Volatility Wisdom of Social Media Crowds

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Expanding on the recent "wisdom of crowds" research of Chen et al. [2014] and Azar and Lo [2016], this article provides new evidence on the usefulness of investor sentiment extracted from social media. Specifically, we take advantage of a new data source covering a more comprehensive social media sphere and a unique measure to assess the volatility wisdom of crowds. We show that information contained in the volatility sentiment extracted from broader social media data sources can be used to create profitable investment strategies for stock market volatility. By doing so, we provide an affirmative answer to the question raised by Azar and Lo [2016]: "Can social media data help predict future asset returns and shifts in volatility?" To the best of our knowledge, this article is the first to develop a social media–based market volatility sentiment based on crowds' opinions on individual stocks and provide economically significant empirical evidence for assessing the investment impact of such sentiment.

Another contribution of our research comes from the depth and breadth of social media data used in our analysis, which is broader than that used in other studies. The unique social media data provided by PsychSignal,[1] a provider of real-time "Trader Mood" data, analytics, and indices for investment professionals, is derived from the firehose of raw tweets from both StockTwits and Twitter. The initial level of analysis of the raw tweets by PsychSignal's proprietary natural language processing algorithm generates a minute-by-minute social media sentiment for various financial instruments. This database, referred to as the Trader Mood Data, is similar but broader than the processed social media sentiment data used in other studies.[2]

A second proprietary algorithm analyzes the various dimensions of this social media sentiment identifying time periods of anomalous behavior by uncovering nonlinear patterns in the Trader Mood Data. The resulting social anomaly score, generated for various financial instruments (i.e., symbols such as individual stocks, exchange rates, exchange-traded funds), is the unique variable we use to construct our social media-based market volatility sentiment. To the best of our knowledge, this is the only research that utilizes the social anomaly scores derived from sentiment data based on the entire tweet feeds of the two most popular social media microblogging services, StockTwits and Twitter, in order to construct a social media volatility-sentiment variable and to test the economic magnitude of the information contained in these data in investing market volatility. Previous studies use a single social media data source—in large part because of data limitations due to cost—and rely on much shorter sample periods or on data on a smaller number of underlying stocks.