

Chapter 1: Introduction

1.1 Overview

In chapter-1, it elaborates on the background to the research and also identifies the distinctive components of the research framework. It starts with the research background that provides an overview of a practice and its relevance to the ongoing debates, existing issues in practice in relation to the identified problem, and strategies for addressing the issues in question. The problem statement indicates the specific challenge or deficiency that is going to be addressed in the study, while laying the foundation for the research. After this, the direction of the study and its focus is established through the formulation of research questions. This is then proceeded by research objectives, which are goals that delineate different facets of the problem to aid the main purpose of the research and its determinants. The areas of studies describe the boundaries of the research and identify what is going to be in and out of the study. Finally, the research significance explained the relevance of the study as well as the impact and outlined the contributions and how it will help advance knowledge in the broader area.

1.2 Research Background

Opinion mining or sentiment analysis is the computational study that aims at determining opinions, attitudes, feelings, and emotions of people based on written text, particularly in the financial news(Mishra, 2023; Shuhidan et al., 2018). The analysis helps in the projection of markets in financial environments and this information is crucial. Based on the sentiment analysis of the news headlines, stakeholders can efficiently receive important information to support their decisions. Various approaches that are used with sentiment analysis include lexicon-based approaches and simple algorithms such as Naive Bayes(Cheng Kuan et al., 2019).

According to the studies, the mood described in the articles really has the power to change the value of stocks meaning that the element held in the technologies such as long short-term memory (LSTM) networks can help to enhance the accuracy of stock price forecasts (Sidek et al., 2023). Earlier researches in Malaysia for determining the feelings of news headlines involved implementing the machine learning methods like Hybrid Naive Bayes,

Opinion Lexicon-based algorithm, and Naive Bayes (Cheng Kuan et al., 2019; Shuhidan et al., 2018).

The given article reveals that the presented emotions in the financial news influence the changes in the stock market. This implies that by employing sentiment analysis as a technique then one can be in a position to predict market trends (McCarthy & Alaghband, 2023). Nonetheless, certain challenges still arise when it comes to enhancing the accuracy of sentiment analysis models. Therefore, the objective of this research is to investigate the sentiment analysis of news headlines and its impact on stock price fluctuations in the Malaysian market. Thus, by identifying the gaps in the current literature and examining the novel approaches, we will help to advance the sentiment analysis in the financial context.

1.3 Statement of the Problem

To be able to forecast stock movements, it is imperative to decode the sentiment of the financial news headlines, as these headlines contain important details that can greatly affect the stock prices. Multiple approaches of sentiment analysis that include the Opinion Lexicon-based algorithm and the Naïve Bayes algorithm have been used to assess the sentiment of the financial news. However, challenges still persist in predicting stock prices most especially with regards to the people's sentiments and the peculiarities of Malaysia's online news portals. As other previous research has shown there is a relationship between the positive and negative sentiment and stock markets, it could be that the impact of sentiment on stock prices differ. High frequency, non-linear, multivariate along with the incorporation of sentiment data provide a way of developing sophisticated models like LSTM with the assurance of enhancing the ability to forecast the stock prices. These models offer a superior technique of looking into emotions and the effects that they have on market trends.

It is, therefore, possible for future studies to focus on enhancing these advanced predictive models to enhance the precision of stock price prediction. Additionally, the examination of such models' applicability to different financial markets may help to identify more effective approaches for improving the general accuracy of the predicted stock prices. Regarding the use of sentiment analysis in financial news, researchers can enhance the predictive models, areas of controversy, and tools to estimate the stock market movements.

Existing literatures reveal that sentiments conveyed through financial news headlines affect stock prices but their influence on stock prices in Malaysia is not well understood. Predicting the stock prices in an efficient manner is fairly difficult as an approach that involved analyzing historical data in addition to analyzing public sentiment is required and therefore does not allow for an increase in efficiency through the integration of sentiment analysis. The previous works give a visualization in terms of how the sentiment of the news impacts the stocks and stress on the need to use more elaborate models like LSTM to enhance the level of accuracy in the prediction.

It is a fact that there exist relations between the financial news sentiment and changes in the stock market; however, the studies on Malaysia are scarce. Consequently, an increase in the researches regarding impact of news sentiment on stock prices across the Malaysian financial market becomes pertinent. However, in as much as the results highlighted were encouraging, the following issues remain an area of concern with regard to achieving the finest model of sentiment analysis for the prediction of stock price. It was however seen that it becomes very difficult and challenging to forecast the stock prices in the Malaysian market with any great degree of precision would require the basic tools of historical analysis intermingled with some elements of sentiment analysis. This forms the challenges on how the sentiment analysis could be integrated to increase the prediction accuracy. This study seeks to examine the effects of financial news headlines sentiment especially from the Malaysian market on stock prices, while comparing the efficacy of the classical methods of assessing sentiment and the new-age approach through the use of LSTM networks with the view of boosting the accuracy level of prices of the stocks in Malaysia.

1.4 Research Questions

1. To what extent can specific sentiment in the headlines of financial news affect the stock prices of Malaysia?
2. What are the difficulties for implementing the sentiment analysis to forecast the stock prices in the Malaysian market and how to improve the sophisticated models such as LSTM networks to overcome those difficulties and enhance its effectiveness?
3. Regarding various sentiment analysis techniques such, Hybrid Naive Bayes and Opinion Lexicon, Malaysia's stock price change prediction can be determined in what way and how approach can be assessed and advanced to achieve higher accuracy?

1.5 Objectives of the Research

1. To examine how specific sentiments vividly articulated in headlines of financial news affect stock price changes in the Malaysian stock market.
2. To identify and evaluate challenges that hinder the efficient analysis of stock prices in the Malaysian market using sentiment analysis techniques and enhance superior models like LSTM networks to enhance the accuracy of the forecast.
3. To investigate on how some of the sentiment analysis methods such as Hybrid Naive Bayes and Opinion Lexicon-based will affect the forecast of stock price changes in Malaysia and how to improve upon the algorithms to increase accuracy.

1.6 Scope of the Study

The scopes of this research are:

1. To investigate the impact of sentiment analysis from financial news headlines on stock price movements in the Malaysian stock market.
2. To examine the impact of feelings (positive, negative, and neutral) on stock prices in Malaysia at the sentence level, utilizing trusted Malaysian online news portals like the New Straits Times, Bursa Malaysia, and The Edge Market as main sources of data.
3. Apply traditional SA techniques and advanced machine learning such as Long Short-Term Memory networks to predict the movements of stock price using news sentiment.
4. Gather and analyze data over a period of 5 years and extend helpful insights to traders, investors and financial analyst in Malaysia for investment heading.

1.7 Significance of the Research

This research is drastically important for the traders and investors because they receive the useful information about the financial news sentiment, and then try to make the right decisions instead of making a right choice based on insufficient data. Thus, using methods such as scheme of sentiment analysis to forecast the movements in the stock prices, including use of complex models such as Long Short-Term Memory networks yields better results. The study investigates the correlation between the stock price data and sentiment analysis and provides

valuable information to enhance the machine learning models and improve the strategies of the investment in the stock market.

The comparison between traditional and advanced machine learning algorithms sentiment analysis techniques enables the identification of optimal algorithms for estimating the change in company's stock price based on news sentiment. This research able to furnish more knowledges and understanding of the Malaysian financial market through analysing the study on the effect of news sentiment on stock prices in Malaysia. Employees, traders, investors & financial analysts; it can help them enhance the market tactics & possibly, boost the returns.

Besides, it contributes to the creation of automated trading systems that incorporate sentiment analysis and hence leads to more proactive and complex trading algorithms. In essence, this research lays a good ground for other related research in the future by showing the potential and challenges of using sentiment data in stock markets in general, and identifying specifics of sentiment analysis and stock price prediction in particular.