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Predict financial text sentiment: an empirical examination

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Abstract

Purpose – Stock market has always been lucrative for various investors. But, because of its speculative nature, it is difficult to predict the price movement. Investors have been using both fundamental and technical analysis to predict the prices. Fundamental analysis helps to study structured data of the company. Technical analysis helps to study price trends, and with the increasing and easy availability of unstructured data have made it important to study the market sentiment. Market sentiment has a major impact on the prices in short run. Hence, the purpose is to understand the market sentiment timely and effectively.

Design/methodology/approach – The research includes text mining and then creating various models for classification. The accuracy of these models is checked using confusion matrix.

Findings – Out of the six machine learning techniques used to create the classification model, kernel support vector machine gave the highest accuracy of 68%. This model can be now used to analyse the tweets, news and various other unstructured data to predict the price movement.

Originality/value – This study will help investors classify a news or a tweet into "positive", "negative" or "neutral" quickly and determine the stock price trends.

Keywords Financial markets, Text mining, Sentiment analysis, Classification techniques, Predictive analysis

Paper type Research paper

Introduction

Stock market is a marketplace or a platform where shares of various public listed companies are available and buying and selling. Prices of shares can be determined by various factors; one of the main criterion is demand and supply. There are various stock market exchanges and are controlled by some regulatory body. In India, the Bombay Stock Exchange (BSE) and National Stock Exchange (NSE) are regulated by The Securities and Exchange Board of India (SEBI). Similarly, in the USA, New York Stock Exchange (NYSE) and the Nasdaq are regulated by Securities and Exchange Commission (SEC). Investors invest in stock markets for higher returns, but there are various factors that affect the market, making it volatile and thus risky. Other than supply and demand, various factors that affect the stock market are company-related factors, interest rates, politics, exchange rates, sentiments etc. Market involves risks, although the risk cannot be eliminated, but it can be minimised. The risk can be controlled by understanding the market and making the requisite analysis. Investors generally analyse the market to reduce the risk, which can be either done through fundamental analysis or technical analysis. Market is analysed by investors based on

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