

Celebrity Sentiments Effects on Stock Market Returns

Hunter Bukowy

Department of Communication, Carroll University

COM 150: Research Methodology

Dr. Barbara King

February 9, 2024

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This paper examines the relationship between financial social media coverage and stock prices. The continued development of technology has allowed markets to become highly efficient. X (formerly Twitter) is a social media platform that has become one of the key components in market news dissemination. News that would have traveled much slower just 50 years ago is now at the fingertips of anybody with internet access and an X. This, however, can be both good and bad. Information regarding the relationship between X and stock prices has fallen far behind the growth of these social media platforms. Understanding the effects social media has on stock prices and businesses is crucial to maximize returns as both an investor and owner of a business. Social media's effects also play a crucial role in mitigating negative news and handling how that news may impact a certain stock. Negative news swirls heavily around earnings announcements which, “are important events which trigger higher trading on stock exchanges and also draw attention and comments on social media” (Gabrovsek et al., 2017 p. 10). X’s effect is often calculated through what is called sentiment analysis. Sentiment analysis is, “a method that estimates the strength of positive and negative sentiment in texts” (Strycharz et al., 2018, p. 74). This analysis returns a score dictating whether the post was speaking negatively or positively about something. Sentiment has a big impact on the returns of stocks. There is a niche financial community on social media that can shape stock market fluctuations. Social media like X has a significant impact on the stock movements, but there is a gap in the research on how celebrity posts affect stocks.

Literature Review

There is a predictive relationship between social media and the stock market. Agenda setting theory discusses how the media’s coverage influences what the audience deems as important.

This theory is rooted in the idea that the media can influence the public and their version of what is important news. This is relevant when examining how social media affects stocks because media and news play a big role in determining the fair value of stocks. Without efficient media coverage stock prices would remain stale. Agenda Setting theory has only grown in popularity with the growth of social media. Online users often reference certain people or brands having an agenda. These “agendas” align with the idea of Agenda Setting theory as certain ideas or concepts that are pushed in the media would be considered more important.

Social Media and its Effects on Market Indexes

Strycharz et al. (2018), Gabrovsek et al. (2017), Allen et al. (2019), Pineiro-Chousa et al. (2017) used sentiment analysis and suggested a significant relationship between social media and the stock market. Strycharz et al. (2018), Gabrovsek et al. (2017), Allen et al. (2019) strictly used X, while Pineiro-Chousa et al. (2017) strictly used StockTwits.com. Even though there were different social media platforms, Strycharz et al. (2018), Gabrovsek et al. (2017), and Pineiro-Chousa et al. (2017) found the same results, while Allen et al. (2019) suggested a link between media and the markets, but the finding suggested the link was stronger when a stock was moving down than when a stock was moving up. The research strongly suggested that social media like X’s financial posts can be predictive in nature of the stock market.

Strycharz et al. (2018), Gabrovsek et al. (2017) discovered similar results where X was reactive to the stock market, but the studies were conducted in vastly different manners. Strycharz et al. (2018) studied three stocks listed on the Amsterdam exchange. Gabrovsek et al. (2017) focused on the 30 stocks that made up the DOW Jones Industrial Average. Both studies used sentiment analysis to examine the relationship between X and the market (Gabrovsek et al., 2017; and Strycharz et al., 2018). The unique aspect of Strycharz’s (2018) study is that they also

examined the inverse relationship on how the stock market may affected what was being posted. Strycharz et al. (2018) noticed that big fluctuations in one of the three companies being studied resulted in a much larger amount of coverage from X users. Furthermore, Strycharz et al. (2018) suggested the media did not report or analyze the market, rather the media reacted to and mirrored the market. Gabrovsek et al. (2017) found comparable results regarding X's sentiment analysis.

Gabrovsek et al. (2017) study centered around X's coverage of Earnings Announcements. Similarly to Strycharz, et al. (2018) Gabrovsek et al. (2017) found that there is a significant relationship between X and the stock market. However, beyond this relationship, Gabrovsek (2017) was unable to demonstrate how X affected or predicted Earnings Announcements. Gabrovsek et al. (2017) study showed that X was able to interpret the Earnings Announcement but does not predict the results. This interpretation is remarkably similar to Strycharz et al. (2018) finding that X can react and mirror prices but struggles to show it can predict them. This inability to show the effect X has on markets is a contributor as to why research on this relationship can be fruitless.

Unlike Strycharz et al. (2018), Gabrovsek et al. (2017), and Allen et al. (2019) who strictly used X, Pineiro-Chousa et al. (2017) used a site called StockTwits.com which is a platform like X but is solely focused on the stock market. On StockTwits.com, Pineiro-Chousa et al. (2017) uniquely chose to follow the Chicago Board Options Exchange Market Volatility Index (VIX) which is a much more volatile index than traditional ones such as the DOW. Using StockTwits.com, Pineiro-Chousa et al. (2017) divided users into two groups: those who used technical analysis in their purchases and those who did not. This segmentation allowed Pineiro-Chousa et al. (2017) to gain a deeper understanding of the relationship between social networks and stock markets. Pineiro-Chousa et al. (2017) found that social networks greatly influence

investor decisions, which leads to variations of risk. Additionally, Pineiro-Chousa et al. (2017) found those who did not use technical analysis had more followers and impact than those who did use technical analysis. Pineiro-Chousa et al. (2017) also found that only users who did not use technical analysis were significantly affected by message sentiment.

Gabrovsek et al. (2017) and Allen et al. (2019) were the only two sources that studied the DOW Jones Industrial Average. Both Gabrovsek et al. (2017) and Allen et al. (2019) then used the sentiment scores to construct a regression model to compare actual prices to expected prices. The price comparison demonstrated that market news sentiment had a significant effect on actual stock prices. However, Allen et al. (2019) found that when a stock is moving down market news sentiment has a larger effect and continues to push it further than if it were moving up which was a different result than Strycharz et al. (2018), Gabrovsek et al. (2017) or Pineiro-Chousa et al. (2017). Additionally, Allen et al. (2019) followed these 30 stocks on non-trading days to further analyze the effects of news released on holidays or weekends. Doing so Allen et al. (2019) found that the impact of news sentiment from X was less significant on non-trading days than they were during normal trading hours.

Mass Medias Effect on the Market

Saxton & Anker (2013) and Vijaya et al. (2021) expanded upon the view of previous studies of how media can drive the stock market. Both Saxton & Anker (2013) and Vijaya et al. (2021) have a broader scope that gives a global understanding of how social media impacts the stock market across the world. These broader scopes found different information but is like the rest of the literature because social media still played an impact on the stock market. These broader scopes are related to the other literature as they demonstrated how social media affects

the market. Both Saxton & Anker (2013) and Vijaya et al. (2021) found that an increase in news dissemination limited adverse effects on the market.

Saxton & Anker (2013) focused on 150 financial bloggers and their cumulative impact on the S&P 500 market index. Vijaya et al. (2021) measured how three global events impacted the Indian Stock Exchange using sentiment analysis. These broader perspectives grant a different viewpoint on how media coverage can affect separate markets. Both Saxton & Anker (2013) and Vijaya et al. (2021) found that an increase in social media postings led to a decrease in the adverse effects of the stock market. Vijaya et al. (2021) focused on the Brexit referendum, the Bank of Japan monetary policy review, and the Federal Open Market Committee. Vijaya et al. (2021) mentioned how in the past decisions made by these countries have had large effects on India's stock market. Vijaya et al. (2021) found that Indian markets have become more immune to the decisions and policies of other larger governments.

Saxton & Anker (2013) centered their study around information asymmetry in the market which is, "when parties to an exchange possess unique or varied information" (p. 1055). These asymmetries are often referred to as insider trading and are illegal. Saxton & Anker (2013) found that financial blogging did contribute to limiting insider trading impact by nearly 3.5%. It was also discovered by Saxton & Anker (2013) that these blog postings may be more impactful than the traditional information released by analysts and print media. This increased media diffusion has led to a more even playing field among investors and limited the overall impact of information asymmetry (Saxton & Anker 2013).

X Financial Community

Yang et al. (2015) study was based around the financial community built on X. Yang et al. (2015) found that the financial community on X acted as its own kind of small world. By Yang et al. (2015) focusing on the X community they could do more extensive research on what makes up the financial community on X. Yang et al. (2015) determined specific things such as demographics, growth, and other community characteristics. Like Strycharz et al. (2018), Gabrovsek et al. (2017), Allen et al. (2019), Pineiro-Chousa et al. (2017), & Vijaya et al. (2021), Yang et al. (2015) conducted a sentiment analysis to measure how the community's posts may affect how a company is perceived. By analyzing the entire community, Yang et al. (2015) was able to identify those who had more influence or power using what is called the betweenness centrality. The betweenness centrality addresses the limitations of Saxton & Anker (2013) study which tracked 150 financial bloggers and focused on quantity rather than quality of posts. Continuing the use of the betweenness centrality used by Yang et al. (2015) would allow future researchers to pick out a select few powerful posts and analyze those rather than every post in a data set. In addition to this Yang et al. (2015) found that using smaller subsets and groups resulted in more promising results.

Celebrities Dictating Stock and Cryptocurrency Returns

Jayaraman & Koranteng (2019) study focused on these few powerful people and tested whether celebrity posts can affect returns. Like the research conducted by Gabrovsek et al, (2017) and Allen et al. (2019) Jayaraman & Koranteng (2019) focus on the 30 stocks that make up the DOW Jones Industrial Average along with Bitcoin, and Ethereum. Jayaraman & Koranteng (2019) tracked posts by people who were considered financial celebrities or influencers. This identifies people who were CEOs and others like Jim Cramer who host shows based around the market and had large influence in finance (Jayaraman & Koranteng, 2019). When it came to methods used to conduct the research, Jayaraman & Koranteng (2019)

conducted sentiment analysis on celebrity posts, using the results to build a regression model (Jayaraman & Koranteng, 2019). By focusing on celebrities, Jayaraman & Koranteng (2019) identified celebrity sentiment as a key factor in predicting stock and cryptocurrency prices. Jayaraman & Koranteng (2019) also found that celebrity sentiment impacted cryptocurrency markets more than the stock market. Unlike the previous research, Jayaraman & Koranteng (2019) made no mention to how these celebrity posts were reactions to the market and instead was able to solely focus on the sentiments and how they could be used to predict returns of both markets.

Limitations

Many of these studies face similar limitations and restrictions. The most difficult to overcome is the struggle to understand how much of a stock return is due to a post rather than other factors. This limitation is impossible to overcome without conducting a controlled simulation as the stock market is always changing and being monitored. Additionally, each of the previous studies followed an index or exchange by a specific country. While Vijaya et al. (2021) considered global news such as Brexit they only used it to understand the effects it had on the Indian stock exchange. This study would approach this differently and use indexes or exchanges from multiple countries. This would expand the amount of data while retrieving results and posts from different areas of the globe to better understand X's effects. As noted by Yang et al. (2015) sectioning the data into smaller subsets created better results and more impactful data. This study would section the data from the separate indexes into smaller groups to allow for a better understanding of the effects celebrity X posts have on the stock market.

Research Gap

The previous studies have each significantly suggested how social media like X can have a predictive relationship of the stock market. This research can still be refined, but there are numerous studies that accurately identify this relationship. What is far less known is the way that celebrity posts impact the stock market. While Jayaraman & Koranteng (2019) were able to prove a relationship between celebrity and stock market returns their research was much more promising regarding cryptocurrency. Jayaraman & Koranteng (2019) data regarding specifically stock market returns was less promising and it is difficult to find other sources that cover this topic. Building a better understanding of this impact is crucial for market components like regulation. Specific people with more impact or influence could use a site like X to motivate a large group to buy or sell a stock. This would be like the GameStop situation from a few years ago. While this may not be seen as bad by everybody the movement was not founded in any sort of logic as GameStop as a company was floundering. It is very important to the market and investors to understand the kinds of impact people have. One post from a person with a lot of influence could generate large fluctuations in a stock. Future research is required to investigate how and to what extent celebrities dictate stock market returns. This literature review aims to summarize the effects social media such as X can have on the stock market particularly when the posts are from celebrity's by answering this question: How much of an impact does a celebrity's posts have on stock market fluctuations?

References

- Allen, D., Mcaleer, M., & Singh, A. (2019). Daily market news sentiment and stock prices. *Applied Economics*, 51(30), 3212-3235. <https://doi.org/10.1080/00036846.2018.1564115>
- Gabrovsek, P., Aleksovski, D., Mozetic, I., & Grcar, M. (2017). Twitter sentiment around the earnings announcement events. *Plos One*, 12(2), 1-21. <https://doi.org/10.1371/journal.pone.0173151>
- Jayaraman, J., & Koranteng, E. (2019). Does celebrity social media sentiment predict stock market and cryptocurrency returns. *Northeast Business & Economics Association Proceedings*, 111-114.
- Pineiro-Chousa, J., Vizcaino-Gonzalez, M., & Perez Pico, A. (2017). Influence of social media over the stock market. *Psychology and Marketing*, 34(1), 101-108. <https://doi.org/10.1002/mar.20976>
- Saxton, G., & Anker, A. (2013). The aggregate effects of decentralized knowledge production: Financial bloggers and information asymmetries in the stock market. *Journal of Communication*, 63(6), 1054-1069. <https://doi.org/10.1111/jcom.12060>
- Strycharz, J., Strauss, N., & Trilling, D. (2018). The role of media coverage in explaining stock market fluctuations: Insights for strategic financial communication. *International Journal of Strategic Communication*, 12(1), 67-85. <https://doi.org/10.1080/1553118X.2017.1378220>
- Vijaya, V., Thodla, R., & Kundu, S. (2021). Global cues and people's reactions: A twitter sentiment analysis. *IUP Journal of Financial Risk Management*, 18(3), 7-20.

Yang, S., Mo, S., & Liu, Anqi. (2015). Twitter financial community sentiment and its predictive relationship to stock market movement. *Quantitative Finance*, 15(10), 1637-1656.

<https://doi.org/10.1080/14697688.2015.1071078>