Master Thesis Finance

TRUMP AND TWITTER – WHAT IMPACT DO TRUMP TWEETS HAVE ON FIRM VALUE OF TARGETED FIRMS, AND WHY?

Ted Goossens
ANR: 280732 / SNR: 1251407

MSc Finance
(CFA track)

Supervisor: prof. dr. O.G. Spalt

-August 23, 2017-

ABSTRACT

Donald Trump has, as the President of the United States, a huge influence on the economy, and social media are becoming more relevant in today's corporate life. Trump is infamous for his sentimental Trump Tweets targeting dozens of firms. Studies indicate that sentiment on social media can impact stock returns of targeted firms. Other studies show that Trump Tweets show temporal jumps in stock prices that often rebound the same day. This study focuses on the lasting effect of Trump Tweets on firm value by performing an event study. I find no significant proof that Trump Tweets impact firm value. I do however find individually significant evidence of Trump Tweets that impact stock price. A test on the impact of negative sentiment Trump Tweets indicates (significant on 10%-level) that Trump Tweets are relevant for firm value. This study is especially relevant for investors as Trump Tweets can impact both risk and return. It also contributes to academic literature as it discusses the impact of social media on the stock market. This paper also offers several future research opportunities.

I. INTRODUCTION

Donald (John) Trump assumed office as the 45th President of the United States on January 20, 2017. Trump won the general election as the Republican candidate on November 8, 2016, against Democratic candidate Hillary Clinton, without having any notable political experience. His race to become President of the United States raised considerable controversies marked by protests and incidents of violence. Trump's populist position against illegal immigration earned him both tremendous support and resistance. The absence of political correctness and his unreserved speech proved popular among his supporters. A considerable number of his statements and remarks have proven controversial and have led to extensive coverage in the media.

The Dow Jones Industrial Average surpassed the 20,000 mark for the first time in history short after the inauguration of Donald Trump. The high scores are largely spurred by the business friendly campaign promises by Trump. As the world's most powerful man the President of the United States has a great impact on the economy. Individual firms however face considerable public relation risks as Trump can easily dispatch an ordeal. Trump has been using the social media platform Twitter to target numerous people and firms by publicly lashing out at them. Trump has repeatedly condemned firms for using lower-cost factories abroad at the expense of jobs in the United States. Ford Motor Company scrapped its plans to build a $1.6 billion plant in Mexico. Toyota Motor Corporation's share price fell after Trump fiercely criticized Toyota's plans to build a plant in Mexico to build new cars for export to the United States. With over 25,000,000 followers and 34,000 tweets, Trump is one of the most influential people on Twitter. Most targeted firms experience drops in the share price after Trump criticizes them on Twitter. Trump's criticism on the F-35 program led to a drop of 2.5 percent in the share price of Lockheed Martin. Some research by the Wall Street Journal and Reuters suggests the negative effects on stock price are often only temporal.

This study will focus on the impact of sentimental Trump Tweets on the firm value of targeted firms. It will analyze the cause of the impact on firm value. This study investigates whether the impact of Trump Tweets on firm value is lasting or temporal and whether the impact of pre-election Trump Tweets and post-election Trump Tweets is different. The impact of Trump Tweets on firm value will be measured by the Cumulative Abnormal Return.

Even though Donald Trump has lashed out on several firms using Twitter and some suggest this affected firm value, it is undetermined whether Trump Tweets actually affect firm value in the long run and whether these sentimental tweets are still considered to be significant. The main research question for this study therefore is:
What impact do Trump Tweets have on firm value of targeted firms, and why?

Donald Trump has, as the President of the United States, a huge influence on the economy. It is relevant to study the impact of Trump Tweets as Trump's decision and actions will have a significant impact the stock-market in particular. Even though drops in the share prices of targeted firms have been observed, these drops are also believed to be temporal. It is not clear whether Trump's Tweets have a lasting effect on individual stock prices and whether other factors may be important to consider. This study is especially relevant for investors as Trump Tweets can impact both risk and return. It also contributes to academic literature as it discusses the impact of social media on the stock market.

An event study was performed to analyze the statistical impact of Trump Tweets on firm value. The impact on firm value is captured by the cumulative abnormal returns in the event window. The sample for this study consists of 28 sentimental Trump Tweets targeting 33 firms. The impact of the tweets was studied for tweets posted before the inauguration day with the Election Day dividing the tweets in pre-election and post-election.

II. LITERATURE SURVEY

Only a limited amount of studies have focused on social media and financial markets. Ranco et al. (2015) study the effects Twitter volume and sentiment of the Dow Jones Industrial Average stock firms. They find a low correlation and causality between the use of Twitter and the financial market. During peaks in tweet volume Twitter sentiment significantly affects cumulative abnormal returns for several says after the events. Trump's sentimental tweets are therefore supposed to have an effect on the firm value of targeted firms. Zheludev (2015) investigates whether social media can lead financial markets. The study shows that tweet sentiments contain lead-time information about the future returns of securities supporting the assumption that Trump Tweets do impact firm value. Chen et al. (2011 and 2014) study the extent to which investor opinions and peer-based advice is transmitted through social media predicts returns on the stock market. Using a textual analysis they find that views expressed in articles and commentaries on social media predict stock market

returns. Trump's views expressed on Twitter are therefore expected to have an effect on stock market returns. The frequency of occurrence of financial terms on Twitter is found to be a very significant predictor of returns on the stock market (Mao et al, 2011), which suggests Twitter is a leading indicator of stock market returns. Sul et al. (2014) analyzed sentimental tweets about firms in the S&P 500 and find that the cumulative emotional valance of tweets is significantly related to the firms' stock returns. The impact of tweets on same day returns from users with many followers is stronger. As Trump has many followers and posts sentimental tweets, this paper suggests that this study should find significant effects of Trump Tweets on firm value. Bollen and Mao (2011) suggest Twitter mood to be a stock market predictor supporting the predictions of this study.

The notion of market efficiency suggests that stock prices reflect all available and relevant information. Any new piece of relevant information, whether it is factual or sentimental, will therefore immediately and fully affect stock prices. New information that suggests that the stock is overvalued, for example through negative sentimental tweets, would thus lead to a lower valuation in an efficient market. As Trump is able to set policies and influence numerous people, he is able to introduce new information and therefore impact firm value through his tweets.

It is undetermined whether sentimental Trump Tweets have a lasting effect on firm value. Even though several stock price impacts have been identified (Ingram, 2017), the effects on stock price are relatively fleeting. Many stock prices recover the same day from the impact of Trump Tweets (Ingram, 2017; Reuters, 2017b). However, Trump does have the power to enforce policies that could hurt targeted firms' values in the long term and other studies suggest tweets do impact firms' stock returns (Ranco et al., 2015; Bollen and Mao, 2011; Zheludev, 2015; Chen et al, 2011 and 2014; Sul et al.,2014) This study tries to provide more insight on the impact of Trump Tweets by answering the main research question: What impact do Trump Tweets have on firm value of targeted firms, and why? To answer this research question two secondary research questions are formulated and answered: Is the impact of Trump Tweets on firm value of targeted firms lasting rather than temporal? & Is the impact of pre-election Trump Tweets and post-election Trump Tweets on firm value of targeted firms different? In order to answer these research questions four hypotheses have been developed.

The first hypothesis tests whether Trump Tweets with negative sentiment have a lasting impact on firm value. As Trump has a large reach and the power to enforce policies and

influence other people, his negative sentiment tweets are expected to have a negative impact on firm value. The first hypothesis is therefore formulated as:

H1: Trump Tweets with a negative sentiment lead to negative Cumulative Abnormal Returns.

The second hypothesis tests whether Trump Tweets with positive sentiment have a lasting impact on firm value. For the same reason as negative sentiment Trump Tweets are expected to have a negative effect on firm value, positive sentiment Trump Tweets are expected to have a positive impact on firm value. The second hypothesis is therefore formulated as:

H2: Trump Tweets with a positive sentiment lead to positive Cumulative Abnormal Returns.

The third hypothesis tests whether the effect of Trump Tweets on firm value is temporal rather than lasting. As suggested by Ingram (2017) and Reuters (2017) the impact of Trump Tweets is expected to be temporal and not lasting. The third hypothesis is therefore formulated as:

H3: The impact of Trump Tweets on Cumulative Abnormal Returns is temporal rather than lasting.

The fourth and final hypothesis tests whether the impact of Trump Tweets is larger in the post-election period than in the pre-election period. As Trump has become an increasingly powerful and influential person in the world and as his tweets are increasingly retweeted, the effect of Trump Tweets on firm value is expected to be larger in the post-election period. The fourth hypothesis is therefore formulated as:

H4: The impact of Trump Tweets on Cumulative Abnormal Returns after the election is larger.

III. METHODOLOGY

An event study was performed to analyze the statistical impact of Trump Tweets on firm value. Firm value was measured by the Cumulative Abnormal Return. Further effects of Trump Tweets and stock returns were analyzed and discussed. The non-statistical analysis and discussion focuses on the causal relationship and all other relevant factors and events. Abnormal returns were calculated using a market model estimation window of 250 days [-280,-31] as in Schneider and Spalt (2016). The market model is the most used model in practice and more risk factors than simpler models such as the mean return and the market return models. The 30 day gap prior to the event date minimizes the risk of anticipation of remarks by Trump posted on Twitter. The short term event window used is 3 days [-1,1] and the long term event window used is 10 days [-1,9]. The short term window of 3 days captures

the effect of the Trump Tweet as it is current or breaking news. The longer term window of 10 days also captures the effect of the Trump Tweet after it has become non-current news.

The Trump Tweets sample that was analyzed is based on the list of sentimental tweets that target specific firms identified and compiled by Yahoo Finance in February 2017. Only tweets targeting publicly traded firms were studied. All non-publicly traded firms were excluded from the sample. The impact of Trump Tweets on firm value of non-public traded firms is not adequately measurable. To prevent the sample from being biased and to capture the real effect of the tweet, only the most significant tweet with strong negative sentiment per firm was used. The first tweet was used in a series of tweets with negative sentiment on the firm if the strength of the tweets is similar. The impact of tweets was only studied for tweets posted before the inauguration day (January 20, 2017). The Election Day (November 8, 2016) divides the tweets in pre-election and post-election. This day marks the moment of the transfer of power to Donald Trump. After the deletion of non-listed targets, non-specific tweets, tweets with confounding events, purely factual tweets, less significant tweets, a tweet outside the time range, reading and analyzing thousands of tweets, and after replacing and adding new tweets a sample of 28 Trump Tweets remained which targeted 33 firms (Appendix A). The target firms in the dataset belong to the largest in the US. The firm with the highest revenues is Toyota Motors (followed by Apple) and the firm with the lowest revenues is Rexnord. Among the tweets in the dataset are the tweets targeting General Motors and Toyota Motors on plans to manufacture cars in Mexico and export them to the US, which were extensively discussed in the media. The oldest tweet in the sample is from May 2012 where Trump criticizes Procter and Gamble on relocating their headquarters. The most recent tweets include tweets targeting CNN (Time Warner) and NBC (Comcast) in the week prior to the inauguration. Out of all 33 events, 26 took place before the Election Day and 7 took place after the Election Day.

The most sentimental tweets by Trump targeting firms, as identified by Yahoo Finance, formed the base of the sample. Other Trump Tweets were retrieved from TrumpTwitterArchive.com and Twitter.com. The Trump Twitter Archive contains Trump's tweets, several statistics on Trump Tweets, and a search engine. The analysis of these Tweets led to some replacements in and additions to the sample.

Wharton Research Data Services (WRDS) provides easy access to most of the required stock price data for this study. WRDS is a research platform that provides data across multiple

disciplines including accounting and finance. Data retrieved from WRDS is compiled from several independent sources. WRDS did not have all the required stock price information for all firms. The remaining data was retrieved from Yahoo Finance.

Year	n	Average number of comments	Average number of retweets	Lowest number of retweets	Highest number of retweets
2012	4	370	6646	114	25936
2013	3	75	107	28	162
2014	1	35	110	110	110
2015	6	344	1006	17	2296
2016	11	7090	13127	1847	42025
2017	3	13800	24077	18810	31991

Table 1: Descriptive statistics Trump Tweets

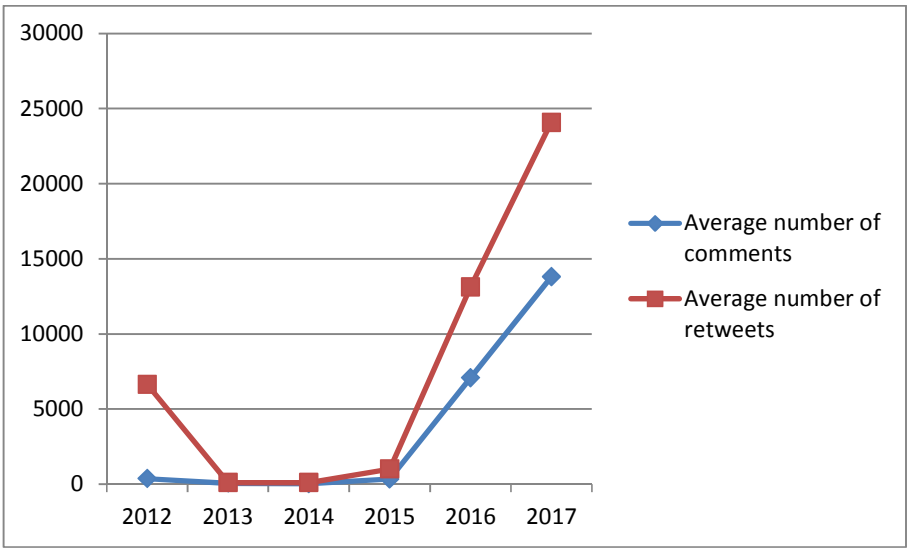

Figure 1: Number of Trump Tweets over time

Table 1 shows descriptive statistics on the sample of Trump Tweets over time. The table and figure 1 show a significant increase in both the average number of comments and the average number of retweets over the years 2012-2017 (numbers by August 22, 2017). These statistics suggest that the influence of Trump has increased considerably. This is relevant for this study as a further reach of Trump Tweets is expected to have a larger potential impact on stock market returns.

In 2012 one Trump Tweet in which he calls the Coca Cola product “garbage” was retweeted 25,936 times. The most retweeted Trump Tweet (42,025 retweets), in which he states that costs of building a new Air Force One are out of control and will cancel the order at Boeing, was posted in 2016.

IV. EMPIRICAL FINDINGS & DISCUSSION

4.1 Hypothesis testing

Hypothesis testing is performed with a confidence level of 5% (p=0.05). Hypothesis 1, 2 and 4 are based on the long term (10-day) CARs as lasting returns are more relevant for firms compared to temporary returns. Robustness tests will test these hypotheses on the short term (3-day).

Abnormal returns (ARs) are calculated by subtracting the expected return based on the market model from the actual return ($AR_{i,t} = R_{i,t} - E[R_{i,t}|M_{i,t}]$). Cumulative Abnormal Returns (CARs) are calculated by taking the sum of all abnormal returns in the event window. The Cumulative Average Abnormal Return (CAAR) is calculated by taking the average of all cumulative abnormal returns.

Table 2 shows the computed 10-day CARs for the sample of Trump Tweets. To test the first and second hypothesis, the events are first statistically analyzed separately. Out of the 33 observations, 8 are individually significant on the 0.05-level. Another 3 observations are individually significant on the 0.10-level. The computed CARs for observations 9, 16, 17, and 18 surprisingly suggest a significant positive effect on firm value for negative sentiment tweets.

Table 3 shows the computed 10-day CAAR for the sample of Trump Tweets. The negative CAAR for negative sentiment tweets is significant on the 0.10-level (p=0.065), but is insignificant on the 0.05-level. The null-hypothesis for H1 can therefore not be rejected. Hence, the results indicate that negative sentiment Trump Tweets have a negative effect on firm value of targeted firms, but the test does not provide enough evidence to state that negative sentiment Trump Tweets lead to negative CARs.

Table 4 shows a negative and insignificant (p=0.431) CAAR for the positive sentiment tweets. The null-hypothesis for H2 can therefore not be rejected. The small sample of 3 positive sentiment Trump Tweets limits the ability to make statistical conclusions on positive sentiment Trump Tweets. Hence, the results do not indicate positive sentiment Trump Tweets affect firm value of targeted firms.

In order to test the third hypothesis the difference in impact of the 3-day CARs over the 10-day CARs is calculated. This difference is calculated by subtracting the 10-day CAR from the 3-day CAR and multiplying this by the 3-day CAR and dividing it by the absolute value of

the 3-day CAR. This prevents errors caused by different symbols (- vs +). A simple t-test is performed to test whether the average is significantly positive. Table 5 shows an insignificant and negative (p=0.161) average size difference of the 3-day CARs over the 10-day CARs. The null-hypothesis for H3 can therefore not be rejected. There is no evidence that the impact of Trump Tweets is temporal rather than lasting.

Table 6 shows the results of an independent sample t-test between the CARs of pre-election events and post-election events. The test does not find a significant difference (p=0.369) between the pre-election and post-election impact of Trump Tweets. The relatively small sample sizes (n1=25 and n2=5) are a serious limitation.

Event	Ticker	Expected effect	Date	3-day CAR	t-stat	p-value	10-day CAR	t-stat	p-value
1	PG	Negative	5/11/2012	0.003	0.250	0.401	-0.009	-0.410	0.341
2	GCI	Negative	6/5/2012	-0.001	-0.036	0.485	-0.020	-0.320	0.375
3	KO	Negative	10/16/2012	-0.017	-0.226	0.410	0.008	0.060	0.476
4	FCAU	Negative	11/5/2012	-0.010	-0.152	0.440	-0.097	-0.829	0.203
5	AAL	Negative	2/15/2013	-0.043	-0.718	0.236	-0.107	-0.973	0.165
6	MSFT	Negative	10/2/2013	0.019	0.861	0.195	0.033	0.807	0.210
7	JPM	Negative	11/22/2013	0.013	0.857	0.196	-0.017	-0.643	0.260
8	SNE	Negative	12/15/2014	-0.025	-0.913	0.181	-0.006	-0.123	0.451
9	HRB	Negative	1/19/2015	0.009	0.426	0.335	0.053	1.381	0.084
10	VZ	Negative	5/12/2015	-0.004	-0.305	0.380	-0.010	-0.426	0.335
11	IAC	Negative	7/29/2015	-0.058**	-2.860	0.002	-0.084*	-2.266	0.012
12	TMUS	Negative	11/15/2015	-0.001	-0.057	0.477	-0.099*	-2.166	0.015
13	M	Negative	12/4/2015	0.011	0.468	0.320	-0.081*	-1.889	0.029
14	AMZN	Negative	12/7/2015	0.008	0.271	0.393	-0.002	-0.028	0.489
15	GS	Negative	1/16/2016	-0.007	-0.491	0.312	-0.024	-0.987	0.162
16	F	Negative	2/13/2016	0.033*	2.067	0.019	0.046	1.566	0.059
17	UTX	Negative	2/13/2016	-0.011	-0.715	0.237	0.079**	2.877	0.002
18	NWSA	Negative	3/10/2016	0.048*	2.117	0.017	0.110**	2.689	0.004
19	GOOGL	Negative	10/30/2016	-0.008	-0.423	0.336	-0.077*	-2.270	0.012
20	TWTR	Negative	10/30/2016	0.024	0.441	0.330	0.061	0.606	0.272
21	FB	Negative	10/30/2016	0.005	0.202	0.420	-0.113*	-2.307	0.011
22	RXN	Negative	12/2/2016	-0.098***	-3.605	0.000	-0.153**	-3.063	0.001
23	BA	Negative	12/6/2016	-0.015	-0.767	0.222	-0.004	-0.110	0.456
24	LMT	Negative	12/12/2016	-0.034*	-2.128	0.017	-0.044	-1.491	0.068
25	GM	Negative	1/3/2017	0.055*	1.732	0.042	0.060	1.026	0.152
26	TM	Negative	1/5/2017	0.014	0.678	0.249	0.008	0.214	0.415
27	TWX	Negative	7/17/2016	-0.005	-0.198	0.422	-0.026	-0.582	0.280
28	DIS	Negative	3/24/2016	0.014	0.737	0.231	-0.011	-0.331	0.370
29	CMCSA	Negative	3/18/2016	-0.015	-1.004	0.158	0.004	0.150	0.441
30	AAPL	Negative	2/19/2016	-0.023	-1.037	0.150	-0.012	-0.290	0.386
31	WMT	Positive	1/17/2017	0.000	-0.008	0.497	-0.031	-0.851	0.197
32	GM	Positive	1/17/2017	-0.002	-0.068	0.473	-0.036	-0.617	0.269
33	NWSA	Positive	7/17/2016	0.017	0.686	0.246	0.051	1.128	0.130

Table 2: Cumulative Abnormal Returns H1 H2 H3

10-day CAAR Negative Sentiment:	-0.018
sd CAAR:	0.062
t-stat CAAR:	-1.558
p-value CAAR:	0.065

Table 3: Test H1 Negative sentiment Trump Tweets

10-day CAAR Positive Sentiment:	-0.006
sd CAAR:	0.049
t-stat CAAR:	-0.198
p-value CAAR:	0.431

Table 4: Test H2 Positive sentiment Trump Tweets

Average size 3-day over 10-day CAR:	-0.008
sd:	0.048
t-stat:	-1.006
p-value:	0.161

Table 5: Test H3 Temporal vs lasting impact of Trump Tweets

Average post (10-day):	-0.027
Average pre (10-day):	-0.016
Average post minus pre:	-0.011
sd post:	0.079589
sd pre:	0.060236
t-stat:	-0.339
p-value:	0.369

Table 6: Independent sample t-test H4 Pre- vs post-election

4.2 Discussion

This part of the paper discusses the empirical findings of this study focuses on the question why Trump Tweets impact firm value or not. This study finds no statistically significant results for the impact of Trump Tweets on firm value. In general this suggests that Trump lacks the ability to influence the firm values of his targets through tweets in the long run. Macro-economic and company-specific factors are likely to have much more impact than tweets (Ingram, 2017).

Several sources (including Ingram, 2017 and Reuters, 2017b) suggest that the impact of Trump Tweets is temporal rather than lasting and might only impact the stock market for a few hours. As this study is performed with daily data, hourly effects are not studied which could explain the insignificant results of the impact of Trump Tweets in this study. However, the main purpose of this study is to investigate whether Trump Tweets have a lasting effect on stock prices. A lasting impact on firm value matters to the firm and its long-term investors where a temporal impact is less relevant for the firm and long-term investors, but instead primarily to high-frequency traders.

On February 13, 2016 Trump posted a link to an article in which he criticized Carrier and Ford for shipping jobs to Mexico. In the article he is quoted saying that he will make it more expensive doing business in the way Carrier and Ford do. The expected impact on the firm value would be negative. However, in fact the CARs turn out to be significant (on 10%-level and 5%-level) and positive for both Carrier and Ford respectively. This could suggest that the market is not efficient as the announcements of shipping jobs to Mexico of days earlier was still not fully incorporated in the stock prices. Additionally, it suggests that Trump has relatively no power to negatively impact the firm value through his tweet and statement.

On October 30, 2016 Trump posted a tweet in which he called Twitter, Google, and Facebook "very dishonest media" in relation to the FBI investigation on Clinton. The Trump Tweet was retweeted 34,938 times (by August 22, 2017). Both Google and Facebook show significant (on the 5%-level) lasting negative CARs whereas Twitter was not significantly affected by the tweet. No significant confounding events were identified. This could suggest that Trump Tweets can impact individual stock prices on firms and that not every firm is impacted to the same extent.

The most retweeted Trump Tweet in the sample "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!" (December 6, 2016) has no significant effect on the firm's value despite the fact that it was posted post-election, retweeted over 42,000 times, and received around 21,000 comments. In response, Boeing reached out to Trump with good intentions and issued a statement to the public. According to estimations, Trump was right about the 4 billion dollar price tag of which 2.7 billion dollar was already budgeted and approved. This tweet thus appears to be a threat rather than an actual action. Johnstone and Kube (2016) report a fall in stock price, but note it rebounded the same day.

On December 12, 2016 Trump stated in a tweet that the costs of the F-35 program are out of control and that he will billions of dollars on the military after the Inauguration day. This statement comes only 6 days after he threatened another firm in aeronautics with the cancellation of a 4 billion dollar order. The tweet shows a significant negative impact on the firm's (Lockheed Martin) stock returns suggesting a lasting effect on the firm's value. Wieczner (2016) shows negative stock movement prior to Trump's Tweet as indicators showed Trump was likely to tweet about the F-35 program. He also states that social media

analytics become more popular among investors arguing social media such as Twitter become more important in Finance.

Early January 2017 Trump threatened both General Motors and Toyota with "big border taxes" after they had announced to move production across the border. Neither of the Trump Tweets shows a significant negative impact on the firms' values. Toyota's shares fell by 3% but recovered the same day (Reuters, 2017a). General Motors' shares also fell and recovered the same day. This supports the idea that the effect of Trump Tweets is very temporal and only significant in the first few hours.

On January 17, 2017 Trump thanked General Motors and Walmart for starting the "big job push back into the U.S.". This positive sentiment tweet did not significantly impact the firms' values. Positive sentiment tweets might impact the stock market to a smaller extent, but a larger sample for both negative sentiment and positive sentiment tweets is required to test this empirically.

After the inauguration Trump appears to have switched his attention to politics rather than business. Trump Tweets posted after the inauguration date are primarily on politics and barely on businesses. He does however constantly target the media; most notably his constant criticism on the New York Times (non-listed) which he targeted in 25 tweets between the Inauguration day and August 22, 2017.

4.3 Robustness tests

Hypotheses 1 and 2 are tested for robustness by using the 3-day CARs rather than the 10-day CARs. Table 7 and 8 show the test results for the negative and positive sentiment Trump Tweets respectively. Neither of the robustness tests shows significant results.

Hypothesis 4 is also tested for robustness using the 3-day CARs instead of the 10-day CARs. Table 9 shows no significant results of the difference between the impact of pre-election and post-election Trump Tweets.

Another robustness test is performed for the first hypothesis by including only those Trump Tweets in the sample that have more than a thousand retweets. The results in table 10 show no significant CAAR of negative sentiment Trump Tweets.

A final robustness test is performed for the third hypothesis by including only those Trump Tweets in the sample that have more than a thousand retweets. The results in table 11 show no significant difference between the temporal impact and the lasting impact of Trump Tweets.

Hence, no evidence is found contradicting the findings in the initial hypothesis tests.

3-day CAAR Negative Sentiment:	-0.004
sd CAAR:	0.030
t-stat CAAR:	-0.735
p-value CAAR:	0.234

Table 7: Robustness test H1 3-day CAR

3-day CAAR Positive Sentiment:	0.005
sd CAAR:	0.010
t-stat CAAR:	0.803
p-value CAAR:	0.253

Table 8: Robustness test H2 3-day CAR

Average post (3-day):	-0.016
Average pre (3-day):	-0.002
Average post minus pre:	-0.014
sd post:	0.057
sd pre:	0.023
t-stat:	-0.951
p-value:	0.175

Table 9: Robustness test H4 3-day CAR

3-day CAAR Negative Sentiment:	-0.001
sd CAAR:	0.032
t-stat CAAR:	-0.161
p-value CAAR:	0.437
10-day CAAR Negative Sentiment:	-0.013
sd CAAR:	0.067
t-stat CAAR:	-0.892
p-value CAAR:	0.192

Table 10: Robustness test H1 with at least 1,000 retweets

Average size 3-day over 10-day CAR:	-0.003
sd:	0.052
t-stat:	-0.309
p-value:	0.380

Table 11: Robustness test H3 with at least 1,000 retweets

V. CONCLUSION

Donald Trump has, as the President of the United States, a huge influence on the economy, and social media are becoming more relevant in today's corporate life. Trump is infamous for his sentimental Trump Tweets targeting dozens of firms. Studies indicate that sentiment on social media can impact stock returns of targeted firms. Other studies show that Trump Tweets show temporal jumps in stock prices that often rebound the same day. This study focuses on the lasting effect of Trump Tweets on firm value. I find no significant proof that Trump Tweets impact firm value. I do however find individually significant evidence of Trump Tweets that impact stock price. A test on the impact of negative sentiment Trump Tweets indicates (significant on 10%-level) that Trump Tweets are relevant for firm value.

The discussion brings some insights into the cause of significance and insignificance of the empirical part of this study. Macro-economic and company-specific factors appear to have much more impact than tweets, which is supported by Ingram (2017). Some evidence suggests that the market is not fully efficient as other information appears to influence stock prices only days after the event. The analysis of individual events leads to the conclusion that the impact of Trump Tweets is very temporal and might only impact the stock market for a few hours, which is supported by Ingram (2017) and Reuters (2017b). Moreover, it seems those firms are not impacted by Trump Tweets in the same way and to the same extent.

This study is subject to several limitations. First, manual selection of the sample of Trump Tweets requires subjectivity and is subject to bias. This could lead to the inclusion and exclusion of the wrong observations in the dataset. Second, this study uses daily data while it appears that firm value is often only impacted in a timespan of a few hours. Future research should also look at hourly data. Third, the sample size is too small to find significant results.

Despite these limitations, this paper provides a better understanding of the impact of Trump Tweets on firm value. This study is especially relevant for investors as Trump Tweets can impact both risk and return. It also contributes to academic literature as it discusses the impact of social media on the stock market. This paper offers several future research opportunities. Future research could focus on the impact of Trump Tweets during and after his presidency, could focus on other key figures who are expected to exert influence through social media, could focus on the effect of sentimental Trump Tweets on different sectors, could study the impact on an hourly basis, and could compare the use and effect on the stock market of different social media.

REFERENCES

Bollen, J. and Mao, H. 2011. Twitter Mood as a Stock Market Predictor.

Chen, H., De, P., Hu, Y., and Hwang, B. 2011. Customers as Advisors: The Role of Social Media in Financial Markets.

Chen, H., De, P., Hu, Y., and Hwang, B. 2014. Wisdom of Crowds: The Value of Stock Options Transmitted Through Social Media.

Eventstudymetrics. 2017. Nine steps to follow when performing a short-term event study. Retrieved from: http://eventstudymetrics.com

Ingram, M. 2017. Here's What a Trump Tweet Does to a Company's Share Price. Fortune.com. Available at: http://fortune.com/2017/02/24/trump-tweet-stocks/ (last access August 22, 2017).

Johnstone, L. and Kube, C. 2016. Trump Threatens to Cancel Air Force One Order, Boeing Stock Slips. NBCnews.com. Available at: https://www.nbcnews.com/politics/politics- news/trump-threatens-cancel-air-force-one-order-boeing-stock-slips-n692511 (last access August 22, 2017).

Mao, H., Counts, S., and Bollen, J. 2011. Predicting Financial Markets: Comparing Survey, News, Twitter and Search Engine Data.

Ranco, G., Aleksovski, D., Caldarelli, G., Grcar, M., and Mozetic, I. 2015. The Effects of Twitter Sentiment on Stock Price Returns.

Reuters. 2017a. Japan Comes Out Swinging After Trump Threatens Toyota on Twitter. Fortune.com. Available at: http://fortune.com/2017/01/06/japan-toyota-trump/ (last access August 22, 2017).

Reuters. 2017b. The Impact of Trump Tweets on Company Shares Is Mostly Short Lived. Available at: http://fortune.com/2017/02/08/donald-trump-tweets-shares-impact/?iid=sr-link4 (last access August 22, 2017).

Schneider, C. and Spalt, O.G. 2016. Why Does Size Matter for Bidder Announcement Returns?

Sul, H.K., Dennis, A.R., and Yuan, L.I. 2014. Trading on Twitter: The Financial Information Content of Emotion on Social Media.

Wieczner, J. 2016. When Donald Trump Hate-Tweeted Lockheed Martin, Hedge Funds Were Ready. Fortune.com. Available at: http://fortune.com/2016/12/13/donald-trump-twitter-lockheed-martin-stock-dump/ (last access August 22, 2017).

Wolff-Mann, E. 2017. 62 businesses Trump has targeted on Twitter. Finance.yahoo.com. Available at: https://finance.yahoo.com/news/61-businesses-trump-has-attacked-on-twitter-181623705.html (last access August 22, 2017).

Zheludev, I. 2015. When can social media lead financial markets?

APPENDICES

Appendix A – Sample Trump Tweets

Event	Firm	Ticker	Expected effect	Date
1	Procter & Gamble	PG	Negative	Friday, May 11, 2012
Procter and Gamble is relocating its beauty headquarters from Cincinnati to Asia–what are we doing?!				
2	USA Today (Gannett)	GCI	Negative	Tuesday, June 05, 2012
Just cancelled my subscription to @USATODAY. Boring newspaper with no mojo–must be losing a fortune. Founder (cont) http://tl.gd/hn7gjp				
3	Coca-Cola	KO	Negative	Tuesday, October 16, 2012
The Coca Cola company is not happy with me–that's okay, I'll still keep drinking that garbage.				
4	Chrysler (Fiat Chrysler)	FCAU	Negative	Monday, November 05, 2012
Don't believe Chrysler (if Obama wins)–see how fast @Jeep production will be moved to China–and I'll be watching!				
5	American Airlines	AAL	Negative	Friday, February 15, 2013
The American-US Airways merger will create even worse service and much higher fares.				
6	Bill Gates (Microsoft)	MSFT	Negative	Wednesday, October 02, 2013
Wow, three top MICROSOFT investors want Bill Gates out as Chairman. Do not like job he is doing!				
7	JP Morgan	JPM	Negative	Friday, November 22, 2013
If JP Morgan took their case through the courts for 15 years, nobody would be suing them—easy target.				
8	Sony	SNE	Negative	Monday, December 15, 2014
No wonder Sony is doing so badly. Really stupid leadership that wants Al Sharpton to help. Watch him turn the tables on chief Amy Pascal.				

9	H&R Block	HRB	Negative	Monday, January 19, 2015
Retweet: "@Sattendoll: @realDonaldTrump – I do not understand how are they still in business." H & R Block is terrible!				
10	Verizon	VZ	Negative	Tuesday, May 12, 2015
What a STUPID deal for Verizon to buy AOL for $4.4 billion. AOL has been bad luck for everyone who touched it. Worth less than $1 billion!				
11	Daily Beast (IAC/InterActiveCorp)	IAC	Negative	Wednesday, July 29, 2015
Thank you @Morning_Joe for throwing the pathetic reporter from the failing and money losing Daily Beast off the air. Really cool!				
12	T-Mobile	TMUS	Negative	Sunday, November 15, 2015
.@JohnLegere @TMobile John, focus on running your company, I think the service is terrible! Try hiring some good managers.				
13	Macy's	M	Negative	Friday, December 04, 2015
Good news, disloyal @Macys stock is in a total free fall. Don't shop there for Christmas!				
14	Amazon	AMZN	Negative	Monday, December 07, 2015
The @washingtonpost, which loses a fortune, is owned by @JeffBezos for purposes of keeping taxes down at his no profit company, @amazon.				
15	Goldman Sachs	GS	Negative	Saturday, January 16, 2016
Was there another loan that Ted Cruz FORGOT to file. Goldman Sachs owns him, he will do anything they demand. Not much of a reformer!				
16	Ford	F	Negative	Saturday, February 13, 2016
Tweeted a link of an article in which he criticizes Carrier and Ford for shipping jobs to Mexico.				
17	Carrier (United Techonologies)	UTX	Negative	Saturday, February 13, 2016
Tweeted a link of an article in which he criticizes Carrier and Ford for shipping jobs to Mexico.				
18	Fox News (News	NWSA	Negative	Thursday, March 10, 2016

	Corp)			
Wow, you are all correct about @FoxNews – totally biased and disgusting reporting.				
19	Google	GOOGL	Negative	Sunday, October 30, 2016
Wow, Twitter, Google and Facebook are burying the FBI criminal investigation of Clinton. Very dishonest media!				
20	Twitter	TWTR	Negative	Sunday, October 30, 2016
Wow, Twitter, Google and Facebook are burying the FBI criminal investigation of Clinton. Very dishonest media!				
21	Facebook	FB	Negative	Sunday, October 30, 2016
Wow, Twitter, Google and Facebook are burying the FBI criminal investigation of Clinton. Very dishonest media!				
22	Rexnord	RXN	Negative	Friday, December 02, 2016
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!				
23	Boeing	BA	Negative	Tuesday, December 06, 2016
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!				
24	Lockheed Martin	LMT	Negative	Monday, December 12, 2016
The F-35 program and cost is out of control. Billions of dollars can and will be saved on military (and other) purchases after January 20th.				
25	GM	GM	Negative	Tuesday, January 03, 2017
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!				
26	Toyota	TM	Negative	Thursday, January 05, 2017
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.				
27	CNN (Time Warner)	TWX	Negative	Sunday, July 17, 2016
.@FoxNews is much better, and far more truthful, than @CNN, which is all negative. Guests are stacked for Crooked Hillary! I don't watch.				
28	ABC News (Disney)	DIS	Negative	Thursday, March 24, 2016

Explain how the women on The View, which is a total disaster since the great Barbara Walters left, ever got their jobs. @abc is wasting time &AND& .@TheView T.V. show, which is failing so badly that it will soon be taken off thr air, is constantly asking me to go on. I TELL THEM "NO"				
29	NBC (Comcast)	CMCSA	Negative	Friday, March 18, 2016
Everybody should boycott the @megynkelly show. Never worth watching. Always a hit on Trump! She is sick, & the most overrated person on tv.				
30	Apple	AAPL	Negative	Friday, February 19, 2016
Boycott all Apple products until such time as Apple gives cellphone info to authorities regarding radical Islamic terrorist couple from Cal				
31	Walmart	WMT	Positive	Tuesday, January 17, 2017
Thank you to General Motors and Walmart for starting the big jobs push back into the U.S.!				
32	GM	GM	Positive	Tuesday, January 17, 2017
Thank you to General Motors and Walmart for starting the big jobs push back into the U.S.!				
33	Fox News (News Corp)	NWSA	Positive	Sunday, July 17, 2016
.@FoxNews is much better, and far more truthful, than @CNN, which is all negative. Guests are stacked for Crooked Hillary! I don't watch.				