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Understanding the role of news and social media on financial market: Proposal

The influence of news and social media on financial markets has become increasingly noticeable in recent years. This phenomenon spans variety of disciplines, such as finance, computer science, economics, psychology, mathematics, and physics. As someone deeply interested about computer science, finance, and mathematics, I am eager to explore the extent of this influence, which aligns with my academic interest and identity. My research paper also plans to understand mass psychology and analyse behavior finance influenced by traditional news and social media. The central question that influences me to pursue this research is “How do specific types of financial news outlets and influential individuals on social media platforms influence short-term fluctuations and long-term investment strategies in the US stock market?” This topic holds a special part of my future identity, quant finance, as well. Understanding how these media sources such as news and social media influence mass psychology and economy is crucial for anyone pursuing a career in financial analysis or quant analysis. Personally, I always find myself regularly reading news articles related to the economy and seeking financial advice on social media platforms specially, twitter and reddit, which also indicates the significant role of these media in my life and investors’ psychology in general. In my research paper, I am particularly interested in investigating whether these new media sources such as social media, exert a different influence compared to traditional media sources such as newspapers and news channels.

Before starting my research paper, I conducted a thorough review of past peer reviewed literature within my field on USM library database and EBSCO host. Among the countless sources, the study by Yang Yu, Wenjin Duan and Qing Cao on “The impact of social and conventional media on firm equity value: A sentiment analysis approach” was most interesting and relevant to my own research. They explored the influence of both conventional and social media on short term equity price. While their research was one of the first and detailed review comparing the influence of social media and news sources on stock market return, they were only limited to short time frame, which is advantageous to short term traders, such as day traders, only. But there are lot of investors who wanted to invest in stock market for 1-10 years or even more. Recognizing this gap, my paper aims to study the effect of social media and traditional news sources and compare them, not only limited to short term, but also long term as well. Additionally, I also plan to explore the role of financial news outlet, analyzing how their reporting style influence stock prices. In my research paper, I plan on conducting empirical analyses using quantitative techniques to assess the relationship between news and social media content with stock market performance over different time frame. Apart from that, I also plan on doing content analysis, review past peer reviewed papers on library database and interview with some of the investors to know sentiment and decision-making process accurately. The primary audience of my research essay is my English professor; however, my goal is to publish this research paper among all the investors and traders on Wall Street. I want those investors to be aware of the financial decisions that they are making solely based on news and media sources. I am so much excited to explore this field of study and understand the financial market dynamics responsible for decision-making processes and influencing mass psychology.

Annotated Bibliography

Bouadjenek, Mohamed Reda, et al. “A User-Centric Analysis of Social Media for Stock Market Prediction.” ACM Transactions on the Web, vol. 17, no. 2, 2023, pp. 1–22, <https://doi.org/10.1145/3532856>.

This paper conducts an analysis of social media data from two social medias, Twitter and Stock Twits to investigate how user’s posts and behaviors related to stock market predict the market. This paper seems a little different from others. The authors have already claimed that stock market influence mass sentiment and didn’t care to mention it in their research. Rather, they explored the intensity of two social medias. The paper concludes that Stock Twits have more intensity compared to Twitter and accurately predicting the market. While there are many other factors behind that as well, such as the influencer, behavior of active user and also timing. The paper also claims that influencers sometime user social media knowingly to influence mass sentiment. Even though in my paper, I plan to explore both the effects of news and social media on stock market, this paper’s analysis on social media will surely help me to explore the intensity of influence of social media on people. The methodology of this paper also analyzes user-level predictiveness and identifying bot-like behavior, which I can use similar methods to news sources as well. The paper also focuses on importance of analyzing the full content of social media posts for accurately analyzing and predicting the result. As in my research, I’m analyzing both the effect of news and social media, I will also analyze full content before giving my opinion or even training machine to predict the stock market.

Quote 1: “We first empirically demonstrate that self-labeled stock sentiment features alone may be correlated with stock price movements—but only weakly and with a short predictive time horizon” (Bouadjenek et al. 9:2).

Quote 2: “We next train machine learning methods to predict stock price movements on historical data leveraging all content of a social media post. We evaluate this predictor on test data not used during training. We observe a significant boost in prediction accuracy, indicating that there is useful latent information in tweets beyond users' self-labeled stock movement sentiments” (Bouadjenek et al. 9:3).

Quote 3: “We further observe that predictors trained and evaluated on StockTwits data perform better than those for Twitter data” (Bouadjenek et al. 9:3).

Quote 4: “Finally, we perform an analysis to identify the most "consistently correct" and alternately the most "consistently incorrect" users, identified respectively by the agreement and disagreement of their self-labeled predictions of stock movements and the actual stock market movement” (Bouadjenek et al. 9:3).

FANG, LILY, and JOEL PERESS. “Media Coverage and the Cross-Section of Stock Returns.” The Journal of Finance (New York), vol. 64, no. 5, 2009, pp. 2023–52, <https://doi.org/10.1111/j.1540-6261.2009.01493.x>.

This paper explores how media coverage influences the returns of different stocks in the stock market. This paper agrees that mass media outlets play a crucial role in influencing mass psychology, as agreed by other papers as well. The authors found that stocks with little to no media attention tend to perform better than those that are frequently featured in the media. This is the main finding of the paper. The authors, Lily, and Joel, also provide data and statistics to further validate their findings. The study also showed that the effect of news is more significant for small market capital stocks and those having high ownership by individuals, low coverage by analysts, and high volatility. Now these findings are crucial for my paper, same as news are crucial to financial market. Even though, my paper compares the effect of traditional media sources like news and TV sources with social media, I am also planning to compare the effect on both low and high capital stocks. But as I got to know that news influence stocks having low capital and less coverage more significantly than one with high market capital, high publicly traded shares and one with high media coverage, I will have other side that will explore why same type of media affected two different stocks in different intensity. I can also explore how different types of news sources may affect the same stock differently, with more confidence. I can also use these findings from this paper as, stocks not covered by media often perform better than those frequently covered, a way to aware the readers who are my paper to be first be sure, if the stocks that are researching to be low capital or high capital.

Quote 1: “A portfolio of stocks with no media coverage outperforms a portfolio of stocks with high media coverage by 3% per year following portfolio formation after adjusting for market, size, book-to-market, momentum, and the Pastor Stambaugh (2003) liquidity fact” (Fang & Peress, 2023).

Quote 2: “The return premium for stocks with no media coverage is economically significant” (Fang & Peress, 2024).

Quote 3: “The return difference is particularly large among small stocks, stocks with low analyst coverage, stocks primarily owned by individuals, and stocks with high idiosyncratic volatility” (Fang & Peress, 2024).

Quote 4: “Among papers that examine broadly defined media exposure, ours is the first that documents a cross-sectional relation between media coverage and security returns” (Fang & Peress, 2025).

Mian, G. Mujtaba, and Srinivasan Sankaraguruswamy. “Investor Sentiment and Stock Market Response to Earnings News.” The Accounting Review, vol. 87, no. 4, 2012, pp. 1357–84, <https://doi.org/10.2308/accr-50158>.

The following paper by researchers examines whether market wide investor sentiment influences the stock price sentiment to firm specific earnings news. The researchers finds that the stock price sensitivity to good earnings news is higher or say volatile during high sentiment that means bull market, whereas the stock price sensitivity to bad earnings news is higher during the periods of low sentiment (bear market) than during period of high sentiment. The paper also claims that the influence of sentiment is high for the earnings news of small stocks, young stocks, high volatile stocks, non-dividend paying stocks, and stocks with extremely high and low market-to-book ratios. Which can be interpreted as the similar thing that one of source said earlier, firms having less public information tend to be more influenced by the news than the established firms. When I am doing my project, I will take into consideration what stocks I am researching, and also what stocks I am comparing between influence of news and social media, because if I choose a volatile and stock having low market capital and another one of a well-established firm, then that will surely create inaccurate data when comparison.

Quote 1: “A key finding of this literature is that when sentiment is high, investors' propensity to speculate is high, so they place excessively optimistic valuations on future expected cash flows associated with risky assets such as stocks, either by overestimating the size of the cash flows or by underestimating the risk, leading them to overvalue stocks” (Mian and Sankaraguruswamy 1358).

Quote 2: “We extend this misvaluation argument of Baker and Wurgler (2007) to the setting of earnings announcements. We note that an earnings announcement brings with it information about future earnings and cash flows of the firm (Kasznik and McNichols 2002), and the stock price response to the announcement entails investors' valuation of these incremental cash flows” (Mian and Sankaraguruswamy 1358).

Quote 3: “Our results confirm that the stock price sensitivity to good news increases with sentiment, whereas the stock price sensitivity to bad news decreases with sentiment” (Mian and Sankaraguruswamy 1359).

Quote 4: “The prior literature also argues that the effect of sentiment on the valuation of stocks is not uniform across stocks and is greater for speculative stocks whose expected cash flows are more uncertain and more difficult to value” (Mian and Sankaraguruswamy 1359).

Nam, KiHwan, and NohYoon Seong. “Financial News-Based Stock Movement Prediction Using Causality Analysis of Influence in the Korean Stock Market.” DECISION SUPPORT SYSTEMS, vol. 117, 2019, pp. 100–12, <https://doi.org/10.1016/j.dss.2018.11.004>.

The research paper proposes a machine learning model that predicts stock price movements based on financial news. This paper is a little bit different and uses higly complex mathematical model and concepts. Even though I do not plan to use mathematical or machine learning models in my final project, I can use the finding and conclusion of this paper as news does influence stock market and can also be used to predict the stock price. The paper propose a machine learning algorithm that predicts stock movement by analyzing financial news. The paper also shows that the proposed method, in the paper, outperformed two traditional state of the art algorithms and can even predict stock movements when there is no news on target firm but news on casual firms. Now, I can use this paper to support the idea that news articles and their content can influence stock prices, and that considering the casual relationship between companies in the same industry can improve the accuracy of stock price prediction models. The paper mostly focuses on theory such as transfer entropy with machine learning for stock price prediction, which is a concept from physics, I can use these methods and findings to support my claim and also include in my paper that combining these different theories, such as machine learning and physics, can improve and analyze the relationship between news and social media to stock price prediction models and its influence on it.

Quote 1: “The stock price demand will increase if investors believe that the company performs well; in contrast, if investors think that the company does not perform well, the supply will increase”(Nam and Seong 100).

Quote 2: “To quantitatively measure market states, various measurement methods have been applied. One method, the Hurst Exponent, is a concept used in econophysics to measure market states” (Nam and Seong 101).

Quote 3: “Surprisingly, the sector-based news was also effective in predicting stock prices. However, there is a limitation that various levels of datasets were not applied simultaneously” (Nam and Seong 102).

Quote 4: “Since it is impossible for investors to read all of the news about stocks, investors can gain potential benefits by using automated systems that can identify information from multiple sources and accurately predict changes in market prices. We propose a machine learning algorithm that predicts stock movements by analyzing financial news” (Nam and Seong 111).

Peng, Jing, et al. “The Good, the Bad, and the Social Media: Financial Implications of Social Media Reactions to Firm-Related News.” Journal of Management Information Systems, vol. 39, no. 3, 2022, pp. 706–32, <https://doi.org/10.1080/07421222.2022.2096547>.

The sources explore how firms and investors react to financial news on social media and the impact it has on stock market performance. The paper highlights that firms tend to be more responsive to positive news with low uncertainty, whereas investors are more responsive to news with high uncertainty. The paper also reveals that investors' social media reactions to news and its impact on stock returns vary depending on the firm's size. Small firms benefit more from social media interaction due to their less transparent information. Now, in my paper, I will try to see the relationship between newspapers and social media, particularly regarding stocks, and also determine if newspapers are biased. I will compare the fluctuating prices of stocks at different times, given similar news, and determine which source has the greater influence. The paper also mentions the influence of social media on institutional investors (firms) and retail investors, indicating that firms react to certain news, whereas retail traders react to news with high risk. As traditional newspapers are considered legitimate sources compared to social media, I will also explore how news from newspapers influences institutional investors in making decisions by examining their monthly activities.

Quote 1: “Firms and investors often react to financial news on social media. However, how they react to news of different nature and whether their reactions influence the stock market is far from clear” (Peng et al. 706).

Quote 2: “The increased tweeting intensities of investors only improve the stock returns of small firms, but not those of large firms” (Peng et al. 708).

Quote 3: The researcher found out that the firms post more than usual when the sentiment of the news is positive (effect size of sentiment on abnormal firm tweets is 0.068, p-value = 0.014) and the uncertainty is low (effect size of sentiment\_var on abnormal firm tweets is −0.086, p-value = 0.082), whereas investors post more than usual only when the uncertainty of news is high (effect size of sentiment\_var on abnormal investor tweets is 0.252, p-value <   
0.001) (Peng et al. 720).

Quote 4: “Our findings suggest that social media are an effective tool that firms and investors can leverage to affect the stock price movement. However, this important channel of information communication must be strategically managed, with an eye toward the nature of the news and the size of a firm” (Peng et al. 728).

Ren, Jie, et al. “How Does Social Media Sentiment Impact Mass Media Sentiment? A Study of News in the Financial Markets.” Journal of the Association for Information Science and Technology, vol. 72, no. 9, 2021, pp. 1183–97, <https://doi.org/10.1002/asi.24477>.

This source examines how social media sentiment affects mass media sentiment and whether it influences people's feelings. In this paper, the researchers use data from popular microblogging site, Sina Weibo and popular news portal in China, Sina Finance. The paper states that social media does impact mass media sentiment regarding financial news. The researchers mainly explore the mechanisms driving media bias, distinguishing between supply-side factors and demand-driven bias. The paper looked at how social media affected the emotions people derive from financial news in newspapers and on TV, and also explored whether social media makes these emotions stronger or weaker over time. The study found that social media tends to amplify emotions, and I will use these findings to support my claim that social media has a greater influence compared to traditional newspapers. People are influenced by news that aligns with their beliefs, and as they follow only their preferred news sources or influencers on social media, they are greatly influenced by it. In the paper, the author also highlighted the interplay between media types and also explored the biased investor opinions. As I will also be comparing the relative effects and potential risks of news and social media on stock market, I will talk about how nowadays easily accessible social media can amplify the influence of it compared to the traditional media.

Quote 1: “Mass media sentiment of financial news significantly influences investment decisions of investors” (Ren et al. 1183).

Quote 2: “Our results provide clear evidence for the amplifying filter role: the sentiment consistency between social media reaction and prior news articles amplifies the persistence of mass media sentiment over time” (Ren et al. 1184).

Quote 3: “We argued for, and tested, the sentiment filter role of social media: social media may modify the persistence of mass media sentiment over time, either amplifying or reducing it, driven possibly by two competing mechanisms— (1) the mechanism of the demand-driven media bias and (2) the mechanism of mass media correcting social media's noises (if any). We found evidence for the sentiment amplifying filter role of social media driven by the demand-driven media bias. We found limited evidence for the sentiment reducing filter role that is driven by the same mechanism” (Ren et al. 1195).

Quote 4: “Mass media sentiment in financial markets can affect investor decisions and hence deserves careful consideration. However, there has been little investigation into exactly how mass media sentiment emerges for stock-related news” (Ren et al. 1195).

Yu, Yang, et al. “The Impact of Social and Conventional Media on Firm Equity Value: A Sentiment Analysis Approach.” Decision Support Systems, vol. 55, no. 4, 2013, pp. 919–26, <https://doi.org/10.1016/j.dss.2012.12.028>.

This research paper investigates the effect of social media (blogs, forums, Twitter) and conventional media (news, articles) on short-term stock market performance, specifically stock returns, and risk. The study analyzes a large dataset of daily media content across multiple sources for 824 public firms across 6 industries. The researcher applied sentiment analysis techniques to quantify the sentiment expressed about each firm in the media. The paper concluded that both blogs and Twitter (social media) have comparatively more volatility in the market and have a positive effect on risk. The researchers also motivate readers to further explore different fields, such as tone of the message, and analyze mass sentiment in a more sophisticated manner in their research. This source is highly relevant for my essay as it provides verified evidence and insights into how different types of media sentiment can impact firm equity value and stock market performance. The paper concluded that social media sentiment has a stronger impact on firm stock performance than conventional media. As in my paper, I will discuss and compare both the social media and traditional news sources, I will have solid evidence to back up my claim. As suggested by the authors as well, in my research paper, I will also explore sentiment analysis through emotion AI and Natural language processing (NLP) models to further improve my prediction.

Quote 1: “Social media is changing people's way of life dramatically because of its high-speed connections, ease of use and great credibility. From a business and marketing perspective, we notice that the media landscape has dramatically changed in the recent years, with traditional media (e.g., newspapers, magazines, and television) now supplemented or replaced by social media (e.g., blogs, microblogs, and online forums)” (Yu et al. 920).

Quote 2: “With an increasing amount of user-generated content (UGC) on the social media, more and more businesses and top executives are recognizing social media as an incredibly rich vein for gaining a better understanding of the online discussion and market opportunities, and for gaining feedback and evaluations of their own and their competitors' products and performances, the market structure and the overall competitive landscape” (Yu et al. 920).

Quote 3: “Our findings suggest that overall social media has a stronger relationship with firm stock performance than conventional media while social and conventional media have a strong interaction effect on stock performance” (Yu et al. 919).

Quote 4: The study findings suggested that companies need to recognize and take advantage of the distinct influences that different media sources (social media platforms like blogs, forums, Twitter etc. as well as conventional news media) can have (Yu et al. 919).

Yu, Zhen, et al. “News Credibility and Influence within the Financial Markets.” The Journal of Behavioral Finance, vol. 24, no. 2, 2023, pp. 238–57, <https://doi.org/10.1080/15427560.2021.1974443>

This research paper focuses specially on behavioral finance, mass psychology and the impact of news credibility on the financial market, which is exactly what I am planning to use in my final project. News has always played a significant role in influencing asset prices. In the paper, the researchers used a statistical learning approach to estimate news credibility using large scale textual data from newspapers and social media. They also used an arousal index to gauge the level of anxiety inducted by news content in mass sentiment. The researchers found out that there is a positive correlation between news credibility and stock market returns, but surprisingly negative correlation with cryptocurrency returns. The paper explains that it is because investors amplify the news shocks with more credible information, whereas gamblers (short term traders) rely on subjective expectations with less credible information. In my paper, I plan to study the influence of news on both stocks and crypto market, and for that, I can refer to this paper so that I can back up my claim regarding stock and crypto. The paper also highlights the benefit of using machine learning algorithms in textual analysis for studying correlation between stock and crypto. In my research as well, I plan to use machine learning algorithms similar to this paper, to study the influence of news on mass psychology.

Quote 1: “This paper extends research on behavioral finance from news sentiment to news perception credibility” (Yu et al. 241).

Quote 2: “We find that news credibility is positively correlated with stock market returns but negatively correlated with cryptocurrency returns” (Yu et al. 251).

Quote 3: “One explanation for this result is that when the information is more credible, experts are more likely to rely on the new information they receive, increasing the effect of the news shock. In contrast, information that is not credible strengthens the importance of gamblers' subjective expectations for asset pricing, thereby causing bubbles” (Yu et al. 249).

Quote 4: “In today's big data era, a large amount of unstructured data are hidden on the Internet, providing reliable data sources for research. Knowledge-based supervised learning, such as deep learning, unsupervised learning based on data patterns, such as LDA, and other machine learning techniques are powerful new tools for researchers in many fields” (Yu et al. 251).