Informativeness of the market news sentiment in the Taiwan stock market

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Abstract

This study constructs a market “aggregate news sentiment index” (ANSI) based on Chinese financial news relating to all the listed firms on the Taiwan Stock Exchange. We analyze the relationship between the ANSI and the market responses, which includes the returns, trading values, turnover ratios and volatility index, and the ANSI is divided into five regions. Our empirical results reveal that with an increase in the ANSI in the previous month, there is a corresponding increase in the trading value along with a reduction in the investor fear gauge of the Taiwan volatility index (TVIX). Granger causality tests indicate that both the weekly and monthly ANSIs could be leading indicators of market returns if the different regions of the ANSI are accounted for. In a potential application of our findings to portfolio management, we find that when the lagged term of the ANSI is classified in the highest regions, value-weighted portfolios comprising stocks with the highest market values, lowest price-to-book ratios and lower turnover ratios will earn the highest returns. The efficiency of the news sentiment in portfolio applications is consistent over time. This study contributes to the existing literature by demonstrating that the news sentiment level reflected in qualitative news reports can be effectively incorporated as a proxy to provide valuable support to portfolio decision making.

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1. Introduction

The important role played by public news information within the financial markets has been confirmed in the rapidly expanding related literature; for example, Tetlock (2010) demonstrated that particularly with illiquid stocks, the problem of information asymmetry can be resolved by taking news reports into consideration. Tetlock posited that if certain types of investors were able to predict and trade on the information that was about to be released in news reports, this news would...
have a muted impact on prices. This behavior would essentially mean that public news can diminish the uncertainty of the circulation of information, which is similar to the “efficient market” viewpoint of Fama (1970).

In the present study, by referring to related inferences, we aim to confirm the impacts of the “news sentiment”, which is a common proxy for public information, on the market responses in the Taiwan stock market, including the market returns, trading values, turnover ratios and volatility index. Our findings provide support for the argument that systematic investigations of public news and the efficient transmission of such news can significantly improve the extraction of important information from news reports, reduce the level of uncertainty with regard to market responses, and improve the overall level of efficiency within the market.

However, there are many different opinions with regard to the appropriate measurement approach to be used for the analysis of news content. Many studies have followed the method proposed by Tetlock (2007) to examine firm-specific news in a popular press column from which the proportion of negative words is subsequently determined. However, Loughran and McDonald (2011) argued that there was a general tendency within many of the prior studies to misclassify words commonly found in financial texts; as a result, there may have been a tendency to ignore the specific impacts of a financial event.

Still, there is little doubt that it is very difficult to develop an uncontroversial method of extracting market emotions and predicting the frequency of investor trends and conditions, particularly when considering the effects of the “tone” of news articles. Several recent studies have employed the news sentiment score from the Thomson Reuters News Analytics database in which the unit of analysis is a sentence rather than individual words. In other very recent studies, the aggregate news sentiment index has been measured by calculating the average score of each sentiment item over a specific period.

In the present study, we analyze a substantial sample of financial news items that consists of 1,155,757 news articles from 2003 to 2012. We obtained these items from the China Times and the Commercial Times, and they are related to all of the firms listed on the Taiwan Stock Market. Because larger firms will have higher visibility, which will naturally lead to greater attention from investors (Ferguson, Guo, Lam, & Philip, 2012), our study employs weighted firm values to construct the market “aggregate news sentiment index” (ANSI).

We refer to the studies of Demers and Vega (2014) and Lu and Wei (2014), which both noted that the financial news can reflect the optimistic and pessimistic sentiments that are published in media reports; market participants are likely to receive these reports on a daily basis. We calculate the daily, weekly and monthly ANSIs. Then, we analyze their relationships with the market responses, which consist of the market returns, trading values, turnover ratios and volatility index, to confirm the lead-lag effects of the ANSI. For the further analysis, we investigate whether changes in the ANSI lead to any variations in the market responses.

We expect to find that news coverage will provide precise signals to market participants and thereby lead to reactions within the market that are consistent with the results of the pairwise Granger causality test. We also examine whether the ANSI could be applied to portfolio management by identifying and sorting the levels of the monthly ANSI and the firm-specific stock turnover ratios, market values and price-to-book ratios. Finally, we undertake a comparison of the average equally-weighted and value-weighted portfolio returns and examine the results remain the same if we separate the research period as an additional check for robustness.

Our empirical results reveal a lead-lag relationship between the lagged monthly ANSI and the market responses, including the trading values and volatility index. The weekly and monthly ANSIs are found to Granger-cause both market returns and turnover ratios under the median ANSI regions; however, we could not show that the weekly and monthly ANSIs were consistent leading indicators of market responses regardless of which region the ANSIs were classified in. Our application of the ANSI to portfolio management indicates that the news sentiment index should be considered when constructing equally-weighted and value-weighted portfolios. Furthermore, we consider the effects of the firm size on public news by employing the “market value” as the weighted average of the news sentiment index with respect to individual stocks.

Our approach in the present study differs from the approaches in prior studies since the ANSI derived in this study is based on the use of linguistic analysis to extract representative information from related news reports. We make a number of important contributions to the literature. Firstly, we construct a representative ANSI in Taiwan from the words used in traditional Chinese financial media. Secondly, we show that financial news reports play an important role in the financial market, since news releases can accurately reflect the market status. Thirdly, to the best of our knowledge, our study represents the first attempt to create a news sentiment index that may also be adopted as a proxy of public information based on the collection of substantial amounts of public news relating to the firms listed on the Taiwan Stock Exchange. Finally, we demonstrate the predictive ability of our news sentiment and its applicability to the market. As a robustness check, we...
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