Japanese market sentiment indexes and the predictability of stock prices

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Abstract

We quantified the market sentiment as four indexes, examined whether they can help predict stock prices in Japanese markets, and found two significant facts.

Keyword: Big data, Text mining, Nikkei, Sentiment, Stock market

The purpose of this paper is to quantify the market sentiment as four indexes and examine whether they can help predict stock prices in Japanese markets.

Sentiment analysis is gaining increasing interest in both academia and business. As the sentiment invisibly reflects the atmosphere of economic activities and the psychology of economic agents, analyzing the sentiment helps us understand the economy and security markets in a more sophisticated way.

Along these lines, Ishijima et al. (2014) created a sentiment index that quantifies the positive or negative emotion that might appear in the articles of Nikkei which is the most popular business newspaper in Japan. They concluded that the sentiment index significantly predicts stock prices three days in advance.

We re-examine their results by extending their analysis in two dimensions. One is to expand data coverage, and the other is to create variations of their original sentiment index:

(1) Data coverage: Over the 28 year time horizon, we created daily market sentiment indexes. We cover a period from April 1984 to September 2014 which dominates the latest five-year-period in which Ishijima et al. (2014) showed results.

(2) Variations of sentiment indexes: Reconsidering the methodology of creating indexes, we again propose market sentiment indexes in four variations.

In these two aspects, we thoroughly examine the predictability of stock prices by our sentiment indexes in Japanese markets. Through analyses implemented annually, our findings are two-fold:

(i) Sentiment indexes created from the Nikkei entire articles significantly predict the Nikkei 225 prices during certain periods.

(ii) These periods can be interpreted using business cycles defined by the Cabinet Office in Japan.

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