

Towards Promoting the Efficiency of Enterprise Investment Management with Artificial Intelligence

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Abstract. With the continuous development and optimization of artificial intelligence, enterprises have begun to pay attention to the use of artificial intelligence for the optimization of work and the improvement of efficiency, and in the management of enterprise investment, a number of companies have begun to use a large number of artificial intelligence technologies in the integration and analysis of data, information processing and analysis, risk management, efficiency improvement, and so on. Enterprises encounter problems in analyzing data and information in investment management, and problems in risk management, all of which affect the improvement of their investment returns. Enterprises face a huge amount of data in the process of investment management, it is difficult to calculate a large number of data models in a relatively short period of time, and it is impossible to analyze and extract more information. In the face of investment risk, the control of risk in the past investment process is more based on experience to judge, there is a great deal of subjective assumptions in risk avoidance. And in the investment process companies also want to increase returns, improve efficiency, avoid risk, and achieve a more automated and intelligent trading process. Enterprises need to use artificial intelligence to technically solve the problems of data aggregation, arithmetic, and analysis; use artificial intelligence to optimize the problem of processing large amounts of information; use artificial intelligence technology to enhance risk management and predictive analysis, strengthen intelligent decision-making and portfolio optimization, and provide insights into big data analysis and market trends. The wide application of artificial intelligence technology in enterprises also has a certain impact on the development of enterprises, and it has a certain impact on the planning, feasibility, whole-process control, investment evaluation, investment report, and investment efficiency of investment in the investment link, which makes it widely concerned in the society and in enterprises.

Keywords: artificial intelligence, investment management, investment efficiency.

1. Introduction

1.1. Analysis of the current state of development of artificial intelligence technology and its application in the field of investment management

The first three industrial revolutions driven by technological innovation greatly promoted the progress of human productivity, now we are in the fourth industrial revolution and industry 4.0 wave represented by artificial intelligence, internet of things, robotics, 3D printing, big data and cloud computing technology, the early and middle stages of the artificial intelligence technology is one of the core driving force of industry 4.0, is being deeply applied in the industry, and smart manufacturing transformation and upgrading. In a seminar held at Dartmouth College in 1956, John McCarthy first put forward the concept of artificial intelligence, thinking that machines can simulate human learning activities and other human intelligence characteristics. 1966, Joseph Wiesenbaum, a German-American computer scientist at the Massachusetts Institute of Technology (MIT), developed the first chatting robot in the history of mankind. 1997, IBM's AI computer "Deep Chess", a chess computer, was launched. In 1997, IBM's AI chess computer Deep Blue defeated then world chess champion Garry Kasparov, and the development of AI began to move into the fast lane. since 2010, massive amounts of data and new computing power have driven the diversified development and application of AI, and pushed AI into human life.

Due to the openness of the Internet and the availability of data, the new artificial intelligence has taken the lead in financial scenarios in the field of investment: stocks, bonds, futures, funds, foreign exchange, and so on. Through machine learning, it utilizes arithmetic power and algorithms to process large amounts of data and improve investment prediction capabilities. Currently more and more foreign investment firms are modeling and predicting the market state through machine learning algorithms, and proving the effectiveness of the models in historical data testing. At the same time, domestic financial institutions have also strengthened the application of artificial intelligence. In March 2017, Huaxia Fund cooperated with Microsoft Research Asia to explore AI investment and apply "AI+" investment to improve investment efficiency through algorithmic trading. With the continuous development of financial technology, algorithmic trading has become an important investment method for secondary market trading, according to Wang Chen, CEO of Nine Kun Investment, in recent years, Nine Kun Investment has begun to use AI algorithms on a large scale to be applied in the field of investment strategy, and in 2020, the contribution of AI technology in the company's investment field, which accounts for about 60% of the company's contribution to the company's investment in the field of investment, up to now, the development of new technology and the advancement of AI technology lead the company's entire investment research framework.

Generative AI has exploded in technology since 2017, and after the release of chatGPT in 2022, countries followed suit and further pushed AI to a new height of generative. OpenAI continues to release chatGPT version 4.0, Baichuan Intelligence releases the Baichuan Big Model, and Baidu releases the Comate Programming Assistant, which allows generative AI to be further applied in various fields, and the general public can experience the changes in life that generative AI can bring to production and life more conveniently. At the same time, the public can also experience the change of generative AI to life, making production and life more convenient. In terms of investment management, computers are highly applied to machine learning by constantly simulating human learning ability, and generative AI is applied to effectively improve the efficiency of investment, reduce investment risk and enhance the return of investment portfolio.

1.2. The role of artificial intelligence technology in enterprise investment management

Artificial intelligence technology is utilized to solve problems encountered in business investment. The first is to deal with the data and information required in investment management. In financial investment, whether it is stocks, bonds, funds, foreign exchange and other investments need to browse and summarize a large amount of pre-investment data, in order to better apply the data to make reasonable predictions on investment. And these pre-data is very scattered, and the amount of data is huge, want to summarize these data and derive the next investment plan from the data, as well as to extract effective information from the data, which requires a lot of time and manpower to data processing and analysis. Artificial intelligence can help people effectively aggregate data, analyze data, and perform further operations on data, so as to filter effective data from a large amount of data and analyze and aggregate it into a form that is easier for investment managers to observe, understand, and judge. The machine algorithm of artificial intelligence can effectively save the time of investment managers to collect, summarize and calculate the data, save human, material and financial resources, and improve the analysis efficiency of enterprise investment managers in the early stage.

Second is the aspect of risk management in investment management. Traditional risk identification methods require a large amount of human involvement to cope with a large amount of data information, not only the accuracy of identification is not high, but at the same time it is easy to ignore some predictable potential risks. Traditional risk assessment methods are mainly based on rules of thumb and a relatively small amount of data analysis. However, the reality is that investment managers need to analyze a huge amount of data, high complexity, and rapid change. Traditional assessment methods often struggle to accurately identify and analyze risks. Traditional risk detection methods are largely based on manual inspections and manual reports, but are less efficient due to labor and time constraints. The traditional risk assessment and monitoring scope is single and not comprehensive enough to effectively predict and warn risks, and cannot detect and respond to risks

very quickly, which makes the enterprise's decision-making and control of risks more hasty, and more based on the experience of the managers, guessing how the risks will come, and how the enterprise should avoid the risks and control the risks.

And the development of artificial intelligence provides new technical support for the application of enterprises in risk management. It provides new ideas and new tools for risk identification in investment management. Artificial intelligence technology can quickly find relevant laws and risk points in massive data and information, effectively reduce errors and omissions caused by human factors through automated and intelligent risk identification methods, and improve the accuracy and promptness of risk identification. At the same time, artificial intelligence can also continuously learn, optimize and improve risk identification capabilities, providing long-term support for enterprise risk management. Artificial intelligence technology can analyze and mine a large amount of structured and unstructured data through technical means such as machine learning, deep learning and natural language processing, so as to discover potential risk factors and patterns and improve the accuracy and reliability of risk assessment. Artificial intelligence technology can monitor and analyze a large amount of data in real time by means of automation and intelligence to discover risks in a timely manner and improve the monitoring efficiency, and it can compare and analyze data from different time periods to discover the risk characteristics and change trends in different time periods. Different risk types are then categorized and identified, the characteristics and influencing factors of different risk types are understood, and risks are predicted and early-warned so that risks can be detected and responded to in advance.

Artificial intelligence in risk decision-making can help enterprises make faster and more accurate decisions, and can use big data analysis technology to collect, process and analyze a large amount of data information to provide detailed and accurate risk information and predictions to help enterprises identify and prevent potential risks and reduce losses. Risk decision-making system based on artificial intelligence can also transform complex data information into intuitive charts or images through data visualization and other means, more intuitively and clearly show the risks faced by the enterprise, and help enterprise decision makers make decisions quickly. In risk control artificial intelligence can provide more efficient and accurate risk control methods, to provide more reliable protection for enterprises, on the one hand, data analysis technology can be used for real-time monitoring of risk control measures to identify potential risks in a timely manner, on the other hand, intelligent algorithms can be utilized to help enterprises identify and eliminate risks faster and more accurately, and improve the efficiency of risk control.

Artificial Intelligence can promote investment management through his algorithmic optimization process and automated intelligent trading and other technologies to improve returns, reduce the risk of investment management, improve the efficiency of management in the field of corporate investment, and at the same time to help companies to introduce talent and find more suitable for investment management.

2. Related work

2.1. Problems encountered in enterprise investment management

Investment managers need a lot of data processing, data analysis, data computing, and the related information integration and summarization workload is also very huge, and investment managers can easily ignore and miss a lot of information[1].

If enterprises want to gain profit in investment, they must carry out risk management. Investment managers are more likely to use past experience to make judgments about investment market risks[2], it is easy to carry a subjective consciousness, and the data and information that investment managers can grasp is limited, which makes them tend to ignore a lot of risks in the investment process[3].

Enterprises in the investment is the pursuit of interests, and efficiency enhancement can effectively improve the efficiency of enterprise investment, capital return to produce higher profits. If only the investment manager to carry out investment management activities, then the efficiency will be subject

to great artificial limitations, and it is very easy in the investment process, ignoring certain aspects of the problem, and then produce economic losses[4].

2.2. Application of artificial intelligence to enterprise investment management

Artificial intelligence through machine learning algorithms to deal with a large amount of data and information, in stocks and bonds, futures funds, foreign exchange and other investment scenarios show a very good prediction ability, the ability to summarize the information, thus enabling investment managers to alleviate a large amount of information processing, the process of data collection and computing, and can be effectively screened and calculated for the labeling of the data to provide data models, but also can be intelligently analyzed, so that the information can be accurately and quickly be retrieved and summarized[5-6].

Risk management is also very important in the investment process, and artificial intelligence provides new ideas and tools for risk identification[7]. In the massive amount of data and information, to find the law and risk points, through automated intelligent risk identification methods, to improve the accuracy and immediacy of risk identification[8], while constantly learning to optimize and improve the risk identification capabilities, to provide long-term support for the enterprise, through the use of artificial intelligence enterprises can be more accurate and efficient assessment and monitoring of risk, and take timely measures to respond to risk. In terms of risk decision-making, AI can use big data analytics to collect, process and analyze a large amount of data information to identify and prevent risks and reduce losses. Data visualization can intuitively and clearly show the risks and help investment managers make quick decisions. In risk control data analysis technology real-time monitoring, intelligent algorithms faster and more accurate elimination of risk, improve the efficiency of risk control, to provide more reliable protection for enterprises, and macroeconomic trends, global economic and political news analysis to provide risk management strategies[9].

Artificial Intelligence automates the investment process through algorithmic trading and improves the efficiency of investment[10]. First of all, in terms of information can automatically complete the Internet data collection, the implementation of massive data processing and analysis. And through the training of machine learning, it is able to imitate and copy the perspective of investment managers[11]. Imitate the investment manager to carry out investment activities, and secondly, in the transaction artificial intelligence can further utilize high-speed computing power to dynamically discover the interrelationships between different asset classes in different markets around the world, and immediately execute transactions. Artificial intelligence can remain efficient for long periods of time and is not affected by market volatility and emotions, which are subjective aspects that investment managers can have.

3. Methodological design

Through the information can be found that artificial intelligence technology has begun to be used in various processes, various management in the enterprise. And artificial intelligence technology is also in the process of continuous optimization and development. The traditional artificial intelligence era, technology as infrastructure, forming business support, the formation of information technology "IT + finance" mode. After the development of science and technology to the foreground, so that artificial intelligence technology into the core aspects of the financial business, the formation of digital "Internet finance". And then through the integration of technology and business, technological innovation to drive business change, the formation of "AI + finance" mode, so that artificial intelligence and financial services are more integrated, forming an era of digital intelligence. Although the role of artificial intelligence in the field of financial investment still has limitations and faces some legal norms and ethical issues, it is undeniable that artificial intelligence has penetrated into all aspects of enterprise investment management and all aspects of public life. And this paper focuses the problem mainly on the fact that AI can promote the improvement of the return of investment management and AI can reduce the risk of investment management.

With the increasing amount of data, high-speed iteration of information, data-based transformation continues to deepen, in order to accelerate the production and use of data in financial scenarios, the continuous development of technology can be generated by AI to generate more accurate models, prompting the understanding and correction of better products to match the needs of the precise to more users, it will produce more data, and the data aggregated into more user feedback, which in turn will again guide the Artificial intelligence to generate more accurate models. This makes the application of AI in financial investment scenarios form a relatively efficient cycle. As artificial intelligence processes data and information more efficiently, it also makes investment efficiency and investment management efficiency increase dramatically.

The steady growth of AI arithmetic power provides solid support for AI technology progress; the continuous innovation of algorithms provides strong momentum for AI technology progress and brings new possibilities for investment management. Taking big data risk control as an example, artificial planning through the analysis of historical data and risk cases, experts summarize some rules and patterns for identifying and predicting risks, but the artificial rules processing time is long can not be automatically updated, and the decision-making miscalculation is high; linear regression through the establishment of linear regression models, quantitative assessment and prediction of risk, decision-making fine reading is relatively elevated, but the ability to judge the unknown risk is weak; machine learning By improving the performance and generalization ability of the model, the risk can be identified and assessed more accurately, and the model differentiation is significantly improved; our country is now developing to the stage of AI deep learning, through the multi-layer non-linear changes, deep learning can learn from the data to a more abstract and high-level representation of the features, to further improve the accuracy and performance of the wind control, the model differentiation is significantly improved, and the data processing and feature processing capabilities are stronger , and the precision and performance for risk control are also stronger. It provides more possibilities and stronger technical support for risk management of enterprise investment.

The AI products represented by ChatGPT can form a huge driving force for the investment business after innovation, deeply integrating AI and financial business integration to drive business development. Enterprises gradually utilize this technology in the investment field that can bring them a lot of revenue, opening up the space for corporate financial investment innovation and improving efficiency for corporate investment management in the process of rapid evolution of generative AI. Take Workday, the world's leading human resources and financial management services company, for example, which builds financial and human resources systems for enterprises and combines these applications with planning and analysis for organizations of all sizes to be able to use. Leveraging AI technology to bring better decision-making to the enterprise. Workday puts AI at the heart of its open and connected systems to help organizations make the right decisions faster, drive flawless business and financial operations, and deliver better performance. Workday has built the Manager Insights Hub: a hub that integrates relevant data and functionality with a manager's perspective, and efficiently predicts investment risks, uses AI to provide personalized advice so managers can quickly see how their team's goals are being accomplished, advice to help employees grow to reduce talent turnover and improve employee engagement, helps improve decision-making efficiency, and uses AI technology to efficiently generate revenue in the investment space.

4. Empirical analysis

The following data will briefly explain the rapid development of artificial intelligence and its application and positive role in financial investments.

Total global corporate investment in AI is approaching \$92 billion in 2022, a slight decline from the previous year. Annual investment in AI dipped slightly in 2018, but this is only temporary. Private investment accounts for a significant portion of total AI business investment. Since 2016, AI investment has grown more than six-fold, which is phenomenal growth in any market. This is a testament to the importance of AI's growth worldwide (Fig.1).

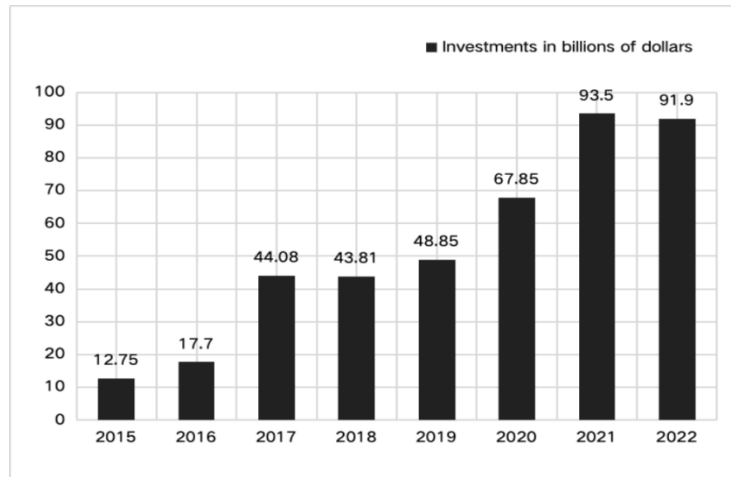


Fig. 1 Total Global Enterprise Artificial Intelligence (AI) Investments (USD Billion), 2015 - 2022

Artificial intelligence is actively used in service operations and strategy as well as corporate finance, with almost all industries reporting the use of around 20% of AI in these functions. The use of AI in product manufacturing is concentrated in the financial services industry, with more than 30% of respondents using AI by 2023 (Table 1).

Table 1: Global Artificial Intelligence (AI) Adoption Rate by Industry and Function, %, 2022

	AI capability	Rate
1	Robotic process automation	39
2	Computer vision	34
3	Natural-language text understanding	33
4	Virtual agents or conversational interfaces	33
5	Deep learning	30
6	Knowledge graphs	25
7	Recommender systems	25
8	Digital twins	24
9	Natural language speech understanding	23
10	Physical robotics	20

The proportion of enterprise investment income in the total profit of enterprises has increased year by year, and the total investment income also belongs to the upward trend, and the effect of the gradual application of artificial intelligence technology in the field of enterprise investment in recent years is also reflected in the proportion of enterprise investment income in the total profit (Fig.2).

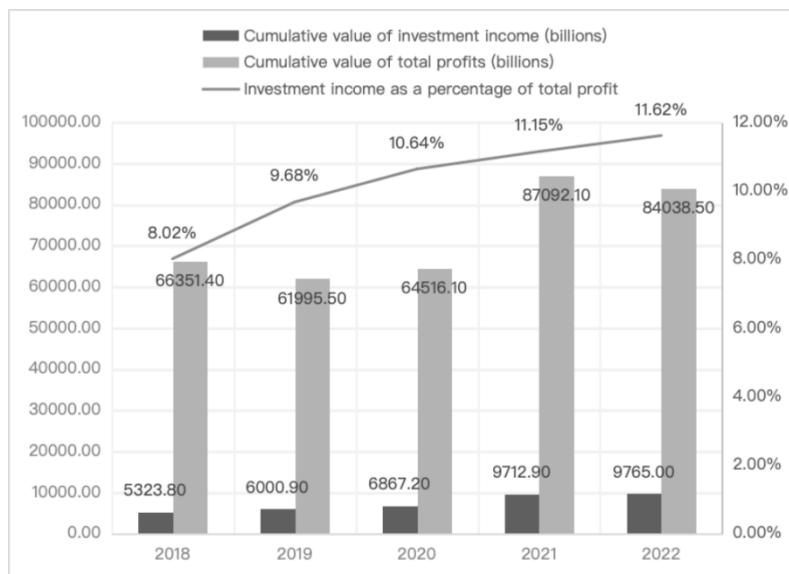


Fig. 2 Share of corporate investment income in total corporate profits (Source: National Statistical Office)

5. Conclusion

The world economy is now entering a phase of new technological revolution characterized by automation, digitization and connectivity. Technologies such as the Internet of Things (IoT), cloud computing, big data, artificial intelligence and 3D printing are affecting all aspects of the economy and daily life, and these changes are opening up new opportunities to increase productivity, promote international trade and foster shared prosperity. Smartphones and the Internet of Things (IoT) have made digital data abundant and ubiquitous. Expanded Internet access is also improving market efficiency by lowering barriers to entry. The progressive implementation of robotics and artificial intelligence technologies has reduced costs and improved working conditions.

Artificial intelligence as an emerging technology is used in all aspects of production and life. And this paper links artificial intelligence and enterprise investment management together to explore the improvement of investment efficiency. Respectively from the data and information aspects, risk management aspects to list in the enterprise investment process using artificial intelligence technology to solve the problem of efficiency improvement, investment project procedures for further optimization, staffing is also optimized through artificial intelligence, the formation of a more reasonable investment procedures, the interests of a greater investment management mode. And then encourage enterprises can continue to explore in the field of artificial intelligence, try more applications, through technology to change the original business model, investment model, so as to obtain greater benefits.

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