Development Strategy of Securities Investment Industry under the Background of Artificial Intelligence

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Abstract. The application of artificial intelligence technology in the field of securities investment is becoming the next hotspot of Internet finance. The purpose of this paper is to study the development strategy of securities investment industry based on the background of artificial intelligence. First of all, after understanding that there will be revolutionary changes in the field of securities investment, this paper studies three strategies for the development of securities investment industry: establishing the registration and filing system of securities investment intelligent agent, establishing the source code notarization system of securities investment intelligent agent and constructing the regulatory framework suitable for inclusive financial services. The research method of empirical analysis is adopted to obtain customer data through more than two different channels. The experimental results show that the research method of empirical analysis is adopted. According to the feedback of 108 companies' questionnaires, 55 companies have indicated that they have used artificial intelligence technology in investment consulting business, accounting for 50.93%. Of the remaining 53 companies that did not use AI technology, 28 said they had plans to launch related businesses. At present, artificial intelligence is widely used in the securities industry for customer portrait and account diagnosis, information service, and robot customer service. Its purpose is mainly to reduce customer service costs and expand the coverage of customer service. At the same time, it has begun to gradually layout investment tools to try to improve customer investment difficulties and improve customer service level.

Keywords: Artificial intelligence, Securities investment, Revolutionary change, Industrial development

1. Introduction

Artificial intelligence is defined as an intelligent agent that receives perceptual information from the environment and performs actions. From the external point of view, each of these intelligent agents has implemented a set of functions that map the sensing sequence to the action, and these function sets
reflect the characteristics of intelligent agents from the external. Internally, the set of intelligent agent functions is realized by the intelligent agent running on its own structure. At present, many investment institutions begin to use intelligent agents based on big data for securities investment.

Although the intelligent agent is also realized by the program, it constructs the learning mechanism and the knowledge base based on it, so it has the ability of learning, reasoning and decision-making. With the continuous development of the securities market, more and more investment institutions begin to use the artificial intelligence technology based on big data to engage in securities investment analysis and trading. The ease of access to large-scale data in financial markets allows the technology to rapidly penetrate all areas of securities investment. The new investment strategy and trading model will bring many challenges to regulatory authorities. It is of great practical significance to study the development strategy of securities investment industry under the background of artificial intelligence.

Using artificial intelligence to improve the level of securities investment decision-making is an urgent task for securities investment managers. Shuming Wang aims to build an intelligent decision support system for securities investment, and uses data-driven decision support method to deeply analyze the outstanding problems in knowledge-based decision support for securities investment. Some research results described in this paper have been applied in the company, passed the review of the expert group, and committed to practice, and achieved remarkable results [1]. Transaction cost plays an important role in the investment income of stock market. Lijun Bo analyzes the market impact cost, an important component of transaction cost. This paper proposes a prediction model of market impact cost, which can improve the transaction strategy, reduce the total transaction cost and improve the return of investors. Simulation results show that the cost prediction model has good performance in simulation environment and practical application [2].

This paper mainly traces back the emergence and development of the securities market, and analyzes the characteristics of the intelligent securities market from the operation mode of the intelligent securities market platform at home and abroad. Based on the characteristics of big data and Internet, starting with the reform of AI investment in traditional securities investment consultants, this paper adopts the research method of empirical analysis, and through the analysis of the current situation of the application scope of AI technology, puts forward the problems of the application of AI in the securities industry at present.

2. Proposed method

2.1. There will be revolutionary changes in the field of securities investment

The first is the transformation of investment strategy production. The traditional investment strategy production mode will be destroyed, and most analysts' work can be replaced by intelligent agents. Second, the production of investment strategies will be changed from "deterministic mode" to "stochastic utility". "Decision model" is a method to solve the optimal allocation of assets through model calculation when an event occurs. That is to say, "random utility" corresponds to random events according to the function of utility, which is the way to solve the optimal utility asset allocation scheme [3]. Combined with the powerful mining ability of mechanical learning of large-scale data, it has produced a new cognition that can not be inferred from experience and theory in the past, and has become the source of continuous production of new investment strategy. In addition, as the speed
increases, the production time of the investment strategy is shortened from the past few days or months to seconds or minutes. It can generate a fully personalized real-time investment strategy. All investors can customize their investment strategies according to their own needs. It's not securities but "products" traded in the investment strategy itself. The investment strategy here refers to the intelligent agent with complete operation logic to meet specific indicators [4-5].

The second is the conversion of transactions. Intelligent agent can trade with faster speed, higher precision and more sensitive response. The era of "order by hand" has gradually become history [6]. The trading program of intelligent agent can simply track hundreds of different securities at the same time. At the same time, through real-time observation of returns and high-frequency trading data, the best trading instructions can be made and correctly executed. Cross market, cross variation trading is easy to achieve, "the eyes of people in the market, the order of manuals, the problems of manuals" are completely changed. Investors can entrust their own "trading robots" to help with all of these issues. They need to load specific investment strategies for this "Trading Robot" [7].

Finally, the transformation of industrial structure. With the improvement of the universality and complexity of the design and development of securities investment artificial intelligence agent, new business forms have been guided. For example, we use different measurement methods to quantify information and publish information to signal service providers of specific intelligent agents; transaction service providers that provide intellectual transaction agent services for investors; data service providers that provide big data services due to the continuous development of artificial intelligence technology in different fields, which were previously unrelated fields at first sight (for example, "Weibo" After that, the relevance of the post bar and the stock, and the big data of the stock shareholders will also be reconsidered, and then the ecosystem of securities investment will be expanded in scope and depth [8-9]. The securities investment industry will provide more detailed and hierarchical services based on "elements" to realize various new types of business.

The dimension and time scale of capital market constitute a very broad "trading opportunity space". When all investors use some kind of artificial intelligence agent to trade, they all think that this may lead to "uniformity", which is groundless. AI application based on big data can greatly improve the depth and width of capital market. The intelligent agent based on the "practicability" decision-making, with unimaginable speed, efficiency and a large number of manually operated calculations, actively searches the "trading opportunity space" as a whole, and any possible trading opportunity can be captured. Because of their independence and different paths, they have greatly expanded the multi-level characteristics of the capital market.

2.2. A registration and source code notarization system shall be established
First of all, the establishment of securities investment knowledge agent registration system. For the intelligent agent that does not need human intervention in the actual use process, the design developer and user need to be registered and determined as the user by the limited organization. In order for group investors to use such an intellectual agent, at least one natural or legal person must be appointed as the subject of the restriction and responsible for their actions. At the same time, users using the same intelligent agent can be exempted from the judgment of "the same trend of entry" and other related transactions.

Second, establish a notarization system of stock investment source code of knowledge Agency
In order to effectively prevent malicious intellectual agent from disturbing the market and destroying the normal market order, a notarization system is established for the source code of intelligent agent of securities investment. Through the audit of the third-party organization, we can ensure that the market of intelligent agent is free from malicious or intentional damage. The third party's legal compliance audit establishes the prevention mechanism of intelligent agent action [12].

Finally, the regulatory framework for inclusive financial services should be constructed. In the future, the intelligent agent of securities investment based on big data will be guided and strongly supported from the perspective of inclusive financial services, so that more retail investors can enjoy the dividends brought by technological progress and get better services. Therefore, we need to create a good innovation policy environment and inclusive regulatory culture.

3. Experiments

3.1. Research content
In order to understand the application of artificial intelligence in securities investment consulting business (hereinafter referred to as "investment consulting business"), China Securities Association conducted a survey on the development status of intelligent investment consulting in the industry in May 2018, and received feedback from 108 companies, including 97 securities companies and 11 investment consulting companies. This paper summarizes, sorts out and analyzes the questionnaire, and now reports the specific situation.

3.2. Data source
Most companies obtain customer data through more than two different channels, mainly the data of account opening and transaction of customers in securities companies and the data of customer's C-terminal operation behavior in securities companies. Data sources are mainly wind information, tonghuashun, Dongfang fortune, Qixing, Bloomberg and other information institutions. The main data of purchase include market data, research report data, information news, product data, factor data, etc. There are also a few institutions that provide customers with service data such as stock diagnosis, stock selection tools and comprehensive query based on historical market data and open market information analysis and calculation, all of which are provided by the third-party cooperative institutions and do not involve customer related data.

4. Discussion

4.1. Application scope of artificial intelligence technology
According to the questionnaire, among the 55 companies using AI technology in investment consulting business, the scope of AI technology mainly includes six aspects: customer portrait and account diagnosis, stock recommendation, information service, asset allocation, financial planning, and robot customer service. Among them, 35 companies mainly use AI for customer portrait and account diagnosis, accounting for 63.6%; 27 companies use it for information service, accounting for 49.1%; 26 companies use it for stock recommendation, accounting for 47.3%; 26 companies use it for robot customer service, accounting for 47.3%; 13 companies use it for asset allocation, accounting for 23.6%; 6 companies use it for financial planning, Accounting for 10.9%; six companies indicated that
they were also used to carry out businesses such as smart investment, smart order, smart choice fund, etc., as shown in Figure 1.

![Figure 1. The use of AI in investment advisory business](image)

At present, artificial intelligence is widely used in the securities industry for customer portrait and account diagnosis, information service, and robot customer service. Its purpose is mainly to reduce customer service costs and expand the coverage of customer service. At the same time, it has begun to gradually layout investment tools to try to improve customer investment difficulties and improve customer service level. However, most of them are in the exploration stage in the aspects of individual stock recommendation, asset allocation, financial planning and so on, and no clear profit model has been found.

4.2. Robot customer service

Among the 55 companies, 26 have robot customer service business. The robot customer service system of 5 companies is under construction or in the internal test period, and there is no statistical data. Among the other 21 companies, 2 companies have more than 500,000 customers, accounting for 9.5%; 7 companies have more than 100,000 customers, accounting for 33.3%; 7 companies have less than 10,000 customers, accounting for 33.3%; 5 companies have 100,000 customers, accounting for 23.8%.

According to the questionnaire, the rate and accuracy of robot customer service's answering questions, as well as the user's satisfaction with their answers, all increase with the expansion of customer scale, as shown in Table 1.

| Customer base size | Daily average consultation volume | Rate of questions answered | Accuracy of answering questions | Customer satisfaction |
|--------------------|----------------------------------|---------------------------|---------------------------------|----------------------|
| Over 500,000       | More than 6000 times             | 85%—90%                   | Over 90%                        | Over 95%             |
| In case of 500,000  | 200 times 10,000 times           | About 50%                 | 60%—80%                         | 60%—90%             |
| Less than 10,000    | 10 times 1000 times              | No statistics             | No statistics                   | No statistics        |

For the maintenance of knowledge base, 14 companies are jointly maintained by human and robot, accounting for 53.8% of 26 robot customer service companies. In the common maintenance of knowledge base, although the proportion of labor and machine maintenance of each company is different, most of them are based on labor maintenance. Only one company said that in the common maintenance knowledge base, the proportion of machine maintenance is more than 90%. Nine
securities companies reported that their knowledge base was completely sorted out and maintained manually; one securities company's robot customer service was fully maintained automatically by robot deep learning algorithm, but the robot deep learning algorithm was provided by a third party organization.

5. Conclusions

Under the background of artificial intelligence, this paper studies the development policy of China's securities investment industry, combining with the revolutionary change in the field of securities investment, analyzes the problems in the development of China's current securities investment industry from the perspective of legal logic and practical experience, and proposes that it is necessary to establish the registration and filing system and improve the source code notarization system. This paper studies the problem of artificial intelligence in the securities investment advisory business in the current domestic financial market environment. At the same time, this paper is an application-oriented research topic, which needs to pay attention to the actual development of the field, so this paper adopts the empirical analysis method.

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