News media and the stock market: Assessing mutual relationships

An interdisciplinary multi-method study of financial journalism, news media, emotions, market events and the stock market

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Chapter 6

Buying on Rumors: How Financial News Flows Affect the Share Price of Tesla

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Abstract

This case study on Tesla examines the intraday impact of business events and financial reporting on stock market prices over time. By using a qualitative content analysis and quantitative event studies, this study demonstrates how methods from two disciplines can be combined in a meaningful way. Findings show that market-reactions are driven by business events and expectations among the market rather than the follow-up reporting by financial media. Furthermore, Twitter accounts of media visible companies and personalities (e.g., Tesla and Elon Musk) have been found to be useful market information sources for day traders and shareholders. However, at the same time, corporate communication on social media channels, such as Twitter, have also been found to induce speculative financial news reporting along the lines of the issue-attention cycle.
Introduction

The flow of information impacts the formation of security prices (Mitra & Mitra, 2011). Media representations of companies cannot only have a considerable influence on corporate reputation (cf. Deephouse, 2000; Fombrun & Shanley, 1990), but on stock market prices as well (e.g., Scheufele, Haas, & Brosius, 2011). Scholars have argued that the way a company is presented in the news influences public evaluations and opinions of the company’s future business prospects, and hence its market valuation (Pollock & Rindova, 2003). Previous research, however, has investigated the link between media representation and the stock market from a rather static perspective, measuring for example the amount of coverage and sentiment expressed in news items over a certain amount of time and the stock market reactions therewith (e.g., Scheufele et al., 2011; Strauß, Vliegenthart, & Verhoeven, 2016, Tetlock, 2007). Subsequently, studies in this area have not paid attention to the complex dynamics of event-driven news coverage and its effects on stock market prices. It remains unclear how certain breaking issues can move the market gradually, how various outlets report on corporate announcements, and how the follow-up reporting might affect investors’ trading-decisions.

In addition, such event-driven news coverage increasingly originates in the realm of social media—particularly on Twitter, and is sometimes initiated by the leadership or the corporate profiles of companies (e.g., Elon Musk, CEO of Tesla Motors Inc and SpaceX; Malhotra & Malhotra, 2016). Hence, when investigating business events and their effect on the stock market in today’s fast-moving news and information environment, it becomes crucial to distinguish between sources of information, the dissemination of news across various outlets, the time of coverage, and the changing effects of reporting on stock market prices in the course of time. Thus, the overarching research question of this study reads: How do emergent financial news flows surrounding business events influence the stock market prices of companies over time?

To get insights into this phenomenon and make the object of analysis ascertainable, a case study approach was chosen, investigating the well-known and highly media-visible company Tesla Motors and its introduction of the new battery pack for Model S and Model X in August 2016. In so doing, the emerging news dynamics among the major financial news outlets in the U.S. as well as Tesla’s and Elon Musk’s Twitter behavior with regard to this specific business event and their alleged power to intervene with Tesla’s share price were studied. In this vein, the contributions of this paper are three-fold: First, this is the first study in communication science that takes a case study approach to examine the impact of financial news media on stock market prices over time, adding to the field of financial communication. Second, by combining a qualitative content analysis with quantitative event studies, this study shows how methods from two different disciplines (communication science, economics) can be combined in a fruitful and interdisciplinary manner. And third, the findings of this study give evidence that market-reactions are driven by business events and expectations among the market rather than the follow-up reporting by financial media. Moreover, Twitter accounts of media visible companies and personalities such as Tesla and its CEO Elon Musk have been found to be useful market information sources for day traders; also ensuing speculative financial reporting along the lines of the issue-attention cycle (Downs, 1972).
Theoretical Background

The Relationships Between Financial News and the Stock Market

In today’s fast-paced news media and stock market environment, the time of publishing and receiving market relevant information has become one of the major currencies for trading (Lewis, 2014). Not only do investment companies try to limit the delay of market information through new technological developments, professional traders themselves work on news wire service terminals (e.g., Bloomberg) where they are exposed to market relevant information on a constant basis (Thompson, 2013). Knorr Cetina and Bruegger (2002b), who studied foreign-exchange dealing rooms through an economic sociological lens, argue that “market reality itself is knowledge generated, that is, has no existence independent from the informational presentation of the market on screen that is provided by news agencies, analysts, and traders themselves” (p. 915). Hence, the flow of information across various news outlets, the release of (verified) information bit by bit, market expectations as well as the acknowledgement of various voices raised on the financial market by traders play into the complex interaction of financial news and stock market reactions.

Scholars in communication science have stressed the power of the media in intervening public opinion in terms of the agenda-setting theory, priming and framing theory (e.g., McCombs & Shaw, 1972; Iyengar & Kinder, 1987; Shoemaker & Reese, 1996). Thus, financial news might also impact how the financial audience perceives the financial markets, or specific stocks in particular (cf. Pollock & Rindova, 2003). Studies in finance, business, and sparsely in communication science, have made use of this alleged link between media and the public when researching the relationships between news media and the stock market. The vast amount of work ranges from different news media (e.g., The Wall Street Journal: Tetlock, 2007; local news: Engelberg & Parson, 2011), information outlets (e.g., Internet stock message boards: Antweiler & Frank, 2004; Reuters news: Uhl, 2014) to the focus on different characteristics of news such as emotions (e.g., Bollen, Mao, & Zeng, 2011; Strauß et al., 2016) or expert opinions (e.g., Bar-Haim, Dinur, Feldman, Fresko, & Goldstein, 2011). While the findings point to correlations between news media—or information—and the stock market on an aggregate level, it is still open for discussion whether this relationship holds up for the release of specific business news at a particular point in time, whether this emerges gradually, and if so to what extent.

Indeed, scholars in news analytics have highlighted the importance of news flows and the fact that news can switch from positive to negative sentiment for a specific company over time (Moniz, Brar, Davies, & Strudwick, 2011). Instead of investigating accumulated reactions to news items, Moniz and colleagues argue that a focus on short-term influences of news events on share prices is more appropriate. Similarly, it is argued in this study that the accumulated and mostly one-way media effect assumption is an oversimplification that takes neither the complexity of multi-media news distribution, nor the diversification and temporal sensitivity of company-related market sentiment into account. In this sense, investigating the emergence of financial news for a particular event over time might give more useful insights into how information and the flow of news affect stock market prices in the course of financial reporting.

Rumors, Insider Trading & Social Media as Market Information Channels

In line with scholars from behavioral finance (Nofsinger, 2005; Prechter, 2001; Shiller, 2003), the reasoning of this study is based on the belief that market behavior is not fully based on rational decision-making. In fact, in today’s fast-moving stock market environment with automated, algorithmic, high-frequency trading systems, and real-time financial news services (Hope, 2006; 2010; Thompson, 2013), traders and investors have less time to make
trading decisions based on deliberate reflections or fact-checking of news. Some studies even imply that market beliefs and the assumption that a majority of investors perceive or interpret the news in a certain way is more influential for individual trading decisions than the actual veracity of news (e.g., Hirshleifer, Subrahmanyam, & Titman, 1994; Oberlechner & Hocking, 2004). Hence, instead of focusing on the actual content of news and their own interpretations, investors are rather inclined to follow the herd and trade based on what they believe the majority of traders will do when reading the news, which can eventually lead to speculative bubbles (Shiller, 2005).

Although news media can be ascribed a crucial role in disseminating (un)verified information in this regard, there are also other incidents in which the unequal distribution of information can lead to inefficient markets (Grossman & Stiglitz, 1980). For instance, some traders find themselves in a superior situation by having admissible information on the market that is not yet publicly available to others (Hirshleifer et al., 1994). Traders with this kind of information have an information advantage over other financial market participants which could benefit them to financially outperform the market. While this might appear as a lucrative trading strategy, trading based on unofficial information is prohibited (i.e., insider-trading) and comes with legal consequences by violation (i.e., Security and Exchange Commission in the U.S.: SEC). However, insider-trading is still present in today’s financial markets (Agrawal & Cooper, 2015) and being informed at an early stage before financial news unfolds publicly seems to have become a decisive factor in today’s trading environment.

In this respect, news on external events increasingly breaks online first, and particularly on Twitter. This is not only the case for crises or terrorist attacks in which individuals get to be the first to report on updates of the catastrophe, thereby informing the news media and the public (Murthy & Longwell, 2013); but Twitter becomes also more and more important for corporations to make announcements such as quarterly earnings or new product introductions (Blankespoor, Miller, & White, 2014). As a reaction to these new developments, the SEC has endorsed social media as distribution channels for market relevant information in 2013. This regulation makes it possible for corporations to release relevant information on social media channels (e.g., Twitter) if shareholders have previously been informed of doing so (SEC, 2013). In this vein, not only the corporate Twitter account, but also the CEO of a company and his or her leadership characteristics can play a crucial role in setting the stage for corporate news to emerge.

Following this argumentation, not only traditional financial news reporting but also the market-moving power of corporate tweets is placed under greater scrutiny in this study, investigating the Twitter behavior of Tesla Motors and its CEO Elon Musk. Musk is heralded as a highly influential Twitter user (Malhotra & Malhotra, 2016). His tweets are known to offer hints about new products, announcements or information on Tesla that in turn spawn interest among various media outlets and the financial markets. Thus, the aim of this study is to find out how the emergence of Tesla business events (i.e., through tweets by Musk and Tesla Motors) becomes circulated and spread across financial online news outlets and to identify which bits of information move the share prices of Tesla most and why.

Data and Methods

Case: Tesla Motors
Using a case study methodology (cf., Yin, 2013), Tesla Motors has been chosen as a case to sketch the emerging news dynamics and their effects on the price discovery of Tesla shares. Tesla is a US-based automobile company that focuses on the production of electric cars and
batteries, with Elon Musk as the CEO of the company. Tesla was frequently covered in the news in 2016 regarding new product introductions (e.g., Model 3 in March), product innovations (e.g., more efficient batteries for its models in August), accidents caused by its self-driving car in May 2016, or the acquisition of SolarCity in August 2016. Accordingly, the stock market price of Tesla strongly fluctuated in 2016 (see Figure 6.1).

Figure 6.1 Tesla share price in 2016. Source: marketwatch.com.

Acknowledging Tesla as a newsworthy technology company that regularly triggers news coverage and volatility in its share price respectively, Tesla appears to be an appropriate case in order to investigate the interrelation between emergent news dynamics and market reactions. To do so, the introduction of the new electric-car battery for the Model S and Model X in August 2016 was selected. The news about the new battery did not only cause broad news coverage across various financial news media outlets, but also let the share price of Tesla respond considerably over the period of reporting. Although this business event might appear less relevant when compared to the introduction of Model 3 or the accidents with the self-driving Tesla cars, the choice to investigate the introduction of the new battery was driven by two reasons: 1) it offered a manageable set of data that was adequate for a qualitative text analysis and 2) it was appropriate to conduct intraday event studies because there was no other news at the center of media coverage related to Tesla than the introduction of the new battery on the day of the announcement.

News Data
To get insights into the news dynamics across various financial online news outlets and the share price of Tesla, seven top news sources for traders on the U.S. market, including Bloomberg, CNBC, CNN Money, Forbes, Financial Times, Reuters, and The Wall Street Journal, were assessed. For the analysis, all online news articles that were published by these outlets were collected, including videos, slide shows, and audio files, from the day of the announcement (August 23, 2016) until three days after (August 26, 2016). In total, 43 news items were analyzed (see for an overview Figure 6.2).

Method.
Event studies are common practice in research fields such as finance, management, and economics. In essence, an event study measures the impact of a particular event on the market value of a company (MacKinlay, 1997). However, while common event studies make use of daily stock quotes, in this study minutely stock market quotes of one trading day (i.e., the day of the announcement of the new battery by Tesla: 08/23/2016) were used. It is argued that the investigation of intraday stock quotes gives more insights into the immediate reactions of the Tesla share price to the announcement of the new battery than the introduction of the new battery on the day of the announcement.

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![Figure 6.2 Distribution of financial news on the new Tesla battery from the day of the announcement (08/23/2016) until three days after (08/26/2016).](image)

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29Except for The Wall Street Journal, the top news sources ranking for investor were retrieved from: https://www.earnforex.com/articles/top-7-news-sources-for-financial-trader/; There was no article available from The Economist related to the new battery by Tesla within the period of analysis.

Figure 6.2 Distribution of financial news on the new Tesla battery from the day of the announcement (08/23/2016) until three days after (08/26/2016).

Tweets
Besides considering the online news articles, the role of Tesla and its CEO, Elon Musk, who announced the new battery on Twitter were also objects of the analysis. Most relevant in this sense was the tweet by Elon Musk in which he promoted the presentation of a new product in the morning of the 23rd of August as well as one update on this notification during the day, the tweet by the official Tesla account about the actual product introduction and the eventual retweet by Musk of the product presentation in the afternoon.

Stock Market Data
In order to compare how the stock market price of Tesla reacted to the announcement of the new product by Elon Musk on Twitter and the online news reporting thereafter, intra-day stock market quotes, including the share price and trading volume for Tesla (TSLA) for the period of analysis (August 23, 2016 – August 26, 2016) were downloaded from a Bloomberg terminal. Daily stock market data was retrieved from Yahoo finance.

Event Studies
When looking at the fluctuations of the share prices of Tesla during the day of the announcement of the new battery (08/23/2016; see Figure 6.3), there is one point in time in which the price seems to have reacted strongly positively and one in which the share price of Tesla slumped considerably.

The rise can be spotted around 11.30 am EST; hence, about the time when Elon Musk made the announcement about a new product on Twitter. The dip can be traced around 15.30 pm EST, very likely when Tesla eventually presented the new battery to the public. To find out whether the tweet by Elon Musk or the actual presentation of the new product by Tesla had a significant effect on the returns of Tesla’s share price in the short run, event studies were conducted.

Method. Event studies are common practice in research fields such as finance, management, and economics. In essence, an event study measures the impact of a particular event on the market value of a company (MacKinlay, 1997). However, while common event studies make use of daily stock quotes, in this study minutely stock market quotes of one trading day (i.e., the day of the announcement of the new battery by Tesla: 08/23/2016) were used. It is argued that the investigation of intraday stock quotes gives more insights into the immediate reactions of the Tesla share price to the announcement of the new battery than
daily quotes. In fact, because Tesla had been associated with various negative issues in summer 2016 (e.g., Autopilot crashes, SolarCity acquisition), the actual impact of the battery announcement on the Tesla share price would have likely become wiped out when considering daily instead of intraday stock quotes.

![Figure 6.3 Intraday Tesla share prices on 08/23/2016.](image)

**Procedure.** In order to find out which of the two identified swings of the Tesla share price (i.e., the tweet by Elon Musk about the product announcement vs. the actual product announcement) had a significant impact on its returns, two event studies were run. To do so, the procedure according to MacKinlay (1997) was followed. In the first step, the events during the day of the announcement (08/23/2016) were identified. The first event happened at 11.23 am EST when Elon Musk tweeted that there would be a product announcement by Tesla at noon, California time. The second event was identified as the actual product announcement by Tesla at 3.30 pm EST. In the second step, event windows were defined, which are the periods in which the security prices of the company are inspected for changes as a reaction to the event. For this study, an event window of ten minutes was chosen to investigate how Tesla shares reacted up to ten minutes before and after the events took place. To estimate the impact of the events on the Tesla shares, the abnormal returns were calculated. The abnormal return is defined as

$$AR_{it} = R_{it} - E(R_{it}|X_t)$$

where $AR_{it}$ is the abnormal return for stock $i$ (Tesla) at time point $t$ (trading minute on 08/23/2016), $R_{it}$ the actual return, and $E(R_{it}|X_t)$ is the expected return, conditional on the return of a comparable market portfolio $X$ at time point $t$ (MacKinlay, 1997). Given that for this study the market model was chosen (MacKinlay, 1997), $X$ is the market return of the Nasdaq index—the index on which Tesla is listed.

In the following step, the estimation window was selected, which is commonly a meaningful number of trading time points prior to the event. For the first event 102 minutes were used, as this was the maximum number of minutely stock quotes that was available prior to the tweet by Elon Musk released at 11.23 am EST on that day. For the second event (i.e., the actual announcement at 15.30 pm EST), 252 trading minutes were used. 252 time

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The expected return is composed of $E_{it} = \alpha + \beta R_{mt} + \epsilon_{it}$, where $i$ is the Tesla share price, $\alpha$ is the intercept, $\beta$ the slope, $R_{mt}$ is the actual return of the Nasdaq index at point $t$ (trading minute on 08/23/2016), and $\epsilon$ is the error term.
The slope, R(i.e., the actual announcement at 11.23 am EST), prior to the tweet by Elon Musk released at 11.23 am EST on that day. For the second event were used, as this was the maximum number of minutely stock quotes that was available for a meaningful number of trading time points prior to the event. For the first event 102 minutes of Nasdaq index—the index on which Tesla is listed.—were calculated. The abnormal return is defined as

\[
AR_t = R_t - E(R_t)
\]

To estimate the impact of the events on the Tesla shares, the abnormal returns were estimated to get more insights in the impact of the particular event on the share price of Tesla. Eventually, it was tested whether the abnormal returns of Tesla were significantly different from the expected returns ten minutes prior and ten minutes after the events occurred by conducting two-tailed t-tests. The results for the two event studies are presented together with the results of the qualitative text analysis in the results section.

**Text Analysis**
The two authors of this study have read and coded the news items of the seven top financial online news outlets by means of a semi-structured codebook. Rather than using variables with pre-specified values, the codebook was constructed with open questions for each variable, giving the coders the opportunity to assess each news item with an open approach. Besides manifest variables, such as name of the coder, news outlet, date, time, title, author, added content (e.g., video, slide shows, audio), the codebook also included open categories such as pro and contra arguments raised about Tesla and the new battery, voices raised in the news item (e.g., direct quotations by Elon Musk, financial analysts, or reporters), information and prospects about Tesla’s share price, the main conclusion of the news item, the prevalent sentiment of the news items, and other remarks. The two coders discussed the categories of the codebook together and solved disagreements before the actual coding started. The sample of news items was divided into two sets so that every coder was able to provide in-depth notations for the news items. After sorting all news items based on the date and time of release, a clear timeline of the news reporting emerged that facilitated the investigation of the news dynamics across outlets over time.

**Results**

**Is It All Just Buying on Rumors?**
On the 23rd of August 2016 at 11:23 am EST, Elon Musk, the CEO of Tesla, announced on Twitter that there would be a “product announcement at noon California time today” (see Figure 6.4). Not only did this tweet generate considerable engagement on Twitter (i.e., 5,251 retweets; 14,330 likes) from Musk’s followers, it also caused the Tesla share price to jump 1.4% from $223.14 at 11.23 am to 226.37 at 11:30 am, with a trading volume of 549,981 shares in that period, which accounted for more than an eighth of the total trading volume on that day (4,784,404 shares).

Although it was not clear what the actual product announcement of Tesla would be at that moment, it seemed that investors bid up Tesla’s share price on pure speculation. While investors reacted with the acquisition of Tesla shares immediately, the mainstream financial news outlets started to speculate about possible interpretations of the cryptic announcement by Elon Musk. Reuters was among the first that reported with a short statement at 11.40 am EST on the tweet and the rising share price of Tesla therewith: “rose more than 1 percent after the post and were recently trading up $3.69.”

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31 The accumulated abnormal returns, together with the Excel calculations for each event, can be requested from the author of this dissertation.
Figure 6.4 Tweet by Elon Musk on a product announcement by Tesla on 08/23/2016 at 11:23 am EST.

The results of the event study in which this first tweet by Elon Musk was treated as an event showed that there was indeed a significant market reaction of the abnormal returns of Tesla at the moment when the tweet was released (11.23 am EST). Besides a few minutes of exception, the significant impact of the event on the Tesla share price persisted up to nine minutes after the tweet was released (see Table 6.1, Figure 6.5). No significant abnormal returns could be found for the ten minutes before the tweet was published. However, the tweet did not have a lasting effect on the Tesla share price. Already 30 minutes after the tweet was published, Tesla stocks declined 0.4% down to $223.37, slightly higher than before the announcement.

Table 6.1
Results of Intraday Event Studies for Tesla on 23 August 2016

<table>
<thead>
<tr>
<th>Event 1: Tweet by Elon Musk (11:23 am)</th>
<th>Event 2: Announcement by Tesla (3:30 pm)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time</strong></td>
<td><strong>Abnormal Returns</strong></td>
</tr>
<tr>
<td>11:23am</td>
<td>8,553***</td>
</tr>
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<td>3,322*</td>
</tr>
<tr>
<td>11:27am</td>
<td>2,133*</td>
</tr>
<tr>
<td>11:28am</td>
<td>1,984*</td>
</tr>
<tr>
<td>11:31am</td>
<td>-2,930**</td>
</tr>
<tr>
<td>11:32am</td>
<td>2,301*</td>
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</tbody>
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Notes. Reported are significant abnormal returns of Tesla for event 1 (the moment when the tweet by Elon Musk was released) and event 2 (the moment when Tesla made the official announcement of the new battery); two-tailed t-tests; Event 1: df=100; Event 2: df=251; *p < .05, **p < .01, ***p < .001.
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Figure 6.4 Tweet by Elon Musk on a product announcement by Tesla on 08/23/2016 at 11.23 am EST.

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<td>-3,293***</td>
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<tr>
<td>11:39am</td>
<td>-3,877***</td>
</tr>
<tr>
<td>12:00am</td>
<td>-13,263***</td>
</tr>
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Figure 6.5 Intraday event study for Tesla shares at the moment when the tweet about the new product announcement was released by Elon Musk on 08/23/2016 at 11:23 am EST.

Not long after the first reporting on Elon Musk’s tweet by Reuters, CNBC weighed in at noon EST and published a video with a short online news article, commenting on the tweet and speculating what the announcement could be about. Phil LeBeau, the anchor of “Halftime Report” at CNBC reminded the network’s viewers that Musk’s tweets are not typically harbingers of “big news.” Similarly, Stephanie Link from TIAA Global Asset Management was skeptical in the show about Tesla’s ability to actually produce a new model and, furthermore, considered production as the main issue with Tesla. However, another analyst in the CNBC show argued that Tesla shares were strong despite the criticism and that there was a good opportunity for investors at that moment (“if the tweet has a follow through, investors could see something bullish”).

Furthermore, when describing the intra-day market reactions of Tesla shares prior to Musk’s tweet in CNBC’s news segment, Jon Najarian, the Najarian Family Office co-founder, saw some unusual activity. He contemplated that there might have been some investors who had access to inside information. In a similar vein, Matt Miller from Bloomberg stated in a video released later on that day, that there could have been some “buying on rumors and sell on the news” with regard to Tesla and the announcement of the new battery. When looking at the intraday stock quotes of Tesla right before the release of the tweet by Elon Musk (see Figure 6.6), it indeed seems that there might have been some preliminary trading on Tesla shares before Musk tweeted about the upcoming product introduction.

At the end of the Bloomberg news segment, another analyst, Sarat Sethi from Douglas C. Lane & Associates, added that the product announcement by Musk via a tweet is simply “free marketing…and everybody is covering it”. In fact, Elon Musk sent another tweet later that day at 3:02 pm, advertising the revelation and saying, “Journalists Q&A for 30 mins and embargo ends at 12.30” (see Figure 6.7). However, Tesla shares reacted this time only mildly (0.6%), rising from $226.16 at the minute of the release to $227.48, half an hour later.
Before the actual product announcement by Tesla at noon California time, there were two more news items published. *Bloomberg* reported shortly on the reactions of the Tesla share price to the tweet by Musk ("Tesla jumped 2 percent to $227.45 at 11:53 am after rising as much as 2.3%, the biggest intraday gain in two weeks") and referred negatively to the investigation with regard to the Autopilot car crash as well as to the “trimmed” full-year forecast. In the meantime, *CNBC* released another online news article with a video of its show “Closing Bell” in which Aswath Damodaran, chair of finance education at the NYU Stern School of Business, analyzed “cash burn” companies; hence companies that require high investments before they become profitable. Although Elon Musk’s announcement was not mentioned directly in the segment, Damodoran reflected upon Tesla as a cash burn company, criticizing the acquisition of SolarCity as the “malignant cash burn part” and automobile business as the “benign cash burn part”. The video by *CNBC* was posted one more time after the market closed, accompanied by an online article that summarized Damodoran’s comments. Just one minute before the actual announcement of the new product, Tesla’s stock was up at $228.09, 1.7% higher than its opening price that day.

**The Big News – or Rather the Moment of the Big Disappointment?**

*Reuters* and *Bloomberg* were the first to report on the revelation of the new product by Tesla at 3.30 pm EST. Right after Elon Musk himself retweeted a tweet by the official Tesla Twitter account, saying “Introducing P100D with Ludicrous Mode, more performance & range for Model S & Model X” at 3:36 pm (see Figure 6.8). The tweet was linked to a press
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As the front-runner of the news, Reuters wrote in a short article that Tesla is going to provide a “100 kilowatt hour (kWH) battery for its Model S and Model X cars”. Simultaneously, Bloomberg published a video segment in which David Welch reported on the specifications of the battery upgrade and news regarding the Autopilot issue. While Welch stated that the technological advancement of the battery was only “marginal” or “incremental,” he saw the fact that Tesla could say that it had the “fastest car in the world” as “significant marketing news” for Elon Musk. This video segment was included in two more news items that were published on the same day and in the morning after.

Only two minutes later, CNBC picked up on the Tesla news. In an online article with a short video segment of CNBC’s “Breaking News”, Phil LeBeau reported on the specifications of the new battery. Interestingly, the Tesla upgrading strategy with its new battery was positively compared with the Apple business strategy (“now you start looking at it like an Apple store”) in another video by CNBC of the show “News Alert” (5.19 pm). Although the overall tone of CNBC’s “Breaking News” was positive, there was also some criticism expressed. Reporters pounced upon the fact that Musk did not respond to any question during the conference call relating to the production problems with the Model 3 vehicles or the autopilot accident issue. In this regard, the anchors of CNBC’s “News Alert” show added that the shares of Tesla were “coming back to earth,” speculating if this points to an “overriding concern” of Tesla investors about the added value of the new battery features for Tesla. Similarly, Bloomberg released a video in which two anchors and one expert, Matt Miller, discussed the news of Tesla.

When looking at the stock market reactions of the Tesla shares just after the announcement and the first reporting on the news, it seemed that the market rather responded with disappointment to the news about the improved battery pack by Tesla. With a trading volume of 223,773 shares within two minutes, the stock market price went from $228.09 at 3:29 pm to $224.75 at 3:31 pm, losing 1.5% of its share price. The results of the event study
improvement.” The problem he saw with the new upgrade of the battery was the high price company Kelley Blue Book, pointed out that Tesla needed more than an “incremental
Conversely, released a news item with a video of the show “Behind the Wheels” later
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Rusch positively pointed out that Oppenheimer believed that Tesla maintained an
“enthusiastic investor base,” “potential for significant cash flow,” and that it might be “robust
At Oppenheimer, Colin Rusch, gave his assessment of the new product announcement by
Just two minutes later, a new video was released by CNBC, in which a senior research analyst
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CNBC continued its reflection on the specifics of the new battery in the “Closing Bell” show.
The next day started with news items that provided a morning briefing for investors before
mainly based on governmental funding. Before the market closed that day with Tesla
The major financial news sources such as Reuters or were not even

In the following days of the week, the amount of reporting on the new battery by Tesla
support these observations (see Table 6.1 and Figure 6.9). Treating the announcement by
Tesla at 3.30 pm as an event, significant negative market reactions of the Tesla shares up to
nine minutes after the release appeared (except for minute 3.32 pm, 3.37 pm and 3.38 pm).
Hence, in comparison to the reactions to the tweet by Elon Musk in the morning, the market responded exactly in the opposite direction. It seemed that shareholders were expecting something more from Tesla than only an improved battery pack.

Figure 6.9 Intraday event study for Tesla shares at the moment when the Tesla made the actual product announcement on 08/23/2016 at 3.30 pm EST.

Before the Nasdaq stock market closed that day with a Tesla share price of $224.84, there was only one more news item by Reuters published online in which the specifics of the new battery were shortly outlined. However, despite the closing of the financial markets on the east coast, the financial news did not stop reporting on the new announcement by Tesla. CNBC continued its reflection on the specifics of the new battery in the “Closing Bell” show.

Just two minutes later, a new video was released by CNBC, in which a senior research analyst
at Oppenheimer, Colin Rusch, gave his assessment of the new product announcement by
Tesla on the phone, supporting his position in the stock despite identifying the new battery package as only an “incremental product improvement” and raising concerns about the acquisition of SolarCity by Tesla. In another CNBC video released in the morning, Colin Rusch positively pointed out that Oppenheimer believed that Tesla maintained an “enthusiastic investor base,” “potential for significant cash flow,” and that it might be “robust enough to swallow the SolarCity platform without hurting the long-term prospects.” Conversely, CNBC released a news item with a video of the show “Behind the Wheels” later that day in which Karl Brauer, senior analyst at the automobile research and evaluation company Kelley Blue Book, pointed out that Tesla needed more than an “incremental improvement.” The problem he saw with the new upgrade of the battery was the high price for consumers.

In the course of the evening, a few more online articles were published. While CNBC neutrally reported on the news and the stock market reactions of both Tesla and SolarCity shares with a strong focus on the merger between the two companies, The Wall Street
Journal and the Financial Times gave a neutral reproduction of the news as announced by Tesla and its CEO Elon Musk and some information about the stock market reactions therewith. In contrast, Bloomberg and Forbes critically reported on the introduction of the new battery. Bloomberg criticized that Tesla “ha[d] already pushed investors’ horizons out so far” given the numerous announcements Elon Mask had made that year. Forbes saw the new battery as “an answer to a question few were asking.” In particular, Forbes listed a number of challenges Tesla was still facing, such as the mass production of Model 3 or the outcome of the investigations with regard to the Autopilot accidents. Not only did Reuters emphasize these challenges in another online article as well, the problem with the SolarCity acquisition and the accidents with Tesla’s Autopilot cars were also taken up in CNBC’s show “News Alert” released later that day. As one expert in the show stated, “the SolarCity deal to me is partially out of necessity to keep the whole magic kingdom alive.”

The Next Day: Follow-up Reporting
The next day started with news items that provided a morning briefing for investors before the markets on the New York Stock Exchange opened. CNN Money, for example, warned that Tesla could experience “higher-than-normal volumes Wednesday after it unveiled a new battery,” while Reuters, CNBC, and The Wall Street Journal only briefly and neutrally referred to the introduction of the new battery by Tesla from the previous day. In the hours before the stock market opened, both CNBC and Bloomberg released video segments that were already published the day before, accompanied with online news articles. Furthermore, Forbes published an online article offering its rationale for placing Tesla at the top of the “Forbes Most Innovative Companies” list in 2016. By also giving room for expert opinions, the analysis by Forbes was extensive when compared to previously published news articles by other financial outlets. Various arguments were given why Forbes had decided to designate Tesla as the most innovative company (e.g., Autopilot, mobile app for shared Tesla cars, Gigafactory).

It seemed that the positive follow-up reporting on Tesla and its new battery as well as the rather positive evaluations of analysts had pushed Tesla share prices to open higher that day. With $227.05, investors bid up Tesla shares by almost 1% compared to its closing price $224.84 from the previous day. This increase, however, remained unnoticed by the financial news. Instead, Bloomberg released a piece of the column “Money Stuff” by Matt Levine in which he commented on market news from the previous day, shortly mentioning the introduction of the new battery by Tesla, but not its increased opening price.

Compared to the previous day, the online news articles by the financial news outlets appeared much longer, providing more insights and background information. Forbes, for example, released another piece in which Robert Bradley Jr., the founder and CEO of the Institute for Energy Research, critically commented on Tesla and the fact that the company is mainly based on governmental funding. Before the market closed that day with Tesla dropping almost 2% from its opening price down to $222.62, reaching practically the share price of the day previous to the battery announcement, two more financial news items were identified. CNN Money neutrally reported in an online article on the new battery for Model S and X with a short clip that showed the Tesla Gigafactory; Bloomberg released another item which included an audio file in which two reporters spoke about Tesla’s new battery.

When News Is No Longer News
In the following days of the week, the amount of reporting on the new battery by Tesla waned. The major financial news sources such as Reuters or Bloomberg were not even writing about it anymore. Instead, there were two more articles by Forbes on the 25th of August 2016 that were only indirectly related to the Tesla announcement from two days ago,
but which put Tesla and its stock in a negative light. One in which professor, pop-science author and blogger Chad Orzel, criticized carmakers’ methods of acceleration tests, including Tesla. And another article by Forbes in which Tesla was identified as one of the most shorted Nasdaq 100 component. The same day, CNBC released a news item in which the benefits and specifics of the new battery pack were outlined one more time.

Overall, the follow-up reporting by the financial news outlets focused less and less on the new battery by Tesla. On Friday, the 26th of August 2016, The Wall Street Journal published an article about the advanced driver-assistance programs in which the news about the new battery pack was only mentioned in passing. In another article that was published 15 minutes after, The Wall Street Journal argued that electronic cars are at the forefront while positioning Tesla as the “standard-bearer.” Similarly, an article published by Forbes placed Tesla with its Model 3 as the model example for electronic carmakers. However, the plea for electronic cars and the laudatory words for Tesla in these articles had little impact on the stock price of Tesla that day. Although the stock market price of Tesla slightly recovered on the 25th of August 2016 with an opening price of $223.11, up 2% from its closing price the previous day, it closed $2.15 lower at $220.96. Tesla ended the trading week with a price of $219.99, 1.9% lower than its opening price ($224.17) on Monday morning.

Discussion

Financial News Reporting: Reporting on News or Making News?
Recapitulating the news reporting on the announcement of the new battery by Tesla, the analysis has given valuable insights into the financial news reporting cycle and the emergence of business news and its impacts on Tesla’s stock market price respectively. The case study has shown that Tesla’s share price rose mostly after the tweet by Elon Musk that conveyed the ambiguous announcement of a new product introduction in the morning. It appeared that not only investors were betting on the opaque tweet that there might be a significant new product introduction by Tesla later that day, but CNBC also used Musk’s tweet to construct its “Halftime Report” show and making all kinds of speculations about what this announcement could have possibly been about. Previous research has in fact identified this tendency toward more speculative reporting in the business press as a means to attract viewers and keep the audience engaged in a highly competitive news service environment (Ahern & Sosyuro, 2015).

Less surprisingly, when Tesla eventually made the actual product announcement of the new battery for Model S and Model X, investors reacted with disappointment, causing the stock price of Tesla to fall again. At the same time, the number of news items that were released related to the new battery increased considerably after the product presentation. Throughout the day, various financial news outlets reported on the new battery, explained the specifics, but also pointed to challenges Tesla was still facing. There seemed to be an overall agreement among the news outlets that the new battery pack by Tesla only represented an “incremental” improvement. The criticism against Tesla also seemed to resonate. In particular, the SolarCity deal, the Autopilot crashes as well as Tesla’s struggle to produce and deliver an affordable vehicle for the mass were seen as the main reasons why investors did not react with enthusiasm to the news about the battery.

Even after the market closed, the financial news kept on reporting on the Tesla news. CNBC, Bloomberg and Reuters presented themselves as frontrunners, providing ongoing reporting to its audience with updates on the new product introduction, featured with videos, audios, and photo slideshows. In so doing, the TV news shows by CNBC and Bloomberg made use of various financial reporting tools, such as discussion tables, staffed with experts.
from the automobile and tech industries, live call-ins (e.g., with analysts, conference calls), interviews with experts, and intraday stock market charts, enabling reporters to discuss the immediate stock market reactions in real time. While these TV shows and the online news articles published by CNBC, Reuters and Bloomberg were rather neutral in their reporting about the specifics of the new battery, relying heavily on citations by Elon Musk and Tesla, Forbes and The Wall Street Journal appeared to provide more in-depth and partial reporting.

Indeed, although the news reporting on the new battery flattened in the following days overall, Forbes and the Wall Street Journal presented more detailed analyses of Tesla and its business strategy. Forbes, for example, relied on external voices and gave experts room to raise their critical voices toward Tesla (e.g. Tesla nominated as the most innovative company; Tesla based on governmental subsidies; most short-selling share). However, Tesla’s share price did not appear to respond to the follow-up news reporting in the subsequent days. Rather, it seemed that the critical assessment of the new battery by various financial news outlets and analysts, but also other negative reporting related to Tesla in that week (e.g., SolarCity deal, Autopilot accidents) had bounced the stock price of Tesla back to its opening price of that week. In essence, there was little left behind from the initial enthusiasm and “rumor trading” as seen right after the release of Elon Musk’s unclear tweet on Tuesday morning.

The Issue-Attention Cycle of Financial News

Although the new product announcement by Tesla is not an issue by definition, the process of how the Tesla business event was reported in the financial news over time is partly in line with the issue-attention cycle as proposed by Downs (1972). In accordance with the first stage of the cycle, the announcement of the new battery has not raised a lot of attention in the media or in the public first, given that only few news outlets (Reuters, CNBC, Bloomberg) reported on the tweet by Elon Musk right after. In the second stage, according to Downs, attention gets sparked and more people become aware of the issue and are optimistic that the issue can be solved. In case of Tesla, the vast amount of reporting on the new battery could indeed be found on the day of the announcement itself. Even though Tesla had not yet specified the news, it seemed that the news outlets were making use of every bit of information to fill their airtime and to report on the speculations before Tesla made the actual product introduction. It appeared that both the media and the public were eager to hear more about the opaque announcement by Elon Musk and to find out how this piece of information can be used in the best way: for the news media, information was needed in order to make sense of the news; for investors, information was necessary to find out how to best trade on the new announcement. The third stage in the issue-attention cycle is reached according to Downs (1972) when the public recognizes the connection between the solutions and the problem, realizing what it would eventually cost to solve the issue. Although there was not an explicit need in “solving” the new product announcement by Tesla, the third stage as defined by Downs can be spotted here when the media and investors noticed that the new battery did not meet the expectations of the market; hence right after the release of the new product by Tesla. Not only did the media extensively report about the implications of the new battery for Tesla and its share price, determining that it was overall only an “incremental improvement,” but investors also reacted with disappointment by selling their shares right after the announcement. The fourth stage is characterized by a decreasing interest for the issue by the public based on Downs, followed by the fifth post-problem stage, which emerges when the issue has been replaced by another, new issue or topic. These final two stages become reflected in the media coverage about Tesla’s new battery during the days after the announcement when reporting overall declined and attention in the financial news seemed to have switched to other topics.
Buying on Rumor and Day Trading

The analysis of the news dynamics surrounding the introduction of the new battery by Tesla has shown that financial news reporting rather plays a limited role in influencing short-term market reactions. Instead, announcements by corporations themselves (e.g., via Twitter) can trigger market participants to react immediately and—likely also for this reason—evoking a stream of further news reporting. As the event studies, but also the general inspections of the stock market reactions have shown, the market reacted strongest to the Tesla news when Elon Musk tweeted about the new product announcement and when the news eventually got released by Tesla, and retweeted by Musk. These responses imply that investors were buying on the simple speculations of what the new product announcement could have been about. Hence, the share price reactions of Tesla based on Elon Musk’s tweet do not only suggest that market participants react to news items that are not yet verified or which are still based on speculations, it also shows that this investor behavior is at odd with the rational market behavior that representatives of the efficient market hypothesis promulgate (e.g., Fama, 1970). Rather than waiting until the actual revelation of the announcement and assessing the value of the news before making a trading decision, some shareholders seemed to have traded purely on the belief that other traders might also react upon this tweet and that Tesla might reveal a new product that would increase the market value of the company. In this vein, this market behavior rather seems to be in line with herd-like reactions and irrational market decisions that could be caused by emotions, such as the fear of missing out on a lucrative investment (Nofsinger, 2005, Prechter, 2001).

Following this, the subsequent slump of the Tesla stock price as soon as the introduction of the new battery was actually made resonates with Hirshleifer et al.’s findings (1994) on insider trading and yields an indication of aggressive day trading. It appeared that some traders were actively buying Tesla shares in the morning before and after Elon Musk opaquely notified the public about a new product announcement, and then sold their shares again after the actual news was eventually revealed. By betting on the increase of the Tesla share price based on Musk’s tweet about the announcement and its subsequent fall, informed day traders were able to sell their shares at the right moment at a profit. Hence, believing that the majority of traders will react to ambiguous information in a certain way might confer investors the opportunity to successfully trade on speculations or rumors. In fact, having this information advantage—for example, by staying attentive to Twitter announcements and betting on speculations—is in line with what Grossman and Stiglitz (1980) have called the “impossibility of informationally efficient markets” (p. 393).

Implications, Limitations & Future Research

Accordingly, following relevant news channels and being vigilant to high-profile Twitter personalities of listed corporations, such as the CEO of Tesla Elon Musk, might render first-hand information on investments for retail and professional investors. However, while Elon Musk’s and Tesla’s Twitter communication might provide trading opportunities for day traders, it also poses a risk to the company and its share price. Besides legal issues in terms of information disclosure violations (SEC, 2013), market moving Twitter communication might also lead to more speculative short-term trading. These shortsighted investments and the reliance on intangibles can yet be both dangerous for the maintenance of trust with shareholders and investors, and detrimental for a fair valuation of companies on the stock market (cf., Laskin, 2016).

In this regard, it has to be noted that the results of this study do not allow for generalizations across listed companies. Tesla Motors with its media-savvy CEO Elon Musk can be considered an exception rather than the rule (Malhotra & Malhotra, 2016). Only few
CEOs of publicly traded companies are actually active on Twitter and use the potentials of such social media channels (42 of the 500 Fortune CEOs had a Twitter account as of September 2014; Malhotra & Malhotra, 2016). Future research is therefore invited to compare these findings to other listed companies and even to organizations that do not enjoy such a strong visibility on social media. Furthermore, there might also be differences across various stock market environments, countries, industries or points in economic times. In this vein, this study has made a first step to invite scholars in communication science and economics alike to take a case study approach and combining qualitative and quantitative methods to explore the complex interaction between events, information, news media and stock market reactions.

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