
Alternative Data: Sentiment from Social Media



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Key Takeaways

- In our previous note on alternative data, we used Reddit to identify stocks that saw an uptick in their mentions coupled with unusual trading activity.
- In this note, we create a social media-based sentiment indicator by focusing on the sentiment implied in individual Reddit comments.
- For index-level products, like SPY, our sentiment measure is an effective short-term contra-indicator. **When sentiment gets extremely negative, the market tends to perform best, and when social media trends are positive, the market tends to struggle.**

Introduction – Using Reddit to Gauge Sentiment

Our previous note around alternative data focused on using Reddit data to identify stocks seeing unusual levels of attention [1]. We created the Reddit Alert list, which includes stocks with spikes in their mentions on WallStreetBets, coupled with an unusual pickup in trading activity or options activity. One area we did not study in our prior work was the sentiment of individual comments.

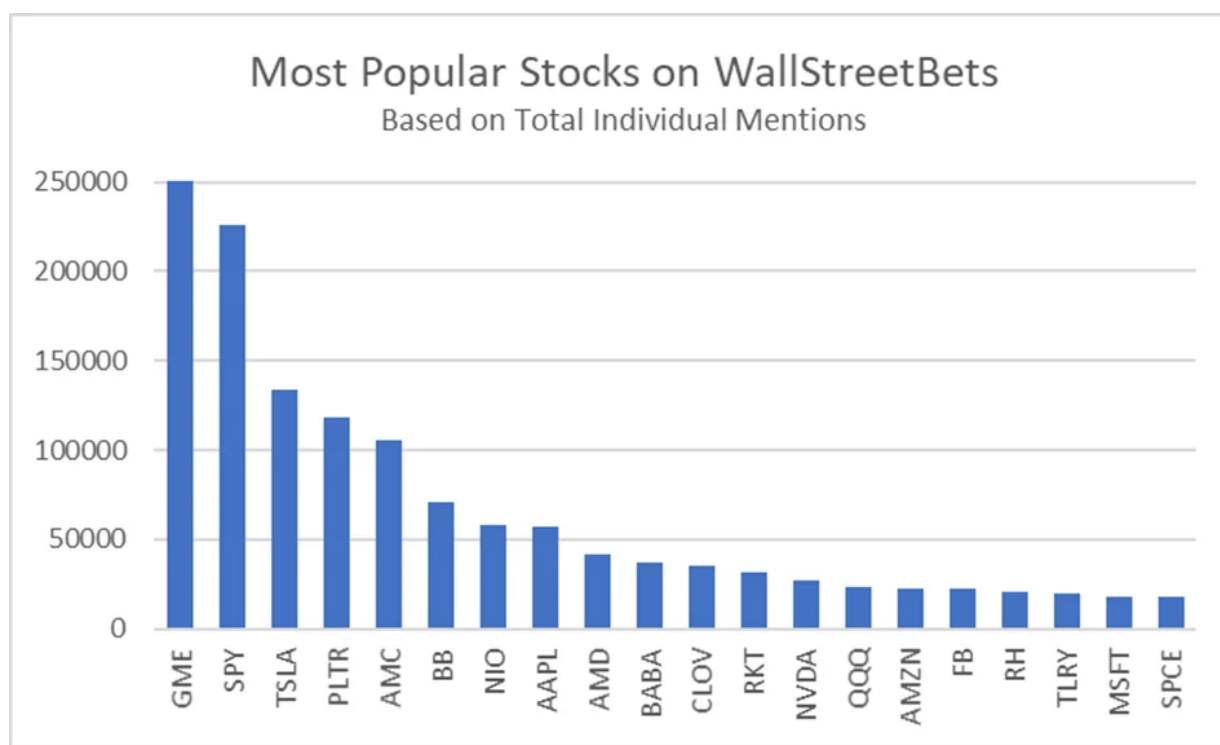
During the height of the frenzy around meme stocks in early 2021, little attention was being paid to the attitudes of the social media masses toward the overall market. While stocks like AMC and GameStop were seeing huge returns and thus were the focus of many of the financial news outlets, the growth of overall market participation among retail investors represented a significant, yet overlooked new input to drive the mood of the market.

In this note, we take a deeper dive into sentiment on WallStreetBets. Using a publicly available tool, we summarize the prevailing view of Reddit users toward the overall market. We find that sentiment on WallStreetBets acts as a reliable contra-indicator, in other words, **overly bearish sentiment portends future strong returns**.

For this study, we analyze the effectiveness of sentiment for the SPDR S&P 500 ETF Trust (ticker SPY). We choose the SPY because its return history is relatively well-behaved, and is not subject to idiosyncratic events (earnings releases, takeover rumors, etc.) that can lead to outsized gains or losses for single stocks. Also, our database of WallStreetBets comments contains a large sample for SPY – of all tickers mentioned in our database, only GameStop shows up in more comments than does SPY (see Fig. 1).

Fig. 1 – Individual Stock Mentions Across WallStreetBets

Source: Reddit, Fundstrat analysis.



Note: Shows total mentions per ticker, ordered by decreasing ticker popularity. Period of analysis is from August 30, 2020 through March 28, 2022.

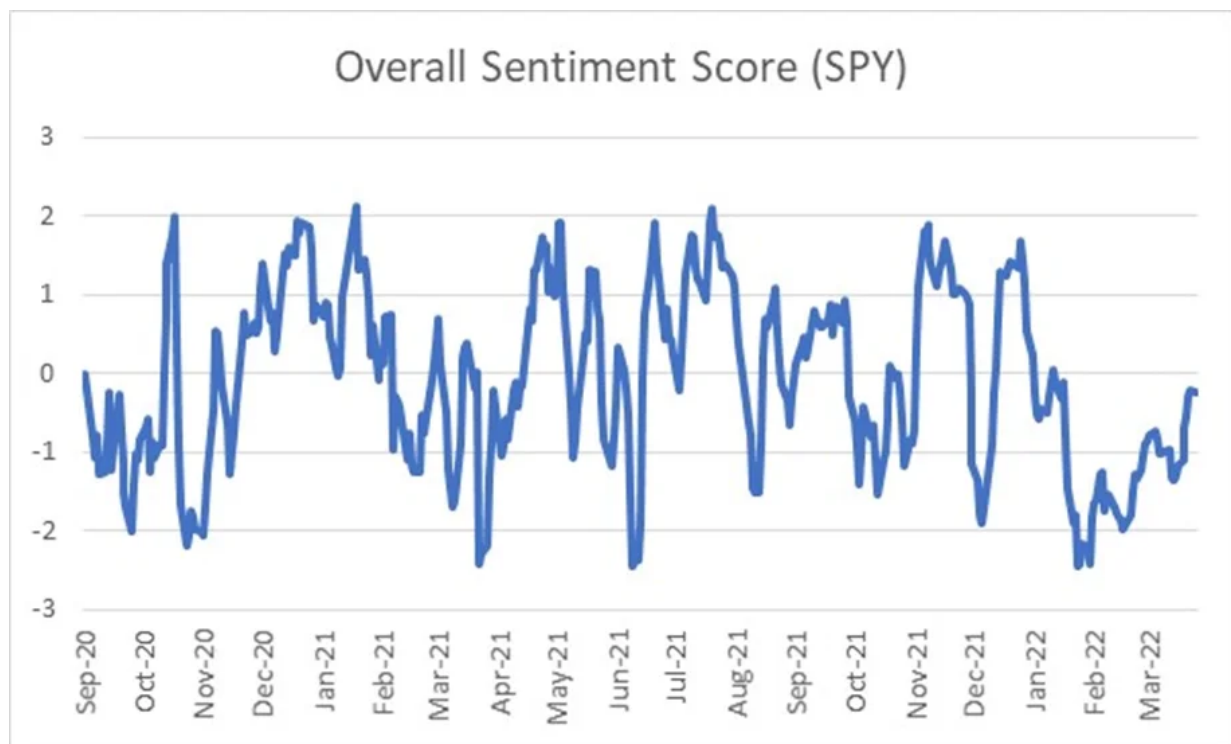
Building a Reddit-Based Sentiment Indicator

To evaluate sentiment for individual comments, we use VADER – a freely available, Python-based tool specifically designed to score sentiment for social media posts. VADER produces a normalized score that takes on a value between -1 and +1; the closer to +1 the score, the more positive the sentiment for the comment. After determining sentiment for each comment, we aggregate sentiment across all published comments each day to produce an overall sentiment measure. We can then evaluate how this daily sentiment measure ties to performance.

Fig. 2 below shows the overall sentiment for comments related to the SPY. Again, the higher the score, the more positive the overall sentiment is among WallStreetBets users toward SPY.

Fig. 2 – Overall Sentiment for SPY-related Comments

Source: Reddit, Fundstrat analysis.



Note: Shows the overall sentiment for comments on the SPY. Sentiment is computed using a rolling 63-day z-score. Higher value indicates more positive sentiment. Period of analysis is from August 2020 through March 28, 2022.

From Fig. 2, we note that the overall sentiment toward the SPY among WallStreetBets users saw its most recent peak on 28-Dec-2021 and has been negative for much of 2022. The market has also experienced a drawdown so far in 2022 – perhaps there is a connection between the SPY sentiment measure and the performance of the overall market?

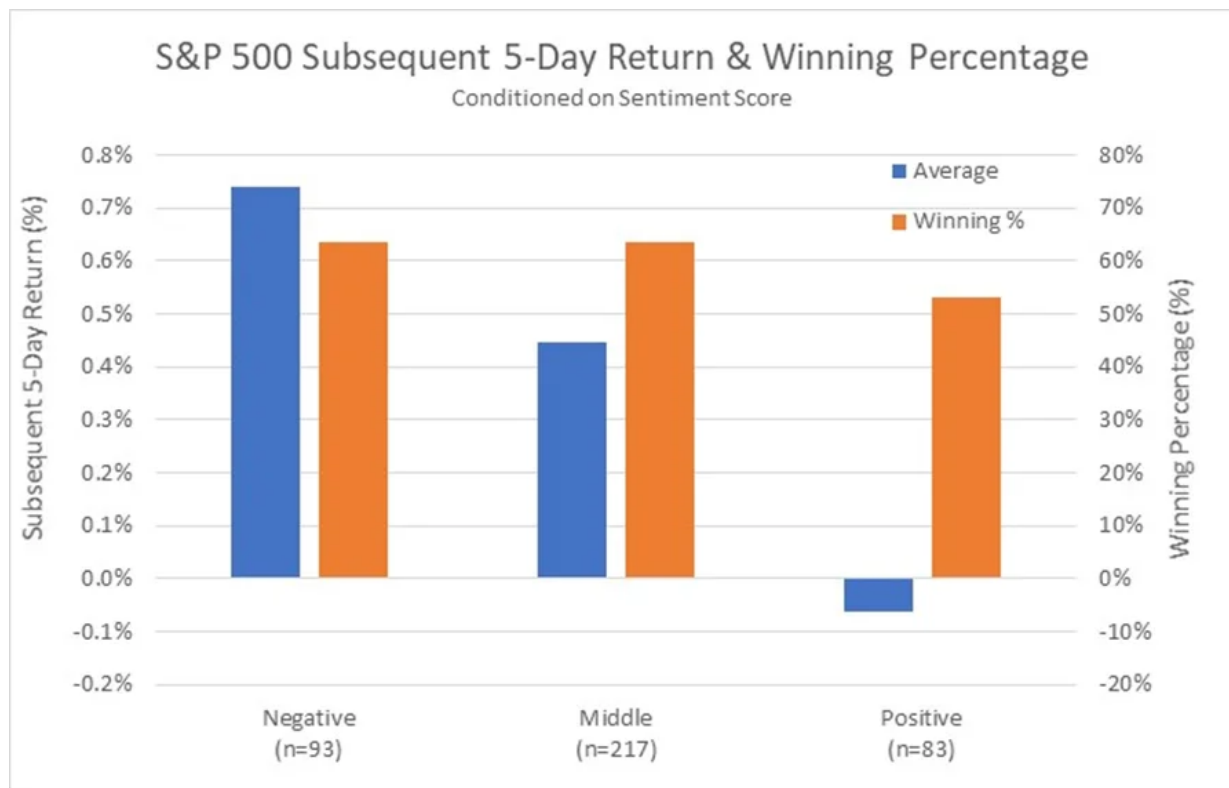
Reddit-Based Sentiment and Market Performance

To answer this question, we consider the subsequent 5-day return of the SPY as a function of the sentiment score, with a particular focus on instances where the sentiment reaches extreme levels. In those cases, does the market tend to follow the sentiment of Reddit users? Or does the aggregate sentiment of the WallStreetBets crowd act as a contra-indicator, where low sentiment indicates a likely rally on the horizon, while high spirits indicate a likely correction?

Fig. 3 shows the results of this analysis. We segment the history into 3 periods, based on whether the sentiment is negative, neutral or positive. The blue bars show the average 5-day subsequent return for the SPY based on the sentiment score, while the orange bars show the likelihood that the subsequent 5-day return of the SPY will be positive.

Fig. 3 – Subsequent S&P 500 Return and Winning Percentage Conditioned on Sentiment Score

Source: Reddit, FactSet, Fundstrat analysis.



Note: Shows the average subsequent 5-day return(blue bars) and winning percentage(orange bars – right axis) for the SPY after periods when the sentiment is negative, neutral and positive. Winning percentage indicates the likelihood of the SPY producing a positive return in the subsequent 5 days. Sentiment is classified as positive(negative) when the current sentiment reading is greater(less) than +1(-1). Sentiment is normalized using a rolling 63-day z-score. Number of observations is given below each category. Returns are measured using a one-day delay following the sentiment observation. Period of analysis is from August 2020 through March 28, 2022. Transaction costs are not considered.

From Fig. 3, we see that when sentiment for SPY is highly negative, the market returns approximately 0.75% in the subsequent 5-day period. Also, following periods of extreme negative sentiment, the SPY’s winning percentage (the likelihood that SPY sees a positive return over the next 5 days) is over 60%. In other words, **following periods of extreme negativity among Reddit users, the SPY has gained nearly 2/3 of the time in the subsequent 5 days.**

On the other hand, when SPY sentiment is highly positive, the average return for the SPY is negative, and the winning percentage for the SPY is barely above 50%. That the average return is negative, but the winning percentage is positive following periods of extreme positive sentiment means that the distribution of returns skews negative when sentiment is positive. Said another way, **large negative returns in SPY are more likely following periods of positive sentiment.**

Since the SPY tends to do best when sentiment is most negative, and the SPY struggles when sentiment is most positive, our Reddit-based sentiment gauge for the SPY acts as an effective contra-indicator for the future direction of the market. Currently, the sentiment for the SPY is at a neutral reading.

Conclusion

In this note, we further dive into our database of WallStreetBets comments, focusing on the overall attitude of Reddit users toward the market. We develop a method to measure sentiment among the posts we capture from Reddit. We find that for the SPY, **our sentiment indicator acts as an effective short-term contra-indicator.** When the Reddit crowd is most bearish about SPY, the market tends to rally, while bullish commentary from Reddit about SPY likely indicates a short-term contraction is on the horizon.

[1] Please check out our inaugural Reddit Alert Note [here](#).

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