

Chapter 4

Sentiment Analysis in Financial Decision– Making: Models, Behavioral Insights, and Practical Strategies

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ABSTRACT

This chapter highlights the importance of sentiment analysis in financial decision-making, focusing on how sentiment analysis techniques can extract and understand emotions expressed in financial texts such as news, annual reports, and social media posts. The chapter points out that traditional methods, such as lexical dictionaries, have become less effective in handling the linguistic complexity of financial texts. At the same time, modern models like Transformers have demonstrated high accuracy in extracting sentiments, even with limited data. It also discusses the applications of sentiment analysis in predicting companies' financial performance, as these tools can be used to analyze executive messages, and company reports to gauge future financial performance trends. Additionally, the chapter explores how sentiment indicators can be integrated with traditional financial metrics to design innovative investment strategies that outperform traditional benchmarks like the S&P 500. It also addresses the impact of sentiment analysis on household financial decision-making, as studies suggest that positive sentiment contributes to increased participation in stock markets. Despite these benefits, the chapter discusses the challenges facing sentiment analysis, such as the scarcity of labeled data and the difficulty of extracting full context from financial texts, proposing solutions like context-enhanced models

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to improve predictive performance. It also discusses the ongoing need to develop specialized dictionaries for financial texts, which remains a significant challenge in this field. In conclusion, the chapter provides a comprehensive overview of the role of sentiment analysis in financial decision-making, emphasizing that the continuous advancement in natural language processing and machine learning technologies will enhance the accuracy of these tools and expand their applications in investment and financial risk management.

INTRODUCTION

Sentiment analysis has emerged as a crucial tool in the financial sector, enabling analysts and investors to assess overall market sentiment and understand investor trends by analyzing data extracted from financial news, earnings reports, social media, and investor commentary. This field leverages artificial intelligence (AI) and natural language processing (NLP) techniques to interpret the emotions conveyed in financial texts, ultimately enhancing investment decision-making accuracy and effectiveness.

Financial markets have significantly transformed how data is analyzed and leveraged for investment decisions. Traditionally, investors relied on fundamental and technical analysis. However, with the rapid advancement of AI, sentiment analysis has made it possible to assess market sentiment in response to economic, political, and financial changes with greater precision. Research has shown that sentiment—whether positive or negative—directly influences financial market trends, solidifying sentiment analysis as an indispensable tool for understanding market dynamics and making informed decisions.

Sentiment analysis has broad applications in finance, ranging from predicting corporate performance to refining investment strategies and risk management. By integrating sentiment indicators with traditional financial metrics, sentiment analysis models have improved stock price prediction accuracy and helped identify early warning signs of economic crises, allowing investors to take proactive measures to protect their investments.

Despite its numerous advantages, sentiment analysis in finance faces several challenges. These include the complexity of financial texts, the scarcity of labeled data, and the need for AI models capable of accurately understanding the full context of financial discourse. Furthermore, financial news and corporate reports employ highly specialized language, requiring domain-specific linguistic models capable of analyzing technical and economic terminology with precision.

Despite the immense potential of AI in sentiment analysis and its role in supporting investment decision-making, significant challenges persist regarding the

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