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# The Impact of Social Media on Reputational Risk

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# The Impact of Social Media on Reputational Risk

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### Section 1.1 : Abstract

In the era of social media, reputation is a crucial feature of business activity and can help companies attract customers and reach the economies of scale and scope that justify their investment. Reputational risk is a challenging topic. This is partly because it involves temporal perception and stock market frenzy like we saw with the first bubble, Tulipmania, and the Dotcom Bubble. These potential threats have strengthened due to social media platforms playing a main role in these “panic-in, panic out” investing behaviors. As seen in many company crises, this potential for reputational impact can grow and then disappear in moments. Accordingly, it is difficult to quantify reputational risk and yet that is what makes it so intriguing. Social media has increased the speed of information flow. This means that both information and misinformation are being spread faster than ever. This is likely contributing to the increased volatility and the overstated short term movements in markets and individual stocks. Today, more companies are bringing in outside resources to supplement their internal reputational risk research. Regulators, industry groups, consultants, and individual companies have developed elaborate guidelines over the years for assessing and managing risks in a wide range of areas, including commodity prices, control systems, supply chains, political instability, and natural disasters. These processes will help managers do a better job of assessing existing and potential threats to their companies’ reputations and deciding whether to accept a given risk or to take actions to avoid or mitigate it. In this project, I focus my research on analyzing the impact of social media and measuring the economic component of total reputational risk of four corporations: United Airlines, Tesla Motors, Chipotle Mexican Grill, and Facebook. I will be measuring the effects of adverse events on firm reputation by building an analysis of reputation tolerances by stakeholder. The

stakeholder groups included in this analysis are Media, Customers, Regulators, and Investors. It will include the impact on reputation on recent issues, reactions, interpretations, and actions required. My hope is that this project will shed some light on how reputation and branding risk are as important, or even more important than, any other company metric.

### Section 2.1: Defining Reputation & Corporate Reputation

Reputation is defined as the overall quality or character as seen or judged by people in general.<sup>1</sup>

Corporate reputation is defined as a comprehensive set of enduring stakeholder perceptions, opinions and expectations.<sup>2</sup> Reputation and perception of a company or brand is essential in order to perceive or dissolve the name. Reputation is a crucial feature of business activity and can help companies attract customers and reach the economies of scale and scope that justify their investment.<sup>3</sup> A good reputation is seen as a significant intangible asset.<sup>4</sup> Warren Buffett once stated, “It takes 20 years to build a reputation and five minutes to ruin it. If you think like that, you’ll do things differently.”<sup>5</sup> Corporate reputation plays an important role in the quality of a brand or the longevity of a corporation. Fombrun and Van Riel identified the five distinct academic literatures that have examined questions of reputation, offering perspectives on the economic and strategic implications of reputations, marketing and branding implications, organizational structure questions, the sociological perspective, and accounting perspectives.<sup>6</sup> In this analysis, the economic view of reputation is measured through twitter sentiment or signals. For instance, the quality of a company’s products and services is not directly observable, high

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<sup>1</sup> Merriam-Webster Dictionary

<sup>2</sup> Kai-Uwe Schanz, Reputation and Reputational Risk Management, 377

<sup>3</sup> Christopher Kobrak, The Concept of Reputation in Business History, 763

<sup>4</sup> Ernst Csiszar, Gregory W Heidrich, The Question of Reputational Risk: Perspectives From An Industry, 382

<sup>5</sup> Fortune, Warren Buffet, Assesed on February 22, 2019.

<http://fortune.com/2014/11/17/10-brilliant-quotes-from-warren-buffett-americas-second-richest-person/>

<sup>6</sup> Ibid, 383-384

quality producers are said to invest in reputation-building in order to signal their quality.<sup>7</sup> The strategic view of reputation is seen as an asset as well as a mobility barrier. Meaning that an established reputations impede mobility and produce returns to firms because they are difficult to imitate.<sup>8</sup> This strategic thinking is about how time and how the public views the future of the company. The marketing view, or the brand image, focuses on the nature of information processing, resulting in consumers are the principle 'subject' of analyses.<sup>9</sup> The organizational view is about the internal processes and culture. Looking at the experiences of employees, a company's culture and identity can shape a firm's business practices as well as the kinds of relationships that managers establish with key stakeholders.<sup>10</sup> These shared cultural values drives value and meaning for current and future investors. The sociological view believes that this is the socio-cognitive process that actually generates reputational rankings.<sup>11</sup> Reputations are indicators of legitimacy where they are aggregate assessments of a firm's performance relative to expectations and norms in an institutional field.<sup>12</sup> This view takes into account the relative norms and expectations that a firm should hope and signal stakeholders if they are not performing to standards. The fifth and final view of reputation comes from the accounting perspective. The accounting view is about recording the intangible asset. Many accounting researchers are now calling for a broad-based effort to develop better measures of how investments in branding, training, and research build important stocks of intangible assets not presently recorded in financial statements- assets that are said by strategists to build higher reputational assessments

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<sup>7</sup> Fomburn & Van Reil, *The Reputational Landscape*, 6

<sup>8</sup> *Ibid*, 7

<sup>9</sup> *Ibid*, 7

<sup>10</sup> *Ibid*, 7

<sup>11</sup> *Ibid*, 9

<sup>12</sup> *Ibid*, 9

among observers.<sup>13</sup> A study from Ocean Tomo found that intangible assets like reputation account for more than three-quarters of a company's market value today, compared with less than one-third in 1985.<sup>14</sup> These five implications of reputation help shed some light on a company's external and internal identity using metrics of financial reporting, signaling studies, and even human behavior. A corporate reputation can be built from these five viewpoints. It is a collective representation of a firm's past actions and results that describes the firm's ability to deliver valued outcomes to multiple stakeholders. It gauges a firm's relative standing both internally with employees and externally with stakeholders, in both its competitive and institutional environments.<sup>15</sup>

### 1.2: Overview of Reputational Risk

Reputation risk is a challenging topic. Partly because it is temporal perception and stock market frenzy like we saw with the first real bubble, tulipmania, and the 2000 internet bubble.<sup>16</sup> Accordingly, it is difficult to quantify reputational risk and yet that is what makes it so intriguing. Some risk methodology attempts to quantify reputational risk by first looking at enterprise value, sometimes assumed to be market capitalization at a point in time. Then by deducting credit, market and operational risk it is assumed that the remaining value is attributed to reputational risk including brand risk. There is no doubt that reputational risk is a long tailed statistical element of enterprise value. As we see from many company crises, reputational value can grow and then disappear in moments. Crises are taken as a threat to the organizational

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<sup>13</sup> Fomburn & Van Reil, 9-10

<sup>14</sup> Keri Calagna, <https://deloitte.wsj.com/cmo/2017/07/24/managing-reputation-risk/>

<sup>15</sup> Ernst Csizar and Gregory Heidrich, 384

<sup>16</sup> <https://www.rijksmuseum.nl/en/rijksstudio/timeline-dutch-history/1637-tulipmania>

reputation. Crises damage the reputation and such changes can affect how stakeholders interact with the organization.<sup>17</sup> A crisis, or an event, is a sudden and unexpected event that threatens to disrupt an organization's operations and poses both a financial and a reputational threat.<sup>18</sup> Today, more companies are paying closer attention to their reputational risk research. In fact, many companies are utilizing external resources to value their respective reputations. Regulators, industry groups, consultants, and individual companies have developed elaborate guidelines and databases over the years for assessing and managing risks in a wide range of areas, from commodity prices to control systems to supply chains to political instability to natural disasters.<sup>19</sup> These processes will help managers do a better job of assessing existing and potential threats to their companies' reputations and deciding whether to accept a given risk or to take actions to avoid or mitigate it.<sup>20</sup>

### 1.3: Quantifying Reputational Risk

There are a multitude of methods that help track and measure reputational risk in an organization. Some corporations track positive and negative sentiment in news and social media, such as keywords like poor, bad, great, or satisfied or identify and quantify reputation of a product by finding the product that receives the most attention.<sup>21</sup> In this paper, I will be observing reputation by tracking positive and negative Twitter sentiment count analysis utilizing Bloomberg Terminal. It will include the recent issues/reactions/interpretations, potential impact

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<sup>17</sup> W. Timothy Coombs, *Protecting Organization Reputations During a Crisis: The Development and Application of Situational Crisis Communication Theory*, 163

<sup>18</sup> *Ibid*, 164

<sup>19</sup> Robert Eccles, Scott Newquist, Roland Schatz, *Reputation and Its Risks*, (February, 2007) Accessed on March 29, 2019. <https://hbr.org/2007/02/reputation-and-its-risks>

<sup>20</sup> *Ibid*, 1

<sup>21</sup> Carol Williams, *5 Ways to Better Understand and Quantify Reputation Risk*, <https://www.erminsightsbycarol.com/quantify-reputation-risk/>



on reputation, and actions required.<sup>22</sup> I will also look at sentiment and stock price volatility when the external event was announced, while the event is going on, and resolution or mitigation of this spike or drop in market value.

### Section 3.1: Overview of Social Media

Social media is defined as the colonization of the space between traditional broadcast and private dyadic communication, providing people with a scale of group size and degrees of privacy that we have termed scalable sociality.<sup>23</sup> These spaces, better known as social networking sites, bring in enormous amounts of information, dialogue, and streaming. Social media applies to social networking sites and instant messaging including web blogs such as sites like Facebook, LinkedIn, and Twitter.<sup>24</sup> These social networking sites offer opportunities to build relationships, market new products and services, convey news in real time, create crises, and even manage those crises. In my research, I will look at Twitter's impact on company reputation by looking at the Bloomberg Twitter Negative and Positive Sentiment. This Twitter Analytics tool allows people to visualize financial relevant Tweets about a company in an intraday price chart, in real time, the interplay between Twitter activity and company stock performance.<sup>25</sup> In this analysis, Twitter was used as a proxy for social media data. Positive Sentiment Count Realtime: represents the total number of tweets that were positive for the parent company in the last one minute and its updates in realtime. Negative Sentiment Count Realtime: represents the total number of tweets that were Negative for the parent company in the last one minute and its updates in

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<sup>22</sup> Ibid, Exhibit 1

<sup>23</sup> Daniel Miller, Elisabetta Costa, How the World Change Social Media, 9

<sup>24</sup> Jogan T. Wendt & Peter Young, Reputational Risk and Social Media, 98

<sup>25</sup> Bloomberg Professional Services Offering, Chart News & Twitter Flows, Accessed on Bloomberg Terminal March 3, 2019.

realtime. The Twitter Sentiment volatility was calculated by the rate of change within that full time period.

### 3.2: Social Media's Impact on Reputational Risk

Social media has become the initial platform to read about news, report news, and share events or crisis worldwide. This sharing ability has not only saved people, but has destroyed many people's reputations as well as company reputation. Coombs' Situational Crisis Communication Theory (SCCT) states a higher crisis responsibility and a negative history prior to the crisis lead to higher emotional involvement and feelings of anger, which were clearly expressed online. SCCT links negative emotions and perceived crisis responsibility with behavioral intentions, which could be found in calls for boycotts or strikes.<sup>26</sup> The challenge with this research is that you first have to look at short term reaction to an event and then extrapolate the data and estimate the effect of it on longer term share price and reputational value. In this paper, I will only highlight the short term reaction of specific events.

### 3.3: Purpose & Method

This paper is based on the limited analysis of social media of four companies and eight events. The exhibit to the right highlights the four corporations with the major events highlighted in my research. Future research will enable additional insights into the link between social media, stock price, reputational risk, and enterprise value. Looking at

 <p><b>Customer Service Risk</b></p> <ul style="list-style-type: none"> <li>• United Express Flight 3411 Incident</li> <li>• United Earnings Call</li> </ul>	 <p><b>Executive Management Risk</b></p> <ul style="list-style-type: none"> <li>• Musk Tweeting about Tesla going Private</li> <li>• Marijuana YouTube Podcast</li> <li>• 3Q Earnings release</li> </ul>
 <p><b>Quality Risk</b></p> <ul style="list-style-type: none"> <li>• Initial Announcement of Food Contamination</li> <li>• BC Basketball Team Falls Ill</li> </ul>	 <p><b>Information Technology Risk</b></p> <ul style="list-style-type: none"> <li>• Cambridge Analytica Political Advertisement Ploy</li> </ul>

<sup>26</sup> L. Ott. P. Theunissen, *Pulic Relations Review* 41 (2015) 97-102 , 100  
<https://reader.elsevier.com/reader/sd/pii/S0363811114001581?token=FA49AC3FF07F0FD6DE30F8A4D42B5433F239DB240867207086545A29871FCE4C9AD126C716647F836605E74047F107EB>

the four different types of reputational risk factors; Customer Service, Executive Management, Quality, and Information Technology to evaluate the effect of the companies stock and volatility movements. The methodology used to look at the total of 8 major events is to compare the volatility of each company stock rattled by an event versus the positive and negative sentiment. Using a period including more than 2 days before the event, the event date, and the 3 days or more following the event. I then normalized the volatility of the company by removing the volatility of S&P 500 (SPX). I then compared the Positive and Negative Sentiment, defined as the Positive and Negative Sentiment/tweet count in every minute real-time, against the volatility of the Positive/Negative Sentiment to look for a correlation or causation. In addition to the analysis, the research also included a comparison of the Twitter Sentiment to the News Sentiment, but did not observe substantial differences to warrant analysis. For each of the companies, the crisis was defined as commencing on the day of Event 1 to a period of one month after the last event.

#### Section 4.1: Overview of United Airlines

United Airlines has the world's most comprehensive global route network, including world-class international gateways to Asia and Australia, Europe, Latin America, and the Middle East with non-stop or one-stop service from virtually anywhere in the United States.<sup>27</sup> The company operates more than 4,800 flights a day to 353 airports across five continents with eight hubs.<sup>28</sup> There are approximately 88,000 employees all across the globe. United Continental Holdings, INC, is listed on the NASDAQ under the ticker symbol "UAL."<sup>29</sup>

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<sup>27</sup> <https://hub.united.com/corporate-fact-sheet/>

<sup>28</sup> 10-K report, <http://ir.united.com/node/21871/html>

<sup>29</sup> <https://hub.united.com/corporate-fact-sheet/>

## 4.2: UA Events Overview



During the period of April 2017 and December 2017, United Airlines had experienced reputational impact from lacking customer service and ethical practices within the corporation. The two events are highlighted below. The first event is the catalyst that later affects event 2. Event 1 is the United Express Flight 3411 incident and Event 2 is End of Year Earnings for United.

### 4.3: Event 1: United Express Flight 3411

During spring of 2017, United Airlines experienced a shock in their customer service brand from United Express Flight 3411 Incident. On Sunday, April 9th 2017, UAL Passenger was dragged from an overbooked flight. “An unidentified man who refused to be bumped from a plane screamed as a security officer wrestled him out of his seat and dragged him down the aisle by his arms. His glasses slid down his face, and his short rose above his midriff as uniformed officers followed.”<sup>30</sup> This shocking scene was recorded and posted on Twitter by another passenger, Tyler Bridges.<sup>31</sup> The video was posted at 4:24 pm on April 9, 2017.<sup>32</sup> UAL stock climbed nearly

<sup>30</sup> <https://www.nytimes.com/2017/04/10/business/united-flight-passenger-dragged.html>

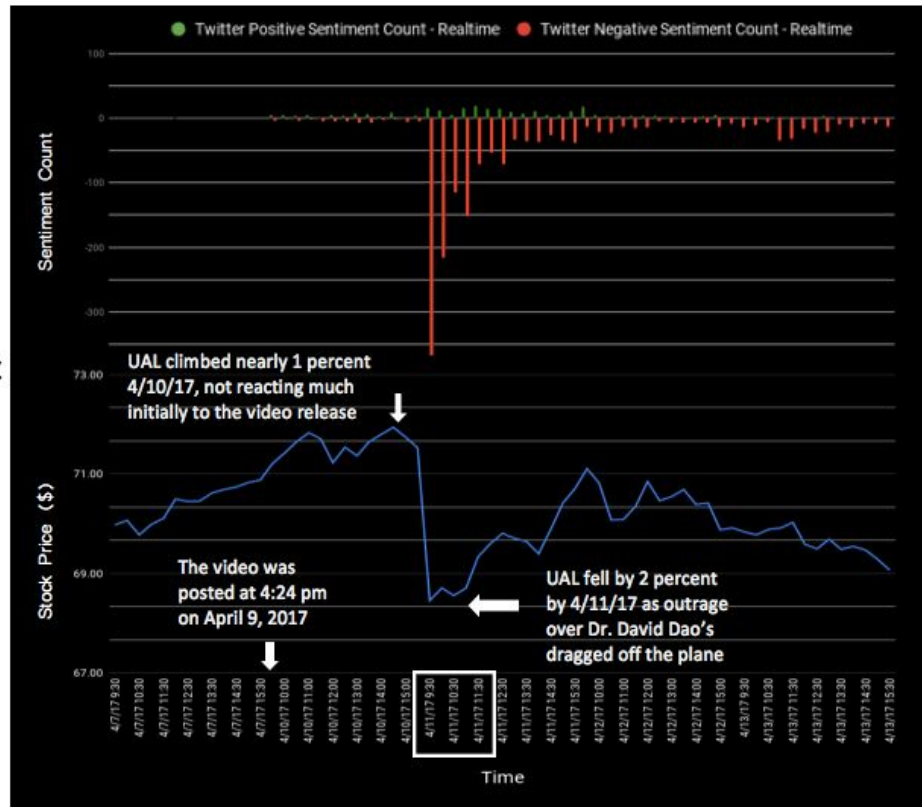
<sup>31</sup> Ibid

<sup>32</sup> [https://twitter.com/Tyler\\_Bridges/status/851214160042106880](https://twitter.com/Tyler_Bridges/status/851214160042106880)

1 percent Monday, not reacting much initially to the internet's response.<sup>33</sup> Shares of UAL fell by 2 percent Tuesday as outrage over Dr. David Dao of Kentucky being dragged finally caught up to the stock price.<sup>34</sup> Following this incident, the officers involved were fired after the forcible removal of the United Express Flight 3411 passenger on October 18, 2017. The two officers that forcibly removed the passengers were fired, two others received short-term suspensions and one of them subsequently resigned.”<sup>35</sup>

This article was an effort to mitigate the negative

press likely to ensue before their earnings call on Thursday, October 29, 2017. This customer service scandal was followed by a quarterly earnings report that would lead to a 12 percent decline from the previous quarter share price. The ordeal led to widespread outrage and badly damaged United's image.<sup>36</sup> Looking at the graph below, this shows the stock price change from April 7th, 2017 to April 13, 2017 compared to the twitter sentiment count in that time period.



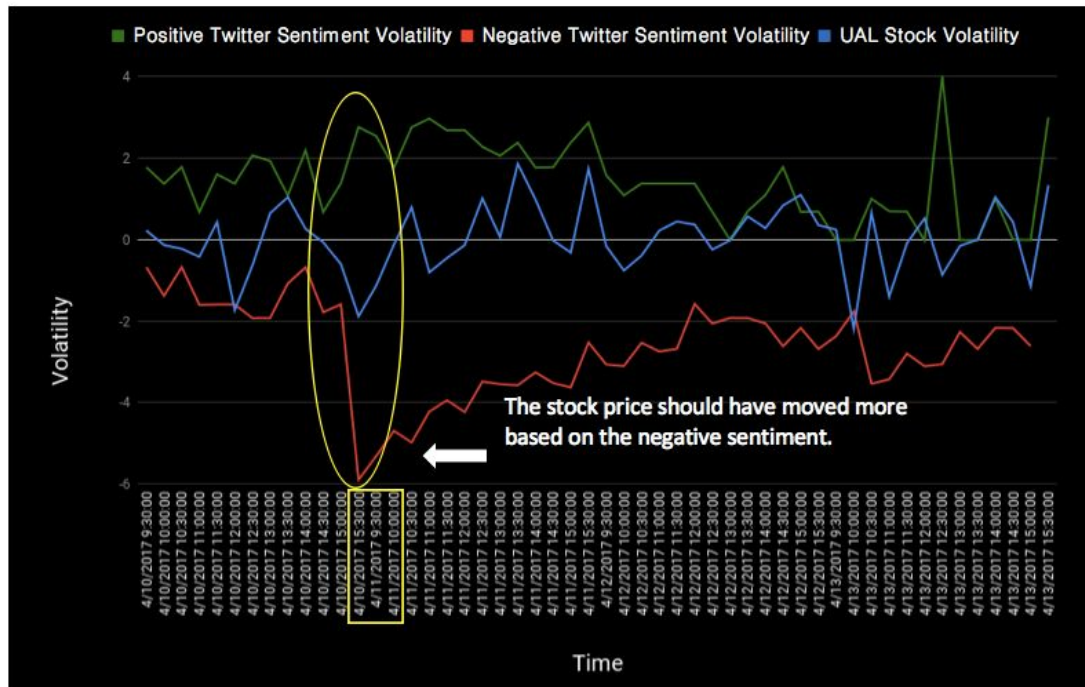
<sup>33</sup> <https://www.cnbc.com/2017/04/11/pr-nightmare-catches-up-with-united-investors-as-shares-slide.html>

<sup>34</sup> Ibid

<sup>35</sup> <https://www.npr.org/sections/thetwo-way/2017/10/18/558469185/officers-fired-after-forcible-removal-of-united-airlines-passenger>

<sup>36</sup> <https://money.cnn.com/2017/10/19/investing/united-airlines-stock-oscar-munoz/index.html>

Looking at stock price from April 7, 2017 through April 13, 2017. Early Tuesday April 11, 2017, United shares dropped 4 percent, wiping \$1 billion of market value.<sup>37</sup>

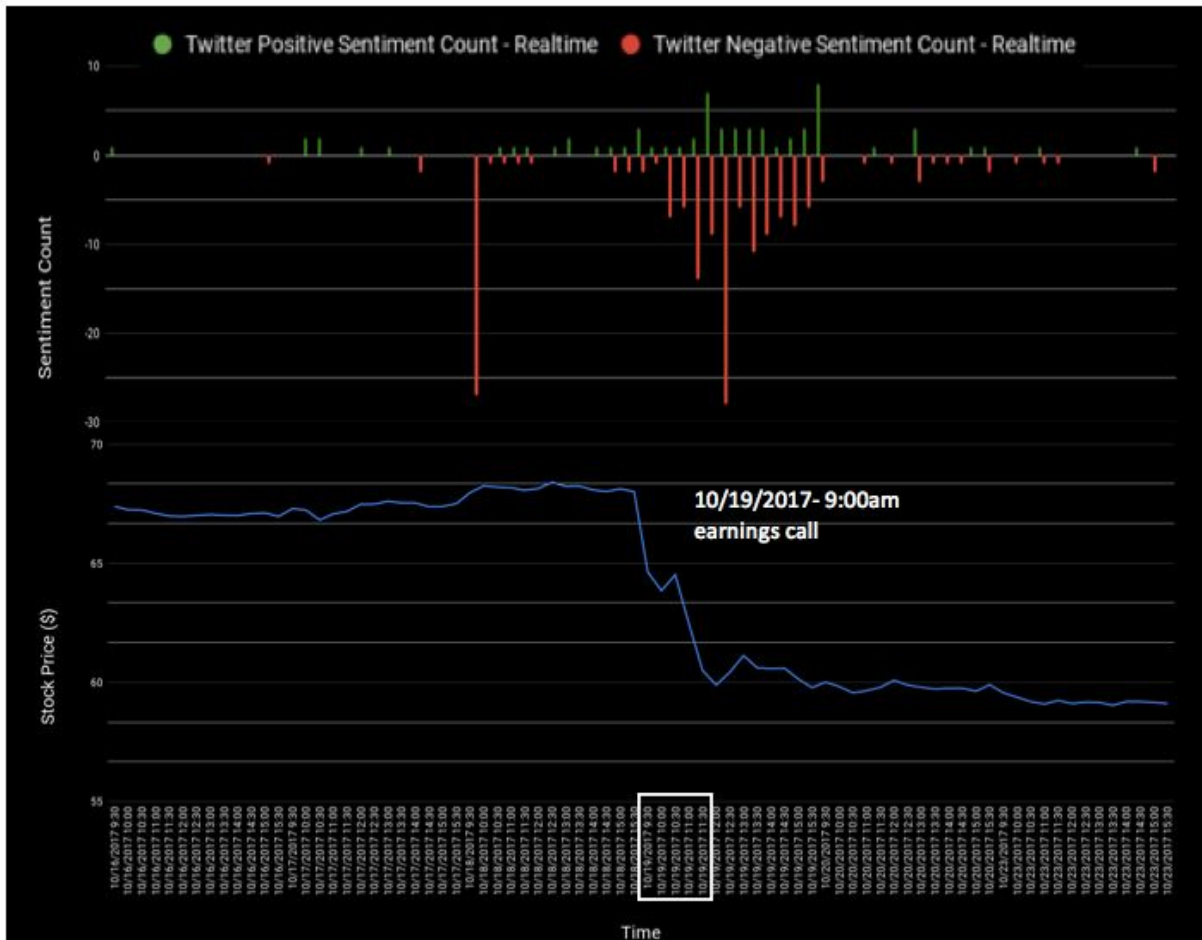


From this data, it begs the question, “Does a well-established company get the benefit of the doubt on social media and, therefore, a delayed reaction on stock price? The graph above shows the stock volatility compared to the positive and negative twitter sentiment volatility. It would be interesting to find more evidence of whether the volatility of social media can be a leading indicator of value change and whether management's actions taken at the appropriate time can help mitigate negative overreactions. For this event, I believe images and video documentation bring a delayed reaction different from a statement or a instant tweet. There needs to be further research done to look at television and news and how real time imagery plays in reputational risk.

<sup>37</sup> <https://money.cnn.com/2017/04/11/news/companies/united-48-hours-passenger/index.html?iid=EL>

#### 4.4: Event 2: United Earnings Call

United Continental Holdings shares plunged more than 12 percent on Thursday, October 19 2017, following an earnings call.<sup>38</sup> This plunge was due to United struggling with other solutions to counter pressure from low-cost competitors. United's stock was down nearly 18 percent by



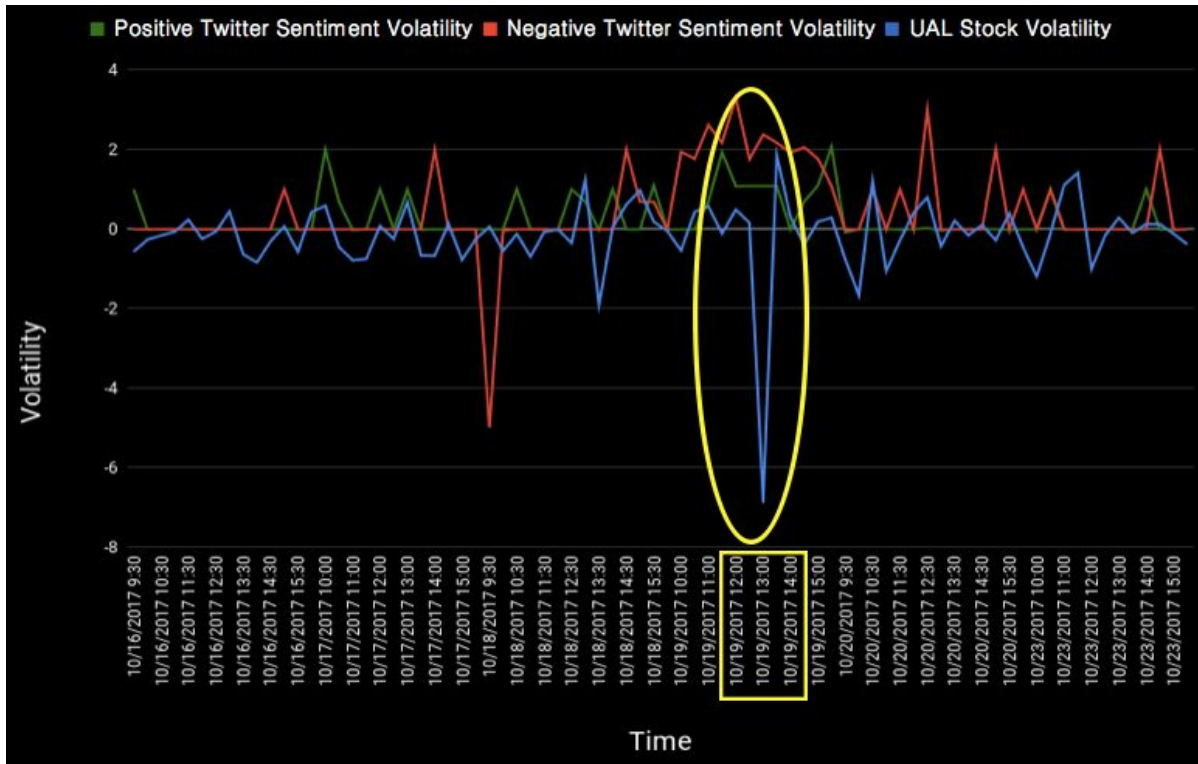
October, compared with a more than 6 percent gain in shares of rival Delta Air Lines and more than 10 percent rise in America Airlines stock.<sup>39</sup> The CEO signaled that weak prices would continue for the rest of 2017.<sup>40</sup> CEO Oscar Munoz said that United Airlines had “dug ourselves

<sup>38</sup> <https://www.cnbc.com/2017/10/19/united-shares-tumble-after-ceo-says-we-have-dug-ourselves-in-a-hole.html>

<sup>39</sup> Ibid

<sup>40</sup> <https://www.cbsnews.com/news/united-airlines-stock-in-nosedive-after-ceo-spars-with-analysts/>

in a hole” compared to competitors.<sup>41</sup> Looking at the graph below, it shows a correlation between stock price drop and high levels of negative Twitter sentiment. This drop in stock price and people wondering “is United’s strategy working.”<sup>42</sup>



Both positive and negative sentiment volatility spike positively and simultaneously. There was a huge volatility spike in the afternoon of the morning earnings call. This begs the question, “Does a company with low social media presence get more or less reaction?”

### Section 5.1: Overview of Tesla Motors

Tesla Motors founded on July 1, 2003, designs develops, manufactures and sells fully electric vehicles, and energy storage systems as well as installs, operates and maintains solar and energy storage products.<sup>43</sup> As of December 31, 2016, the company produced and sold two fully electric

<sup>41</sup> Ibid

<sup>42</sup> Ibid

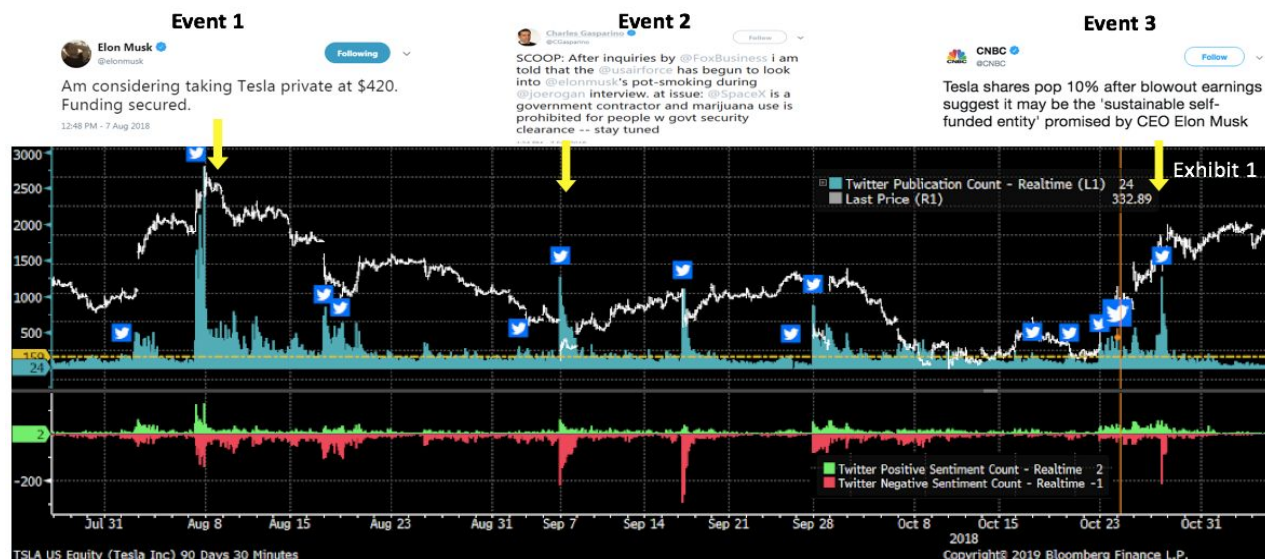
<sup>43</sup> <https://www.reuters.com/finance/stocks/company-profile/TSLA.O>



vehicles, the Model S sedan and the Model X SUV.<sup>44</sup> All Tesla vehicles are produced in Fremont, California.<sup>45</sup> Tesla’s mission is to accelerate the world’s transition to sustainable energy.<sup>46</sup> Tesla Motors, Incorporation, is listed on the NASDAQ under the ticker symbol “TSLA.”

## 5.2: TSLA Event Overview

Tesla has experienced reputational impact largely from actions of the CEO, Elon Musk. The three events profiled dealt with his twitter profile, his drug use publicized on YouTube, and a “better than expected” earnings release. For Tesla, my research highlights the three major events that occurred from August 2018 to October 2018. This chart shows spikes in not only Twitter sentiment but also stock movement.



### 5.4: Event 1: Musk Tweeting about taking TSLA Private

On August 7th, 2018, Elon Musk, the CEO of Tesla at the time, tweeted “Am considering taking Tesla Private at \$420. Funding secured.”<sup>47</sup> This tweet implied that he could have bought back the

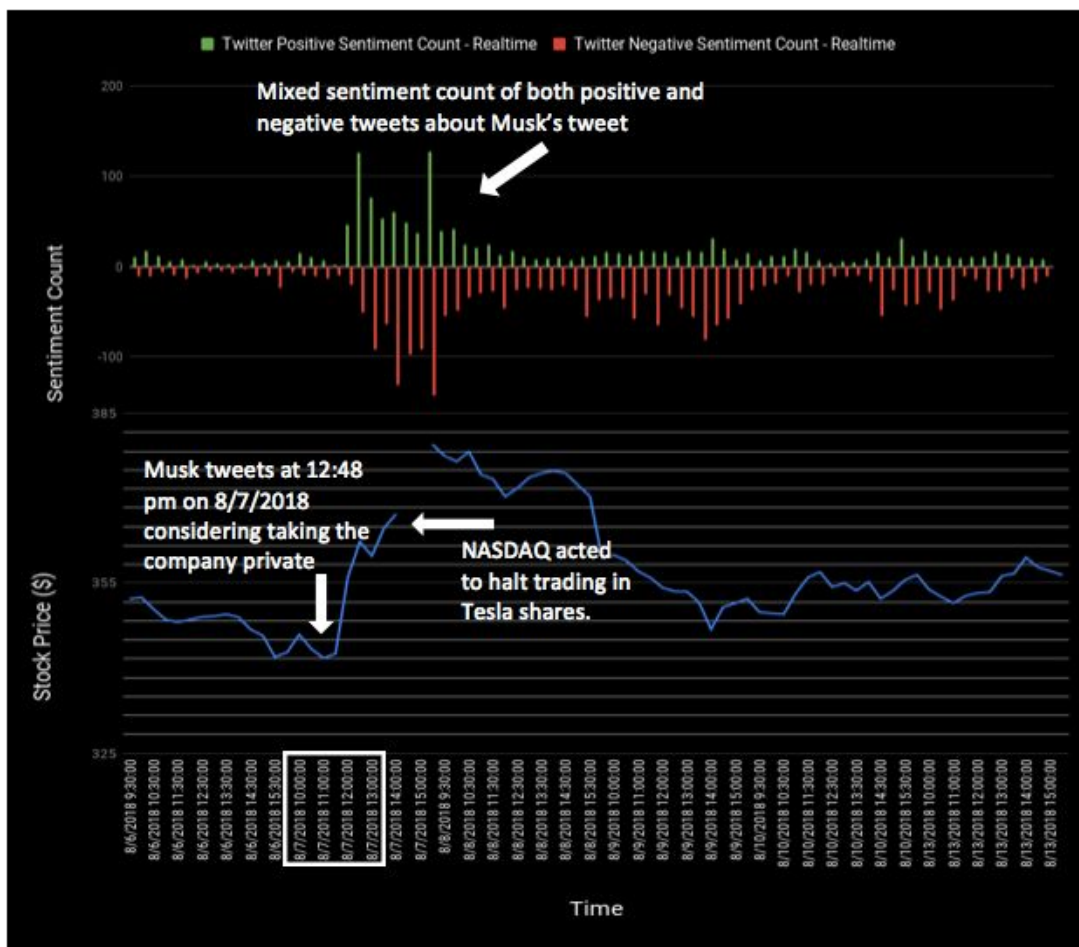
<sup>44</sup> Ibid

<sup>45</sup> <https://www.tesla.com/about>

<sup>46</sup> Ibid

<sup>47</sup> <https://twitter.com/elonmusk/status/1026872652290379776?lang=en>

company for \$82 billion in total. Following Musk's tweet, Tesla's stock rallied, jumping as high as \$371.<sup>48</sup> The company's shares were up 7.4 percent to \$367.25 before the trading of Tesla stock halted on the NASDAQ just after 2:08 PM EST.<sup>49</sup> This halt was due to an upcoming announcement from the company. The surprise announcement prompted former Securities and Exchange Commission Chairman Harvey Pitt to question whether Musk had broken securities laws.<sup>50</sup> Trading resumed at 3:45 PM EST.<sup>51</sup>

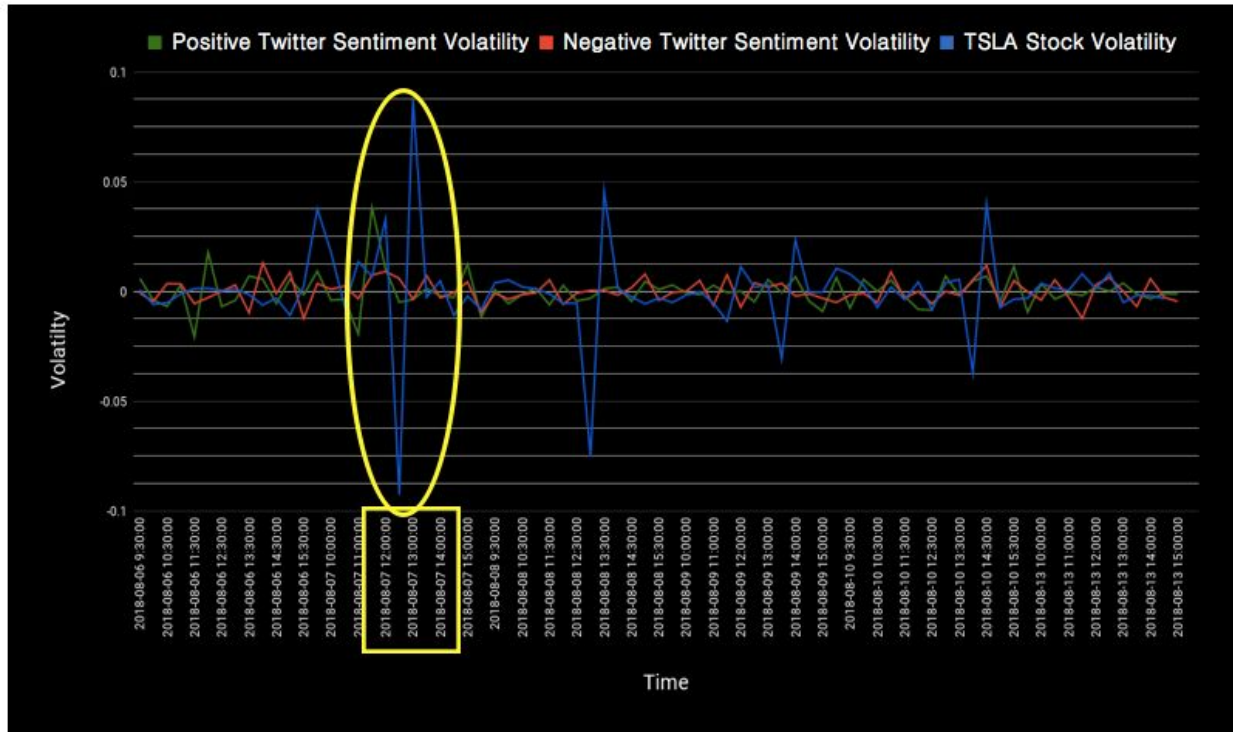


<sup>48</sup> <https://techcrunch.com/2018/08/07/elon-musk-tesla-private-tweet/>

<sup>49</sup> <https://www.ft.com/content/6d0cc8b2-9a6d-11e8-ab77-f854c65a4465>

<sup>50</sup> <https://nypost.com/2018/08/07/musk-tweet-says-he-may-take-tesla-private/>

<sup>51</sup> <https://www.nasdaqtrader.com/Trader.aspx?id=TradingHaltSearch>



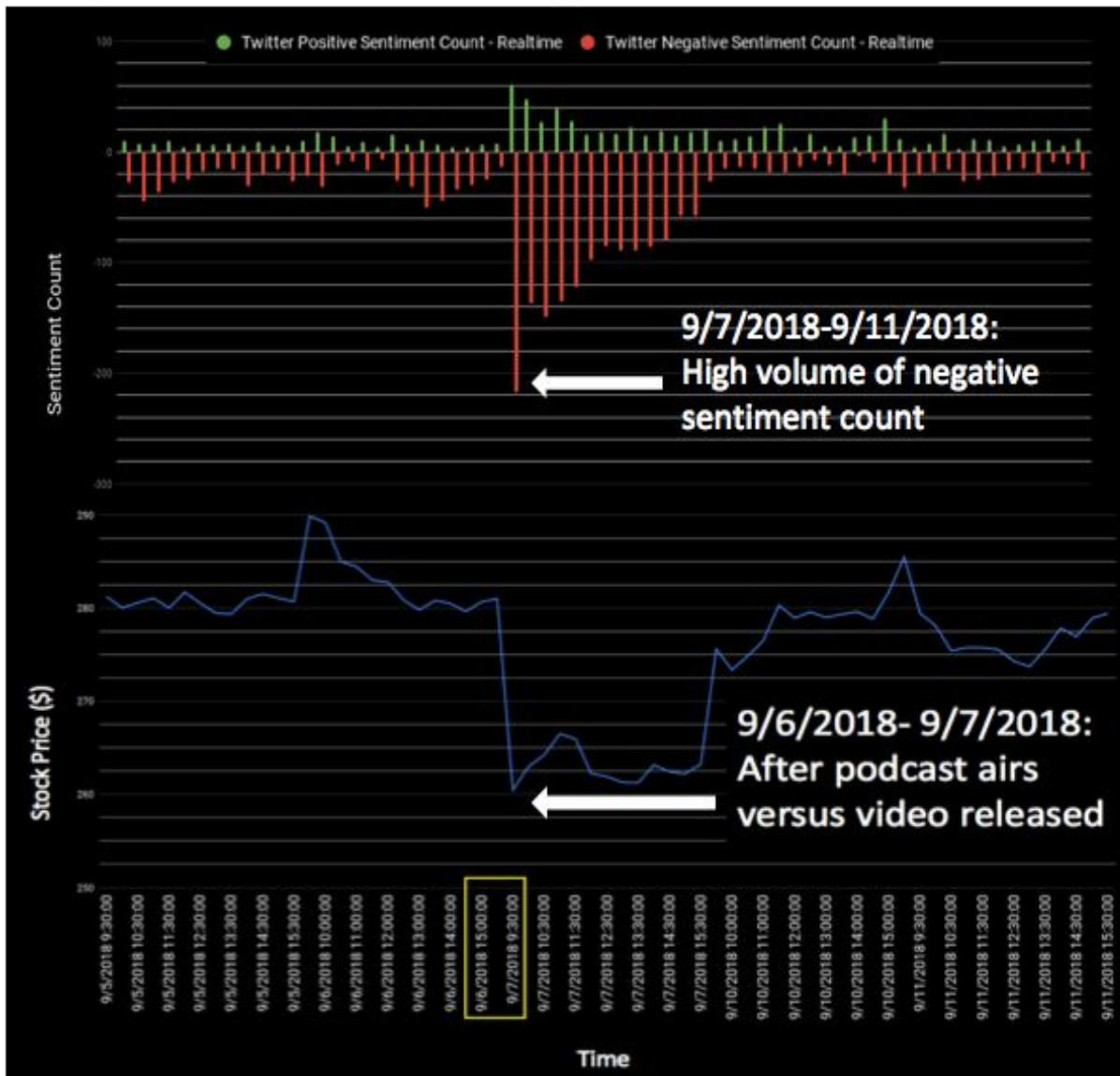
This extreme rise and fall in the Tesla stock volatility raises the question, “Does an event with more dramatic or startling announcements cause a different stock impact as well as affect reputational risk?”

### 5.5: Event 2: Tesla Marijuana YouTube Podcast

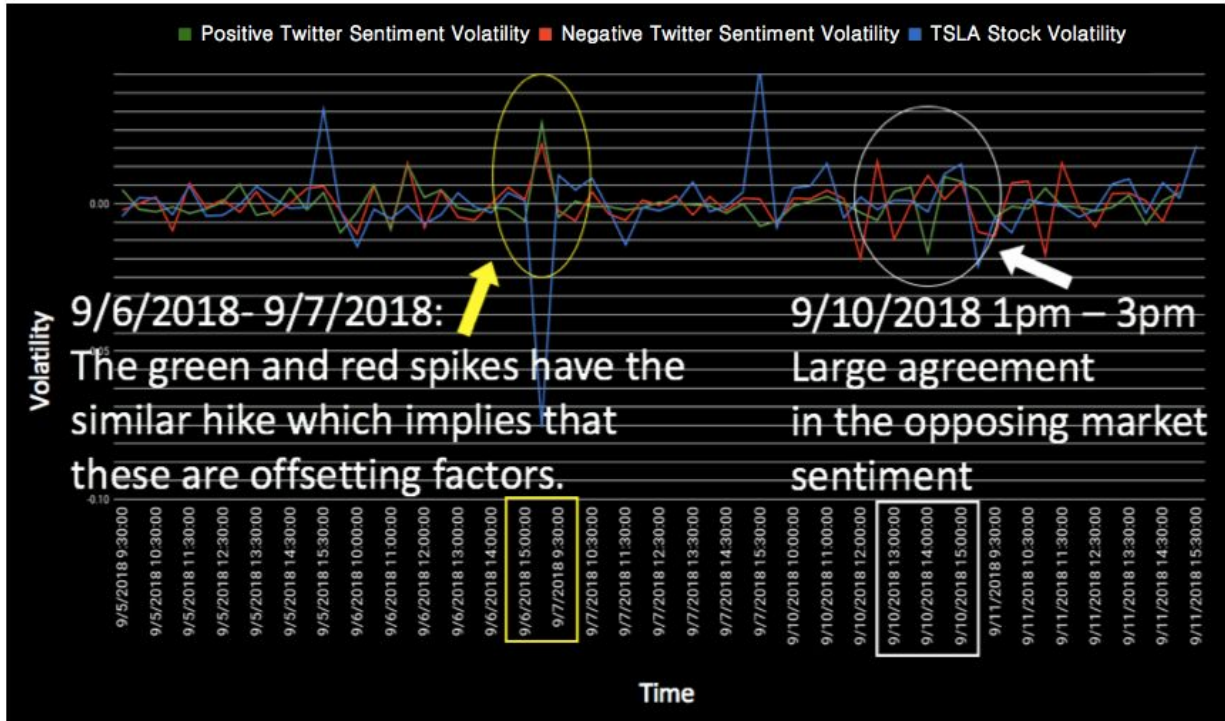
CEO Elon Musk appeared on the “Joe Rogan Experience” overnight podcast on Thursday, September 6th, 2018. About two hours into the podcast, using Youtube as the sharing platform, Musk inhales from what the host says is a combined marijuana-tobacco cigarette, which Rogan notes is legal.<sup>52</sup> Tesla shares fell more than 6 percent at opening bell on Friday, September 7th. This decline was due to the negative media attention regarding the CEO appearing to smoke marijuana during an interview. This negative attention could have been drawn from Musk violating his own company’s code of business conduct and ethics as well as the fact that

<sup>52</sup> <https://www.dailynews.com/2018/09/07/tesla-stock-falls-as-ceo-appears-to-smoke-marijuana-on-video/>

Marijuana is only legal state by state rather than federally. This podcast garnered criticism because Musk had already been under scrutiny for potential stock manipulation from tweeting to take Tesla private.<sup>53</sup> In the eyes of the public, in that moment it was more important than ever for Musk to behave and follow the rules. He chose not to. Looking at the graph below, it shows a correlation between stock price movement and high volume of negative sentiment count.



<sup>53</sup> <https://www.dw.com/en/tesla-shares-take-a-hit-after-elon-musk-smokes-marijuana/a-45401584>



For Event 2, Tesla seems to take about 3 hours for the momentum of social media sentiment to influence the share price movement. This begs the question, “Does a ‘cult stock’ get the benefit of the doubt and, therefore, have a delayed or unexpected reaction on the stock price?” Cult stock is defined as a classification describing stocks that have a sizable investor following, despite the fact that the underlying company has somewhat significant fundamentals.<sup>54</sup> Tesla has been viewed as a “cult stock” because of how controversial it is as well as its “futurist” perception.<sup>55</sup>

### 5.6: Event 3: Third Quarter Earnings Release

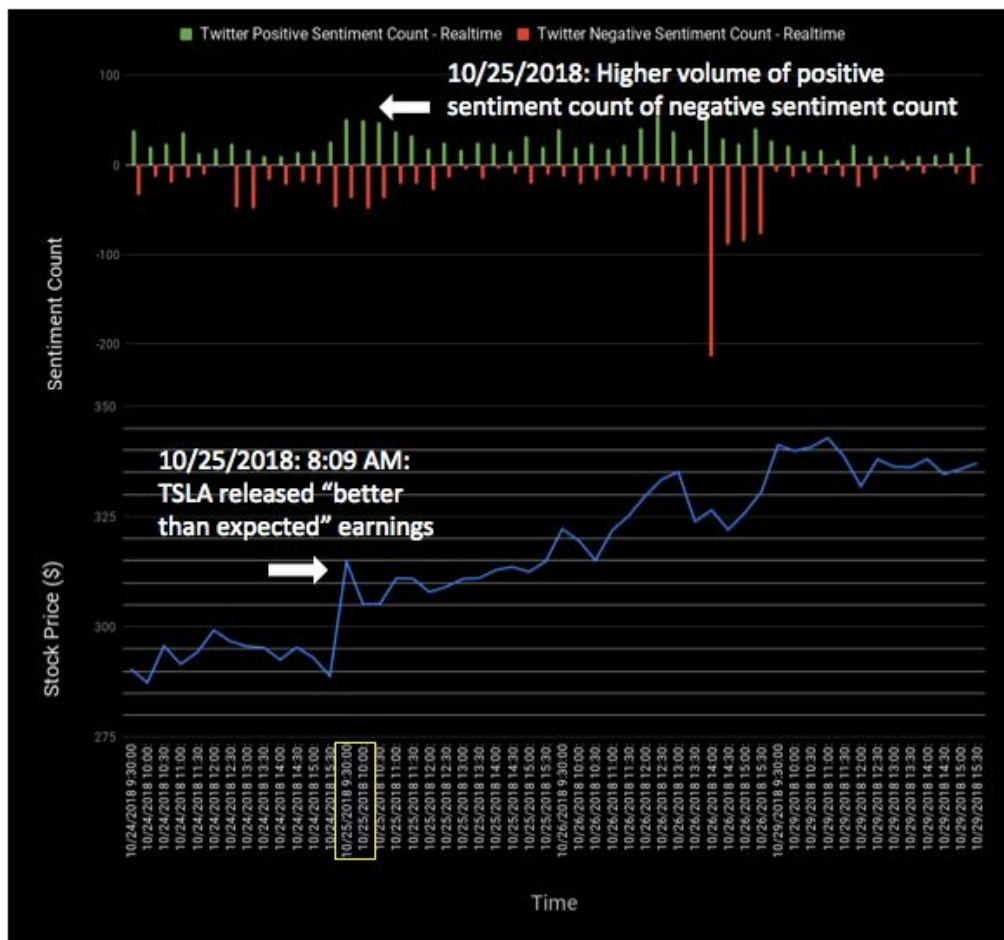
On October 22, 2018, Tesla announced that they would release their Quarter 3 earnings on Wednesday October 24, 2018. This earnings call was announced to be two weeks earlier than expected.<sup>56</sup> Tesla typically reports third-quarter earnings in the first week of November. Over the

<sup>54</sup> [https://www.investopedia.com/terms/c/cult\\_stock.asp](https://www.investopedia.com/terms/c/cult_stock.asp)

<sup>55</sup> <https://www.tradingview.com/chart/TSLA/W5DjhU66-Is-Tesla-a-Cult-Stock-Big-Longs-Big-Shorts-and-New-Money/>

<sup>56</sup> <https://www.zacks.com/commentary/188282/why-tesla-may-deliver-a-big-earnings-beat>

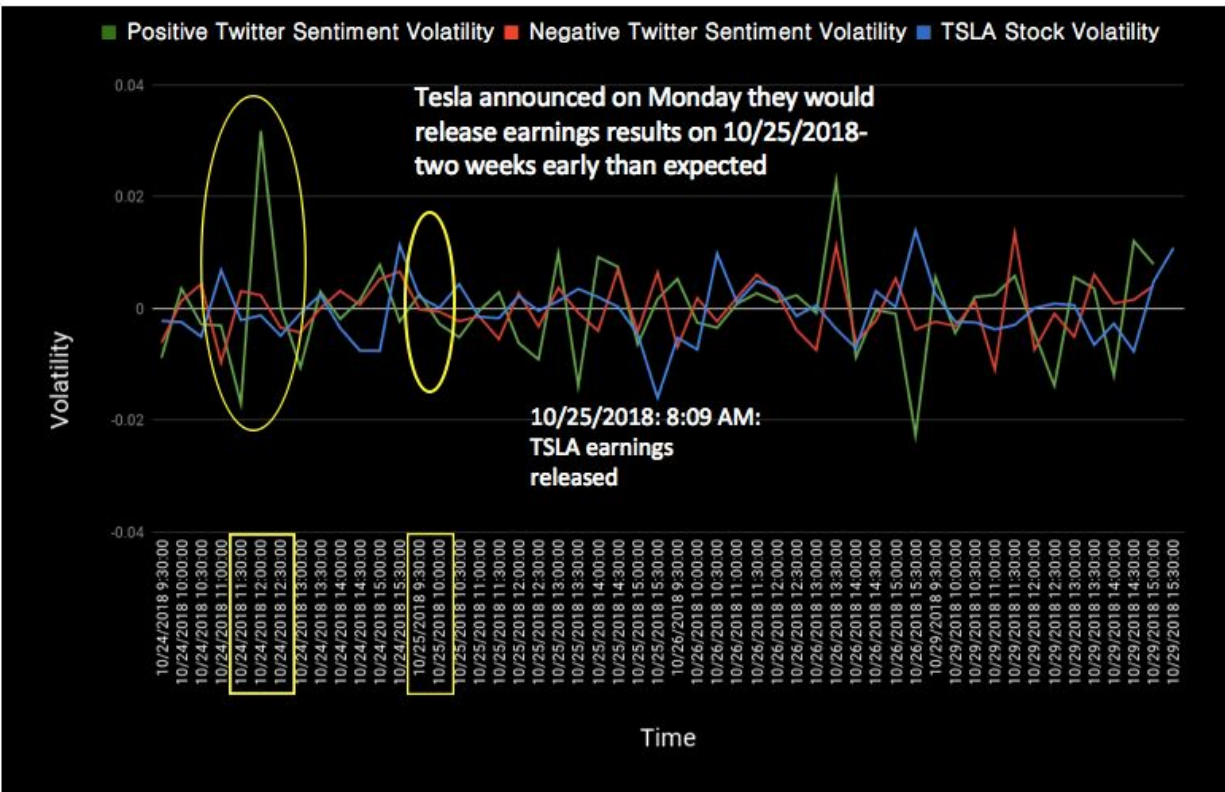
past eight years, it only reported earnings in October just once time, in 2016.<sup>57</sup> Earnings were released on Wednesday, October 25th at 8:09 AM. The adjusted earnings were released at \$2.90 a share versus an expected loss of 19 cents per share. Tesla’s revenue was expected at \$6.33 billion versus Tesla’s actual revenue of \$6.82 billion.<sup>58</sup> During the earnings call, Musk announced that the demand for Model 3s was “probably on the order of anywhere from 500,000 to 1 million cars a year.”<sup>59</sup> Looking at the chart below, the period from October 24, 2018 to October 29, 2018 shows the higher volume of positive sentiment count during Third Quarter Earnings release.



<sup>57</sup> <https://www.bizjournals.com/sanjose/news/2018/10/23/tesla-q3-2018-earnings-model-3-profits-tsla.html>

<sup>58</sup> <https://www.cnbc.com/2018/10/24/tesla-earnings-q3-2018.html>

<sup>59</sup> <https://www.cnbc.com/2018/10/24/tesla-earnings-q3-2018.html>



The positive sentiment volatility exceeded the negative sentiment volatility. Unexpectedly, this “cult stock” showed very little change in the stock price and normalized after event.

### Section 6.1: Overview of Chipotle Mexican Grill

Chipotle Mexican Grill, or Chipotle, was founded in 1993 in Denver, Colorado by Steve Eells.

Chipotle is an American restaurant chain that serves a simple menu of Mexican-inspired food.

Chipotle has grown to more than 2,000 store locations, which serves roughly 1 million customers daily.<sup>60</sup> It is located in the United States, United Kingdom, Canada, Germany, and France. The

company is known for its brand and marketing of “Food With Integrity,” its commitment to offering fresh meal items and sourcing ingredients from ethically minded suppliers.<sup>61</sup> On January 26, 2006, Chipotle made its initial public offering (IPO) after increasing the IPO share price

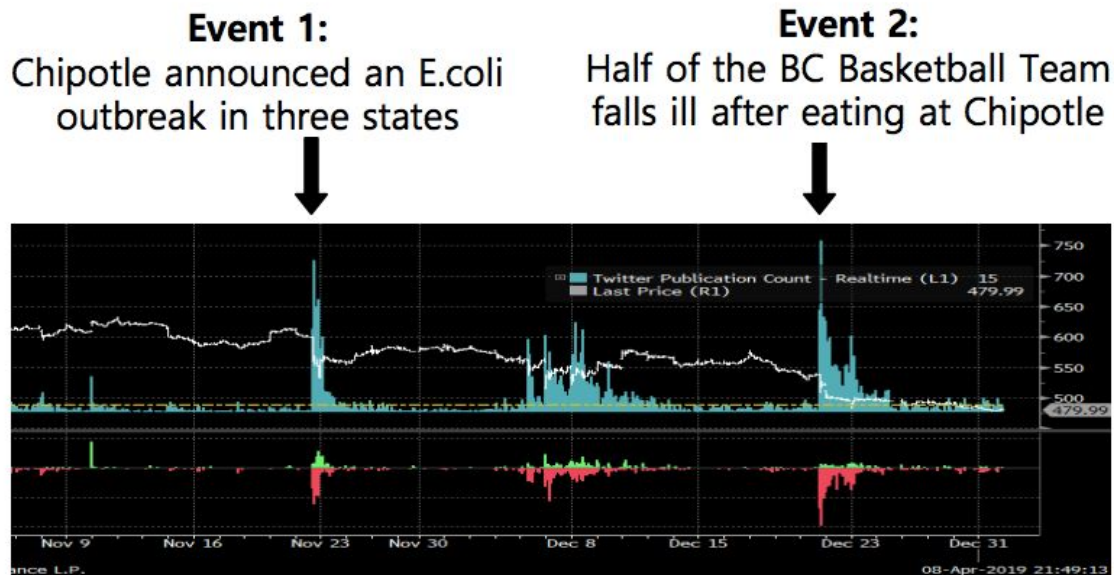
<sup>60</sup> <https://www.fastcompany.com/company/chipotle>

<sup>61</sup> Ibid

twice due to high pre-IPO demand. Chipotle Mexican Grill, INC, is listed on the NYSE under the ticker symbol “CMG.”

### 6.2: CMG Events Overview

During the period of November 2015 through December 2015, Chipotle Mexican Grill experienced reputational impact from food quality. The two events regarding food quality are highlighted below. The first event is the catalyst that later affects Event 2. Event 1 is the E.coli outbreaks and Event 2 is the Boston College Basketball Team getting sick after eating at a Chipotle establishment.



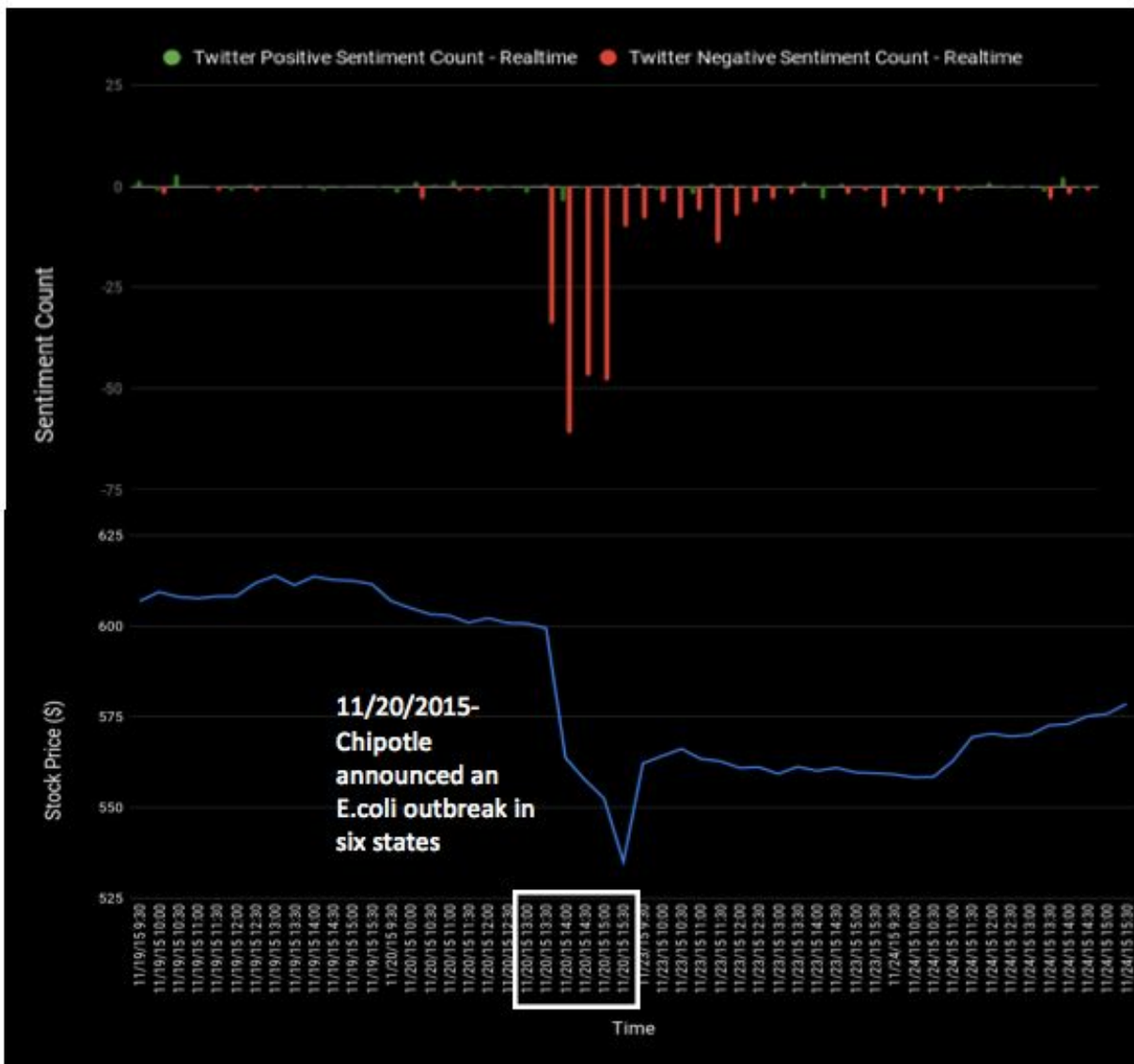
### 6.3: Event 1: Initial Announcement of Food Contamination

The Centers for Disease Control and Prevention, or CDC, stated on Friday, November 20th, 2015 that there were new cases of E. coli outbreak in the state of California, Minnesota, Ohio, New York, Oregon and Washington.<sup>62</sup> The CDC informed the public that five people, who tested positive for the E. coli strain found in Pacific Northwest, reported eating at Chipotle restaurants.

<sup>62</sup> <https://money.cnn.com/2015/11/20/investing/chipotle-e-coli-cdc-outbreak/index.html>

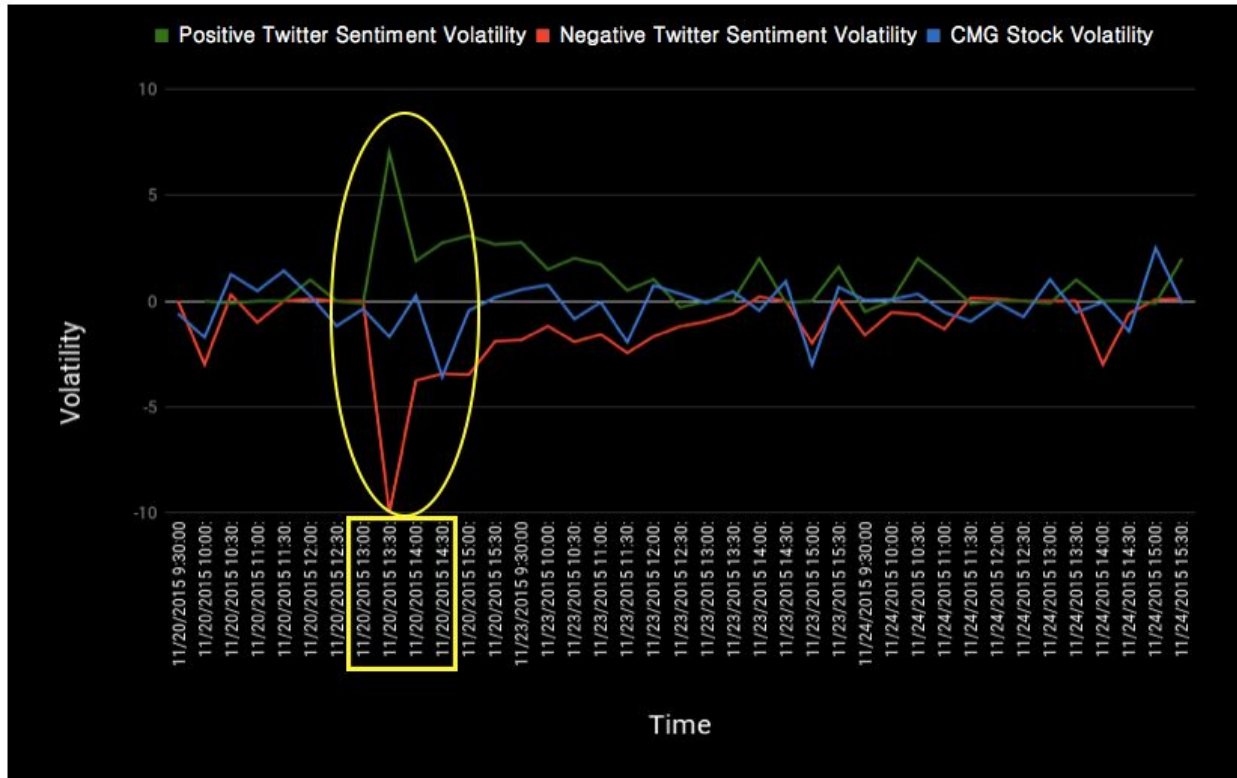


<sup>63</sup> Following these announcements, shares of Chipotle fell 12.5%.<sup>64</sup> The graph below shows the timespan from November 19, 2015 to November 24, 2015.



<sup>63</sup> Ibid

<sup>64</sup> <https://money.cnn.com/2015/11/20/investing/chipotle-e-coli-cdc-outbreak/index.html>



Looking at the graph above, both sentiment volatilities cancelled each other out. In this situation, the stock volatility does not move significantly. This volatility raises the question, “If a company suffered a prior event, do similar and future events show a different result and compound the impact?”

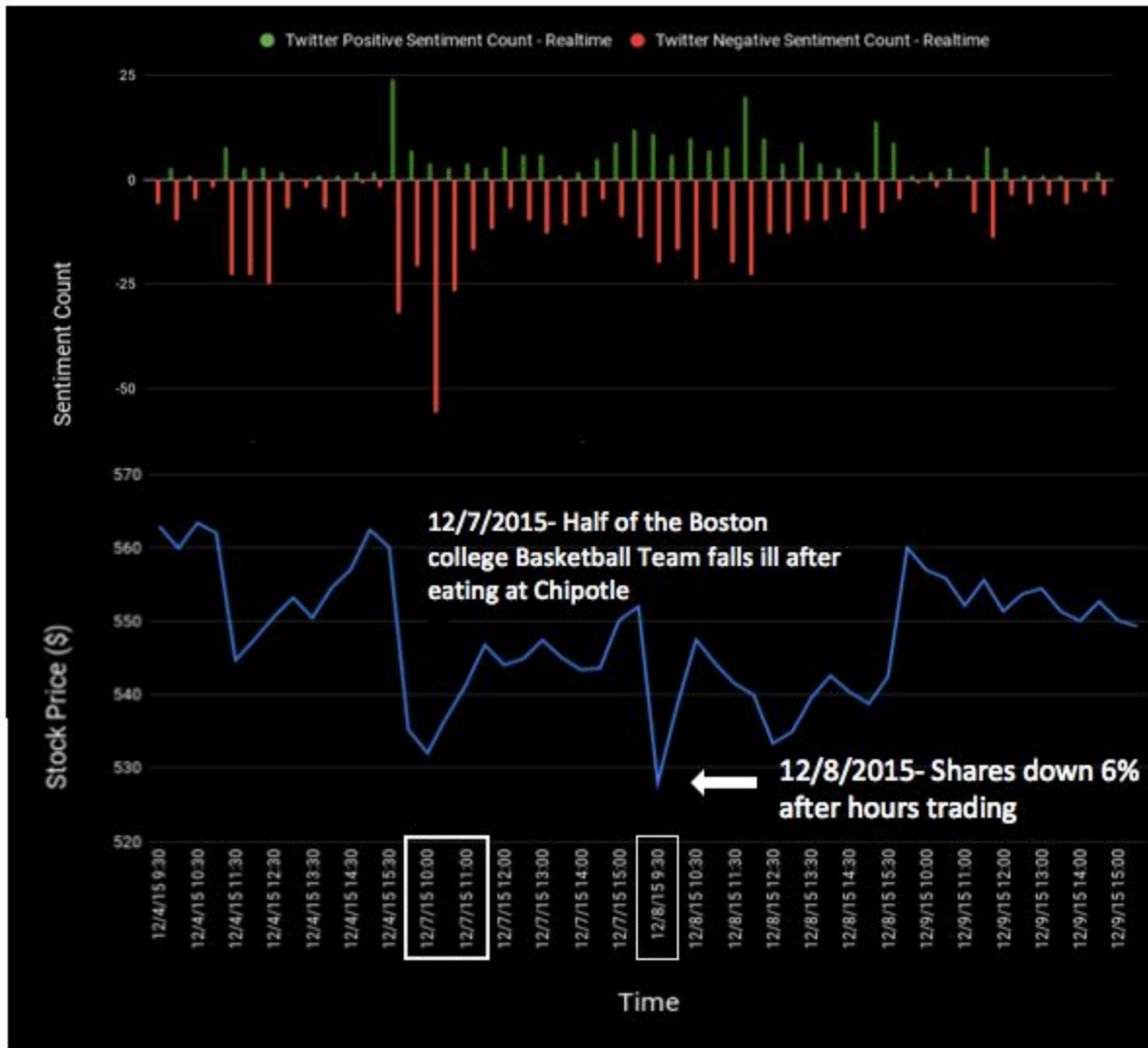
#### 6.4: Event 2: BC Basketball Falls Ill

On Monday, December 7, 2015, Chipotle temporarily closed its Cleveland Circle location in Boston after 80 students, including players on the Boston College Men’s Basketball Team, fell ill.<sup>65</sup> The Boston College sent out a health alert that states, “Students who are experiencing these gastrointestinal symptoms are encouraged to seek medical care either at BC Health Services or from their own physician.”<sup>66</sup> Shares on down 6 percent in extended trading on Monday on fears

<sup>65</sup> <https://www.cnn.com/2015/12/07/health/boston-college-chipotle/index.html>

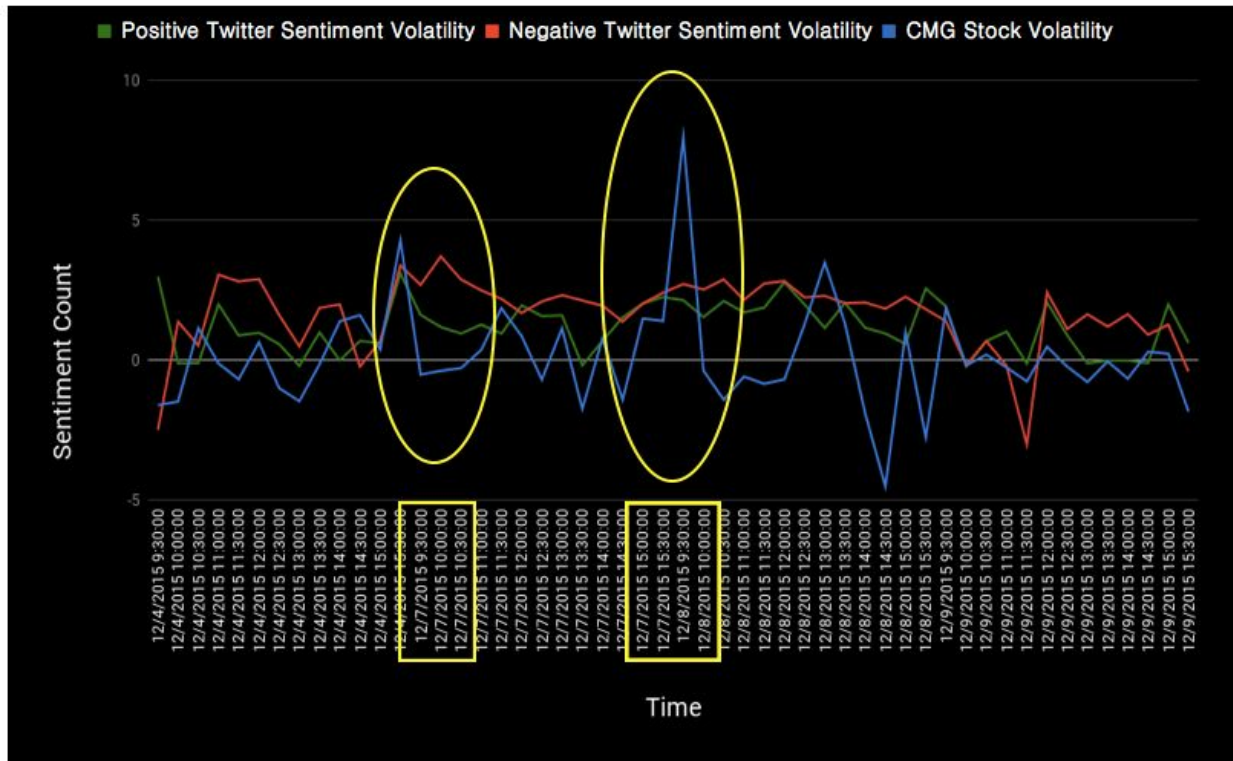
<sup>66</sup> <https://boston.cbslocal.com/2015/12/07/boston-college-chipotle-illness/>

of more food poisoning problems.<sup>67</sup> The time period researched was from December 4, 2015 to December 9, 2015.



The stock volatility did not spike as expected when the BC Basketball team illness was announced. The reaction was delayed until after hours trading from 12/7 into 12/8. This raises the question, “If a company stock is underperforming does social media affect it more?” As well as, “if these crises happen in a falling market will the impact be greater than the overall market?”

<sup>67</sup> <http://fortune.com/2015/12/07/chipotle-shares-take-a-beating-after-new-illness-reports/>



### 7.1: Overview of Facebook

Facebook, Inc. is an American online social media and social networking service company based in Menlo Park, California. It was founded by Mark Zuckerberg in February of 2004. It is a free social media platform that allows registered users to create profiles, upload photos and video, send messages and keep in touch with friends, family, colleagues, and celebrities.<sup>68</sup> The site is available in 37 different languages and as of the first quarter of 2019, Facebook has 2.39 billion active users.<sup>69</sup> The social networking company held its initial public offering on Friday, May 18, 2012. Facebook is one of the five stocks in the FAANG Stocks. FAANG is an acronym for the market's five most popular and best-performing tech stocks.<sup>70</sup> Facebook Inc. is listed on the NASDAQ under the ticker symbol "FB."

<sup>68</sup> <https://whatis.techtarget.com/definition/Facebook>

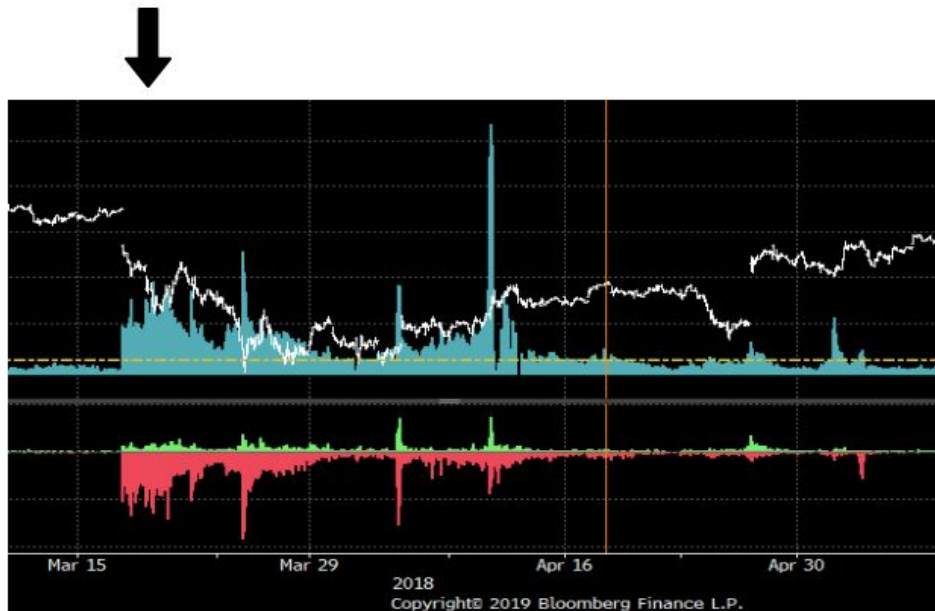
<sup>69</sup> <https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/>

<sup>70</sup> <https://www.investopedia.com/terms/f/faang-stocks.asp>

### 7.2: FB Event Overview

During the period of March 2017, Facebook had experienced reputational impact from information technology risk. The event highlighted below is when the Cambridge Analytica Political Advertisement Scandal surfaced from a whistleblower.

#### **Event 1: FB Cambridge Analytica Political Advertisement Ploy**



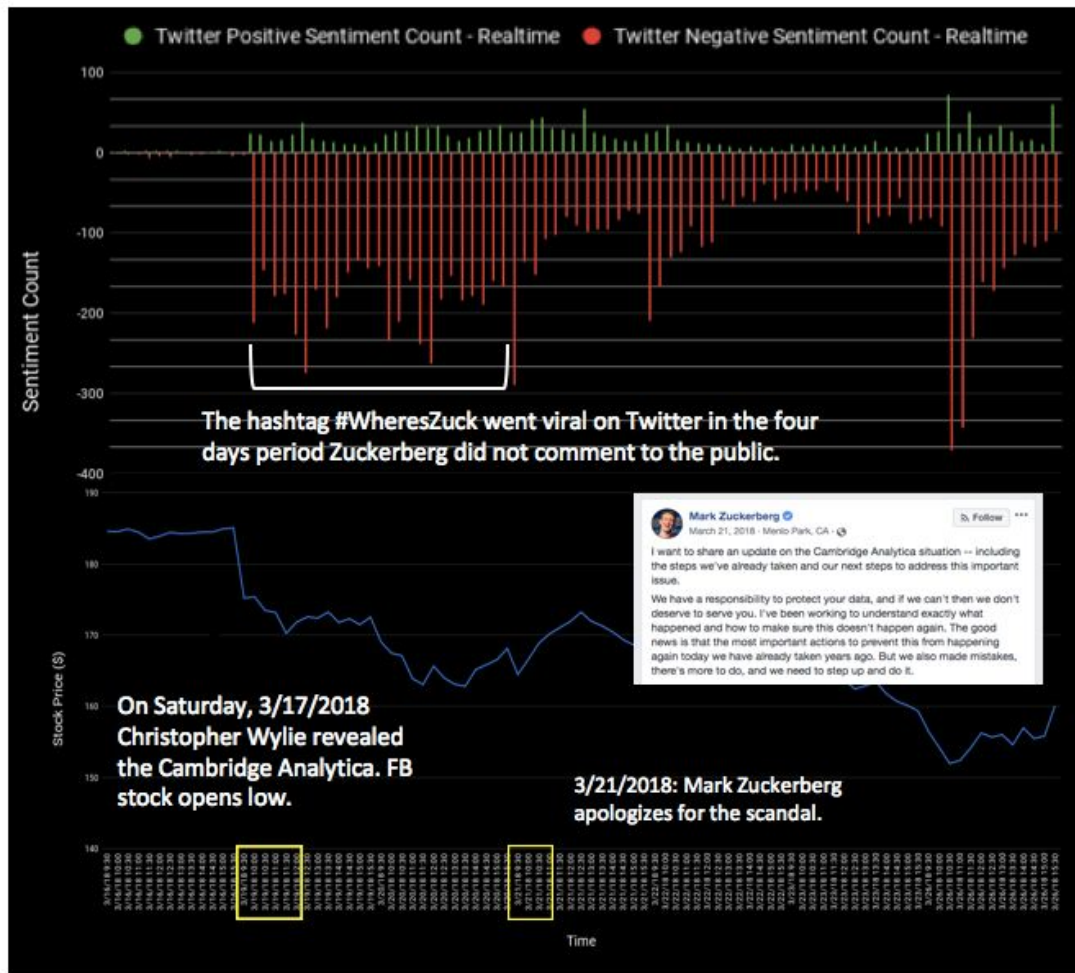
### 7.3: Event 1: FB Cambridge Analytica Political Advertisement Ploy

Cambridge Analytica was a British political consulting firm which combined data mining, data brokerage, and data analysis with strategic communication during electoral processes.<sup>71</sup> A British academic, Aleksandr Kogan, developed an application to data harvest all of the individual Facebook profiles and then passed that data collection to Cambridge Analytica.<sup>72</sup> On Saturday March, 17, 2017, A whistleblower, Christopher Wylie, revealed that Cambridge Analytica

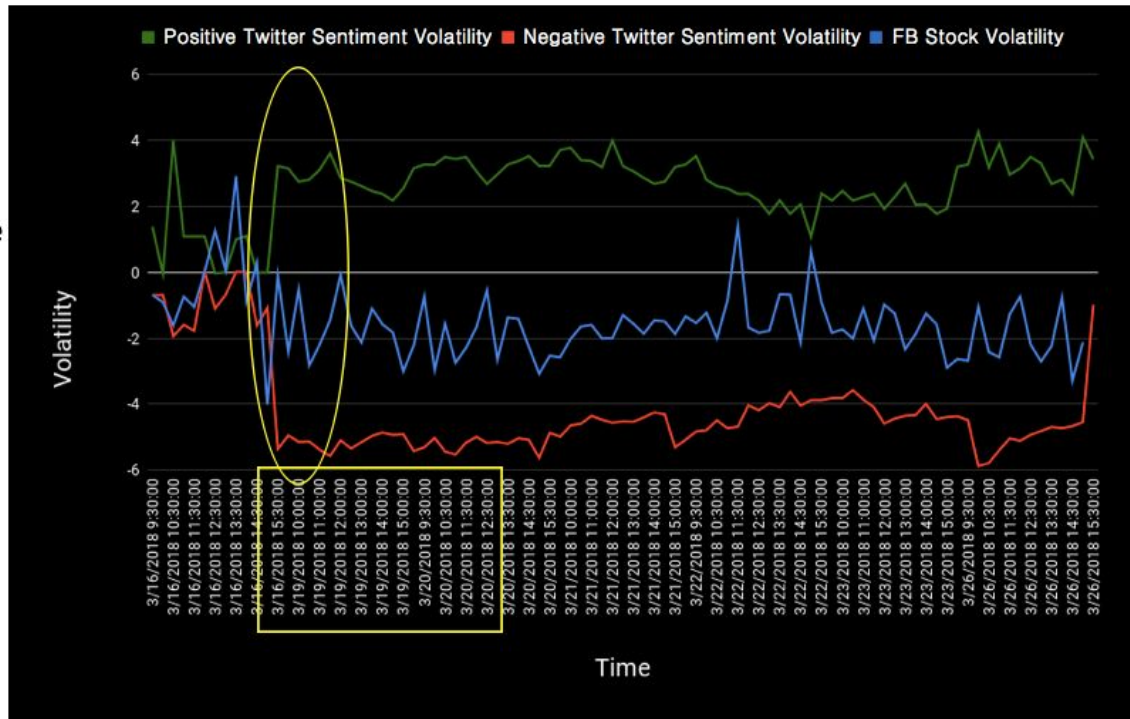
<sup>71</sup> David Ingram, Factbox: Who is Cambridge Analytica and what did it do? <https://www.reuters.com/article/us-facebook-cambridge-analytica-factbox/factbox-who-is-cambridge-analytica-and-what-did-it-do-idUSKBN1GW07F>

<sup>72</sup> Ibid

harvested data of over 50 million people’s Facebook profile without their consent in 2014. This data was used to build a system that could profile individual voters in the US in order to target them with personalized political advertisements.<sup>73</sup> On Monday opening bell, March 19th, 2017, Facebook shares opened lower than expected. Since the scandal was announced, CEO of Facebook, Mark Zuckerberg went completely silent. The hashtag #WheresZuck went viral on Twitter during the four day period that Zuckerberg did not comment. On March 21, 2018, Zuckerberg posted on Facebook to apologize and update the public on the Cambridge Analytica situation.



<sup>73</sup> <https://www.nytimes.com/2018/03/19/technology/facebook-cambridge-analytica-explained.html>



In spite of dramatic positive and negative sentiment, this somewhat subdued stock volatility could imply a “cult stock” phenomena of this FAANG stock.

### Section 8.1: Longer Term Look

Overall, it is hard to determine if these companies have recovered from these major events. Does an event that could result in death (food contamination or automobile accidents) have a longer recovery period than a customer service or management behavior event? The research below is a look at the recovery (or lack thereof) of longer term share price. I analyzed the four companies by looking at closing stock price 1 year before the first event, 1 day before Event 1, the low stock price during Event 1, Event 2, and 1 year after Event 2. It shows that United was able to come out of the two events with growth in overall stock price and that Facebook recovered to prior levels. This could be due to effective management and actions taken after these events

surfaced and the fact that while significant and graphic, it was not an issue of potential death or illness as in the cases of Tesla and Chipotle.

<b>United</b>					
Date	4/11/2016	4/10/2017	4/11/2017	10/19/2017	10/19/2018
Description	1-yr before Event 1	1 day before Event 1	Event 1	Event 2	1-yr after Event 2
Stock Price (Close)	\$53.23	\$72.10	\$68.36	\$59.56	\$87.43
Increase/Decrease from 1 day before Event 1					18%
<b>Total UAL Market Capitalization as of 4/10/2017</b>				\$22,270,000,000	
<b>Market Cap Loss*</b>				\$4,787,586,685	

<b>Chipotle</b>					
Date	11/20/2014	11/19/2015	11/20/2015	12/7/2015	12/5/2016
Description	1-yr before Event 1	1 day before Event 1	Event 1	Event 2	1-yr after Event 2
Stock Price (Close)	\$662.83	\$611.51	\$534.20	\$515.00	\$377.22
Increase/Decrease from 1 day before Event 1					-62%
<b>Total CMG Market Capitalization as of 11/19/2015</b>				\$17,890,000,000	
<b>Market Cap Loss*</b>				\$5,848,164,380	

<b>Tesla</b>						
Date	8/7/2017	8/6/2018	8/7/2018	9/7/2018	10/25/2018	5/1/2019
Description	1-yr before Event 1	1 day before Event 1	Event 1	Event 2	Event 3	6 month after Event 3
Stock Price (Close)	\$355.17	\$341.99	\$379.57	\$263.24	\$314.86	\$234.01
Increase/Decrease from 1 day before Event 1						-32%
<b>Total TSLA Market Capitalization as of 8/6/2018</b>				\$60,940,000,000		
<b>Market Cap Loss*</b>				\$16,570,106,143		

<b>Facebook</b>					
Date:	3/20/2017	3/19/2018	3/21/2018	4/21/2018	3/21/2019
Description:	1- year before Event 1	1 trading day before Event 1	Event 1	1 month after Event 1	1-year after Event 1
Stock Price (Close)	\$139.94	\$172.56	\$161.95	\$168.10	\$164.43
Increase/Decrease from 1 day before Event 1					-5%
<b>Total FB Market Capitalization as of 3/19/2018</b>				\$469,400,000,000	
<b>Market Cap Loss*</b>				\$59,327,851,182	

<b>Total Market Cap Loss**</b>	<b>\$86,533,708,391</b>
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\* Market Capitalization Loss was calculated by multiplying the total market capitalization of the corporation one-day before Event 1 by the price change from the one-day before Event 1 to one month after the crisis.

\*\* Total Market Capitalization Loss is the sum of all four companies Market Cap Loss



### Section 8.2: Implications

We are at the early stages of research to effectively link social media metrics to the impact of reputational risk. Social media datasets need to be linked to reputational risk data to better quantify the impact of investor sentiment. Companies need to react quicker to social media misinformation to mitigate irrational stock price movement. Increased effort needs to be invested in managing culture and reputation as it has become a larger component of overall company value. Since automated trading and Artificial Intelligence (AI) are using social media and news events to trigger trades, this data will become important for traders and also for management. Reputational risk is becoming more significant in future brand and market positioning as social media is reacting faster and on a far larger scale.

### 8.3: Discussion & Limitations

The big question after looking at these four corporations is how do these companies effectively manage reputational risk with the implications of social media noise? The social media metrics are still evolving including new algorithms to translate social media activity. In addition, the criteria for negative and positive sentiments are subjective. Access to unbiased social media data is limited and may be further hampered by privacy protection issues. The Bloomberg Algorithm used in this paper is proprietary and prevents useful drill down analysis. Most importantly, reputational risk is measured over a long period, so short term events are hard to correlate with long term reputational risk and enterprise value.

#### 8.4: Further Research

Further research needs to be done when looking at short term events affecting the long term brand and overall reputation of the company as well as stock price. Companies need to consider the following issues:

##### Short Term Share Price

- The future research needs to look at all social media platforms.
- Another aspect to research is to compare social media sentiment to news and television data.
- Does an established company get the benefit of the doubt and a delayed reaction on the stock price?
- Does an event with potential for multiple deaths display a vastly different reaction and recovery time compared with management behavior or fraud?
- Does a company with low social media presence get more or less reaction?
- Is the social media impact greater in “cult stocks” which have more public ownership than institutional ownership?
- Does a cult stock get the benefit of the doubt and have a delayed reaction on the stock price?
- Does an event with more dramatic imagery cause a different stock price and reputational risk impact?
- If a company stock is underperforming, does social media affect it more?
- Does an event have a more dramatic social media reaction when the overall market is high or low?
- Do actions by management have a different social media impact than the original or second event?
- Is there evidence that silence by management adds to social media compounding, stock volatility and, therefore, reputational risk?

##### Longer Term Enterprise Value

Other research is required to link social media and reputational risk.

- Analyze and distinguish companies with high social media profile versus companies with low social media profiles.
- Analyze one to two years after significant events to quantify the extent of enterprise value recovery.
- Consider the long term effect of management actions designed to stabilize enterprise value.

### Section 8.5: Conclusion

This project focused on research to analyze the impact of social media platforms and measure the economic component of reputational risk. Significant and further research is required in this evolving topic. As mentioned before, Warren Buffet stated, “It takes 20 years to build a reputation and five minutes to ruin it. If you think about that, you’ll do things differently.” Buffet made this statement about 10 years ago, and our world has changed dramatically in that time. The world went from reacting to news in five minutes to today reacting in five seconds. There is no doubt that this is an important topic in general. For even just the four companies used in this paper, a staggering \$ 86.5 billion in market capitalization was temporarily lost in only a few months due to these internal and external reputational events. Comprehensive research needs to find ways to ensure that the short-term indicators are linked with longer term value analysis and then overlaid with the benefit of corporation management actions.

### Short-Term Indicators

What did the short term analysis reveal?

- I found that overall negative sentiments have higher impact on reputational risk than positive sentiments.
- Negative sentiments generally are larger than positive sentiments which means that humans are likely to react with more negative comments than positive.
- Negative sentiments result in significant negative stock return and volatility in a very timely manner.
- It appeared that management silence and inaction caused increase volatility particularly in negative sentiment - albeit inconclusive on stock volatility
- It seems that a second event is exponentially compounding on a first event (unless there is unusual management intervention).
- Potentially it appears that when the volatility of negative and positive sentiment are complimentary that a larger stock movement is likely.

### Longer Term Linkage of Social Media to Enterprise Value

For these four companies, I computed the market capitalization destruction from the day before the first event to the low of the stock price during the crisis. The combined market capitalization

lost from these eight events totals a dramatic \$49.59 billion. Obviously this is why the topic of reputational risk is so important to companies and stakeholders. In the case of United and Facebook this loss of value was recovered in the year following. However, in the cases of CMG and TSLA which had more implications for human death or illness, the recovery of enterprise value has not occurred. However, attempting to make an analytical linkage between social media statistics, share price and long term enterprise value is a hugely challenging task particularly when the tracking of social media data is in its relative infancy. Regardless, even as recently as the 1970's there were similar skeptics that said market, credit and operational risk could not be quantified until those data sets and practices evolved, so that should not mean that the body of work should not be pushed forward.

#### Management Action

William Shakespeare once said, "Reputation is an idle and most false imposition; oft got without merit, and lost without deserving." Even when data and computation of reputation risk evolves, management will be left with the onus to use this data to manage through turbulent times. It certainly appears, based on the limited data set in this paper, that lack of management action caused further volatility and potentially a set up for another event to compound the problem. That is why it is so important that companies analyze social media and understand how to use social media to respond. Companies are still learning to respond than staying silent. While there is great value in the endeavor to measure and manage reputational risk, it is worthy and humbling to remind ourselves that our world is always unpredictable.