

Socio-Historical Context and Impact Report

Socio-Historical Context Section

Research the socio-historical context of your project to identify a few societal factors that could affect your data, prediction goal, and/or hypothesis. These factors might include current or historical policies, events, social conditions, larger societal systems, and more. Describe a few of the broader societal issues and their relationship to your data, prediction goal, and/or hypothesis.

The rise of social media platforms, such as Twitter and Reddit, has enabled the rapid dissemination of information, opinions, and sentiments about various stocks. This has led to the formation of online communities where individuals can influence each other's investment decisions, potentially driving market volatility [1]. Reddit's r/WallStreetBets, for example, demonstrated its ability to significantly influence stock prices during the GameStop event [3]. This highlights the potential impact of social media mentions on stock volatility, supporting the relevance of our hypotheses.

The emergence of online trading apps, such as Robinhood, has democratized the investing process, making it more accessible to a wider range of individuals [2]. Robinhood's user-friendly and zero-fee trading model allows individuals to buy and sell stocks with ease [2]. This has led to an increase in retail investors and a shift in trading behavior, potentially influencing the impact of social media mentions on stock price volatility.

Our hypotheses and data sought to see if we could find our own correlations between mentions and volatility in the stock market. While we were not able to find a direct causation between more mentions and volatility, our project speaks to the movement of everyday people trading stocks instead of just large corporations. There has certainly been a rise of discussions of stocks on the internet and people debating trading schemes.

Who are the major stakeholders in this project? What is your relationship to these stakeholders? Stakeholders are those who may be affected by or have an effect on your project topic. Some examples of stakeholders are a particular demographic group, residents of a particular geographic area, and people experiencing or at risk for a particular problem. Consider the following questions to help identify stakeholders:

Who does this project topic currently affect?

Who might be harmed by your research findings?

Who might benefit from your research findings?

- Retail investors: Retail investors are individuals who invest in stocks for personal gain and could be influenced by social media mentions. They represent an essential segment of the market that may be directly affected by the increasing impact of social media on

stock price volatility. These investors may benefit from increased access to information and opinions through social media platforms, but they may also be susceptible to market manipulation and misinformation.

- Institutional investors: Institutional investors are organizations that invest in stocks on behalf of their clients, such as mutual funds, pension funds, and insurance companies. They may also be affected by social media-driven market volatility as their investments are exposed to the same market dynamics. Institutional investors may need to adapt their strategies to account for the influence of social media mentions on stock prices and consider the potential impact on their clients' portfolios.
- Regulators: Government agencies, such as the Securities and Exchange Commission, are responsible for overseeing financial markets and protecting investors from fraud and market manipulation. As social media platforms become more influential in driving stock price volatility, regulators may need to monitor these platforms more closely and establish guidelines and regulations to prevent market manipulation and protect investors.
- Social media platforms: Companies like Twitter and Reddit, which host discussions about stocks, may need to address issues related to market manipulation on their platforms. These platforms can play a significant role in shaping investor sentiment and influencing stock prices.

Discuss the impact of your socio-historical research findings on your project. Consider the following questions to help identify at least one impact:

How does this context affect how you should frame your question?

How does this context affect how you should analyze your data?

How does this context affect how you should interpret your findings?

How does this context affect how you should present your results?

The socio-historical research findings provide valuable context for understanding the evolving relationship between societal factors and stock price volatility. The rise of social media platforms and online trading apps has significantly altered the landscape of financial markets, affecting the way information is disseminated and how individuals make investment decisions. This context has several implications for the project.

The socio-historical context underscores the need to frame the research question in a way that acknowledges the profound changes in financial markets brought about by social media platforms and online trading apps. The question should focus on understanding the mechanisms through which these societal factors influence stock price volatility, as well as the potential implications for various stakeholders, such as retail investors, institutional investors, regulators, and social media platforms.

The socio-historical context plays a critical role in interpreting the project findings. The research results should be analyzed in light of the broader societal changes and their impact on financial markets. For example, a significant relationship between social media mentions and

stock price volatility could be indicative of the increasing influence of retail investors and the role of social media platforms in shaping investor sentiment. Additionally, the findings should be interpreted with an understanding of potential biases and limitations related to the data sources and methodologies used.

The socio-historical context influences how the research results should be presented. The findings should be communicated in a manner that highlights the relevance of the research to the current financial landscape and the implications for various stakeholders. This may involve providing clear explanations of the relationships between social media mentions, online trading app usage, and stock price volatility, as well as discussing potential strategies for mitigating risks and promoting financial stability in the digital age.

In conclusion, the socio-historical research findings have a significant impact on various aspects of the project, from framing the research question to presenting the results. Acknowledging and incorporating this context into the research process will enhance the validity and relevance of the findings, ultimately contributing to a better understanding of the complex relationship between societal factors and stock price volatility.

Ethical Considerations

What kind of underlying historical or societal biases might your data contain? How can this bias be mitigated?

- Data limited to Twitter and Reddit: This may not represent opinions or discussions on other platforms or investment forums. To mitigate this bias, we could consider expanding the scope of data collection to include other platforms and investment forums.
- Lack of diverse demographics among users: Users on Twitter and Reddit might not represent a diverse demographic of investors, potentially skewing the data. To mitigate this bias, we could consider collecting demographic information where possible and ethically appropriate and adjusting the analysis to account for potential demographic biases.
- Popularity bias: Larger or more popular companies might receive more social media mentions, causing a skewed dataset that overemphasizes their impact on stock price volatility. To address this issue, we could consider weighting stock mentions by market capitalization or other relevant factors.
- Algorithmic biases: Both Twitter and Reddit use algorithms to surface content, which could influence which stock mentions are more visible and, thus, more frequently counted in the dataset. To mitigate this bias, we could investigate the impact of algorithmic biases on the visibility and frequency of stock mentions and consider alternative methods for collecting data that may be less susceptible to these biases.

How could an individual or particular community's privacy be affected by the aggregation or analysis of your data?

Some of the datasets we extracted from contained information pertaining to various social media posts. The raw data included the exact time, content of the post, and ID with which the post was associated with.

Should the ID of the post be connected with the original user who posted it, it could violate several aspects of their privacy. Firstly, the time of post would reveal this individual's social media activity. Moreover, their post could potentially reveal some of their own sentiments towards particular stocks or even investment trends in general.

This information could potentially be very private to the user, so misuse of it would be very harmful. For the purposes of our analysis, we disregarded original post ID, which further ensured the privacy security for users on these social media platforms.

Is data being used in a manner agreed to by the individuals who provided the data?

Each of the data sets we extracted from were released under open source licenses or as open access tools. Open-source licenses facilitate open collaboration and sharing of software development.

Users are allowed wide access to these data sets and are able to make use of it freely as long as credit is given to the original source. This ensures that the purpose for which we used this data aligns with the agreements made by the original publisher.

All of the individuals on Reddit and Twitter did not specifically agree for their posts to be compiled into a dataset. However, both Reddit and Twitter have rules stating that anything you post on these sites will be public.

What are possible misinterpretations or misuses of your project results and what can be done to prevent them?

Although our general findings reject the finding of statistical evidence to support the claim that social media mentions influence stock price volatility, some of the tests in our analysis do suggest potential relationships between the two variables.

In particular, when performing a Two Sample T-Test comparing price volatility a day after high social media mentions to price volatility the day before, we received statistically significant results. Taken out of context, somebody could quote this finding and use it to incorrectly support the claim that social media mentions do influence stock price volatility.

By leaving out contextual information and the data characteristics, they could misconstrue this information. Depending on the influence of the individual conducting this misuse, they could influence the investment patterns of other people. This in turn could negatively impact the health or stability of the stock market in general and have overall negative financial effects.

In order to prevent this kind of misuse, it is important that our project emphasize the overall findings throughout and outline in detail the potential confounding variables our data does not account for. It is equally important to enforce adequate citation of our project findings in order to ensure it is used acceptably. Lastly, we must explicitly inform readers that our findings should in no way influence their investment decisions whether they pertain to stocks or otherwise.

Work cited

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