

Do President Donald Trump's tweets affect the stock market?

An analysis of company-specific tweets.



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Master's Thesis in Economics

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Abstract for master's thesis

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Title: Do President Donald Trump's tweets affect the stock market? An analysis of company-specific tweets
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Abstract: <p>Donald J. Trump, the 45th president of the USA, has been an avid user of the social media platform Twitter before and during his presidency. He has frequently used this platform to communicate with the public. Trump tweets almost every, sometimes even multiple times per day. Since he became elected as president of the USA he has tweeted about a company on multiple occasions. What happens to the stock of these companies when arguably the most powerful man on the planet voices his opinion to the millions of people that read his tweets? That is the question that seeks to be answered within this thesis.</p> <p>The purpose of this thesis is to examine if and how the stocks of publicly listed companies are affected when President Donald Trump tweets about the companies. To attempt to ascertain whether such an effect exists and if so, how large it is, the effects of company-specific tweets on abnormal return, abnormal trading volume and volatility are analysed. To determine this, all tweets from Trump's official Twitter accounts, @realDonaldTrump and @POTUS, from November 9, 2016 to January 31, 2020 that mention a company publicly traded on the U.S. stock market have been analysed. The results were achieved by using OLS regressions with fixed effects on a company level, while also controlling for company size and the first three lags of abnormal return, abnormal trading volume, and volatility, respectively.</p> <p>The results in this thesis indicate that when Trump tweets the stock market reacts. More specifically, when Trump posts a tweet with a positive connotation towards a company,</p>

the abnormal return of that company increases, while tweets with a negative connotation decrease abnormal return. This effect is greater for tweets that were posted during the opening hours of the U.S. stock exchange, and smaller for tweets posted before President Trump's inauguration. Companies operating within the automobile industry experience a larger impact than other companies on their abnormal return when President Trump tweets about them. The opposite is the case for companies operating in the defense industry.

President Trump's tweets also impact abnormal trading volume of the stocks of the companies he mentions in his tweets. In this case there is no distinction between positive and negative tweets. All of President Trump's company-specific tweets increase abnormal trading volume. Tweets posted when the U.S. stock exchange was open have a larger impact on trading volume than those posted when the U.S. stock market is closed. President Trump's tweets that were posted before his inauguration had a smaller effect on volatility than those posted after.

When President Trump tweets, the U.S. stock market becomes more volatile. Tweets from President Trump increase the volatility of the stocks of the companies mentioned in those tweets. Again, the effect is greater when the tweets are posted during the opening hours of the U.S. stock exchange, and smaller when the tweet was posted before Trump was sworn in as president.

Keywords: Event study, social media, Twitter, stock market, Trump, OLS-regression

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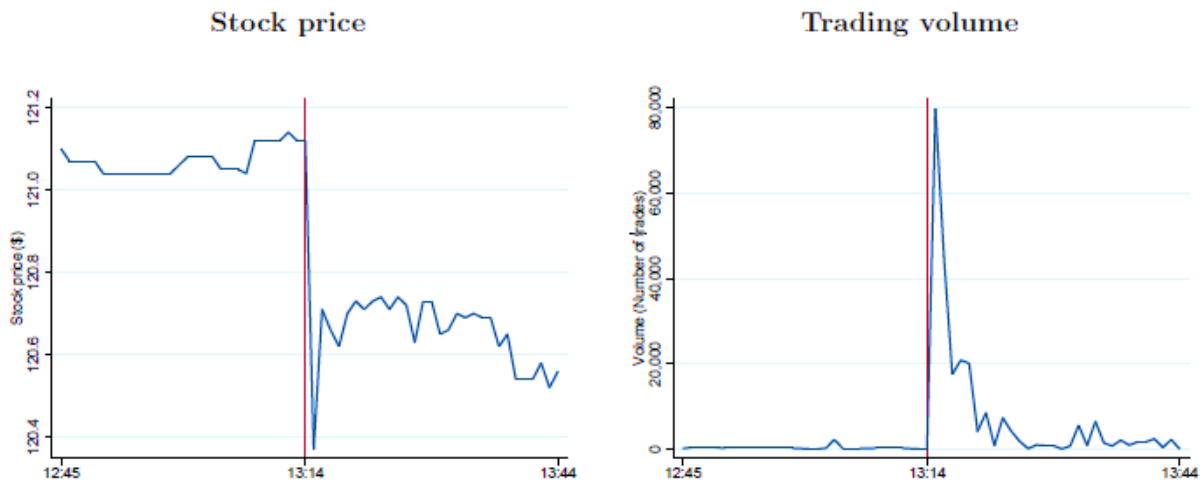
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1. Introduction

Donald J. Trump, the 45th President of the United States, is known to frequently communicate to the public via the social media platform Twitter, often multiple times per day. His tweets have caused some controversy and are often vary unpredictable. As the president of the USA, Donald Trump is one of the most powerful people according to Forbes (2018) and one of the most influential people in the world according to Time Magazine (2019). Therefore, he has the power to influence the decisions of many people. That means that his opinions, which are reflected in his tweets, may have the power to affect investment decisions of many investors. His tweets may also include information on future decisions he will make as president of the USA, concerning things such as trade tariffs, government contracts and bailouts. These decisions may affect the future of a company. That is why it is interesting to find out if the tweets he posts that mention companies are affecting the stock market.

Figure 1 below shows what happened to the price and trading volume of Toyotas stock around the time Trump posted a Tweet about Toyota. This shows that right after the tweet was posted the price fell and the trading volume increased. This singular case does not in itself indicate that Trump's tweets influence stocks, but it shows that the tweet in this case might have done so. This pattern warrants analysing more tweets to find out if they have a statistically significant effect on company stocks. Other tweets may also affect stocks as investors may find new information relevant to the future of the company in the statements in the tweets.

Figure 1.1: Toyota's stock price and trading volume on January 5, 2017



The figure shows the price and trading volume of Toyota ADR in a 60-minute window around January 5, 2017 when Trump tweeted “Toyota Motor said will build new plant in Baja, Mexico, to build Corolla cars for U.S. NO WAY! Build plant in U.S. or pay big border tax.” Source: Ge, Kurov & Wolfe (2018)

The question I aim to answer is interesting for a couple of reasons. Firstly, President Trump tweets very often. It is therefore of importance to know how these tweets affect the stocks of companies mentioned in said tweets. This will give President Trump and other influential people knowledge on what kind of an effect their tweets that mention companies have on stocks. With the help of this information influential people will know how their tweets affect stocks and can therefore adjust their tweeting behaviour to mitigate possible losses for companies. Knowing how the market reacts to President Trump's tweets may also be important for investors if they want to capitalise on the change in stock price these tweets may cause. Secondly, there has not been done much of research on how company-specific tweets affect the stock market. This thesis will also contribute to this body of research, while also being more specific on how Trump's tweets affect the return of stocks.

2. Theory and methodology

In this chapter I will discuss the theory behind my thesis and the methodology I will use to analyse the effects of President Donald Trump's tweets on stocks. Chapter 2.1 will present the previous literature relevant to my thesis. In chapter 2.2, I will discuss the data I obtained from twitter. Chapter 2.3 will discuss the stock market data and the formulas used to calculate key values.

2.1. Previous literature

At the time of writing I have only found a few studies that analyse how President Trump's company-specific tweets affect the company's stock. One of them is *Stock market reactions to presidential statements: Evidence from company-specific tweets* by Ge, Kurov and Wolfe (2018). They reviewed tweets from November 9, 2016 to July 31, 2017. They find that Trump's tweets move stock prices, where tweets that mention a company in a positive manner increase stock price and tweets that mention a company in a negative manner decrease stock price. They also find that President Trump's tweets increase trading volume, volatility, and institutional investor attention. They found that the effect tweets have on the stock was larger before the presidential inauguration on January 20, 2017. Ge, Kurov and Wolfe (2018) controlled for previous news related to Trump's tweets and found that even tweets that were preceded by other news affected stocks.

Brans and Scholtens (2020) also analysed the impact of Trump's company-specific tweets on stock return in their article *Under his thumb the effect of president Donald Trump's Twitter messages on the US stock market*. Theirs is an event study that analyses the effect of tweets that mention publicly traded companies from November 8, 2016 to November 8, 2018. They find that tweets with a negative sentiment affect abnormal return in an economically significant way. They do not find a significant response from other types of tweets. This indicates that the market reacts more strongly to negative tweets.

In their paper *Using Social Media Analytics: The Effect of President Trump's Tweets on Companies' Performance* Juma'h and Alnsour (2018) analyse if Trump's tweets affect major financial indexes in the USA or companies' excess return. Their sample period is from the middle of February 2016 to the middle of August 2017. Through their event study they do not find significant effects of Trump's tweets, related to economy or finance terms, or related to individual companies, on financial indexes or company stock return.

There is also an analysis of how Trump's tweets affect the stock market as a whole. Burggraf, Fendel and Huynh (2019) analysed this in their paper *Political news and stock prices: evidence from Trump's trade war*. They analysed tweets from September 14, 2018 to May 28, 2019 that mention key words related to Trump's trade war on China. They then used a structural vector autoregressive model to examine how these tweets impact S&P 500 return and investor uncertainty via the VIX index. Through their analysis Burggraf, Fendel and Huynh (2019) find that Trump's tweets related to the US-China trade war cause a drop in S&P 500 return and increase investor uncertainty. They also find that the tweets have a different impact on different industries.

There are other studies that have analysed connections between twitter and the stock market, for example, *The Wisdom of Twitter Crowds: Predicting Stock Market Reactions to FOMC Meetings Via Twitter Feeds* by Azar & Lo (2016). They analysed if it is possible to base investment decisions on Twitter sentiment. They found that portfolios created using twitter data can outperform a passive buy-and-hold strategy. They analysed tweets that cite the Federal reserve that were posted around Federal Open Markets Committee meetings. They identify Twitter sentiment by using natural language processing techniques and assigning a polarity score to each twitter message. This study shows that social media can have a significant effect on investments in the stock market. Fiala, Kapounek & Veselý (2015) also studied the effects of investor sentiment. They analysed tweets with either positive or negative sentiment towards Apple and Microsoft. They used algorithms to identify tweets referencing the two companies and whether the tweets were positive or negative towards these companies. They found that Twitter sentiment affects the stock price of these companies. Bollen, Mao, & Zeng (2011) analysed if public mood as measured from large-scale collection of Twitter posts is correlated or even predictive of Dow Jones Industrial Average

values. They found that public mood can be tracked using Twitter and text processing. Through some, but not all, methods they found that Twitter mood is predictive of the Dow Jones Industrial Average. Chen et al. (2014) analyse user-generated opinions from the website Seeking Alpha, one of the largest investment-related social-media websites in the United States according to them. They look at the frequency of negative words in articles and comments on Seeking Alpha, and find that the frequency of negative words in articles and comments negatively predict stock returns

My hypotheses for the results of this analysis will largely be based on the results from Ge, Kurov & Wolfe (2018), as I expect that my analysis will have similar results compared to theirs, unless the tweets Trump has posted after their sample period ended have changed in nature for some reason. I believe that President Trump's tweets will affect the price of the stock of the company that is mentioned in the tweet. Tweets that mention something positive about the company will increase the price of the stock, while negative tweets will decrease the price. This will be because it is possible that the market interprets the message in Trump's tweets as new information, and previous literature has found that public news releases influence the stock market and stock prices (Brooks, Patel and Su, 2003, Chan, 2003 and Vega, 2006). Ryan and Taffler (2004) found that news events affect the trading volume of the stocks of the companies mentioned in these news events. In their study Neuhierl, Scherbina and Sclusche (2013) identified that press releases, which are a type of news, increase stock volatility. If Trump's tweets are treated as news by investors it is likely that they will impact the stock price, trading volume, and volatility.

There can also be more behavioural reasons behind President Trump's tweets influencing the stock market, like people being influenced by Trump's opinions and therefore changing their investment behaviour. According to Hoffmann and Broekhuizen (2009), people can change their investment behaviour by being influenced by other people. Chen et al. (2014) mention the Cogent Research (2008) that states that one in four adults in the US rely on investment advice transmitted via social media outlets. Because of this Donald Trump's tweets may influence the investment behaviour of many people and that, in turn, may influence the stock market. I also believe that a tweet from Trump will increase the trading volume and the volatility of the stock of the company that is mentioned in the tweet. This is because he has a very large following on both of his Twitter accounts. A tweet from Trump

will therefore give that company increased attention, which will increase both the trading volume (Yuan, 2015) and the stock's volatility (Andrei and Hasler, 2014). Yuan (2008) also found that attention causes investors to adjust their stock positions, which will increase trading volume and may have an impact on stock prices. During times when market makers face attention limits stocks with more attention may experience greater liquidity (Corwin and Coughenour, 2008).

Fang and Peress (2011) found that media coverage can affect stock return even if it does not contain any genuine news. Engelberg and Parsons (2011) also identify that not only news, but media influences trading. The results in Sabherwal, Sarkar and Zhangs (2011) paper show that when stocks are heavily discussed, even without that discussion containing material news, abnormal return of those stocks is affected. This combined with the fact that previous research found that attention alone can affect the stock market shows that even if Trump's tweets are not considered as news they may still affect the stock market as long as they increase attention or media coverage, which can be seen as a form of attention.

Based on the previous literature it is easy to see that there are many different possible reasons for President Trump's tweets to affect company stocks, hence it is likely that the results in this thesis will show that Trump's tweets affect stocks.

2.2. Twitter data

I will gather tweets from both of President Donald Trump's Twitter accounts: @realDonaldTrump and @POTUS. The sample period I will use is from November 9, 2016, the day Trump got elected as president, to January 31, 2020. Even though President Trump was not inaugurated until January 20, 2017, I will include the tweets since he was elected, as his twitter following was already strong and it was known he would become president and would be able to affect policies in the future. During this time there have been 811 trading days on the U.S. stock market and during the same time Trump has tweeted about 42¹ different publicly traded companies that are listed on the U.S. stock exchange. The resulting number of panel observations is 34,062.

¹ All the companies present in this sample are listed in table A.2 in the appendix

During the sample period President Trump has posted 124 tweets where he mentions a publicly traded company. This tweet number is reached after I have done as I will describe later, and I counted multiple tweets about one company that were posted on the same day as one tweet. I have also counted tweets where multiple companies are mentioned as multiple tweets about a single company. Only 50 of these tweets were posted during the trading hours of the United States stock exchange. As most of the tweets were posted when the U.S. stock market was closed, I will use daily stock prices, trading volume and volatility. The same decision, to focus on daily data, was made in previous literature (Demirer and Kutan, 2010 and Ge, Kurov and Wolfe, 2018).

I will only focus on the U.S. stock market as President Trump's decisions, policies and opinions likely mostly affect companies that operate in the United States. I would also run into a few complications if I were to include companies that are not traded in the US. Firstly, the trading hours in other countries are different, because of time zones, and that may change how a tweet affects a company's stock. Secondly, and more importantly, the stocks in other countries are traded using different currencies. Changes in the exchange rate between U.S. dollars and the local currency might skew my results. I will not have to exclude too many companies, as most of the companies Trump has tweeted about are listed on the U.S. stock market. The companies that Trump mentioned in tweets during the sample period that are not traded on the U.S. stock exchange are: Airbus, Bayer, BMW, Foxconn, Huawei, Hyundai, Lotte Group, Mazda, Samsung, Softbank, Volkswagen and ZTE. Trump has tweeted about these companies 18 times. President Trump also mentioned Aetna and ESPN. These companies are privately held companies and therefore I can't include them in my analysis. Ge, Kurov and Wolfe (2018) have done the only analysis of President Trump's company-specific tweets on the company's stock I have found. They also chose to focus only on the U.S. stock market.

As Trump's relationship with the media is strained, I will not include tweets about media companies as the effect his tweets have may be different for these companies. It is possible that the content and nature of Trump's tweets directed towards media companies differs from those aimed at other companies. It is also possible that his followers interpret the content of such tweets differently because they are aware of his opinion about certain media outlets. Ge, Kurov and Wolfe (2018) also eliminated

media companies from their analysis. As I will eliminate certain tweets that mention other companies if the main message is about a media company. Such as tweets about the Washington Post, where Trump calls it the Amazon Washington Post or tweets about CNN, where he mentions that AT&T is the owner of CNN.

Tweets that were posted during the time the United States stock market was closed will be assigned to next trading day, as also done by Ge, Kurov and Wolfe (2018). I will do this because that is the day investors will be able to trade on the tweets and the possible new information they may contain. There are instances when President Trump posts multiple tweets about the same company on a single day. For example, the following tweets about Amazon on March 31, 2018. *“While we are on the subject, it is reported that the U.S. Post Office will lose \$1.50 on average for each package it delivers for Amazon. That amounts to Billions of Dollars. The Failing N.Y. Times reports that “the size of the company’s lobbying staff has ballooned,” and that... “ and “...does not include the Fake Washington Post, which is used as a “lobbyist” and should so REGISTER. If the P.O. “increased its parcel rates, Amazon’s shipping costs would rise by \$2.6 Billion.” This Post Office scam must stop. Amazon must pay real costs (and taxes) now!”*. That message was split into two tweets, because the message is too long for one tweet. This can happen when a single message is split into multiple tweets, due to the restrictions on tweet length, or because Trump posts two different tweets about the same company during one day. In these cases, I will again follow the example of Ge, Kurov, and Wolfe (2018), and count those tweets as a single tweet as the effects of these tweets will be combined in the daily data. In the case where a single tweet mentions two different companies, I will essentially count that tweet as two tweets, one for each company. This is important in cases where the message of the tweet is positive towards one company and negative towards the other, such as a tweet about Boeing and Lockheed Martin on December 22, 2016. *“Based on the tremendous cost and cost overruns of the Lockheed Martin F-35, I have asked Boeing to price-out a comparable F-18 Super Hornet!”*. In that tweet the message is positive about Boeing and negative about Lockheed Martin. Ge, Kurov and Wolfe (2018) did the same with tweets that mention multiple companies in their paper.

I will also classify tweets as either positive or negative. This will be done based on the message in the tweet and whether it has a positive or negative tone towards the company. For example, the following tweet about Rexnord on December 2, 2016 is

negative towards the company. *“Rexnord of Indiana is moving to Mexico and rather viciously firing all of its 300 workers. This is happening all over our country. No more!”*. While this tweet about Ford from January 4, 2016 is positive. *“Thank you to Ford for scrapping a new plant in Mexico and creating 700 new jobs in the U.S. This is just the beginning - much more to follow”*. Most previous studies on impact of social media on the stock market analyse big data. They look at a large number of messages and posts from multiple people. They aim to extract an overall sentiment of market participants from the data. As a result of this they cannot take into account the actual content of the messages and posts and the context in which these were made. In contrast to this, I will read each tweet and manually assign either a positive or a negative value based on the message and context of the tweets towards the company. This is possible because I only look at posts from one user, and therefore the amount of posts is much lower. I determine if the tone of the tweet is positive or negative towards the company in the same way that Ge, Kurov and Wolfe (2018) have done in their study. Tweets that are about jobs will be classified as positive if Trump applauds a company for keeping jobs in the USA or bringing them back from abroad. This is based on the fact that this has been an important issue for President Trump, as he stated in the 2016 Republican primary debate in South Carolina: *“I’m going to bring jobs back from China. I’m going to bring jobs back from Mexico and from Japan, where they’re all every country throughout the world now Vietnam, that’s the new one.”*. On the other hand, tweets about companies that move jobs out of the USA will be classified as negative.

Tweets about government cost will be classified as positive if the content of the tweet suggests that the company may help reduce government costs. If a tweet is about companies whose good or service the government purchases at high cost it is classified as negative. This is because Trump will not want to spend unnecessary government funds and his promises to reduce federal debt. Trump stated *“We’ve got to get rid of the \$19 trillion in debt”* during an interview with Bob Woodward and Robert Costa on April 3, 2016.

There are of course many tweets about different subjects than those mentioned above. In these cases, I will classify the tweets based on the general tone of the tweet and whether the message it contains is positive or negative towards the company. Whether a tweet has been classified as positive or negative is shown in table A.1 in the appendix.

2.3. Stock market data

I have gathered all the company stock data from Yahoo! Finance. The market data (stock market return, risk free return, small-minus-big market capitalization and high-minus-low book-to-market ratio) I have taken from Kenneth French's website. As I will use daily data in my analysis, the data I have collected is also in daily data.

Table 2.1: Summary Statistics

	Return	Absolute Value Return	Abnormal Return	Absolute Value Abnormal Return	Abnormal Trading Volume	Absolute Abnormal Trading Volume	Volatility
Median	0.0649	0.8080	-0.6725	0.9453	-0.1318	0.2784	1.0464
Mean	0.0567	1.2332	-0.6838	1.2825	0.0001	0.3749	1.3201
Minimum	-26.7760	0.0000	-29.2708	0.0001	-0.9836	0.0000	0.0000
Maximum	214.3535	214.3535	212.9950	212.9950	48.4456	48.4456	31.3044
Std Dev	2.2727	1.9098	2.1465	1.8521	0.7112	0.6044	1.1675

This table shows the summary statistics for the stock data from the sample period (9 November 2016 to 31 January 2020). All values are for daily data. Return and abnormal return values are in percentages

Compared to the data in Ge, Kurov and Wolfe's (2018) paper, the standard deviation in my sample is higher across the board indicating a more volatile market during my sample period. The extremes are also higher and lower respectively in my data. Both the mean and the median for abnormal return and absolute value abnormal return are higher in my dataset than that from Ge, Kurov and Wolfe (2018), which is no surprise as the stock market has performed well since Trump became president. The median and mean of abnormal trading volume are lower in my data, while those values for volatility are higher compared the data of Ge, Kurov and Wolfe (2018).

2.3.1. Abnormal return

To obtain abnormal return, I will first calculate the daily return for each stock in percentage terms using the closing price, using the following formula

$$R_{it} = \frac{C_{it} - C_{it-1}}{C_{it-1}} \quad (1)$$

Where R_{it} is the return and C_{it} is the closing price. I will then calculate excess return (ER_{it}) as return minus risk free return (RF_{it}).

$$ER_{it} = R_{it} - RF_t \quad (2)$$

I will then estimate the standard Fama-French three-factor model (Fama and French, 1993), in the same way that Ge, Kurov and Wolfe (2018) did. To keep my model more comparable to the one Ge, Kurov and Wolfe (2018) used I will not be using the Fama-French five-factor model (Fama and French, 2015) even though the five-factor model has the potential to control for more variables.

I will use an OLS regression according to the following equation.

$$ER_{it} = \beta_0 + \beta_1(RM_t - RF_t) + \beta_2SMB_t + \beta_3HML_t + \varepsilon_{it} \quad (3)$$

Where ER_{it} is excess return, RM_t is the stock market return, RF_t is risk free return, SMB_t is small-minus-big market capitalization and HML_t is high-minus-low book-to-market ratio. Estimating the excess return like this will allow me to calculate abnormal return. I will use the coefficients from the regression above in the formula below to calculate the abnormal return for each company.

$$AR_{it} = ER_{it} - [\beta_0 + \beta_1(RM_t - RF_t) + \beta_2SMB_t + \beta_3HML_t] \quad (4)$$

The reason I will use abnormal return instead of simply using return is because abnormal return controls for market movement, while return does not.

In his paper, MacKinlay (1997) recommends that one does not use the same estimation and event window, nor should they overlap. If the event and estimation windows overlap the events that are studied may affect the estimation and skew the results. Because of this recommendation I will be using data from the 9 November 2015 to the 8 November 2016 to estimate excess return and ensure the events in the sample used for the rest of the study do not affect the estimation. Ge, Kurov and Wolfe (2018) also did this, but they opted for a shorter time period for the estimation, while I chose to include the entire year prior to the event window.

2.3.2. Abnormal trading volume

Abnormal volume is reached by dividing the difference between trading volume for a given day and the average trading volume of the entire sample period by the average trading volume of the entire sample period, as done by Joseph, Wintoki and Zhang (2011).

$$AV_{it} = (V_{it} - V_{i,avg})/V_{i,avg} \quad (5)$$

V_{it} is the trading volume for company i on day t and $V_{i,avg}$ is the average daily volume over the entire sample period for company i .

Ge, Kurov and Wolfe (2018) calculated abnormal trading volume by dividing the difference between trading volume for a given day and the average trading volume of the previous five days by the average trading volume of the previous five days. I won't use this method because there are instances where a company is mentioned in President Trump's tweets more than once within a five-day period. This may lead to a situation where the five-day average trading volume for the second tweet is higher than first tweet within five days, as the five-day average trading volume for the second tweet includes the increase in trading volume from the first tweet. In this case the abnormal trading volume for the second tweet calculated by this method would be lower than it actually is. Therefore, results using this method might be skewed downward.

2.3.3. Volatility

To calculate volatility, I will use a method proposed by Rogers and Satchell (1991).

$$\sigma_{it}^2 = (H_{it} - C_{it})(H_{it} - O_{it}) + (L_{it} - C_{it})(L_{it} - O_{it}) \quad (6)$$

Where σ_{it}^2 is the variance and H_{it} , L_{it} , C_{it} and O_{it} are the natural logarithms of the high, low, closing, and opening prices of the stock. I will take the square root out of the variance to get the standard deviation and then multiply that value by 100 to get volatility. Ge, Kurov and Wolfe (2018) made the same calculations to get the volatility of the stock in their paper. Calculating volatility this way is advantageous compared to more commonly used ways, as those only give one value for volatility over the entire sample period. The method used here, developed by Rodgers and Satchell (1991) gives

a volatility value for each day, which is needed to estimate the effects of President Donald Trump's tweets on volatility when using daily data.

2.4. Empirical model

The method I will use for my analysis is based on the method Ge, Kurov and Wolfe (2018) used in their paper *Stock market reactions to presidential statements: Evidence from company-specific tweets*. They analyse the effects of President Trump's tweets that mention publicly traded companies, on stock prices, trading volume, volatility, and institutional investor attention. Ge, Kurov and Wolfe (2018) acquire their results by using OLS regressions with fixed effects for each company. In their basic model they only include the Twitter variable as an independent variable. They also use an OLS regression with a dummy variable for the time period before Trump's inauguration as President and term interacting the Twitter variable and the pre-inauguration dummy, which has the value one for the time before Trump was inaugurated as President of the United States. In my analysis I will also use an OLS regression with fixed effects for each company. I will use the fixed effects because it will help me to control for omitted variable bias. The use of fixed effects will control for all variables that don't change over time. What will differentiate my analysis from that of Ge, Kurov and Wolfe (2018) is that I will include a dummy variable for tweets that were posted during the opening hours of the U.S. stock exchange. I will do this because Ge, Kurov and Wolfe (2018) found that stock prices reverse during the following trading days after a tweet and that the increase in trading volume usually reverts to normal levels quite fast. Ge, Kurov and Wolfe (2018) suggested that future research could analyse whether certain industries are more influenced by tweets than others and if company size plays a role in the effect a tweet has on the company's stock. I will include separate dummy variables for companies that operate in the defence industry, the automobile industry, and the banking sector, because they are dependent on government contracts or may be dependent on government bailouts. I will be taking company size into account by using total annual revenue as a proxy, because total revenue is often used to describe how large a company is. I will use the total revenue value from the day after it was reported until the total revenue for the

following year is reported. As is often done in previous research, I will use the natural logarithm of total annual revenue. I won't include institutional investor attention in my analysis, as I want to focus more on return, trading volume and volatility. These values are more commonly used while making investment decisions and are likely more important to the companies themselves.

The sample period Ge, Kurov and Wolfe (2018) use is from November 9, 2016 to July 31, 2017. During this time there were 181 trading days on the U.S. stock exchange. In their sample they have 19 companies. My sample period will be from November 8, 2016 to January 31, 2020. This will increase the number of trading days during the sample period to 811. In my sample period Trump tweeted about 42 different companies. This means that I have a much larger sample than Ge, Kurov and Wolfe (2018) did.

Even though I use a fixed effects model there is still a risk that some omitted variables may affect my results. One concern may be other news sources reporting the same information that is contained within Trump's tweets. These other sources may be what influence the stock. Ge, Kurov and Wolfe (2018) tested this and found that tweets that were not preceded by other news sources had a larger effect on the stock than tweets that were preceded by other news sources. They also state that there is evidence indicating that Trump's tweets have an effect even when there is preceding news about the company. Ge, Kurov and Wolfe (2018) controlled for preceding news by searching for news on and before the day of a tweet on the Factiva global news database. They then use the same regressions they had done before, but only used tweets that were an original source of news (not preceded by other news).

As the methodology used in this thesis can be classed as an event study, I will discuss event studies and their benefits and potential drawbacks.

An event study is a statistical technique that estimates the stock price impact of occurrences such as mergers, earnings announcements, and so forth. The basic notion is to disentangle the effects of two types of information on stock prices – information that is specific to the firm under question (e.g., dividend announcement) and information that is likely to affect stock prices marketwide (e.g., change in interest rates). (Mitchell and Netter, 1994)

A tweet from Trump about a company is most likely going to fall under the category “*information that is specific to the firm under question*” mentioned by Mitchell and Netter (1994). According to MacKinlay (1997), who also states that an event study measures the impact of a specific event, some of the most successful event studies have been in the area of finance typically focusing on abnormal return. Binder (1998) also found that event studies are good as they show statistical power and wide applicability. This is a good sign for the validity of this thesis as that description would also fit this research. Mackinlay (1997) also states that it is important for an event study to precisely identify the date of the event. In the case of this thesis it has been easy to do that. All tweets posted have a timestamp, thus it is possible to know not only what day the tweets were posted, but what minute. As the tweets are the events in this study, it is very much possible to identify the precise date, and time, of the event. Other key factors for an event study is that the event is unexpected, and the information is freely available to the market. Trump’s tweets are both unexpected and freely available for anyone to read. Brans and Scholtens (2020) agree with this.

2.4.1. Abnormal return

When analysing how President Donald Trump’s tweets affect stock market return I will be using a fixed effects panel model.

$$AR_{it} = \alpha_0 + \alpha_1 T_{it} + \alpha_2 SO_{it} + \alpha_3 SO_{it} \times T_{it} + \alpha_4 I_t + \alpha_5 I_t \times T_{it} + \alpha_6 S_{it} + \theta_i + \varepsilon_{it} \quad (7)$$

Where AR_{it} is abnormal return, T_{it} is the Twitter variable, I_t is the dummy variable for post-inauguration, S_{it} is the indicator for company size and θ_i are company specific fixed effects. I will also include a dummy variable for tweets posted during the trading hours of the U.S. stock exchange (SO_{it}). I will include this variable because I expect tweets posted when the U.S. stock exchange is closed to have a lower effect on the abnormal return than tweets posted during the opening hours of the U.S. stock exchange. I expect this to be the case because Ge, Kurov and Wolfe (2018) found that the effect of Trump’s tweets on stock prices is temporary and reverses during the following days after the tweet. This reversal effect may already happen before the market opens as initial overreaction from investors may not be as large if they have

had time to process the information in the tweets while the market is closed. I will also include interaction terms between the Twitter variable and both the dummy for tweets posted post-inauguration and tweets posted during the trading hours of the U.S. stock exchange. This is a similar model used by Ge, Kurov and Wolfe (2018), though they didn't include a dummy variable for tweets posted outside the opening hours of the U.S. stock exchange, nor did they use an indicator for company size. Additionally, I will include variables for companies operating in the defence² and automobile³ industries and the banking⁴ sector as well as interaction terms between these variables and the Twitter variable. I will also include the first three lags of abnormal return as control variables.

2.4.2. Abnormal trading volume

In determining the effect of Trump's tweets on trading volume of a company's stock, I use abnormal trading volume. To determine this effect, I estimate a fixed effects panel model.

$$AV_{it} = \gamma_0 + \gamma_1|T_{it}| + \gamma_2SO_{it} + \gamma_3SO_{it} \times T_{it} + \gamma_4I_t + \gamma_5I_t \times T_{it} + \gamma_6S_{it} + \theta_i + \varepsilon_{it} \quad (8)$$

Where θ_i are company-specific fixed effects, I_t is the post-inauguration dummy and S_{it} is the indicator for company size. I will also use a dummy variable for tweets that were posted during the time the U.S. stock exchange was open (SO_{it}). I will be doing this, because Ge, Kurov and Wolfe (2018) found that the spike in trading volume usually doesn't last very long. Therefore, tweets posted during the opening hours of the U.S. stock market might have a larger effect on trading volume than those posted when the market is closed. As control variables I will also include the first three lags of abnormal trading volume. The Twitter variable, T_{it} , will be absolute as I expect both positive and negative tweets to increase trading volume. Ryan and Taffler (2004) did not classify news as positive or negative in their analysis. Therefore, I will also expect President Trump's tweets, both positive and negative, to increase trading volume. Furthermore, the model I have built is not suited for differentiating between positive and negative

² Boeing, Lockheed Martin, and Navistar

³ Fiat Chrysler, Ford, General Motors, Navistar, Toyota, and Workhorse

⁴ JPMorgan Chase and Wells Fargo

tweets and how they affect trading volume. If I would not use an absolute of the twitter variable and γ_l is positive, as I expect it will be, negative tweets would reduce trading volume. This would contradict previous research, and reason.

2.4.3. Volatility

To estimate the effect of Trump's tweets on volatility, I use a similar model as for estimating the effect on trading volume.

$$\sigma_{it} = \delta_0 + \delta_1|T_{it}| + \delta_2\sigma_{it-1} + \delta_3SO_{it} + \gamma_3SO_{it} \times T_{it} + \gamma_4I_t + \gamma_5I_t \times T_{it} + \gamma_6S_{it} + \theta_i + \varepsilon_{it} \quad (9)$$

Where σ_{it} stands for volatility, SO_{it} stands for the dummy for tweets posted during the opening hours of the stock market, I_t stands for the post-inauguration dummy and S_{it} is the company size indicator. As with trading volume the twitter variable is absolute. Neuhierl, Scherbina and Sclusche (2013) did not differ between positive and negative press releases and found that press releases increase volatility, therefore I will expect to find that both positive and negative tweets increase volatility. That is why I use the absolute value of the Twitter variable. The model is not suitable to differentiate between positive and negative tweets for the reasons described in the previous section about abnormal trading volume. I will include the first three lags of volatility in the model to account for persistence of volatility. Ge, Kurov and Wolfe (2018) used a similar model.

3. Results

In this chapter I will present the results of the regressions presented on chapter 2.4. In chapter 3.1 I will present the results for the effect of Trump's tweets on abnormal return. Chapter 3.2 will present the results for the effect of Trump's tweets on abnormal trading volume. Finally, in chapter 3.3 I will present the results for the effect of Trump's tweets on volatility.

3.1. Abnormal return

Table 3.1 summarises the effects President Donald Trump's tweets have on abnormal return using fixed effects models, with fixed effects for the 42 companies in the sample. Model 1 is the same used by Ge, Kurov and Wolfe (2018) in their basic model and Model 2 is the same they used to control for the differences between the time before and after Trump was sworn in as president. Model 3 adds a dummy variable for tweets posted within the opening hours of the U.S. stock market and natural logarithm of total revenue. In Model 4 I have included the three first lags of abnormal return as control variables for momentum. In all the models the effect of the Twitter variable on abnormal return is statistically significant with a positive coefficient. This indicates that Trump's tweets affect abnormal return. This is in line with my hypothesis and with what Ge, Kurov and Wolfe (2018) found. Taking the coefficient of model 1 as an example, a positive tweet would increase abnormal return by 2.26 percent on average, while a negative tweet would decrease abnormal return by 2.26 percent on average. This value is quite a bit higher than the 0.635 percent Ge, Kurov and Wolfe (2018) found. The coefficient in Model 3 and 4 is much closer to Ge, Kurov and Wolfe's (2018) value. As shown in Table 2.1, the standard deviation of abnormal return for the sample is 1.8521 percent. Therefore, the coefficients for the Twitter variable are also economically significant.

The interaction term between the inauguration dummy and the Twitter variable is also statistically significant. Surprisingly, the coefficient is negative. This indicates that tweets Trump posted before he was sworn in as president have a smaller effect on abnormal return. This contradicts the results from Ge, Kurov and Wolfe (2018). This may be due to that Trump's tweet have had a greater effect on abnormal return after the sample period of Ge, Kurov and Wolfe (2018) ended.

The interaction term between the dummy variable for tweets posted during the trading hours of the stock market and the Twitter variable is statistically significant with a positive coefficient. This is in line with my hypothesis, as it indicates that tweets posted when the stock market was open had a greater effect on abnormal return than tweets posted when the stock market was closed.

Because there are interaction terms, which include the Twitter variable that are statistically significant in Model 2, 3 and 4, there is some uncertainty about the importance of the Twitter variable in these models. Still, the results show that Trump's tweets affect abnormal return, the effect being smaller for tweets posted before he was sworn in as president and larger for tweets posted when the stock market was open.

The R-squared value is rather low in all models, and therefore the omitted variable bias may be quite high. The same is the case for the models in chapter 3.1.1., 3.1.2., and 3.1.3.

The inauguration dummy, which equals one before Trump was sworn in as president, is statistically significant in all models where it is present. The same is true for the logarithm of total annual revenue.

Table 3.1: The effects of President Trump's tweets on abnormal return

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Twitter variable	0.0226*** (0.00193)	0.0248*** (0.00211)	0.00988*** (0.00268)	0.00989*** (0.00267)
Pre-inauguration dummy		0.00700*** (0.000469)	0.00635*** (0.000467)	0.00598*** (0.000470)
Pre-inauguration x Twitter		-0.0160*** (0.00512)	-0.0148*** (0.00513)	-0.0148*** (0.00512)
Inside trading hours dummy			0.0351*** (0.00318)	0.0353*** (0.00317)
Inside trading hours x Twitter			0.0254*** (0.00404)	0.0254*** (0.00404)
ln(total revenue)			-0.00941*** (0.000553)	-0.00891*** (0.000559)
Abnormal return lag 1				0.00712 (0.00545)
Abnormal return lag 2				-0.00550 (0.00545)
Abnormal return lag 3				0.0545*** (0.00545)
Constant	-0.00686*** (0.000116)	-0.00733*** (0.000120)	0.0920*** (0.00585)	0.0871*** (0.00590)
Observations	34,062	34,062	34,062	34,062
R-squared	0.004	0.011	0.025	0.028
Number of companies	42	42	42	42

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.1.1. Automobile industry

The models I have used to obtain the results presented in table 3.3 are the same as Model 3 and 4 in the previous chapter, except that I have added a dummy variable for the automotive industry and an interaction term between the dummy variable for the automotive industry and the Twitter variable. The dummy variable for the automotive industry has the value one for companies that operate in the automotive industry and

zero for all other companies. The automotive dummy variable is omitted from the regression because its effects are already captured in the company-fixed effects.

Similarly, as for the regression without an automotive dummy, the Twitter variable is statistically significant, but this time the coefficient is negative. The interaction term between the inauguration dummy and the Twitter variable is also statistically significant and the coefficient for that interaction term is positive, which means that tweets posted before Trump was inaugurated as president have more of an effect on abnormal return than those posted after his inauguration. The interaction term between the automotive dummy and the Twitter variable is statistically significant and the coefficient is positive. Even though the coefficient for the Twitter variable itself is negative the coefficient of the interaction term between the automotive dummy and the Twitter variable compensates for this. The aggregated coefficient of these two variables is 0.05552, which is much larger than the coefficient for the twitter variable when the automotive dummy was not included. This number is again economically significant.

These results indicate that tweets about companies in the automotive industry have a greater effect on abnormal return than tweets about other companies, which is in line with my hypothesis. As two interaction terms that include the Twitter variable are highly significant in these models, the importance of the Twitter variable itself is uncertain. Because of this uncertainty, the coefficient for the Twitter variable being negative does not necessarily mean that positive tweets about companies in other industries than automobile decrease abnormal return.

Table 3.2: The effects of President Trump's tweets on abnormal return in the automobile industry

Variables	(1) Model 1	(2) Model 2
Twitter variable	-0.00688** (0.00290)	-0.00688** (0.00290)
Pre-inauguration dummy	0.00633*** (0.000465)	0.00597*** (0.000469)
Pre-inauguration x Twitter	-0.0275*** (0.00518)	-0.0275*** (0.00517)
Inside trading hours dummy	0.0309*** (0.00318)	0.0311*** (0.00317)
Inside trading hours x Twitter	0.0276*** (0.00403)	0.0277*** (0.00403)
Automobile industry dummy	-	-
Automobile industry x Twitter	0.0623*** (0.00424)	0.0624*** (0.00423)
ln(total revenue)	-0.00936*** (0.000552)	-0.00886*** (0.000557)
Abnormal return lag 1		0.00662 (0.00543)
Abnormal return lag 2		-0.00526 (0.00543)
Abnormal return lag 3		0.0547*** (0.00543)
Constant	0.0915*** (0.00583)	0.0866*** (0.00588)
Observations	34,062	34,062
R-squared	0.031	0.034
Number of companies	42	42

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.1.2. Banking sector

The inclusion of an interaction term between a banking sector dummy and the Twitter variable yields some interesting results as shown in table 3.3. The dummy for the banking sector is omitted because of collinearity with the fixed effects. The interaction

term itself is not statistically significant, but what is more interesting is that the inclusion of this variable does not change the significance and barely changes the coefficients of the other variables in the model compared to the results in table 3.1. This indicates that the abnormal return of companies operating in the banking sector is not affected differently than that of companies operating in different industries.

These findings may not be very reliable as there are only two companies in my sample which operate in the banking sector, but still indicate that the abnormal return of companies in the banking sector are not affected differently by Trump's tweets than others in my sample.

Table 3.3: The effects of President Trump's tweets on abnormal return in the banking sector

Variables	(1) Model 1	(2) Model 2
Twitter variable	0.00992*** (0.00269)	0.00991*** (0.00268)
Pre-inauguration dummy	0.00635*** (0.000467)	0.00598*** (0.000470)
Pre-inauguration x Twitter	-0.0149*** (0.00513)	-0.0148*** (0.00512)
Inside trading hours dummy	0.0351*** (0.00321)	0.0353*** (0.00320)
Inside trading hours x Twitter	0.0254*** (0.00405)	0.0255*** (0.00404)
Bank sector dummy	-	-
Bank sector x Twitter	-0.00224 (0.0153)	-0.000905 (0.0153)
ln(total revenue)	-0.00941*** (0.000553)	-0.00891*** (0.000559)
Abnormal return lag 1		0.00712 (0.00545)
Abnormal return lag 2		-0.00550 (0.00545)
Abnormal return lag 3		0.0545*** (0.00545)
Constant	0.0920*** (0.00585)	0.0871*** (0.00590)
Observations	34,062	34,062
R-squared	0.025	0.028
Number of companies	42	42

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.1.3. Defence industry

Table 3.5 shows the effects Trump's tweets have on abnormal return when controlling for companies operating in the defence industry. Otherwise the models are the same as Model 3 and 4 in table 3.1. The Twitter variable is statistically significant in both

models and has positive coefficients. The same is the case for the interaction term between the dummy for tweets posted during the opening hours of the stock market and the Twitter variable, while the interaction term between the pre-inauguration dummy and the Twitter variable is statistically significant with a negative coefficient. This has the same implications as the results in chapter 3.1. Tweets affect abnormal return, where tweets posted during the opening hours of the stock market and after Trump was inaugurated have a larger effect.

The dummy variable for defence industry is omitted because of collinearity with the fixed effects. The interaction term between the defence industry dummy and the Twitter variable is statistically significant and negative. This does not necessarily mean that positive Tweets about companies in the defence industry decrease abnormal return, as the coefficient for the Twitter variable is positive. The effect of the Twitter variable and the interaction term between the defence industry dummy and the Twitter variable very nearly cancel each other out. The aggregated coefficient of these two variables is -0.0031, which is a very small effect.

Because of the statistical significance of the interaction term between the defence industry and the Twitter variable the importance of the Twitter variable itself is uncertain. The results in table 3.5 indicate that tweets about companies in the defence industry affect the abnormal return less than tweets about companies in other industries, which is surprising as the defence industry only can sell to the US government or to others with the permission from the US government. On the other hand, the defence budget for the US is very large, almost 732 billion U.S. dollars in 2019⁵, and somewhat guarantees a steady cash flow for companies in the defence industry.

There are limitations to these results as two of the three companies in my sample operating in the defence industry, Boeing and Navistar, also operate in other industries. This may have skewed the results.

⁵ Source: Stockholm International Peace Research Institute, SIPRI Military Expenditure Database.

Table 3.4: The effects of President Trump's tweets on abnormal return in the defence industry

Variables	(1) Model 1	(2) Model 2
Twitter variable	0.0111*** (0.00274)	0.0111*** (0.00274)
Pre-inauguration dummy	0.00634*** (0.000467)	0.00597*** (0.000470)
Pre-inauguration x Twitter	-0.0131** (0.00520)	-0.0131** (0.00519)
Inside trading hours dummy	0.0355*** (0.00318)	0.0357*** (0.00318)
Inside trading hours x Twitter	0.0245*** (0.00407)	0.0245*** (0.00406)
Defence industry dummy	-	-
Defence industry x Twitter	-0.0144** (0.00716)	-0.0142** (0.00715)
ln(total revenue)	-0.00941*** (0.000553)	-0.00891*** (0.000559)
Abnormal return lag 1		0.00706 (0.00545)
Abnormal return lag 2		-0.00548 (0.00545)
Abnormal return lag 3		0.0545*** (0.00545)
Constant	0.0920*** (0.00584)	0.0871*** (0.00590)
Observations	34,062	34,062
R-squared	0.025	0.028
Number of companies	42	42

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.2. Abnormal trading volume

Table 3.6 presents the effects Trump's tweets have on abnormal trading volume. Model 1 and 2 are the same that Ge, Kurov and Wolfe (2018) used in their analysis.

Model 3 includes a dummy for tweets posted when the stock market was open and the natural logarithm of total revenue as a control variable. Model 4 further includes the first three lags of abnormal trading volume as control variables for momentum. In this model the Twitter variable is absolute, which means that there is no longer a distinction between positive and negative tweets. This is done because previous research has not made a distinction between positive and negative tweets or pieces of news in similar models.

There is no interaction term between the dummy for tweets posted during the opening hours of the stock market and the Twitter variable, because as the Twitter variable is absolute the interaction term and the stock market open dummy variable are identical.

In Model 1 and 2 the Twitter variable is highly statistically significant with a positive coefficient. Taking Model 1 as an example, a tweet from Trump increases abnormal trading volume by 60.6 percent on average. This effect is also economically significant as the standard deviation of absolute abnormal trading volume is 60.44 percent, as shown in Table 2.1. These results are similar to those of Ge, Kurov and Wolfe (2018), except that the coefficients in my results are about twice as large in Model 1 and one and a half times larger in Model 2. What differs from the results of Ge, Kurov and Wolfe (2018) is that the coefficient of the interaction term between the pre-inauguration dummy and the Twitter variable is negative. This means that tweets posted before the Trump's inauguration had a lower effect on trading volume, while Ge, Kurov and Wolfe (2018) found that these tweets had a higher impact on trading volume. This indicates that the tweets Trump posted after their sample period have had a greater effect on abnormal trading volume.

The statistical significance for the Twitter variable drops in Model 3 and 4, as does the coefficient. This is due to the inclusion of the dummy variable for tweets posted when the stock market was open, which is the same as the interaction term between that variable and the Twitter variable. That variable is highly statistically significant with a high coefficient. As the statistical significance for the Twitter variable disappears in Model 4 it may be that only tweets posted when the stock market is open affect abnormal trading volume. However, that model also includes two variables that are interaction terms with the Twitter variable, so the importance of the Twitter variable is uncertain.

The results from these models indicate that Trump's tweets posted during the opening hours of the U.S. stock market increase abnormal trading volume, while other tweets also may increase abnormal trading volume. Tweets posted before Trump was sworn in as president seem to have a smaller effect on trading volume.

The low R-squared value in all models may be of concern as it means there could exist an omitted variable bias.

Table 3.5: The effects of President Trump's tweets on abnormal trading volume

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Twitter variable	0.606*** (0.0640)	0.682*** (0.0702)	0.202** (0.0879)	0.101 (0.0744)
Pre-inauguration dummy		0.0821*** (0.0157)	0.0375** (0.0154)	0.0175 (0.0130)
Pre-inauguration x Twitter		-0.502*** (0.171)	-0.317* (0.168)	-0.281** (0.143)
Inside trading hours dummy			1.127*** (0.128)	1.059*** (0.108)
Inside trading hours x Twitter			-	-
ln(total revenue)			-0.675*** (0.0182)	-0.275*** (0.0159)
Abnormal trading volume lag 1				0.491*** (0.00544)
Abnormal trading volume lag 2				0.0160*** (0.00606)
Abnormal trading volume lag 3				0.0864*** (0.00544)
Constant	-0.00213 (0.00386)	-0.00767* (0.00400)	7.118*** (0.192)	2.903*** (0.168)
Observations	34,062	34,062	34,062	34,062
R-squared	0.003	0.004	0.045	0.316
Number of companies	42	42	42	42

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.3. Volatility

Table 3.7 presents the effects President Trump's tweets have on volatility. These models are the same as in previous chapters, except that the dependent variable is volatility and the lags are of volatility.

Model 1 and 2 are again the same as the models Ge, Kurov and Wolfe (2018) used. According to Model 1 a tweet from Trump increases volatility by 0.372 on average. My findings in these models are similar to theirs, except that the coefficients in my models are larger and the coefficient of the interaction term between the pre-inauguration dummy and the Twitter variable is negative. This indicates that tweets posted after the sample period of Ge, Kurov and Wolfe (2018) have had a larger impact on volatility. Though this interaction term is not statistically significant, and the results are therefore uncertain.

On the other hand, the dummy for tweets posted when the stock market was open in Model 3 and 4 is statistically significant and is identical with the interaction term of the stock market dummy and the Twitter variable. Because the Twitter variable is no longer significant when this interaction term is included in the model, it seems that only tweets that are posted during the opening hours of the stock market increase volatility. This effect is economically significant as the standard deviation for volatility is 1.1675, as shown in Table 2.1. Because there is an interaction term that includes the Twitter variable in Model 3 and 4, the importance of the Twitter variable is uncertain.

The results from these Models indicate that tweets that Trump posts during the opening hours of the U.S. stock market increase volatility. Other tweets may also increase volatility. There does not seem to be any difference between tweets posted before and after Trump was sworn in as president.

The R-squared value is quite low in all models, therefore there may exist an omitted variable bias.

Table 3.6: The effects of President Trump's tweets on volatility

Variables	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Twitter variable	0.372*** (0.0807)	0.417*** (0.0885)	0.177 (0.112)	0.145 (0.111)
Pre-inauguration dummy		-0.118*** (0.0197)	-0.151*** (0.0197)	-0.114*** (0.0194)
Pre-inauguration x Twitter		-0.196 (0.215)	-0.0980 (0.215)	-0.0389 (0.212)
Inside trading hours dummy			0.565*** (0.164)	0.459*** (0.162)
Inside trading hours x Twitter			-	-
ln(total revenue)			-0.491*** (0.0232)	-0.553*** (0.0230)
Volatility lag 1				0.0427*** (0.00268)
Volatility lag 2				0.0173*** (0.00282)
Volatility lag 3				0.0138*** (0.00268)
Constant	1.319*** (0.00486)	1.327*** (0.00504)	6.510*** (0.245)	7.043*** (0.243)
Observations	34,062	34,062	34,062	34,062
R-squared	0.001	0.002	0.015	0.041
Number of companies	42	42	42	42

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Twitter variable: 1 for days with a positive tweet, -1 for days with a negative tweet, 0 for days without tweet. Pre-inauguration dummy: 1 for days before and on the day of Trump's inauguration (20.01.2017), 0 on days after Trump's inauguration. Inside trading hours dummy: 1 for days where a tweet was posted inside the trading hours of the U.S. stock market, 0 on other days. ln(total revenue): natural logarithm of total revenue as of the latest earnings report.

3.4. Discussion

Even though President Trump's tweets may not always seem to be particularly thought out, there must be some sort of reasoning behind them. The choices Trump makes when deciding which companies to tweet about are bound to affect the sample of companies in this thesis. There also has to be some reasoning behind when he tweets. Even though the sample of companies in this thesis is quite large, it is likely not a perfect representation of the market as a whole. This is because Trump has most likely

chosen to tweet about these companies, not selected them at random. As many of the tweets Trump has posted that mention companies centre around jobs or production outside of the U.S., there is a bias towards companies that produce physical goods. There are particularly many companies operating in the automobile industry. Still, the companies in this thesis operate in varied industries and are of different sizes. Therefore, the results should give a good indication of how Trump's tweets affect the average company, especially those companies Trump chooses to tweet about. The results for the different industries (automobile, defence, and banking) will give a better picture of how Trump's tweets affect those types of companies. Especially the results for the automobile industry should be rather accurate as the sample of eight companies is the largest of the three industries I analysed.

Then there is the question of the timing of the tweets. Again, there has to be some reason why he posts when he does. Some of the tweets may have been posted on days where the same information about the company was published via other sources. This should not affect the results too much, as Ge, Kurov and Wolfe (2018) found that Trump's tweets have an effect even when news preceded the tweet. There are also tweets which most likely were not preceded by news. For example, tweets where Trump mentions a meeting he had with the CEO of the company. The timing of the tweets should not pose to large a problem.

Unless Trump changes the way he decides when and about what companies to tweet, future tweets will likely have similar effects as those analysed in this thesis.

Despite the fact that Trump does decide when, why, and about what company he tweets, his tweets are still an exogenous variable in the context of this analysis. It is unlikely that either abnormal return, abnormal trading volume or volatility determine when or about which company Trump tweets.

According to Corrado (2011), event-induced variance may be an issue in event studies where the sample is not the entire population. In the case of this study, where the sample is 42 companies, the sample is not the entire population as there are many more companies traded on the US stock exchange. This means that the results may have been affected by event-induced variance. That should not detract from the overall validity of the results as event-induced variance mostly skews the standard errors (Harrington and Shrider, 2007).

A limitation to this study is that I have manually collected all the tweets as well as stock and market data. Because of this there is the possibility of errors in the data collection process. This could have led to exclusion of events from the dataset.

Based on the results in this thesis President Trump should consider being careful when tweeting about companies, especially when the content of those tweets is negative. A negative tweet from Trump may have negative consequences for a company, as I have found that negative tweets decrease abnormal return. Investors may place greater weight on bad news in certain scenarios (Williams, 2015), which means that the potential detrimental effects of such tweets may be larger than my estimates. Not only Trump, but also other high-ranking officials with a similar potential to influence people's investment behaviour should take into consideration how their public statements can affect companies. Celebrities should also take this into consideration as their endorsement affects stocks (Agrawal and Kamakura, 1995). Risk seeking investors may want to use the results in this thesis to trade on stocks when Trump posts a company-specific tweet by identifying whether the tweet is positive or negative and then either buying or shorting the stock. Though this seems like a risky trade strategy.

Nearly all results in this thesis are in line with my hypotheses and with previous research from Ge, Kurov and Wolfe (2018). The only exceptions are that tweets have a smaller, not larger, impact before Trump's inauguration and that the abnormal return of companies in the defence industry is affected less by Trump's tweets than other companies in the sample. There are, however, completely reasonable explanations behind those results. There is some previous research that did not find that Trump's tweets impact stocks, but they used smaller and older samples or different methods.

I have contributed to the existing body of research by examining if there is a difference between tweets that are posted during our outside of the opening hours of the U.S. stock market and if there is a difference how companies operating in the automobile and defence industry and in the banking sector are impacted by Trump's tweets. I have also significantly increased the sample period and controlled for company size and momentum. With the help of this thesis the understanding of how President Trump's tweeting behaviour affects stocks is significantly increased. This thesis also expands our knowledge of how social media can impact financial markets. This thesis provides more information on how the social media posts of a single, albeit very influential,

person can impact the stock market. As this thesis is a type of event study, that body of research has also been expanded. Though I must admit that I doubt any major leaps have been made in that area.

Future research could investigate how other industries than those mentioned in this thesis are affected by Trump's tweets. There may also be other firm-level attributes that change the impact of Trump's tweets. For example, if the company also operates outside of the USA or not. How companies of different size are affected could also be examined, as this research only controlled for company size, but did not examine if companies of different sizes are affected differently. Finding out how long the effects of Trump's tweets last is also something that could be of interest to future research. Finding suitable control variables that would increase the value of R-squared and thus improve the validity of the results could be important to future research on this topic. Controlling for news events that precede a tweet from Trump is also something future research could look into. As event-induced variance may influence the results of event studies, it would be beneficial for future research to control for event-induced variance. As Williams (2015) found that negative news influences investors more than positive news in certain scenarios it could be interesting if future research into this topic were to analyse if that is also the case for the impact of Trump's company-specific tweets. As Trump's tweets reach investors quickly and market therefore may react to them quickly, future research could benefit from using more high frequency data.

4. Conclusion

The New York Stock Exchange happens to be the biggest casino in the world. The only thing that makes it different from the average casino is that the players dress in blue pinstripe suits and carry leather briefcases. (Trump, 1987, Trump: The Art of the Deal)

In this thesis I have attempted to investigate how tweets where President Trump mentions a company affect the abnormal return, abnormal trading volume, and volatility of the stock of the company mentioned in the tweet. As I have identified that Trump's company-specific tweets affect stocks, The New York Stock Exchange may not be a casino after all.

As the research in this thesis has demonstrated Trump's company-specific tweets affect abnormal trading volume. Tweets that are positive towards the company increase abnormal return, while tweets that are negative towards the company have the opposite effect. Before Trump was inaugurated the affect of tweets was smaller, compared to after his inauguration. Tweets posted during the opening hours of the stock market have a greater impact on abnormal return than those posted outside of the opening hours. Companies operating in the automobile industry experience a greater impact, than the rest of the companies in the sample, on abnormal return after a tweet from Trump, while companies operating in the defence industry experience a smaller impact. The results indicate that companies in the banking sector are affected the same as the other companies in the sample.

All of Trump's company-specific tweets that are posted during the trading hours increase abnormal trading volume and all other of Trump's company-specific tweets may increase abnormal trading volume. As was the case for abnormal return, tweets posted after Trump's inauguration have a great effect on abnormal trading volume than those posted before his inauguration.

The results for Trump's company-specific tweets effects on volatility are similar to those on abnormal trading volume. All company-specific tweets posted when the stock exchange was closed may increase volatility, and tweets posted when the stock exchange was open do increase volatility. Again, tweets posted before Trump's inauguration have a smaller impact on volatility than those posted after his inauguration.

All of the ways Trump's tweets impact stocks mentioned above are not only statistically, but also economically significant. A tweet from Trump can not only generate a large amount of trading volume and volatility, but also has the potential to increase or decrease a company's stock value by millions of U.S. dollars.

Summary in Swedish – Svensk sammanfattning

Påverkar president Donald Trumps tweetar aktiemarknaden? En analys av företagsspecifika tweetar.

Donald J. Trump, USA:s 45:e president är känd för att ofta kommunicera med allmänheten via Twitter. Som USA:s president är Trump en av världens mäktigaste och mest inflytelserika personer. Det betyder att han kan påverka många människors val och beteende. De åsikter och tankar han publicerar i sina tweetar kan alltså påverka investerarens beteende på aktiemarknaden. Det är även möjligt att Trumps tweetar innehåller ny information, om till exempel handelstariffer och statskontrakt, som kan ha en effekt på aktier.

På grund av inflytandet Trumps tweetar kan ha på aktiemarknaden är det intressant att undersöka hur tweetar där han nämner ett börsnoterat företag påverkar det företags aktie. Att veta hur Trumps företagsspecifika tweetar påverkar företags aktie är även intressant eftersom Trump tweetar så ofta. Att veta hur Trumps tweetar påverkar aktier kan hjälpa honom och andra inflytelserika personer att se över när de laddar upp tweetar och hurdan meddelande de innehåller för att minska på risken att företag gör förluster. För investerare är det intressant att veta hur Trumps tweetar påverkar aktier, eftersom investerare då kan reagera på Trumps tweetar på ett optimalt sätt för att öka på vinster, eller minska på förluster.

Den här avhandlingen baserar sig på en undersökning gjord av Ge, Kurov och Wolfe (2018). De undersökte också om Trumps tweetar där han nämner företag har en effekt på företags aktie. De kom fram till att Trumps tweetar påverkar avkastning, handelsvolym, volatilitet och uppmärksamhet från institutionella investerare. De fann att positiva tweetar ökar avkastningen, negativa tweetar sänker avkastningen och alla tweetar ökar på handelsvolym, volatilitet och uppmärksamhet från institutionella investerare. Ge, Kurov och Wolfe (2018) gjorde sin undersökning betydligt tidigare i Trumps presidentskap än då den här avhandlingen skrevs och har därför ett mindre sampel.

I skrivande stund finns det ingen annan tidigare forskning som undersöker effekten av Trumps tweetar på aktier. Det finns dock annan forskning som tangerar ämnet och kan stöda teorin bakom varför Trumps tweetar påverkar aktier. Bland annat Azar och Lo (2016) och Fiala, Kapounek och Veselý (2015) har kommit fram till att man genom att analysera stora mängder meddelanden på sociala medier, bland annat Twitter, kan se att dessa meddelanden har en effekt på aktiemarknaden. Sociala medier kan alltså ha en effekt på aktiemarknaden och det går att analysera rörelser på aktiemarknaden med hjälp av sociala medier. Tidigare forskning har också kommit fram till att nyheter påverkar aktiepris (Chan, 2003 och Vega, 2006), handelsvolym (Ryan och Taffler, 2004) och volatilitet (Neuhierl, Scherbina och Sclusche, 2013). Ifall investerare tolkar de meddelanden som Trump skriver i sina tweetar som nyheter är det möjligt att Trumps tweetar påverkar aktiepris, handelsvolym och volatilitet. Det finns även forskning som kommit fram till att människors investeringsbeteende kan påverkas av andra människor, så som vänner och familj (Hoffman och Broekhuizen, 2009), och att en av fyra amerikaner använder sig av investeringsråd som publicerade på sociala medier (Chen et al., 2014).

I den här avhandlingen har tweetar från båda President Trumps båda officiella twitterkonton, @realDonaldTrump och @POTUS, samlats under sampelperioden från den 9 november 2016 till den 31 januari 2020. På grund av att de flesta tweetar har laddats upp då USA:s börs var stängd har jag använt dagliga data i min analys. Trump har vid flera tillfällen laddat upp flera tweetar som nämner samma företag under samma dag och laddat upp sådana tweetar där han nämner flera olika företag i samma tweet. På grund detta har jag räknat flera tweetar under samma dag om samma företag som en tweet och en tweet om flera företag som en tweet per företag som nämns. Jag har även klassat tweetar som antingen positiva eller negativa gentemot företaget baserat på budskapet i dem. Eftersom Trump har ett dåligt förhållande med medier, som tidningar och nyhetsstationer har jag lämnat bort tweetar om företag som är aktiva inom sådana branscher. Ge, Kurov och Wolfe (2018) lämnade också bort företag inom mediebranschen av samma orsak.

All aktiedata jag har använt kommer från Yahoo! Finance, medan all marknadsdata kommer från Kenneth Frenchs webbsida. Till aktiedata hör dagliga data över bland annat aktiepris och handelsvolym. Till marknadsdata hör bland annat dagliga data över marknadens riskfria avkastning.

Den empiriska modellen som används i den här avhandlingen för att analysera effekten av Trumps tweetar på företagsaktier baserar sig på metoden Ge, Kurov och Wolfe (2018) använde i sin analys. Jag har undersökt hur Trumps tweetar påverkar avkastning, handelsvolym och volatilitet. Precis som de gjorde använde jag OLS-regressioner med företagsfixa effekter. Jag har även kontrollvariabler för tweetar som laddats upp efter att Trump blev invald som president, men innan han svors in, och för tweetar som laddats upp då USA:s börs var öppen. Ge, Kurov och Wolfe (2018) hade också en kontrollvariabel för tiden innan Trump svors in som president, men inte en variabel för tweetar som laddats upp då börsen var öppen. Det som Ge, Kurov och Wolfe (2018) inte har gjort men jag har gjort i den här avhandlingen är att kontrollera för företagens storlek och undersöka om företag som agerar inom bilindustrin, försvarsindustrin eller banksektorn påverkas annorlunda av Trumps tweetar än andra företag.

Resultaten för analysen av tweetarnas effekt på avkastning tyder på att tweetarna påverkar avkastningen. Positiva tweetar höjer avkastningen, medan negativa tweetar sänker avkastningen. Det här är i linje med resultaten Ge, Kurov och Wolfe (2018) kom fram till. Det som skiljer sig från deras resultat är att de kom fram till att tweetar som laddades upp innan Trump blev president har en större effekt på avkastningen, medan min analys visar att tweetar som laddades upp innan Trump blev president har en mindre effekt på avkastningen. Detta kan bero på att tweetar som laddats upp efter Ge, Kurov och Wolfes (2018) sampel påverkar avkastningen i större grad. Jag har också kommit fram till att tweetar som laddats upp med börsen var öppen har en större effekt på avkastning än andra tweetar.

Enligt de resultat jag har fått har Trumps tweetar en större effekt på avkastningen för företag inom bilbranschen, medan avkastningen för företag inom försvarsbranschen påverkas mindre av Trumps tweetar. Avkastningen för företag inom banksektorn påverkas likadant som företag inom resten av samplet av Trumps tweetar.

De resultat jag har kommit fram till tyder på att Trumps tweetar kan höja på handelsvolymen, vilket är i linje med Ge, Kurov och Wolfes (2018) resultat. Dock kommer jag fram till att tweetar som laddats upp innan Trump blev president har en mindre effekt, medan Ge, Kurov och Wolfe (2018) kom fram till att dessa tweetar har en större effekt. Detta tyder igen på att tweetar som laddats upp efter Ge, Kurov och

Wolfes (2018) sampel har en större effekt på handelsvolymen. Jag har även kommit fram till att tweetar som Trump laddade upp då börsen var öppen höjer på handelsvolymen.

Resultaten i den här avhandlingen tyder på att Trumps tweetar höjer på volatiliteten, detta gäller främst de tweetar som laddats upp då USA:s börs var öppen. Det resultatet är inte helt i linje med det Ge, Kurov och Wolfe (2018) kom fram till. De kom fram till att alla tweetar höjer på volatiliteten. Dock hade de inte en variabel för tweetar som laddades upp under börsens öppettider. I de modeller utan den variabeln visar resultaten att Trumps tweetar höjer på volatiliteten.

Sammanfattningsvis kommer jag i denna avhandling fram till att Trumps tweetar har en effekt på aktiers avkastning, där positiva tweetar höjer på avkastningen medan negativa tweetar sänker på avkastningen. Denna effekt är större för företag inom bilindustrin, medan den är mindre för företag inom försvarsindustrin. Tweetar som laddades upp då USA:s börs var öppen hade också en större påverkan på avkastningen. Det hittades inte lika tecken starka på att Trumps tweetar påverkar handelsvolym, men tweetar som laddades upp under USA:s börs öppettider visades höja handelsvolymen. Resultaten för effekten av Trumps tweetar på volatiliteten är liknande som för handelsvolym. Tweetar som laddats upp när börsen var öppen höjer på volatiliteten, medan andra tweetar har en mindre effekt. För alla dessa tre utfallsvariabler gäller att tweetar Trump laddade upp innan han svors in som president har en mindre effekt.

References

Agrawal, J., & Kamakura, W. A. (1995). The economic worth of celebrity endorsers: An event study analysis. *Journal of marketing*, 59(3), 56-62.

Andrei, D., & Hasler, M. (2014). Investor attention and stock market volatility. *The review of financial studies*, 28(1), 33-72.

Azar, P., & Lo, A. W. (2016) The Wisdom of Twitter Crowds: Predicting Stock Market Reactions to FOMC Meetings Via Twitter Feeds.

Bartov, E., Faurel, L., & Mohanram, P. S. (2018). Can Twitter help predict firm-level earnings and stock returns?. *The Accounting Review*, 93(3), 25-57.

Binder, J. (1998). The event study methodology since 1969. *Review of quantitative Finance and Accounting*, 11(2), 111-137..

Bollen, J., Mao, H., & Zeng, X. (2011). Twitter mood predicts the stock market. *Journal of computational science*, 2(1), 1-8.

Brans, H., & Scholtens, B. (2020). Under his thumb the effect of president Donald Trump's Twitter messages on the US stock market. *PloS one*, 15(3), e0229931.

Brooks, R. M., Patel, A., & Su, T. (2003). How the equity market responds to unanticipated events. *The Journal of Business*, 76(1), 109-133.

Burggraf, T., Fendel, R., & Huynh, T. L. D. (2019). Political news and stock prices: evidence from Trump's trade war. *Applied Economics Letters*, 1-4.

Chan, W. S. (2003). Stock price reaction to news and no-news: drift and reversal after headlines. *Journal of Financial Economics*, 70(2), 223-260.

Chen, H., De, P., Hu, Y. J., & Hwang, B. H. (2014). Wisdom of crowds: The value of stock opinions transmitted through social media. *The Review of Financial Studies*, 27(5), 1367-1403.

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

Corwin, S. A., & Coughenour, J. F. (2008). Limited attention and the allocation of effort in securities trading. *The Journal of Finance*, 63(6), 3031-3067.

Demirer, R., & Kutan, A. M. (2010). The behavior of crude oil spot and futures prices around OPEC and SPR announcements: An event study perspective. *Energy Economics*, 32(6), 1467-1476.

Engelberg, J. E., & Parsons, C. A. (2011). The causal impact of media in financial markets. *The Journal of Finance*, 66(1), 67-97.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33, 3-56.

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of financial economics*, 116(1), 1-22.

Fang, L., & Peress, J. (2009). Media coverage and the cross-section of stock returns. *The Journal of Finance*, 64(5), 2023-2052.

Fiala, V., Kapounek, S., & Veselý, O. (2015). Impact of Social Media on the Stock Market: Evidence from Tweets. *European Journal of Business Science and Technology*, 1(1), 24-35.

Ge, Q., Kurov, A., & Wolfe, M. H. (2018). Stock market reactions to presidential statements: Evidence from company-specific tweets.

Harrington, S. E., & Shrider, D. G. (2007). All events induce variance: Analyzing abnormal returns when effects vary across firms. *Journal of Financial and Quantitative Analysis*, 42(1), 229-256.

Hoffmann, A. O., & Broekhuizen, T. L. (2009). Susceptibility to and impact of interpersonal influence in an investment context. *Journal of the Academy of Marketing Science*, 37(4), 488-503.

Joseph, K., Wintoki, M. B., & Zhang, Z. (2011). Forecasting abnormal stock returns and trading volume using investor sentiment: Evidence from online search. *International Journal of Forecasting*, 27(4), 1116-1127.

- Juma'h, A., & Alnsour, Y. (2018). Using Social Media Analytics: The Effect of President Trump's Tweets on Companies' Performance. *Journal of Accounting and Management Information Systems*, 17(2018), 100-121.
- MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of economic literature*, 35(1), 13-39.
- Mitchell, M. L., & Netter, J. M. (1994). The role of financial economics in securities fraud cases: Applications at the Securities and Exchange Commission. *The Business Lawyer*, 545-590.
- Neuhierl, A., Scherbina, A., & Schlusche, B. (2013). Market reaction to corporate press releases. *Journal of Financial and Quantitative Analysis*, 48(4), 1207-1240.
- Rogers, L. C. G., & Satchell, S. E. (1991). Estimating variance from high, low and closing prices. *The Annals of Applied Probability*, 504-512.
- Ryan, P., & Taffler, R. J. (2004). Are economically significant stock returns and trading volumes driven by firm-specific news releases?. *Journal of Business Finance & Accounting*, 31(1-2), 49-82.
- Sabherwal, S., Sarkar, S. K., & Zhang, Y. (2011). Do internet stock message boards influence trading? Evidence from heavily discussed stocks with no fundamental news. *Journal of Business Finance & Accounting*, 38(9-10), 1209-1237.
- Trump, D. J., & Schwartz, T. (1987). *Trump: The art of the deal*. Ballantine Books.
- Vega, C. (2006). Stock price reaction to public and private information. *Journal of Financial Economics*, 82(1), 103-133.
- Williams, C. D. (2015). Asymmetric responses to earnings news: A case for ambiguity. *The Accounting Review*, 90(2), 785-817.

Yuan, Y. (2008). *Attention and trading*. Financial Institutions Center, Wharton School, University of Pennsylvania.

Yuan, Y. (2015). Market-wide attention, trading, and stock returns. *Journal of Financial Economics*, 116(3), 548-564.

Websites

Forbes The World's Most Powerful People: <https://www.forbes.com/powerful-people/list/#tab:overall> (24.03.2020)

Donald Trump interview with Bob Woodward and Robert Costa, April 3, 2016: <https://www.washingtonpost.com/news/post-politics/wp/2016/04/02/transcript-donald-trump-interview-with-bob-woodward-and-robert-costa/> (18.02.2020)

Kenneth R. French's website:

https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

Republican Candidates Debate in Greenville, South Carolina, February 13, 2016: <https://www.presidency.ucsb.edu/documents/republican-candidates-debate-greenville-south-carolina> (19.02.2020)

Stockholm International Peace Research Institute, SIPRI Military Expenditure: Database: <https://www.sipri.org/databases/milex> (06.06.2020)

TIME 100 most influential people of 2019: <https://time.com/collection/100-most-influential-people-2019/> (14.11.2019)

Yahoo Finance: <https://finance.yahoo.com/>

Appendix

Table A.1: Tweet information

Date and time (EST)	Company (Ticker)	Tweet	Sentiment
17/11/2016 21:01	Ford (F)	Just got a call from my friend Bill Ford, Chairman of Ford, who advised me that he will be keeping the Lincoln plant in Kentucky - no Mexico	+
17/11/2016 21:15	Ford (F)	I worked hard with Bill Ford to keep the Lincoln plant in Kentucky. I owed it to the great State of Kentucky for their confidence in me!	+
24/11/2016 10:11	Carrier A.C. Company (UTX)	I am working hard, even on Thanksgiving, trying to get Carrier A.C. Company to stay in the U.S. (Indiana). MAKING PROGRESS - Will know soon!	+
29/03/2018 07:57	Carrier A.C. Company (UTX)	I will be going to Indiana on Thursday to make a major announcement concerning Carrier A.C. staying in Indianapolis. Great deal for workers!	+
29/11/2016 22:40	Carrier A.C. Company (UTX)	Big day on Thursday for Indiana and the great workers of that wonderful state. We will keep our companies and jobs in the U.S. Thanks Carrier	+
30/11/2016 13:21	Carrier A.C. Company (UTX)	Great interview on foxandfriends by SteveDoocy w/ Carrier employee-who has a message for #PEOTUS realDonaldTrump & #VPEOTUSmike pence.	+
30/11/2016 15:00	Carrier A.C. Company (UTX)	Its not uncommon for a Republican to be pro-business. But President-elect Donald Trump showed Tuesday night hes pro-worker, too, by saving 1,000 jobs at the Carrier plant in Indiana.	+
30/11/2016 22:48	Carrier A.C. Company (UTX)	Look forward to going to Indiana tomorrow in order to be with the great workers of Carrier. They will sell many air conditioners!	+
01/12/2016 09:38	Carrier A.C. Company (UTX)	Getting ready to leave for the Great State of Indiana and meet the hard working and wonderful people of Carrier A.C.	+
02/12/2016 22:06	Rexnord (RXN)	Rexnord of Indiana is moving to Mexico and rather viciously firing all of its 300 workers. This is happening all over our country. No more!	-
06/12/2016 08:52	Boeing (BA)	Boeing is building a brand new 747 Air Force One for future presidents, but costs are out of control, more than \$4 billion. Cancel order!	-
11/12/2016 10:29	ExxonMobil (XOM)	Whether I choose him or not for "State"- Rex Tillerson, the Chairman & CEO of ExxonMobil, is a world class player and dealmaker. Stay tuned!	+
13/12/2016 06:43	ExxonMobil (XOM)	I have chosen one of the truly great business leaders of the world, Rex Tillerson, Chairman and CEO of ExxonMobil, to be Secretary of State.	+
22/12/2016 17:26	Boeing (BA)	Based on the tremendous cost and cost overruns of the Lockheed Martin F-35, I have asked Boeing to price-out a comparable F-18 Super Hornet!	+
22/12/2016 17:26	Lockheed Martin (LMT)	Based on the tremendous cost and cost overruns of the Lockheed Martin F-35, I have asked Boeing to price-out a comparable F-18 Super Hornet!	-

03/01/2017 07:30	General Motors (GM)	General Motors is sending Mexican made model of Chevy Cruze to U.S. car dealers-tax free across border. Make in U.S.A.or pay big border tax!	-
03/01/2017 11:44	Ford (F)	"@DanScavino: Ford to scrap Mexico plant, invest in Michigan due to Trump policies"	+
04/01/2017 08:19	Ford (F)	Thank you to Ford for scrapping a new plant in Mexico and creating 700 new jobs in the U.S. This is just the beginning - much more to follow	+
05/01/2017 13:14	Toyota (TM)	Toyota Motor said will build a new plant in Baja, Mexico, to build Corolla cars for U.S. NO WAY! Build plant in U.S. or pay big border tax.	-
09/01/2017 09:14	Fiat Chrysler (FCAU)	It's finally happening - Fiat Chrysler just announced plans to invest \$1BILLION in Michigan and Ohio plants, adding 2000 jobs. This after...	+
09/01/2017 09:16	Ford (F)	Ford said last week that it will expand in Michigan and U.S. instead of building a BILLION dollar plant in Mexico. Thank you Ford & Fiat C!	+
09/01/2017 09:16	Fiat Chrysler (FCAU)	Ford said last week that it will expand in Michigan and U.S. instead of building a BILLION dollar plant in Mexico. Thank you Ford & Fiat C!	+
17/01/2017 12:55	General Motors (GM)	Thank you to General Motors and Walmart for starting the big jobs push back into the U.S.!	+
17/01/2017 12:55	Walmart (WMT)	Thank you to General Motors and Walmart for starting the big jobs push back into the U.S.!	+
24/01/2017 19:46	Ford (F)	Great meeting with Ford CEO Mark Fields and General Motors CEO Mary Barra at the @WhiteHouse today.	+
24/01/2017 19:46	General Motors (GM)	Great meeting with Ford CEO Mark Fields and General Motors CEO Mary Barra at the @WhiteHouse today.	+
30/01/2017 07:16	Delta Airline (DAL)	Only 109 people out of 325,000 were detained and held for questioning. Big problems at airports were caused by Delta computer outage,.....	-
02/02/2017 12:56	Harley-Davidson (HOG)	Great meeting with @harleydavidson executives from Milwaukee, Wisconsin at the @WhiteHouse	+
03/02/2017 13:26	Harley-Davidson (HOG)	#ICYMI- Remarks by President Trump Before Meeting with Harley-Davidson Executives and Union Representatives:	+
08/02/2017 10:51	Nordstrom (JWN)	My daughter Ivanka has been treated so unfairly by @Nordstrom. She is a great person -- always pushing me to do the right thing! Terrible!	-
08/02/2017 14:22	Intel (INTC)	Thank you Brian Krzanich, CEO of @Intel. A great investment (\$7 BILLION) in American INNOVATION and JOBS! #AmericaFirst	+
17/02/2017 06:38	Boeing (BA)	Going to Charleston, South Carolina, in order to spend time with Boeing and talk jobs! Look forward to it.	+
23/02/2017 16:11	Cisco (CSCO)	'Cisco chairman John Chambers explains how Trump will be a boon to tech startups'	+
06/03/2017 16:19	ExxonMobil (XOM)	'President Trump Congratulates Exxon Mobil for Job-Creating Investment Program'	+
06/03/2017 16:22	ExxonMobil (XOM)	45,000 construction & manufacturing jobs in the U.S. Gulf Coast region. \$20 billion investment. We are already winning again, America!	+
06/03/2017 22:29	ExxonMobil (XOM)	Buy American & hire American are the principles at the core of my agenda, which is: JOBS, JOBS, JOBS! Thank you @exxonmobil.	+

06/03/2017 22:50	ExxonMobil (XOM)	Thank you to @exxonmobil for your \$20 billion investment that is creating more than 45,000 manufacturing & construction jobs in the USA!	+
24/03/2017 12:59	Charter Communications (CHTR)	Today, I was thrilled to announce a commitment of \$25 BILLION & 20K AMERICAN JOBS over the next 4 years. THANK YOU Charter Communications!	+
28/03/2017 06:36	Ford (F)	Big announcement by Ford today. Major investment to be made in three Michigan plants. Car companies coming back to U.S. JOBS! JOBS! JOBS!	+
07/05/2017 18:58	Rexnord (RXN)	Rexnord of Indiana made a deal during the Obama Administration to move to Mexico. Fired their employees. Tax product big that's sold in U.S.	-
20/07/2017 23:31	Corning (GLW)	Billions of dollars in investments & thousands of new jobs in America! An initiative via Corning, Merck & Pfizer: http://45.wh.gov/jKxBRE	+
20/07/2017 23:31	Merck (MRK)	Billions of dollars in investments & thousands of new jobs in America! An initiative via Corning, Merck & Pfizer: http://45.wh.gov/jKxBRE	+
20/07/2017 23:31	Pfizer (PFE)	Billions of dollars in investments & thousands of new jobs in America! An initiative via Corning, Merck & Pfizer: http://45.wh.gov/jKxBRE	+
04/08/2017 06:02	Toyota (TM)	Toyota & Mazda to build a new \$1.6B plant here in the U.S.A. and create 4K new American jobs. A great investment in American manufacturing!	+
14/08/2017 08:54	Merck (MRK)	Now that Ken Frazier of Merck Pharma has resigned from President's Manufacturing Council, he will have more time to LOWER RIPOFF DRUG PRICES!	-
14/08/2017 18:09	Merck (MRK)	.@Merck Pharma is a leader in higher & higher drug prices while at the same time taking jobs out of the U.S. Bring jobs back & LOWER PRICES!	-
16/08/2017 06:12	Amazon (AMZN)	Amazon is doing great damage to tax paying retailers. Towns, cities and states throughout the U.S. are being hurt - many jobs being lost!	-
22/09/2017 13:54	American Airlines (AAL)	Thank you to Doug Parker and American Airlines for all of the help you have given to the U.S. with Hurricane flights. Fantastic job!	+
02/11/2017 14:58	Broadcom (AVGO)	Today, we are thrilled to welcome @Broadcom CEO Hock Tan to the WH to announce he is moving their HQ's from Singapore back to the U.S.A.....	+
02/11/2017 15:33	Broadcom (AVGO)	Broadcom's move to America=\$20 BILLION of annual rev into U.S.A., \$3+ BILLION/yr. in research/engineering & \$6 BILLION/yr. in manufacturing.	+
08/12/2017 10:18	Wells Fargo & Company (WFC)	Fines and penalties against Wells Fargo Bank for their bad acts against their customers and others will not be dropped, as has incorrectly been reported, but will be pursued and, if anything, substantially increased. I will cut Regs but make penalties severe when caught cheating!	-
29/12/2017 08:04	Amazon (AMZN)	Why is the United States Post Office, which is losing many billions of dollars a year, while charging Amazon and others so little to deliver their packages, making Amazon richer and the Post Office dumber and poorer? Should be charging MUCH MORE!	-
10/01/2018 18:37	Toyota (TM)	Cutting taxes and simplifying regulations makes America the place to invest! Great news as Toyota	+

		and Mazda announce they are bringing 4,000 JOBS and investing \$1.6 BILLION in Alabama, helping to further grow our economy!	
10/01/2018 23:29	Toyota (TM)	Good news: Toyota and Mazda announce giant new Huntsville, Alabama, plant which will produce over 300,000 cars and SUV's a year and employ 4000 people. Companies are coming back to the U.S. in a very big way. Congratulations Alabama!	+
11/01/2018 21:49	Fiat Chrysler (FCAU)	More great news as a result of historical Tax Cuts and Reform: Fiat Chrysler announces plan to invest more than \$1 BILLION in Michigan plant, relocating their heavy-truck production from Mexico to Michigan, adding 2,500 new jobs and paying \$2,000 bonus to U.S. employees!	+
11/01/2018 21:53	Fiat Chrysler (FCAU)	Chrysler is moving a massive plant from Mexico to Michigan, reversing a years long opposite trend. Thank you Chrysler, a very wise decision. The voters in Michigan are very happy they voted for Trump/Pence. Plenty of more to follow!	+
13/01/2018 08:13	Fiat Chrysler (FCAU)	Yesterday was a big day for the stock market. Jobs are coming back to America. Chrysler is coming back to the USA, from Mexico and many others will follow. Tax cut money to employees is pouring into our economy with many more companies announcing. American business is hot again!	+
17/01/2018 18:28	Apple (AAPL)	I promised that my policies would allow companies like Apple to bring massive amounts of money back to the United States. Great to see Apple follow through as a result of TAX CUTS. Huge win for American workers and the USA!	+
17/01/2018 18:32	Fiat Chrysler (FCAU)	During the campaign, I promised to MAKE AMERICA GREAT AGAIN by bringing businesses and jobs back to our country. I am very proud to see companies like Chrysler moving operations from Mexico to Michigan where there are so many great American workers!	+
24/01/2018 06:58	Disney (DIS)	Tremendous investment by companies from all over the world being made in America. There has never been anything like it. Now Disney, J.P. Morgan Chase and many others. Massive Regulation Reduction and Tax Cuts are making us a powerhouse again. Long way to go! Jobs, Jobs, Jobs!	+
24/01/2018 06:58	J.P. Morgan Chase (JPM)	Tremendous investment by companies from all over the world being made in America. There has never been anything like it. Now Disney, J.P. Morgan Chase and many others. Massive Regulation Reduction and Tax Cuts are making us a powerhouse again. Long way to go! Jobs, Jobs, Jobs!	+
28/01/2018 08:18	Fiat Chrysler (FCAU)	Our economy is better than it has been in many decades. Businesses are coming back to America like never before. Chrysler, as an example, is leaving Mexico and coming back to the USA. Unemployment is nearing record lows. We are on the right track!	+
29/03/2018 07:57	Amazon (AMZN)	I have stated my concerns with Amazon long before the Election. Unlike others, they pay little or no taxes to state & local governments, use our Postal System as their Delivery Boy (causing tremendous	-

		loss to the U.S.), and are putting many thousands of retailers out of business!	
31/03/2018 08:45	Amazon (AMZN)	While we are on the subject, it is reported that the U.S. Post Office will lose \$1.50 on average for each package it delivers for Amazon. That amounts to Billions of Dollars. The Failing N.Y. Times reports that “the size of the company’s lobbying staff has ballooned,” and that...	-
31/03/2018 08:52	Amazon (AMZN)	...does not include the Fake Washington Post, which is used as a “lobbyist” and should so REGISTER. If the P.O. “increased its parcel rates, Amazon’s shipping costs would rise by \$2.6 Billion.” This Post Office scam must stop. Amazon must pay real costs (and taxes) now!	-
02/04/2018 09:35	Amazon (AMZN)	Only fools, or worse, are saying that our money losing Post Office makes money with Amazon. THEY LOSE A FORTUNE, and this will be changed. Also, our fully tax paying retailers are closing stores all over the country...not a level playing field!	-
03/04/2018 09:55	Amazon (AMZN)	I am right about Amazon costing the United States Post Office massive amounts of money for being their Delivery Boy. Amazon should pay these costs (plus) and not have them bourne by the American Taxpayer. Many billions of dollars. P.O. leaders don’t have a clue (or do they?)!	-
25/04/2018 10:11	Apple (AAPL)	Looking forward to my meeting with Tim Cook of Apple. We will be talking about many things, including how the U.S. has been treated unfairly for many years, by many countries, on trade.	+
01/05/2018 15:42	Southwest Airlines (LUV)	Today, it was my great honor to thank and welcome heroic crew members and passengers of Southwest Airlines Flight 1380 at the @WhiteHouse!	+
11/05/2018 19:49	AT&T (T)	Why doesn’t the Fake News Media state that the Trump Administration’s Anti-Trust Division has been, and is, opposed to the AT&T purchase of Time Warner in a currently ongoing Trial. Such a disgrace in reporting!	-
26/06/2018 07:16	Harley-Davidson (HOG)	Early this year Harley-Davidson said they would move much of their plant operations in Kansas City to Thailand. That was long before Tariffs were announced. Hence, they were just using Tariffs/Trade War as an excuse. Shows how unbalanced & unfair trade is, but we will fix it....	-
26/06/2018 07:37	Harley-Davidson (HOG)When I had Harley-Davidson officials over to the White House, I chided them about tariffs in other countries, like India, being too high. Companies are now coming back to America. Harley must know that they won’t be able to sell back into U.S. without paying a big tax!	-
26/06/2018 08:17	Harley-Davidson (HOG)	A Harley-Davidson should never be built in another country-never! Their employees and customers are already very angry at them. If they move, watch, it will be the beginning of the end - they surrendered, they quit! The Aura will be gone and they will be taxed like never before!	-
27/06/2018 11:26	Harley-Davidson (HOG)	Harley-Davidson should stay 100% in America, with the people that got you your success. I’ve done so much for you, and then this. Other companies are coming back where they belong! We won’t forget,	-

		and neither will your customers or your now very HAPPY competitors!	
03/07/2018 10:00	Harley-Davidson (HOG)	Now that Harley-Davidson is moving part of its operation out of the U.S., my Administration is working with other Motor Cycle companies who want to move into the U.S. Harley customers are not happy with their move - sales are down 7% in 2017. The U.S. is where the Action is!	-
09/07/2018 13:08	Pfizer (PFE)	Pfizer & others should be ashamed that they have raised drug prices for no reason. They are merely taking advantage of the poor & others unable to defend themselves, while at the same time giving bargain basement prices to other countries in Europe & elsewhere. We will respond!	-
10/07/2018 18:37	Pfizer (PFE)	Just talked with Pfizer CEO and @SecAzar on our drug pricing blueprint. Pfizer is rolling back price hikes, so American patients don't pay more. We applaud Pfizer for this decision and hope other companies do the same. Great news for the American people!	+
19/07/2018 06:23	Novartis (NVS)	Thank you to Novartis for not increasing your prices on prescription drugs. Likewise to Pfizer. We are making a big push to actually reduce the prices, maybe substantially, on prescription drugs.	+
19/07/2018 06:23	Pfizer (PFE)	Thank you to Novartis for not increasing your prices on prescription drugs. Likewise to Pfizer. We are making a big push to actually reduce the prices, maybe substantially, on prescription drugs.	+
19/07/2018 09:11	Google (GOOG)	I told you so! The European Union just slapped a Five Billion Dollar fine on one of our great companies, Google. They truly have taken advantage of the U.S., but not for long!	+
12/08/2018 08:57	Harley-Davidson (HOG)	Many @harleydavidson owners plan to boycott the company if manufacturing moves overseas. Great! Most other companies are coming in our direction, including Harley competitors. A really bad move! U.S. will soon have a level playing field, or better.	-
24/08/2018 05:57	Target (TGT)	Target CEO raves about the Economy. "This is the best consumer environment I've seen in my career." A big statement from a top executive. But virtually everybody is saying this, & when our Trade Deals are made, & cost cutting done, you haven't seen anything yet! @DRUDGE REPORT	+
28/08/2018 11:02	Google (GOOG)	Google search results for "Trump News" shows only the viewing/reporting of Fake News Media. In other words, they have it RIGGED, for me & others, so that almost all stories & news is BAD. Fake CNN is prominent. Republican/Conservative & Fair Media is shut out. Illegal? 96% of...	-
28/08/2018 11:02	Google (GOOG)results on "Trump News" are from National Left-Wing Media, very dangerous. Google & others are suppressing voices of Conservatives and hiding information and news that is good. They are controlling what we can & cannot see. This is a very serious situation-will be addressed!	-
08/09/2018 11:45	Apple (AAPL)	Apple prices may increase because of the massive Tariffs we may be imposing on China - but there is an easy solution where there would be ZERO tax, and indeed a tax incentive. Make your products in	-

		the United States instead of China. Start building new plants now. Exciting! #MAGA	
09/09/2018 09:49	Ford (F)	"Ford has abruptly killed a plan to sell a Chinese-made small vehicle in the U.S. because of the prospect of higher U.S. Tariffs." CNBC. This is just the beginning. This car can now be BUILT IN THE U.S.A. and Ford will pay no tariffs!	+
21/10/2018 18:48	Facebook (FB)	Facebook has just stated that they are setting up a system to "purge" themselves of Fake News. Does that mean CNN will finally be put out of business?	+
26/10/2018 10:05	Twitter (TWTR)	Twitter has removed many people from my account and, more importantly, they have seemingly done something that makes it much harder to join - they have stifled growth to a point where it is obvious to all. A few weeks ago it was a Rocket Ship, now it is a Blimp! Total Bias?	-
12/11/2018 13:13	AT&T (T)	American Cable Association has big problems with Comcast. They say that Comcast routinely violates Antitrust Laws. "These guys are acting much worse, and have much more potential for damage to consumers, than anything AT&T-Time Warner would do." Charlie Gasparino	-
12/11/2018 13:13	Comcast (CMCSA)	American Cable Association has big problems with Comcast. They say that Comcast routinely violates Antitrust Laws. "These guys are acting much worse, and have much more potential for damage to consumers, than anything AT&T-Time Warner would do." Charlie Gasparino	-
27/11/2018 14:05	General Motors (GM)	Very disappointed with General Motors and their CEO, Mary Barra, for closing plants in Ohio, Michigan and Maryland. Nothing being closed in Mexico & China. The U.S. saved General Motors, and this is the THANKS we get! We are now looking at cutting all @GM subsidies, including....	-
27/11/2018 14:05	General Motors (GM)for electric cars. General Motors made a big China bet years ago when they built plants there (and in Mexico) - don't think that bet is going to pay off. I am here to protect America's Workers!	-
28/11/2018 09:49	General Motors (GM)and G.M. would not be closing their plants in Ohio, Michigan & Maryland. Get smart Congress. Also, the countries that send us cars have taken advantage of the U.S. for decades. The President has great power on this issue - Because of the G.M. event, it is being studied now!	-
28/11/2018 11:09	Steel Dynamics	Steel Dynamics announced that it will build a brand new 3 million ton steel mill in the Southwest that will create 600 good-paying U.S. JOBS. Steel JOBS are coming back to America, just like I predicted. Congratulations to Steel Dynamics!	+
29/11/2018 06:37	General Motors (GM)	General Motors is very counter to what other auto, and other, companies are doing. Big Steel is opening and renovating plants all over the country. Auto companies are pouring into the U.S., including BMW, which just announced a major new plant. The U.S.A. is booming!	-
14/12/2018 13:19	Apple (AAPL)	Thank you to @tim_cook for agreeing to expand operations in the U.S. and thereby creating thousands of jobs! Connected retweet: "Apple Red heart Austin! Proud to announce our newest campus there, along with plans for new sites in Seattle, San	+

		Diego and Culver City, CA as Apple expands operations and creates thousands of jobs across the US."	
18/12/2018 07:26	Facebook (FB)	Facebook, Twitter and Google are so biased toward the Dems it is ridiculous! Twitter, in fact, has made it much more difficult for people to join @realDonaldTrump. They have removed many names & greatly slowed the level and speed of increase. They have acknowledged-done NOTHING!	-
18/12/2018 07:26	Twitter (TWTR)	Facebook, Twitter and Google are so biased toward the Dems it is ridiculous! Twitter, in fact, has made it much more difficult for people to join @realDonaldTrump. They have removed many names & greatly slowed the level and speed of increase. They have acknowledged-done NOTHING!	-
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27/02/2019 04:20	Fiat Chrysler (FCAU)	Fiat Chrysler will be adding more than 6,500 JOBS in Michigan (Detroit area), doubling its hourly workforce as part of a 4.5 Billion Dollar investment. Thank you Fiat Chrysler. They are all coming back to the USA, it's where the action is!	+
14/03/2019 11:18	Toyota (TM)	Congratulations @Toyota! BIG NEWS for U.S. Auto Workers! The USMCA is already fixing the broken NAFTA deal.	+
16/03/2019 16:01	General Motors (GM)	Because the economy is so good, General Motors must get their Lordstown, Ohio, plant open, maybe in a different form or with a new owner, FAST! Toyota is investing 13.5 \$Billion in U.S., others likewise. G.M. MUST ACT QUICKLY. Time is of the essence!	-
16/03/2019 16:01	Toyota (TM)	Because the economy is so good, General Motors must get their Lordstown, Ohio, plant open, maybe in a different form or with a new owner, FAST! Toyota is investing 13.5 \$Billion in U.S., others likewise. G.M. MUST ACT QUICKLY. Time is of the essence!	+
16/03/2019 16:07	Google (GOOG)	Google is helping China and their military, but not the U.S. Terrible! The good news is that they helped Crooked Hillary Clinton, and not Trump....and how did that turn out?	-
18/03/2019 06:37	General Motors (GM)	General Motors and the UAW are going to start "talks" in September/October. Why wait, start them now! I want jobs to stay in the U.S.A. and want Lordstown (Ohio), in one of the best economies in our history, opened or sold to a company who will open it up fast! Car companies.....	-
18/03/2019 20:32	Twitter (TWTR)	Rep. Devin Nunes Files \$250M Defamation Lawsuit Against Twitter, Two Anonymous Twitter Accounts https://thedailybeast.com/rep-devin-nunes-files-dollar250m-defamation-lawsuit-against-twitter-two-anonymous-twitter-	-

		accounts?source=twitter&via=desktop via @thedailybeast	
19/03/2019 08:57	Facebook (FB)	Facebook, Google and Twitter, not to mention the Corrupt Media, are sooo on the side of the Radical Left Democrats. But fear not, we will win anyway, just like we did before! #MAGA	-
19/03/2019 08:57	Google (GOOG)	Facebook, Google and Twitter, not to mention the Corrupt Media, are sooo on the side of the Radical Left Democrats. But fear not, we will win anyway, just like we did before! #MAGA	-
19/03/2019 08:57	Twitter (TWTR)	Facebook, Google and Twitter, not to mention the Corrupt Media, are sooo on the side of the Radical Left Democrats. But fear not, we will win anyway, just like we did before! #MAGA	-
20/03/2019 15:51	Ford (F)	Great news from @Ford! They are investing nearly \$1 BILLION in Flat Rock, Michigan for auto production on top of a \$1 BILLION investment last month in a facility outside of Chicago. Companies are pouring back into the United States - they want to be where the action is!	+
27/03/2019 14:38	Google (GOOG)	Just met with @SundarPichai, President of @Google, who is obviously doing quite well. He stated strongly that he is totally committed to the U.S. Military, not the Chinese Military....	+
27/03/2019 14:38	Google (GOOG)Also discussed political fairness and various things that @Google can do for our Country. Meeting ended very well!	+
15/04/2019 06:29	Boeing (BA)	What do I know about branding, maybe nothing (but I did become President!), but if I were Boeing, I would FIX the Boeing 737 MAX, add some additional great features, & REBRAND the plane with a new name. No product has suffered like this one. But again, what the hell do I know?	-
23/04/2019 07:04	Harley-Davidson (HOG)	“Harley Davidson has struggled with Tariffs with the EU, currently paying 31%. They’ve had to move production overseas to try and offset some of that Tariff that they’ve been hit with which will rise to 66% in June of 2021.” @MariaBartirromo So unfair to U.S. We will Reciprocate!	-
02/05/2019 17:33	United States Steel (X)	Congrats to @U_S_Steel for investing \$1+ BILLION in America's most INNOVATIVE steel mill. 232 Tariffs make Pennsylvania and USA more prosperous/secure by bringing Steel and Aluminum industries BACK. Tariffs are working. Pittsburgh is again The Steel City. USA Economy is BOOMING!	+
04/05/2019 14:31	Twitter (TWTR)	How can it be possible that James Woods (and many others), a strong but responsible Conservative Voice, is banned from Twitter? Social Media & Fake News Media, together with their partner, the Democrat Party, have no idea the problems they are causing for themselves. VERY UNFAIR!	-
08/05/2019 11:18	General Motors (GM)	GREAT NEWS FOR OHIO! Just spoke to Mary Barra, CEO of General Motors, who informed me that, subject to a UAW agreement etc., GM will be selling their beautiful Lordstown Plant to Workhorse, where they plan to build Electric Trucks. GM will also be spending \$700,000,000 in Ohio...	+

08/05/2019 11:18	Workhorse (WKHS)	GREAT NEWS FOR OHIO! Just spoke to Mary Barra, CEO of General Motors, who informed me that, subject to a UAW agreement etc., GM will be selling their beautiful Lordstown Plant to Workhorse, where they plan to build Electric Trucks. GM will also be spending \$700,000,000 in Ohio...	+
08/05/2019 11:18	General Motors (GM)in 3 separate locations, creating another 450 jobs. I have been working nicely with GM to get this done. Thank you to Mary B, your GREAT Governor, and Senator Rob Portman. With all the car companies coming back, and much more, THE USA IS BOOMING!	+
13/05/2019 17:53	Rockwell Automation (ROK)	Great to welcome Chairman Shin from Lotte Group to the WH. They just invested \$3.1 BILLION into Louisiana-biggest investment in U.S. EVER from a South Korean company, & thousands more jobs for Americans. Great partners like ROK know the U.S. economy is running stronger than ever!	+
14/05/2019 17:14	Sempra Energy (SRE)	With incredible grit, skill, and pride, the 7,000 workers here at Sempra Energy are helping lead the American Energy Revolution. They are not only making our nation WEALTHIER but they are making America SAFER by building a future of American Energy INDEPENDENCE!	+
14/06/2019 18:37	Lockheed Martin (LMT)	Just spoke to Marillyn Hewson, CEO of @LockheedMartin, about continuing operations for the @Sikorsky in Coatesville, Pennsylvania. She will be taking it under advisement and will be making a decision soon....	+
14/06/2019 18:37	Lockheed Martin (LMT)While Pennsylvania is BOOMING, I don't want there to be even a little glitch in Coatesville – every job counts. I want Lockheed to BOOM along with it!	+
10/07/2019 20:06	Lockheed Martin (LMT)	I was just informed by Marillyn Hewson, CEO of Lockheed Martin, of her decision to keep the Sikorsky Helicopter Plant in Coatesville, Pennsylvania, open and humming! We are very proud of Pennsylvania and the people who work there....	+
10/07/2019 20:06	Lockheed Martin (LMT)Thank you to Lockheed Martin, one of the USA's truly great companies!	+
26/07/2019 11:25	Apple (AAPL)	Apple will not be given Tariff waiver, or relief, for Mac Pro parts that are made in China. Make them in the USA, no Tariffs!	-
06/08/2019 13:51	Google (GOOG)	.@sundarpichai of Google was in the Oval Office working very hard to explain how much he liked me, what a great job the Administration is doing, that Google was not involved with China's military, that they didn't help Crooked Hillary over me in the 2016 Election, & that they...	+
06/08/2019 13:51	Google (GOOG)	... are NOT planning to illegally subvert the 2020 Election despite all that has been said to the contrary. It all sounded good until I watched Kevin Cernekee, a Google engineer, say terrible things about what they did in 2016 and that they want to "Make sure that Trump losses...	+
06/08/2019 13:51	Google (GOOG)	...in 2020." Lou Dobbs stated that this is a fraud on the American public. @peterschweizer stated with certainty that they suppressed negative stories on	+

		Hillary Clinton, and boosted negative stories on Donald Trump. All very illegal. We are watching Google very closely!	
08/08/2019 10:38	Caterpillar (CAT)	As your President, one would think that I would be thrilled with our very strong dollar. I am not! The Fed's high interest rate level, in comparison to other countries, is keeping the dollar high, making it more difficult for our great manufacturers like Caterpillar, Boeing,.....	+
08/08/2019 10:38	Boeing (BA)	As your President, one would think that I would be thrilled with our very strong dollar. I am not! The Fed's high interest rate level, in comparison to other countries, is keeping the dollar high, making it more difficult for our great manufacturers like Caterpillar, Boeing,.....	+
08/08/2019 10:38	Deere & Company (DE)	As your President, one would think that I would be thrilled with our very strong dollar. I am not! The Fed's high interest rate level, in comparison to other countries, is keeping the dollar high, making it more difficult for our great manufacturers like Caterpillar, Boeing,.....	+
08/08/2019 10:38	Caterpillar (CAT)John Deere, our car companies, & others, to compete on a level playing field. With substantial Fed Cuts (there is no inflation) and no quantitative tightening, the dollar will make it possible for our companies to win against any competition. We have the greatest companies...	+
08/08/2019 10:38	Boeing (BA)John Deere, our car companies, & others, to compete on a level playing field. With substantial Fed Cuts (there is no inflation) and no quantitative tightening, the dollar will make it possible for our companies to win against any competition. We have the greatest companies...	+
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08/08/2019 10:38	Caterpillar (CAT)in the world, there is nobody even close, but unfortunately the same cannot be said about our Federal Reserve. They have called it wrong at every step of the way, and we are still winning. Can you imagine what would happen if they actually called it right?	+
08/08/2019 10:38	Boeing (BA)in the world, there is nobody even close, but unfortunately the same cannot be said about our Federal Reserve. They have called it wrong at every step of the way, and we are still winning. Can you imagine what would happen if they actually called it right?	+
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15/08/2019 16:18	Walmart (WMT)	Walmart, a great indicator as to how the U.S. is doing, just released outstanding numbers. Our	+

		Country, unlike others, is doing great! Don't let the Fake News convince you otherwise.	
16/08/2019 19:04	Apple (AAPL)	Having dinner tonight with Tim Cook of Apple. They will be spending vast sums of money in the U.S. Great!	+
19/08/2019 11:52	Google (GOOG)	Wow, Report Just Out! Google manipulated from 2.6 million to 16 million votes for Hillary Clinton in 2016 Election! This was put out by a Clinton supporter, not a Trump Supporter! Google should be sued. My victory was even bigger than thought! @JudicialWatch	-
21/08/2019 18:50	Ford (F)	The Legendary Henry Ford and Alfred P. Sloan, the Founders of Ford Motor Company and General Motors, are "rolling over" at the weakness of current car company executives willing to spend more money on a car that is not as safe or good, and cost \$3,000 more to consumers. Crazy!	-
21/08/2019 18:50	General Motors (GM)	The Legendary Henry Ford and Alfred P. Sloan, the Founders of Ford Motor Company and General Motors, are "rolling over" at the weakness of current car company executives willing to spend more money on a car that is not as safe or good, and cost \$3,000 more to consumers. Crazy!	-
21/08/2019 19:01	Ford (F)	Henry Ford would be very disappointed if he saw his modern-day descendants wanting to build a much more expensive car, that is far less safe and doesn't work as well, because execs don't want to fight California regulators. Car companies should know....	-
30/08/2019 08:06	General Motors (GM)	General Motors, which was once the Giant of Detroit, is now one of the smallest auto manufacturers there. They moved major plants to China, BEFORE I CAME INTO OFFICE. This was done despite the saving help given them by the USA. Now they should start moving back to America again?	-
15/09/2019 18:54	General Motors (GM)	Here we go again with General Motors and the United Auto Workers. Get together and make a deal!	-
19/09/2019 20:03	Facebook (FB)	Nice meeting with Mark Zuckerberg of @Facebook in the Oval Office today.	+
30/09/2019 14:55	Navistar (NAV)	Navistar will be building a new 250 MILLION DOLLAR truck factory in San Antonio with 600 new jobs. Congratulations San Antonio and Texas! America makes the GREATEST trucks in the world!	+
30/09/2019 15:04	Apple (AAPL)	Great news! @Apple announced that it is building its new Mac Pro in Texas. This means hundreds of American jobs in Austin and for suppliers across the Country. Congratulations to the Apple team and their workers!	+
30/10/2019 12:19	General Motors (GM)	Thank you @GM, @FiatChrysler_NA, @Toyota, and @GloblAutomkrs for standing with us for Better, Cheaper, Safer Cars for Americans. California has treated the Auto Industry very poorly for many years, harming Workers and Consumers. We are fixing this problem!	+
30/10/2019 12:19	Fiat Chrysler (FCAU)	Thank you @GM, @FiatChrysler_NA, @Toyota, and @GloblAutomkrs for standing with us for Better, Cheaper, Safer Cars for Americans.	+

		California has treated the Auto Industry very poorly for many years, harming Workers and Consumers. We are fixing this problem!	
30/10/2019 12:19	Toyota (TM)	Thank you @GM, @FiatChrysler_NA, @Toyota, and @GloblAutomkrs for standing with us for Better, Cheaper, Safer Cars for Americans. California has treated the Auto Industry very poorly for many years, harming Workers and Consumers. We are fixing this problem!	+
01/11/2019 07:52	General Motors (GM)	Wow, a blowout JOBS number just out, adjusted for revisions and the General Motors strike, 303,000. This is far greater than expectations. USA ROCKS!	-
14/11/2019 09:32	Walmart (WMT)	Walmart announces great numbers. No impact from Tariffs (which are contributing \$Billions to our Treasury). Inflation low (do you hear that Powell?)!	+
23/11/2019 18:18	Apple (AAPL)	Today I opened a major Apple Manufacturing plant in Texas that will bring high paying jobs back to America. Today Nancy Pelosi closed Congress because she doesn't care about American Workers!	+
23/11/2019 23:53	Apple (AAPL)	Pushed hard to have Apple build in USA!	+
14/01/2020 18:36	Apple (AAPL)	We are helping Apple all of the time on TRADE and so many other issues, and yet they refuse to unlock phones used by killers, drug dealers and other violent criminal elements. They will have to step up to the plate and help our great Country, NOW! MAKE AMERICA GREAT AGAIN.	-
16/01/2020 10:59	Amazon (AMZN)	Amazon Calls 'Profiles in Corruption' the 'Most Anticipated' Nonfiction Book	+

This table lists all the tweets that that were used in this thesis. The tweets are from both of President Donald Trump's official Twitter accounts @realDonaldTrump and @POTUS. Date and time are shown in Eastern Standard Time. In the connotation column a "+" indicates a positive tweet, while a "-" indicates a negative tweet

Table A.2: Company list

Amazon.com, Inc.	American Airlines Group Inc.
Apple Inc.	AT&T Inc.
The Boeing Company	Broadcom Inc.
Raytheon Technologies Corporation (Carrier A.C.)	Caterpillar Inc.
Charter Communications, Inc.	Cisco Systems, Inc.
Comcast Corporation	Corning Incorporated
Deere & Company	Delta Air Lines, Inc.
The Walt Disney Company	Exxon Mobil Corporation
Facebook, Inc.	Fiat Chrysler Automobiles N.V.
Ford Motor Company	General Motors Company
Alphabet Inc. (Google)	Harley-Davidson, Inc.
Intel Corporation	JPMorgan Chase & Co.
Lockheed Martin Corporation	Merck & Co., Inc.
Navistar International Corporation	Nordstrom, Inc.
Novartis AG	Pfizer Inc.
Rexnord Corporation	Rockwell Automation, Inc.
Sempra Energy	Southwest Airlines Co.
Steel Dynamics, Inc.	Target Corporation
Toyota Motor Corporation	Twitter, Inc.
United States Steel Corporation	Walmart Inc.
Wells Fargo & Company	Workhorse Group Inc.

Company names displayed as listed on Yahoo! Finance