

The Impact and Regulation of Generative Artificial Intelligence on Information Disclosure of Listed Companies

Ruohan Xu *

School of Maritime Economics and Management, Dalian Maritime University, Dalian, China

* Corresponding Author Email: 2220241159@dlmu.edu.cn

Abstract. With the development of new productive forces, generative artificial intelligence has completely overturned the traditional human-centered information production and processing model. While significantly improving production efficiency, it has also exacerbated information quality problems. This paper, through a literature review, analyzes the positive and negative impacts of generative artificial intelligence on listed companies' information disclosure and proposes corresponding optimization strategies. The study finds that generative artificial intelligence has a positive impact on listed companies' information disclosure. Specifically, in terms of financial information, generative artificial intelligence improves the efficiency and optimizes the quality of listed companies' information disclosure. In terms of non-financial information, generative artificial intelligence has great potential in enhancing listed companies' environmental information disclosure and real-time auditing. However, generative artificial intelligence also reduces the authenticity of listed companies' information disclosure, to some extent affecting stock market price fluctuations, weakening interaction and trust among market participants, and influencing investors' investment decisions in the capital market.

Keywords: Generative artificial intelligence, information disclosure, literature review.

1. Introduction

Generative Artificial Intelligence (GAI) has strengthened the information communication ecosystem of listed companies, encompassing multiple aspects such as information generation, interpretation, and regulation. In practice, while GAI has significantly improved the efficiency of information communication, it has also exacerbated information quality issues. Companies can use GAI for strategic operations, such as manipulating public opinion and creating chaos; investors are also increasingly reliant on GAI to interpret published information, profoundly changing the relationships between market participants. From a theoretical perspective, existing research has explored the dual impact of GAI on information communication from multiple angles, but there is a lack of research specifically targeting the Chinese capital market context, as well as research on the speed of decision-making in financial markets. Therefore, this paper aims to provide a theoretical framework for future research on regional optimization strategies by systematically reviewing the relevant literature on the impact of GAI on listed company information communication and analyzing it from five perspectives: the history and technological characteristics of GAI development, the positive impact of GAI on listed company information communication, the negative impact of GAI on listed company information communication, technology and policy, conclusions, and research prospects..

2. Development History and Technological Characteristics of Generative Artificial Intelligence

2.1. The Development History of Generative Artificial Intelligence

As shown in Figure 1, the development of GAI has gone through four stages: "early research," "infrastructure construction," "deep learning," and "large-scale development." The early research stage, in the mid-20th century, saw the development of Turing tests and early programs, laying the foundation for addressing the question of whether machines could generate content like humans. The

infrastructure construction phase, from the 1970s to the 1990s, related to algorithmic and theoretical research, provided key components for subsequent technologies. From 2000 to 2007, the development of deep learning, generative adversarial networks (GANs), and evolutionary systems enabled the core technologies of GAI. From 2018 to 2025, large-scale language systems, represented by the GPT series, have continued to develop, and various systems and specific applications have begun to emerge. Currently, technological development is focusing on important issues such as ethical safety and system interpretation.

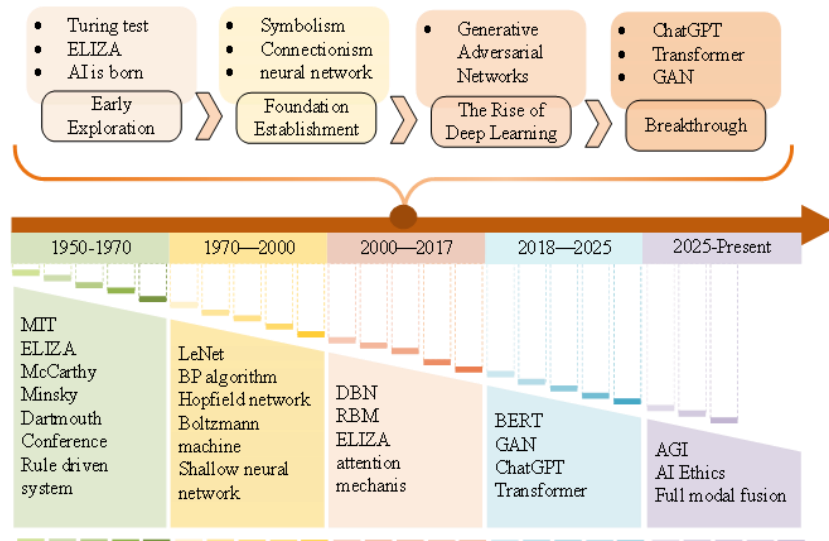


Fig. 1 The Development Trajectory of Generative AI

2.2. Technical Characteristics of Generative Artificial Intelligence

Compared to traditional AI that only accepts and executes instructions, GAI, built with the Transformer model, possesses stronger learning and thinking abilities, enabling it to summarize patterns and further develop its understanding. This is thanks to the Transformer model's unique self-attention mechanism, which allows GAI to better assess the relevance of words and sentences, thereby improving semantic understanding and logical reasoning, and facilitating autoregressive training.

Furthermore, GAI exhibits stronger interactivity, capable of providing more specific answers based on context, making it applicable to a wider range of scenarios and possessing interdisciplinary integration capabilities. The acquisition of generative AI capabilities follows the "scaling law," meaning that model performance is power-law related to the number of parameters, the amount of training data, and computational resources. Once the model size exceeds a certain threshold, the system exhibits complex capabilities not possessed by smaller-scale models—a phenomenon known as "emergence."

Of course, GAI can handle much larger datasets, with parameter sizes ranging from tens of billions to trillions, while traditional AI typically has parameter sizes within the millions and weak full-sequence capture capabilities.

3. Positive Impacts of Generative Artificial Intelligence on Listed Companies' Information Disclosure

3.1. The Empowerment of Generative Artificial Intelligence in the Field of Financial Information Disclosure

Existing studies generally confirm that the adoption and application of GAI technology has brought positive empowerment to listed companies' information disclosure from three aspects: efficiency, quality and dimension. Moreover, this empowerment effect has a clear mechanism and empirical support. In the field of financial information disclosure, Zhang used data from Chinese A-share listed companies from 2010 to 2023 to find that corporate AI innovation has significantly

improved the readability and accuracy of the MD&A section. The core mechanism is that AI technology reduces human error and redundant statements in information disclosure by optimizing corporate management efficiency and strengthening internal control quality. This conclusion has also been confirmed by capital market practice - nearly 70% of A-share listed companies have mentioned AI-related applications in their annual reports, and the implementation of AI technology has significantly reduced the time and manpower costs of corporate information disclosure [1].

3.2. The Empowerment of Generative Artificial Intelligence in Non-financial Information Disclosure Fields

In the field of non-financial information disclosure, the enabling role of GAI is also prominent. Chen et al. took the environmental information disclosure of Chinese chemical enterprises as the research object and used the DeepSeek-V3.2 large language model to build an automated scoring system with 5 primary dimensions and 30 secondary indicators. The study found that the scores generated by AI were highly consistent with the evaluation of human experts. Moreover, the application of GAI promoted the standardization and refinement of corporate environmental information disclosure, resulting in a steady upward trend in the quality of environmental information disclosure of Chinese chemical enterprises from 2020 to 2024 [2]. In addition, Mishra pointed out that the autonomy and goal orientation of intelligent AI enable it to identify abnormal information in financial audit in real time and realize the dynamic verification of information disclosure through cloud infrastructure [3]. The case study of Silva et al. confirmed that AI intelligent agents shortened the average execution time of accounting vertical analysis by 75%, promoted the transformation of the accountant's role from "executor" to "information verifier", and indirectly improved the audit efficiency of information disclosure [4].

4. The Negative Impact of Generative Artificial Intelligence on Listed Companies' Information Disclosure

4.1. Challenges of Distorted Corporate Information Disclosure

While empowering information disclosure, GAI also induces strategic disclosure behavior of listed companies and promotes a dynamic game among listed companies, investors and regulatory agencies, becoming one of the core focuses of existing research. On the corporate side, listed companies with weak fundamentals are more likely to use GAI for "information manipulation". Bar-Hava, through constructing AI-oriented scoring and AI-MEX manipulation exposure index, analyzed the MD&A disclosures of S&P 100 companies from 2021 to 2024 and found that companies are using algorithm-friendly narrative techniques for "tone management", using GAI to optimize text tone to create a positive market image, and even using confusing language to evade algorithm detection. This behavior directly leads to "formal optimization but substantive distortion" of information disclosure [5]. Neupane's research further confirms that some companies use AI-driven disclosure timing control and language complexity to reduce the speed at which the market learns the truth by 60%, forming a "strategic gap" in information disclosure [6].

4.2. Challenges of Interaction Among Market Participants

At the level of interaction among market participants, the popularization of GAI has made "machine readers" an important audience for information disclosure, thereby promoting the adaptive adjustment of listed companies' disclosure strategies. Ni found through a large-scale randomized controlled trial that when the questioner was identified as "AI", the response probability of listed company management decreased by 13%, and the tone of response to core issues such as industry performance was more negative, revealing that management deliberately avoided "algorithm interpretation" [7]. Ecker et al., based on 1.7 million stock-related GAI query data, found that investors' GAI usage behavior increased significantly on the information disclosure day, and there

was a substitution relationship between information-rich management disclosure and GAI usage. The sentiment analysis results of GAI were also related to abnormal stock returns on the same day, indicating that GAI has become an important tool for investors to interpret information disclosure, and its analysis results directly affect capital market trading behavior [8].

4.3. Trust Mechanism Challenges

At the level of the trust mechanism, the application of GAI has also triggered a "trust paradox" in information disclosure. Zhang et al. pointed out from the perspective of principal-agent theory that disclosing the identity of AI will reduce the market's perceived credibility of information services. This negative effect is more significant in information disclosure with a low formal response. When listed companies do not clearly disclose the degree of AI participation in information disclosure, the market will question the authenticity of information due to the "algorithm black box". This paradox makes the trust mechanism of information disclosure under the application of GAI face reconstruction [9].

5. Regulatory Measures for the Application of Generative Artificial Intelligence to Information Disclosure

5.1. Technical Regulatory Measures

This study, while exploring the advantages and disadvantages of GAI, points out that GAI itself is a tool for communication analysis and testing, exploring strategic monitoring solutions, and formulating different policies and initiatives. Fortunately, in addition to the environmental analysis method proposed by Chen et al., GAI's language processing capabilities have been more widely applied in the field of financial information analysis. It can quickly extract key indicators from disclosure texts, detect anomalous tone and information redundancy, becoming an efficient alternative to manual evaluation, especially suitable for large-sample, multi-period information disclosure quality research.

Regarding regulatory technology innovation, Neupane proposed the "Autonomous Disclosure Regulator" framework, advocating for transforming regulatory infrastructure from a passive data repository to an active audit node. This leverages AI technology to achieve real-time monitoring of listed companies' disclosure behavior, providing intelligent warnings for behaviors such as misleading language and abnormal disclosure timing. Bar-Hava's AI-MEX framework provides a replicable empirical tool for identifying algorithmic manipulation. Its AI-guided scoring quantifies the degree to which corporate information disclosure algorithms conform, providing a reference indicator for precise regulation by regulatory agencies.

At the level of methodological support, the development of explainable AI provides a way to solve the "black box problem" of GAI applications. Ali et al. systematically reviewed 150 peer-reviewed studies and sorted out the application of model-independent explanation methods such as SHAP and LIME in the financial field. They found that these methods can effectively analyze the decision-making logic of GAI in information disclosure assessment and fraud detection, improve the transparency and credibility of GAI regulatory tools, and provide a methodological basis for the technological transformation of information disclosure regulation [10].

5.2. Policy-related Regulatory Measures

In its "Blue Book on Artificial Intelligence Governance," to be released in December 2024, the China Academy of Information and Communications Technology (CAICT) recommends exploring new tools for security technology development and strengthening comprehensive performance monitoring before, during, and after incidents. CAICT also emphasizes the need to establish a national security standards mechanism to promote cooperation and exchange among industry, academia, research, and application sectors. To this end, CAICT will promote the development of assessment infrastructure and methodologies, reliable databases, and publish assessment specifications, technical

solutions, protocols, and standards through policy support, competition promotion, and innovation encouragement. CAICT also highlights the importance of independent review centers in the field of artificial intelligence. These institutions should clearly define the skill requirements for technical personnel, the availability of technical equipment, and the qualifications required to build equipment platforms, and conduct regular annual qualification audits.

6. Conclusion

This paper analyzes the development history and technological characteristics of generative artificial intelligence (AI), its positive and negative impacts on listed companies' information disclosure, and regulatory measures to address these existing problems. Research shows that in terms of financial information, generative AI significantly improves the efficiency, quality, and scope of listed companies' information disclosure. In terms of non-financial information, it has enormous potential to empower environmental information disclosure and real-time auditing. However, generative AI also brings many challenges to listed companies' information disclosure. Scholarly research has found that, in addition to fabricating false information, generative AI deliberately uses a more positive tone, vocabulary, and style, emphasizing positive content while minimizing or even avoiding negative content, thus slowing down the market's learning of the truth. Furthermore, the reduced probability of listed companies responding to questions identified as AI, and the impact of AI reports on stock market price fluctuations, reduce interaction and trust among market participants.

Existing research has made some progress but still has limitations. Firstly, current research focuses on a single subject; future research could further focus on the impact of generative AI on the capital market and the timeliness of investor decision-making. Secondly, current research conclusions lack universality. The technical frameworks developed by scholars to address the negative impact of generative artificial intelligence on information disclosure have limitations, and their application scenarios are limited to a subset of listed companies. Finally, current research focuses relatively little on Chinese enterprises; future research could promote localization. Furthermore, future research could compare the dual impacts of generative artificial intelligence on listed companies' information disclosure under different national systems and political structures.

References

- [1] Zhang H. Artificial intelligence innovation and financial report quality. *Journal of Accounting and Public Policy*, 2025, 44(3): 107296.
- [2] Chen Y, Li X, & Wang Z. Using Generative Artificial Intelligence to Evaluate the Quality of Chinese Environmental Information Disclosure in Chemical Firms. *Sustainability*, 2025, 17(24): 11348.
- [3] Mishra S. SMART AUDIT AGENTIC AI: Autonomous Recovery of Hidden Profits from Invoice Oversights. *International Journal of Accounting and Management*, 2025, 12(4): 45-62.
- [4] Silva R, & Oliveira J. AI Agents and No-Code Tools in Accounting: A Case Study. *AI*, 2025, 4(4): 65.
- [5] Bar-Hava K. The AI-MEX Framework: Two Empirical Tools for Detecting Algorithm-Oriented Narrative Design and Manipulation in MD&A Disclosures. Working Paper, Hebrew University of Jerusalem, 2025.
- [6] Neupane K. The Strategic Gap: How AI-Driven Timing and Complexity Shape Investor Trust in the Age of Digital Agents. arXiv:2602.17895, 2026.
- [7] Ni Z. Talk to AI-Equipped Investors: A Field Experiment. Seminar Presentation, Renmin University of China, 2025.
- [8] Ecker F, Li X, Li Y, & Wu F. How Stock Market Participants Use Generative Artificial Intelligence: Evidence from User-Platform Interaction Data. HEC Paris Research Paper No. 1563, 2025.
- [9] Zhang J, Zhu R, & Ma H. Who's Handling My Business? The Effect of AI Identity Disclosure on Trustworthiness from a Principal-Agent View. *ACIS 2025 Proceedings*, 2025, 106.
- [10] Ali S, & Hussain T. Model-agnostic explainable artificial intelligence methods in finance: a systematic review, recent developments, limitations, challenges and future directions. *Artificial Intelligence Review*, 2025, 58: 232.