market since election outcome information is already

incorporated in the stock market (semi-strong form of the EMH). Thus, only unpredictable election outcomes -the so-called surprises- will affect the stock market. Yes, that is how I like you to write. I hope you now understand me. Show the reader that you fully grasp the material

A vast literature has considered political elections to affect stock prices. This leads to several implications, revealing a domino effect. First, in the paper of Tian and Ma (2010) the authors advocate that there is a linkage between stock returns and foreign exchange based on the goods market theory and on the portfolio balance theory. The goods market theory assumes that there is a negative correlation that flows from the exchange rate to the stock market, since local currency appreciation will negatively affect local companies' stock prices as well as the export-oriented country. Portfolio balance theory assumes that this causality flows in the opposite way than the goods market theory, that means from the stock market to the exchange rate. It supports that stock prices will negatively affect the exchange rate. On the one hand, one can claim that US is a domestic and autonomous country, however, the presence of economic dependence (which works like a domino most of the times), the globalization, and the countries' differences, require exports and imports. The vicious cycle continues with the finding of Fang (2002) that currency depreciation reduces stock returns on average while it augments stock volatility with respect to evidence from five East Asian economies.

Academics and scholars have attempted to examine the performance of the stock market at many phases of the US elections. There is ample support that several factors, and especially political uncertainty is incorporated in stock prices (Nippani & Medlin, 2002; Goodell & Vähämaa, 2013; Li & Born, 2006; Goodell & Bodey, 2012). Brown et al. (1988) came up with the uncertain information hypothesis, that prices should increase with the uncertainty resolution. Let's put it straight with an example. Suppose a family in the United States. This household probably has a certain income at the end of the month, which requires planning and efficient allocation so it can be spent in appropriate things. When uncertainty enters the game, meaning that the income of this household becomes less certain, then the family will decide to limit their expenses and postpone the potential consumption that otherwise would have done. Similarly, when the money

that a firm is supposed to spend are not based in a substantiated and plausible investment, this investment will be postponed. The two arguments above lead to a clear conclusion. Should these situations happen in real-life, they will lead on a smaller profit margin for firms and as a result, the stock returns will be decreased as well.

Consistent with this hypothesis, Pantzalis et al. (2000) find a great magnitude of positive abnormal returns towards the election in certain types of countries. Furthermore, Goodell and Vähämaa (2013) document that there is uncertainty in the market caused by the rising investors' perceptions in terms of upcoming policies of the dominant party. However, Goodell and Bodey (2012) argue that the more obvious the favourite candidate the less volatile the market becomes. That would lower the expected return, contrary to the previous statement that the return would rise the more certainty there is about a candidate. Finally, Jones (2008) respectively puts forward the claim that election's uncertainty augments the market's volatility. When market volatility rises, it implies that the risk is similarly increasing. When a security entails a greater risk, the return is also higher so that investors can be compensated for the high risk. In that case, risk is depicted with the volatility.

Government reforms have an impact on stock prices (Pastor & Veronesi, 2012). In this paper, the main finding is that the prices decrease averagely in a policy shift, the amount on which depends on the degree of uncertainty. Primary studies (Niederhoffer, Gibbs, & Bullock, 1970; Riley & Luksetich, 1980) have revealed a strong magnitude of presidential elections' impact on the stock market, that being positive for Republicans and negative for Democrats in a short post-election window. In addition, Oehler, Walker and Wendt (2013) find that irrespectively of the political affiliation one can observe abnormal company and sector returns; an effect that is getting more intense as we extend the post-election time window, due to either market uncertainty to figure out politicians' intentions or market strive to adjust to the political changes.

Pasquariello and Zafeiridou (2014) examine how political uncertainty around U.S. elections influence financial market quality, finding that quality -as well as trading volume and liquidity- decline after elections with high uncertainty but tends to improve afterwards. Similarly, Fransis, Hasan, and Zhu (2013) explain that institutions significantly decrease their holdings before presidential elections and when the winner is a Democrat, the magnitude of the decline

in institutional ownership in election years is smaller than when the winner is a Republican. Durnev (2010) reveals that political uncertainty around elections, worldwide, can influence the way of how corporate investment reacts to stock prices up to a 40% level. In another paper (Chen, Hope, Li, & Wang, 2016) the authors find that stocks with greater financial reporting quality are less affected by systematic risk, and thus political uncertainty, and are therefore preferred by mutual-fund managers during election periods. That is called the flight-to-quality effect and its intensity depends on whether the incumbent party is more likely to win or if the government has greater participation in the local economy.

In Hirsch's paper (1967) one can run across the election cycle theory, in which stock markets of the US experience greater returns the last two years than in the first two years of a government incumbency. This so-called election cycle theory has been examined a lot since then. This is also reinforced by the work of Hofschire (2002), who finds consistently higher stock returns in the last two years of the term of the government. Moreover, findings of Allivine and O'Neill (1980), Gartner and Wellershoff (1995), and Hensel and Ziemba (1995) lend support to the election cycle theory, providing economic and statistical evidence of the existence of a difference -in first and second half's of the government's incumbency- in stock returns. What's more Herbst and Slinkman (1984) offer support on the allegation of the existence of the 4-year election cycle. Besides that, Foerster and Schmitz (1997) identify low stock returns both in the US and globally, but only for the second year of the US presidential term. In his paper, Stovall (1992) states that is indeed hard for equities to deal with the first two years after the presidential election in comparison with the last two years, mostly because "(...) Administration and Federal Reserve Board are usually at their tightest during the early quarters and at their most accommodative during the late quarters of the four-year cycle". That means that in the first two years, harsh measures are taken (e.g. rising taxes, more regulation) than in the latter two years. In contrast, Wong and McAleer (2009) 'put the blame' on inevitable steps and policies that the politicians might undertake as to adjust the economy. Some of these policies might include, among others, some reconstructions in healthcare and financial regulations, the too-big-to-fail policy of Lehman Brothers or others (Pastor & Veronesi, 2012)

Nordhaus (1975) came up with a different concept that became the target of many researchers, that being the political business cycle. Based on the opportunistic theory, there is a manipulation of business conditions by political parties in order to be re-elected. Namely, there is a stimulus to chase deflation after the elections. Respectively, Rogoff (1990) believes that there is a tendency of the government to rise expenditures and limit taxes before the elections. In his paper, Ito (1990) highlights that opportunism provides the incumbent party the right to select election timings which preserve its fame, all else equal. Further, the incumbent party prefers a more volatile business cycle given the voters' irrationality, and a shorter cycle so it includes the peak within four years.

There has been a plausible and inconclusive debate in prior literature, about whether there is any kind of affinity of the US stock market towards a specific ideology. In a widely-discussed paper of Santa-Clara and Valkanov (2003) the authors find that there is a 'Democratic risk premium' since they find a higher excess return under a Democratic regime. Based on this paper, Montone (2014) finds that the return differences between Democratic and Republican parties (presidential puzzle) are determined by political dissonance rather than President's affiliation. He highlights that disagreement augments during Republican incumbency as a result of negative exogenous shocks on the U.S. economy, consistent with Blinder and Watson (2016). Same findings as Santa-Clara and Valkanov, are obtained by Sy and Al Zaman (2011), and uncover that the Democratic returns refer to higher market and default risk premiums at the time of the regime. The market risk premium rises due to higher volatility of stock market returns and due to higher correlation between market returns. A Higher risk premiums imply higher discount rates (assuming the risk-free rate stays constant) and consequently lower stock prices. Moreover, findings from Johnson et al. (1999) also indicate that the returns to small-cap stocks are substantially higher during Democratic administrations. Booth and Booth (2003) support the foregoing mentioned democratic premium, however only for a small stock portfolio. They also advocate the before-mentioned existence of the election cycle theory in US stocks which is explained by business condition proxies, puts the Efficient Market Hypothesis at stake, since had the election cycles been predictable, this information will be already incorporated in the price and the elections' outcomes will have no effect on stock returns. Last, Huang (1985) also finds

historical higher average returns from Democratic regimes than Republican ones (that is referred to as an exception), but reveals no significant outperformance in his univariate analysis. Specifically, he underlies that risk-free rates (in this case Treasury bills or T-bills) outperformed investments in common stocks for the first two years of a Republican incumbency. However, Bohl and Gottschalk (2006) claim that this Democratic premium is not a globally-oriented fact.

As a rebuttal to this point, an increasing literature holds the view that the market prefers Republicans over Democrats, which is often observed as the party effect (Jones & Banning, 2009). Reilly and Luksetich (1980) unfold the story of the strong – even in the short-run - preference of the market for Republicans. Niederhoffer, Gibbs, and Bullock (1970), however, hold the belief that there is no systematic difference in the long-term for the allegation that the market behaves in favour of Republican presidents.

The meta table below provides some vital findings on whether the market prefers Democrats or Republicans covering all the discussed authors' perspectives.

Table 1. Summary table of some key literature

Author(s) (publication year)	Region and stock market	Time period	Method	Results	Model
Pantzalis et al. (2000)	US S&P500	1980- 1999	Event study: (-4 weeks, +4 weeks)	+ 0.34 % if Democrat wins	Market Model
Santa-Clara and Valkanov (2003)	US Kenneth French Database	1927- 1998	Event study: (-80 days, +20 days and - 100 days, +800 days)	+9% for Democrats (value-weighted portfolio) and +16% for Democrats (equal- weighted portfolio)	Bootstrap experiment
Huang (1985)	US – Data from prior literature	1832- 1980	Univariate Analysis	No annually significant outperformance of any party over the other	Standard statistical tests with

					mean and compound annual returns
Niederhoffer, Gibbs, and Bullock (1970)	US D.J.I.	1900-1968	Univariate Analysis	Positive short-term reaction for Republicans (+1.12%/+1.08%/+1.30% the following day/week/month)	Hypothesis testing
Reilly and Luksetich (1980)	US D.J.I.A.	1900-1976	Regression Analysis and Event study: 8 and 10 weeks before and after the election week	Positive reaction in post-election days for Republicans and negative for Democrats	Single factor market model

Other studies, like “US elections and monthly stock market returns” (2009) of Jones and Banning, find not even a connection between stock returns and US elections and when there are significant results, there is little explanatory power. Powell et al. (2007) reveal no statistically significant returns in favour of either Democrats or Republicans, while Niederhoffer, Gibbs, and Bullock (1970) end up with the absence of any long-term systematic difference as well. An interesting finding comes from Lewis-Beck (1988) who supports that had the economic situation affected voting behaviour, we should expect an opportunistic rising of stock markets during US election cycles. This is because elected presidents will take advantage of the rise in stock markets, in order to benefit from this positive correlation.

An intriguing theory developed by Alesina (1987) Rational Partisan Theory, and elaborated by Berlemann and Markwardt (2006), briefly states that left-wing supporters who are human capital-oriented will promote growth, while right-wing voters who care about the return on financial capital will prefer anti-inflation measures. Hibbs (1986) claims that Republicans are more expansionary policy averters than Democrats who seem to be indeed expansionary policy

seekers. Empirical proof for this suggestion can be found by Chappell and Keech (1986) who find a greater inflation percentage for Democrats.

A zestful area of research arises by the question whether specific sectors or companies benefit or not by the election results. A representative example of this question is stated by Knight (2006). He finds a rise in tobacco firms' stock prices and a decrease in stock prices of Microsoft's competitors with the election of George W. Bush in 2000. Baker, Bloom, and Davis (2016) provide evidence that political uncertainty increases stock price volatility and decreases investment on specific sectors, such as healthcare, defence, infrastructure, and construction. Respectively, Jayachandran (2006) reports a loss in stock prices of public firms with the shift of the Senator Jim Jeffords from Republicans to Democrats. Another example is the positive stock price movements of the defence sector before the 1980 Ronald Reagan election, having the rather stable overall market as a benchmark (Roberts, 1990). Simultaneously, winning or losing probabilities affect the movements of specific sectors' stock prices, as Bechtel and Füss (2010) find with respect to a sample formed in the German market. Finally, the data yielded by the study of Herron et al. (1999) provide convincing evidence of a co-movement of candidates' probabilities to dominate elections and some American economic sectors during the 1992 elections, when a Democratic president won. Specifically, they find that the most affected sectors were: Pollution control, Aerospace and defence, Pharmaceuticals, Cosmetics/personal care, and Various financial services.

Recapitulating, many studies have focused on the association between stock market and elections in the United States. Nevertheless, further analysis is needed and always welcomed due to the complexity of the issue and several limitations of prior literature. First, while most studies examined this relation in the 20th century, this thesis is one of the minority which concentrates also on the early 21st century, which is an era of turbulences and uncertainty in the financial sector. Studying the political factor into a potential prediction in movements of the stock prices during financial crisis gives us the view of how individual investors react and behave in such circumstances.

Second, the way with which the empirical research is conducted is pioneering and innovative. That is explained by the fact that when calculating the abnormal returns, I will

consider the difference between actual returns and expected returns with the help of simple market model of predicted returns, while combine this with robustness tests. This contribution to the literature will be interesting, since it is one of the first papers to use this combination in politics and finance. In addition, I will attempt to give a brief overview of the correct decision-making for investors who are willing to short-term investments in different sectors of the US economy around Presidential elections.

Third, this examination will offer additional empirical view with the purpose to determine the existence of any potential political preference of the market. Finally, and of high importance, this paper contributes to whether any specific companies or sectors react to either Republicans or Democrats. Many stories and speculations have been stated for specific positive or negative relationships between a president and an economical sector. This paper, aims to identify any bond between them, generalizing the outcome to Republicans and Democrats.

Finally, I attempt to examine the causality between elections in the United States and stock returns. This has been a major problem in several prior studies, since it is not unambiguously extracted due to the fact that some economics conditions strongly work as public opinion leaders (Fiorina, 1991). Furthermore, economic and political linkage is a mutual-flow stream, because policies affect the markets and markets affect the policy reformation (e.g. lobbying) (Gerber, Huber, & Washington, 2009)

Overall, taking a middle-ground position, the hypotheses that I will examine in this paper and that are analysed in detail in the next session will be:

H1: The available information on election is not fully incorporated into stock prices

H2: The returns of the stock market do not show any Democratic (or respectively Republican) premium.

H3: The volatility of the stock market returns do not show any Democratic (or Republican) premium.

H4: The generated abnormal returns will be higher for some sectors.

For enhanced comprehension of the following paper, I provide tables for the several incumbent parties and their period of incumbency.

Table 2. Incumbent President and Party from 2016 descending to 1986.

President	Party
Donald Trump	Republican
Barack H. Obama	Democrat
Barack H. Obama	Democrat
George W. Bush	Republican
George W. Bush	Republican
William J. Clinton	Democrat
William J. Clinton	Democrat
George H. W. Bush	Republican

Table 3. Incumbent President and dates of elections from 2016 descending to 1986.

President	Election Date
Donald Trump	8 th November 2016
Barack H. Obama	6 th November 2012
Barack H. Obama	4 th November 2008
George W. Bush	2 nd November 2004
George W. Bush	7 th November 2000
William J. Clinton	5 th November 1996
William J. Clinton	3 rd November 1992
George H. W. Bush	8 th November 1988

3. Data and Methodology

3.1 Data

In this thesis, I follow an innovative combination, meaning that the event study will be deployed to analyze the reactions of stock markets, in terms of returns and volatility, to the political waves in the United States. Briefly, the S&P 500 Index through CRSP from Wharton Database is deployed. The S&P 500 index contains characteristics of respective companies whose stock return data is depicted on CRSP¹. It is worth noting that the dataset ranges from 1986 to 2016. I chose this range, because the extracted data from Wharton Database in terms of sectoral returns, was available since then. The selected range of thirty years is expected to infer an accurate result, since it covers daily data for many companies and sectors in tandem with Democratic and Republican incumbencies. Specifically, I make use of these returns in a daily basis, with the primary aim to compare the expected returns with the actual returns and find the abnormal returns. Similarly, I extract data from the previous-mentioned data sources, to compare the trading volume in the stock market. Thus, I am able to infer a robust conclusion about the investors' behavior and rationality based on returns, return volatility and trading volume.

The political conduct of governments may have a critical impact not just on the macroeconomic execution of the entire economy but additionally on the microeconomic conduct of all people as well, as can be derived from Pantzalis et al. (2000). Usually, the occupant government may attempt to control financial strategies in both the large scale and miniaturized scale circles with an end goal to accomplish political objectives, including re-race. To explore the reaction of the stock market to political elections carefully and sophisticatedly, an event study research methodology is adopted in this paper. The determination of the reaction of the stock market to the changes in the United States political landscape mandated the utilization of the event study methodology. The main concept of an event study is to statistically evaluate the

¹ As such, the retrieval of such data is possible with the use of the WRDS (Wharton Research Data Services) thanks to my university credentials.

influence of a specific event to stock values. The way to do that, is by identifying the abnormal returns that stem from this happening by adjusting for the return derived from turbulences in market prices. Specifically, the event study in this thesis, will help in examining the footprint of presidential elections in aggregate and sectoral stock prices in United States.

3.2 Event Study

The primary aim is to name the event we are trying to examine and the period(s) that we are interested in. Those period(s) are called event windows. In this thesis, the event is the presidential elections in the United States and the event windows are 25, 10, 5, 3, and 1 day(s) prior and after the Presidential elections. I chose these days as the different event windows so I can look into the short-term effect of the Presidential elections. Thus, to ensure symmetry in the event windows, those will be -25, -10, -5, -3, -1, +1, +3, +5, +10, and +25² days prior and after the event. It is worth to highlight that we do not include the day of the elections itself, "...to prevent the event from influencing the normal performance model parameter estimates..." (Mackinlay, 1997). It is worth to highlight, that the t=0 is the day that the final election results are announced. To continue, it is useful to mention that the event study will focus on the aggregate US stock market, represented by S&P 500 index, and some specific sectors. The sector examination concept is primarily inspired by the work of Oehler et al. (2013) and is explained in the separate section below. After defining events, dates, and markets of interest, the procedure advances with the computation of abnormal returns, namely the difference between the actual returns and the normal or expected returns, had the event not occurred. The plan closes with the testing design of the abnormality of returns, which draws the conclusion regarding the event's impact.

3.3 Sectors

Extending the work of Oehler et al. (2013), I provide details about the sectors that are of direct interest in this thesis³. First, the services industry sector which has Standard Industrial

² With (-) are the days examined prior to the event, while with (+) are the days examined after the event.

³ Note that all these information are extracted by CRSP

Classification codes that range from 7000 to 8999. Second, the real estate, insurance, and finance industry has Standard Industrial Classification codes that range is from 6000 to 6999. Third, the retail trade industry has Standard Industrial Classification codes that range from 5200 to 5999. Fourth, the wholesale trade industry has Standard Industrial Classification codes that range from 5000 to 5199. Fifth, the sanitary services, gas, electric, communications, and transportation industry is previous to the transportation industry, and it has Standard Industrial Classification codes that range from 4000 to 4999. Sixth, the manufacturing sector has Standard Industrial Classification codes that range from 2000 to 3999. Seventh, the construction industry has Standard Industrial Classification codes that range from 1500 to 1999. Finally, the mining sector has Standard Industrial Classification codes that range from 1000 to 1499.

The classification, in this case, excludes companies operating in three industries because they have less than five businesses in each case and these may not be used to draw meaningful conclusions. The first is the non-classifiable establishment's industry that has Standard Industrial Classification codes that range from 9900 to 9999. The public administration industry, which has Standard Industrial Classification codes that range from 9000 to 9899, is also excluded. An additional exclusion is the fishing, forestry, and agriculture industry because it has Standard Industrial Classification codes that range from 0100 to 0999. The exclusion criteria also include any companies whose data is deemed incomplete. To give a brief overview of the sectors used in this study, we can look at the table above.

Table 4: Overview of sectors examined

Standard Industrial Classification (SIC) Code	Sector-Companies	Included?
0100-0999	Fishing, Forestry, and Agriculture industry	No
1000-1499	Mining Industry	Yes
1500-1999	Construction Industry	Yes
2000-3999	Manufacturing Industry	Yes

4000-4999	Sanitary, Gas, Electric, Communications, and Transportation Industry	Yes
5000-5199	Wholesale Trade Industry	Yes
5200-5999	Retail Trade Industry	Yes
6000-6999	Finance, Insurance, and Real Estate Industry	Yes
7000-8999	Services Industry	Yes
9000-9899	Public Administration Industry	No
9900-9999	Non-classifiable establishment's industry	No

3.4 Methodology

In this thesis, the event study implemented follows a simple and comprehensive methodology. First, I extract daily returns from Wharton Database throughout 1986 and 2016, which are in fact the first natural logarithmic difference of the stock prices of the S&P500 Index. The next step is to calculate the abnormal returns with the help of Stata. Hence, abnormal returns will be the difference between the actual returns (ARs) and the expected returns calculated by a simple economic model for returns. Stata exploits the simple market model of calculating the predicted returns, so deducting this information from the extracted actual returns should give us the abnormal returns. This simple procedure is expected not to be inferior to other models measuring expected returns, such as the CAPM, the four-factor model of Carhart (1997), or the five-factor model of Fama and French (2015). Afterwards, we will have the abnormal returns of all different sectors I need for this study. As Ramiah, Martin, and Moosa (2013) explain, the potential outcomes are three. First, if ARs are equal to zero, it means that the Presidential elections have no significant impact (or equal impact) on the revenue and cost of the firms, by which the index or the sector is comprised. Second, if ARs are greater than zero, it means that

there is a positive value created by the elected party to those specific firms of the index or sector. Respectively, in the third option, if ARs are less than zero, it will imply a negative preference of the incumbent party to the firms of the index or sector as revenues will decline more than the costs. This is the time, where Efficient Market Hypothesis (EMH) (Fama, 1998) enters the game. EMH supports that stock market prices absorb directly all available information, so examining the shorter-term effect possible of Presidential elections (e.g. +1 days after the event), allows us to infer an adequate conclusion about the EMH presence. However, one might claim that due to investors' irrationality there might be a misinterpretation because of coincidence. That is the reason, Cumulative Abnormal Returns are calculated to ensure that investors and traders do not over(under)-react to information of the event. A t-test is applied to resolve the significance issue of the Cumulative Abnormal Returns. Similarly, I will calculate the Cumulative Abnormal Volatility for the same event windows. The calculation will be based upon the daily returns, meaning that I will take advantage of the daily abnormal returns to calculate the standard deviation. Following, the same procedure I will also compute some t-tests to check the significance of the volatility and the Cumulative Abnormal Volatility.

As stated and commonly known, at regular intervals, American voters choose a President. It is of the essence to note that because of the President's astonishing impact on both residential and world undertakings, the progressively outstretching influences of Presidential races are stunning. Henceforth, it ought not to come as unexpected that stock costs, frequently called the primary marker of the full-scale economy, are influenced by Presidential decisions (Miron & Tudor, 2010). Along with capturing the existence of abnormality in returns, a highly important aspect of this event study is the measurement of volatility around these national elections.

Money markets are considered to play a vital role in financial conditions for nations around the world. In such manner, one of the real parts of the money markets is to model and gauge unpredictability for the dynamic changes in stock prices (Su, 2010). In this way, unpredictability is thought to be a measure of instability, and it was utilized before by Markowitz (1952) as a measure of hazard, which should be precisely measured in an optimal market

3.5 Descriptive Statistics

In this chapter as well, I find it plausible to provide some tables for the summary statistics of the data I have retrieved. Prior to the econometric and statistical process, and some robustness check to validate our results in the most reliable way possible, I think it is rational to get a brief description of how the data extracted have been presented throughout the years examined. Thus, the reader can get an overview of the different sectors of the US economy which is depicted in the S&P 500 index, as well as the respective overview of the return allocation to Democrats and Republicans. As stated above, the different sectors of which descriptive statistics are provided are: the mining sector, the construction sector, the manufacturing sector, the sanitary, gas, electric, communication, and transportation sector, the wholesale trade sector, the retail trade sector, the real estate, insurance, and finance sector, and the industry services sector. As we can observe, the biggest sectors are the manufacturing sector, the real estate, insurance, and finance sector, and the industry services sector- let those containing more than 300,000 observations. On the other hand, the smallest sectors are the construction sector and the mining sector- containing less than 20,000 observations. The highest reported return has been in the manufacturing and the industry services sector (almost 9.1%) and the lowest positive return rate was revealed in the construction sector (barely 2%).

Table 5: *Descriptive statistics of sectoral returns*

Sector	N	Range	Minimum	Maximum	Mean	Std. Deviation
<i>Mining</i>	16627	0.119831 -0.06867	0.051164	0.000714	0.012113	
<i>Construction</i>	1662	0.049582 -0.03083	0.018755	0.000838	0.005962	
<i>Manufacturing</i>	197668	0.076938 -0.04809	0.028853	0.00067	0.009606	
<i>Sanitary, gas, electric, communications and transportation</i>	41217	0.295663 -0.20467	0.090994	0.000402	0.011755	
<i>Wholesale trade</i>	24017	0.119831 -0.06867	0.051164	0.000573	0.0089	

<i>Retail trade</i>	34444	0.072716	-0.04809	0.024631	0.000883	0.009874
<i>The real estate, insurance, and finance</i>	138191	0.106531	-0.04922	0.057315	-0.00050	0.01134
<i>Industry</i>	95554	0.295663	-0.20467	0.090994	0.000496	0.01191

From the above table 5, sectorial Stock Return on the S&P 500 Index descriptive statistics is presented. In the mining sector, the average Return on the S&P 500 Index for all firms is 0.07% (SD=0.012113). The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the mining sector is 5%, while the smallest Return on the S&P 500 Index is -6%. In the construction sector, the average Return on the S&P 500 Index for all firms is 0.08% (SD=0.005962). The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the construction sector is 1.9%, while the smallest Return on the S&P 500 Index is -3%. The next sector examined is the manufacturing sector, in which the average Return on the S&P 500 Index is 0.07% (SD=0.009606). The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the manufacturing sector is 2.9%, while the lowest Return on the S&P 500 Index is -4.8%. Sanitary, gas, electric, communications, and transportation was another sector under this study and the average Return on the S&P 500 Index for all firms is 0.04% (SD=0.011755). The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the Sanitary, gas, electric, communications and transportation sector is 9%, while the smallest Return on the S&P 500 Index was -20%. In wholesale trade which the selling of products in large quantities was also considered and it is found that the average Return on the S&P 500 Index for all firms is 0.05% (SD=0.00896). The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the wholesale trade sector is 5%, while the smallest Return on the S&P 500 Index is -6.8%. Retail trade is another sector under consideration in this study and the average Return on the S&P 500 Index for all firms is 0.09% (SD=0.009874). The maximum sectorial Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the retail trade sector is 2%, while the smallest Return on the S&P 500

Index is -4.8%. The real estate, insurance, and finance are the main investment sectors that were considered in this study, the average Return on the S&P 500 Index for all firms is -0.05% (SD=0.011345).The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the real estate, insurance, and finance sector is 5.7%, while the smallest Return on the S&P 500 Index is -5%.The last sector that is studied is the industry sector, the average Return on the S&P 500 Index for all firms 0.05% (SD=0.01191).The maximum sectoral Stock Return on the S&P 500 Index for the period between 1986 and 2016 in the industry sector is 9.1%, while the smallest Return on the S&P 500 Index is -20%.

3.6 Comparison of Return on the S&P 500 Index for the period between 1986 and 2016 for the Republican and the Democrat party presidents

The next step to give a clear understanding to the reader, is to provide the basic descriptive statistics for the returns of the S&P 500 index- yet separated depending the incumbent party. That means, I provide below the table which shows the number of observations, minimum, maximum, and range value of the returns, as well as the mean and the Standard deviation of the returns of Democrat and Republican incumbencies.

Table 6: *Comparison of Return on the S&P 500 Index between 1986 and 2016*

Party	Minimum	Maximum	Mean	Std. Deviation	No. of Observations
Democrat					
Return index	-0.3722	0.3367	0.147358	0.1947664	12
Republican					
Return index	-0.2227	0.3802	0.098376	0.1647030	18

Making the comparison between the two parties I find that during the ruling of Democrats Presidents the Return on the S&P 500 Index has been higher average (14.7% with SD=0.1947664) than during the ruling of Republican presidents (average is 9.8% with SD= 0.1647030). The

highest amount of Return on the S&P 500 Index was recorded under Republican president of 38%, while the lowest was recorded under Democrat president of -37% (see table 6 above).

4. Results

In the results chapter, I conduct the econometric research to draw a conclusion in terms of the relationship between the US stock market and the Presidential elections. This is a way to relate to previous academic papers and find advocate or controversial ones. The hypotheses I have formulated in the second chapter derived from the overview of the literature review and these are:

H1: The available information on election is not fully incorporated into stock prices

H2: The returns of the stock market do not show any Democratic (or respectively Republican) premium.

H3: The volatility of the stock market returns doesn't show any Democratic (or Republican) premium.

H4: The generated abnormal returns will be higher for some sectors.

As shown by the tables in this chapter, the empirical findings of this study provide evidence based on which we can accept or reject the above hypotheses. More precisely, H1 is accepted by the descriptive statistics table. The deviations from the mean in each sector of the US economy reveal that all available information upon national elections is not fully incorporated into stock prices. This gives rise to the economic meaning that some investors might not interpret information in the same way, or there is an asymmetric information level for different investors. Moreover, some investors probably invest on their behavioral feelings, let those be the irrational investors. Thus, the US stock market seems to be not in line with the Efficient Market Hypothesis, a fundamental and popular theory in finance, as expected.

4.1 Cumulative abnormal returns (CAR)

Abnormal Returns P-values of the aggregate market returns are very high, and thus we cannot reject the null hypothesis. In general, we accept that abnormal returns in association with the US presidential elections do not give significant effects and thus they are negligible. Also the p-values

for the individual sectorial stock returns markets are also greater than 0.05 in all event windows, the null hypothesis is not rejected since p-values are greater than 0.05. (see table 7 below). The second hypothesis stated in this study claims that the returns of the US stock market and its sectors do not show any Democratic or Republican premium. This proposition is also accepted (in its null form – no relation), as we can see from the Cumulative Abnormal Returns table. Using the event windows to test the short-term effect of Presidential elections to US stock market (-25, -10, -5, -3, -1, +1, +3, +5, +10, +25 days prior/after national elections), we obtain Cumulative Abnormal Returns which are all positive

Relating this to Ramiah, Martin, and Moosa (2013), we face the $AR > 0$ outcome. Hence, when AR are greater than zero, it means that there is a positive value created by the elected party to those firms of the index or sector. However, despite this positive outcome, the t-test applied to check the validity and significance of this result, shows that there is no significant value that we can accept. For that reason, we cannot infer a robust conclusion about the preference of the market and thus, any Democratic or Republican premium. In every event window, we observe a P-value greater than 0.05, which is far more than the significance level. It leaves, however, an open window for other studies, since the range I chose to apply on this study might prevent the results from being significant. To calculate the CAR model, the study used event periods -5,5.

Table 7: *Results of the Cumulative Abnormal Returns*

Time series	Event window	CAR(n1,n2)	P-value t-test
All	-25,25	0.0056	0.5561
	-10,10	0.0043	0.509
	-5,5	0.0033	0.5244
	-3,3	0.0023	0.5988
	-1,1	0.0044	0.378
mining	-25,25	-0.0123	0.8818
	-10,10	-0.0078	0.6897
	-5,5	-0.0037	0.6289
	-3,3	-0.006	0.7481
	-1,1	-0.0030	0.5293

construction	-25,25	-0.0132	0.7819
	-10,10	-0.0058	0.6792
	-5,5	-0.0038	0.6380
	-3,3	-0.006	0.7085
	-1,1	-0.0034	0.5530
manufacturing	-25,25	-0.0143	0.8023
	-10,10	-0.0049	0.6923
	-5,5	-0.0037	0.6350
	-3,3	-0.004	0.7580
	-1,1	-0.0027	0.5093
<i>Sanitary, gas, electric, communications and transportation</i>	-25,25	-0.0176	0.8020
	-10,10	-0.0076	0.6892
	-5,5	-0.0029	0.6687
	-3,3	-0.003	0.7485
	-1,1	-0.0039	0.5790
Wholesale trade	-25,25	-0.0155	0.8720
	-10,10	-0.0047	0.7886
	-5,5	-0.0025	0.6270
	-3,3	-0.0054	0.7485
	-1,1	-0.0034	0.4597
Real estate, insurance and <i>finance</i>	-25,25	-0.0153	0.7864
	-10,10	-0.0072	0.6796
	-5,5	-0.0034	0.7182
	-3,3	-0.007	0.7380
Industry	-25,25	-0.0185	0.7019
	-10,10	-0.0084	0.7890
	-5,5	-0.0039	0.6281
	-3,3	-0.0056	0.7583
	-1,1	-0.0022	0.5593

As we can observe from the table above, none of the sectors provides P-values less than 0.05, therefore we cannot reject the null hypothesis for the different sectors. As a result, despite of the positive or negative outcome of the Cumulative Abnormal Returns, we cannot say that this is for sure, since it is proven to be non significant.

4.2 Cumulative abnormal volatility (CAV)

As stated, the next step is to calculate the abnormal volatility of the returns above. The primary aim of this step, is to judge whether US stock market has been stable throughout the years examined and during the national elections held. Volatility can be defined as the calculated standard deviation of the returns. Thus, the first step is to take advantage of the 1986-2016 daily returns in order to apply the standard deviation formula to calculate the returns' volatility. Similarly, with the above methodology and with the help of Stata, we measure the abnormal volatility as well as the Cumulative Abnormal Volatility of different periods. Looking at the p-values of the results of Cumulative abnormal volatility testing shown below, we found that the sectoral market returns are highly significant. Since all the p-values are less than 0.05, we reject the null hypothesis. Hence the market returns are highly volatile (see table 8). The third hypothesis defined in this thesis supports that the volatility of the US stock market and its sectors do not entail any Democratic or Republican premium. Contrary to the previous hypotheses, this suggestion is rejected in its null form, as we can observe from the Cumulative Abnormal Returns table. Again, using the event windows to test the short-term effect of Presidential elections to US stock market (-25, -10, -5, -3, -1, +1, +3, +5, +10, +25 days prior/after national elections), we obtain Cumulative Abnormal Volatility, positive for all the before-mentioned event windows. A rejection of the null hypothesis, means that we accept the presence of the relation between a Democratic or Republican premium, in the aggregate US market as well as in the sectors we examined. Similarly, a robustness check was also applied in order to test the significance of the results. Hence, a t-test allows us to compare P-values with significance level and to draw a robust conclusion. For all the values of Cumulative Abnormal Volatility below, we can see that approximately the P-values tend towards zero with a three-point decimal. That means that, since

0.000 is less than 0.05, we accept the strength of the robustness check and the significant power of the results.

Table 8: *Results of the Cumulative Abnormal Volatility*

Time series	Event window	CAV(n1,n2)	P-value t-test
All	-25,25	30.1798	0.000
	-10,10	14.8746	0.000
	-5,5	10.4037	0.000
	-3,3	7.3976	0.000
	-1,1	5.1217	0.000
Mining	-25,25	31.0167	0.000
	-10,10	15.0071	0.000
	-5,5	9.2027	0.000
	-3,3	5.0016	0.000
	-1,1	3.7275	0.000
Construction	-25,25	28.0234	0.000
	-10,10	13.6571	0.000
	-5,5	8.3451	0.001
	-3,3	4.5436	0.000
	-1,1	2.2334	0.000
manufacturing	-25,25	32.1322	0.000
	-10,10	16.1649	0.000
	-5,5	10.1345	0.000
	-3,3	5.2345	0.000
	-1,1	3.1228	0.000
Wholesale trade	-25,25	29.1524	0.003
	-10,10	16.1456	0.000
	-5,5	10.6543	0.000
	-3,3	6.8634	0.000

	-1,1	2.7652	0.000
Wholesale trade	-25,25	33.1267	0.000
	-10,10	14.9847	0.000
	-5,5	8.2356	0.000
	-3,3	5.0058	0.000
	-1,1	2.4567	0.000
Real estate, insurance and <i>finance</i>	-25,25	34.6578	0.001
	-10,10	15.9876	0.000
	-5,5	9.5643	0.000
	-3,3	4.3287	0.000
	1,1	2.1986	0.000
Industry	-25,25	32.0184	0.000
	-10,10	15.4567	0.002
	-5,5	8.3456	0.000
	-3,3	4.4561	0.000
	-1,1	1.2347	0.001

As we can observe from the table above, all of the sectors as well as the aggregate market provides P-values less than 0.05, therefore we can reject the null hypothesis for the different sectors. As a result, the volatility exists and it is significant for the US stock market (through the representation from S&P 500) and for the different sectors examined in this study.

5. Conclusion

The primary goal of carrying out this study was to exploit the remarkable theory of market efficiency, so to carefully examining whether stock prices fully incorporate all the available information upon presidential elections in the United States. The aim of the findings of this thesis is to provide an insight of the preference of the stock market as well. To come up with answers of this objective, secondary data of market stocks returns under different party presidents (Democrats and Republic presidents) for the period between 1986 to 2016 are used. From the finding the following results were realized: First, market efficiency does not exist (at least in this study) since all available information is not fully incorporated in the stock prices of the S&P index. Second, despite the supporting academic papers, which state that market prefers either Republicans or Democrats, this study finds no significant relation between a certain party and the movement of the US stock market. Third, I find that volatility is high and significant around different event windows that are chosen around each Presidential elections. That means that both Democratic and Republican parties are strongly related with the high volatility that is present in the US stock market. Finally,

As it will be illustrated below market stock returns in the United States are not affected by presidential elections. This thesis disagrees with previous studies since it provides a contradictory view comparing with other studies. Numerous researches carried out before the present study, show that abnormal stock returns have greatly been affected by political elections. Niederhoffer, Gibbs, and Bullock (1970) argue that Presidential election have effects on the market returns on the first day and the first week after the election and this differs from party to the other depending on the winner's beliefs - whether the party comes from the Democratic Party or the Republican Party. The results of Niederhoffer, Gibbs, and Bullock (1970) show that the market grows after the win of the Republican party and decreases if the President elections winner is from the Democratic Party. This study ascertains that in the mining sector the average Return on the S&P 500 Index for all firms is 0.07% (SD=0.012113). In the construction sector, the average Return on the S&P 500 Index for all firms is 0.08% (SD=0.005962). The next sector examined is the manufacturing sector, in which the average Return on the S&P 500 Index is 0.07%

(SD=0.009606). Sanitary, gas, electric, communications, and transportation was another sector under this study and the average Return on the S&P 500 Index for all firms is 0.04% (SD=0.011755). In wholesale trade which the selling of products in large quantities was also considered and it is found that the average Return on the S&P 500 Index for all firms is 0.05% (SD=0.00896). Retail trade is another sector under consideration in this study and the average Return on the S&P 500 Index for all firms is 0.09% (SD=0.009874). The real estate, insurance, and finance are the main investment sectors that were considered in this study, the average Return on the S&P 500 Index for all firms is -0.05% (SD=0.011345). The last sector that is studied is the industry sector, the average Return on the S&P 500 Index for all firms 0.05% (SD=0.01191). The averages of the of market stock returns of the above sectors are within the individual daily returns, so we can agree with the hypothesis that the available information on the election is not fully incorporated into stock prices. If it could have been related, then there could have been huge differences between the averages and the individual observations on market stock returns.

The study also reveals that much deviations on the Return on the S&P 500 Index for the period between 1986 and 2016. The values of the Return on the S&P 500 Index for the period between 1986 and 2016 remains to be close to average mean value. Hence, the stock market for the periods indicated have been stable. As it can be seen in the period between 1985 to 1990 Return on the S&P 500 Index had the lowest value this period the United states president was George H. W. Bush, and the ruling party was the Republican, while in the period between 2005 to 2010 under the leadership of President Barack Obama of the Democrat Party had the highest value of Return on the S&P 500 Index (Taleb, 2010). In 2016 many deviations in the stock market returns may have been caused by change of the United States administration. From the finding of this research, we agree with the hypothesis that the returns of the stock market do not show any Democratic or Republican premium.

Looking at the cumulative Abnormal Returns testing, we found that P-values of Sectorial stock market returns are very and thus we cannot reject the null hypothesis. In general, we accept that abnormal returns in association with the US presidential elections do not give significant effects and thus they are negligible. In all event window, the null hypothesis is not rejected since p-values are greater than 0.05. Also on cumulative Abnormal Volatility (CAV), the study ascertains

that the sectoral market returns are highly significant. Since all the p-values are less than 0.05, we reject the null hypothesis. Hence the market returns are highly volatile. It is true that the volatility of the stock market returns does not show any Democratic (or respectively Republican) premium.

The findings of this thesis will be significant to investors in the following ways: First, an investor who wants to invest in one of the sectors discussed in this thesis can apply the findings of this thesis in deciding the period on which he or she is going to invest. An investor could make use of the stock prices expected hike during the election period (Allvine, & O'Neill, 1980). Secondly, A simple buy-and hold strategy can be applied by the investors in investing in the portfolio. One can use this information to make more purchases of stock and sell after elections. An individual should invest between 10 to 5 days before the election and make the sales to one to three days after the election. The selling should not take place on a later date since it may affect stock prices leading to investment negativity.

The limitation of this study is that it used sectors rather than individual businesses. The study assumed that all business under each sector is similarly affected by presidential elections. This may be not true if the firm under the same sector provides different services or goods. Also, the study assumed that presidential elections are the only factor that affected market returns. (Bialkowski, et al., 2008). Therefore, we recommend future studies to use businesses rather sectors in their analysis. Also, we recommend that other factors be considered by future researchers (Nielsen, 2011).

6. References

- Addoum, J. M., & Kumar, A. (2012). Political Sentiment and Predictable Returns. *The Review of Financial Studies* 29(12), 1-48.
- Alesina, A. (1987). Macroeconomic Policy in a Two-Party System as a Repeated Game. *Quarterly Journal of Economics* 102 (3), 651-678.
- Allvine, F. C., & O'Neill, D. E. (1980). Stock Market Returns and the Presidential Election Cycle: Implications for Market Efficiency. *Financial Analysts Journal* 36(5), 49-56.
- Ataullah, A., Song, X., & Tippett, M. (2011). A modified Corrado test for assessing abnormal security returns. *European Journal of Finance* 17, 589–601.
- Baker, M., & Wurgler, J. (2006). Investor Sentiment and the Cross-Section of Stock Returns. *Journal of Finance* 61(4), 1645-1680.
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring Economic Policy Uncertainty. *Quarterly Journal of Economics* 131 (4), 1593-1636.
- Barberis, N., & Thaler, R. (2003). A Survey of Behavioral Finance. *Handbook of the Economics of Finance* 1(B), 1053-1128.
- Bechtel, M. M., & Fuss, R. (2010). Capitalizing on Partisan Politics? The Political Economy of Sector-Specific Redistribution in Germany. *Journal of Money Credit and Banking* 42 (2-3), 203-235.
- Berlemann, M., & Markwardt, G. (2006). Variable rational partisan cycles and electoral uncertainty. *European Journal of Political Economy* 22 (4), 874–886.
- Bialkowski, J., Gottschalk, K., & Wisniewski, T. (2008). Stock Market Volatility around National Elections. *Journal of Banking and Finance*, 32(9), 1941-1953.
- Blinder, A., & Watson, M. (2016). Presidents and the US economy: An econometric exploration. *American Economic Review* 106, 1015-1045.

- Bohl, M. T., & Gottschalk, K. (2006). International evidence on the Democrat premium and the presidential cycle effect. *North American Journal of Economics and Finance* 17(2), 107-120.
- Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of Computational Science* 2(1), 1-8.
- Booth, J. R., & Booth, L. C. (2003). Is presidential cycle in security returns merely a reflection of business conditions? *Review of Financial Economics* 12(2), 131-159.
- Brown, K. C., Harlow, W., & Tinic, S. M. (1988). Risk aversion, uncertain information, and market efficiency. *Journal of Financial Economics* 22(2), 355-385.
- Brown, S. J., & Warner, j. B. (1985). USING DAILY STOCK No capitals please, just stick to the samy layout everywhere RETURNS: The Case of Event Studies. *Journal of Financial Economics* 14 , 3-31.
- Carhart, M. M. (1997). On Persistence in Mutual Fund Performance. *The Journal of Finance Vol.52 No1*, 57-82.
- Chen, F., Hope, O., Li, Q., & Wang, X. (2016). Flight to Quality in International Markets: Investors' Demand for Financial Reporting Quality during Political Uncertainty Events. *Rotman School of Management Working Paper 2552173*, 1-65.
- Chesney, M., Reshetar, G., & Karaman, M. (2011). The impact of terrorism on financial markets: an empirical study. *Journal of Banking and Finance* 35, 253-267.
- Corrado, C. J. (1989). A non Parametric Test for Abnormal Security-Price Performance in Event Studies. *Journal of Financial Economics* 23, 385-395.
- Dournev, A. (2010). The Real Effects of Political Uncertainty: Elections and Investment Sensitivity to Stock Prices. *University of Iowa - Henry B. Tippie College of Business*, 1-55.
- Fama. (1998). Market efficiency, long-term returns, and behavioral finance. *Journal of Financial Economics* 49(3), 283-306

- Fama, F. E., Fisher, L., Jensen, M. C., & Roll, R. (1969). The Adjustment of Stock Prices to New Information. *International Economic Review* 10(1), 1-21.
- Fama, F., & French, R. (2015). A five-factor asset pricing model. *Journal of Financial Economics* 116, 1-22.
- Fama, E. F., & French, K. R. (2016). Dissecting Anomalies with a Five-Factor Model. *The Review of Financial Studies* 29 (1), 69-103.
- Fang, W. (2002). The effects of currency depreciation on stock returns: evidence from Five East Asian economies. *Applied Economics Letters* 9(3), 195-199.
- Fiorina, M. P. (1991). Elections and the Economy in the 1980s: Short- and Long-Term Effects. In M. P. Fiorina, *Politics and Economics in the Eighties* (pp. 17-40). Chicago: University of Chicago Press.
- Foerster, S. R., & Schmitz, J. J. (1997). The Transmission of U.S. Election Cycles to International Stock Returns. *Journal of International Business Studies* 28(1), 1-13.
- Forsythe, R., Nelson, F., Neumann, G. R., & Wright, J. (1992). Anatomy of an Experimental Political Stock Market. *The American Economic Review* 82(5), 1142-1161.
- Francis, P., Hasan, I., & Zhu, Y. (2013). The Impact of Political Uncertainty on Institutional Ownership. *Bank of Finland Research Discussion Paper* 27, 1-59.
- Gärtner, M., & Wellershoff, K. W. (1995). Is there an election cycle in American stock returns? *International Review of Economics & Finance* 4(4), 387-410.
- Gerber, A. S., Huber, G. A., & Washington, E. (2009). Party Affiliation, Partisanship, and Political Beliefs: A Field Experiment. *The National Bureau of Economic Research (NBER)*, 104 (4), 720-744.
- Gilpin, R. (2001). *Purpose of Economic Activity*. Princeton: Princeton University Press.
- Goodell, J. W., & Bodey, R. A. (2012). Price-earnings changes during US presidential election cycles: voter uncertainty and other determinants. *Public Choice* 150(3), 633-650.

- Goodell, J. W., & Vähämaa, S. (2013). US presidential elections and implied volatility: The role of political uncertainty. *Journal of Banking & Finance* 37(3), 1108-1117.
- Hayek, F. A. (1945). The Use of Knowledge in Society. *The American Economic Review* 35(4), 519-530.
- Henry W. Chappell, J., & Keech, W. R. (1986). Party Differences in Macroeconomic Policies and Outcomes. *The American Economic Review* 76 (2), 71-74.
- Hensel, C. R., & Ziemba, W. T. (1995). United States Investment Returns during Democratic and Republican Administrations, 1928-1993. *Financial Analysts Journal* 51(2), 61-69.
- Herbst, A. F., & Slinkman, C. W. (1984). Political-Economic Cycles in the U.S. Stock Market. *Financial Analysts Journal* 40(2), 38-44.
- Herron, M. C., Lavin, J., Cram, D., & Silver, J. (1999). Measurement of Political Effects in the United States Economy: A Study of the 1992 Presidential Election. *Economics and Politics* 11 (1), 51-81.
- Hibbs, D. A. (1986). Political Parties and Macroeconomic Policies and Outcomes in the United States. *The American Economic Review* 76 (2), 66-70.
- Hirsch, Y. (1967). *Stock Trader's Almanac*. Wiley, Web Site
- Hofschire, D. (2002). 2008 Elections: How Will the Stock Market Vote? *Fidelity Management and Research* 11, 1-4.
- Huang, R. D. (1985). Common stock returns and presidential elections. *Financial Analysts Journal* 41(2), 58-61.
- Ito, T. (1990). Endogenous Election Timings and Political Business Cycles in Japan. *Journal of Asian Economics* 1(1), 135-156.
- Jayachandran, S. (2006). The Jeffords Effect. *The Journal of Law and Economics* 49 (2), 397-425.
- Johnson, R. R., Chittenden, W. T., & Jensen, G. R. (1999). Presidential Politics, Stocks, Bonds, Bills, and Inflation. *The Journal of Portfolio Management* 26(1), 27-31.

- Jones, R. J. (2008). The State of Presidential Election Forecasting: The 2004 Experience. *International Journal of Forecasting* 24(2), 310-321.
- Jones, S. T., & Banning, K. (2009). US elections and monthly stock market returns. *Journal of Economics and Finance* 33 , 273-287.
- Jones, S. T., & Banning, K. (2009). US elections and monthly stock market returns. *Journal of Economics and Finance* 33, 273-287.
- Kaustia, M., & Torstila, S. (2011). Stock market aversion? Political preferences and stock market participation. *Journal of Financial Economics*, missing vol. and issue no. !!!! 98-112.
- Knight, B. (2006). Are policy platforms capitalized into equity prices? Evidence from the Bush/Gore 2000 Presidential Election. *Journal of Public Economics* 90 (4-5), 751-773.
- Kräussl, R., Lucas, A., Rijsbergen, D. R., van der Sluis, P. J., & Vrugt, E. B. (2014). Washington meets Wall Street: A closer examination of the presidential cycle puzzle. *Journal of International Money and Finance* 43 (1), 50-69.
- Levy, T., & Yagil, J. (2015). The 2012 US Presidential Election Polls And Stock Returns. *Business and Economic Research* 5(2), 66-74.
- Lewis-Beck, M. S. (1988). Economics and the American voter: Past, present, future. *Political Behavior* 10 (1), 5-21.
- Li, J., & Born, J. A. (2006). Presidential Election Uncertainty and Common Stock Returns in the United States. *The Journal of Financial Research* 29(4), 609-622.
- Markowitz, H. (1952). Portfolio Selection. *The Journal of Finance* 7 (add issue number between parantheses), 77-91.
- MacKinlay, C. (1997). Event Studies in Economics and Finance. *Journal of Economic Literature*, 35 N(1), 13-39.

- Miron, D., & Tudor, C. (2010). Assymmetric Conditional Volatility Models: Empirical Estimation and Comparison of Forecasting Accuracy. *Romanian Journal of Economic Forecasting* 3/2010, 74-92.
- Montone, M. (2014). Does the U.S. President Affect the Stock Market? *Erasmus University Rotterdam (EUR) - Erasmus School of Economics (ESE); Erasmus Research Institute of Management (ERIM); Tinbergen Institute*, 1-39.
- Ngobo, P.-V. (2011). Industry Versus Firm Effects: What Drives Firm Performance in Customer Satisfaction. *The University of Montpellier II, School of Business Administration*, 1-15.
- Niederhoffer, V., Gibbs, S., & Bullock, J. (1970). Presidential Elections and the Stock Market. *Financial Analysts Journal* 26 (2), 111-113.
- Nippani, S., & Medlin, W. B. (2002). The 2000 Presidential Election and The Stock Market. *Journal of Economics and Finance* 26(2), 162-169.
- Nordhaus, W. D. (1975). The Political Business Cycle. *The Review of Economic Studies* 42(2), 169-190.
- Oehler, A., Walker, T., & Wendt, S. (2013). Effects of election results on stock price performance: evidence from 1980 to 2008. *Managerial Finance* 39(8), 714 - 736.
- Pantzalis, C., Stangeland, D. A., & Turtle, H. J. (2000). Political elections and the resolution of uncertainty: The international evidence. *Journal of Banking & Finance* 24(10), 1575-1604.
- Pasquariello, P., & Zafeiridou, C. (2014). Political Uncertainty and Financial Market Quality. *Ross School of Business Paper* 1232, 1-51.
- Pastor, L., & Veronesi, P. (2012). Uncertainty about Government Policy and Stock Prices. *The Journal of Finance* 67(4), 1219-1265.
- Pathirawasam, C. (2011). The Relationship Between Trading Volume and Stock Returns. *Journal of Competitiveness* 3(3), 41-49.

- Powell, J., Shi, J., Smith, T., & Whaley, R. (2007). The persistent presidential dummy. *Journal of Portfolio Management* 33 (2), 133–143.
- Ramiah, V., Martin, B., & Moosa, I. (2013). How does the stock market react to the announcement of green policies? *Journal of Banking & Finance* 37, 1747-1758.
- Ramiah, V., Pham, H. N., & Moosa, I. (2017). The sectoral effects of Brexit on the British economy: early evidence from the reaction of the stock market. *Applied Economics* 49(26), 2508-2514.
- Riley, W. B., & Luksetich, W. A. (1980). The Market Prefers Republicans: A Myth or Reality. *Journal of Financial and Quantitative Analysis* 15(3), 541-560. Translate XV into 15
- Roberts, B. E. (1990). Political Institutions, Policy Expectations, and the 1980 Election: A Financial Market Perspective. *American Journal of Political Science* 34 (2), 289-310.
- Rogoff, K. (1990). Equilibrium political budget cycles. *American Economic Review* 80(1), 21–36.
- Sanders, D. R., Irwin, S. H., & Leuthold, R. M. (1996). Noise Trader Demands in Future Markets. *Office for Futures and Options Research* 96(2), 1-27.
- Santa-Clara, P., & Valkanov, R. (2003). The Presidential Puzzle: Political Cycles and the Stock Market. *The Journal of Finance* 58(5), 1841-1872.
- Siokis, F., & Kapopoulos, P. (2007). Parties, Elections and stock market volatility: evidence from a small open economy. *Economics & Politics* 19(1), 123-134.
- Stovall, R. H. (1992). Forecasting Stock Market Performance via the Presidential Cycle. *Financial Analysts Journal* 48(3), 5-8.
- Su, C. (2010). Application of EGARCH Model to Estimate Financial Volatility of Daily Returns: The empirical case of China. *The University of Gothenburg*, 1-38.
- Sy, O., & Zaman, A. A. (2011). Resolving the Presidential Puzzle. *Financial Management* 40(2), 331-355.

- Tian, G. G., & Ma, S. (2010). The relationship between stock returns and the foreign exchange rate: the ARDL approach. *Journal of the Asia Pacific Economy* 15(4), 490-508.
- Taleb, N. (2010). *Why did the Crisis of 2008 Happen?* Unpublished manuscript, New York University-Poly School of Engineering, New York, US
- Wisniewski, T. P., Lightfoot, G., & Lilley, S. (2012). Speculating on presidential success: exploring the link between the price–earnings ratio and approval ratings. *Journal of Economics and Finance* 36(1), 106-122.
- Wong, W.-K., & McAleer, M. (2009). Mapping the Presidential Election Cycle in US Stock Markets. *Mathematics and Computers in Simulation* 79(11), 3267-3277.