Does Social Media Sentiment Trump News?

by Baoqing Gan

Thesis submitted in fulfilment of the requirements for the degree of

PhD in Finance

under the supervision of Dr Vitali Alexeev
Dr Christina Nikitopoulos Sklibosios
Dr Danny Yeung

University of Technology Sydney
Faculty of Business

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Certificate of Original Authorship

I, Baoqing Gan, declare that this thesis, is submitted in fulfilment of the requirements for the award of PhD in Finance, in the Business School at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis. This document has not been submitted for qualifications at any other academic institution.

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Abstract

The importance of investor sentiment and its influence on financial market has been widely documented. The majority of these studies, however, are either US-centred or focus on a single source of sentiment. In this thesis, I contrast the effects of news and social media sentiment and assess their impacts on markets around the world, using both daily and intraday textual analytics sentiment from Thomson Reuters MarketPsych Indices (TRMI).

In the first chapter, I explore the rapidly changing news and social media landscape and its interplay with market returns and volatility. I find that news media activities (buzz) dominate social media before 2013, while social media has become increasingly important especially after 2016. A similar evolution of lead-lag pattern between news and social media sentiment is also uncovered. Moreover, I discover that market variables exert stronger impact on sentiment than the other way around, and the linkage between volatility and sentiment is more persistent than that between returns and sentiment.

The second chapter examines the role of news and social media sentiment in explaining intraday returns. My analysis of the Dow Jones Industrial Average (DJIA) constituents reveals that sentiment during non-trading hours is a strong yet short-lived predictor of opening returns. Specifically, sentiment from social media induces larger changes than news media. Negative sentiment effects work at higher economic magnitudes than positive sentiment. Nonetheless, these phenomena quickly diminish after the first minute of trading. Robustness tests show that these effects are not driven by corporate earnings announcements. This chapter provides a new set of techniques and develops a novel framework for high-frequency sentiment analysis.

The last chapter applies similar intraday analysis into 14 international markets: Australia, Brazil, Canada, the EU, France, Germany, Hong Kong, India, Japan, Singapore, Spain, Switzerland, the UK and the US. I find that the dominant role of social media in US is not representative of other global markets. News media sentiment expounds a greater impact on stock prices in other major financial markets. Robustness tests show that the aggregation of sentiment up to three hours prior to the market opening helps generate an effective signal for predicting the direction of the opening prices. This chapter underscores the importance of avoiding adopting US evidence naively to other markets.

Overall, this thesis contrasts effects of news sentiment with that of social media sentiment. Applying a novel dataset of high-frequency text analytics, this thesis provides an approach to help shed light on the role social media sentiment plays in the dynamics of stock markets.

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