



# Reddit's r/wallstreetbets and Stock Market

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# Motivation of the Project

Nowadays, investors use social media as part of their input to make investment decisions. This behavior is examined and confirmed by numerous studies. In addition, Reddit's r/wallstreetbet forum initiated the notorious "meme stock" frenzy in early 2021 to combat wall street investment firms. These factors made it intriguing to investigate the relationship between Reddit's r/wallstreetbet forum and the stock market.

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Khatik, S. K., Joshi, R., & Adwani, V. K. (2021). INFERRING THE ROLE OF SOCIAL MEDIA ON GEN Z'S INVESTMENTS DECISIONS. *Journal of Content, Community & Communication*, 14(8), 309-317. DOI: 10.31620/JCCC12.21/24

M1 Finance. (2022). *Short-term investors more likely to invest in alternative assets like cryptocurrency and collectibles*. <https://m1.com/about/newsroom/financial-wellness-survey-release/>



Caporal, J. (2021). *Study: What Are Gen Z and Millennial Investors Buying in 2021?* The Motley Fool. <https://www.fool.com/research/what-are-gen-z-millennial-investors-buying/>





# Research Question ?

How does the sentiments reflected on Reddit's r/wallstreetbets related to the prices of the major stock indices in the U.S. (Dow Jones Industrial Average, S&P 500, NASDAQ 100)?

Is there is a positive relationship?

- 😊 **Positive** sentiment & stock indices prices **up** 
- 😞 **Negative** sentiment & stock indices prices **down** 

Is there is a negative relationship?

- 😊 **Positive** sentiment & stock indices prices **down** 
- 😞 **Negative** sentiment & stock indices prices **up** 

## Hypothesis

H<sub>0</sub>: The sentiments reflected on r/wallstreetbets and the major stock indices' prices are **not associated**.

H<sub>A</sub>: The sentiments reflected on r/wallstreetbets and the major stock indices' prices are **associated**.



# Analysis Process 🔍

Retrieve posts and comments on r/wallstreetbet from Pushshift Reddit API



Parse sentiment from the posts and comments' text



Compare sentiment to the major stock indices' prices

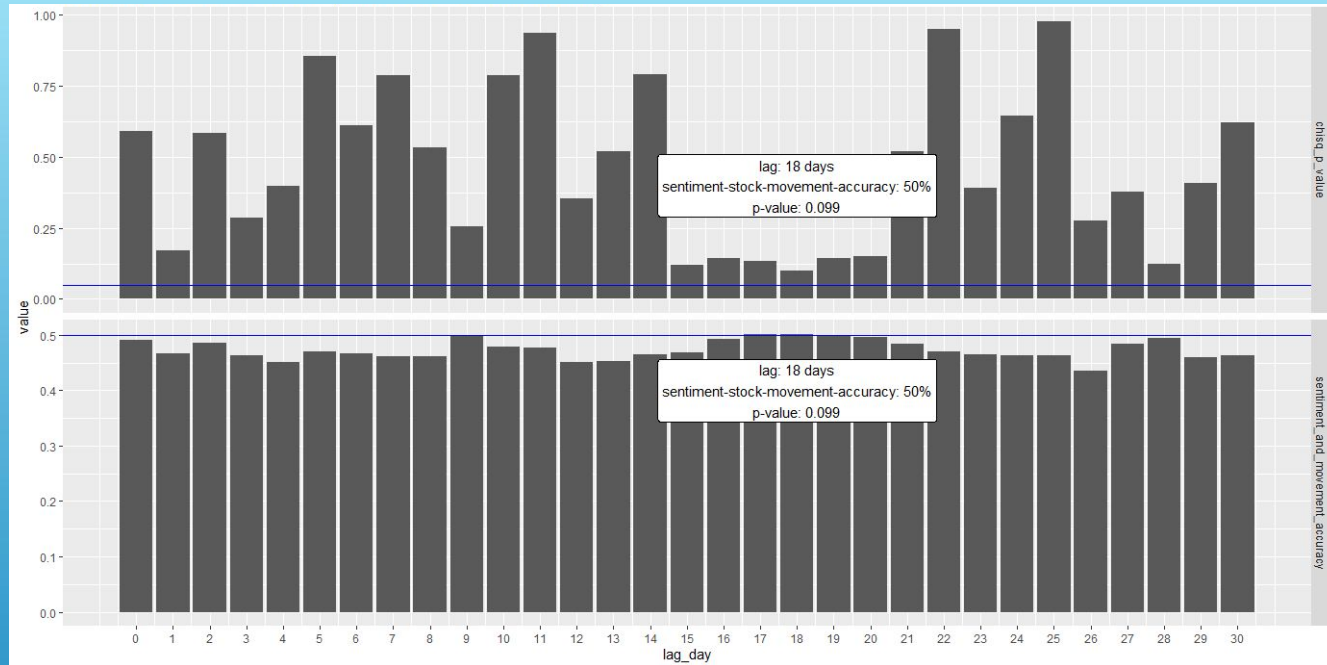






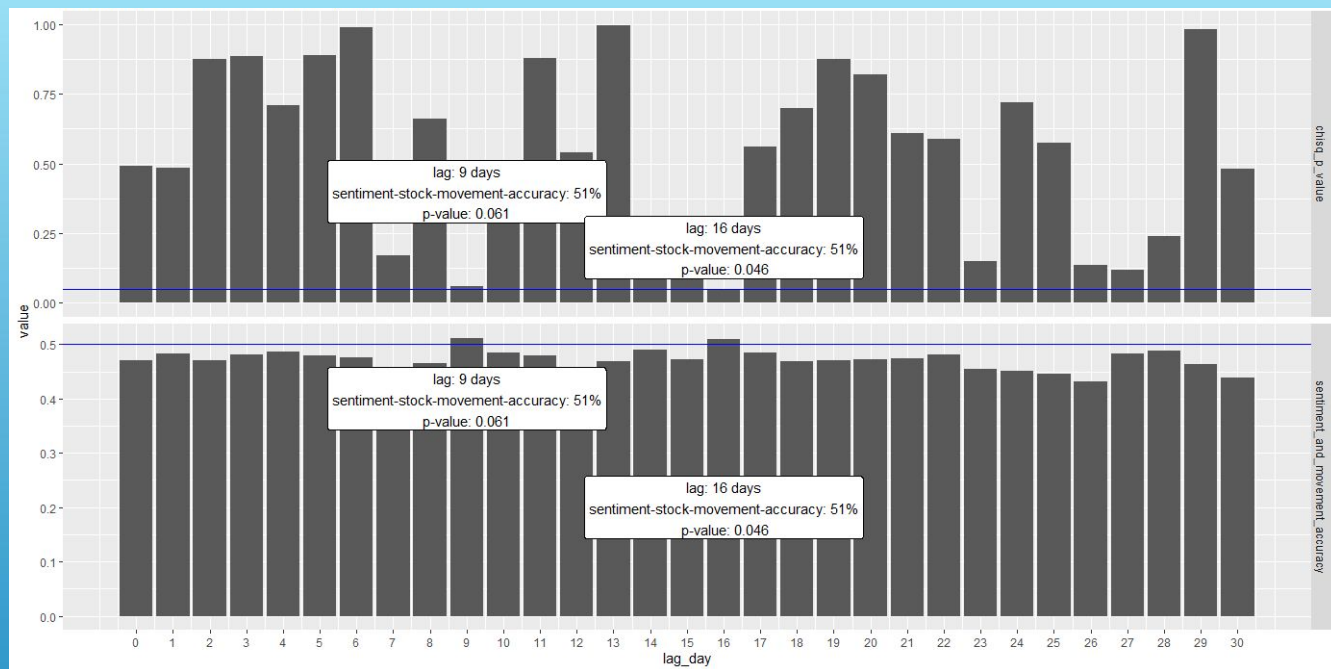
# Results

# r/wallstreetbets' association with DJIA



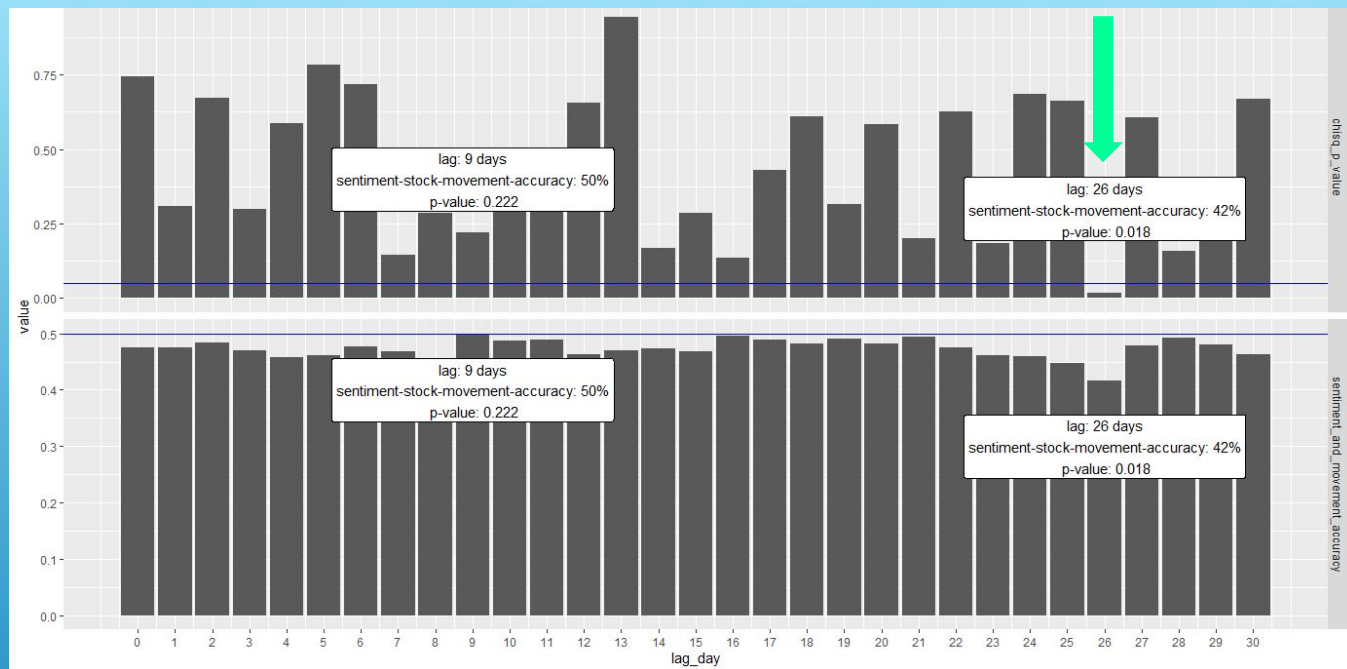
The sentiment reflected on r/wallstreetbets **may not have a meaningful association** with Dow Jones Industrial Average

# r/wallstreetbets' association with NASDAQ 100



The sentiment reflected on r/wallstreetbets **may not have a meaningful association** with NASDAQ 100

# r/wallstreetbets' association with S&P 500



The sentiment reflected on r/wallstreetbets **may have an inverse relationship** with S&P 500's closing price movement on the 26<sup>th</sup> day

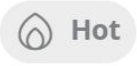


# Conclusion

Overall, the sentiment reflected on r/wallstreetbets **may not have a meaningful association with the major stock indices' prices.** Not only that the relationship between the two does not have statistical significance, but the accuracy of the sentiment and the movement of the indices' prices also revolves around 50%, which resembles a coin toss.

The sentiment reflected on r/wallstreetbets **may have an inverse relationship with S&P 500's closing price movement on the 26<sup>th</sup> day.** Further analysis would need to be conducted to validate and understand this relationship.

# Limitations

1. Constrained by Pushshift Reddit API, which is the only way to access historical Reddit posts and comments, only the posts and comments that were considered  were retrieved and analyzed.
2. Sentiments were derived from each word standalone. The analysis did not consider the meaning of each word in the context of the full text.

# Next Steps ►

1. Further examine the relationship between r/wallstreetbets and S&P 500 discovered in this analysis.
2. Consider the meaning of each word in the context of the full text in future analysis. This can possibly improve derived sentiments' representation of the actual sentiments.
3. Study r/wallstreetbets' association with specific stocks. While r/wallstreetbets may not have an association with the overall stock market, it may have a stronger association with specific stocks. Such as those that are considered the "meme" stocks (e.g. AMC, GameStop, Bed Bath & Beyond).