Summary of Can ChatGPT Forecast Stock Price Movements? Return Predictability and Large Language Models

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1) What are the research questions ?

Can ChatGPT predict stock returns by extracting the context from news headlines?

2) Why are the research questions interesting?

- The application of LLM has gained significant traction

- LLMs on market returns prediction remains relatively uncharted territory.

  - Stock returns are predictable at a daily horizon using news and trained algorithms.
  - LLMs offer little value in predicting stock returns.
  - LLMs can process textual information and predict stock returns.

3) What is the paper's contribution?

-Literature on employs machine learning to study finance research questions.

  - Prior studies: Conditional biases, empirical asset pricing, volatility... (Binsbergen et al.,2020; Gu et al.,2020; Manela et al.,2017).
  - Extend: Evaluate the capabilities of ChatGPT in forecasting stock returns.

-Literature on uses linguistic analyses to extract sentiment and predict stock returns.

  - Prior studies: Role of media, uses sentiment to predict future stock returns(Tetlock,2007; Jiang et al.,2021).
  - Extend: LLMs add value by extracting additional information that predicts stock market reactions.

-Literature on employment exposures and vulnerability to AI-related technology.

  - Prior studies: The consequences of employment and productivity.(Noy et al., 2023).
  - Extend: The potential of LLMs in adding value to market participants in processing information to predict stock returns.

4) What hypotheses are tested in the paper?

Hypotheses

  - H1: ChatGPT's assessment scores of news headlines can predict subsequent daily stock returns.
  - H2: ChatGPT outperforms alternative sentiment measures in forecasting returns.

-The logic of hypotheses

- ChatGPT exhibits sophisticated reasoning skills and an aptitude for nuanced language comprehension.

5) Sample

Sample period(October 2021-December 2022) ensures a more accurate "out-of-sample" assessment.

6) Dependent and independent variables

Dependent variables: ChatGPT score(Prompt has mentioned "Forget all your previous instructions".)

7) Regression/prediction model specification

Include firm and date fixed effects.

8) What difficulties arise in drawing inferences from the empirical work?

-Would ChatGPT come up with a completely different response if the prompts changed?

9) Describe at least one publishable and feasible extension of this research.

-ChatGPT impact on the fund herding.

-ChatGPT impact on information asymmetry, market stability.