Research on the Impact of DeepSeek on the Financial Industry

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Abstract. According to the current situation of the rise of DeepSeek in the wave of AI development, and many industries will be affected. Therefore, this paper attempts to explore the future development direction of DeepSeek in the financial field. The research focuses on the impact of DeepSeek on both domestic and foreign AI markets, as well as the influence it has on companies that have already deployed relevant technologies. At the same time, the research puts forward ideas for breakthroughs in the application of AI in the financial industry, pointing out a path to development for the financial industry. DeepSeek, with its characteristics of high performance, low cost, and full open-source nature, has brought new development opportunities to the financial industry. It can not only significantly enhance the operational efficiency of financial institutions and optimize risk management but also drive financial innovation and promote the intelligent and sustainable development of the financial ecosystem.

Keywords: Deepseek, Financial industry, AI industry.

1   Introduction

In today's digital era, the artificial intelligence (AI) industry is booming at an unprecedented pace and has already become the core driving force behind global economic and technological transformations. With its powerful capabilities in data analysis, pattern recognition, and prediction, AI technology has demonstrated tremendous application potential and commercial value in numerous fields. From healthcare and transportation to education and entertainment, every sector has been profoundly influenced by AI. As a crucial hub of the modern economy, the financial industry has inevitably been drawn into this AI wave. An increasing number of financial institutions are actively exploring and applying AI technology to enhance operational efficiency, improve customer service experiences, innovating financial products and services, and strengthening risk management capabilities. The application scope of AI in the financial field is constantly expanding.

In the rapid development process of AI technology, the emergence of DeepSeek is like a bombshell, triggering extensive attention and heated discussions globally. As a Chinese AI model, DeepSeek has quickly stood out in the highly competitive AI market with its unique advantages and innovation. It can not only rival the leading models in

the industry in terms of performance, such as OpenAI's GPT-4. More notably, its research and development cost is extremely low, costing only about 6 million US dollars, and the R&D cycle is only two months. This achievement has subverted people's traditional perception of AI research and development as a high-investment and long-cycle endeavor and has also had a strong impact on the existing AI industry landscape.

Previous studies have demonstrated that AI will have a significant impact on the financial sector. When ChatGPT was first launched, Xuan et al. pointed out that it would have a profound impact on cost reduction and efficiency improvement, productivity enhancement, and product and service innovation. It could play a role in various fields such as customer service, marketing, data analysis, and investment research [1]. Wang and Zhang also stated that generative artificial intelligence would change the decision-making models and risk management methods in the financial industry. At the same time, it might trigger impacts on the labor structure, lead to imbalances in income distribution, and bring about data risks [2]. Su pointed out that ChatGPT could handle a large amount of data, thus enabling a better understanding of users' feelings and creating a better dialogue experience for customers. Its stability might even exceed that of human customer service representatives [3]. Regarding Deepseek, Lu and Gao pointed out that it is expected to play a greater role in areas such as intelligent finance, open banking, and digital currencies, and help build a more intelligent, open, and sustainable financial ecosystem [4]. Concerning the specific applications of Deepseek, Zhang pointed out that many banks have already made arrangements for the application of DeepSeek. The large amount of data in the financial industry will provide an excellent scenario for the iterative development of large language models. However, its rigor in content creation and investment analysis remains to be examined [5]. Zhang et al. believed that Deepseek would drive the financial industry to engage in a digital transformation competition. The real challenge lies in achieving a deep integration of technology with industry characteristics and finding the precise positioning of AI [6]. Feng believes that the application of artificial intelligence can break through the constraints of traditional productivity and inject strong impetus into the high-quality development of the economy [7]. Liang believes that the high technical threshold is a major obstacle for artificial intelligence to enter the financial field. The complexity of the technology and the shortage of talent are important issues that must be faced at present [8].

2   The Advantages and Characteristics of DeepSeek

DeepSeek-R1 model was released by Hangzhou DeepSeek AI Fundamental Technology Research Co., Ltd. (DeepSeek) on January 20, 2025. With the characteristics of high performance, low cost, and complete open source, it has created unprecedented opportunities for the large-scale dissemination of artificial intelligence large language models.

DeepSeek comprehensively applies a series of innovative technologies and algorithm architectures, such as the Group Relative Policy Optimization (GRPO) rein-

forcement learning algorithm, the Mixture of Experts (MoE) architecture, the Multi-Head Latent Attention (MLA) mechanism, and the Multi-Token Prediction (MTP) training objective. These significantly improve the efficiency and performance of the model, enabling it to perform excellently in logical reasoning, multimodal task processing, programming assistance, long text processing, etc., and to compete with other leading models. Especially, its comprehensive performance in Chinese language processing is significantly better than that of OpenAI, making it more adaptable to users in the Chinese language environment [9].

In terms of cost, DeepSeek claims that the training cost of its model is approximately $5.576 million, which is about one-tenth of that of OpenAI. Its pricing is also much lower than that of OpenAI's latest o1 model, demonstrating a quite high price-performance ratio [10]. DeepSeek has significantly reduced its computing power consumption through algorithm optimization and conducted high-quality data screening to improve data efficiency.

Moreover, compared with other large language models, the open-source DeepSeek provides more conveniences for enterprises. This means that technology model suppliers can adjust the parameters of the model according to the business development requirements of target enterprises, increasing the adaptability of the model and also enhancing the security of data usage [11].

3　The Impact of DeepSeek on AI Applications

3.1　Deployment Effect

Currently, the application of large models in the securities industry mainly focuses on in-depth exploration and application in multiple fields such as investment research, investment consulting, risk control, and operation.

More than a dozen public funds, including Bosera Fund, Fullgoal Fund, and Guotai Fund, have carried out private deployments of the DeepSeek series of open-source models. From the perspective of application scenarios, the private deployments of the DeepSeek series of open-source models by public funds mainly cover core business scenarios such as investment research, consulting services, software development, risk control, document office work, and product sales.

Take the Bosera Fund as an example. In the beginning of 2024, it discovered the potential of the DeepSeek model in automatic code writing and logical reasoning. It took the lead in deploying the DeepSeek - v1 model on its own Ascend server as the base model for the company's intelligent development tools and upgraded it to the DeepSeek - v2 model in August 2024. At the beginning of 2025, with the release of the DeepSeek - R1 model, Bosera Fund completed the internal deployment and began to explore its applications in investment research, consulting services, and software development.

Bosera Fund believes that the R1 model performs excellently in reasoning ability, which can help improve work efficiency and support business innovation. At the same time, its demand for computing power has also decreased, creating conditions for further promotion and application. Guotai Fund stated that at the end of January 2025,

the company completed the private deployment of the DeepSeek series of models and built the Guotai Fund AI application development platform, which has shown remarkable performance in business scenarios such as brand maintenance, risk control, product operation, and document office work. Thanks to this, business personnel can conveniently and quickly conduct in-depth analysis of relevant reports, strengthen data mining capabilities, streamline information processes, and improve operation efficiency.

Fullgoal Fund said that the technology team of Fullgoal Fund has actively explored the application of large language models and deployed multiple open-source models including DeepSeek. After exploration and verification, the locally deployed models have reached the usable stage in application directions such as internal data processing, code-assisted generation, text generation, enterprise-level RAG, and research report interpretation. With the further integration of model iteration and AI applications, it will comprehensively optimize the existing work process experience and improve work efficiency.

Relevant personnel from Guosheng Securities also mentioned that as early as 2024 when large-model technology was evolving rapidly, Guosheng Securities accelerated its digital transformation and built a large - language - model service based on the data middle-office. This time, the private deployment of the DeepSeek series of models by Guosheng Securities aims to further deepen its digital transformation.

Guotai Junan, which has already built the "Junhong Lingxi" large model, has currently also carried out the local deployment of the DeepSeek - R1 model. This move aims to further strengthen the intelligent investment research and intelligent service capabilities of the "Junhong Lingxi" large model.

DeepSeek has significant advantages in terms of independent and controllable core technology, deep fit of application scenarios, and cost-efficiency. These advantages provide huge space and opportunities for the extensive application of AI large models in the securities industry. Its advantages lie in strong reasoning ability and lower reasoning costs. DeepSeek can accurately identify the intentions of user questions. Under the same resources, DeepSeek can answer questions faster than other models.

Industry insiders point out that the impact of the DeepSeek series of open-source models is subversive. If used well, it can significantly reduce many costs such as public-fund systems and manpower. For example, posters, videos, etc. can all use AI in the future. Its application scenarios in the asset management field are also extremely extensive. For example, in investment research, under the traditional business model, researchers and fund managers need to deeply process massive amounts of information to convert fundamental information into references for investment decisions. However, with the help of AI tools, the efficiency of this process has been greatly improved. For example, in risk control, financial institutions are essentially more like technology companies. With the development of financial technology to this stage, AI has comprehensive value in preventing risks, especially in deeply learning and optimizing the risk-return ratio of investment portfolios.

3.2   Impact on Previous AI Companies

DeepSeek has attracted global attention. Its newly released R1 model has topped the free APP download ranking list in the Apple App Store in the United States, surpassing ChatGPT.

Through dynamic sparse computing and a 4D parallel training framework, DeepSeek has achieved a continuous utilization rate of 42% on a single card at the Nanjing Intelligent Computing Center, which is 3.7 times higher than Meta's PTD-P3D solution. What's more critical is that its Mixture of Experts (MoE) architecture has reduced the training cost of a 175-billion-parameter model from the $63 million of GPT-4 to $9 million, directly breaking through the moat of computing power that the United States takes pride in.

The latest report from the Stanford AI Laboratory shows that 78% of NLP teams across the United States are restructuring their technical roadmaps. The attention mechanism, which the Transformer architecture takes pride in, exposes fatal flaws in the face of DeepSeek's "spatiotemporal perception sparse network": when processing long texts with 100,000 tokens, the latter only occupies 1/19 of the memory of the former, while the inference speed is increased by 8 times. This directly led Google to urgently suspend the launch conference of Gemini 3.0.

Traditional large-scale AI models such as GPT-4 need to activate all parameters during the inference process, resulting in a linear increase in computing resources and computing power requirements, and the continuous rise of inference costs. In contrast, DeepSeek adopts a sparse architecture, activating only 35% - 37% of the parameters, which greatly improves the inference efficiency, shortens the inference time, and reduces the long-term inference cost.

3.3   The Impact of Deepseek on Domestic Companies

If the sparse architecture becomes the industry standard, the key indicator for future AI optimization will no longer be the "number of parameters" but the "activation efficiency". This change will drive the rise of lightweight and scenario-specific models and play an important role in fields such as edge computing, accelerating the popularization and application of AI technology.

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AI companies caught in this wave have all adjusted their development directions. Taking the "Six Dragons of AI" as an example, Zero-One Wanwu (Zero-One Tech) clearly withdrew from the money-burning race of "ultra-large foundation models", and ByteDance's Baichuan Intelligence focused on the medical field. Among the remaining "four dragons", Zhizhuo and StepStar are respectively relying on the resources of the Beijing and Shanghai municipal governments to promote the progress of their projects. Minimax is relatively stable in overseas markets and the video field. The Dark Side of

the Moon (Yuezhi Anmian) has been more obviously impacted by DeepSeek. According to the data from QuestMobile in January, DeepSeek's daily active users (DAU) exceeded Doubao's that month, and Kimi dropped to third place, and its user growth rate has significantly slowed down.

Li Kaifu, the founder of Zero-One Wanwu (Zero-One Tech), said that the company will no longer develop a single large model in the future. Instead, it will adopt an open model strategy and develop products that can be compatible with the mainstream models in China. After the transformation, Zero-One Wanwu (Zero-One Tech) has adjusted from a heavy investment in foundation large models to a provider of software and hardware solutions. It will no longer train ultra-large foundation models with a scale of trillions of parameters, but will continue to develop lightweight models.

Baichuan Intelligence has adjusted its business direction, optimized its financial business, and focused on the medical To B track. Regarding the contraction of its financial business, Baichuan officially responded to reporters that Baichuan is optimizing and adjusting its financial business according to the established plan to concentrate resources and focus on core businesses.

Unlike other manufacturers that are shrinking their business at the operational level, Zhizhuo is alleviating its financial anxiety by accelerating the speed of getting orders and financing. In just March, Zhizhuo successively announced that it had received financing from Hangzhou state-owned assets, Zhuhai Huafa Group, and the High-tech Zone of Chengdu, Sichuan. At the same time, cooperation agreements for projects between both parties were reached. For example, the High-tech Zone of Zhuhai and Huafa Group signed a cooperation agreement with Zhizhuo, announcing the joint establishment of the first city-level GLM large model space, "Zhizhuo + Zhuhai Huafa Space", with Zhizhuo, providing full-stack AI technical support from the technical layer, platform layer to the application layer for Zhuhai's industries. In addition, the High-tech Zone of Chengdu, Sichuan cooperated with Zhizhuo to create the foundation large model of Sichuan Province, "Zhizhuo Zhuge Large Model", and simultaneously built an AI infrastructure integrating a large model training center, a research and development center, and a western empowerment platform. However, it should be noted that if Zhizhuo's new round of fundraising needs to be based on the progress of projects, then the company's financial pressure has not been fundamentally alleviated.

4   Trends and Prospects

According to the rapid development of DeepSeek, the financial industry needs to make breakthroughs in many aspects.

Firstly, the financial industry needs to make rational use of DeepSeek's powerful natural language processing capabilities. This enables intelligent customer service to more accurately understand customers' questions and needs, provide precise answers, and improve customer service efficiency and satisfaction. At the same time, it is also possible to develop customer service robots that can automatically generate call summaries, work orders, etc., reducing the burden on human workers. Within banks, DeepSeek can be used to assist employees in handling documents, data analysis, and

other tasks. For example, it can automatically conduct financial statement analysis and risk report generation, reducing repetitive labor and improving office efficiency. In the credit business, through DeepSeek's analysis of a large amount of historical and real-time data, it can more accurately assess customers' credit risks, providing a scientific basis for credit decisions. For instance, by comprehensively considering various factors such as an enterprise's financial status, business model, and market prospects, it can quickly provide a reasonable loan amount and risk rating, improving the quality of credit business and enhancing the professionalism of DeepSeek's application in the financial industry.

Secondly, the financial industry also needs to strengthen risk prevention and control. Traditional risk control relies on preset rules, which leads to a lag in identifying new types of financial fraud. DeepSeek can combine transaction behavior data to conduct abnormal logical chain detection and game deduction defense, better dealing with new types of financial fraud and enhancing dynamic risk control capabilities. For example, when analyzing the credit risks of enterprises, it not only pays attention to conventional indicators in enterprise financial statements, such as the debt-to-asset ratio and current ratio.

It can also deeply explore multi-dimensional information such as the enterprise's business model, market competitive position, industry development trends, and the upstream and downstream supply chain relationships. Through the integration and analysis of this massive amount of data, DeepSeek will be able to identify risk factors that have been previously overlooked.

At the same time, DeepSeek will promptly adjust the risk assessment indicators and weights according to the newly discovered risk factors and correlation relationships. For example, if it is found that a certain industry is greatly affected by macroeconomic policies when assessing the risks of enterprises in this industry, it will correspondingly increase the weights of policy risk-related indicators, making the risk assessment model more in line with the actual situation, significantly improving the accuracy and adaptability of the model, and providing a more scientific and reliable basis for the risk decisions of financial institutions.

5   Conclusion

This paper studies the future development direction of DeepSeek in the financial field, focusing on its impact on domestic and foreign AI markets and relevant companies, as well as exploring breakthrough ideas for AI applications in the financial industry.

DeepSeek has unique advantages like high performance, low cost, and fully open-source. It has been deployed by many financial institutions such as the Bosera Fund, Guotai Fund, etc. in various business scenarios, bringing improvements in operational efficiency, innovation, and risk control. It has also had a significant impact on the AI market, surpassing leading models in some aspects, and changing the strategies of many AI companies. For example, it has made traditional AI models' weaknesses in inference cost and efficiency more prominent and led some domestic AI companies to adjust their development directions.

In the future, the financial industry should make rational use of DeepSeek's natural language processing capabilities to enhance customer service and office efficiency and improve credit business quality. Strengthening risk prevention and control by leveraging DeepSeek to detect new types of financial fraud and optimize risk assessment models is also crucial. By doing so, the financial industry can better adapt to the development of AI technology, promote its digital transformation, and build a more intelligent and sustainable financial ecosystem.

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