

Executive Summary

A large body of academic research has found that stock markets react to news. In the last two decades studies from Tetlock (2007), Garcia (2013), Uhl (2014), and Smales (2015) were able to show that news sentiment has predictive power for Dow Jones Industrial Average (DJIA) returns.

Using news sentiment data from the Thomson Reuters News Analytics (TRNA) database from January 1st, 2003, until December 31st, 2019, two main research questions were derived from existing literature:

- Can DJIA returns be predicted by news sentiment?
- Has news sentiment better predictive power of DJIA returns during a recession?

To answer the first question, a company and a macro news sentiment variable were constructed. The company news sentiment score consists of all the sentiments from news items about DJIA constituents while the macro news sentiment score consists of all the sentiments from news items about certain macroeconomic topics. Then, linear regressions between the sentiments (as explanatory variables) and the DJIA returns have been performed based on a daily, weekly, and monthly basis. To answer the second question, a linear regression was performed between the macro news sentiment scores (as explanatory variables) and the DJIA returns based on a daily basis for three different periods.

Results for the daily, weekly, and monthly analyses, all showed positive correlations between the news sentiment scores and the DJIA returns. Furthermore, almost all correlation coefficients are statistically significant at a 1%-level. The best results in terms of correlation coefficients and R^2 were achieved in the monthly analysis. When comparing the two sentiment scores the macro news sentiment variable has much more explanatory power than the company news sentiment variable for all the conducted analyses. Results for the recession analysis showed that DJIA returns can be better explained by macro news sentiment during a recession.

Concluding from the results the two main research questions could be answered. First, DJIA returns can be predicted by news sentiment and second, news sentiment has better predictive power during a recession. However, the conducted analyses have some limitations that could affect the validity of the conclusions drawn. To strengthen the meaningfulness of the results, additional regressions with control variables should be performed. For this, one could add the Fama French factor like Smales (2015a) to the regression or controlling for volume like Uhl (2014).

This study contributes to the literature in three important. First, the way the news sentiment variables were constructed, especially the company news sentiment score. For this variable only highly relevant news items about DJIA constituents were considered as well as the corresponding DJIA constituent weight. This methodology to construct a company news sentiment score could not be found in earlier studies. Second, the empirical analyses of this study have been conducted over a timeframe of 17 years. Only very few studies have investigated the impact of news sentiment on asset returns over such a long period. Third, an extensive review and summary of the most relevant definitions, topics, and academic papers relating to news sentiment analysis in finance has been presented in this thesis.

The methods used in this study could be expanded for other stock markets or indices. Further research of news sentiment in finance could also be conducted in the high-frequency space to find out how quickly news actually feed into stock prices.