Summary

From Transcripts to Insights: Uncovering Corporate Risks Using Generative AI
Alex G. Kim, Maximilian Muhn, Valeri V. Nikolaev(working paper,2023)

2024.04.09 ShiWanqing

1. **What are the research questions?**
   - Can AI tools(ChatGPT) help investors uncover firm policy,climate,AI-related risk?

2. **Why are the research questions interesting?**
   - Firm face multi-risks beyond traditional financial metrics: regulatory, environmental, and AI-related risks.
   - Recent literature evaluate by textual analysis(Hassan et al., 2019; Sautner et al., 2023),but (1)dictionaries outdated or incomplete; (2)narrow attention window to get relevance.
   - AI-tech delve deeper into textual data and understand risks more: (1)context-based interpretation; (2)provide explanation with general knowledge.

3. **What is the paper's contribution?**
   - contribute to develop value of LLMs in risk assessment.
     - Recent paper:
       * LLMs excel at analyzing complex, unstructured information.(Kim et al., 2023)...
       * but economic utility in risk assessment and management remains unclear
     - Extend: show AI tools effectively extract diverse risk information.
   - contribute to measure firm-level risk by corporate disclosures by AI-tech.
     - Recent paper:
       * political risk (Hassan et al., 2019), climate risk (Sautner et al., 2023)...
       * rely on topic-based bigram dictionaries
     - Extend: build on this work by adopting AI-tech to analyze risks.
   - contribute to establish the value of AI for understanding complex topics like risk:
     - Extend: leverage general knowledge to derive insights from given context.

4. **What hypotheses are tested in the paper?**
   - H1: Risk summaries and assessments are positively associated with stock volatility.
   - H2: Risk summaries and assessments explain firms' economic decisions.
     - H2a: these 3 risk decline capital expenditures
     - H2b: face policy risk: firm increase lobby; climate: green patent; AI-risk: AI-patent

   a) **Do these hypotheses follow from and answer the research questions?**

   - Yes, these 3 GPT measures perform well in risk extraction and economic usefulness.

   b) **Do these hypotheses follow from theory? Explain logic of the hypotheses.**

   - H1: A valid measure of risk must exhibit association with volatility (Engle, 2004).
   - H2a: Uncertainty requires risk premium, capital projects invest harder to finance.
   - H2b: firms are expected to mitigate risks with countermeasures.

5. **Sample: comment on the appropriateness of the sample selection procedures.**

   - sample period might not fully cover crucial events or economic cycles.

6. **Comment on the appropriateness of variable definition and measurement.**

- Risk exposure: length of risk summaries/entire transcript may not accurate, may be attributed to the call presentation style, ambiguity.

7. **Comment on the appropriateness of the regress/predict model specification.**

- January 2022 to March 2023, real outside sample.
- but same time, lose on-time general know knowledge, would it affect results?

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

- most bigram results perform bad, but previous studies show economic impacts, why?

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

- Input: chatgpt4 and other multimodal inputs, analyzing audio, video, images. . .
- Output:
  - Measuring company innovation capability, supply chain stability, and other aspects;
  - Can ChatGPT predict (risk) trends?
  - Find valuable industries, stocks, and firms from news and events with GPT?
- My direction: ChatGPT combined with ESG reports to identify firm greenwashing.

References

Tarek A Hassan, Stephan Hollander, Laurence Van Lent, and Ahmed Tahoun. Firm-level political risk: Measurement and effects. *The Quarterly Journal of Economics*, 134(4):2135–2202, 2019.

Alex G Kim, Maximilian Muhn, and Valeri V Nikolaev. Bloated disclosures: can chatgpt help investors process information? *Chicago Booth Research Paper*, (23-07), 2023.

Zacharias Sautner, Laurence Van Lent, Grigory Vilkov, and Ruishen Zhang. Firm-level climate change exposure. *The Journal of Finance*, 78(3):1449–1498, 2023.