A Decision Support Approach for Online Stock Forum Sentiment Analysis

S. Saradha and G. Magesh

Abstract--- The Internet provides the opportunity for investors to post online opinions that they share with fellow investors. Sentiment analysis of online opinion posts can facilitate both investors' investment decision making and stock companies' risk perception. This paper develops novel sentiment ontology to conduct context-sensitive sentiment analysis of online opinion posts in stock markets. A typical financial has been selected as an experimental platform of financial review data was collected. Computational results show that the statistical machine learning approach has higher classification accuracy than that of the semantic approach. Results also imply that investor sentiment has a particularly strong effect for value stocks relative to growth stocks. It has been reported that these message boards can have a significant impact on financial markets.

Keywords--- Sentiment, Stock Markets, Ontology, Financial and Accuracy

I. INTRODUCTION

General

Investors have often found it very costly to acquire useful information to assist them in investment decision making. many investors have devoted a great deal of time to read messages posted on internet stock message boards to estimate asset prices based on information of varying quality. It has been reported that these message boards can have a significant impact on financial markets. Efficient

investment decision making today is based on a variety of information sources including historical financial data series and messages posted on stock message boards. Is there an obvious correlation between investor sentiment and stock market performance? How can investor sentiment predict future stock price? To answer these questions, a sentiment index would be useful. Research on sentiment index selection has identified both direct sentiment and indirect sentiment indices. However, a direct sentiment index based on questionnaires and an indirect sentiment index based on related stock market data can be inaccurate. With the development of the Internet, more investors have shared their opinions on stocks via stock forums, providing a great deal of discussion information. Insider information and rumors can be an important communication platform for investors. Stock information can reflect investor sentiment and can play an important role in investor decision making. These opinions could alter the way in which investors invest trade, acquire, and share information. Extracting investor sentiment and generating a sentiment index from stock forums would be valuable. Overall, our study shows that stock forum sentiments do contain valuable information for investing decision making and supports the investor sentiment hypothesis that irrational investors do influence stock markets.

Objective

Stock information can reflect investor sentiment and can play an important role in investor decision making. These opinions could alter the way in which investors invest trade, acquire, and share information. Extracting investor sentiment and generating a sentiment index from stock forums would be valuable.

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II. LITERATURE SURVEY

Title: Economic Forces, Sentiment and Emerging Eastern European Stock Markets

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Year : 2010

Description: The aim of the current study is to explore the effect of macroeconomic news on stock returns in Eastern European countries, combining market and macroeconomic data over the period of 2000-2009, during which the markets experienced excessive optimistic and pessimistic episodes. Hypothesising the asymmetry in stock price responses to good and bad news, we seek to test its degree under the specific market conditions. The error correction models for each country are extended with fixed effects panel data specification, for capturing the cross-sectional effects of the state of the market on the return responses to macroeconomic news. The key methodological problem addressed in recent research is how to relate daily stock data and monthly macroeconomic data. The aggregation of stock returns to monthly averages has several advantages over macroeconomic data disaggregation to irregular frequencies or calendar methods. Since the macroeconomic data is large1, we exploit data mining techniques to reasonably fit the monthly averages of the stock returns and panel data analysis to capture the common patterns typical to Eastern European stock markets.

III. PROJECT DESCRIPTION

General

We analyze the problem of behavioral characterization of Stock information can reflect investor sentiment and can play an important role in investor decision making. These opinions could alter the way in which investors invest trade, acquire, and share information.

Problem Definition

A direct sentiment index based on questionnaires and an indirect sentiment index based on related stock market data

can be inaccurate. With the development of the Internet, more investors have shared their opinions on stocks via stock forums, providing a great deal of discussion information. Insider information and rumors can be an important communication platform for investors.

Methodologies

Stock information can reflect investor sentiment and can play an important role in investor decision making. These opinions could alter the way in which investors invest trade, acquire, and share information. Extracting investor sentiment and generating a sentiment index from stock forums would be valuable.

IV. MODULES

- INVESTOR
  - Authentication.
  - View product details.
- USER OPINION
  - Direct Index
  - Indirect Index
- ADMIN
  - Stock analysis
  - Company details.

Module Description

Authentication

If you are the new user going to consume the service then they have to register first by providing necessary details. After successful completion of sign up process, the user has to login into the application by providing username and exact password. The user has to provide exact username and password which was provided at the time of registration, if login success means it will take up to main page else it will remain in the login page itself..

View Product Detail

The user has to provide exact username and password which was provided at the time of registration, if login success means it will take up to main page else it will

remain in the login page itself. Investor search product details and view product details.

V. CONCLUSION

We conducted three experimental scenarios: comparison of the classification performance between a machine learning approach and a lexicon approach, and two experiments involving the relationship analysis of sentiment and stock price volatility trends (at industry and individual stock levels). To compare different methods, our results demonstrated that the statistical machine learning approach has a classification accuracy of 81.82%, which is higher than that of the semantic approach with a classification accuracy of 75.58%, significant at the 95% level. The classification accuracy of the statistical machine learning approach was reasonably robust with respect to the size of the training set when the size was more than 600. To examine the relationship analysis of sentiment and stock price volatility trend at the industry level, we varied the order of the sentiment-related terms while keeping parameters, such as the order of the GARCH terms and the order of the ARCH terms in the GARCH-SVM models unchanged. Experimental results suggested that improving the values of the order of the sentiment-related terms would benefit model classification accuracy when the order of the sentiment-related terms was smaller than a threshold value. However, model classification power would not benefit from changing the order of the sentiment-related terms when it exceeded the threshold value.

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