From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI

1) What are the research questions ?

Whether large language models (LLMs) detect and analyze critical aspects of corporate risk?

2) Why are the research questions interesting?

LLMs' ability to evaluate firm-level risks is yet to be understood, this research helps us to understand the capabilities of AI in navigating the complex corporate risk landscape.

3) What is the paper's contribution?

a) Shows AI tools are effective at distilling risk categories

prior studies did not mention generative LLMs economic usefulness in risk assessment and risk management. They focus on other aspects such as business complexity, return predictability and so on(Bernard et al., 2023; Lopez-Lira and Tang, 2023; Jha et al., 2023; Eisfeldt et al., 2023; Kim et al., 2023; Chen et al., 2023).

b) Uses disclosures to construct firm-level risk

Existing studies that rely on topic-based bigram dictionaries(Chava et al., 2022), this study documents that GPT- based measures are more informative than bigram-based measure.

c) Establishes the value of general AI for understanding complex topics.

4) What hypotheses are tested in the paper?

Considering that companies do not explicitly discuss risks disclosures, and general AI can synthesize extracted information into coherent and understandable narratives, those features make LLMs attractive in analysing corporate risks. This study then tests the following hypotheses.

H1: GPT-based risk proxies(political, climate-related and AI-related risk) are effective at measuring firm-level risks.

H2: GPT-based risk proxies can explain capital investments.

H3: Positive relation between GPT-based risk proxies and stock price volatility.

5) Sample

Sample is US firms' transcripts available between January 2018 and March 2023. Fully considering those following problems :

a) generating risk summaries and assessments for each risk metric is costly and time-consuming; b) a considerable part of the sample is outside of GPT's training window (allowing for pure out-of-sample tests); c) this time period is characterized by significant changes in political, climate and AI uncertainty.

6) Dependent and independent variables

This study designs separate prompts for risk assessments and risk summaries. For summaries, this study instructs model to ignore external information sources, and to make judgments accompanied by narrative reasoning for assessments. When constructed the risk exposures corresponding to summaries, RiskSum, and assessments RiskAssess, this study notes that $len(c_{it})$ might not equal(less than) $\sum_{l=1}^{K_{it}} len(c_{it}^{l})$ since they drop several chunks, I wonder if this methed overestimates the metrics of those indicators.

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

Chatgpt processing transcrips is a black box problem, and opening this black box is difficult.

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

Chatgpt can summarize the enterprise ESG report, compare the ESG content before and after the summary to measure whether the enterprise is greenwashing.