CEOs and Social Media – Tweeting and Stock Market Effects

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Abstract

The aim of this study is to investigate whether CEOs can influence the share price of their companies via their own tweets. The TOP 5 companies of the Nasdaq-100 with their respective CEOs were selected.

All tweets from the CEOs during a six-month period were categorized and mapped to the daily stock prices, determining potential effects on the stocks' valuation.

The most important finding was that corporate news tweets result in an increase of daily returns as well as volume.

However, expert opinions of stock market specialists indicated that tweets by CEOs play no role in their long-term investment decisions.

Keywords: CEO, social media, stock market, Twitter

JEL: G19, G24

1 Introduction

On August 7th, 2018, Elon Musk posted on the platform X (even though the analysis was conducted when the platform was still called Twitter; it will be referred to as X throughout this study): "Am considering taking Tesla private $420. Funding secured". It was a tweet that had significant implications in several ways (Kolodny, 2022; Ortiz & Bayly, 2018).

First, the implied stock market withdrawal ended a spike in Tesla's stock price. Second, the tweet drew the attention of the U.S. Securities and Exchange Commission (SEC), which accused Musk of deceiving investors. The SEC filed a lawsuit to prevent the Tesla CEO from holding the position of CEO for life. Third, Tesla and Musk each later accepted a $20 million fine to settle the suit (Stempel, 2022).

Following this tweet and its aftermath, no longer could the independence of stock market developments and social media be assumed. Furthermore, it provides the initial impulse for this study's research objective.

Companies have long been developing social media strategies to win and retain customers, and social media has been discovered as an additional tool CEOs can employ. The question in this study, in contrast to studies that focus more on the tweets content (Wu et al., 2022a, 2022b), is whether CEOs are actively using this leverage and, if so, whether there are detectable effects on the companies' stock prices.

This analysis focuses on and compares the activities on the social media platform X by the CEOs of four of the big five companies, excluding Meta. Since Marc Zuckerberg's X account has been silent over the last few years Meta has been excluded from further analysis. Instead, due to the initial quote and the strong impact of his social media posts (Erkartal & Yilmaz, 2022), Elon Musk and Tesla have additionally been included. It thus expands the study by Ghardallou (2021), which focused on Saudi Arabian companies and their CEOs, as well as the one by Craig and Amernic (2020), which focused on Uber and Tesla, but did not touch upon stock market effects. Consequently, it can be considered the first article to study the effects of social media activity on stock price developments for globally leading companies.

In the following section, the presence of CEOs on social media platforms is presented in more detail, and the link between social media activities and stock price developments is discussed. The third section introduces the methodology of the implemented mixed-method approach, in particular focusing on the dissection of social media posts into different groups and the establishment of a link between social media posts and stock price developments. In the succeeding fourth section, the results of the study are presented and discussed. The study concludes with the fifth section, discussing as well which recommendations can be deduced for practitioners, i.e., investors.

2 Background

2.1 CEOs Activity on Social Media

The number of CEOs of companies listed on Nasdaq that have already set up an X account that they use for non-personal posts plays a relevant role, especially in the context of this paper, since it indicates the extent to which they already see social media activities as part of their CEO work.

An older study from 2014 found that only 42 Fortune 500 CEOs have an X account. But of these, only about 70 percent were actually active (Kubowicz-Malhotra & Malhotra, 2015).

Currently, there are no numbers for CEOs of Nasdaq-listed companies, but a short search revealed that at the time of the study, of the 103 CEOs of the Nasdaq-100-listed corporations, only 33 have their own verified X account. In addition, it turned out that at least four fake accounts of CEOs existed

The number of CEOs on social media, and X in particular, is considered surprisingly low. The conclusion that the increasing value of communication via social media is receiving insufficient attention in the world of Nasdaq-100 CEOs may well be made with all due caution.

It is a result that is surprising even against the backdrop of the aforementioned 2021 social media report by FTI-Consulting, according to which, for the first time, "more than half of all top CEOs (52 percent) in the UK, France and Germany were active on social channels" (PressePortal, 2022). At this point, the reasons for this absence can only be speculated about.

It may be age-related, with many of the CEOs of the Nasdaq 100 companies still having a fear of uncontrollable communication via social media. They shy away from critical comments, and, above all, they want to avoid certain risks. Tweets, once out in the world, can develop momentum as witnessed by a number of posts that went viral, like the one quoted in the introduction.

Another possibility to be considered is that CEOs, or rather, the companies they represent, have public relations teams who moderate internet content. A survey of the Nasdaq-100 companies revealed that a total of 56 companies compensate for their CEO's social media activity with their own corporate channel. Adding up these figures, exactly 89 Nasdaq 100 corporations are active on X, whether through a CEO account or at least a corporate account. Consequently, eleven companies from the Nasdaq 100 groups are thus not represented on X in any way.

2.2 Communication as a Driver of Stock Price Developments

The argument that a CEO who values his own authority over topics and interpretation should use social media as a platform for his statements and that it is better to shape and even lead the discussion about one's own company than to have it dictated by other users or merely to react to them was formulated by Kubowicz-Malhotra and Malhotra (2015).

The authors see a major advantage of active CEO work on social channels in the fact that it is possible on these platforms to establish a personal bond and accrue social capital, with followers through tweets, retweets, replies, likes, and other options (Kubowicz-Malhotra & Malhotra, 2015). The article by Kelton and Pennington (2020) provides a suitable model that illustrates the link between tweets, social capital and real-world investment changes.

In addition, and this is the third central point of the authors, the audience becomes more diverse, since retweets also mean that social media users receive tweets who do not have to be primarily interested in the specific company. Overall, the authors speak of a reinforcing process, as tweets that are considered interesting, on the one hand, provided additional distribution, but on the other hand, can also lead to an increase in the number of followers (Kubowicz-Malhotra & Malhotra, 2015) and (Malhotra, 2012).

If one tries to classify social media posts in general, and tweets in particular, according to their degree of effectiveness, those that are closely connected to the company are the ones that receive the most attention. This includes information about the company, such as product launches, new services and site openings (Bilinskii, 2022; Malhotra, 2012).

Awards that enhance the value of the company or have very positive reviews (Kubowicz-Malhotra & Malhotra, 2015), also have a good chance of attracting attention.

It is revealing in this context that regardless of the content quality of a digitally disseminated piece of information, the mere fact that a CEO is active on social media is said to enhance his or her public reputation (Yue et al., 2021). According to a survey of employees from various professional fields and different regions in the U.S., 81 percent of respondents hold the opinion that a CEO who is active on social media platforms is better suited to leading a company in the digitized world than a CEO who is rather inactive digitally (Charles, 2012). Ranco et al. (2015) also describe a positive correlation. Thus, company tweets that spread good sentiment correlate with positive stock price movements. A comparable analysis has been conducted by Huynh (2023), focusing on the activities of Elon Musk on X and their impact on the Bitcoin market.

Finally, in the aforementioned RTI Consulting study, content disseminated by CEOs was compared to company information shared through brand channels, with 82% agreeing that a more active leader on social media will result in a wider reward for the company (Williams et al., 2022).

3 Methodology

3.1 Selection of Companies and CEOs

As stated in the introduction, the big five companies, with Tesla stepping in for Meta, have been selected for the analysis. They are also the top 5 companies listed in the Nasdaq-100, and they have a

CEO who is active on X and has a follower count of over 2.5 million. This puts these selected CEOs well ahead of their peers in the Nasdaq-100, none of whom exceeds one million followers, giving a secondary decision criterion.

Finally, at Amazon, the consideration of including the current CEO, Andy Jassy, in the analysis had to be discarded. The company is likely to be identified in the public mind primarily by its prominent founder, Jeff Bezos. Bezos, who has 4.8 million followers on X, is presumably better suited for analysis and data collection than Andy Jassy, who, with 140,000 followers, does not have nearly the X reach of Jeff Bezos.

3.2 Selection of Stock Market Statistics

The period from November 10, 2021, to May 10, 2022, was determined, i.e., a total of six months, or even more concretely, 125 days on which the stock exchanges were open, and the respective tweets of the selected CEOs could be considered for the analysis. Aside from the effects resulting from the Russian attack on Ukraine, this period does not include any significant market shocks.

Data for the analysis was sourced from www.onvista.de and www.finanzen.net. For all five companies, the opening, high, low and closing prices, as well as the volume of the respective stocks, were collected and the daily return as well as the daily volatility were calculated using closing prices.

Finally, in order to exclude the possibility that the results are contaminated by daily fluctuations, it was indispensable to calculate the respective statistics as well in relation to the managed index, the Nasdaq-100.

In order to arrive at the most meaningful results, an average value has been calculated for each company, for each tweet category (See Section 3.3), and for each CEO tweet, i.e., the daily returns for the three days following a tweet were added up. This process has been realized comparatively for the volatility as well as for the Nasdaq-100 values.

3.3 Classification of Tweets

The study by Craig and Amernic (2020) emphasizes that a tweet with a business figures is likely to have a different impact than a tweet that only marginally addresses the relevant company; thus, a suitable classification system is required for this study.

In a first step, the CEOs' tweets were evaluated in terms of content, examined for commonalities and finally clustered, thereby following the more broader studies by Wu et al. (2022a) and Wu et al. (2022b). In a second step, it was elicited whether the tweets contained information relevant for shareholder decisions. This prioritization allowed relevant and irrelevant tweet topics to be grouped. The process yielded six separate categories. The categories are arranged so that the assumed relevance to shareholders and, thus, the respective stock prices maps the order.

The first category and thus the supposedly most important category for shareholders and stakeholders are tweets that address corporate and product news as well as announce dates, new partnerships and personal details about the specific company.

The second category focuses on information tweeted by the respective CEO about another company in which he also plays a leading role. This category is only relevant to the X activities of Elon Musk and Jeff Bezos, as they lead multiple companies as CEOs.

The third category is advertising or advertisement tweets for the respective company that the CEOs publish on X. These are often videos that are structured like advertising clips. They are short and to the point; they often present a new product or feature and highlight the advantages of the product.

The fourth category is best described as CSR, referring to all topics and tweets by CEOs that relate to the company's responsibility and contribution to the preservation and improvement of the environment, the workplace and the market. This means, for example, fundraising campaigns in the case of climate disasters or other charity events. Calls to followers to get involved also fall into this category.

The fifth category includes tweets that address socio-political issues. These tweets can focus on the CEO's personal opinion on a topic.

The sixth category is more about personal or private tweets that have little connection to the company and are intended to entertain followers rather than inform them. These include memes posted for general amusement, motivational sayings, death notices from famous people, and other content that can be classified as primarily subordinate.

4 Analysis

4.1 Dissection of the Tweets and their Impact on the Stock Market

Apple and Tim Cook

Table 1 Effects of different types of tweets on the Performance by Apple Inc.

Category	Tweets	Volume	Daily Volatility	Daily Return	Nasdaq Returns
Corporate News	12	13,170.83	1.965%	1.157%	0.899%
Other companies of the CEO	0				
Advertisements	6	9,077.67	2.601%	1.100%	0.651%
CSR	7	12,277.43	2.292%	0.009%	0.143%
Society and Politics	9	10,279.22	2.235%	-0.321%	-0.462%
Entertainment and Social	13	12,150.46	2.382%	1.000%	0.504%
Total / Average	47	12,686.12	1.975%	0.104%	

Tim Cook reaches 13.5 million followers via the social media platform X and thus has significantly more followers than the CEOs of Alphabet, Amazon and Microsoft.

The value of Apple's stock (US0378331005) increased from $128.96 to $146.92 during the survey period, an increase of 13.926 percent. At the same time, the benchmark, the value of the entire Nasdaq, decreased by 25.135 percent.

Table 1 summarizes the detailed results for Apple and the tweets by Tim Cook. As with the following tables 2 through 5, the last row reports the total number of tweets as well as the average of the traded volume, the daily return and the daily volatility across the whole time horizon of 125 trading days. In those categories where the traded volume or the daily return are higher than the 125-day average, the respective entries are lightly shaded. The same holds for categories where the daily volatility per category is lower than the 125-day average. In those cases where the daily average of the category is larger than the Nasdaq average for the same days, the respective entry for the Nasdaq is shaded.

Even though, causal effects cannot be established, due to the strikingly high value compared to the benchmark, the conclusion that category one tweets by Tim Cook lead to increased buying and selling behavior should be of high plausibility.

Social media experts advise CEOs not only to inform, but also to entertain. A total of 13 of the 47 tweets sent had an entertaining character. One possible interpretation of this strong focus is that Tim Cook is already making conscious strategic use of social media. Whether and to what extent such strategies are initiated and controlled by in-house PR or public relations experts can only be conjectured in the case of Apple.

Studies from 2016 already emphasize that a CEO can build a good relationship and connection with his recipients on social media through his authenticity, especially through tweets that are not about important content (Tita Men & Sunny Tsai, 2016).

Tesla and Elon Musk

Table 2 Effects of different types of tweets on the Performance by Tesla Inc.

Category	Tweets	Volume	Daily Volatility	Daily Return	Nasdaq Returns
Corporate News	13	53,051	4.528%	2.069%	-0.06%
Other companies of the CEO	29	46,563	4.322%	-0.862%	-0.13%
Advertisements	5	45,764	4.274%	-0.357%	-0.38%
CSR	2	36,511	6.260%	-5.337%	-2.59%
Society and Politics	7	57,668	4.401%	-0.502%	-1.29%
Entertainment and Social	26	44,786	4.412%	-1.154%	-0.59%
Total / Average	82	48,932	4.093%	-0.162%	

In the ranking of CEOs who are active on X, Elon Musk undoubtedly occupies a top position and reaches more than 100 million people via the social media platform. In fact, Musk not only sent 82 tweets during the survey period, but on top of that, he commented on many tweets published by other users. The average Tesla stock value after tweets from Elon Musk in the most important category one beats the Nasdaq reference by over two percentage points. This is the highest value seen comparatively in this category of corporate and product news.

It is not least the size of this return plus that plausibly supports the thesis that Musk is able to consciously exert an effect on the share price of his own company with his tweets - especially since Tesla shares developed rather weakly during the period under review, suffering a total loss of 18.387 percent from 930.5 to 759.4 U.S. dollars. The interpretation that Elon Musk's Twitter purchase offer, which became public during the investigation period, was a main factor in the overall negative share development is obvious. A price offer equivalent to 44 billion U.S. dollars fueled speculation that Musk would have to sell some of his Tesla shares to be able to afford the price (Primack, 2022).

Of all the CEOs in this analysis, Musk is the one who tweets most frequently about companies other than the one studied here. In his case, the CEO tweeted mainly about SpaceX and Twitter/X. During the study period, he did so 29 times, which corresponds to a share of about 35 percent.

For the sake of completeness, it should be noted that the Tesla stock has by far the greatest volatility in the period under review. The volatility fluctuates between 4.274 and 6.260 percent for the categories examined.

Alphabet and Sundar Pichai

Table 3 Effects of different types of tweets on the Performance by Alphabet Inc.

Category	Tweets	Volume	Daily Volatility	Daily Return	Nasdaq Returns
Corporate News	19	334.95	2.555%	0.086%	0.071%
Other companies of the CEO	0				
Advertisements	4	232.75	2.494%	-0.145%	0.530%
CSR	7	385.57	2.579%	-0.635%	-1.144%
Society and Politics	5	120.80	2.533%	-0.333%	0.025%
Entertainment and Social	7	373.71	2.417%	-0.016%	-0.212%
Total / Average	42	273.24	2.203%	-0.120%	

The results, which are already emerging in the analyses of the Apple and Tesla groups, are corroborated after collecting and interpreting the Alphabet figures. The average daily returns of Alphabet are highest and distinctly positive on days when Sundar Pichai, the company's CEO, tweets about corporate news. In the case of a further 23 tweets in which no corporate news was discussed, the calculations showed average daily returns that were all in negative territory.

Against the background of comparative values, the average positive daily return after corporate news tweets takes on special weight. First, Alphabet's stock value fell from $2543 to $2187.5 over the period studied. That's a return of minus 13.979 percent. Second, Alphabet's CEO, Sundar Pichai, may have 4.5 million followers on X, certainly a considerable number, but compared to Elon Musk, who reaches over 100 million followers, the number is rather small.

However, it would be fair to assume that Pichai, almost regardless of the number of his followers, should be able to reach his important target group of investors, since these investors are likely to be interested in any Alphabet information and control their media consumption behavior accordingly.

At this point, a comparison with the Nasdaq figures is worthwhile, because Alphabet outperforms the index after category one tweets with an average daily return of 0.071 percent by 0.015 percentage points.

In terms of volume, on those days when CEO Sundar Pichai disseminated corporate news, it increased to 33,495, up more than 20 percent both compared to the days when the CEO sent tweets that were assigned to the other categories.

As in the case of Elon Musk and Tesla, there were noticeable price movements in the case of Sundar Pichai and Alphabet on these entertainment tweet days that suggest a comparable interpretation.

Microsoft and Satya Nadella

Table 4 Effects of differrent types of tweets on the Performance by Microsoft Corporation

Category	Tweets	Volume	Daily Volatility	Daily Return	Nasdaq Returns
Corporate News	18	7,137.22	2.439%	-0.256%	-1.210%
Other companies of the CEO	0				
Advertisements	5	3,676.00	2.385%	0.160%	-0.044%
CSR	4	6,155.25	2.718%	-0.714%	0.366%
Society and Politics	5	7,013.80	2.340%	-0.100%	0.290%
Entertainment and Social	2	4,670.50	2.318%	-0.074%	-0.580%
Total / Average	34	6,016.64	2.139%	-0.096%	

Two facts stand out about Microsoft and its CEO, Satya Nadella: a low number of only 2.8 million followers and only 34 tweets being sent during the 125 trading days of this analysis.

Again, the topic of corporate news reveals parallels with preceding companies. On the days when Nadella tweeted corporate news, the daily return of Microsoft stock was negative, but nonetheless a remarkable 0.954 percentage points higher than the returns of the Nasdaq. In the period under review, Microsoft's stock fell from $288.6 to $256, a loss of 11.295 percent. Although this figure also reflects a negative development, it can be put into perspective in view of the development of the index, which recorded a loss in value of around 29 percent during this period.

Interestingly enough, Microsoft is the first of the five companies to outperform the Nasdaq after category one tweets, but not the corporate average over the 125 trading days.

Not surprising based on the previous results is the increase in the average traded volume after tweets about corporate news.

The lack of tweets in the entertainment category six, which are primarily intended to entertain followers, is not surprising, with the CEO generally being regarded as a matter-of-fact, sober businessman.

The business-oriented LinkedIn plays a considerably larger role for Satya Nadella, with 9.9 million followers placing in position five, surpassed however significantly by one of his predecessors, Microsoft founder Bill Gates, with 34 million followers.

In keeping with Nadella's personality, the volatility of the Microsoft share is comparatively constant and ranges between 2.318 percent and 2.718 percent, while the corresponding data for the Nasdaq fluctuates between 2.001 percent and 2.313 percent.

Amazon and Jeff Bezos

Table 5 Effects of different types of tweets on the Performance by Amazon.com Inc.

Category	Tweets	Volume	Daily Volatility	Daily Return	Nasdaq Returns
Corporate News	3	129,500.00	3.906%	-2.574%	-2.157%
Other companies of the CEO	4	204,770.00	3.420%	-0.857%	-0.388%
Advertisements	4	166,945.00	3.482%	-0.026%	-0.276%
CSR	5	197,564.00	3.869%	-0.111%	0.351%
Society and Politics	4	125,870.00	4.606%	0.336%	-36.400%
Entertainment and Social	4	132,135.00	4.746%	0.816%	0.769%
Total / Average	24	186,947.46	2.956%	-0.306%	

Jeff Bezos must be given a special role in the context of this analysis. Although the former CEO of Amazon has more than 4.8 million followers on X, Bezos can certainly not be said to have an increased interest in actually using the social media platform in the interests of Amazon.

Firstly, the founder of the online mail order company sent out the fewest tweets of all the CEOs examined in this analysis, and secondly, only three tweets could be assigned to category one.

Nevertheless, average daily returns after the three Bezos tweets on corporate news resulted in a minus of 2.574 percent, while the corresponding calculations for the Nasdaq resulted in an average minus of 2.157 percent.

It should be emphasized that Amazon's stock was the only security among the studied groups to perform worse than the Nasdaq-100 index and worse than the company average during the study period. Additionally, during the study period, the stock lost 31.827 percent of its value, and that was 2.292 percentage points more than the corresponding Nasdaq minus.

Given the low number of tweets, it is surprising that, compared to the other companies, Amazon.com is the only case where, for three categories, aside from corporate news, the stock outperformed not only the corporate average but also the Nasdaq average.

Summarizing Analysis

To summarize the results of the study, in Table 6, an overview has been given of how often tweets from one of the six categories outperformed either with regard to a higher trading volume or daily return (in relation to the company average and the Nasdaq average) or a lower volatility.

Table 6 Summary of Over- and Underperformances

Category	Apple	Tesla	Alphabet	Microsoft	Amazon.com	Average
Corporate News	4	3	3	2	0	2.4
Other companies of the CEO	0	0	0	0	1	0.2
Advertisements	2	1	0	2	2	1.4
CSR	0	0	2	1	2	1.0
Society and Politics	1	2	0	1	2	1.2
Entertainment and Social	2	0	3	2	2	1.8
Total	11	6	8	8	9	

The tables illustrate that Apple is the company where tweets, independent of the content, most often lead to an outperformance in one of the four regards. Surprisingly, Tesla ranks last. This indicates, that tweets by Musk on their own might have considerable effects, but it is only in some cases where they actually lead to a better situation for the company, which in consequence leads to a critical perception of him among other board members.

With regard to the most important category of corporate news, Apple again has the top position, as it is the one company where these tweets lead to an outperformance with regard to all four aspects.

Even though causal effects could not be established, the evidence, as shown in Table 6 as well as in the preceding tables 1 through 5, motivates that a relation exists between CEOs' posts on social media platforms like X (first and foremost posts about corporate news) and the stock market position of the respective company. Consequently, it can be conjectured that investors do react to indications from social media platforms.

4.2 Assessment by Stock Market Experts

To consider the concluding conjecture from the preceding section, written interviews were conducted with stock market experts. In order to ensure a high level of quality in regard to the answers, experts were primarily investors who work for banks and auditing companies on the one hand, and traders working at TradAC on the other, most often with years of stock market experience.

A total of ten investors were interviewed, using a questionnaire consisting of eleven questions. The first questions were mainly used to introduce the topic and confirm the expertise of the respondents. The most important finding was that the respondents could indeed be regarded as pronounced experts, as they have a high level of experience, with an average of 22 years.

A clear trend emerged with regard to the central question for this analysis, namely the extent to which CEOs can influence their company's share price. All respondents emphasized the value of communication in their answers, but much more important was the entrepreneurial success that a CEO must demonstrate. In summary, CEOs can have a positive influence on share prices, but only if the CEO in question has actually achieved the primarily financially defined targets or informs shareholders of deviations from the formulated targets at an early stage.

The clear majority answer was no whether they ever been motivated to engage in stock market activities by CEO messages. Only in one case did an expert state verbatim that Elon Musk's social media activities had an influence on his "timing of buy and sell trades" in Tesla shares. These answers suggest that experts, especially those who, unlike day traders, invest for the long term, are primarily guided by company key figures and fundamental analyses when making buy and sell decisions.

The respondents answered the question on the basis of which criteria they decide to invest in shares of a particular company with keywords that support this interpretation: "dividend yield", "cash flow stability", "long-term prospects for growth and profitability", "fundamental analysis and consideration of aggregated trends" or "quality of the CEO".

When asked whether they would allow themselves to be influenced by emotional arguments in addition to rational ones when making their investment decisions, the respondents unanimously stated that they primarily wanted to make rationally based decisions. However, there were also responses in which it was conceded that it was difficult to suppress subjective perceptions, as, according to one expert, "every assessment of a share contains subjective elements".

There was no indication in any of the answers that the experts are motivated to make buy and sell decisions when investing based on current corporate news. On the contrary, as "specific product information can hardly be distinguished from marketing measures", according to one respondent, it is better to react with skepticism to corporate news published via digital channels.

The high correlation between corporate news and increasing trading volumes and daily returns identified in the calculations of this analysis is therefore not reflected in the experts' responses. In summary, it should be emphasized that a central finding of this work, namely that CEOs with a wide reach certainly have the ability to influence the share prices of their companies, cannot be confirmed for professional long-term investors.

Furthermore, it must be emphasized that the survey can only provide indications and cannot satisfy any statistically sound claim. However, the indications provided by the responses tend to suggest that the actions of long-term investors can hardly be cited as a reason for rising daily returns or high trading volumes.

5 Conclusion

5.1 General Insights and Practical Issues

The first part of this analysis yielded the result that CEOs can make an impact with content disseminated via X, and shareholders or other stakeholders react primarily to corporate and product news, leading to above-average increases in trading volume and daily returns.

These are results are also confirmed by other studies and in different contexts (Craig & Amernic, 2020; Ghardallou, 2021; Knipmeijer, 2020). They imply that social media offers great opportunities for CEOs: The cost of publication is low compared with traditional media such as newspapers, magazines and television, while the return can be comparatively high.

It is therefore all the more surprising that so many CEOs do not take advantage of the opportunity to address people directly with a high reach. The figures in this analysis show that of the 103 CEOs of the companies listed in the Nasdaq 100, only 33 - just under a third - have set up their own verified X account.

On the other hand, the fact that real-time communication via X harbors considerable risks can be observed from time to time and should reasonably be considered by CEOs. As far as the risks of X are concerned, Elon Musk is considered particularly vulnerable. In any case, there are enough examples of the feisty Tesla CEO providing unnecessary attack surfaces with his tweets, which sometimes have unpleasant consequences for him and also for his companies. Just think of the tweet described in detail in the introduction to this paper, which was punished with a fine. As a reminder, it was not only Elon Musk personally who was fined $20 million, but also the company Tesla. Whether this penalty should now be assessed as appropriate, lenient or too harsh, each CEO will judge differently for himself and his company. Elon Musk rated it "Worth it".

5.2 Limitations and Outlook

Causal effect of the tweets by CEOs can, if at all, only be established in sophisticated experiments. Tertiary mediating factors like social capital in the model by Kelton and Pennington (2020) or omitted impact factors and the transmission mechanisms can have a much more pronounced impact.

Following the argument by Knipmeijer (2020) that the effects of tweets by CEOs will be direct and marginal at best the sample size of solely 125 trading days, as realized herein, might simply been too short and contained too few posts and companies to establish a robust statistical basis.

Additionally, long-term professional investors must be considered separately, as the interviews with stock market experts have shown. Corporate new tweets might contain relevant information about the company's financial health and its long-term strategy and would thus carry valuable information even for long-term investors (Malhotra, 2012), but it needs to be studied by which other channels this information is transported and which channels are relevant to long-term investors.

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