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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 8

General Discussion & Conclusion

The role of news media in influencing or reacting to stock market prices has been discussed widely in research and practice, and particularly in economics, finance and accounting research (e.g., Engelberg & Parsons, 2011; Fang & Peress, 2009; Tetlock, 2007). While scholars in finance seemed to have reached common ground in that stock market prices cannot be explained by simple and static information integration models (e.g., efficient market hypothesis; Fama, 1970) but need more dynamic models that take irrational behavior and anomalies into account (e.g., Shiller, 2003), the specific role that news media and their characteristics play in this interrelation has not been systematically investigated so far—and particularly not in communication science. Hence, this dissertation has set out to study the mutual relationships between news media and the stock market from a communication science perspective, employing an interdisciplinary and multi-method approach. In doing so, this dissertation has not only relied on theories stemming from communication science, economics and finance, but the methods used are also derived from various disciplines that have contributed in studying the interaction between news media and the stock market in the past.

The Self-Referential Financial Information Eco-System

The findings of the first part of this dissertation have given useful insights with regard to the role that financial journalists play for financial markets in the post-crisis era and in an environment characterized by economic pressures (Blumler, 2010), high-frequency trading (Lewis, 2014) and automated journalism (Blankespoor, deHaan, & Zhu, 2017, *in press*). While it has become evident that the watchdog role of financial journalists might have to be reconsidered both in theory and practice, demanding a broader role perception that combines both the investigative and transmission perspectives of watchdog journalism, one of the main findings has also been that financial journalism is an integral and constitutive part of the circular processes of how information and news gets integrated in stock market prices, or vice versa. In this vein, the financial information system has been found to work as a self-referential and self-constitutive ecosystem that generates, processes, and distributes financial information among a small number of actors situated mainly within the financial centers of the world (e.g., Wall Street, The City). Thus, rather than consulting independent and alternative sources from outside the financial markets that would provide them with a different viewpoint, financial journalists have been found to primarily rely on information that originates from the financial markets.

In this respect, the financial information ecosystem identified is in line with the concept of communicative ecology (Foth & Hearn, 2007) that broadly describes “the context in which the communication process occurs” (p. 9). The focus of this concept lies on network interactions and how individuals communicate online and offline, globally and locally as well as collectively and within a network. Hence, within those interaction processes people communicate in their networks not only face-to-face but might also use a variety of media or technologies. This all-encompassing view also applies to the financial information ecosystem identified in this dissertation. In fact, the interview and survey study (Chapter 2) has shown that financial journalists stand in close contact with other financial actors (e.g., financial analysts, investor relations officers, investors, traders, other financial market actors) with whom they are regularly in touch. These relationships are not only characterized by face-to-face interactions, but also by mediated information exchanges, such as via the telephone, email or other news media or information distribution channels.

However, the close interaction of financial journalists with actors within the financial system and the limited connections with outside sources has raised questions about the

independency of journalists and the role of financial journalism in moving the markets by means of daily reporting. Figure 8.1 displays how the mechanisms within this self-referential financial information ecosystem, consisting of financial market events, financial reporting, and the stock market, have been found to work.

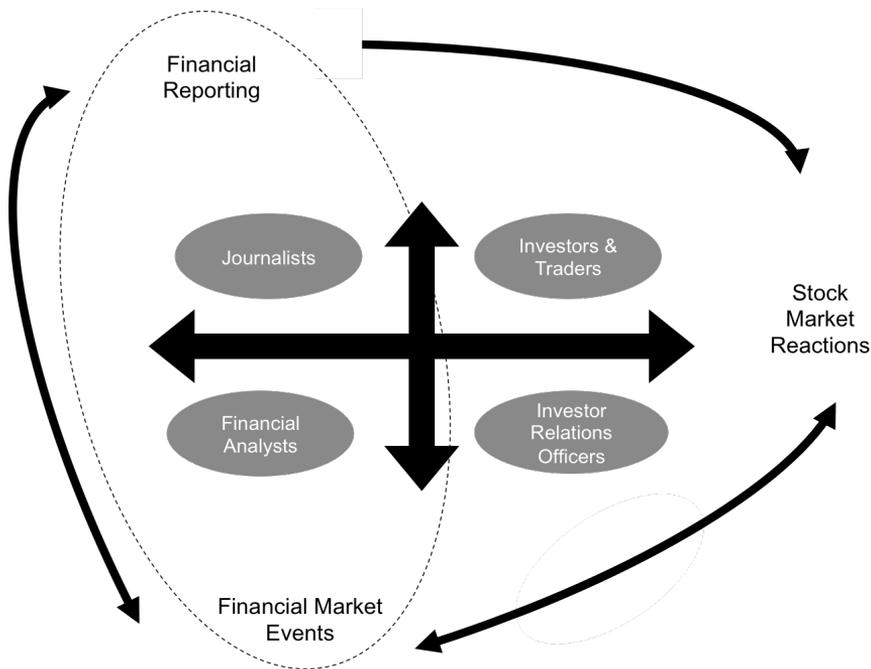


Figure 8.1 *The self-referential financial information ecosystem*

At the center of the ecosystem are journalists, financial analysts, investors and traders as well as investor relations officers. These groups of people can be considered the main actors who generate, provide, distribute and forward information in the financial information ecosystem. The arrows between these groups point in all directions, as the information exchange can—to various extents—be found among all the four actors involved. However, while the interview and survey study with financial journalists and financial market experts have shown that there is a stronger link between financial journalists and financial analysts compared to the other actors (e.g., also in terms of trust, cooperation, comfort and dependency), it has also become evident that investor relations officers are increasingly in close contact with investors and fund managers. External sources or information flows from outside the financial information system are not depicted here, as the findings from the interview and survey study have implied that these are seemingly of less relevance in the financial information circle. In line with Figure 8.1, the results of the study that investigated financial networks on Twitter (Chapter 7) suggest that the core of these networks consists of established financial news outlets, financial journalists and professional investors.

Starting at the bottom of the circle to explain the mechanisms illustrated, a financial market event usually emerges on the financial markets as part of the financial business circle (e.g., announcement of macro-economic indicators, scheduled IPOs, quarterly earnings

releases, etc.). Following the left arrow, financial journalists would get to know about the event, for example, by receiving a press release about the scheduled market event from the companies or authorities involved. Another way would be that journalists acquire the information about the event from other market actors or from publicly available market data (e.g., company profiles on Yahoo Finance). If the event is scheduled far in advance, financial journalists will have time to develop a full story or analysis around it. In other instances, however, in which the event emerges ad hoc, financial journalists will have to react fast and might only cover the event with a short report and/or will deliver more in-depth reports with a delay. Of course, and this is what the interview and survey study in this dissertation have also shown, the style of reporting strongly depends on the business model of news media outlets. While news wire services aim primarily at producing and distributing breaking news, quality newspapers are more prone to publish stories later, but providing more in-depth and analytical stories.

The financial reporting about the event can in turn induce market reactions, contingent upon the object and subject of the story (for a thorough discussion of the contingencies, see the takeaway points described below). Hence, while a story or news alert about a listed company might drive its stock price to rocket or plummet, it could also affect the industry the company is associated with, as indicated by the interviewees from the interview and survey study. Conversely, news about an industry might not only cause market indices to respond to the information, but might thereby also affect individual share prices. Consequently, these market reactions can be considered market events in themselves (e.g., strong upward/downward shifts), which might in turn become the subject of further news reporting, depending on their news value (cf. Galtung & Ruge, 1965; Harcup & O’Neill, 2001).

As shown in Figure 8.1, the circle of the self-referential financial information system also has reversible relations. In some cases, for example, the journalists themselves might be responsible for creating the market event. By means of investigative reporting or in-depth analysis of a company, its balance sheets or financial indicators, financial journalists would release information or insights that otherwise would have stayed concealed. Given that the reporting of such market events usually comes as a surprise for the market (although parties involved usually get informed beforehand by the reporting news media), this could cause the stock market prices to respond significantly, and in particular the shares of the company covered in the story.

It has to be noted, at this point, that the distinction between financial reporting and the market event itself might sometimes become blurred, and these aspects might in fact merge. In some instances, for example, when commentators report on severe shifts in the market, it is not really clear whether the shift itself can be considered the market event or whether the financial journalist talks this market event into existence by reporting on the “strong shifts.” Arguing from a social constructivist perspective (Berger & Luckmann, 1966), then, financial market events can be considered as being socially constructed. That is to say, although the events might exist out there (i.e., upward/downward shifts), only by communicating about them (i.e., financial reporting) are the processes “objectified” and “internalized”, thus becoming part of our social reality (cf. the financial reality). The fact that financial journalists perceive themselves as objective reporters has also become apparent in the interview and survey study.

However, the social construction of market events does not necessarily have to be exclusively undertaken by the news media. In some instances, the financial market event becomes constructed by the very existence and movements of market prices as reflected in the ticker symbols or the continuous representation of high- and low-frequency stock market quotes on the screens of traders and investors who, in turn, interpret and act according to the

information displayed. Hence, it might also be the investors themselves who construct the market event in making sense of the financial information and reacting to it by means of their trading decisions. Significantly, in Figure 8.1 the arrow pointing from stock market reactions to financial reporting is omitted. The argument here is that a stock market reaction does not in itself lead to financial reporting per se, because it first has to be identified as a financial market event by the journalist, who then decides whether to report on it or not.

Although the model of the self-reflexive financial information ecosystem is mainly based on qualitative data from financial experts in the U.S. as well as independent observations of the interrelationships between news media and the stock market by the author of this dissertation, the empirical findings of this dissertation provide support for the validity of this conceptual model. The five additional empirical chapters of this dissertation that vary in their focus and method of analyses—studying various media outlets, news media characteristics, time horizons and particular market events—have given more insights into the characteristics and dynamics of the sketched relationships between financial reporting (i.e., financial market events) and stock market reactions. Ten main conclusions can be drawn from these studies, as detailed below.

News Media and the Stock Market: 10 Takeaways



1. *First-hand economic news can induce stronger, and more immediate stock market reactions among professional investors than already known public information.*
In studying the interrelationships between economic news distributed by Reuters and Bloomberg Twitter accounts as well as market moving stories by Bloomberg and the stock market reactions thereto (Chapter 4), it is suggested that first-hand economic news leads to strong reactions of shares that are the object of market moving stories. Furthermore, the findings imply that public investors, who usually do not have access to the market moving stories by Bloomberg, have to rely on public tweets to make trading decisions. This might not happen immediately, but investors might need more time (around 1 hour) to properly evaluate the market relevant information from the tweets. The effects on the stock market from public information have been found to be, however, rather small. Similarly, the Tesla case study (Chapter 6) has shown that the strongest stock market reaction on the Tesla share price was evinced right after the first-hand public announcement by Elon Musk on Twitter, as well as right after the new product had eventually been revealed by Tesla and communicated through the official Tesla Twitter account. In line with that, the conclusions drawn from the study on IPOs in Germany (Chapter 5) suggest that market relevant information about companies that were going to be traded on the stock market for the first time had partly already been integrated into the emission price, given that overall the links between German media coverage and the flotation performance of IPOs were rather tenuous.
2. *Public economic news can be related to smaller, and more delayed stock market reactions.*
Not only has the study on economic Reuters and Bloomberg tweets pointed to delayed and smaller stock market reactions as a response to public news, the Tesla case study also suggests that the follow-up reporting by financial online news about the product announcement by Tesla only had a limited impact on the intraday stock market prices of Tesla. Correspondingly, the results of the IPO study indicate that the news coverage six

days prior to the IPO or on the day of the IPO itself might explain the flotation performance of IPOs in the first days of trading only to a limited extent.

3. *Intraday stock market reactions of listed companies can be caused by public corporate communication (e.g., product announcement, quarterly earnings (QE) announcements).*
Another major finding of this dissertation is that public corporate communication, such as product announcements or QE releases can lead to intraday stock market reactions of the listed companies involved. More specifically, the Tesla case study has shown that corporate communication (e.g., tweet by Elon Musk and tweet by Tesla Motors) seemed to have had the strongest impact on the intraday stock quotes of Tesla in the course of the product announcement. Furthermore, the investigation of financial networks on Twitter (Chapter 7), and particularly the consultation of secondary data (e.g., press releases of reporting companies, online financial news media, daily stock quotes) in this study, has provided reasons to believe that some of the reporting companies have experienced a strong downward/upward shift in their daily stock market prices as a result of the QE announcements. Yet, given that the periodical reporting of QE is required by the regulations of the Securities and Exchange Commission in the U.S., listed companies themselves unavoidably initiate these events and thus might cause their stock market prices to inevitably react.
4. *Market expectations can play a crucial role in how financial news gets interpreted and acted upon by market participants.*
At the same time, and related to the previous point, the stock market reactions to QE announcements seem to be dependent on the expectations that the market (i.e., also financial media) has toward the QE of the listed company. In this vein, it appears that expectation management is highly relevant in order to partly control the extent to which the market might react toward the releases. For example, if the listed company is already sending a warning of lower than expected quarterly results before the announcement, and if the media are therefore also reporting that the numbers are expected to be lower, the stock market reactions to the actual announcement might be less severe if the company indeed reports disappointing figures. At the same time, though, the market might have already integrated the negative outlook in the share price at the moment when the warning was delivered. Nevertheless, the Tesla case study has illustrated how the evocation of high expectations (i.e., new product introduction) can also backfire. In the example of Tesla, the market seemed to have expected a more innovative and more substantial change in Tesla's product line. In turn, the disappointment of investors when the announcement was eventually made played out as a strong dip in Tesla's intraday stock market price.
5. *Regular, daily news coverage about the stock market often lags behind.*
The results of the empirical study on emotions in Dutch newspapers in this dissertation (Chapter 3) imply that newspapers might lag too much behind to have the power to explain stock market movements over the following days. Given the high-frequency and automated trading environment these days, and the fact that newspapers usually do not provide new or unknown information to the market that has not already been spread elsewhere (e.g., news wire services, online news), it is likely that (financial) print news only plays a minor role in driving daily stock market prices. This argument can also be supported by the findings of the IPO study that has evidenced a limited relationship between the news coverage on the IPOs and the flotation performance of the newly listed companies in the first days of trading.

6. *Financial online news seems to focus on speculative and follow-up reporting of financial market events.*

Furthermore, one of the main conclusions that can be drawn from the Tesla case study in this dissertation is that financial online news seems to make use of corporate information (e.g., tweet by Elon Musk) to fill their airtime and to ensure a stream of speculative reporting throughout the market day. In this sense, financial online news does not seem to provide substantially new or market relevant information about the market event itself, but rather supplies summaries, short analyses and expert opinions related to the event. The information value of this style of reporting thus becomes questionable, given that the follow-up reporting of financial online news about the new product by Tesla has also not appeared to affect the intraday stock market quotes of Tesla strongly.

7. *Negative emotions and negative sentiment are related to a downward trend of stock market prices on the aggregated level.*

When it comes to the characteristics of news media, the study that has focused on emotions in Dutch newspaper articles suggests that negative emotions might lead to a downward shift of the opening prices of stocks the following day. Similarly, the results of the study dealing with German IPOs imply that negative sentiment in the news coverage on the day of the IPO itself might lower the share price percentage gain of the IPO after the second day of trading. However, the study dealing with economic tweets by Reuters and Bloomberg as well as the study investigating financial networks on Twitter have not evidenced any relation or yielded mixed results regarding sentiment and emotions. Hence, it is concluded here that negative news coverage/negative emotions measured on an aggregate level are likely to lead to a downward shift of share prices that are the subject of the media coverage, whereas negative reporting tailored toward a specific event (e.g., QE of a listed company) and its relationship with the share prices of the concerned company might depend on current market expectations.

8. *Relevant appearing news (i.e., media attention toward stocks/topics) and expert opinions are important news characteristics that can drive the stock market.*

Another characteristic of media content that might be crucial in explaining stock market movements is the question whether news appear to be relevant (e.g., number of times a topic gets mentioned or number of news items released). The study dealing with economic Reuters and Bloomberg tweets indeed suggests that the more a topic is repeated, the more it is retweeted, and the more expert opinions are expressed in tweets, the higher the fluctuation of stock market prices (i.e. DJI) within an hour. Similarly, the empirical findings of the network study imply that for a few stocks there are small negative relations between an increase in the number of tweets released during the QE announcements and the change of the stock market prices. However, for one stock this relation has pointed in a positive direction. The results for the study focusing on emotions in Dutch newspaper articles dealing with stocks listed on the AEX have also indicated mixed findings in terms of media attention and the interaction effect of media attention and the emotion index. Not only does an increase in media attention either lead to a downward or upward shift of the opening prices for a few stocks, the findings for the interaction effect also point in opposing directions. However, overall it can be stated that relevant appearing news (i.e., media attention, number of times an issue gets mentioned) and expert opinions conveyed in the news can be considered relevant factors that might drive stock market reactions.

9. *Particular corporate news dealing with IPOs is related with the flotation performance of IPOs in the first days of trading.*

The findings of the IPO study indicate that the kind of corporate information about an IPO firm that appears in the news media before the company goes public is related to the

flotation performance of the IPO firm. Although there were no significant relationships for quite a few sorts of corporate news overall, news about new products, products and other news (e.g., failure of previous IPO) has evinced a negative relation with the flotation performance of IPOs. Conversely, for news about strategy changes a positive relation with the flotation performance of IPO firms has been found. Hence, it can be concluded that it might strongly depend on the kind of corporate information and the IPO firm involved how corporate information conveyed in the media plays out in the flotation performance of IPOs in the first days of trading.

10. *Social media platforms can be considered relevant financial information systems for informing financial market participants.*

Lastly, the findings of the empirical studies that dealt with Twitter (e.g., Reuters and Bloomberg tweets, Tesla case study, financial networks on Twitter) and the communication of its users indicate that this platform is a useful and relevant financial information system that keeps financial market participants informed about recent events. Due to its ease of access, recency and availability, this might be especially true for retail investors and the broader public investment society.

The ten takeaway points show that this dissertation has illuminated the complex interrelationship between news media and the stock market from a communication science perspective by taking various angles and research approaches. Although these takeaways are extensive and useful for theory and practice, the findings are neither universal nor comprehensive. Consequently, the conclusions drawn also need to be considered in light of the limitations of this dissertation and potentials for future research.

Limitations & Future Research

A methodological limitation of this dissertation was the decision to use automated content analyses to measure sentiment (SentiStrength) or emotions (e.g., Dutch version of the Linguistic Inquiry and Word Count program) that comes with common criticism expressed toward computer-assisted analyses (cf. Kalampokis, Tambouris, & Tarabanis, 2013). While the word counting strategies (e.g., Pennebaker, Mehl, & Niederhoffer, 2003) based on dictionaries do not allow for capturing nuances of language, negations or irony, the analyses with the SentiStrength algorithms (Thelwall, Buckley, Paltoglou, Cai, & Kappas, 2010) might have been validated in previous research but can still be disputed with regard to a specific language used (i.e., financial information). Furthermore, the question arises whether 140 characters are in fact enough to express or to analyze the sentiment that is supposed to be conveyed in tweets. Nevertheless, by using these methods of analyses, this dissertation did not only follow previous research (e.g., Campbell, Turner, & Walker, 2012; Tetlock, 2007; Stieglitz & Dang-Xuan, 2013), it was also aimed at staying abreast of change and thereby promoting further development in this very promising field of new research methods. Continuing in this vein, future research might benefit from an improvement in natural language processing tools (e.g., Hirschberg & Manning, 2015), which might even make it possible to analyze sentiment with regard to specific objects/subjects and to become more confident in capturing the subtleties of language that are sometimes—to be honest—even hard to grasp with manual analyses.

The drawbacks of the automated content analysis tools were also the main reasons why manual analyses were additionally used in this dissertation. When feasible, coders were trained to read and analyze news media coverage manually. Yet, as already mentioned above, manual analyses do also pose challenges for researchers. As has become apparent in this

dissertation, for some variables it was hard to reach high reliability scores—even with several rounds of training (e.g., regarding emotions that were coded in Reuters and Bloomberg tweets). Reasons for the discrepancies in reading and interpreting media content might have something to do with the specifics of financial information. It needs to be acknowledged that information about stocks, markets or industries can change over time, context and the specific attitudes of the reader. While decreasing oil prices might be interpreted positively by an investment audience that is interested in manufacturing (i.e., lower prices of oil mean lesser production costs), investors interested in oil and gas firms might be less pleased, as lower oil prices mean lower returns for those firms. Hence, it is important to be aware of the ambiguous meanings of financial information when studying financial news media in the future. Upcoming studies might therefore develop more advanced codebooks that also allow for taking different perspectives of readers into account, or which make it possible to empathize with a particular trading behavior or trading model (e.g., risk-averse, risk taking, short/long seller, young/old, experienced/ inexperienced investor).

In order to account for the reversed and mutual relationships between news media and the stock market, this dissertation broadly made use of vector autoregression analyses (VAR; Vliegthart, 2014). Although this type of time series analysis has a long tradition and has also recently found its way into communication science (Boomgaarden & Vliegthart, 2007; Kleinnijhuis, Schultz, & Oegema, 2015), the method of analysis also has its limitations. Particularly in this dissertation, some of the series under investigation evinced heteroskedasticity and occasionally autocorrelation. Various analytical approaches have been taken in the analyses to control for these impairments, but they could not be eliminated entirely. Despite the fact that all the VAR models in this dissertation were robust (Eigenvalue tests), some of the findings still need to be considered with caution. In this regard, it also bears mention that a differenced or logged series does not only make interpretation of results difficult (e.g., speaking of changes; de Boef & Keele, 2008), it inevitably also takes a lot of information away from the series. Hence, in some instances, it becomes particularly difficult with VAR analyses to capture the immediate impact of specific market events on (individual) stock market prices. In fact, this is one of the reasons why this dissertation also applied event studies. Nevertheless, VAR models are still considered in this dissertation to be the right choice of analysis to study dynamic relationships (cf. between news media and the stock market) and to control for the past of series (Vliegthart, 2014). Future research might yet profit from taking a look at more advanced time series models with Bayesian analysis or models controlling for autoregressive conditional heteroskedasticity (ARCH) (Hamilton, 1994).

Although known for uncovering the complexities and richness of data and relationships, the qualitative and interpretative methods and analyses employed in this dissertation also have their limitations. For example, the qualitative text analysis of financial online news that was released with regard to the product announcement by Tesla certainly did not capture the entire online news media coverage published during the period under investigation. Similarly, the choice to only look at the most prominent online news shown on Google News (and additionally only half a year after the event initially occurred) when inspecting the news coverage about the QE releases, certainly limits generalizable statements. By restricting the analysis to a selection of news, the researcher always needs to be aware that the conclusions drawn only relate to a snapshot of reality and not the actual and entire communication that has taken place surrounding the events (Popper, 2005). Although this dissertation has at least provided a more or less standardized analysis of the qualitative material by making use of a semi-structured codebook, future research might be able to extend the qualitative analysis of news media data, also including various outlets and paying attention to external factors that relate to the characteristics of financial news reporting (e.g.,

market environment, performance of competitors, type of news outlet, role of the journalist, etc.).

As already mentioned above, generalizations of the empirical studies in this dissertation are hard to draw. Not only do the case study on Tesla and its intraday stock market price reactions not allow clear-cut implications for other stocks, also the individual stocks analyzed in the study dealing with emotions in Dutch newspaper articles or the project that studied financial networks on Twitter in the U.S. are hard to generalize. If at all, comparisons between the specific cases investigated and the specific media environments at stake (e.g., democratic corporatist model vs. liberal model; Hallin & Mancini, 2004) can be made. In a similar vein, the decision to only study one trading month (September 2015) with regard to the economic Reuters and Bloomberg tweets and the DJI index as well as the QE announcements of DJI firms in summer 2016 limits the transferability of the findings to other trading months or stock markets. Different periods of time are characterized by particular economic and (geo)political situations. For example, while in September 2015 the global stock markets faced plummeting stock markets in Asia due to concerns about the Chinese economy, the British people voted for the Brexit in summer 2016, causing international markets to respond with fear and insecurity.

Certainly, the stock market and news media as objects of analyses are sensitive in nature, as they change over time and are dependent on context and various external factors, such as political decisions, natural catastrophes, terror attacks—to name just a few. Nevertheless, to gain more insights into generic processes and mechanisms of trading and investment behavior based on news, experimental studies might be an alternative for the future. In addition, real-time data of trades and investments (e.g., trading transactions in financial transaction systems) might be of great use to trace universally valid trading patterns based on information. However, given that access to this kind of data is difficult, observation studies in trading rooms (physical or online) might offer an additional ground for future research endeavors (e.g., Knorr Cetina & Bruegger, 2002a, 2002b).

Lastly, the interviews that have been conducted in the course of this dissertation also need to be reflected upon with prudence. The peculiar selection of interviewees limits generalizations. Furthermore, the interpretations of the interviews might have also been biased through the researcher due to the familiarization with recent literature and current discussions about the role of financial journalism. With regard to the survey, it is undeniable that the low number of respondents impedes generalizations. At the same time, issues with social desirability or the specific formulation of questions might have biased the results as well (Tourangeau, Rips, & Rasinski, 2000). Despite these drawbacks, the interview and survey study with financial journalists of this dissertation have delivered relevant insights into the current state of financial journalism. Future research is therefore invited to follow up on this research topic by expanding the range of financial journalist interviewees, combining interviews with observations (e.g., Usher, 2017) or inquiring into resources that facilitate a representative survey among financial journalists in the U.S. or other countries.

Implications for Communication Science

Rewinding, this dissertation has provided important and significant contributions to the field of financial communication, responding to recent calls for more research in this area (Lee, 2014). It has not only yielded a more recent understanding of financial journalism in the post-crisis period, a research field that has so far remained largely unexplored (Knowles, Philips, & Lidberg, 2017), but has added insights to the research fields of 1) financial corporate information in explaining the relevance of news media outlets, news characteristics and

market events for stock market price movements, 2) investor relations by researching the relevance of corporate information for stock market reactions, and 3) financial PR in uncovering the meaning of corporate announcements on social media channels and financial news flows for share prices of corporations.

Furthermore, given that this dissertation is grounded in the traditions of communication science, the findings have also contributed to the understanding of a range of mass communication theories with regard to the financial sector. First, the results of the empirical studies have offered reasons to believe that the *public agenda-setting* (McCombs & Shaw, 1972) and *second-level agenda-setting* (Carroll & McCombs, 2003), *priming* (Scheufele, 2000; Scheufele & Tewksbury, 2007) and *framing* (McCombs, Llamas, Lopez-Escobar, & Rey, 1997) theories also apply in the financial context. Not only has it been shown that media attention for stocks or economic news in general can impact stock market fluctuations, but the way in which a listed company or the economic topics are associated with in the news media is also related to stock market movements. Although there were mixed effects found for the salience of listed companies and issues in the (financial) news media on stock market prices (e.g., IPO study vs. financial networks study), it seemed that negative portrayals of listed companies have a negative impact on share prices. However, negativity in the news media has only been found to be detrimental for stock market prices when looking at news reporting from an aggregated level and not with regard to a particular market event. In such cases, usually specific market expectations are raised (e.g., QE announcement) that cancel out the directional impact positive or negative media sentiment is assumed to have.

Second, the reversed effects found in this dissertation—or in other words, the result that news media might follow the movements of stock market prices—imply that the *media agenda-setting theory* (Rogers, Dearing & Bregman, 1993) as well as the *news values theory* (Galtung & Ruge, 1965; Harcup & O'Neill, 2001) also hold when talking about the role of the news media for the financial markets. Particularly the findings from the study dealing with emotions in Dutch newspaper articles imply that daily newspaper coverage follows market movements due to the delay in reporting. Furthermore, the Tesla case study has provided evidence that the financial news media are responding to market events that emerge in the corporate or financial sector and that they are less influential in dictating market prices. Similarly, the results of the study investigating economic tweets by Reuters and Bloomberg have shown that public tweets should be considered follow-up reporting on market events rather than market-moving news.

Eventually, the study of financial networks on Twitter has pointed to similar mechanisms as described in the *two-step flow theory* in communication science (Katz & Lazarsfeld, 1966). The finding that established financial media, journalists and professional investors can be found at the center of the financial networks suggests that these actors function as opinion leaders having a crucial role in distributing information to the broader public, but being influenced by the news media or actually embodying the news media themselves. In addition, based on the findings of the interview and survey study on financial journalism, a self-referential financial information ecosystem has been sketched, in which financial journalists seem to rely upon financial opinion leaders and influential market actors that provide them with first-hand information and explanations of complex market dynamics, thus confirming the *two-step flow theory*.

Methodologically, this dissertation has shown how different methods—not only across studies, but also within—can be combined in an innovative and informative manner within communication science. More specifically, the combination and validation of findings with secondary data is not common, neither in communication science nor in finance, economics or accounting. This dissertation has thus shown how a relatively young research

discipline can contribute to an already well-studied field by taking a new research approach. In so doing, this dissertation has not only opened up new vistas for research in financial communication, but by combining both quantitative and qualitative methods of analyses and various sorts of data in this dissertation, the findings also gain more external validity and robustness. Future studies would profit from following this research approach, thereby contributing to bridging the gap between research findings and their implications for and implementation in practice.

Implications for Practice

Although it has been stated before that generalizations of the findings of this dissertation are difficult to draw, the results offer useful insights for practice in assessing the role of news media in explaining stock market reactions. Not only can it be concluded that it is important for practitioners who are active in the financial sector to be aware of the reflexive nature of the financial information system, the empirical studies have also given insights into the characteristics and circumstances in which news media can have an impact on stock market prices. In this regard, *practitioners* working in the fields of *investor relations*, *strategic communication* or *financial public relations* profit from *five takeaway points* that can be drawn from this dissertation:

First, practitioners should note that it is crucial to manage media representation of listed companies effectively. Negative portrayals of listed companies in the media in particular can have detrimental effects on their stock market performance (e.g., association with negative emotional words or sentiment).

Second, and related to the previous point, media representations become particularly important with regard to specific events (e.g., IPO, QE announcements, product introductions). Here, practitioners are advised to be aware with what kind of topics and issues the listed companies are associated in the media (e.g., new products, new strategy).

Third, although the findings have implied that it is more likely that news media coverage gets integrated in prices within short-term intervals (e.g., Tesla case study), negative portrayals of a company over a longer period of time can also affect the reputation of a company in the long term.

Fourth, it becomes decisive in this vein for financial communication practitioners to manage expectations on the market well. This does not only entail having healthy and strong media relations with relevant journalists to secure a fair and honest representation of the company in the media, it also demands that practitioners provide news media with transparent, accessible and truthful information. It is only in this way that the share price of a listed company might represent an adequate value on the stock market, preventing strong fluctuations of the price which might in turn lead to an over- or undervaluation of the company on the market.

Fifth, in securing a modest price walk of stock prices through fair media coverage, practitioners might also be able to prevent raising unintentional media awareness that might, in turn, cause a dangerous feedback loop as described by Shiller (2003). Instead, practitioners should balance and reconsider when it makes sense to raise attention about a company in the media and when not, as this might also come with uncontrollable stock market fluctuations. This does not only imply assessing the volume of press releases required to be sent out—or similar media inquiries—to inform the market about corporate news, it also relates to a strategic plan of how, when and what executives and corporate profiles should communicate on social media platforms or other channels.

With regard to *financial journalists*, the findings of this dissertation suggest that journalists have to redefine their idea of being a watchdog, acknowledging that besides investigative reporting, part of being a watchdog might also include transmitting and explaining financial information to the broader public in easy terms. Financial journalists might do well to unshackle themselves from Wall Street and strive for external and independent sources for their reporting, which might provide them with alternative perspectives on the topics at stake. At the same time, financial journalists—although the structural constraints might limit this—should engage more in investigative reporting (e.g., through pushing editorial offices). By accepting the new challenges that come with automated reporting, financial journalists would, furthermore, profit from developing new expertise (e.g., data journalism, financial data analyses) in order to differentiate themselves from competitors and to make themselves irreplaceable in the newsroom—either by humans or by robots. In this regard, financial journalists are asked to stand up for the commitment to journalistic norms and values and to act as a counterweight to the looming loss of journalistic standards as found in this dissertation.

Implications for Society

On a larger scale, this dissertation has offered a better understanding of the relationships between news media and the stock market for the broader public. Readers who were not familiar with this topic beforehand might have become more aware of the fact that news media reporting can induce herding and irrational behavior on the markets, that prices might not always reflect the true value of financial assets, and that the news media themselves are part of the financial information system. It has been found that whereas regular daily reporting has increasingly less influence on market prices, high-frequency and intraday-trading based on news alerts has gained relevance.

While these findings might help lay people to make better sense of how the stock market interrelates with news and information, they also raise concerns about future developments on the financial markets and in financial journalism. Not only has the self-referential financial information system become a cause for concern in the light of corporate scandals and fraud, severe intraday chain reactions on the stock market due to algorithm trading have also put the efficiency and sustainability of today's financial markets in question. It remains to be seen, in this regard, how the financial markets will develop in the future, and to what extent politics, corporations and supervisors will work together to secure a fair, efficient and sustainable financial market that might also contribute to a healthy economy.

For *professional/private investors* in particular, this dissertation has shown how important it is to know where one holds investments and in what way these investments are reported in the news media. Hence, both professional and private investors are advised to observe how their specific assets are covered in the news media and how this in turn plays out in the market prices of their investments. It is important for them to acknowledge short-term fluctuations, but also to keep in mind that they should not react with panic or respond with hasty trading decisions. On the contrary, professional/private investors might be on the safer side when focusing on passive investment vehicles with risks being spread and a long-term perspective.

For *non-investors and the broader public* alike, this dissertation has given readers the possibility to learn more about the complex interactions between news media and the stock market. A topic that might heretofore not have interested many people might have awakened one or the other person's interest in learning more about the financial markets, investments

(e.g., shares or real estate) or the peculiarity of financial reporting. In the process, this dissertation might have also contributed to promoting the need for more financial literacy among the public (Pollard, 2016). It is to be desired that people will become savvy financial consumers and thus more confident in speaking about the financial realm—not only in public but also with bankers and financial advisors. However, more research and educational efforts are needed to advance financial knowledge and economic education among the broader public.

Concluding Words

In conclusion, this dissertation has provided new and informative insights in explaining the interrelationships between news media and the stock market, thereby answering the overarching research question. First, it has been shown that the interplay between the news media and the stock market is highly reflexive, self-sustaining and constantly in vivo. Furthermore, the findings of the empirical studies in this dissertation imply that the interactions between news media and the stock market are contingent upon various factors, including news media outlets, news media characteristics, time horizons, or particular market events. In this vein, this dissertation has made a crucial contribution to the field of financial communication; also showing how various disciplines can be combined (theory and methods) in a fruitful manner. However, acknowledging the limitations of this dissertation, the remaining questions, but also the existing potential in this research field, this dissertation invites future research to continue exploring this research path. More research in financial communication could yield further insights into the complex interactions between news media and the stock market, or more generally, shed more light on the role of news media for the financial sector.