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A ChatGPT Use Case for the Board of Directors: Corporate Disclosure and Policy Assessments

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Researchers from the National Bureau of Economic Research (NBER) offer some foundational thinking on how ChatGPT can be applied to corporate disclosures and policies. According to the authors, this “study provides a first look at the potential of ChatGPT to extract managerial expectations and corporate policies. We believe that our findings have important implications for companies, investors, policymakers, and researchers.”

[NBER Working Paper Series: ChatGPT and Corporate Policies](https://www.nber.org/papers/w32161)
(<https://www.nber.org/papers/w32161>)

“...a first look at the potential of ChatGPT to extract managerial expectations and corporate policies.”

From the paper authors (Manish Jha, Jialin Qian, Michael Weber, and Baozhong Yang):

“In this paper, we use the cutting-edge large language model, ChatGPT, to extract managerial expectations of corporate policies from corporate disclosure. We construct a ChatGPT investment score that measures the extent to which managers expect to increase or decrease capital expenditures in the future. The ChatGPT investment score is supported by interpretable textual content and is strongly correlated with survey responses from CFOs.

The investment score bears a strong, positive correlation with future investment both in the short term and long term, even after controlling for Tobin's q and other determinants of investment, indicating that managers convey new information about firms' future investment opportunities in conference calls that ChatGPT helps to extract. The new information conveyed by managers has a larger predictive ability when firms operate in an environment that is more opaque, dynamic, and subject to change. Furthermore, firms with high investment scores experience significantly negative future abnormal returns, consistent with investment-based asset pricing theory.

We conducted several robustness checks to validate the results, and they consistently supported the main findings. Additionally, we extended our analysis to other corporate policies, namely dividend payment and hiring, and found that ChatGPT can effectively extract firms' expectations regarding these policies as well. Our study provides a first look at the potential of ChatGPT to extract managerial expectations and corporate policies. We believe that our findings have important implications for companies, investors, policymakers, and researchers.”

Q-Theory, ChatGPT, and a *ChatGPT Investment Score*

“...the report indicates that incorporating intangible capital into the measurement of q can substantially enhance the investment- q relation, providing a more comprehensive understanding of firms' future investment opportunities.”

The neoclassical q -theory, as discussed in the report, suggests that Tobin's q serves as a key statistic for firms' investment opportunities. This theory faces challenges in fully incorporating the private information of corporate managers into market prices. Despite this, quarterly earnings conference calls are seen as a way for managers to convey their private information to the public. The report highlights the challenge of analyzing vast amounts of information from these calls due to the length and the number of companies reporting each quarter. However, recent advancements in AI tools, like ChatGPT, have enabled the

extraction of complex information, such as firms' expected investment policies, which was previously challenging for researchers. Overall, the report indicates that incorporating intangible capital into the measurement of q can substantially enhance the investment- q relation, providing a more comprehensive understanding of firms' future investment opportunities.

From the report:

“According to the neoclassical q-theory, Tobin’s q should be a sufficient statistic for describing firms’ investment opportunities and policies...Nonetheless, private information such as the expectations and plans of corporate managers may not yet be fully incorporated into market prices, even if the market is mostly efficient. Such information, in general, is not available for all firms, despite the availability and usefulness of information for a subset of firms provided by various surveys, e.g., the Duke University/Federal Reserve CFO Surveys and the Conference Board CEO Surveys.

One way via which managers can convey their private information to market participants is through quarterly earnings conference calls that provide a wealth of information, including corporate managers’ beliefs and expectations, to the public. Analyzing such information at a large scale is challenging because the length of a typical call is 8,000 words and thousands of companies report each quarter. Despite the progress in research tools in textual analysis in recent years, extracting complicated information such as the firm’s expected investment policy has been beyond the reach of researchers, until the advent of the revolutionary AI tool, ChatGPT. Developed by Open AI, ChatGPT sets itself apart from previous AI models by being able to take long, sophisticated questions and provide detailed and sophisticated answers at the level of human experts.

In this study, we use ChatGPT to extract firm-level corporate expectations of future investment policies and aim to answer the following research questions:

- Can an advanced AI model such as ChatGPT help understand corporate policies?
- Does the ChatGPT-extracted expected investment policy provide information beyond existing measures of investment opportunities, such as Tobin’s q or cash flows?
- Does such information have further implications on asset prices and returns?

We address these questions using 74,586 conference call transcripts for 3,878 unique companies from 2006 to 2020. We provide conference call transcripts with questions about the expected future capital expenditures to the ChatGPT model to retrieve quantitative assessments of future increases and decreases in investment and construct a *ChatGPT Investment Score*.”

For the full NBER Working Paper, go to [NBER Working Paper Series: ChatGPT and Corporate Policies](https://www.nber.org/papers/w32161) (<https://www.nber.org/papers/w32161>).

What Next?

The paper’s findings have several implications:

- 1. They suggest that ChatGPT can be used to extract valuable information about corporate policies that are not otherwise immediately available to investors;**
- 2. They demonstrate that ChatGPT can be used to improve the predictions of future investment and returns;**
- 3. Our approach can be used to expand and complement traditional surveys of executives; and**
- 4. We provide a new application of AI that produces interpretable outputs for humans.”**

Large Language Models, The Board, Organizational Strategy, and Corporate Policy

The strategic integration of LLMs like ChatGPT into corporate policy and strategy is not merely an option but a necessity for organizations aiming to thrive in the digital age.

In the rapidly evolving landscape of artificial intelligence, the emergence of large language models (LLMs) like ChatGPT represents a paradigm shift with profound implications for corporate strategy and policy. Boards of directors must grasp the multifaceted dimensions of this technology to navigate its opportunities and challenges effectively:

- 1. It is essential to understand that LLMs, including ChatGPT, are not merely advanced computational tools but represent a leap forward in how machines can generate human-like text based on the patterns learned from vast datasets.** This capability introduces a new frontier in human-computer interaction, enabling businesses to automate complex tasks that previously required nuanced human judgment. For instance, customer service, content creation, and even some aspects of decision-making can be augmented or automated to a degree previously unimaginable.
- 2. The deployment of LLMs, however, is not without its pitfalls.** The cost of running these models can be substantial, given the need for high-end computational resources. This financial aspect must be factored into the strategic planning and budgeting processes.
- 3. While LLMs can produce outputs that seem remarkably cogent, they are fundamentally limited by their training data and lack genuine understanding or contextual awareness.** This limitation can lead to inaccuracies or contextually inappropriate outputs, underscoring the importance of human oversight and the development of robust quality control mechanisms.
- 4. From a strategic perspective, the board should consider how LLMs can be integrated into the organization's value chain to create competitive advantages.** This might involve enhancing customer experiences, streamlining operations, or innovating new products and services. The adaptability of LLMs to specific tasks or domains, particularly through fine-tuning and training on specialized datasets, offers a pathway to tailor these technologies to the organization's unique needs and objectives.
- 5. Corporate policy must evolve in tandem with the adoption of LLMs to address ethical, privacy, and security considerations.** The board should ensure that policies are in place to govern the use of LLMs, including data handling practices, transparency in AI-generated outputs, and measures to prevent misuse or unintended consequences. As LLMs continue to advance, staying abreast of regulatory developments and societal expectations will be crucial for maintaining trust and compliance.

The strategic integration of LLMs like ChatGPT into corporate policy and strategy is not merely an option but a necessity for organizations aiming to thrive in the digital age. The board's role in guiding this integration, grounded in a deep understanding of the technology's capabilities and limitations, will be pivotal in shaping the organization's future trajectory.

Additional OODA Loop Resources

Cyber Risks

Corporate Board Accountability for Cyber Risks: With a combination of market forces, regulatory changes, and strategic shifts, corporate boards and their directors are now accountable for cyber risks in their firms. See: [Corporate Directors and Risk \(https://www.oodaloop.com/archive/2023/07/26/the-sec-announces-final-cybersecurity-rules-what-the-c-suite-needs-to-know-and-do/\)](https://www.oodaloop.com/archive/2023/07/26/the-sec-announces-final-cybersecurity-rules-what-the-c-suite-needs-to-know-and-do/).

Geopolitical-Cyber Risk Nexus: The interconnectivity brought by the Internet has made regional issues affect global cyberspace. Now, every significant event has cyber implications, making it imperative for leaders to recognize and act upon the symbiosis between geopolitical and cyber risks. See [The Cyber Threat \(https://www.oodaloop.com/understanding-the-cyber-threat/\)](https://www.oodaloop.com/understanding-the-cyber-threat/).

Ransomware's Rapid Evolution: Ransomware technology and its associated criminal business models have seen significant advancements. This has culminated in a heightened threat level, resembling a pandemic in its reach and impact. Yet, there are strategies available for threat mitigation. See: [Ransomware, and update. \(https://www.oodaloop.com/archive/2021/05/24/ransomware-an-update-on-the-nature-of-the-threat/\)](https://www.oodaloop.com/archive/2021/05/24/ransomware-an-update-on-the-nature-of-the-threat/).

Challenges in Cyber "Net Assessment": While leaders have long tried to gauge both cyber risk and security, actionable metrics remain elusive. Current metrics mainly determine if a system can be compromised, without guaranteeing its invulnerability. It's imperative not just to develop action plans against risks but to contextualize the state of cybersecurity concerning cyber threats. Despite its importance, achieving a reliable net assessment is increasingly challenging due to the pervasive nature of modern technology. See: [Cyber Threat \(https://www.oodaloop.com/understanding-the-cyber-threat/\)](https://www.oodaloop.com/understanding-the-cyber-threat/).

Recommendations for Action

Decision Intelligence for Optimal Choices: The simultaneous occurrence of numerous disruptions complicates situational awareness and can inhibit effective decision-making. Every enterprise should evaluate their methods of data collection, assessment, and decision-making processes. For more insights: [Decision Intelligence. \(https://www.oodaloop.com/corporate-sensemaking-establishing-an-intelligent-enterprise/\)](https://www.oodaloop.com/corporate-sensemaking-establishing-an-intelligent-enterprise/).

Proactive Mitigation of Cyber Threats: The relentless nature of cyber adversaries, whether they are criminals or nation-states, necessitates proactive measures. It's crucial to remember that cybersecurity isn't solely the responsibility of the IT department or the CISO – it's a collective effort that involves the entire leadership. Relying solely on governmental actions isn't advised given its inconsistent approach towards aiding industries in risk reduction. See: [Cyber Defenses \(https://www.oodaloop.com/optimizing-cyber-defenses-research-and-analysis-on-defensive-strategies/\)](https://www.oodaloop.com/optimizing-cyber-defenses-research-and-analysis-on-defensive-strategies/).

The Necessity of Continuous Vigilance in Cybersecurity: The consistent warnings from the FBI and CISA concerning cybersecurity signal potential large-scale threats. Cybersecurity demands 24/7 attention, even on holidays. Ensuring team endurance and preventing burnout by allocating rest periods are imperative. See: [Continuous Vigilance \(https://www.oodaloop.com/optimizing-cyber-defenses-research-and-analysis-on-defensive-strategies/\)](https://www.oodaloop.com/optimizing-cyber-defenses-research-and-analysis-on-defensive-strategies/).

Embracing Corporate Intelligence and Scenario Planning in an Uncertain Age: Apart from traditional competitive challenges, businesses also confront external threats, many of which are unpredictable. This environment amplifies the significance of Scenario Planning. It enables leaders to envision varied futures, thereby identifying potential risks and opportunities. All

organizations, regardless of their size, should allocate time to refine their understanding of the current risk landscape and adapt their strategies. See: **Scenario Planning** (<https://www.oodaloop.com/archive/2021/08/02/an-executives-guide-to-scenario-planning-for-strategic-decision-making/>).

About Daniel Pereira

Daniel Pereira is research director at OODA. He is a foresight strategist, creative technologist, and an information communication technology (ICT) and digital media researcher with 20+ years of experience directing public/private partnerships and strategic innovation initiatives.