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# **Does the US Presidential election cycle impact Nordic stock returns?**

Evidence from Finland, Sweden, Denmark, and Norway

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**ABSTRACT:**

The US Presidential election cycle and its influence on the economy and stock markets is a widely studied upon phenomena. The significant power that the US President has over the Western world cannot be ignored from an economic viewpoint. The partisanship of US politics creates a great struggle between the two major parties, the Democrats and Republicans, where even a small number of votes may influence numerous aspects of life in the US and even internationally. The decision-making power of the US President has a significant impact, for instance on job creation, government spending, taxation, environmental policies, foreign trade, and global politics. In previous studies, there have been three major areas when studying the relationship between the US President and the stock market. The first line of study focuses on how the US Presidential election affects the stock market in the short-term. The second concentrates on how the four-year US Presidential election cycle influences stock market performance, whilst the final verdict is focused on the partisan effect on the stock market, in which stock market performance is evaluated based on the political party of the US President. Although the effects of the US Presidential cycle and the stock market are widely studied domestically, the emphasis on the international effects is minimal.

The purpose of this study is to examine whether the long-term effects of the US Presidential elections can be found in Denmark, Sweden, Finland, and Norway. The emphasis of this study is around the four-year election cycle and whether the empirical findings from the US markets spillover to the Nordic markets. The empirical tests are divided into three, one focusing on whether the stock market performance during the second year differs from the rest of the term. The second empirical test examines whether significant differences in market returns exist between the two halves of the Presidency, and finally whether US information variables influence Nordic stock markets. The monthly data applied in the empirical tests span from November 1992 to October 2020, covering seven Presidential terms.

The results convey that the US Presidential election cycle does not have an impact on the Nordic stock markets. Although the Nordic stock markets underperform during the second year of the US Presidency, the returns do not significantly vary across the overall cycle. Moreover, the Nordic stock market returns do not significantly differ between the two halves of the US Presidency. Finally, the ordinary least square regressions indicate that the US information variables have no significant explanatory power over the Nordic stock market returns.

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**KEY WORDS:** US Presidential elections, US Presidential election cycle theory, Political Cycles

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## 1 Introduction

Every four years the United States of America hold a Presidential election, an event which is followed extensively around the world. Millions of dollars in campaigns, daily news coverage and constantly shifting polls excite and interest millions of people around the world. From a dozen initial candidates, only one will emerge as the leader of the free world.

The US elections are a race between two major political parties, the Democrats, and the Republicans. The effects of the elections are far-reaching, due to the significant economic and political power of the United States. The President of the United States has a significant influence over environmental policies implemented, law enforcement and even regulatory actions that affect government spending (Oehler, Walker & Wendt, 2013). Belo, Gala and Li (2012) argue that on average the government spending, amounts to twenty percent of the US gross domestic product, thus affecting the cash flow of companies.

During the Presidential election period, investors follow and analyse shifts in both the polls and the policies of the Presidential candidates to adjust their positions and minimize political risk. Nippani & Arize (2005) recognize the relationship between political sciences and economics, arguing that they have a mutual impact on one another. An extensive body of literature has recognized the affiliation between the Presidential election and stock market performance (Hung, 2013). Alesina (1987) found that the policies related to taxation, government spending and social benefits between the two parties, the Democrats and Republicans, differ significantly.

Over the years, a cyclical pattern has emerged, which revolves largely around the same four-years as the US Presidential election. From this correlation has emerged the Presidential election cycle theory (Weldon, 2008). Although the Presidential election cycle theory, and its effects, are widely recognized in the US, there has been a limited number of studies testing whether the cycle-effects exist internationally. Previously only Foerster

and Schmitz (1997) have applied data from European indices to test whether similar fluctuations in market returns emerge internationally. Therefore, to find out whether the US election cycle has an effect in the Nordics, this study will apply monthly price index data from Denmark, Sweden, Finland, and Norway from November 1992 to October 2020.

## **1.1 Purpose of the study**

The purpose of this study is to examine whether the fluctuations around the US Presidential election cycle can be found in Nordic stock markets. Thus, this study aims to provide a comprehensive understanding of the basic principles behind the Presidential election cycle theory, by reviewing previous literature, and implementing empirical tests to discover whether similar patterns emerge in the Nordic stock markets.

The significance of the Presidential election cycle theory is two-fold. First, the theory greatly challenges the efficient market hypothesis, as it suggests that a potentially exploitable anomaly exists within stock markets. Furthermore, by applying the results observed, from previous studies provides a convenient way for investors to create excess wealth (Sturm, 2013). This study will analyse whether investors who are focused on Nordic stocks should consider timing the market around the Presidential elections, and thus generate excess returns in the long run.

The significance of this study is that to my knowledge, it is the first study to solely focus on the relationship between the US Presidential election cycle and Nordic stock market returns. Furthermore, this study will test whether the election cycle exists in Nordic indices by applying a more recent panel of data, as the latest study applying Nordic data is by Foerster and Schmitz (1997), who applied a panel of data from 1957 to 1996. Whereas this study will apply data from November 1992 to October 2020. This study will extend the analysis by Foerster and Schmitz (1997) who focused mainly on the international returns during the second year of the Presidential term, by adding tests focusing on the

two halves and whether Nordic stock returns deviate significantly depending on the halves.

The purpose of this study is to answer the following research questions:

1. Does the US Presidential election cycle influence Nordic stock market returns?
2. Do the stock markets in the Nordic countries underperform during the second year?
3. Do the Nordic stock market returns deviate between the first and second half of the US Presidential term?

## **1.2 Hypothesis development**

The US economy being the largest in the world, suggests changes in US economic policy and the globalization of the economy, should influence international economic and stock market performance. As discussed earlier, the political power of the US President has a significant impact on almost all aspects of life in the US, thus there is a likelihood that the policies implemented by the US President, regarding US employment, fiscal policy, taxation, or tariffs, will have international effects.

Hence, this study hypothesizes, that the correlation between the US political cycle and the US economy by Nordhaus (1975) exists within the Nordic stock markets. Moreover, studies by Allvine and O'Neill (1980) and Huang (1985) have found evidence of the Presidential election cycle affecting US stock market returns. Furthermore, evidence of the impact of the US Presidential election cycle on international stock returns has been found by Foerster and Schmitz (1997), thus leading to Hypothesis 1.

H1: The US Presidential election cycle impacts Nordic stock market returns.



Allvine and O'Neill (1980) found evidence that the stock market tends to generate weaker or even negative returns during the second year of the US Presidency. Between 1961 and 1978, Allvine and O'Neill (1980) found that the US stock market returns during the second year of the Presidential term were -15,2% on average, whereas the average annual return during the whole term was 6,3%. Similarly, after applying numerous variables in their regression analysis, Foerster and Schmitz (1997) concluded that the most consistent US information variable on international stock returns was the "Year 2" variable, which was a dummy variable proxying the second-year returns. Thus, the second hypothesis in this study is as follows:

H2: The Nordic stock markets underperform during the second year of the US Presidency.

Both Allvine and O'Neill (1980) and Huang (1985) found evidence of the stock markets during the second half of the US Presidential term outperforming the first half. Allvine and O'Neill (1980) applied a trading strategy, in which stock is bought during the last trading day of October during the second year, and sold on the last trading day of October, two years later. This trading strategy generated significant excess returns, in comparison to a simple buy-and-hold strategy, thus leading to the third and final hypothesis of this study:

H3: The Nordic stock markets generate greater returns during the latter half of the US Presidential term.

### **1.3 Structure of the study**

This study is structured as follows. The second chapter will introduce the main theoretical backgrounds relevant to this study, presenting theories and frameworks related to the Presidential election cycle theory, either by supporting or contradicting it. This chapter will also introduce a more in-depth discussion of the fundamental factors and ideas around the Presidential election cycle theory. Chapter three consists of a literature

review, in which results from past studies will be discussed and analysed. The third chapter is divided into two, the first half focusing on the previous studies that concentrate on the effects of the US Presidential election cycle in the US and the second part discusses the effects of the cycle from an internationally point of view.

Chapter four – data and methodology, will discuss which data is applied in the empirical part, and the justifications behind it. Then it will discuss the different tests and formulas applied in the empirical part, to review and justify the variables which are applied in the regression analysis. The fifth chapter examines the results obtained and discusses whether the US Presidential election cycle impacts the Nordic stock markets. Finally, the sixth chapter will conclude the study and suggest ideas for further research.

## **2 Theoretical background**

The following will discuss numerous financial theories related to the Presidential election cycle theory. Arguably one of the most significant financial theories, the efficient market hypothesis, made famous by Fama (1970), is largely contradicted by the Presidential election cycle theory, since it suggests that the capital markets operate efficiently, thus that one should not be able to, for instance, time the market.

The discussion about the efficient market hypothesis will be followed by a section on market anomalies, focusing on the ways in which market anomalies can be exploited to generate excess returns. The next section will discuss the relationship between the US President and the stock market, and the ways in which the US President influences the economy and the stock market. After discussing the relationship between the US President and the stock market, market timing will be examined, as it is one of the most fundamental aspects in the exploitation of the Presidential election cycle theory.

Finally, the main attributes of the US Presidential election cycle theory are examined, to provide an understanding on the ways in which the US election cycle influences stock market returns and the reasons behind the existence of the cycle. The understanding of the fundamental factors behind the theory are significant to comprehend the literary review and empirical analysis chapters.

### **2.1 Efficient market hypothesis**

The efficient market hypothesis refers to a theory made famous by Fama (1970) suggesting that on the long run the capital markets operate efficiently. According to Fama (1970), a market can be described as efficient, when prices always fully reflect available information. Fama (1970) argues, that the primary role of the capital market is to distribute the ownership of companies within an economy.

By making investment decisions, the market value of a company is constantly valued based on the current perception of market participants of a company's value at any given time. Market participants constantly utilize information affecting a company, which is then reflected on its market value. As mentioned previously, if the current prices of stocks are always reflecting all the information available, the market can be defined as efficient (Fama, 1970).

In efficient markets, the value of all assets in the market are based on all the available information. This belief of the markets being able to process and apply all the relevant information regarding an instrument is the basis of financial theory and legislation (Fama, 1965, 1970). According to Fama (1970) the efficient market hypothesis can be divided into three different stages: weak, semi-strong and strong form.

According to Fama (1970) weak form efficiency in the market suggests that the value of an instrument already reflects all its past prices. This is also referred to as the random walk model. This means that investors are not able to predict future stock prices by prior prices, making the utilization of technical analysis inapplicable.

Cootner (1964) defined the random walk theory by suggesting that if the price of a stock tomorrow is based on today's stock price, the value of the stock price tomorrow is based on today's price, rather than tomorrow's. By that token, the weak form of the efficient market hypothesis suggests that changes in stock prices are caused by new information, thus making period to period changes in stock prices statistically independent (Fama, 1970).

The semi-strong level of the efficient market hypothesis suggests that the stock prices fully reflect all obviously publicly available information, such as earnings and news about stock splits (Fama, 1970). Arguments by Malkiel (2005) support Fama, as he conveys that the prices of equities can often change without delay, on the appearance of new information. Therefore, Malkiel (2005) argues that investors are unable to generate above-

average returns with arbitrage opportunities, especially without exposing themselves to above-average risk. Furthermore, corroborating Cootner (1964), Malkiel (2005) argues that stock market movements are unpredictable, when not considering the long-run up-trend.

Contrary to the semi-strong level efficient market hypothesis, Dreman & Lufkin (2000) argued that stock prices tend to react to earnings for merely a year after the earnings announcement. Dreman and Lufkin (2000) discovered that companies announcing positive earnings surprises tend to move upward, whereas companies that experienced negative earnings surprises tend to move downward.

The strong form of market efficiency, like the semi-strong hypothesis, assumes that all obvious available information of the stock is reflected in its price. The significant difference between the semi-strong and strong level market efficiency is that the semi-strong assumption assumes that no individual has more access into crucial information related to the stock, and thus cannot receive higher profits by benefiting from the additional information (Fama, 1970).

The efficient market hypothesis, as discussed in the previous section, suggests that no individual market participant will be able to “beat the market” in the long run. According to the hypothesis, no market anomalies should exist in the market, as the markets are assumed to be efficient. Supporting Fama (1970), Malkiel (2005) suggests that the strongest evidence of market efficiency is the inability of professional investors to beat the market.

The following will discuss market anomalies and the ways in which anomalies in the market can be exploited to “beat the market”, which largely contradicts the efficient market hypothesis.

## 2.2 Market anomalies

Anomalies refer to deviations and irregularities in the market (Sawitri & Astuty, 2018). Moreover, Sawitri and Astuty (2018) suggest that a market anomaly can be defined as the cause of a deviation or irregularity in the efficient market hypothesis. By exploiting these deviations of the efficient market hypothesis, investors can generate abnormal returns, which contradicts the fundamental principle of the efficient market hypothesis, that suggests no individual is able to “beat the market”.

There are numerous market anomalies, each which diminish the accuracy and significance of the efficient market hypothesis. For example, Roll (1981) attempts to explain one of the most famous anomalies, the small firm effect. The small firm effect, according to Roll (1981) is that with the same level of risk, small companies tend to generate higher returns than large companies. This contradicts the efficient market hypothesis, as investors should try to benefit from this, thus removing the underlying arbitrage opportunity.

Arguably the most coveted anomaly, the January effect, largely contradicts the efficient market hypothesis. According to Haugen and Jorion (1996), the January effect refers to a disruption in the year-end prices of small stocks. Supporting other academics studying anomalies, Haugen and Jorion (1996) suggest that if the stock market were to be efficient, anomalies such as the January effect should be priced away by investors. Furthermore, ten years after Haugen and Jorion (1996) argued that the existence of the January effect had been persistent since its discovery 17 years ago, Haug and Hirschey (2006) still found evidence on the existence of the anomaly. The numerous studies around the January effect emphasize faults in the efficient market hypothesis, as these anomalies are largely known, yet investors can benefit from them.

As maintained previously, anomalies should not exist in efficient markets and the existence of anomalies is an example of the markets not operating efficiently. Booth and Booth (2003) studied the relationship between the Presidential election cycle and stock returns and found evidence of stock returns being significantly higher during the latter

half of the Presidency. According to Booth and Booth (2003), the excess returns during the latter half cannot be justified solely by business-condition proxies. Thus, Booth and Booth (2003) suggest that the Presidential election cycle is another anomaly that challenges the efficient market hypothesis.

### **2.3 The US Presidential party and the stock market**

As maintained previously, the effect that government spending has on the expected cash flows of companies is agreed upon by most economists (Belo, Gala & Li, 2013). Moreover, Belo, Gala and Li (2013) suggest that the uncertainty surrounding the effects of policies implemented by the President may have an effect on the rates that are applied when discounting future cash flows.

Adjei and Adjei (2017) argue, that the differences in the regulatory and fiscal policies implemented by the two major parties influence both the macroeconomy and the stock market. Santa-Clara and Valkanov (2003) and Bohl and Gottschalk (2006) found evidence supporting the Democrat premium, suggesting that the stock market generates excess returns under Democratic Presidency. The following will discuss the ways in which the President's administration affects stock returns and whether a partisanship effect exists in the markets.

The Republican Party often supports more conservative values and a laissez-faire approach regarding to economic policy implementation. This was evident for example during the Ronald Reagan era, as he even presented the following quote "Government's first duty is to protect the people, not run their lives". Therefore, industries providing goods and services that have malicious effects on for instance the environment or public health prosper during Republican Presidency.

Sabherval, Sarkar and Uddin (2017) suggest that "sin companies" operating in industries such as tobacco, alcohol and gaming perform better under a Republican leadership.

Another effect discovered through their research is that the volatility, which refers to the changes of the stock price around the mean price, is slightly higher during a Republican Presidency.

Riley and Luksetich (1980) studied the effects of Republican Presidency on the stock market and found that the stock market, tends to prefer a Republican President, at least in the short term. The effect is evident, as the robustness tests conducted by Riley and Luksetich (1980) portray a consistent, positive residual after a Republican victory and the opposite after a Democratic victory. Therefore, the myth that the stock market prefers a Republican President is supported by their tests.

The power of the US President should, in theory, have a significant effect on all aspects of life in the US. The substantial power justified the analysis of economic prosperity based on the political party in office. In theory, the laissez-faire approach, which is commonly associated with the Republican party, should support the economy. To an extent, this claim is supported by Riley and Luksetich (1980). Moreover, Santa-Clara and Valkanov (2003) found evidence that further supported the claim, as they discovered constant, significant excess returns under Democratic Presidency. Which suggests that investors are relatively sceptical of a Democratic President.

The relationship between the elected President and the stock market should be greatly influenced by the political party of the President. As discussed previously, the pronounced power of the President of the United States affects various aspects in business. Oehler, Walker and Wendt (2013) studied the effects of the electuary result on stock returns and discovered a decline in stock returns when a Democratic candidate is elected.

Santa-Clara and Valkanov (2003) studied the relationship between the political cycle, party effect and the stock market. Their study discovered that the excess returns are significantly higher when a Democratic President is elected. The results obtained by Booth and Booth (2003) somewhat support the suggestions by Santa-Clara and Valkanov



(2003), arguing that the excess returns under Democratic Presidency are evident in small stock portfolios, but no such effect is evident under large stock portfolios.

Santa-Clara and Valkanov (2003) tried to explain that the reason for the significant excess returns is caused by the investors being positively surprised by the policies made by the Democratic President, although the statement is only supported to an extent and is not able to fully justify the excess returns. Belo, Gala and Li (2013) found evidence supporting Santa-Clara and Valkanov (2003) regarding excess returns under Democratic administration but maintained that the party effect is significantly more concentrated in industries which are more exposed to government spending.

Alvarez-Ramirez, Rodriguez and Espinosa-Paredes (2012) studied whether evidence of distinctive characteristics based on the party in office can be identified in the stock market. According to Alvarez-Ramirez et.al (2012) the informational efficiency in the market is influenced by the party in power. Their study indicates that the informational market efficiency increases under Republican Presidency and decreases during a Democratic administration. This results in higher profitability in small stocks under a Democratic administration.

Belo, Gala and Li (2013) studied the effects of government spending and political cycles on stock returns. Although unable to find a significant difference in average stock returns under the two major political parties, when studying the returns of companies with heterogeneous governmental exposure – Belo, Gala and Li (2013) discovered that significant differences exist on the returns of companies with high government exposure. For instance, industries that are significantly affected by policy decisions, outperform companies with low exposure by 6,1% per annum, while under-performing 4,8% per annum under a Republican administration. The results obtained by Belo, Gala and Li (2013) remained even after controlling numerous variables, such as market value, book-to-market, momentum, beta and business cycle fluctuations.

## 2.4 Market timing

If markets were to operate efficiently, investors should not be able to time the market. Sharpe (1975) defines market timing as benefiting from the macroeconomic fluctuations, i.e., being in the bull market and stepping out in a bear market. According to Sharpe (1975) a year can be categorized as being “good” if the stock market returns, including dividends, provide greater returns than cash. Similarly, a “bad” year refers to the contrary, when holding cash equivalents provides greater returns than stocks.

Sharpe (1975) studied the benefits of market timing. Studying the returns of three investment strategies, one consisting of only holding cash equivalents, buy-and-hold and timing the market. Between 1929 and 1972, the investment strategy perfectly timing the market, i.e., only holding stocks during good years, generated returns of 14,86% p.a. on average, whilst the buy-and-hold strategy generated an average of 10,64% p.a.

Admittedly, the evidence of the superiority of market timing by Sharpe (1975) provides significant excess returns, but the study was done in retrospect. Due to the impossibility of perfectly timing the market, year in year out, Sharpe (1975) also studied the returns of less-than perfect market timing. Sharpe (1975) argued that asset managers who utilize market timing as an investment strategy, and whose success rate of predicting whether the year is going to be good or bad is less than 7 out of 10, should not attempt to time the market.

## 2.5 The Presidential election cycle theory

The US Presidential election cycle theory is a theory which suggests that the US stock markets follow the US Presidential elections in terms of returns. The fundamental principle behind the Presidential election cycle theory is the attempt to provide an explanation on a constant pattern of fluctuations in the stock market, which follows the four-year cycle of the Presidential elections (Wong & McAleer, 2009). The basis of the theory

follows numerous cyclical patterns that emerge around the President's administration. Although the Presidential election cycle is commonly seen as a four-year cycle, its actual length may vary from 40 to 53 months (Wong & McAleer, 2009).

The cyclical fluctuation in market returns around the Presidential election emerge as follows, the stock prices tend to decline during the first half of the President's administration, commonly creating a bottom during the second year, and then rising during the second half (Wong & McAleer, 2009). In his summary of the Presidential election cycle theory, Weldon (2008) suggests, that businesses prosper during the election year. The fundamental principle behind this belief is that the competing candidates often focus largely on making promises for the economy, for instance suggesting lower taxation and stable government policy (Weldon, 2008). Due to the promises given to the business environment, the stock market tends to prosper, thus creating the basis of the theory. According to Weldon (2008), during the past fifty years, a uniform pattern of highs and lows in the stock market has emerged, in fact, a total of thirteen identifiable stock market cycles.

Weldon (2008) provides a comprehensive summary on the basic principles behind the Presidential election cycle theory and the main reasons surrounding it. As mentioned previously, the campaigning candidates propose policies that are beneficial to the economy, such as suggesting increases in taxation and governmental spending that may harm the probability of the candidate being elected.

During the year following the elections, in what Weldon (2008) calls the "honey-moon" period, the voters generally act in a euphoric manner, waiting for the accomplishments of the recently elected President. According to the theory, during the first year, the newly elected President commonly begins introducing new policies. According to Weldon (2008), the common tendency to implement the new policies during the first year is due to the next election being so far in the future, that voters may forget the new policies that affected them negatively.

Due to the implementation of new policies, which often involves increases in taxation and higher government spending, the profits accumulated by businesses begin to decrease. The decline in earnings generated by businesses then have a negative effect on stock prices (Weldon, 2008). The decline in stock returns commonly reach the bottom during the second year, as evidence by Weldon (2008), Foerster and Schmitz (1997) and Wong and McAleer (2009) all obtain results indicating that the stock market underperforms during the second year.

After hitting the bottom, Weldon (2008) suggests that the President's administration tends to take a more voter-friendly approach in policymaking, as the administration begins to anticipate the upcoming election. The new approach commonly takes a more conservative stance, which results to a decline in new taxes and policies, requiring governmental spending. Therefore, the theory suggests that after the second year, markets begin their recovery that will last until the new election, where the cycle starts again (Weldon, 2008).

### **3 Literature review**

The previous segments provided a comprehensive background of the theories related to the Presidential election cycle theory. According to the efficient market hypothesis, the prices of securities yesterday should not affect the prices of securities tomorrow. As discussed in the previous chapter, anomalies should not exist in efficient markets. However, academics have found numerous anomalies, which are well-known and yet still provide an arbitrage opportunity to investors. The following will discuss one of the anomalies, the Presidential election cycle theory.

Through a thorough review of previous literature, this chapter will provide a great understanding of the underlying principles of the US Presidential election cycle theory and its effects both domestically and abroad. This chapter will also discuss the excess returns generated when exploiting the Presidential election cycle and provide a comprehensive understanding of the reasons why it exists. Moreover, it will provide an in-depth analysis of how the Presidential election affects the US stock market, and how investors may exploit this so-called anomaly.

In the modern day, investors have a greater access to international markets than even before. Thus, this section will also discuss the previous literature on how the US Presidential election cycle affects international stock markets. The following chapter is divided into two, the first section reviewing previous evidence from the US markets and the latter, discussing the relationship between the US Presidential election cycle and international markets.

#### **3.1 The US Presidential election cycle and US stock markets**

The relationship between US stock returns and the 4-year cycles of the Presidential election has been largely analysed. Evidence of the existence of the cycle and its effects on the stock market are found by Huang (1985) Hensel and Ziemba (1995), Weldon (1996),

Booth and Booth (2003) and Wong and McAleer (2009). The previously mentioned studies found a statistically significant difference in stock returns between the first and second half of the President's administration.

The inclination of increases in stock returns during the latter half of the Presidency is acknowledged by Hensel and Ziemba (1995), Booth and Booth (2003) and Zhao, Liano and William (2004), whom all obtained results indicating higher stock returns during the latter half. The adapted approach often results to greater confidence in the market, which continues up until the post-election period as the new President begins to apply the new political agenda (Sturm, 2011).

Nordhaus (1975) provided a gateway to the numerous studies around the political business cycles that followed. Nordhaus (1975) found a predictable and unilateral pattern in policy changes around the Presidential term. Corroborating the arguments presented by Weldon (1996), Nordhaus (1975) that suggest the Presidential term often begins with somewhat rigorous policies and ends with "potlatch" policymaking.

Allvine and O'Neill (1980) were one of the first to conduct a study around the Presidential election cycles and stock market returns. According to Allvine and O'Neill (1980), the macroeconomic policy in the US experienced a significant change following 1960. Allvine and O'Neill found that between 1961 and 1978, the average annual returns of each of the four years of the Presidential term were as follows, 3,6%; -15,2%; 21,7% and 15%. Similar to the studies that followed, Allvine and O'Neill (1980) found that the probability of stock prices rising during the latter half of the Presidency was significantly higher when compared to the first half.

Allvine and O'Neill (1980) applied a trading strategy, in which stock was bought on the last trading day of the October of the second year of the Presidency and selling the stock approximately two years later, during the last trading day of October, prior to the election. By utilizing this simple trading strategy, Allvine and O'Neill (1980) were able to

generate an average annual return of 5,39%, which greatly outperformed the buy-and-hold strategy which generated 2,08% per annum.

Allvine and O'Neill (1980) suggest that the Presidential election cycle theory is a clear contradiction of the efficient market hypothesis. They applied two time-periods of data, one from 1960 to 1978 and one from 1966 to 1978. The reason for the two sets of data is that the political power over the US economy grew significantly during the 1960s, starting from the Presidency of John F. Kennedy. During the time-period of 1966 to 1978, buying and holding the S&P 400 generated 0,38% per annum, whereas the alternate trading strategy, exploiting the Presidential election cycle theory, generated 5,94% per year.

Huang (1985) studied the connection between US Presidential elections and common stock returns. The results obtained by Huang (1985) corroborate the observations presented by Allvine and O'Neill (1980). Between 1961 and 1980, Huang (1985) found that the average annual differences between the two halves exceeded 24%. Furthermore, both Allvine and O'Neill (1980) and Huang (1985) recognized that the political power over the economy has increased since 1960.

Huang (1985) also tested the effect that the political party of the President has on the emergence of the higher returns during the latter half of the Presidency and argued that the cycle is evident under both political parties. Moreover, Huang (1985) found that the emergence of the pattern has been more pronounced since the 1960s.

Huang (1985) applied two trading strategies, one where the investors invest in treasury bills during the first half of the Presidency and in common stocks during the latter half, and one where the investor solely invests in common stocks. From the two strategies, the first, significantly outperformed the simple buy-and-hold strategy. Additionally, Huang (1985) obtained results claiming that the Presidential election cycle is evident

under both Democratic and Republican administrations, yet the effects were even more pronounced under a Democratic Presidency.

Stovall (1992) studied a period from the beginning of the 20<sup>th</sup> century to the 1990s, finding only one example to which a significant decline in the stock market occurred in the election year, which occurred during Herbert Hoover's Presidency in the late 1920s. However, Stovall (1992) argues that even despite the great stock market crash of 1929, the stock market did rally during Hoover's final months, which is in line with the Presidential election cycle theory, which Stovall called the Quadrennial Market Cycle. Unlike many others who have studied the cycle, Stovall (1992) suggested that the reason for the existence of the cycle is caused by hopeful and prosperous investors whom either anticipate a re-election to a popular President, or the change in power of an unpopular President.

Gärtner and Wellershoff (1995) studied whether political business cycles exist in the US. They applied various election dummy variables and macroeconomic variables, five different US stock indices and tested whether the political party of the President influenced this anomaly. By applying data from 1961 to 1992 of the following indices, the S&P 500, S&P 500 with dividends, Nasdaq composite index, the Dow Jones industrial average and a small-capitalization-index, Gärtner and Wellershoff (1995) found a somewhat identical pattern emerging in all five indices. Moreover, when applying a variable testing whether the party of the President influences returns, Gärtner and Wellershoff (1995) found no statistically significant difference between the two parties, which conveys that the Presidential election cycle influences stock returns under both administrations.

Similar to Allvine and O'Neill (1980), Gärtner and Wellershoff (1995) wanted to test whether exploiting the existence of the Presidential election cycle generates excess returns. Gärtner and Wellershoff (1995) tested the returns generated of five different trading strategies, buy-and-hold, long or out (*ex post*), long or out (*ex-ante*), long or short (*I*)



or long or short (*II*). The buy-and-hold strategy, i.e., the benchmark, generated an average annual return of 5,2%.

The alternative trading strategies suggested by Gärtner and Wellershoff (1995) generated significantly higher returns on average, conveying that it is possible to outperform the market, contradicting the efficient market hypothesis. Furthermore, Gärtner and Wellershoff (1995) argue that the alternative trading strategies that exploited the Presidential election cycle theory, generate excessive returns for investors, despite any conceivable transaction costs.

Gärtner and Wellershoff (1995) further suggested that their study provides a significant insight on the predictive powers that market participants may have. Previous studies had maintained that by reacting to news, investors may outperform the overall market. However, their evidence conveys that investors may react prior to the news, and thus outperform the market. When utilizing similar regressions for five indices, the S&P 500, S&P 500 including dividends, the Nasdaq, the Dow Jones, and a small-cap index; Gärtner and Wellershoff (1995) found an almost identical pattern in each index. Moreover, Gärtner and Wellershoff (1995) found that the non-linear specification outperforms the linear specification significantly, arguing that it explains 14 to 18% of the variations in stock returns. Moreover, the authors did not find any effect of the dividends on their results.

Weldon (1996) applied data from the S&P 500 index – which consists of the stocks of the 500 largest companies in the US based on its market value at any given time. Although the S&P 500 does not represent the US economy, it is one of the two most followed economic indicators alongside the Dow Jones Industrial Average. During a 50-year period, Weldon (1996) discovered a uniform relationship between the stock market cycles and the Presidential election cycles. During the thirteen terms studied, the market was at its lowest during the first and second year of the four-year period 92 percent of the time, which supports the theory.

As previously mentioned, Weldon (1996) found that during the thirteen Presidential terms, 92% of the stock market lows occurred in the first half of the Presidency. From the lows in the first half of the Presidency 25% occurred in the first year and 75% occurred in the second year, which largely supports the findings of Foerster and Schmitz (1997). Furthermore, Weldon (2008) found that most of the lows in the second year occurred either during the second or third quarter of the calendar year. During the 13 Presidential terms, the only outlier in the cycle lows occurred during the “Black Monday” of 1987, which occurred during the third year of the Presidency (Weldon, 1996). According to Weldon (1996) this outlier may be ignored, as the market crash during Black Monday was a result of mechanical stock market factors.

When analysing the other end of the cycle, Weldon (2008) found that the stock market highs occurred 85% of the time during the latter half of the Presidential term. The two outliers found by Weldon (2008) can be justified by significant changes in the political environment. The first deviation was caused by the immediate aftermath of the Second World War and the second was caused by the resignation of President Richard Nixon.

The results obtained by Foerster and Schmitz (1997) confirm the accuracy of the previous research, from which they deduct that the US stock market does follow the Presidential cycle. Foerster and Schmitz (1997) found that US and international stocks underperformed during the second year of the Presidency, in relation to years 1, 3 and 4. According to Foerster and Schmitz (1997) the US stock market generated an average of 20,5% during the third year of the Presidential term, 9,5% during the election year and 4,2% on the year following the election. Furthermore, they found that the average annual return during the second year of the term was -2,9%.

Wong and McAleer (2009), found evidence that the incline in stock prices is especially evident under Republican administration, as Republicans have a higher tendency to manipulate policy to win re-election, than their Democratic counterparts. The findings of Wong and McAleer (2009) are substantiated by Nordhaus (1975), who suggested that

political business cycles are commonly manipulated by campaigning political parties, to increase the likelihood of winning the elections.

Booth and Booth (2003) found, that after controlling factors that may affect the overall business conditions, such as dividend yield, default spread and term spread – the latter half of the Presidency still generate excess returns. Moreover, Booth and Booth (2003) argued, that the stock returns during the latter half exceed the returns of the first half, when controlling whether the President is serving a second term.

Booth and Booth (2003) studied whether the Presidential election cycle in security returns is solely a product of business conditions, by studying whether the cyclical pattern over the election cycle can be justified through economic and monetary factors. Booth and Booth (2003) applied a panel of data from 1803 to 1996 and found that the average returns per annum during the first half of the Presidency were 6,4% and 12% on the latter half. By testing different subperiods, Booth and Booth (2003) found that the existence of the pattern was even more pronounced during the 1926-1996 and 1946-1996 periods, where the difference of security returns during the two halves was more than double during the latter half.

Booth and Booth (2003) further tested whether inflation can explain the significant differences in stock market returns between the two halves, finding no evidence, to whether a pattern emerges in long- and short-term interest rates. This indicates that the greater stock market returns during the latter half cannot be explained by higher inflation. Moreover, Booth and Booth (2003) applied different business cycle proxies, which did not have an explanatory value for the emergence of the Presidential election cycle in market returns. They applied measures such as the dividend yield, default spread and term spread, of which none could diminish the effects of the Presidential election cycle on stock returns.

When studying the robustness of the Presidential election cycle and numerous economic variables, Booth and Booth (2003) discovered that one factor that may explain the emergence of the cycle is that the party in power commonly alters its economic policy when the time of the election comes closer, thus affecting stock returns. Moreover, whether the President is incumbent or nonincumbent does not affect the emergence of this pattern (Booth and Booth, 2003). This indicates that the pattern will emerge, even when controlling whether the Presidential term is first or second.

Wong and McAleer (2009) found evidence that the new policies implemented during the President's first year commonly increases taxes, involves more government spending and regulations – which then have a negative effect on the profits generated by businesses. Therefore, the earnings tend to decline as well. The number of policies implemented by the President commonly slows down during the second year in office, when the President begins to implement more voter-friendly policies (Wong & McAleer, 2009).

Wong and McAleer (2009) suggest that policy makers make promises of lower taxation and stable government policies, to convince the public that the economy will prosper under the candidate's administration. Therefore, the stock market, which can be viewed as the leading indicator of the macroeconomy, tends to prosper during the election year (Wong & McAleer, 2009).

As previously discussed, Nordhaus (1975) suggests political parties commonly manipulate political business cycles to win the election. Nordhaus (1975) further argues that regardless of the political party, the President's administration often stimulates the economy prior to the election. Wong and McAleer (2009) argue that the empirical results suggest, that to win the election, the Republicans tend to stimulate the economy in a more pronounced way, when compared to the Democrats. Despite the more pronounced policy manipulation to stimulate the economy, the stock market tends to perform better under Democratic administrations (Wong & McAleer, 2009).

Nguyen and Roberge (2008) found supporting evidence to that portrayed by Weldon (2008). Corroborating Weldon (1996), Foerster and Schmitz (1997), Hensel and Ziemba (1995) and Wong and McAleer (2009), Nguyen and Roberge (2008) found that the average return per annum was significantly higher during the latter half of the Presidency. Similarly, Johnson, Chittenden and Jensen (1999) analysed the returns of S&P 500 and small stocks, finding evidence of both being higher during the latter half of the Presidency.

When analysing the average annual returns of years three and four, Nguyen and Roberge (2008) found only one negative year since 1954. During the same time-period, Nguyen and Roberge (2008) observed a negative first year six times and a negative second year five times. Additionally, Nguyen and Roberge (2008) argue that the averages are not compelled by outliers.

According to Sturm (2013), previous research has not been able to provide a clear and distinctive reason for the existence of the Presidential election cycle. Stovall (1992) suggests that the definitive reason for the outperformance of the stock market during the final quarters of the President's administration is that the administration and the Federal Reserve are more accommodating in their fiscal policy, whereas they are at their strictest during the early quarters of the Presidency.

Sturm (2013) studied whether fiscal policy or monetary policy is the reason behind the existence of the Presidential election cycle theory. As discussed previously, numerous studies suggest that the President's administration utilized its fiscal policy to stimulate the economy. Sturm (2013) suggested that although the argument regarding fiscal policy seems plausible, monetary policy should not have an impact on the Presidential cycle, due to the Federal Reserve's autonomy. Similar to previous studies, Sturm (2013) also obtained results suggesting that the stock market outperforms during the latter half, but the third year of the Presidential term was the strongest.

When studying whether evidence of a relationship between fiscal policy and the Presidential election cycle theory exists, Sturm (2013) found none, which contradicts the arguments presented in previous literature. Then Sturm (2013) tested whether monetary policy affects the Presidential election cycle theory, obtaining no evidence for this being the case. Sturm (2013) discovered that of the 16 tax acts implemented during the period of study, 11 (68,75%) were implemented during the first year of the Presidency. Therefore, Sturm (2013) suggested that tax legislation may be the explanatory factor behind the Presidential election cycle theory. Furthermore, Sturm (2013) contradicts many of the previous studies by concluding that the stock prices influence economic policy and not vice versa. Moreover, Sturm (2013) suggests that the strongest explanatory power behind the Presidential election cycle theory is tax legislation.

Zhao, Liano & William (2004) suggest that one reason for the existence of the Presidential election cycle theory is that the President's administration often stimulates the economy through fiscal, economic, and administrative policies during the second half of the Presidency, to increase the chances of the incumbent party being re-elected. Booth and Booth (2003) studied the robustness of the Presidential election cycle and numerous economic cycle variables. They suggest that one explanatory factor for the cycle is that the party in power commonly alters its economic policy when the time of the election comes closer, which in turn affects stock returns. Aligned with Weldon's (1996) results, Shaikh (2017) argued that the stock market has a tendency of rallying during the election year. Shaikh (2017) further suggests that the market tends to rise after the winner of the election is announced.

Oehler, Walker and Wendt (2013) discovered a significant relationship between the elections and the stock market. For instance, the stock market reacts more strongly when the party in office changes. This means, that when a candidate is elected from a different party than the one currently holding office, the stock market reaction is larger than when a candidate is re-elected, or when the new President represents the same party as the previous.

Further evidence regarding the effects of the Presidential election on the US stock market was discovered by Jones (2008), as he found that the volatility in the stock exchange increases during an intense competition between candidates. Moreover, according to Julio and Yook (2012) a tight competition between candidates has a decreasing effect on the number of investments made by companies. As the uncertainty of which candidate will be elected increases, it correlates to the investment uncertainty of companies.

According to Sturm (2013) the evidence supporting the existence of the Presidential election cycle is perplexed, as it largely contradicts the efficient market hypothesis. Sturm (2013) suggests, that if markets operated efficiently, the relationship between the Presidential cycle and the stock market should not exist, as it is a clear form of arbitrage. Sturm (2013) argues that the Presidential election cycle should not exist, since investors with the knowledge of how to time the market around the cycle would be arbitrated away, as investors would act in advance to benefit from the upcoming cycle.

### **3.2 The US Presidential election cycle and international stock markets**

The globalization of businesses has increased the correlation between the economic performance of companies. As the largest economy in the world, the political changes in the US have significant effects on the performance of companies globally. The following will examine whether the Presidential cycle in the US influences the stock markets outside the US. Although the effect of the Presidential election cycle theory on the US stock market is largely analysed, the number of studies regarding the US Presidential election cycle and international stock markets is lacking.

Foerster (1994) studied the election cycles in the US and Canada. According to Foerster (1994) the study conveyed that the significance of the political cycle is international, and the effects can be observed further than solely in the US. Foerster (1994) also argues that the impact of the US Presidential election cycle is at least as significant on the Canadian stock market performance as the Canadian election cycle. Studies conducted by

Foerster and Schmitz (1997) and Nippani and Arize (2005) found that the Presidential elections in the US do have a significant effect on stock markets outside the US. Nippani and Arize (2005) found that the delay in the announcement election results during the 2000 US Presidential elections has a negative effect on Mexican and Canadian stocks.

Foerster and Schmitz (1997) studied the US Presidential cycle and stock returns of 16 countries between the years 1957 and 1996. The tests conveyed that during the 39-year period, the stock returns during the second year, on average, were -0,66%. When testing the average annual returns of the years 1, 3 and 4, the returns were 11,68% for the same time-period. The results obtained by Foerster and Schmitz (1997) are in line with the results found from US stocks.

Foerster and Schmitz (1997) applied numerous variables, regarding for instance both local and US macroeconomies and US monetary and fiscal policy, and found that the results were robust. Moreover, Foerster and Schmitz (1997) distinguished the existence of a statistically significant relationship between the US Presidential election cycle and international stock returns in most of the sixteen countries they analysed.

The results obtained by Foerster and Schmitz (1997) to an extent challenge Cosset and Suret (1995) suggesting that local political risk can be diversified by holding equity from numerous different countries. Cosset and Suret (1995) argued that diversifying an international portfolio into numerous politically risky countries may increase the overall risk-return ratio. This is challenged by Foerster and Schmitz (1997) as they find evidence that the US Presidential election cycle is a non-diversifiable political variable. If true, investors with international equity portfolios should not be able to generate an excess risk-return ratio by international diversification, as suggested by Cosset and Suret (1995).

Foerster and Schmitz (1997) studied the monthly returns of 16 countries by dividing the years into four categories, each representing one year of the four-year term of the US President. Their studies showed that the average return during the second year was the



lowest in all sixteen countries except Italy. Furthermore, in eleven of the sixteen countries studied – the average returns during the second year of the term were negative. In twelve of the sixteen countries the average returns in the third year were the highest. The difference in the average returns during the second and third year is astonishing, as the average returns in all sixteen countries were -0,7% and 13,8% respectively. This indicates that the US election cycle cannot be hedged geographically, challenging Levy and Sarnat (1970).

Foerster and Schmitz (1997) tested whether the average annual returns during the second year of the US Presidential term were greater than or equal to the returns during years 1, 3 and 4. The results indicated that at a 10% significance level, the average returns during the second year were significantly lower than during the rest of the years in fourteen of the sixteen countries analysed.

Foerster and Schmitz (1997) found no evidence of a pattern in standard deviation risk around the Presidential cycle, indicating that although there is significant evidence of an election cycle in most of the international markets studied, it is not the case regarding risk. Corroborating Nordhaus (1975), investors become myopic prior to the election, Foerster and Schmitz (1997) suggest the same in international stock returns as well.

Similar to Foerster and Schmitz (1997), Hung (2013) studied the effects of the US Presidential elections on the Taiwanese stock market and found that the monthly average returns were the lowest during the second year of the Presidential election cycle, which is aligned with the previous results. However, the *t-test* conducted did not portray a statistically significant difference in the returns, which depicts that there is not a significant correlation between the US Presidential election cycle and the returns of Taiwanese stocks.

Likewise, the robustness tests conducted by Hung (2013) do not provide statistically significant evidence to support the following hypotheses tested: the bull-run election effect

of the US Presidential elections in Taiwan and the party effect in the Taiwanese stock market. Similarly, Hoe and Nippani (2017) studied the effects of the 2016 Presidential elections on Chinese stock markets. The indices of study were the three largest indexes in China, the SHCOMP, SZCOMP and SHSZ300. Robustness tests conducted on all three indexes portrayed no significant effect between the election results and stock market returns. Hoe and Nippani (2017) suggested the following reasons for the deficiency of effects, the lack of sophistication amongst investors and the potential manipulation of information in China, as the negative information was potentially monitored.

Contradicting results were obtained in a study conducted by Sultonov and Jehan (2018), finding that the US Presidential elections have a statistically significant effect on the stock performance in the Japanese stock market. The findings suggest that the investors in Japan follow political changes extensively which creates significant changes in the stock market. Moreover, the statistically significant effect conveys a dynamic interdependence of the Japanese economic prosperity and foreign political deviations.

Nippani and Arize (2005) focused their study of the US Presidential elections on the stock markets of its neighbouring countries, Mexico, and Canada. During the Presidential elections of 2000, there was a delay on the announcement of the results. Nippani and Arize (2005) found that during the seven-day delay, both Canadian and Mexican stock markets were impacted negatively. This indicates that both, Canadian and Mexican investors followed the elections closely. Bohl and Gottschalk (2006) studied whether the Presidential election cycle affects stock returns globally. From a panel of data of fifteen countries, Bohl and Gottschalk (2006) found supportive, but non-robust results of the domestic Presidential election cycle affecting only Austria, Canada, and the Netherlands.

The evidence whether the US Presidential election cycle influences stock markets outside the US are two-fold. The results discussed previously convey that the US Presidential elections influence stock markets outside the US in some instances, for example in Mexico, Canada, and Europe, but no statistically significant evidence is found in China or

Taiwan. The next chapter will discuss the data and methodology applied in the empirical part to test whether the US Presidential election cycle impacts Finnish, Swedish, Danish, and Norwegian stock markets.

## 4 Data and methodology

The following chapter will discuss the data and methodology applied to test whether the US Presidential election cycle theory is applicable in Nordic stock markets to generate greater returns than a buy-and-hold strategy. To determine this, stock market data from Finland, Sweden, Denmark, and Norway is applied. In this study, the stock market data from Iceland is ignored, due to the limited number of companies listed in Nasdaq Iceland.

### 4.1 Data

The data consists of the following Nordic price indices (PI): OMX Helsinki 25 (OMXH25), OMX Stockholm 30 (OMXS30), OMX Copenhagen 20 (OMXC20) and Oslo Stock Exchange OBX (OSLOOBX) (Thomson Reuters, 2021). To test similar trading strategies, as Foerster and Schmitz (1997), monthly data is used. The decision to utilize these indices, rather than indices portraying all shares listed within an exchange is two-fold. First, the common exchange traded funds tend to benchmark the largest companies in the index. Second, the largest companies in the indices are more likely affected by globalism, as the customer base of these companies, which are either the largest by market capitalization or most traded, are more exposed to global risks. The data will span from 2<sup>nd</sup> of November 1992 to 30<sup>th</sup> of October 2020. A total of four Presidents held office for seven Presidential cycles during the time-period of this study.

As discussed in the previous literature chapter, the effects of the Presidential election cycle on the stock market can be tested in two ways. In this part, both tests are conducted, one finding out whether there is a statistically significant difference in stock market performance between the two halves of the Presidency, and one whether a relationship exists between an individual year and stock performance. Some studies, such as Hensel and Ziemba (1995) tested the average returns of stocks in both ways, per half-term and per year.

First, this study will focus on the average returns during each individual year. Studies by Foerster and Schmitz (1997), Booth and Booth (2003) and Weldon (2008) found a distinctive pattern in average stock returns by year. Therefore, like Foerster and Schmitz (1997), the data from each index is divided into four distinctive periods of time, so that the first year begins from the first trading day in November of the election year and ends on the last week of trading during the October of the following year. All the subsequent years during the Presidential term are divided in the same manner. Then, to test the second hypothesis, the data is split into two samples, to the second year and to the rest of the years.

According to Foerster and Schmitz (1997), the average annualized returns during the second year of the Presidency are lower than throughout the whole cycle, and in many countries the market returns during the second year are negative. Thus, to test whether this second-year effect can also be found in the Nordic markets between 1992 and 2020, the average annualized monthly returns are benchmarked on years 1, 3 and 4.

After testing whether Nordic stock markets underperform during the second year, the focus is set on determining whether a statistically significant difference exists in the returns between the two halves of the Presidency. The policies implemented by the US President differ largely between the two halves. For instance, Sturm (2013) argued, that most new taxation acts are implemented during the first half of the Presidency. Whereas Weldon (2008) explained that during the second half of the Presidency, the US President commonly introduces a more voter-friendly approach, which often creates prosperity in the market.

The results obtained from numerous studies from the US markets have provided compelling evidence of the existence of a Presidential cycle in stock returns, which motivated me to test whether such pronounced differences between the two halves in stock returns existed in the Nordic markets. Hence, the data is split into two, one spanning from the first trading day in November of the election year until the last trading day of October

during the President's second year. The second sample covers the latter half of the Presidency, from first trading day of November during the second year, up until the last trading day of October during the election year.

## 4.2 Methodology

As mentioned previously, the analysis will apply monthly price index data. To determine whether the US Presidential election cycle is evident in Nordic stock markets, a *t-test* is applied. First, like Booth and Booth (2003) the Presidential cycle is divided into four years. Then the mean and standard deviation of annual returns during each year of the Presidential term is calculated. The mean and standard deviation of annual returns are calculated for all four indices, separately.

**Table 1. Term, election year, the respective President, and their party during the time of this study, which spanned from November 1992 to October 2020.**

Term	Election Year	President	Party
52	1992	Bill Clinton	Democrat
53	1996	Bill Clinton	Democrat
54	2000	George W. Bush	Republican
55	2004	George W. Bush	Republican
56	2008	Barack Obama	Democrat
57	2012	Barack Obama	Democrat
58	2016	Donald Trump	Republican

#### 4.2.1 t-test

Similar to Foerster and Schmitz (1997), a *t-test* is applied in order to determine whether the means of two individual samples differ from each other. To test whether the stock market acts efficiently throughout the Presidential election cycle, the means of both samples should be the same. The formula of the *t-test* is presented below.

$$t = \frac{\bar{x} - \mu_0}{s / \sqrt{n}} \quad (1)$$

Where  $\bar{x}$  represents the average annualized monthly returns of the second year of the Presidential election cycle in Table 3, and the average annualized monthly returns of the first half of the Presidency in Table 4. The symbol  $\mu_0$  represents the average annualized monthly returns of years 1, 3 and 4 of the Presidential term in Table 3 and the second half of the US Presidential term in Table 4. In the *t-test*,  $s$  represents the standard deviation of the sample, and  $n$  the number of observations in the sample. The *t-test* will convey whether the two means of the two samples have a significant difference, where the assumption is that the means of the two samples are the same, if the markets were to operate efficiently. The probability value,  $p$ , is presented in both tables.

#### 4.2.2 F-Test

The *F-test* was applied by Foerster and Schmitz (1997) to determine whether the variance in annualized monthly stock returns during the second year of the US Presidential term and years 1, 3 and 4 differ significantly. In this study, the *F-test* is applied to determine whether significant differences in variance exist between year 2 and years 1, 3 and 4 (in Table 3) and between halves 1 and 2 (in Table 4). The formula for the *F-test* is as follows:

$$F = \frac{\sigma_1^2}{\sigma_2^2} \quad (2)$$

The *F-test* will convey whether the variances of the two samples differ in a significant way. The null hypothesis of the test expects the variances of the two samples to be the same, or  $\sigma_1^2 = \sigma_2^2$ .

#### 4.2.3 Wilcoxon Rank Sum Test

Similar to Foerster and Schmitz (1997), the Wilcoxon Rank Sum Test was applied to determine whether the differences in medians of the annualized monthly returns differ significantly between the second year in office when compared to years 1, 3 and 4 in Table 3, and between the two halves of the Presidency in Table 4. Contrary to the standard *t-test*, which was discussed previously, the Wilcoxon Rank sum test focuses on the medians of the samples, rather than means. The results from the Wilcoxon Rank Sum test are presented as probability values.

#### 4.2.4 Conditional expected return model

Similar to Merton (1973), Cox, Ingersoll and Ross (1985) and Foerster and Schmitz (1997), the conditional expected return model is applied. To test both the unconditional expected stock returns around the US election cycle, the previous three tests are applied, whereas the tests that follow are applied to determine whether the second year or the first half of the Presidential cycle is a significant factor in determining expected stock market returns in the Nordics. The formula utilized when testing conditional expected returns is as follows:

$$E(R_t^k | \Omega_{t-1}^k) = R_{Ft}^k + \sum_{i=1}^n \beta_i^k Z_{i,t-1}^k \quad (3)$$

where  $E(R_t^k | \Omega_{t-1}^k)$  represents the expected return of a stock market  $k$  in a local information set  $\Omega_{t-1}^k$ ,  $R_{Ft}^k$  is the risk-free interest rate in country  $k$ ,  $\beta_i^k$  signifies the return



sensitivity of the local information variables in country  $k$  and  $Z_{i,t-1}^k$  are the local information variables in country  $k$ .

Similar to Foerster and Schmitz (1997), the risk-free rate is subtracted from both sides in formula 3, in order to reiterate the expected market returns in terms of expected stock market risk premiums. Furthermore, as the purpose of this study is to test the relationship between the US Presidential election cycle and Nordic stock indices, the set of information variables in country  $k$  are substituted to solely US information variables. By substituting the local information variables to US information variables, the regression can solely test whether US informational variables potentially influenced by the US President affect the Nordic stock returns. Thus, formula 3 is presented as follows:

$$E(R_t^k - R_{Ft}^k | \Omega_{t-1}^{US}) = \sum_{j=m+1}^{n-1} \beta_j^k Z_{j,t-1}^{us} + \beta_n^k PARTY + \beta_n^k TERM + \beta_n^k YEAR2 \quad (4)$$

where  $E(R_t^k - R_{Ft}^k | \Omega_{t-1}^{US})$  portray the expected stock market risk premium for country  $k$  conditional on the US information variables,  $Z_{j,t-1}^{us}$  are US information variables and  $PARTY$  is a dummy variable proxying the political party of the US President,  $TERM$  signifies whether the US President is incumbent or nonincumbent and  $YEAR2$  is the second year of the Presidential term.

To test whether average monthly returns during the first half of the Presidential term are lower than during the latter half, formula 5 is applied.

$$E(R_t^k - R_{Ft}^k | \Omega_{t-1}^{US}) = \sum_{j=m+1}^{n-1} \beta_j^k Z_{j,t-1}^{us} + \beta_n^k PARTY + \beta_n^k TERM + \beta_n^k HALF \quad (5)$$

where  $E(R_t^k - R_{Ft}^k | \Omega_{t-1}^{US})$  portray the expected stock market risk premium for country  $k$  conditional on the US information variables,  $Z_{j,t-1}^{us}$  are US information variables and  $PARTY$  is a dummy variable proxying the political party of the US President,  $TERM$  signifies whether the US President is incumbent or nonincumbent and  $HALF$  is the first half of the Presidential term.

Formula 5 is applied to test whether similar findings as presented by Allvine and O'Neill (1980), Hensel and Ziemba (1995) and Booth and Booth (2003) can be found in the Nordic markets. The emphasis in formula 5 is in the final dummy variable *HALF* which proxies the first half of the Presidency, as studies conducted by the previously mentioned authors indicated that the stock market tends to rise during the latter half of the Presidency.

### 4.3 Variables

The following will discuss the variables utilized in the two regressions applied to test which US factors have an impact on Nordic stock returns and to determine whether the US Presidential election cycle has an impact on Nordic stock returns and risk.

The first US local information variable *SHT* is applied to test whether the US short-term interest rate influences Nordic stock market returns. The short-term interest rate is applied, as previous studies by for instance Fama and French (1988) and Ferson and Harvey (1991) indicate that the US short-term interest rates are able to predict US stock returns in a significant manner. Furthermore, Gultekin (1983) found that the US short-term interest rates have a significant effect on international stock returns as well. Moreover, Foerster and Schmitz (1997) argued, that the expected inflation rates may be proxied by US short-term interest rates, and should correlate negatively with stock returns, therefore meaning that higher inflation results to lower expected stock returns.

To test whether the monthly changes in US gross domestic product influence Nordic stock market returns, variable *USGDP* is applied. Alesina, Roubini and Cohen (1997) found that a pattern exists between the real US GDP growth and the US election cycle. Moreover, in the US, under Democratic Presidency, the real GDP growth was significantly higher during the second and third year of the cycle. (Alesina, Roubini and Cohen, 1997).

Alesina, Roubini and Cohen (1997) found that under Democratic administrations, a significant increase in the quarterly US GDP occurs during the third quarter after the

Presidential election, as the quarterly annualized GDP growth during the third quarter was approximately 3%, and about 6% during six to seven quarters after the election. However, the quarterly real GDP growth tends to decline after the sixth and seventh quarter following the election under Democratic Presidencies, whilst accelerating under Republican Presidencies. By the fourth year, the real GDP growth in the US is unanimous under both parties.

US information variable *UNEMP* is applied to test whether the US unemployment level affects Nordic stock returns. Nordhaus (1975) argued that the US President tends to manipulate the economy to increase the likelihood of being re-elected. One way in which the US President can influence the economic wellbeing is through job creation. By boosting the economy through lowering the unemployment rate, there is a greater likelihood of the incumbent President being re-elected. Similarly, Alesina, Roubini and Cohen (1997) tested whether similar partisan effects that were found regarding the US real GDP growth, can be observed in the US unemployment levels around the US election cycle. Therefore, the variable *UNEMP* is applied, where the effects of the monthly changes in the US unemployment rate are tested on the Nordic markets.

Similar to Hensel and Ziemba (1995), to test whether the political party of the US President influences the average returns in the stock market, a dummy variable *PARTY* is applied. The dummy was constructed so, that if the sitting President is Republican, the value is marked as 1, else 0. Although the tests conducted by Hensel and Ziemba (1995) conveyed that the party of the US President had no significant effect on US stock returns, the *PARTY* variable is still applied in this study.

Moreover, the *PARTY* variable is applied to test whether similar results are observable in the Nordics, as they were found in the US by Riley and Luksetich (1980) and Santa-Clara and Valkanov (2003). Although the findings in these two studies are contradictory, both studies indicate that the political party of the US President is a significant factor in

explaining stock market returns. Furthermore, Sabherval, Sarkar and Uddin (2017) found that the overall volatility in the stock market is higher under Republican Presidency.

Booth and Booth (2003) tested whether the US President being incumbent or non-incumbent impacted on the existence of the US Presidential election cycle. Booth and Booth (2003) argued that the US Presidents tend to alter their economic policy prior to the election to increase the likelihood of the President's party being re-elected. When applying the term-dummy variable, Booth and Booth (2003) found that whether the sitting US President is on their first or second term, has no statistically significant effect on the stock returns. To test whether such an effect is also irrelevant in the Nordic stock markets, the dummy variable *TERM* is applied, where the first term is being given a value of 1, and the rest is given 0.

In the regressions conducted by Foerster and Schmitz (1997), the authors concluded that the most significant factor explaining stock returns was the dummy variable *ELECT2*, which in this study is *YEAR2*. This dummy variable is applied to test whether the Nordic stock returns during the US President's second year in office differ from the rest of the four years that the US Presidential term lasts. The dummy is constructed so that the second year of the US Presidency is proxied by value 1, where the rest are given value 0.

To test whether the Nordic stock returns are between the two halves of the US Presidency differ, a dummy variable *HALF* is applied. Studies conducted by Allvine and O'Neill (1980), Hensel and Ziemba (1995) and Booth and Booth (2003) all indicated that the stock returns tend to rise during the latter half of the Presidency. To test whether the half of the term has an explanatory power on the Nordic stock returns, a dummy variable *HALF* is constructed so that the first two years of the Presidency are represented by value 1, and the latter two years by value 0.

## 5 Empirical Results

The following chapter will discuss the empirical findings obtained by applying the tests that were discussed in the Chapter 4. The empirical results are divided into five tables, where Table 2 portrays the average annualized monthly returns and standard deviations in OMX Copenhagen 20, OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX between November 1992 and October 2020. Table 3 compares and distinguishes whether there is a significant difference in the average annualized monthly returns between the second year of the US Presidential term and years 1, 3 and 4. Within Table 3 a standard *t-test* is applied in a similar manner as was applied by Foerster and Schmitz (1997), and an *F-test* was conducted in order to determine whether the variances of the two datasets differ significantly.

In Table 4, like Allvine and O'Neill (1980), the data is split into two halves, in which the first half represents the two first years after the election day and the latter represents the final two years of the US Presidential term. Allvine and O'Neill (1980) divided their data into the two halves to test whether there is a significant difference in the average returns of the two sets of data.

Table 5 tests whether the returns during the second year of the Presidency differ significantly from years 1, 3 and 4. Similar to Foerster and Schmitz (1997) a panel of US information variables and three dummy variables are utilized. Finally, Table 6 tests whether the average annualized monthly returns during the first half differs from the average returns generated during the second half, using the same US information variables which were applied in Table 5 and three dummy variables.

**Table 2.** The annualized mean monthly local stock market returns of OMX Copenhagen 20, OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX between November 1992 and October 2020. (Thomson Reuters, 2021).

**Annualized Mean Monthly Stock Market Returns & Standard Deviations in  
OMXC20, OMXS30, OMXH25 and Oslo OBX Between November 1992 – October 2020  
Divided into Each Individual Year of the US Presidential Term**

Index	Mean Return (Standard Deviation)	Mean Return (Standard Deviation)			
	Full Sample	Year 1	Year 2	Year 3	Year 4
<b>OMXC20</b>	10.30	17.42	4.20	11.61	8.04
	(17.50)	(17.88)	(17.46)	(15.19)	(19.03)
<b>OMXS30</b>	8.14	18.44	1.55	12.98	-0.30
	(19.47)	(19.59)	(20.16)	(18.14)	(19.42)
<b>OMXH25</b>	9.55	18.06	10.68	11.98	-2.40
	(22.09)	(25.28)	(19.90)	(19.66)	(22.68)
<b>OSLO OBX</b>	6.48	19.37	0.14	7.65	-1.07
	(20.90)	(18.23)	(22.29)	(17.19)	(24.49)
<b>Average</b>	8.62	18.32	4.14	11.06	1.07
	(20.07)	(20.46)	(20.06)	(17.63)	(21.56)

Table 2 displays the average annualized mean returns of OMX Copenhagen 20, OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX between November 1992 and October 2020. The data sample covers seven election cycles, and four Presidents, of which both major US political parties were represented twice. Similar to Foerster and Schmitz (1997) the local currency returns are obtained from price indices (PI), which means that dividends are not accounted in the returns.

The summary statistics portrays, that the overall mean monthly returns for all four indices between November 1992 and October 2020 were 8,61%. The average monthly returns during the whole data sample were the highest in OMX Copenhagen 20 (10,29%), second highest in OMX Helsinki 25 (9,55%), the lowest in Oslo OBX (6,48%) and second lowest in OMX Stockholm 30 (8,14%). When analysing the annualized mean monthly returns of each individual term-year, the lowest annualized monthly returns occurred in Oslo OBX during the fourth year of the Presidency, and the highest returns obtained were from Oslo OBX during the first year.

As can be seen in Table 2, the second year of the Presidential term, on average, generates lower returns than the overall mean return of the whole term. This corroborates the results obtained by Allvine and O'Neill (1980) and Foerster and Schmitz (1997), who also found lower mean returns during the second year of the Presidency, when comparing to the overall average return of the whole cycle. However, contrary to both Allvine and O'Neill (1980) and Foerster and Schmitz (1997) the annualized mean monthly return in the Nordic indices was in fact the lowest during the final year of the cycle, which according to Weldon (2008) should be a relatively strong year for the stock market.

Furthermore, on the contrary to previous studies, the average annualized monthly returns during the second year are positive in all four indices, which contradicts the results obtained by Foerster and Schmitz (1997), where the average annual return during the second year was positive in only seven of the eighteen countries analysed. This also suggests that there are no spill-over effects on the average returns to the Nordic countries, as Allvine and O'Neill (1980), Huang (1985) and Foerster and Schmitz (1997) found that the second year of the Presidential term was generally negative.

One reason for the largely contradicting results to previous studies was that the data sample used consisted of two major disruptions in the stock market during the fourth year, as both the great recession of 2008 occurred during Bush's final year and the crash

caused by Covid-19 occurred during Trump's final year in 2020. One interesting factor in the results obtained is that none of the four years were negative for all indices combined on average, when compared to Foerster and Schmitz (1997). Although the average for all four indices is positive in all four years, all except OMX Copenhagen 20 exhibited negative returns during the fourth year. Moreover, the average returns during the fourth year are the lowest in OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX.

Another interesting aspect presented in Table 2 is that the standard deviation during the third year is the lowest of all four years, and the highest during the fourth year. This indicates that the overall risk in the market seems to be the lowest during the President's third year. Weldon (2008) suggested that the third year in office tends to be the strongest for stocks, as the US President commonly adopts a more voter-friendly agenda, to increase the likelihood of re-election.

The higher risk during the fourth year is somewhat contradictory to Foerster and Schmitz (1997), who found that standard deviation in monthly returns during the fourth year was lower than for the full sample and that the standard deviation was at its highest during the second year. Although the summary of statistics presented in Table 2 to an extent differs from previous studies, the higher risk level during the fourth year is aligned to the overall underperformance of the fourth year in general. Furthermore, as mentioned previously, the increased level of risk during the fourth year can also be justified by the two significant disruptions in the global economy, of which both occurred during the fourth year of the US Presidency.



## 5.1 Results from t-tests

**Table 3.** The annualized mean monthly local stock market return of OMX Copenhagen 20, OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX between November 1992 and October 2020 (Thomson Reuters, 2021).

<b>Annualized Mean Monthly Stock Market Returns &amp; Standard Deviations</b>					
<b>in OMXC20, OMXS30, OMXH25 &amp; Oslo OBX Between November 1992 – October 2020</b>					
<b>Split into Term Year 2 and Term Years 1, 3 &amp; 4</b>					
<b>Index</b>	<b>Full Sample Mean Return (Standard Deviation)</b>	<b>Year 2 Mean Return (Standard Deviation)</b>	<b>Years 1, 3 &amp; 4 Mean Return (Standard Deviation)</b>	<b>Difference p-values</b>	<b>Wilcoxon Rank Sum W Test p-value</b>
<b>OMXC20</b>	10.30 (17.50)	4.20 (17.46)	12.34 (17.48)	0.403 (0.987)	0.155
<b>OMXS30</b>	8.14 (19.47)	1.55 (20.16)	10.34 (19.19)	0.151 (0.418)	0.282
<b>OMXH25</b>	9.55 (22.09)	10.68 (19.90)	9.18 (22.78)	0.816 (0.034)	0.505
<b>OSLO OBX</b>	6.48 (20.90)	0.14 (22.29)	8.61 (20.38)	0.202 (0.148)	0.197
<b>Average</b>	8.62 (20.07)	4.14 (20.06)	10.12 (20.05)		

Table 3 presents the average annualized monthly returns and standard deviations during the second year and a combined subsample of years 1, 3 and 4. Similar to Foerster and Schmitz (1997), to determine whether the average annualized monthly returns are lower during the second year of the Presidency, the returns are divided into two columns, one displaying the average annualized mean monthly return, and standard deviation during the second year of the US Presidential term and the latter displaying the same information during the rest of the Presidential term.

The third column presents the probability values (P-values) for both equality-of-means and equality-of-variance tests between the second year and years 1, 3 and 4. The top value of the third column depicts the p-value of one-tail difference in means between the two subsamples, when the two samples of data are not assumed equal. The null hypothesis tested with the equality-of-means test is that the average annualized returns of the two subsamples are identical. The lower value bracketed in the third column presents the probability value obtained from running a *F-test*. Similar to the *t-test* for equality-of-means, the null hypothesis for the *F-test* is that the variances presented in the first two columns do not differ significantly.

As can be observed in the first column, the average annualized monthly returns were 8,62% for all years, 4,14% for the second year and 10,12% for years 1, 3 and 4. However, the *t-test*, indicates that the differences in mean monthly returns do not differ significantly between the two sets of data. As can be seen in the second to the last column, all the probability values (p-values) are greater than 10%, indicating that the null hypothesis should be accepted. Although the probability values do not suggest a statistically significant difference in mean monthly returns between the two datasets, the actualized returns, on average, were higher during the years 1, 3 and 4.

An *F-test* was conducted to determine whether the level of risk in the stock market differs between year 2 and years 1, 3 and 4. The results from the *F-test* are presented as probability values in brackets, in the second to the last column. The probability values

indicate that the monthly variance in stock returns differs significantly in only OMX Helsinki 25. The probability value of 3,4% indicates that the null hypothesis can be rejected with a 5% significance level. For the rest of the Nordic indices, the results from the *F-test* convey that the monthly variance in stock returns is not different between year 2 and years 1, 3 and 4.

Apart from OMX Helsinki 25, the other Nordic indices do not exhibit a difference in the variances of monthly returns between the two subsamples, which is in line with the results obtained by Foerster and Schmitz (1997), who found no consistent pattern in monthly return variances. Contrary to Foerster and Schmitz (1997) the standard deviation is higher during the second year in OMX Stockholm 30 and Oslo OBX, and lower in OMX Copenhagen 20 and OMX Helsinki 25.

Similarly, the Wilcoxon rank tests, which indicate the likelihood that the two sets of data have the same distribution, suggests that the null hypothesis should be accepted. Contrary to studies conducted by Foerster and Schmitz (1997), who found that international returns were lower during the second year of the Presidential term, the Wilcoxon rank tests indicate that the returns in year 2 and years 1, 3 and 4 have a similar distribution. Similar to the two previous tests conducted, the null hypothesis for the Wilcoxon rank test was that the returns of the two data samples do not differ significantly. The results obtained from the Wilcoxon rank test is aligned to the two previous tests, indicating no significant differences in the medians of the two subsamples.

**Table 4.** The annualized mean monthly local stock market return of OMX Copenhagen 20, OMX Stockholm 30, OMX Helsinki 25 and Oslo OBX between November 1992 and October 2020 (Thomson Reuters, 2021).

<b>Annualized Mean Monthly Stock Market Returns &amp; Standard Deviations</b>					
<b>in OMXC20, OMXS30, OMXH25 &amp; Oslo OBX Between November 1992 – October 2020</b>					
<b>Split into the Two Halves of the US Presidential Term</b>					
<b>Index</b>	<b>Full Sample Mean Return (Standard Deviation)</b>	<b>Half 1 Mean Return (Standard Deviation)</b>	<b>Half 2 Mean Return (Standard Deviation)</b>	<b>Difference p-value</b>	<b>Wilcoxon Rank Sum W Test p-value</b>
<b>OMXC20</b>	10.30 (17.50)	10.77 (17.77)	9.83 (17.23)	0.842 (0.730)	0.84
<b>OMXS30</b>	8.14 (19.47)	9.95 (20.03)	6.34 (18.89)	0.548 (0.549)	0.26
<b>OMXH25</b>	9.55 (22.09)	14.35 (22.76)	4.79 (21.32)	0.263 (0.415)	0.16
<b>OSLO OBX</b>	6.48 (20.90)	9.70 (20.56)	3.29 (21.20)	0.359 (0.612)	0.31
<b>Average</b>	8.62 (20.07)	11.19 (20.36)	6.06 (19.75)		

Table 4 portrays whether the average annualized monthly return and standard deviation during the first half and the second half of the Presidency differ in a significant manner. Starting from the left column, Table 4 presents the full sample mean return and standard deviation, to which the second and third column are compared to. Columns two and three present the annualized mean monthly return and standard deviation of the first and second half of the US Presidential term, respectively.

The second to the last column presents probability values of equality-of-means and equality-of-variances tests. In the second to the last column, the top value presents the p-value of a *t-test*, with a null hypothesis that the average returns during both halves are identical. The bracketed bottom value portrays the p-value from an *F-test*, where the null hypothesis was that the variances of the two subsamples do not differ significantly. The final column presents the Wilcoxon rank sum value of both samples, where the null hypothesis suggests no statistically significant difference between the two subsamples.

Table 4 shows that the average annualized monthly return of the whole sample in all four indices was 8,62%, whereas the returns for the first and second half were 11,19% and 6,06% respectively. When comparing the values of the subsamples to the average of the whole sample, the average returns seem to differ from the results presented by Allvine and O'Neill (1980) and Hensel and Ziemba (1995), whom both obtained results indicating that the average annualized returns are higher during the second half of the Presidency.

When comparing the average annualized monthly returns during the first and second half, the values indicate that the returns during the first half are higher in all four indices. Moreover, the average returns of both halves in all four indices are positive, indicating that investors should be invested in stocks throughout the cycle. The highest returns of the whole data sample, on average, are generated in OMX Helsinki 25 during the first half, with a mean annualized monthly return of 14,35%. The second highest average annualized returns are generated during the first half in OMX Copenhagen 20. The lowest

and second lowest annualized average returns are found generated during the latter half in Oslo OBX and OMX Helsinki 25, respectively.

When comparing the standard deviations between the two halves of the Presidency, the bracketed values convey that the standard deviation was slightly greater during the first half of the Presidency. The standard deviation was the highest during the first half in OMX Helsinki 25, and the lowest in OMX Copenhagen 20. Furthermore, the standard deviation of an individual index was the lowest in OMX Copenhagen 25 and the highest in OMX Helsinki 25. From all four indices, the only index in which the standard deviation was higher during the latter half was Oslo OBX.

The results obtained from conducting the *t-tests* are presented as the top value in the second to last column. The null hypothesis, anticipating that the average annualized returns of both halves should be the same, are accepted in all four indices. This means, that the returns do not differ significantly when comparing the two subsamples. Similarly, the probability values obtained from the *F-test* indicate that the null hypothesis is also accepted, meaning that the variances of the two subsamples do not differ significantly. Moreover, after conducting the Wilcoxon rank sum test, the results indicate that the null hypothesis should be accepted. All the three tests indicate that the two subsamples, Half 1 and Half 2 do not differ from each other in a significant manner.

**Chart 1.** OMXC20 annualized mean monthly returns per term year and whole cycle (Thomson Reuters, 2021).

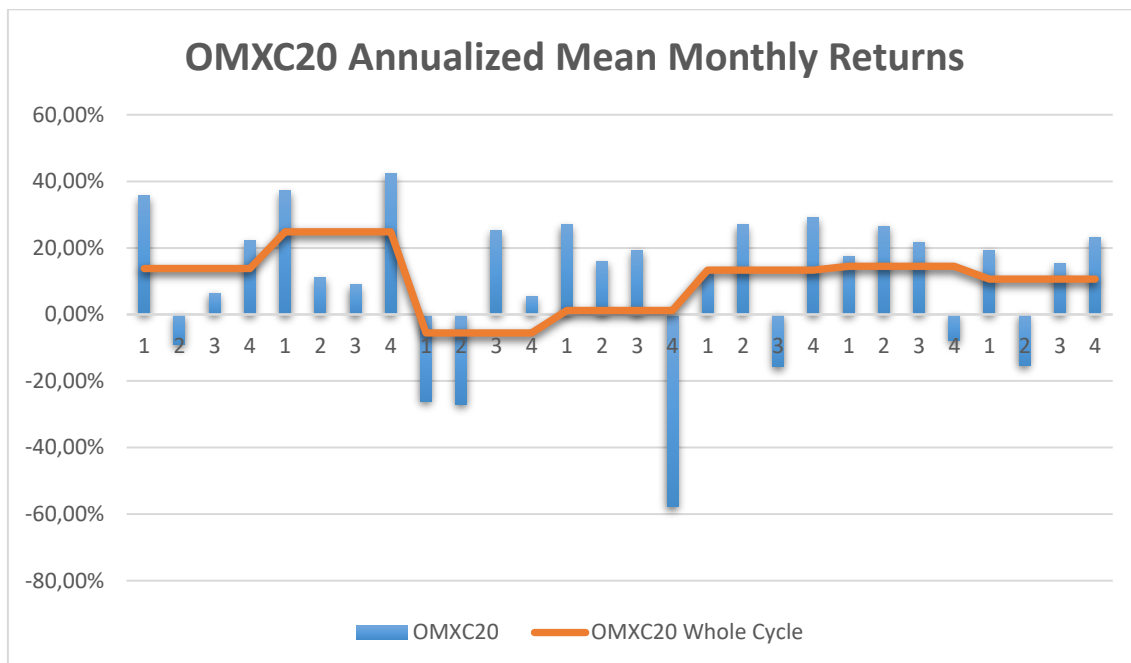


Chart 1 depicts the annualized mean monthly returns between November 1992 and October 2020. The blue columns portray the average annualized monthly return during each year of the US Presidency and the orange line represents the average monthly return of the whole term. One significant deviation in the chart was the substantial drop in 2008, which occurred during the fourth year of Bush's second term. Although Chart 1 portrays a total of seven negative years during the 29-year period of study, the stock market crash of 2008 is the most deviating. Other significant underperformances of Danish stock returns occurred during the burst of the dotcom-bubble, which can be observed in the 9<sup>th</sup> and 10<sup>th</sup> column. Another interesting factor which is shown in Chart 1 is that most of the negative years occurred during the second year of the Presidential term. Furthermore, corroborating Allvine and O'Neill (1980) and Huang (1985), the third year of the term performed negatively only once.

**Chart 2.** OMXS30 annualized mean monthly returns per term year and whole cycle (Thomson Reuters, 2021).

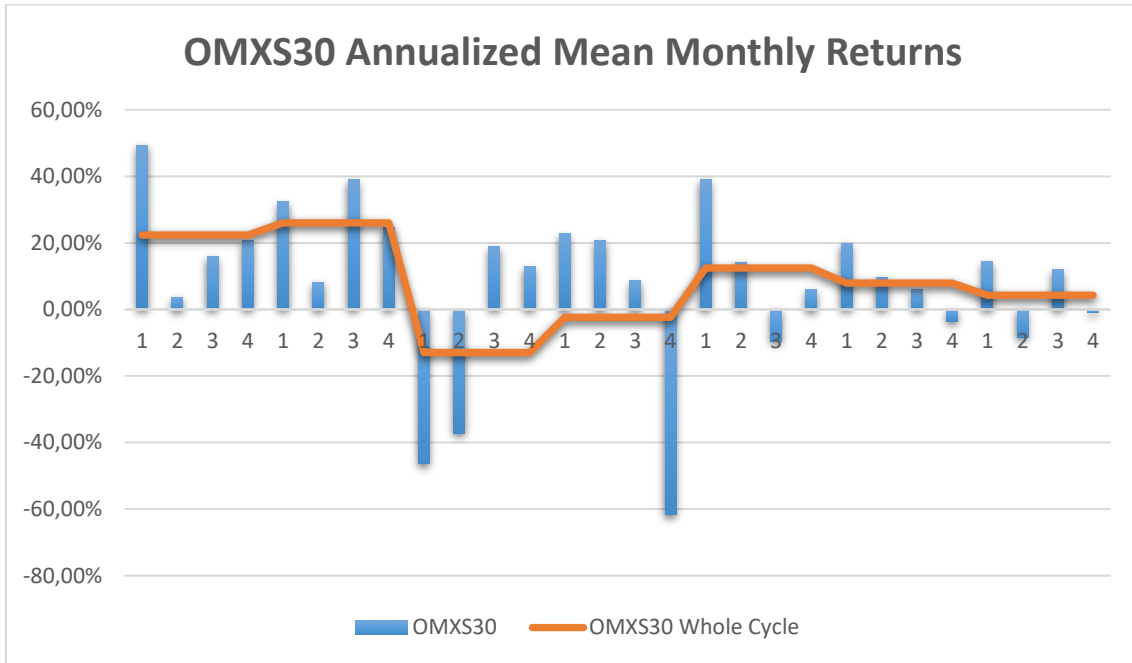


Chart 2 displays the annualized mean monthly returns of OMXS30 between November 1992 and October 2020. The blue columns signify mean monthly returns during each year of the US Presidential term and the orange line represents the average annualized monthly return of the whole four-year cycle. Similar to the OMXC20, Chart 2 displays that during the third year of the Presidential term, the OMXS30 generated negative monthly returns only on one occasion. Moreover, the average annualized monthly returns during the fourth year of the US Presidential term in OMXS30 were negative in three occasions, in 2008, 2016 and 2020, of which the negative returns were the largest during the 2008 stock market crash. Other significant deviations occurred during the burst of the dotcom-bubble in the turn of the century, which can be seen in the 9<sup>th</sup> and 10<sup>th</sup> columns. Except for the third cycle, the first year outperformed the whole term in all other occasions.



**Chart 3.** OMXH25 annualized mean monthly returns per term year and whole cycle (Thomson Reuters, 2021).

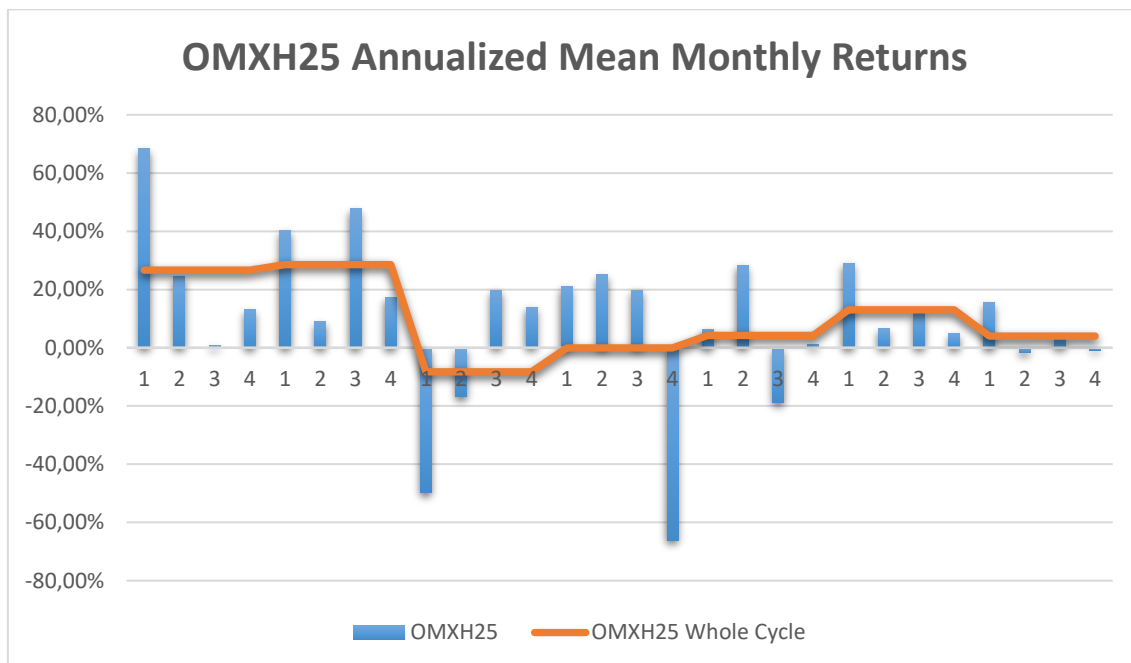


Chart 3 portrays the annualized mean monthly returns in OMX Helsinki 25 between November 1992 and October 2020. The blue columns convey the average annualized returns during each year of the US Presidential term and the orange line conveys the average annualized monthly returns of the whole Presidential term. Similar to OMXC20 and OMXS30, the most substantial deviations in monthly returns occurred during the dot-com-bubble burst in the turn of the century and the stock market crash of 2008. Furthermore, Chart 3 depicts that the first year of the Presidential term outperformed the whole term on all occasions except during the burst of the dotcom-bubble. Moreover, during the second year, the OMXH25 underperformed the whole term in five of the seven cycles, which corroborates the findings of Allvine and O'Neill (1980), Huang (1985), Foerster and Schmitz (1997) and Weldon (2008). Chart 3 also indicates that like OMXC20, the OMXH25 performed negatively during the third year in only one occasion.

**Chart 4.** Oslo OBX annualized mean monthly returns per term year and whole cycle (Thomson Reuters, 2021).

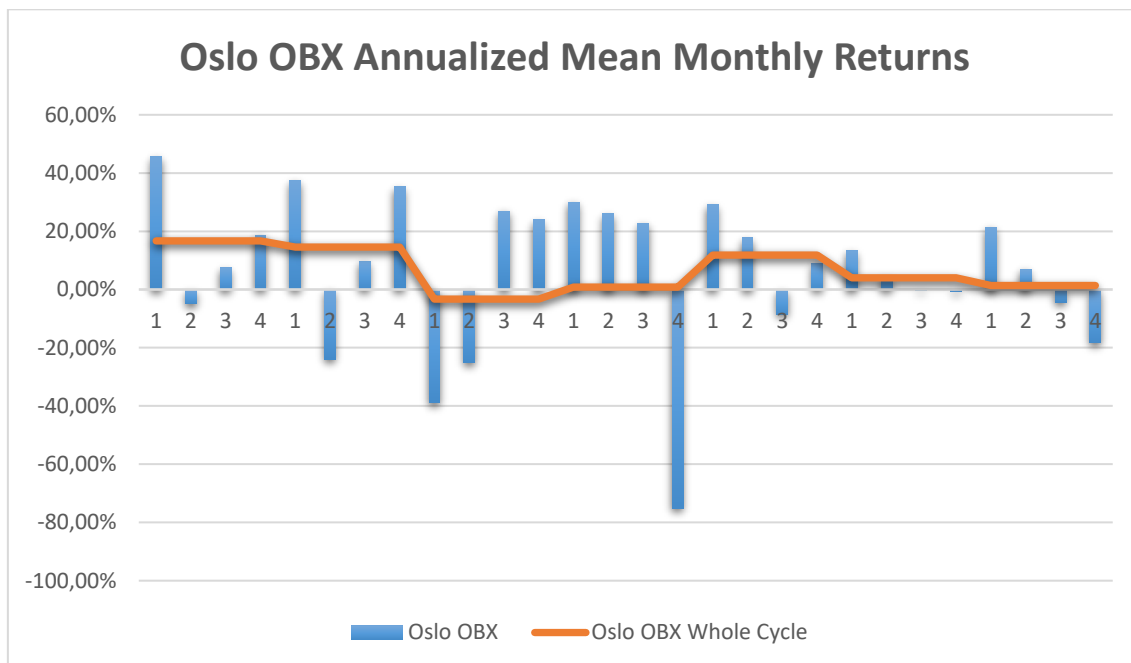


Chart 4 portrays the average annualized monthly returns of the Oslo OBX-index between November 1992 and October 2020, where the blue columns are the returns of each year and the orange line represents the average returns of the whole cycle. Similar to OMXC20, OMXS30 and OMXH25, the largest negative deviations occurred during the turn of the century, which can be observed in columns nine and ten, and the stock market crash of 2008. Moreover, Chart 4 depicts the underperformance of the fourth year in Oslo OBX, as the fourth year was outperformed by the overall cycle in four of the seven occasions. Furthermore, similar to other Nordic indices, the first year of the cycle outperformed the cycle as a whole in all instances, except during 2001.

**Chart 5.** Average of OMXC20, OMXS30, OMXH25 and Oslo OBX annualized mean monthly returns per term year and whole cycle (Thomson Reuters, 2021).

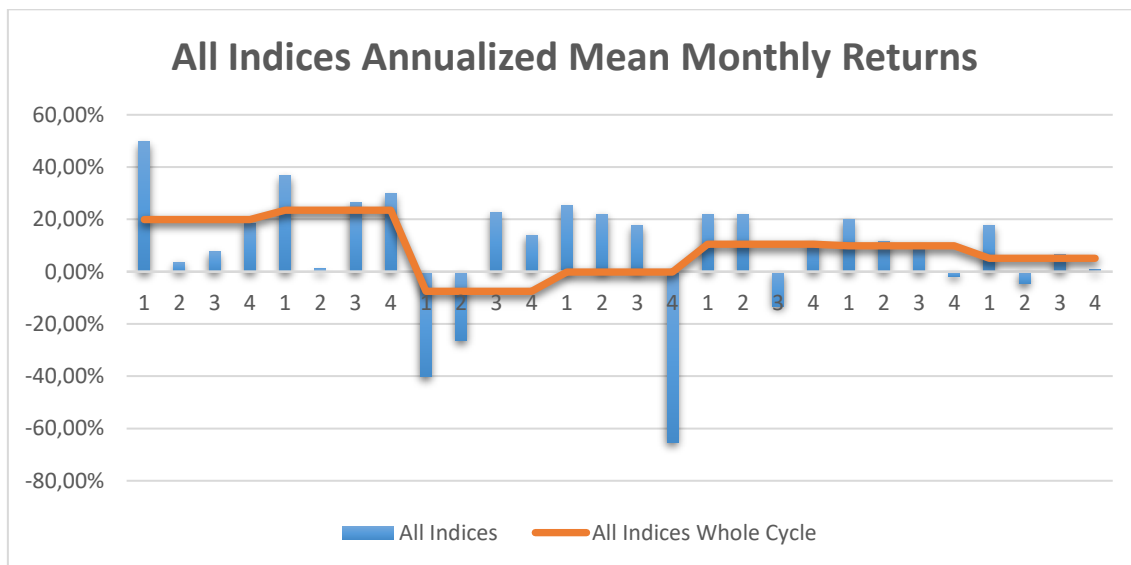


Chart 5 displays the average of mean annualized monthly returns of OMXC20, OMXS30, OMXH25 and Oslo OBX between November 1992 and October 2020. The blue columns represent the mean monthly returns during each year of the four-year Presidential term and the orange line displays the average annualized return of the whole term. As can be observed from Chart 5, the annualized mean monthly returns have been relatively positive during the past thirty years. The markets were in significant turmoil only during three fiscal years, during the first half of Bush's first term and during the final year of Bush's second term. Although a third major disruption in global stock markets occurred during Trump's final year, the rapid rise from the spring of 2020 took the average returns of all four Nordic indices positive for the whole year.

Chart 5 indicates that during the nearly thirty-year period, the average annualized monthly returns in the Nordics were only negative once during the first and third year of the cycle and twice during the second and fourth year. Furthermore, Chart 5 represents only two negative election cycles in terms of Nordic stock market returns. Both negative cycles occurred under Bush's administration. The average annualized return during Bush's first term was -7,52% and -0,10% during the second term.

## 5.2 Regression Results

**Table 5.** Ordinary least square regression results testing the effects of US information variables on Nordic stock market returns (Thomson Reuters, 2021).

**Regressions of Local Currency Monthly Stock Returns in OMXC20, OMXS30, OMXH25 & Oslo OBX Between November 1992 – October 2020 Utilizing US Information Variables *SHT*, *USGDP*, *UNEMP* & Dummy Variables *PARTY*, *TERM* and *YEAR2***

	OMXC20	OMXS30	OMXH25	OSLO OBX
<b>Constant</b>	0.02 (0.001)	0.02 (0.002)	0.02 (0.007)	0.01 (0.059)
<b><i>SHT</i></b>	0.02 (0.001)	0.01 (0.087)	0.02 (0.059)	0.03 (0.002)
<b><i>USGDP</i></b>	0.11 (0.137)	0.25 (0.001)	0.29 (0.003)	0.26 (0.004)
<b><i>UNEMP</i></b>	0.09 (0.062)	0.10 (0.042)	0.13 (0.021)	0.14 (0.013)
<b><i>PARTY</i></b>	- 0.01 (0.041)	- 0.02 (0.007)	- 0.01 (0.036)	- 0.01 (0.148)
<b><i>TERM</i></b>	- 0.01 (0.632)	- 0.01 (0.963)	- 0.01 (0.687)	0.01 (0.713)
<b><i>YEAR2</i></b>	- 0.01 (0.232)	- 0.01 (0.222)	0.01 (0.998)	- 0.01 (0.263)
<b><i>Adj. R2</i></b>	0.049	0.046	0.045	0.060
<b><i>Durbin Watson</i></b>	1.938	1.981	1.659	1.860
<b><i>S.E. of Regression</i></b>	0.171	0.190	0.216	0.203

Table 5 portrays the coefficients and probability values of each variable utilized in the regression. The first information variable, *SHT* proxies the monthly changes in the US 3-month T-Bill rate. In theory, interest rates have a negative correlation with expected stock returns (Foerster & Schmitz, 1997). The information US variable, *USGDP* is utilized to test whether monthly changes in the US gross domestic product influence the returns of Nordic stock markets.

According to Nordhaus (1975), the US unemployment rate tends to decrease when the election date approaches, as the US President attempts to increase the likelihood of re-election by boosting the economy, therefore the US variable *UNEMP* is utilized. Finally, this ordinary least square regression applied three different dummy variables.

Similar to Huang (1985) dummy variable *PARTY* was applied in order to test whether the political party of the US President has an effect on the existence of the Presidential election cycle. The dummy variable *TERM* tests whether the significance of the Presidential election cycle effect is influenced by whether the US President is serving their first or second term. Finally, the dummy variable *YEAR2* is utilized to test whether the stock market tends to underperform during the second half of the Presidency.

As can be seen from table 5. the short-term interest rate *SHT* has a weak, positive correlation with OMXC20 and Oslo OBX at a 5% significance level, and in all four Nordic indices at a 10% significance level. Although the p-values, which are presented in brackets, indicates a statistical significance between the two variables, the coefficient is extremely weak, and thus it can be argued that monthly changes in the US short-term interest rates have a little to no effect on monthly Nordic stock market returns.

Table 5 portrays that a statistically significant positive relationship exists between US gross domestic product and all other Nordic stock market indices except the OMXC20. The probability values indicate, that at a 5% significance level, monthly changes in the US gross domestic product do affect stock market returns in Sweden, Finland, and

Norway. Moreover, the coefficients indicate, that of the three US information variables applied in the regression, monthly changes in the US gross domestic product seem to have the largest correlations to monthly changes in stock market returns.

Monthly changes in the US unemployment rate seem to have a minimal, yet statistically significant correlation with Nordic stock market indices. As portrayed on the fourth row in Table 5, the relationship between the US unemployment rate and monthly stock market returns in OMXS30, OMXH25 and Oslo OBX is statistically significant at a 5% significance level, and in OMXC20 at a 10% significance level. Although statistically significant, the overall coefficient in each of the four Nordic stock market indices is relatively weak.

The dummy variables convey some interesting results when testing the effect of US variables on Nordic stock market returns. For instance, there is an extremely weak, negative relationship between the *PARTY* dummy variable and all four indices. Although the correlation is extremely weak, it does indicate that the relationship between a Republican President and Nordic stock market returns are denoted negative.

The coefficient of the dummy *TERM* seems to have no correlation with the Nordic stock market returns, and the significance of the term is extremely low as well. Finally, the dummy *YEAR2* proxying the second year conveys no significance. Therefore, as also observed in the previous tables, the monthly returns in Nordic stock markets during the second year of the Presidential term do not significantly differ from the returns of any other year during the Presidential term.

Furthermore, when analysing the other factors, it seems that the independent variables utilized in this regression do not have a significant effect on the dependent variable, which in this case was a Nordic stock market index. Especially the dummy variable *YEAR2*, indicates, that the second-year effect does not have a statistically significant impact on Nordic stock returns, thus rejecting the second hypothesis, which suggested that returns during the second year are significantly lower during the second year. Although some

variables exhibit some degree of significance, for instance the adjusted R-squared perpetuates that the US information variables are not able to explain monthly Nordic stock market returns, as the highest adjusted R-squared is able to only account for 6% of the changes in the dependent variable.

**Table 6.** Ordinary least regression results testing the effects of US information variables on Nordic stock market returns (Thomson Reuters, 2021).

**Regressions of Local Currency Monthly Stock Returns in OMXC20, OMXS30, OMXH25 & Oslo OBX Between November 1992 – October 2020 Utilizing US Information Variables *SHT*, *USGDP*, *UNEMP* & Dummy Variables *PARTY*, *TERM* and *HALF***

	OMXC20	OMXS30	OMXH25	OSLO OBX
<b>Constant</b>	0.02 (0.005)	0.01 (0.002)	0.01 (0.064)	0.01 (0.338)
<b><i>SHT</i></b>	0.02 (0.001)	0.01 (0.088)	0.02 (0.057)	0.03 (0.002)
<b><i>USGDP</i></b>	0.11 (0.151)	0.22 (0.011)	0.29 (0.003)	0.26 (0.005)
<b><i>UNEMP</i></b>	0.09 (0.059)	0.11 (0.041)	0.14 (0.019)	0.14 (0.012)
<b><i>PARTY</i></b>	- 0.01 (0.041)	- 0.02 (0.007)	- 0.01 (0.036)	- 0.01 (0.148)
<b><i>TERM</i></b>	- 0.01 (0.633)	- 0.01 (0.965)	- 0.02 (0.693)	0.01 (0.709)
<b><i>HALF</i></b>	0.01 (0.900)	0.01 (0.662)	0.01 (0.249)	0.01 (0.411)
<b><i>Adj. R2</i></b>	0.046	0.042	0.049	0.058
<b><i>Durbin Watson</i></b>	1.925	1.970	1.663	1.844
<b><i>S.E. of Regression</i></b>	0.172	0.191	0.215	0.203



Similar to Table 5, Table 6 tests whether US information variables explain the stock market returns in Nordic countries. The probability values of the first independent variable *SHT*, which are presented in brackets, indicate that the US short term interest rate has a statistically significant effect on all four Nordic indices when a 10% significance level is applied. However, although the null hypothesis, which in this case states no statistical significance, is rejected, the overall coefficients between the short-term interest rate and the dependent variable are extremely weak, indicating merely no correlation between the two variables.

Monthly changes in the US gross domestic product seem to influence the changes in the Nordic stock market indices. All four indices, except OMX Copenhagen 20 portray a statistically significant, positive correlation with the changes in the US gross domestic product. Similarly, the p-values in the fourth row, which tests the relationship between US unemployment rate and Nordic indices, portrays a statistically significant coefficient with all indices and the US unemployment rate at a 10% significance level and at a 5% significance level in all indices except the OMX Copenhagen 20.

The dummy variable *PARTY* which is given a value 1 when the President represents the Republican party and 0 when the President is a democrat, indicates a weak, negative relationship with all four Nordic indices. Although the relationship is statistically significant with all indices except the Oslo OBX, the coefficient is extremely weak and thus should not be emphasized.

The dummy variables *TERM* and *HALF* indicate an extremely weak coefficient with all four Nordic indices. Moreover, the p-values, which are represented in brackets in all four indices convey no statistically significant effect, which suggests that all the dummy variables applied are irrelevant in explaining Nordic stock returns.

Thus, the third hypothesis, suggesting that the Nordic stock markets outperform during the latter half of the US Presidential term can be rejected. The dummy variable *HALF*,

indicates, that the difference in Nordic stock returns between the two halves of the Presidency is not statistically significant. Thus, the trading strategy suggested by Allvine and O'Neill (1980) would have not generated excess returns in the Nordic stock markets between November 1992 and October 2020.

The *t-test*, *F-test*, Wilcoxon rank sum test and the two regressions indicate that the US Presidential election cycle does not affect Nordic stock market returns. As can be seen in Table 2, the average annualized monthly returns during the second year of the Presidency are lower than during the overall cycle. Table 2 portrays that the overall annualized mean monthly return between November 1992 and October 2020 was 8,61%.

Previous studies by Allvine and O'Neill (1980) and Foerster and Schmitz (1997) found that the average annualized return during the second year of the Presidential term is significantly lower than during all the other years, and in many cases negative. However, this study found evidence which indicates that the average annualized monthly return during the second year was positive in all four indices, and 4,14% on average.

Contrary to previous studies, the second year of the cycle generated higher returns than the final, fourth year of the cycle, which Weldon (2008) argued of being a generally strong year for stock returns. Moreover, studies by Allvine and O'Neill (1980) and Huang (1985) both suggest that the stock markets tend to perform better during the latter half of the Presidency. However, between 1992 and 2020, the Nordic stock markets did not outperform during the second half in a statistically significant manner.

The *t-tests* and regressions were applied to define, whether the Nordic stock market returns fluctuates around the US Presidential election cycle. The first hypothesis, suggesting that a US Presidential election cycle exists in Nordic stock markets can be rejected. During the nearly thirty-year time-period, the Nordic stock returns did not follow a predictable pattern, as was suggested by Weldon (2008).

There are several reasons for the pattern not emerging. One of the most significant reasons is that two of the three major stock market crashes between 1992 and 2020 occurred during the fourth year of the Presidential term. Both the stock market crash of 2008 and the brief crash after the spread of Covid-19 had significant effects on the monthly price data, as the data sample covered only seven cycles. Thus, disruptions in global economy have a significant effect on the data applied.

As two of the three major economic disruptions occurred during the fourth year of the term, the first year of the Presidency was relatively strong in comparison. As can be seen in Chart 5, the first year of the sample was extremely strong, as the Nordic stock markets were strongly recovering from the 1991 economic turmoil. Similarly, during Obama's first year in office, the stock markets bottomed during the spring of 2009, and started a strong recovery, which largely explains the strong performance of the first year as well.

## 6 Conclusions

The purpose of this study was to determine whether similar evidence to the existence of the US Presidential election cycle that is found in the US markets can be found in Nordic markets. A vast body of previous literature from the US has emphasized the significant benefits exploiting the US Presidential election cycle in the stock market. Although the evidence from the US is recognized, there is only a limited number of studies examining whether the effects of the US Presidential election cycle are found on an international level. This study, to my knowledge, was the first to solely analyse the relationship between Nordic stock market indices and the US Presidential election cycle.

The data consisted of monthly price index data from Denmark, Sweden, Finland and Norway between November 1992 and October 2020, spanning through seven US Presidential terms. During the nearly thirty-year period, the US was led by four Presidents, Democratic Bill Clinton and Barack Obama and Republican George W. Bush and Donald Trump. Moreover, although the Nordic stock markets generated positive yearly returns during the period of study, there were three major disruptions in the stock market, the burst of the Dotcom-bubble in the turn of the century, the Great Recession in 2008 and the brief stock market crash in early 2020.

This study found that the effects of the US Presidential election cycle do not spill over to the Nordic countries. According to previous studies, the second year of the Presidential election term is supposed to be the worst return-wise. Although the *t*-tests indicate that the average annualized monthly returns during the second year are lower than during the overall term, this study found that the average returns are lowest during the election year. Moreover, unlike previous studies, the average returns during the second year of the Presidential term are not negative in the Nordics. Similarly, unlike some previous studies, the difference of average returns did not significantly differ between the first and second half of the Presidency.

The tests and regressions conducted in this study convey that investors should not try to exploit the US Presidential election cycle theory in Nordic indices, to outperform a simple buy-and-hold strategy. Although the average annualized monthly returns during the second year of the Presidency are lower than during the overall term, as the returns during the second year are not negative, investors should be invested in the market throughout the cycle.

Although not explicitly tested in this thesis, the likelihood of the Presidential election cycle existing in the US between November 1992 and October 2020 is relatively low as well. Although the US and Nordics are not fully correlated, the stock market crashes between 1992 and 2020 were all global, indicating that the Presidential election cycle theory would not apply in the US either. One significant limitation acknowledged in this study is the relatively short time-period. As the 1992 was the first year where index data for a whole election cycle is found for all four indices, the amount of data points is relatively limited, meaning that significant changes in monthly returns also have more significant effects on the overall results. Thus, all three hypotheses stated for this study are rejected, as there is no indication of the existence of a US election cycle in Nordic stock markets between November 1992 and October 2020.

Even though the results in this study convey that the Nordic stock markets do not follow the US Presidential election cycle, future studies could examine whether different industries in the Nordics follow the US Presidential cycle more closely than the general price indices. As some industries are more involved with the US, the results may convey that some industries in the Nordics do follow the US election cycle. Furthermore, interesting ideas for future studies would be to test whether domestic election cycles exist in Nordic markets, or whether the parliamentary coalition is irrelevant to the Nordic stock markets.

## References

- Adjei, F. & Adjei, M. (2017). Political cycles, investor sentiment, and stock market returns. *Journal of Finance and Economics*, 5(1), 1-10.  
<https://doi.org/10.12691/jfe-5-1-1>
- Alesina, A. (1987). Macroeconomic policy in a two-party system as a repeated game. *The Quarterly Journal of Economics*, 102(3), 651-678.
- Alesina, A., Roubini, N. & Cohen, G. D. (1997). *Political cycles and the macroeconomy*. MIT Press.
- Allvine, F. & O'Neill, D. (1980). Stock market returns and the Presidential election cycle: implications for market efficiency. *Financial Analysts Journal*, 36(5), 49.  
<https://doi.org/10.2469/faj.v36.n5.49>
- Alvarez-Ramirez, J., Rodriguez, E. & Espinosa-Paredes, G. (2012). A partisan effect in the efficiency of the US stock market. *Physica A: Statistical Mechanics and its Applications*, 391(20), 4923-4932. <https://doi.org/10.1016/j.physa.2012.05.005>
- Belo, F., Gala, V. D. & Li, J. (2013). Government spending, political cycles, and the cross section of stock returns. *Journal of financial economics*, 107(2), 305-324.  
<https://doi.org/10.1016/j.jfineco.2012.08.016>
- Bohl, M. T. & Gottschalk, K. (2006). International evidence on the Democrat premium and the Presidential cycle effect. *The North American Journal of Economics and Finance*, 17(2), 107-120. <https://doi.org/10.1016/j.najef.2005.10.001>
- 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.  
[https://doi.org/10.1016/S1058-3300\(02\)00061-7](https://doi.org/10.1016/S1058-3300(02)00061-7)

Cootner, P. H. (1964). *The random character of stock market prices*. Cambridge, Mass: M.I.T.(ed).

Cosset, J. & Suret, J. (1995). Political risk and the benefits of international portfolio diversification. *Journal of International Business Studies*, 26(2), 301. <https://doi.org/10.1057/palgrave.jibs.8490175>

Cox, J., Ingersoll, J. & Ross, S. (1985). An intertemporal general equilibrium model of asset prices. *Econometrica*, 53, 363-384.

Dreman, D. N. & Lufkin, E. A. (2000). Investor overreaction: evidence that its basis is psychological. *The Journal of Psychology and Financial Markets*, 1(1), 61-75. [https://doi.org/10.1207/S15327760JPFM0101\\_06](https://doi.org/10.1207/S15327760JPFM0101_06)

Fama, E. F. (1965). The behavior of stock-market prices. *The Journal of Business*: B, 38(1), 34-105. <https://doi:10.1086/294743>

Fama, E. F. (1970). Efficient Capital Markets: A review of theory and empirical work. *Journal of Finance*, 25(2), 383-417. <https://doi:10.1086/294743DOI: 10.2307/2325486>

Fama, E. & French, K. (1988). Dividend yields and expected stock returns. *Journal of Financial Economics*, 22(1), 3. [https://doi.org/10.1016/0304-405X\(88\)90020-7](https://doi.org/10.1016/0304-405X(88)90020-7)

Ferson, W. & Harvey, C. (1991). The variation of economic risk premiums. *The Journal of Political Economy*, 99(2), 385. <https://doi.org/10.1086/261755>

Foerster, S. (1994). Stock markets performance and elections: Made in-Canada effects? *Canadian Investment Review*, 7(2), 39-42.

- 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. <https://doi.org/10.1057/palgrave.jibs.8490089>
- Gärtner, M. & Wellershoff, K. (1995). Is there an election cycle in American stock returns? *International Review of Economics and Finance*, 4(4), 387-410. [https://doi.org/10.1016/1059-0560\(95\)90036-5](https://doi.org/10.1016/1059-0560(95)90036-5)
- Gultekin, N. (1983). Stock market returns and inflation: Evidence from other countries. *Journal of Finance* 38, 49-65.
- Haug, M. & Hirschey, M. (2006). The January effect. *Financial Analysts Journal*, 62(5), 78-88. <https://doi.org/10.2469/faj.v62.n5.4284>
- Haugen, R. & Jorion, P. (1996). The January effect: Still there after all these years. *Financial Analysts Journal*, 52(1), 27. <https://doi.org/10.2469/faj.v52.n1.1963>
- Hensel, C.R. and Ziemba, W.T. (1995), United States investment returns during democratic and republican administrations, 1928-1993, *Financial Analysts Journal*, 51 (2), pp. 61-69.
- Hoe, S. & Nippani, S. (2017). 2016 U.S. Presidential election and stock markets in China. *International Journal of Economics and Finance*, 9(7), p.32. [doi:10.5539/ijef.v9n7p32](https://doi.org/10.5539/ijef.v9n7p32)
- Huang, R. D. (1985). Common stock returns and Presidential elections. *Financial Analysts Journal*, 41(2), 58-61. <https://doi.org/10.2469/faj.v41.n2.58>
- Hung, L. U.S. Presidential elections and the Taiwanese stock market. *Issues & Studies*, 49(1), 71-97.



- Johnson, R., Chittenden, W. & Jensen, G. (1999). Presidential politics, stocks, bonds, bills, and inflation - Some new differences identified. *Journal Of Portfolio Management*, 26(1), 27-31. <https://doi.org/10.3905/jpm.1999.319771>
- Jones, R.J. (2008) The state of Presidential election forecasting: the 2004 experience. *International Journal of Forecasting*, 24(2), 310-321.
- Julio, B. & Yook, Y. (2012). Political uncertainty and corporate investment cycles. *The Journal of Finance*, 67(1), 45-82.
- Levy, H. & Sarnat, M. (1970). International diversification of investment portfolios. *The American Economic Review*, 60(4), 668.
- Malkiel, B. (2005). Reflections on the efficient market hypothesis: 30 Years later. *The Financial Review*, 40(1), 1-9. <https://doi.org/10.1111/j.0732-8516.2005.00090.x>
- Merton, R. (1973). An intertemporal capital asset pricing model. *Econometrica* (pre-1986), 41(5), 867. <https://doi.org/10.2307/1913811>
- Nguyen, A. & Roberge, M. (2008). Timing the stock market with a joint examination of the Presidential election cycle and the yield curve. *Studies in Economics and Finance*, 25(3), 152-164. doi:10.1108/10867370810894684
- Nippani, S. & Arize, A. (2005). U.S. Presidential election impact on Canadian and Mexican stock markets. *Journal of Economics and Finance*, 29(2), 271-279. <https://doi.org/10.1007/BF02761558>
- Nordhaus, W. D. (1975). The political business cycle. *The Review of Economic Studies*, 42(2), 169-190. <https://doi.org/10.2307/229652>

- Oehler, A., Walker, T. J. & Wendt, S. (2013). Effects of election results on stock price performance: Evidence from 1980 to 2008. *Managerial Finance*, 39(8), 714-736. <https://doi.org/10.1108/MF-May-2012-0126>
- Riley, W. & Luksetich, W. (1980). The Market prefers Republicans: myth or reality. *Journal of Financial and Quantitative Analysis*, 15(3), 541. <https://doi.org/10.2307/2330399>
- Roll, R. (1981). A possible explanation of the small firm effect. *The Journal of Finance*, 36(4), 879. <https://doi.org/10.1111/j.1540-6261.1981.tb04890.x>
- Sabherwal, S., Sarkar, S. K. & Uddin, M. R. (2017). Political party affiliation of the President, majority in congress, and sin stock returns. *Financial Management*, 46(1), 3-31. doi:10.1111/fima.12141
- Santa-Clara, P. & Valkanov, R. (2003). The Presidential puzzle: political cycles and the stock market. *Journal of Finance*, 58(5), 1841-1872. <https://doi.org/10.1111/1540-6261.00590>
- Sawitri, N. & Astuty, P. (2018). Market anomalies and effect on returns. *European Research Studies Journal*, 21(2), 630-649.
- Shaikh, I. (2017). The 2016 U.S. Presidential election and the Stock, FX and VIX markets. *The North American Journal of Economics and Finance*, 42, 546-563. <https://doi.org/10.1016/j.najef.2017.08.014>
- Sharpe, W. F. (1975). Likely gains from market timing. *Financial Analysts Journal*, 31(2), 60-69. <https://doi.org/10.2469/faj.v31.n2.60>

- Stovall, R. H. (1992). Forecasting stock market performance via the Presidential cycle. *Financial Analysts Journal*, 48(3), 5-8.
- Sturm, R. R. (2011). Economic policy and the Presidential election cycle in stock returns. *Journal of Economics and Finance*, 1-16. doi:10.1007/s12197-011-9179-6
- Sturm, R. (2013). Economic policy and the Presidential election cycle in stock returns. *Journal of Economics and Finance*, 37(2), 200-215. <https://doi.org/10.1007/s12197-011-9179-6>
- Sultonov, M. & Jehan, S. N. (2018). Dynamic linkages between Japan's foreign exchange and stock markets: response to the Brexit referendum and the 2016 U.S. presidential election. *Journal of Risk and Financial Management*, 11(3), 34. <https://doi.org/10.3390/jrfm11030034>
- Weldon, H. (1996). That Presidential election cycle theory. *Business and Economic Review*, 43(1), 37.
- Weldon, H. W. (2008). The Presidential election theory cycle (Redux). *Business and Economic Review*, 54(2), 19-21.
- Wong, W. & McAleer, M. (2009). Mapping the Presidential election cycle in US stock markets. *Mathematics and Computers in Simulation*, 79(11), 3267-3277. doi:10.1016/j.matcom.2009.05.007
- Zhao, K., Liano, K. and William, G.H. (2004), Presidential election cycles and the turn-of-the-month effect, *Social Science Quarterly*, 85(4), 958-73.