Analysis of Big Data Application in Financial Securities Investment

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Abstract. The development of big data provides great opportunities for the development of various industries. The application of big data analysis technology in various industries can promote the development of the industry. Big data and the progress and development of various industries are complementary. In financial securities investment, the application of data analysis is mainly embodied in three aspects, namely, stock price trend forecast analysis, investment customer relationship management analysis, and investment prosperity index analysis.

Keywords: Financial securities investment · big data analysis · financial technology

1 Introduction

With the advent of the big data era, financial investment has made progress in management and innovation. The informatization of financial securities investment refers to the establishment of an information network system by making full use of modern information technology in all activities of financial securities investment to integrate and integrate the information flow, capital flow, and work flow of financial securities investment, and continuously improve the financial securities investment. Efficiency and level to achieve optimal allocation of resources,thereby enhancing the economic efficiency and competitiveness of financial securities investment. Continuously integrating data and information, the purpose is to rationally plan data and information, reduce data redundancy, better realize data sharing, and ensure data and information security. The continuous and in-depth development of management informatization has promoted the practice of informatization and intelligentization of financial securities investment in the context of big data. Li Qian [1] introduced the basic concept of financial securities investment information system, and systematically studied the requirements of the integrated development of financial securities investment information system from the two aspects of information system development process and integrated development. Qin Wenlong [2] discussed the development requirements of financial investment in order to establish an integrated financial securities investment information system foundation, and discussed the functional requirements for the financial securities investment system integration and the structure of the integrated financial securities investment information system. Ji Gang et al. [3] through in-depth research on behalf of small and

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medium-sized financial securities investment companies, consulting related materials, and in-depth exchanges with various departments of the company and information system experts, to understand the company's development dilemma, it also analyze the construction of financial securities investment information in the context of the big data era. The necessity and effectiveness of integration with financial securities investment information.

2 The Status Quo of Big Data Analysis Investment Application

According to statistics, big data analysis is in the investment application, and the largest ones are in the five major industries. Big data application investment analysis is one of the commonly used analysis data in this big industry. Among them, the industry with the largest investment scale belongs to the IT Internet industry., The investment scale is close to 30%, and the application time is also the earliest, followed by the investment scale of big data applications in the telecommunications field. The next three industries are the financial sector. Government medical care and other industries make up the five major industry big data investment scales. The industry accounts for less than 10% of the scale of investment in the application of big data, as shown in Fig. 1.

The data report of McKinsey's internationally renowned consulting company is very good. It can be understood that the industries with the greatest potential for big data investment applications should belong to the four major industries of information technology, finance and insurance, government, and wholesale trade. These industries are applying big data. The largest amount of data and the highest degree of application provide opportunities for the development of big data. At the same time, the application in the field of financial securities investment, from the perspective of investment structure, should belong to the bank, whose investment accounted for 41.10%. The second is securities investment, which accounts for 35.10%, and the remaining one is insurance investment, which also accounts for 23.80%, as shown in Fig. 2.

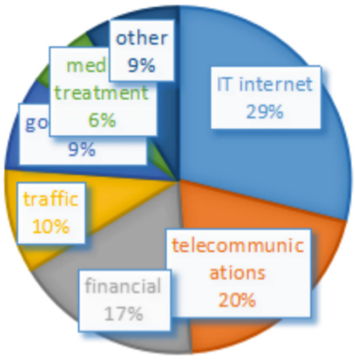

Fig. 1. Distribution of Big Data Investment Scale (Source: Author's own figure)

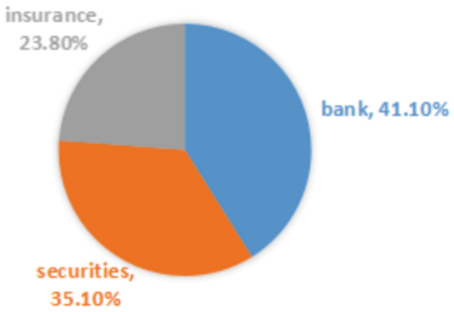

Fig. 2. Investment structure of big data applications in China's financial industry

3 Based on the Application of Big Data in Financial Securities Investment

3.1 Stock Price Forecast Analysis

Broadly speaking, basic analysis is based on the economic supply and demand principles of historical economic data and political environment. The main factors are macroeconomic conditions (interest rate level, inflation, etc.), microeconomic conditions (enterprise quality), etc.) and politics. Analyze financial market trends by analyzing the situation. In a narrow sense, fundamental analysis refers to the analysis of microeconomic conditions in a broad fundamental analysis. The main factors include the financial indicators of the company's statements, the quality of management personnel, industrial development and professional competitiveness. Product. Big data analysis mainly uses related algorithms to mine stocks that meet the needs of investors based on indicators that investors are interested in, and establish related rules to find stocks that meet the investment needs of the stock market. Technical analysis is the study of market behavior to determine market operating trends and decide to trade stocks and other financial derivatives based on regular changes in market operating trends. Technical analysis believes that if the market is an efficient market, market behavior will repeat itself, and the history of the stock market will repeat itself. The stock technical analysis based on the artificial neural network algorithm is mainly used to input the forecast sample, set the target variable, score the forecast value and the actual value, forecast and compare, and finally set the fitting equation to obtain the forecast value for real investment. The relationship between the two provides a reference for decision-making.

For example, in 2013, the Federal Reserve Board of the United States was preparing to announce a major monetary policy. The announcement was made at two o'clock in the afternoon. This monetary policy had a greater impact on the securities market at that time. The trend has had a serious impact, as shown in Fig. 3. It can be seen from Fig. 3 that from two o'clock in the afternoon, the trend of stock prices has continued to rise. According to the previous rise, it is equivalent to a faulty rise. Therefore, the announcement of a major event has a huge impact on the securities market.

For another example, the Department of Physics in the United Kingdom and the United States discovered in the study of big data to predict stock price trends, searching for financial-related times and keywords through the database can also become a

Fig. 3. Big data predicts stock trends

possibility to predict the stock price trend. Through these studies, we have learned that Searching for more financial keywords can increase the return of investment strategy. The highest investment return can reach 326%. However, the trend of the specific financial securities market is related to many factors. After the scope of big data is more extensive, The trend of the financial securities market can be predicted.

3.2 Investment Customer Relationship Management

3.2.1 Customer Segmentation

The use of big data can realize customer segmentation, promote customer investment according to different customer types, analyze customer account status according to big data, analyze customer type, life cycle of account status, investment time, investment type and direction and investment Preferences, screen out superior customers, or guide customers to invest in securities according to their investment habits. Then analyze the value of the account, analyze the assets, transaction volume, commission contribution and cost in the account value, etc., which are related to the customer's rabbit preferences and investment habits, and the customer is segmented and guided by reasonable investment, such as Alipay According to the situation of the account, recommend account users, conduct financial investment transactions, and guide customers' investment, so as to achieve better allocation of resources, provide them with types of services more in line with their needs, and capture valuable customers for investment guidance Fig. 4.

3.2.2 Lost Customer Prediction

The use of big data can analyze the customer's account form according to the customer's transaction behavior and Liu Shi's record during the next period, build a model of the probability of customer loss, classify and sort out the massive amount of customer information through big data, and restore the customer's portrait in depth Content, the main purpose of this model is to deal with the phenomenon of customer churn, make

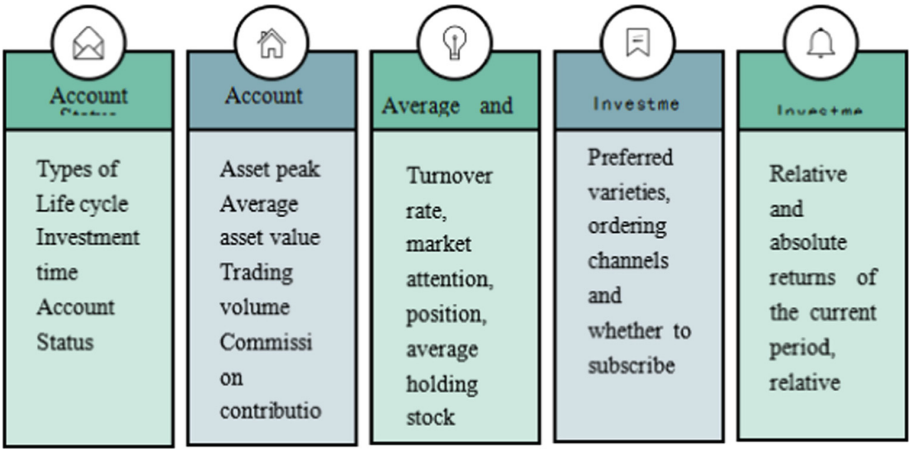

Fig. 4. Customer segmentation (Source: Author's own figure)

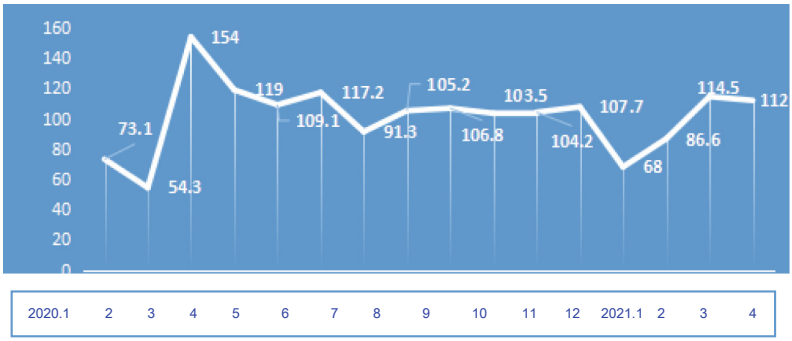

Fig. 5. Chemical Investment Prosperity Index

subtle adjustments to the possible churn of customers, and guide customers to develop into high-quality customers.

3.3 Analysis of Investment Prosperity Index

Guotai Junan released the "Individual Investor Investment Prosperity Index" (referred to as the 3I Index) in 2012, which conveys individual investors' expectations of the market and current risk appetite from a unique perspective. Guotai Junan Research Institute continuously monitors a large number of individual investor samples, calculates and weights the ledger investment return rate, shareholding rate and capital flow and other indicators to obtain a comprehensive investment prosperity index. Through in-depth mining and analysis of the actual investment transaction information of large individual investors, the 3I Index understands individual investors' trading behavior, investment confidence status and development trends, market expectations, and changes in current risk preferences. For the selection of the sample, small and medium investors with a capital of less

than 1 million yuan and an investment period of more than 5 years are selected, and the sample size reaches 100,000 nationwide. The index is more representative. In terms of parameters, it mainly determines whether investors are optimistic or pessimistic about the market based on the holding ratio indicators of small and medium-sized investors, whether additional funds have been added, and whether they are profitable. The "3I Index" is released once a month, the median is 100, the normal range is 100–120, the deterioration trend is greater than 120, and the cold trend is less than 100, indicating cold. In the experimental data, the ups and downs of the "3I Index" since 2007 are highly adaptable to the Shanghai Stock Exchange index Fig. 5.

4 Conclusion

In short, the application of big data can promote the continuous development and progress of various industries, and the application of big data in financial securities investment mainly uses big data to predict and analyze stock trends, for management analysis of investment customers and industry investment The analysis of the prosperity index, through the application of big data analysis technology, can better promote the development of the financial securities investment industry.

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