

# IMPACT OF ALTERNATIVE DATA ON FINANCIAL MARKETS WITH SPECIAL REFERENCE TO U.S. PRESIDENT TRUMP'S TWEETS

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## ABSTRACT

In recent times we have seen Twitter becoming a key source for accessing breaking information and learning about events. This medium of 'Alternative Data' as a 'New Normal' is used by global investors to beat market returns. This empirical and conceptual research paper looks at the sentimental impact of sample tweets of US President Donald Trump on different financial asset classes such as Capital market<sup>[a]</sup> (denoted by the DJIA-Dow Jones Industrial Average Index<sup>[d]</sup>), foreign exchange markets (represented by the Dollar Index), commodity markets (represented by COMEX Gold Price) and bond markets (represented by US Government 10Year Treasury Bond Yield). Twitter sentiment analysis has been carried out on 60 sample tweets selected from more than 5800 tweets posted by him about the US economy, US financial markets and American foreign policy over a period of two years from 8<sup>th</sup> November, 2016 (when Trump was elected) to 7<sup>th</sup> November, 2018 (US midyear election results). The Pearson Chi-square Test<sup>[g]</sup> and Fisher Exact Test<sup>[e]</sup> were used to find the relationship between the President's tweets and financial asset classes. The outcomes of the paper

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indicate that the sample tweets have had a significant impact on the Dow Jones Industrial Average Index and the US Government 10 Year Treasury Bond Yield; but have not had much of a significant impact on the Dollar Index and Gold prices on a daily basis.

**Keywords:** *Twitter, Sentiment, Dollar Index, Donald Trump, Tweet, Gold, DJIA, US 10 Year Bond Yield*

## 1. INTRODUCTION

Active fund managers are having a harder and harder time beating benchmarks year after year, so they are constantly looking for an edge. One of the ways to do this involves looking at data that is not commonly used or hasn't been commonly used. As we know, differentiated, reliable and real time information is key to staying strong in today's cultural, competitive trading environment; however breaking news can impact even the most impressive trading strategies. Traditional sources of real time information are being seen all the more as backwards and slow.

One area of finance that is rapidly expanding is the introduction of *alternative data*. Unlike traditional data sources, alternative data is information collected and utilized in an investment strategy that does not come directly from the company in question. To stay ahead of the curve, investors are using alternative data as a competitive advantage to generate alpha. Alternative data is defined as a wide array of information that isn't traditionally considered when making investment decisions. These data sets can range from social media feeds, to communications metadata, to satellite imagery, and nearly everything in between

[21]

## Examples of Alternative Data Sources



**Satellite Data** - These are companies that utilize image data from orbiting satellites to do things like measure the number of cars in Walmart parking lots or farm health based on the color of crops.



**Web/App/Social Media Data** - These are companies which mine social media or use data firehoses from the web/mobile to understand what's happening in the world or how people are interacting with their devices.



**Weather Data** - These are companies which are developing weather models and utilizing more sensors to get better localized data or improve weather forecasting.



**Location/Foot Traffic Data** - Companies that use different means to understand where consumers are going by measuring foot traffic via check-ins, video analysis, etc.



**Alternative Credit** - Companies developing new credit models that utilize sources of alternative data (like mobile usage).



**Credit Card Transactions** - These are companies that use anonymous aggregate transaction data to understand trends in consumer purchasing habits.



**Alternative Data Monetizers/Aggregators** - These are companies who pay for access to individual data streams which become more valuable in a bundle, and then sell those packages to investors.



**Local Prices** - These companies can see what's happening to prices and inflation by aggregating data from ground-level sources.

Source: <https://www.slideshare.net/cloudera/put-alternative-data-to-use-in-capital-markets-9131721>

## **1.1 Why Use Alternative Data?**

Considering that traditional data sources in our industry have served us well for numerous decades, one might ponder why one ought to move towards alternative data? First off, utilizing alternative data doesn't mean abandoning conventional information. Instead, including alternative data to our arsenal only serves to upgrade our decision-making process. We'll have more data than before, giving us more of an advantage when it comes to making smart decisions.

Furthermore, conventional information sources have striking esteem. We moreover got to be beyond any doubt that everybody else inside our industry likely has get to those same information sources. What we're collecting isn't precisely new or unique. Elective information sources, on the other hand, can provide special experiences that don't continuously acclimatize with ordinary thought in our industry. A failure to utilize alternative data means we are only getting a portion of the overall picture; so we would be making investment decisions based on fragmented data.

## **1.2 Using Social Media as Alternative Data**

“Alternative data (finance)” (2017) <sup>[3]</sup> refers to data used to obtain insights into the investment process. These datasets are often used by hedge fund managers and other institutional investment professionals within an investment company. Alternative datasets refer to information about a particular company that is published by sources outside of the company, which can provide unique and timely insights into investment opportunities.

Alternative data sets are often categorized as big data, which means that they may be very large and complex and often cannot be handled by software traditionally used for storing or handling data, such as Microsoft Excel. An alternative data set can be compiled from various sources such as financial transactions, sensors, mobile devices, satellites, public records, and the internet. Alternative data can be compared with data that is traditionally used by investment companies, such as investor presentations, SEC filings, and press releases. These examples of 'traditional data' are produced directly by the company itself.

Social media has become the main source of news online with more than 2.4 billion internet users. Nearly 64.5 percent receive breaking news from Facebook, Twitter, YouTube, Snapchat and Instagram instead of traditional media (Martin, 2018) <sup>[15]</sup>. Information is the life blood of the financial services industry: Everyday, investors and analysts comb through gigantic information sets to create the smartest monetary decisions. While traditional data

sources, such as quarterly results, earnings calls, and expert industry insights are still vital, the recent big data trend has made alternative sources of insight critical to today's investment process. As innovation develops, emerging data sets coming from sources like social media and satellite imagery have gotten to be critical resources for finance professionals looking to preserve an information-edge.

The method by which individuals interact with each other has been modified by Twitter — The Social Networking platform. Twitter<sup>[1]</sup> is a 'micro blogging' platform that allows us to send and receive concise posts referred to as tweets. Tweets can be up to 280 characters long and can embody links to relevant websites and resources.

The big question here is how to remain ahead when innovation and more particularly Twitter has forever modified how news is breaking. We can see a dramatic shift in how information and data is being utilized. More recently we've seen Twitter in particular, becoming a key source for getting to breaking information and events. It gives readers characteristics of being a worldwide one to numerous for communication. Companies, governments, on-ground sources, local correspondents, and subject matter specialists are among others who are leveraging Twitter in an effective way. If someone is not already leveraging Twitter<sup>[1]</sup> as one of the core sources of breaking information, they are really missing out on a key differentiator.

Within the past decade, Twitter has experienced an enormous advancement around the world with the advancement of social networks. It's no wonder that so many analysts have begun to look at the ways in which this micro-blogging platform can be utilized to seek out new applications in across domains. Online sentiment tracking has surprisingly managed to get importance in the last few years; however, its range of applications is actually more extensive. Particularly, some analysts have taken a concern for the probability of foreseeing financial market trends by gauging the Twitter sentiment.

E.g. Carl Icahn, founder of Icahn Capital Management, reported on August 13, 2013 about his position on Apple Inc, over Twitter, calling it essentially underrated. Just in a few seconds the Apple stock saw a bullish rally and in minutes its market cap rose by \$17 billion.



Source: *Financemagnates.com*

### 1.3 President Trump Social Media presence

An avid user of Twitter long before his most recent bid for the presidency, President Trump has developed a highly individualized voice through his Twitter feed; one that is strengthened by the sheer output of tweets and the greatly repetitive and self-referential nature of his tweets.

Hailing him as ‘modern day presidential’, Trump’s victory and ubiquity is generally due to his internet presence. Within the months driving up to the presidential race, it was detailed that “as much as 45% of Trump’s campaign budget in a given month [was] committed to digital outreach and research”. This funding was primarily spent on surveys and voter identification, utilized towards developing one of the foremost vigorous combinations of political Big Data in America. Bloomberg has cited that the value of Trump’s voter information database was as much as \$100 million. This collection of data does not incorporate the more provocative, and thus, more ‘shareable’ angle of Trump’s online candidacy: his use of social media to spread influence in the form of attack ads and fake news.

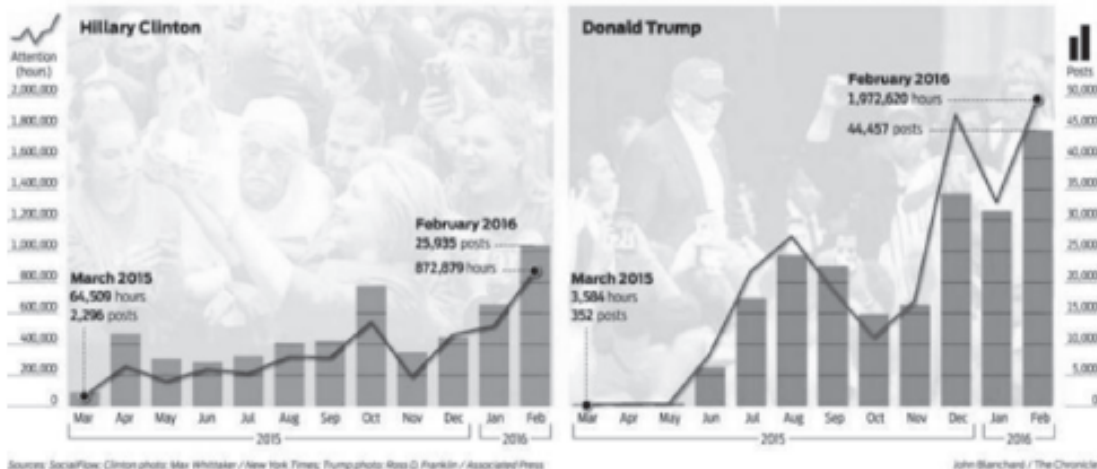
In addition to empowering activity among his supporters, Trump also effectively worked to restrain his opposition through social media. He had three major voter concealment operations under way, aiming the Trump social media behemoth at bringing down the voter turnout of key Clinton groups: white liberals, youthful ladies, and African Americans. Posting advertisements that played off Sanders supporters’ disinterest in Clinton, which emphasized

Bill Clinton’s history of sexual wrongdoing, the Trump campaign centered its endeavors on lessening support for Clinton just as much as raising his own impact.

By utilizing Facebook as a means to spread his impact and attest his political presence, Trump managed to reach more distant voters than possible under conventional strategies of political advertising. Trump’s ability to seize control of public attention is displayed in the picture below. He quickly surpassed Clinton in social media presence, cementing his presence and validating his political identity.

**Social media: How Clinton got Trumped**

A year ago, people were spending thousands of hours reading and reacting to posts on social media about Hillary Clinton, even before the former secretary of state had formally announced her bid for the presidency. Yet in a few months, Donald Trump went from being largely ignored to overtaking her as the center of the political conversation online.



Trump’s social media presence<sup>[26]</sup> is maybe the single most critical angle of his candidacy. On Facebook alone, Pro-Trump advocates purchased at least \$100,000 worth of advertisements prior to the November election. A former Facebook official gauges that this was sufficient to reach at slightest 126 million Americans. Facebook itself readily offers to political campaigns its claim deals staff, who are prepared to ‘assist campaigns in spreading their messages, expanding engagement and getting immediate feedback on how they are performing’. Trump utilized this highly successful service to maximize his Facebook presence, whereas the Clinton campaign did not look for the help of Facebook officials, instead choosing to depend on her acclaimed social media experts. Not only is Trump more engaged online then, but he is more strategic, utilizing each opportunity to gain an edge over other more traditional candidates.

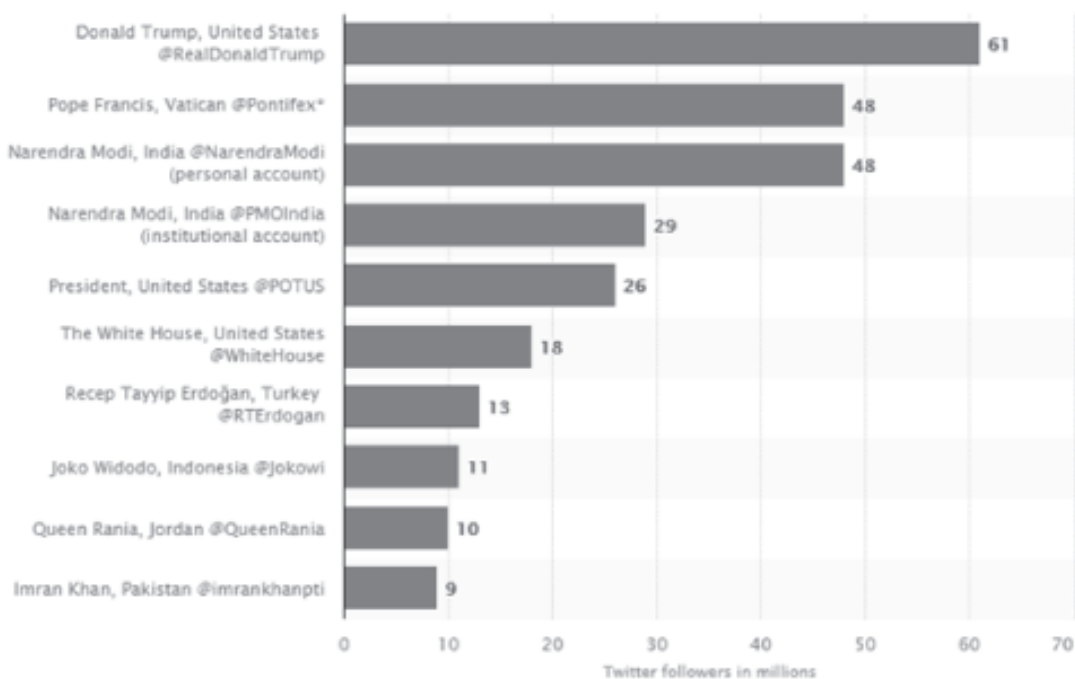
**1.4 President Trump Tweets Impact on Financial Assets**

As per Statista<sup>[9]</sup>, based on the latest data of 2018, the micro-blogging service, Twitter, averaged at 326 million monthly active users. Singers and Hollywood celebrities were the

most followed people on twitter. US President Donald Trump has been a Twitter user since March, 2009, and stands at 16th position, after amassing more than 68 million followers and posting more than 47000 tweets, as per the latest data of 2019.

As per Statistia<sup>[25]</sup>, till January, 2019, 187 countries were represented through an official presence on Twitter, either by personal or institutional accounts run by heads of state and government and foreign ministers. During the measured period, U.S. President Donald Trump was ranked first, having accumulated over 61 million Twitter followers on his personal account.

### World leaders with the most Twitter followers



Source: Statistia, January, 2019

Twitter has the strength to persuade governments and financial markets through tweets. The way President Donald Trump dominates the media, no other president has managed to do this; for the most part, this is attributable to his extraordinarily active posting habits and his turgid writing traits. Ever since Mr. Trump has been elected as President, he has resorted to Twitter to showcase his liking and disliking towards a vast variety of issues, events, policy changes, and much more. Personal or not, his tweets have continually had a profound effect on financial markets, bringing short-term volatility to equities, commodities, bonds and FOREX markets.

President Donald Trump is the second president in power to efficiently take an interest in Twitter, with the first being his forerunner, Barack H. Obama. President George W. Bush did not take part in using the early versions of Twitter which were launched during his second term as President of the US. This could be because Twitter was not that popular those days. As for earlier presidents — Bill Clinton and George H.W. Bush — Twitter wasn't around when they were running for President; nevertheless, both now have active Twitter accounts. A solid promoter of Twitter, President Trump refers to its utilization as a brilliant method to address the citizens of the US in a straightforward manner without any biases or media intermediaries.

The post-race month of December, 2016 gave a variety of representations of the amount of impact Trump's tweets had on the stock value of government contract holders, expressly members within the aviation and defense industries.

According to a study by the Wall Street Journal, President Trump's Twitter releases impacted twelve major company stocks within the aftermath of his elections in December, 2016. E.g. his tweet <sup>[1]</sup> regarding Toyota's business operations on January 5, 2017, said: "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" <sup>[25]</sup>. As a result, the company stocks lost almost US\$1.2 million in market cap in mere 5 minutes of the tweet being uploaded. Over the consequent few months, the stock continued its downward spiral, losing a total of \$12 billion in market cap

Mr. Donald Trump tweeted <sup>[1]</sup> on December 3, 2016 addressing his worries with reference to Boeing's administration contract to manufacture a future Air Force One. He tweeted, "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!" <sup>[25]</sup>. After his tweet, the Boeing stock quickly realized a 1% fall in Market Cap value on the hypothesis that the organization may lose support with the new administration, voiding current government contracts.

Mexico's trade and cross-border relationship had been a prominent theme of the 2016 US presidential election. On January 3, 2017, Mr. Trump tweeted <sup>[1]</sup> and expressed his annoyance concerning the US auto industry's involvement in Mexico. He tweeted, "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!" <sup>[25]</sup>. After this tweet, USD/MXN rate fell by 2%, to a record low of 21.619 pesos to the dollar. During the extended session, the rate dropped by 3.5%, which then finally led to an intervention by Mexico's Central Bank.



US President Donald Trump has posted over 5800 tweets over a period of two years from 8th November, 2016 (when he was elected) to 7th November, 2018 (US Midyear Election results). Mr. Donald Trump has weaponized Twitter, utilizing it to achieve the majority, as well as to control the news agenda through rants and diversions. Specialists state that the 71-year-old has utilized Twitter in a manner that has no equivalent when compared with other political leaders.

George Lakoff, professor at University of California, Berkeley and also the author of the book 'Don't Think of an Elephant', is an American cognitive linguist, specialist on intellectual science, and a philosopher. The author has investigated the tweets of Mr. Donald Trump and established that President Trump utilizes social media life as a tool to regulate the news cycle. It has exactly the intended effect. His tweets are strategic as opposed to substantive. Professor Lakoff has even made a taxonomy in which he puts the Tweets by Donald Trump into one of four classifications — Pre-emptive Framing, Diversion, Deflection, and Trial balloon<sup>[25]</sup>, shown below.



Source: <https://twitter.com/georgeLakoff/status on 3rd Jan 2018><sup>[25]</sup>

A large number of studies have been conducted on the impact of Twitter and other social media platforms with sentiment analysis on financial markets. Several authors look at the effect of social media, especially Twitter, on financial markets, collecting facts from a large number of social media users for shorter time frames spanning from one month to fifteen months. So, to fill this gap, this study has taken into consideration a larger period of two years from 8<sup>th</sup> November, 2016 (when Trump was elected) until 7<sup>th</sup> November, 2018 (US Midyear Election results). Another gap which was identified and filled was that no other researcher had studied the impact of tweets on all four financial markets together, i.e. on the equity market (denoted by the Dow Jones Industrial Average Index), foreign exchange markets (represented by the Dollar Index), commodity markets (represented by gold prices), and bond markets (represented by the US Government 10 Year Treasury Bond Yield).

## **2. LITERATURE REVIEW**

Financial market prediction is one of the most attractive topics in scholarly study as well as in real life business. Many researches have been attempted to address the question of whether financial markets can be anticipated. A portion of this research was based on the random walk hypothesis and the Efficient Market Hypothesis (EMH). Agreeing to the EMH (Fama et al., 1969; Fama, 1991) <sup>[10]</sup>, the present financial market completely mirrors all accessible data. Henceforth, value changes are only due to new data or news. Since news happens haphazardly and is unknowable in the present, financial asset prices ought to pursue a random walk pattern and the best bet for the next price is the current price. On the other hand, various researches determine that the financial market prices don't pursue a random walk, and can be anticipated to some degree (Bollen et al., 2011) <sup>[4]</sup>.

There are three prominent types of online data sources that have been used for financial analysis. First, news sites have been perceived to be important sources for gauging the sentiment of the investor (Tetlock, 2007) <sup>[24]</sup>. Secondly, search engine data has been informative in anticipating market fluctuations by keeping tabs on search volumes of specific stocks. Lastly, one source of online data is social media feeds. Social media feeds are becoming highly important for determining and measuring the social mood and investor behavior. Twitter is a popular micro-blogging service whereby users write messages called 'tweets'. Millions of messages are written daily, and there is no limitation on the content.

### **2.1 Alternative data as the new normal**

Among investors and portfolio managers, the greatest challenge nowadays isn't getting to alternative data: It's managing, prioritizing, and contextualizing all of it to gather real market

insights from what may effectively be information overload. Never has the cliché, “separating signals from the noise” been more significant, as Dataminr’s report <sup>[11]</sup> on how institutional investors utilize alternative data uncovers. In the third quarter of 2018, Dataminr commissioned WBR Insights to survey trading teams and portfolio managers in Europe and North America about their utilization of alternative data and challenges they confront with this new era of information.

While the lion’s share of institutional investors — 79% of those surveyed <sup>[11]</sup> — use some form of alternative data, many have expressed dissatisfaction regarding interpreting it as real-time data that’s relevant to their trading books and portfolios. Some of the top challenges include a need for workflow integration, as well many data sources, and concerns around integrity of information, the wrong type of data, or values that are troublesome to understand.

A recent study by global market intelligence and advisory services firm Greenwich Partners <sup>[7]</sup> found that 80% of investors need superior access to alternative data. Statistics like this highlight how alternative data has clearly moved from the fringes to the mainstream. In parallel, Greenwich Associates <sup>[7]</sup> found that fund managers need better access to logistics (36%), evaluated prices (35%), private company data (33%), supply chain risk data (30%), and other data sets to assist in improving investment techniques and performance.

Besides, alternative data has become so predominant, the term ‘alternative data’ itself has become outdated; more than 60% of asset managers <sup>[7]</sup>, including traditional managers and hedge funds depend on huge non-traditional information sets to foresee future market moves. Management consultancy Opimas shared in its 2017 report “Alternative Data—The New Frontier in Asset Management” that investors are investing approximately 20% more each year to get access to alternative data. Alternative data is no longer alternative, but necessary for any analyst to preserve an advantage in today’s advancing market.

## **2.2 Social media as a communication platform**

There is no satisfactorily explainable or mathematically expressible relationship between the stock prices of firms and their respective social media activities (Kaushik et al, 2017) <sup>[12]</sup>. Although social media has sometimes proven to be very crucial to the changes occurring in stock prices, firms should not worry too much about how they are handling their social media accounts on Facebook, Twitter, LinkedIn, and YouTube. They should only carry out the mandatory practices, essential awareness, and marketing schemes that nowadays every firm carries out.

Bukovina (2016)<sup>[6]</sup> did an academic research to link social media and capital markets. He studied less rational factors of behavioral finance like investors' sentiment or public mood as influential for asset pricing or capital market volatility. His paper introduced social media data from a technical and economic point of view and contributed to the theoretical construction of the transmission mechanism.

Nguyen et al. (2015)<sup>[18]</sup> built a model to predict stock price movement using the sentiment from social media; not at all like past methodologies where the general moods or sentiments were considered, where the sentiments of the specific topics of the company were incorporated into the stock prediction model. Zhang et al. (2012)<sup>[28]</sup> evaluated sentiment in financial news articles. They paired a financial news article prediction system (Arizona Financial Text [AZFinText] system) with a sentiment analysis tool. They found out that subjective articles with positive sentiment predicted positive price direction maximum number of times and vice versa.

### **2.3 Link between tweets and market performance**

Since the conception of Twitter in 2006 studies regarding the properties of Twitter have grown in popularity and can be classified into one of the following streams; Structural, Content, or Sentiment. When evaluating the structural properties of Twitter as a social network, studies have focused on user influentially. Content analysis studies have focused on analyzing the content, virility, and motivations of tweets. Sentiment analysis studies have focused on using Twitter chatter sentiment for predicting behavior.

Mozetic et al. (2018)<sup>[16]</sup> analyzed that tweets related to EUR and USD currency pair, the EURUSD exchange rate, ECB and FED financial announcements impact the EUR/USD currency pair rates over a period of three years (from January 2014 to December 2016). They showed that there are considerable differences between Twitter accounts in terms of Twitter stance distribution and Cumulative Abnormal Return (CAR). There is a significant correlation between the Twitter stance and CARs of EURUSD currency pair.

In order to explore the relationship between politics-related sentiment and FTSE 100 movements, Yeung et al. (2018)<sup>[17]</sup> conducted a short-window event study of a UK based political event. Their findings suggest that there is evidence of correlation between the general mood of the public and investment behavior in the short term; however, the relationship is not yet determined as statistically significant. Overall, their results show promise for using sentiment analytics on Twitter data for forecasting market movements. Abbees (2016)<sup>[2]</sup> extended previous studies to investigate the impact of tweets' sentiment on

stock market movements and make dependable forecasts that could be usable by financial specialists. In reality, he just utilized a rule-based approach to label each tweet with a positive, negative, or neutral value. In any case, the approval of this system depended on an irregular example of 200 opinionated tweets which were manually annotated.

Paul (2015)<sup>[19]</sup> hypothesized that using Twitter to communicate with investors actually leads to asset mispricing. She reported a negative connection between the log of anomalous volume and firm-started declaration tweets for both product recalls and monthly sales announcements. Ciftci, Kursad, and SerdaOzturk (2015)<sup>[8]</sup> investigated the relationship between Twitter content categorized as sentiments, such as Buy, Sell, and Neutral, with US Dollar/Turkish Lira exchange rate (USD/TRY) currency movements. The results suggested that there exists a relationship between the number of tweets and the change in USD/TRY exchange rate. Tweets sent by verified accounts in specific dates, show that when stock return has a jump due to news regarding the stock, the number of tweets sent on Twitter jumps in the same direction, adding value to the granger causality analysis (Tabari et al., 2018)<sup>[23]</sup>.

Li et al. (2014)<sup>[13]</sup> analyzed the news impact from sentiment dimensions. They first implemented a generic stock price prediction framework. Secondly, they used Harvard psychological dictionary and Loughran–McDonald financial sentiment dictionary to construct the sentiment dimensions. Experiments which were conducted on five years' historical Hong Kong Stock Exchange prices and news articles showed that sentiment analysis helps improve the prediction accuracy. Wang and Lu (2013)<sup>[27]</sup> tried to answer two things: i) Is there any causal relationship between quantified public's Twitter Mood and Dow Jones Stock Indices, and ii) If there is a relationship, can it help predicting future stock indices by including past data of public's Twitter Mood. He used the Granger Causality Test and auto-regression model to conclude that the factor of public mood can predict the stock movement pretty accurately. Sharma and Vyas (2011)<sup>[22]</sup> performed a sentiment analysis on a tweet corpus collected Using an extended version of the Profile of Mood States (bipolar) (POMS) questionnaire. They extracted the public mood along six bipolar dimensions — Composed, Agreeable, Elated, Confident, Tired, Confused. They were able to employ a well-established psychometric tool to get a measure of public mood from Twitter, and were able to demonstrate the strong correlation between one of the POMS mood dimensions and the Dow Jones Average Index.

## 2.4 Effect of the Tweet by US President Donald Trump

Colonescu (2018)<sup>[9]</sup> found some evidence of some persistent effects of Twitter announcements by the US president on some financial and foreign exchange aggregates, such as the Dow Jones Industrial Average, the US-Canadian currency exchange rate, and the aggregate US dollar exchange rate index. Rayarel (2018) tested the Efficient Market Hypothesis by analyzing the effect of US President Donald Trump's company-specific tweets on financial markets. Using a sample of 24 company-specific tweets, he concluded that a tweet by Trump leads to an abnormal trade volume of 43.54% on the day of the tweet and an increase in Google search activity on the week of the tweet, and also leads to statistically significant abnormal returns that last for 2 to 3 trading days.

Malaver-Vojvodic (2017)<sup>[14]</sup> used GARCH model and analyzed more than 7400 tweets and ranked 64 as 'negative' based on the tone and content of the message delivered. The research concluded that the tweets classified as negative had an impact on the daily volatility of the Mexican peso/U.S. dollar exchange rate, possibly leading to market inefficiencies and arbitrage opportunities. Porshnev et al. (2014)<sup>[20]</sup> used a lexicon-based approach to categorize user moods conveyed in Twitter posts through 755 million tweets for the period from February 13, 2013 to September 29, 2013 to improve accuracy of price forecasts for Precious Metals by using Support Vector Machines (SVM).

By classifying tweet emotional words into "Hope and Fear" on daily basis, Zhang et al. (2011)<sup>[28]</sup> tried to forecast US Stock Market Indices like DJIA, S&P 500, NASDAQ, and VIX. They studied the relationship between these indices and the stock market indicators. These emotional words are divided into two groups a) positive ones indicating hope and happiness; and b) negative ones indicating emotions of fear, worry, nervousness, anxiety, and being upset. They found out that emotional tweets have a negative correlation with DJIA, NASDAQ, and S&P 500, but a positive correlation to VIX. Therefore, it appears that just looking for emotional words of any kind on twitter provides a forecast of the next day's stock market performance. Moreover, Bollen et al. (2011)<sup>[4]</sup> categorized more than 9.8 million tweets in reference to people's sentiments for 2.7 million people using Twitter from March, 2008 to December, 2008. He found that the daily changes in the DJIA index closing values can be predicted by more than 87% when they include indicators derived from Twitter, such as the level of individual's cheerfulness and calmness.

After conducting the literature review, the following questions come to mind. The objective of carrying out this study and research was to answer the below questions:

- What is the impact of US President Mr. Donald Trump's tweets on all four financial markets — equity markets, commodity markets, bond markets, and currency markets?
- Is there any significant association between the sentiment of US President Mr. Donald Trump's tweets and financial markets' prices?
- Which financial market has the highest relationship and correlation with sentiment of Mr. Trump's tweet?
- Do US President Mr. Donald Trump's tweets impact the financial market prices in the short term or long term?
- Is there a positive or negative correlation between US President Mr. Donald Trump's Tweets and various asset classes?

### **3. RESEARCH METHODOLOGY**

#### **3.1 Data Collection**

Two datasets are used here for analyzing the impact of US President Donald Trump's tweets' impact on financial markets. The first one is the sample of 60 of his tweets about the US economy, US financial markets, and American foreign policy posted over a period of two years from 8<sup>th</sup> November, 2016 (when Trump was elected) to 7<sup>th</sup> November, 2018 (US Midyear Election results). The second one is a historical price dataset of the capital markets (represented by Dow Jones Index), foreign exchange markets (represented by Dollar Index), commodity markets (represented by COMEX Gold Price) and bond markets (represented by US Government 10 Year Treasury Bond Yield).

##### *3.1.1.1 Twitter*

US President Donald Trump has posted 5843 tweets over a period of two years from 8<sup>th</sup> November, 2016 (when Trump was elected) to 7<sup>th</sup> November, 2018 (US Midyear Election results). A sample of 60 tweets has been taken from the official Twitter account @realDonaldTrump. Only those tweets have been manually selected as part of the sample, in which he has tweeted about the US economy, US financial markets and American foreign policy.

Now the next step is to determine the general mood of the tweet. This is done using the Loughran-McDonald financial sentiment dictionary, which has 6 dimensions — Negative Words, Positive Words, Uncertainty Words, Litigious Words, Modal Words Strong, Modal

Words Weak. Therefore, in this analysis, a tweet is classified as 'Positive', 'Negative' or 'Neutral', as per the text tweeted by President Donald Trump.

Below are the three classifications that have been made:

- a) Positive Tweet: Contains words from the list of Positive Words, Modal Words Strong, and Litigious Words from Loughran and McDonald Financial Sentiment Dictionary. E.g. best, wow, up, incredible, nicely, good, massively, great, all-time high, setting records, strong, better than anticipated, tremendous, beautiful and excellent.
- b) Negative Tweet: Contains words from the list of Negative Words, Modal Words Weak, and Uncertainty Words from Loughran and McDonald Financial Sentiment Dictionary. E.g. dropped, unfairly, insult, badly, tariff, slowest, pay tax.
- c) Neutral Tweet: Contains words which don't fall in the above two categories. E.g. respect, fair, surprised, bargaining.

#### *3.1.1.2 Historical prices*

Historical traded prices of the Dow Jones Index, the Dollar Index, COMEX Gold, and the US Government 10 Year Treasury Bond Yield is taken from the CBOT and CME Exchange for a 2-year period. For each transaction date of a tweet sample, % change is recorded.

### **3.2 Hypothesis Testing**

Hypothesis for Q1

Null Hypothesis 1: There is no significant association between US President Donald Trump's Tweets and the Dollar Index on a given day.

Alternate Hypothesis 1: There is a significant association between US President Donald Trump's Tweets and the Dollar Index on a given day.

Hypothesis for Q2

Null Hypothesis 2: There is no significant association between US President Donald Trump's Tweets and the DJIA on a given day.

Alternate Hypothesis 2: There is a significant association between US President Donald Trump's Tweets and the DJIA on a given day.



### Hypothesis for Q3

Null Hypothesis 3: There is no significant association between US President Donald Trump's Tweets and COMEX Gold prices on a given day.

Alternate Hypothesis 3: There is a significant association between US President Donald Trump's Tweets and COMEX Gold prices on a given day.

### Hypothesis for Q4

Null Hypothesis 4: There is no significant association between US President Donald Trump's Tweets and the US Government 10 Year Treasury Bond Yields on a given day.

Alternate Hypothesis 4: There is a significant association between US President Donald Trump's Tweets and the US Government 10 Year Treasury Bond Yields on a given day.

## **3.3 Data Analysis**

Chi-square<sup>[b]</sup> test has been used here to determine whether a relationship exists between tweets and financial asset classes. The Chi-Square<sup>[b]</sup> statistic is most normally used to access Tests of Independence when using a bivariate table. Cross tabulation presents the distributions of two categorical variables at the same time, with the intersections of the categories of the variables appearing in the cells of the table. The Test of Independence measures whether a relationship exists between the two variables by comparing the observed pattern of responses in the cells to the pattern that would be expected if the variables were truly independent of each other. Calculating the Chi-Square statistic and comparing it with a critical value from the Chi-Square distribution allowed to assess whether the observed cell counts were considerably dissimilar from the projected cell counts.

Here the independent variable is 'Tweet Sentiment', which is converted into a categorical variable by assigning scale values to Positive Tweet as 1, Negative Tweet as -1 and Neutral Tweet as 0. The dependent variables are i.e. % change in closing price of Dow Jones, Dollar Index, COMEX Gold Price, and US Government 10 Year Treasury Bond Yield. These four dependent variables are also converted into categorical data by converting the % change into following categories:

<b>% Change in Price</b>	<b>Categorical Value and Scale allotted</b>
<= -0.1 %	-1
-0.1% to 0.1%	0
>= 0.1%	1

Then a Chi-Square Test<sup>[b]</sup> was run in SPSS<sup>[h]</sup> software keeping Sentiment Scale in the row and Dollar Index, Dow Jones Scale and Gold Scale in columns. While analyzing the output, it was found that more than 20% of the data had an expected count less than 5 in all three Chi-square test tables and Degree of Freedom (Df) was taken as 4. The Fisher Exact Test was also used to solve this error. Below are the three outputs published by SPSS software:

### **3.3.1 Link of US President Donald Trump's Tweet Sentiment Scale with Dollar Index % Change Scale**

			<b>Dollar %Change Scale</b>			<b>Total</b>
			-1	0	1	
Sentiment Scale	Negative	Count	9	5	8	22
		Expected Count	9.2	4.4	8.4	22.0
	Neutral	Count	0	1	1	2
		Expected Count	.8	.4	.8	2.0
	Positive	Count	16	6	14	36
		Expected Count	15.0	7.2	13.8	36.0
Total		Count	25	12	23	60
		Expected Count	25.0	12.0	23.0	60.0

#### **Chi-Square Test**

	<b>Value</b>	<b>Df</b>	<b>Asymptotic Significance (2-sided)</b>	<b>Exact Sig. (2-sided)</b>
Pearson Chi-Square <sup>[g]</sup>	2.181 <sup>a</sup>	4	.703	.761
Likelihood Ratio <sup>[f]</sup>	2.748	4	.601	.753
Fisher's Exact Test <sup>[e]</sup>	2.555			.724
N of Valid Cases	60			

Here the p-value is 0.724, which is ( $>0.05$ ), so we accept Null Hypothesis 1. This suggests there is no significant association between US President Donald Trump’s tweets and the Dollar Index on a daily closing price basis.

**3.3.2 Link of US President Donald Trump’s Tweet Sentiment Scale with the % Change in the Dow Jones Industrial Average Index Scale**

			Dow %Change Scale			Total
			-1	0	1	
Sentiment Scale	Negative	Count	10	5	7	22
		Expected Count	6.2	2.9	12.8	22.0
	Neutral	Count	0	0	2	2
		Expected Count	.6	.3	1.2	2.0
	Positive	Count	7	3	26	36
		Expected Count	10.2	4.8	21.0	36.0
Total		Count	17	8	35	60
		Expected Count	17.0	8.0	35.0	60.0

**Chi Square Tests**

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square <sup>[g]</sup>	10.682 <sup>a</sup>	4	.030	.031
Likelihood Ratio <sup>[f]</sup>	11.472	4	.022	.019
Fisher's Exact Test <sup>[e]</sup>	10.106			.020
N of Valid Cases	60			

Here the p-value is 0.02, which is ( $<0.05$ ), so we can’t accept the Null Hypothesis 2. Therefore this suggests there is a significant association between US President Donald Trump’s Tweets and the Dow Jones Industrial Index on a daily closing price basis.

**3.3.3 Link of US President Donald Trump's Tweet Sentiment Scale with the % Change in the COMEX Gold Price Scale**

			Gold % Change Scale			Total
			-1	0	1	
Sentiment Scale	Negative	Count	8	2	12	22
		Expected Count	9.9	1.1	11.0	22.0
	Neutral	Count	0	0	2	2
		Expected Count	.9	.1	1.0	2.0
	Positive	Count	19	1	16	36
		Expected Count	16.2	1.8	18.0	36.0
Total		Count	27	3	30	60
		Expected Count	27.0	3.0	30.0	60.0

Chi-Square Test				
	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square <sup>[g]</sup>	4.254 <sup>a</sup>	4	.373	.356
Likelihood Ratio <sup>[f]</sup>	4.956	4	.292	.377
Fisher's Exact Test <sup>[e]</sup>	4.529			.334
N of Valid Cases	60			

Here the p-value is 0.33, which is ( $>0.05$ ), so we can accept the Null Hypothesis 3. This suggests there is no significant association between US President Donald Trump's tweets and COMEX Gold on a daily closing price basis.

**3.3.4 Link of US President Donald Trump’s Tweet Sentiment Scale with the % Change in the US Government 10 Year Treasury Bond Yields Scale**

			Bond Yield % Change Scale			Total
			-1	0	1	
Sentiment Scale	Negative	Count	16	1	5	22
		Expected Count	8.8	1.8	11.4	22.0
	Neutral	Count	0	0	2	2
		Expected Count	.8	.2	1.0	2.0
	Positive	Count	8	4	24	36
		Expected Count	14.4	3.0	18.6	36.0
Total		Count	24	5	31	60
		Expected Count	24.0	5.0	31.0	60.0

Chi-Square Test				
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square <sup>[g]</sup>	16.452 <sup>a</sup>	4	.002	.006
Likelihood Ratio <sup>[f]</sup>	17.479	4	.002	.001
Fisher's Exact Test <sup>[e]</sup>	15.824			.001
N of Valid Cases	60			
a. 5 cells (55.6%) have expected count less than 5. The minimum expected count is .17.				

Here the p-value is 0.001, which is ( $<0.05$ ), so we cannot accept the Null Hypothesis 4. Therefore this suggests there is a significant association between US President Donald Trump’s tweets and US Government 10 Year Treasury Bond Yields on a daily closing price basis.

From the sample data of 60 tweets and as per the Chi-square and Fisher Exact Test run on categorical values of Tweet Sentiment and Financial Asset Classes, the following were the findings:

- There is a significant relationship between US President Donald Trump's tweets and the Dow Jones Industrial Average Index on a given day. 68 percent of times, the DJIA Index has closed in positive territory, when US President Trump has tweeted something positive about the US economy, which indicates a positive correlation between them.
- There is a significant relationship between US President Donald Trump's tweets and the US Government 10 Year Treasury Bond Yield on a given day. 67 percent of times, the US Government 10 Year Treasury Bond Yield has closed in positive territory, when US President Trump has tweeted something positive about the US economy, and 72 percent of times, the US Government 10 Year Treasury Bond Yield has closed in negative territory, when US President Trump has tweeted something negative about the US economy, which indicates a positive correlation between them.
- There is no significant relationship between US President Donald Trump's tweets and the Dollar Index on a given day, but it affects the prices on a shorter time frame and the impact is nullified by the end of the day.
- There is no significant relationship between US President Donald Trump's tweets and COMEX Gold prices on a given day, but it affects the prices on a shorter time frame and the impact is nullified by the end of the day. 54 percent of times, Gold has closed in negative territory, when US President Trump has tweeted something positive about the US economy, and vice-versa, which indicates a negative correlation between them.

#### **4. CONCLUSION, IMPLICATION AND FUTURE RESEARCH**

The results of this paper suggest that the sample tweets have had a significant impact on the Dow Jones Industrial Average Index and the US Government 10 Year Treasury Bond Yield, while not having much of a significant impact on the Dollar Index and Gold prices on a daily basis.

This study could have given better results if prices of financial asset classes were taken on a real-time basis such as the hourly closing or 4-hourly closing price immediately after the President's tweets, as the tweets often impacted the prices of various asset classes in a timespan of a few hours. Future research should look at hourly price data of all asset classes.

The classification of tweets was done from Loughran and McDonald Financial Sentiment Dictionary to label each tweet with a positive, negative, or neutral value. However, the validation of this technique was based on a random sample of 60 opinionated tweets which were manually annotated. The sample of Trump's tweets was manually selected and may be subject to bias. On several thousands of entries, the sample size was rather slim. The true accuracy could have varied as compared to our current estimation. This could have led to the inclusion and exclusion of wrong observations in the dataset. Future research could be done through NLP (Natural Language Processing) using software like Python.

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## Definitions

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## 6. APPENDIX

### 60 Sample Tweets of US President Donald Trump

No.	Date	Sentiment	Tweet
1	6-Nov-18	Positive	Republicans have created the best economy in the HISTORY of our Country – and the hottest jobs market on planet earth. The Democrat Agenda is a Socialist Nightmare. The Republican Agenda is the AMERICAN DREAM!
2	2-Nov-18	Positive	Wow! The U.S. added 250,000 Jobs in October - and this was despite the hurricanes. Unemployment at 3.7%. Wages UP! These are incredible numbers. Keep it going, Vote Republican!
3	1-Nov-18	Positive	Just had a long and very good conversation with President Xi Jinping of China. We talked about many subjects, with a heavy emphasis on Trade. Those discussions are moving along nicely with meetings being scheduled at the G-20 in Argentina. Also had good discussion on North Korea!
4	30-Oct-18	Positive	The Stock Market is up massively since the Election, but is now taking a little pause - people want to see what happens with the Midterms. If you want your Stocks to go down, I strongly suggest voting Democrat. They like the Venezuela financial model, High Taxes & Open Borders!
5	23-Oct-18	Negative	Billions of dollars are, and will be, coming into United States coffers because of Tariffs. Great also for negotiations - if a country won't give us a fair Trade Deal, we will institute Tariffs on them. Used or not, jobs and businesses will be created. U.S. respected again!
6	16-Oct-18	Positive	Incredible number just out, 7,036,000 job openings. Astonishing - it's all working! Stock Market up big on tremendous potential of USA. Also, Strong Profits. We are Number One in World, by far!
7	3-Oct-18	Positive	The Stock Market just reached an All-Time High during my Administration for the 102nd Time, a presidential record, by far, for less than two years. So much potential as Trade and Military Deals are completed.
8	17-Sep-18	Negative	Tariffs have put the U.S. in a very strong bargaining position, with Billions of Dollars, and Jobs, flowing into our Country - and yet cost increases have thus far been almost unnoticeable. If countries will not make fair deals with us, they will be "Tariffed!"
9	29-Aug-18	Positive	Our new Trade Deal with Mexico focuses on FARMERS, GROWTH for our country, tearing down TRADE BARRIERS, JOBS and having companies continue to POUR BACK INTO OUR COUNTRY. It will be a big hit!

10	24-Aug-18	Positive	Our Economy is setting records on virtually every front - Probably the best our country has ever done. Tremendous value created since the Election. The World is respecting us again! Companies are moving back to the U.S.A.
11	10-Aug-18	Negative	I have just authorized a doubling of Tariffs on Steel and Aluminum with respect to Turkey as their currency, the Turkish Lira, slides rapidly downward against our very strong Dollar! Aluminum will now be 20% and Steel 50%. Our relations with Turkey are not good at this time!
12	5-Aug-18	Neutral	Tariffs are working far better than anyone ever anticipated. China market has dropped 27% in last 4 months, and they are talking to us. Our market is stronger than ever, and will go up dramatically when these horrible Trade Deals are successfully renegotiated. America First.....
13	5-Aug-18	Positive	Tariffs have had a tremendous positive impact on our Steel Industry. Plants are opening all over the U.S., Steelworkers are working again, and big dollars are flowing into our Treasury. Other countries use Tariffs against, but when we use them, foolish people scream!
14	24-Jul-18	Negative	Tariffs are the greatest! Either a country which has treated the United States unfairly on Trade negotiates a fair deal, or it gets hit with Tariffs. It's as simple as that - and everybody's talking! Remember, we are the "piggy bank" that's being robbed. All will be Great!
15	23-Jul-18	Negative	To Iranian President Rouhani: NEVER, EVER THREATEN THE UNITED STATES AGAIN OR YOU WILL SUFFER CONSEQUENCES THE LIKES OF WHICH FEW THROUGHOUT HISTORY HAVE EVER SUFFERED BEFORE. WE ARE NO LONGER A COUNTRY THAT WILL STAND FOR YOUR DEMENTED WORDS OF VIOLENCE & DEATH. BE CAUTIOUS!
16	20-Jul-18	Negative	The United States should not be penalized because we are doing so well. Tightening now hurts all that we have done. The U.S. should be allowed to recapture what was lost due to illegal currency manipulation and BAD Trade Deals. Debt coming due & we are raising rates - Really?
17	20-Jul-18	Negative	China, the European Union and others have been manipulating their currencies and interest rates lower, while the U.S. is raising rates while the dollars gets stronger and stronger with each passing day - taking away our big competitive edge. As usual, not a level playing field...

18	22-Jun-18	Negative	Based on the Tariffs and Trade Barriers long placed on the U.S. and it great companies and workers by the European Union, if these Tariffs and Barriers are not soon broken down and removed, we will be placing a 20% Tariff on all of their cars coming into the U.S. Build them here!
19	15-Jun-18	Negative	US announces tariffs on \$50 billion of imports from China, with Trump threatening more if China retaliates. China responds in kind.
20	12-Jun-18	Positive	Stock Market up almost 40% since the Election, with 7 Trillion Dollars of U.S. value built throughout the economy. Lowest unemployment rate in many decades, with Black & Hispanic unemployment lowest in History, and Female unemployment lowest in 21 years. Highest confidence ever!
21	4-Jun-18	Positive	This is my 500th. Day in Office and we have accomplished a lot - many believe more than any President in his first 500 days. Massive Tax & Regulation Cuts, Military & Vets, Lower Crime & Illegal Immigration, Stronger Borders, Judgeships, Best Economy & Jobs EVER, and much more...
22	6-Apr-18	Negative	Russia and China are playing the Currency Devaluation game as the US keeps raising interest rate. Not acceptable.
23	6-Apr-18	Negative	Despite the Aluminum Tariffs, Aluminum prices are DOWN 4%. People are surprised, I'm not! Lots of money coming into U.S. coffers and Jobs, Jobs, Jobs!
24	4-Apr-18	Neutral	We are not in a trade war with China, that war was lost many years ago by the foolish, or incompetent, people who represented the U.S. Now we have a Trade Deficit of \$500 Billion a year, with Intellectual Property Theft of another \$300 Billion. We cannot let this continue!
25	3-Apr-18	Positive	We are bringing back our factories, we are bringing back our jobs, and we are bringing back those four beautiful words: MADE IN THE USA!
26	30-Mar-18	Positive	JOBS, JOBS, JOBS! Unemployment claims have fallen to a 45-year low. Together, we are making the economy great again!
27	23-Mar-18	Negative	US imposes a 25 percent tariff on all steel imports (except from Argentina, Australia, Brazil, and South Korea) and a 10 percent tariff on all aluminium imports (except from Argentina and Australia).
28	10-Mar-18	Negative	The European Union, wonderful countries, who treat US very badly on trade are complaining about the tariffs and Aluminium. If they drop their horrific barriers and tariffs on US products going in, we will likewise drop ours. Big Deficit. If not, we tax Cars, etc. FAIR!

29	27-Feb-18	Positive	“American consumers are the most confident they've been since 2000....A strong job market is boosting confidence. The unemployment rate has stayed at a 17-year low.”
30	7-Feb-18	Negative	In the “old days,” when good news was reported, the Stock Market would go up. Today, when good news is reported, the Stock Market goes down. Big mistake, and we have so much good (great) news about the economy!
31	2-Feb-18	Positive	With 3.5 million Americans receiving bonuses or other benefits from their employers as a result of TAX CUTS, 2018 is off to great start! Unemployment rate at 4.1%. Average earnings up 2.9% in the last year. 200,000 new American jobs.
32	24-Jan-18	Positive	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!
33	11-Jan-18	Positive	In new Quinnipiac Poll, 66% of people feel the economy is “Excellent or Good.” That is the highest number ever recorded by this poll.
34	3-Jan-18	Negative	North Korean Leader Kim Jong Un just stated that the “Nuclear Button is on his desk at all times.” Will someone from his depleted and food starved regime please inform him that I too have a Nuclear Button, but it is a much bigger & more powerful one than his, and my Button works!
35	28-Dec-17	Positive	Retail sales are at record numbers. We’ve got the economy going better than anyone ever dreamt - and you haven’t seen anything yet!
36	19-Dec-17	Positive	DOW RISES 5000 POINTS ON THE YEAR FOR THE FIRST TIME EVER - MAKE AMERICA GREAT AGAIN! 70 Record Closes for the Dow so far this year! We have NEVER had 70 Dow Records in a one year period. Wow!
37	2-Dec-17	Positive	Consumer Confidence is at an All-Time High, along with a Record High Stock Market. Unemployment is at a 17 year low. MAKE AMERICA GREAT AGAIN! Working to pass MASSIVE TAX CUTS (looking good).

38	30-Nov-17	Positive	The Dow just broke 24,000 for the first time (another all-time Record). If the Dems had won the Presidential Election, the Market would be down 50% from these levels and Consumer Confidence, which is also at an all-time high, would be "low and glum!"
39	12-Nov-17	Negative	Why would Kim Jong-un insult me by calling me "old," when I would NEVER call him "short and fat?" Oh well, I try so hard to be his friend - and maybe someday that will happen!
40	16-Oct-17	Positive	Since Election Day on November 8, the Stock Market is up more than 25%, unemployment is at a 17 year low & companies are coming back to U.S.
41	14-Sep-17	Negative	China has a business tax rate of 15%. We should do everything possible to match them in order to win with our economy. Jobs and wages!
42	16-Aug-17	Negative	Amazon is doing great damage to taxpaying retailers. Towns, cities and states throughout the U.S. are being hurt - many jobs being lost!
43	12-Aug-17	Positive	As promised on the campaign trail, we will provide opportunity for Americans to gain skills needed to succeed & thrive as the economy grows!
44	1-Aug-17	Positive	Stock Market could hit all-time high (again) 22,000 today. Was 18,000 only 6 months ago on Election Day. Mainstream media seldom mentions!
45	31-Jul-17	Positive	Highest Stock Market EVER, best economic numbers in years, unemployment lowest in 17 years, wages raising, border secure, S.C.: No WH chaos!
46	29-Jul-17	Negative	I am very disappointed in China. Our foolish past leaders have allowed them to make hundred of billions of dollars a year in trade yet.
47	25-Jul-17	Positive	Working on major Trade Deal with the United Kingdom. Could be very big & exciting. JOBS! The E.U. is very protectionist with the U.S. STOP
48	13-Jul-17	Positive	After 14 years, U.S. beef hits Chinese market. Trade deal an exciting opportunity for agriculture.
49	30-Jun-17	Positive	Our new American Energy Policy will unlock MILLIONS of jobs & TRILLIONS in wealth. We are on the cusp of a true energy
50	2-Jun-17	Positive	Wall Street hits record highs after Trump pulls out of Climate pact
51	26-Apr-17	Negative	The U.S. recorded its slowest economic growth in five years (2016). GDP up only 1.6%. Trade deficits hurt the economy very badly.

52	3-Apr-17	Positive	Jobs are returning, illegal immigration is plummeting, law, order and justice are being restored. We are truly making America great again!
53	24-Mar-17	Positive	Today, I was thrilled to announce a commitment of \$25 BILLION & 20K AMERICAN JOBS over the next 4 years. THANK YOU
54	2-Mar-17	Positive	Since November 8th, Election Day, the Stock Market has posted \$3.2 trillion in GAINS and consumer confidence is at a 15 year high. Jobs!
55	16-Feb-17	Positive	Stock market hits new high with longest winning streak in decades. Great level of confidence and optimism - even before tax plan rollout!
56	20-Jan-17	Positive	We will bring back our jobs. We will bring back our borders. We will bring back our wealth - and we will bring back our dreams!
57	20-Jan-17	Positive	It all begins today! I will see you at 11:00 A.M. for the swearing-in. THE MOVEMENT CONTINUES - THE WORK BEGINS!
58	5-Jan-17	Negative	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.
59	3-Jan-17	Negative	China has been taking out massive amounts of money and wealth from the US in totally one-sided trade, but wont help with North Korea. Nice
60	6-Dec-16	Negative	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!