



# Reddit's r/wallstreetbets and Stock Market

**Tsz Man Derek Chow**

Python codes used to retrieve posts and comments from r/wallstreetbets: <https://bit.ly/3RWvbKP>  
R codes used to conduct analysis: <http://rpubs.com/DCHOW99/940482>

# 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.

**AMC trading frenzy doubles stock price as movie chain further embraces its retail investors**

PUBLISHED WED, JUN 2 2021 6:11 AM EDT | UPDATED WED, JUN 2 2021 10:24 PM EDT

Source: f t in

**GameStop jumps amid retail frenzy, shares double at one point in wild trading**

PUBLISHED MON, JAN 25 2021 7:57 AM EST | UPDATED MON, JAN 25 2021 4:10 PM EST

Source: f t in

The New York Times  
**'Dumb Money' Is on GameStop, and It's Beating Wall Street at Its Own Game**

yahoo/finance  
**AMC stock surges more than 100% to record intraday high, market cap overtakes GameStop**



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/JCCC.12.21/24  
Gnanakkan, J. M., & Sheba, M. S. (2020). Role Of Media Influencing Investor's Investment Decision. *International journal of psychosocial rehabilitation*, 24(10), 1219-1229. DOI: 10.37200/IJPR/V24i10/PR300143  
Mn Finance. (2022). Short-term investors more likely to invest in alternative assets like cryptocurrency and collectibles. <https://mn.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** 

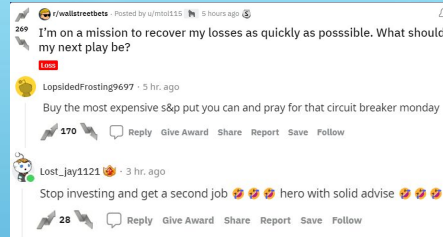
## Hypothesis

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

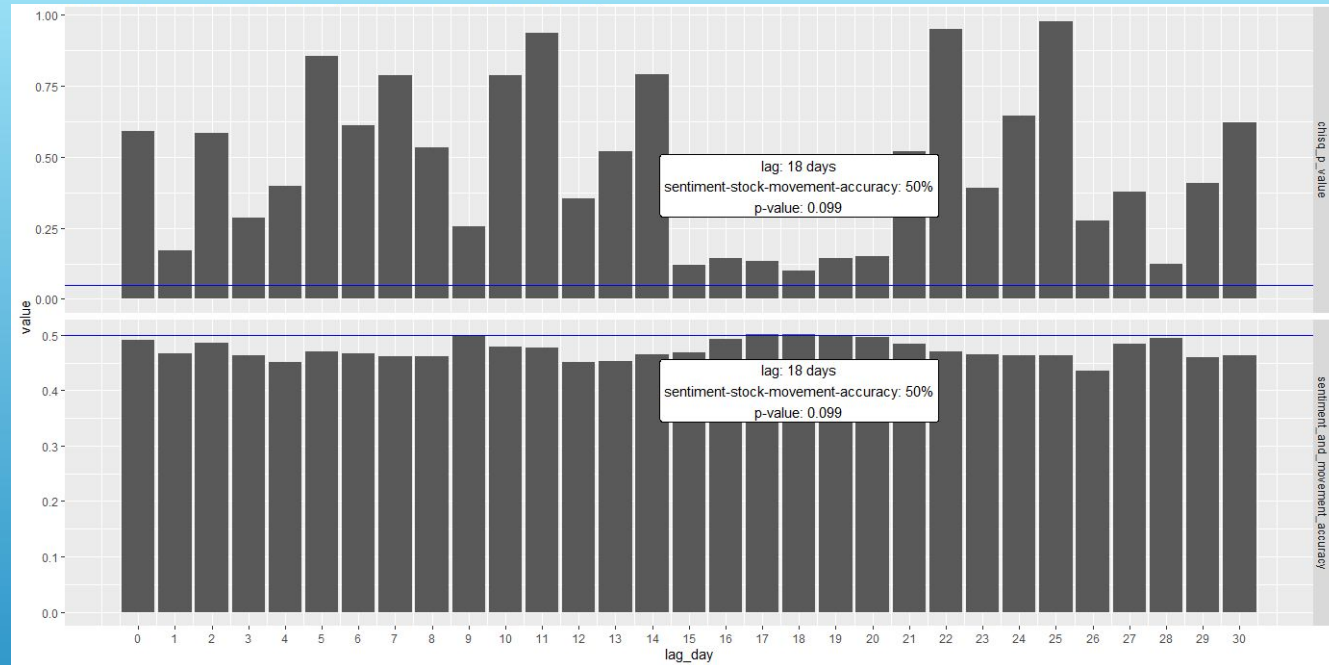






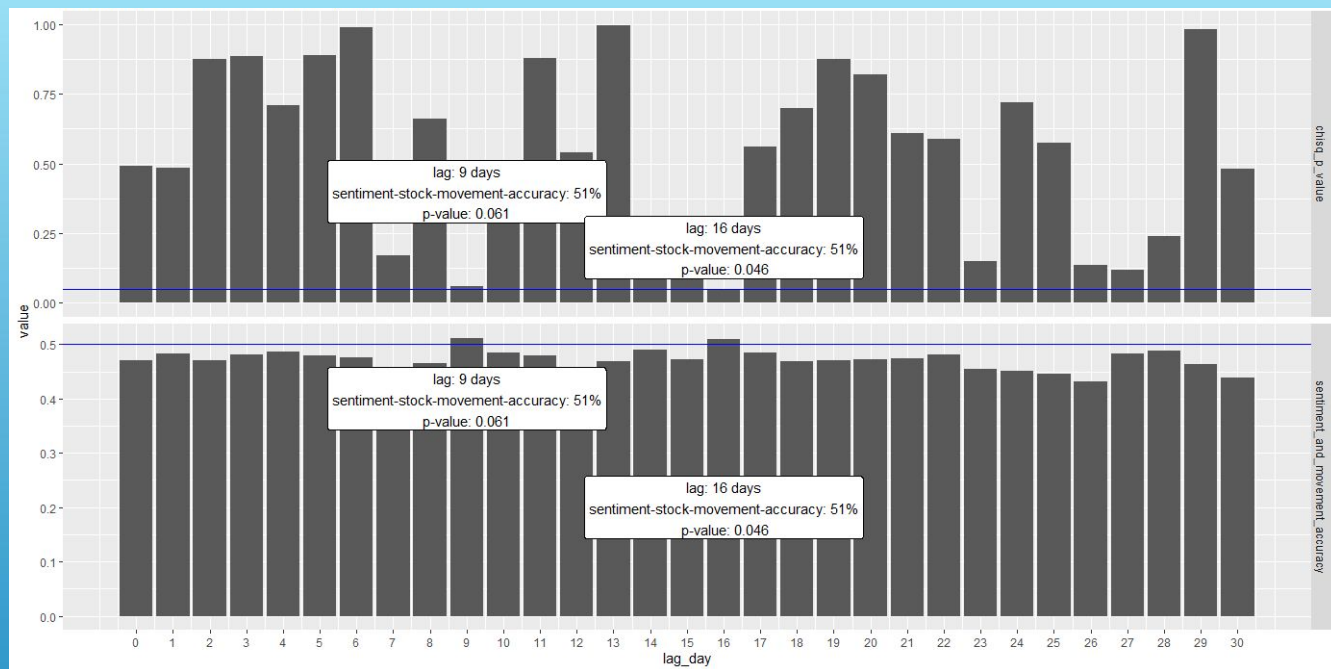
# Results

# r/wallstreetbets' association with DJIA



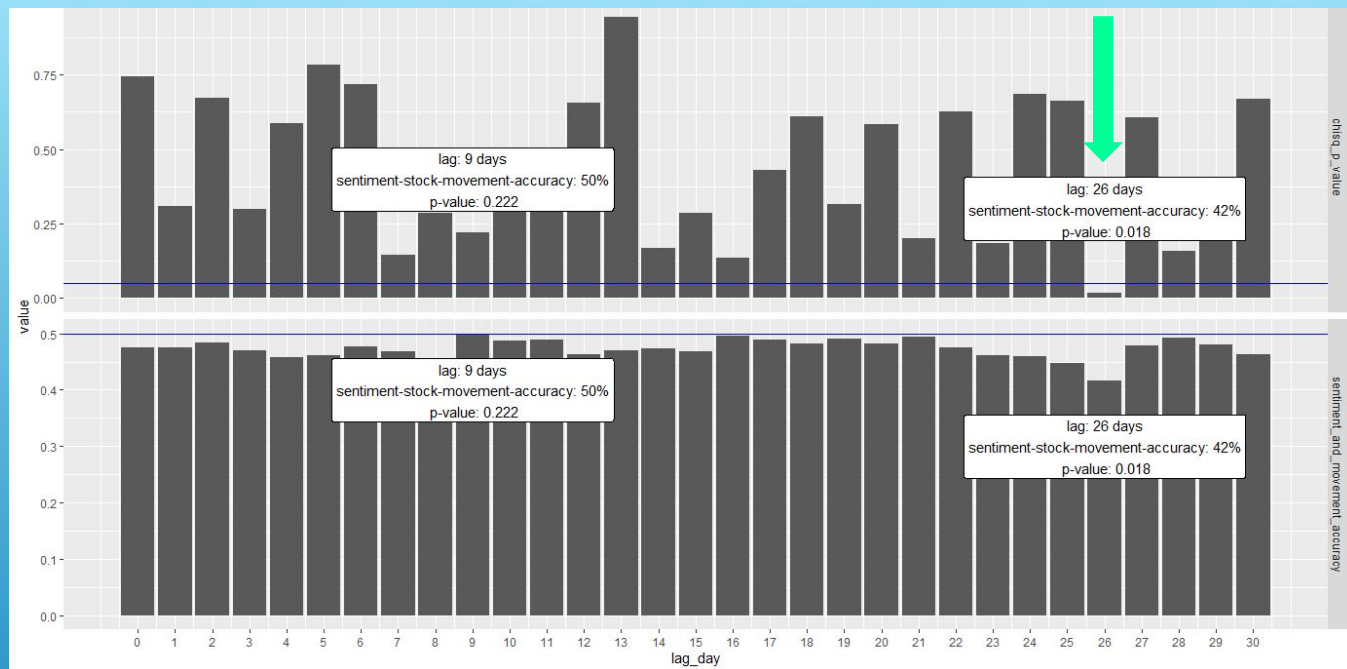
The sentiment reflected on r/wallstreetbets **may not have a meaningful association** with Dow Jones Industrial Average

# 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

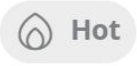


# Conclusion

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).



**End**