A Comparative Study of Financial Big Data Standard System Based on Deep Learning Algorithms

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A Comparative Study of Financial Big Data Standard System Based on Deep Learning Algorithms

Huaxia Shen\textsuperscript{1, a}

\textsuperscript{1}School of Economics, Shanghai University, Shanghai 200044, China
\textsuperscript{a}huaxias_shu@163.com

Abstract. The standard system of financial big data involves a wide range of contents and diversification. Financial institutions in the process of operation and social sectors constitute a huge interweaving network, precipitating a large number of data. In this context, data security is particularly important. Therefore, based on the deep learning algorithm, the author compares and studies the financial big data standard system. The in-depth learning model is introduced into the financial market and combined with the traditional statistical model to forecast the volatility of the financial market and calculate its risk value. Through the research and comparative analysis of the domestic and international financial big data standard norm system, it is found that part of the domestic financial big data standard specification is revised by reference, while the other part has the characteristics of Chinese financial market. However, there is still room for further development in terms of financial big data regulation, information security, financial enterprise big data platform construction and analytical capabilities.

1. Introduction
With the development of big data and related technologies, the types of financial data are increasing, the number is increasing, the structure is more and more complex, and the requirements for data transmission timeliness and security are getting higher and higher [1]. As a result, financial data has presented significant big data characteristics. Whether it's Fin Tech for innovation or Reg Tech for compliance, the in-depth application of big data can discover value from massive data, identify risks, accelerate innovation, and drive industry health. Development [2]. In the process of quantifying financial market risk, financial market volatility is an extremely important indicator, and it also plays an important role in option pricing, investment portfolio, asset allocation, etc. [3]. Its representative achievement is the automatic coding machine proposed by foreign scholars in 2006, which has made amazing progress in handwritten numeral recognition. The Central Branch of Wenshan Prefecture of the People's Bank of China took the initiative to practice and highlighted the performance characteristics of the grass-roots central bank, which attached equal importance to both management and service. Under the guidance of the central branch of Kunming, it built the first management and service-oriented regional "Rongda Data Platform" [4]. From another point of view, traditional industries should rely on their own inherent advantages, use new technology to reform and innovate, and seek new ways of development. Steady self-assertion is a stagnant pool, open integration will breed new vitality, which is the real big data thinking [5].

With the explosive growth of Internet, especially mobile Internet in recent years, the global data volume has increased by geometric series [6]. At first, big data was used to simply describe the need for network search engines to process or analyze a large number of data at the same time, and then gradually...
began to expand the meaning of big data, covering the speed of data processing [7]. With the deepening of the process of financial electronization, the requirements of financial data sharing and business collaboration are getting higher and higher. Large financial data needs to be transmitted and processed across countries, industries and departments among different systems [8]. This requires users of data acquisition, data storage, data transmission, data processing and a series of links to have a unified understanding of the meaning and identification of these data. With the gradual smoothing of government functions and decentralization of government functions, standards, as an important means to assist industry management, regulate industry development, and form scale effects, will play a more important role in the social governance system [9]. At the same time, the security of data is particularly important. In the event of an information disclosure incident, it is easy to cause illegal criminal activities such as telecommunication network fraud, endangering the safety of the public life and property, and negatively affecting the industry, and even worse, may also jeopardize national interests. And national security [10]. Therefore, the prediction of the volatility of financial assets is the primary prerequisite for managing and controlling the risk of financial markets.

2. Current Situation of China's Financial Big Data Standard.

As of the beginning of 2014, the Gold Standards Committee has issued more than 210 financial standards. These include 60 financial national standards and 150 financial industry standards. On the basis of unified standards, we will carry out the construction of financial infrastructure such as the comprehensive statistics of the financial industry, and bring together business data of the whole industry, full-scale and full life cycle. Using big data technology to conduct in-depth analysis and mining can more accurately grasp the overall operation and risk situation of the financial market, and provide data support for macro decision-making. From the perspective of data source types, it mainly includes four categories: public data sources, social data sources, commercial data sources, and personal data sources. The financial industry is an information-intensive service industry, and modern financial companies generally invest heavily in IT facilities. At the same time, it has a huge database to use. Therefore, data is easy to use, data density is high, technology and talent reserve is relatively abundant, using big data can create higher value. Financial institutions have natural advantages in the application of big data. On the one hand, financial enterprises accumulate a large number of high-value-density data, including customer identity, assets and liabilities, capital receipt and payment transactions, in the course of business development. These data will be of great commercial value after mining and analyzing with professional technology. On the other hand, financial institutions have a relatively adequate budget, which can attract high-end personnel to implement big data, and also have the ability to adopt the latest technology of big data.

According to its content, it can be divided into three categories: classification coding standard, exchange standard and metadata standard. See Table 1. Among them, classification and coding standards regulate the classification information and coding activities of entities involved in large financial data.

Table 1 Classified Statistics of Domestic Financial Big Data

| Standard category       | International Standards/Individual | Industry Standards/Individual | Total / per unit |
|-------------------------|------------------------------------|-------------------------------|-----------------|
| Classification and coding standards | 7                                 | 13                            | 20              |
| Exchange standard       | 5                                 | 24                            | 29              |
| Meta data Standards    | 3                                 | 36                            | 39              |
| Total of various standards | 12                                | 65                            | 77              |

Financial industry is the main producer of big data, among which the value that big data can create can not be estimated. Exchange standards regulate the message specification and transmission activities
of financial big data exchange. The metadata standard regulates the metadata standard of financial big data besides classification and coding standard, including financial terms, financial data elements, various index systems, etc. All kinds of standards are interrelated, constrained and complementary to each other, forming a complete unity. Personal information can identify users individually or in combination with other information. Collection and use of personal information are closely related to personal interests and rights. In the financial market, interest rates, financial asset prices, foreign exchange quotations, stock prices and so on will change and fluctuate from time to time. Such fluctuations may cause some kind of loss in the future, and the uncertain loss of financial assets caused by such circumstances is market risk. Different market factors will inevitably lead to different types of risks in the market. According to this, market risks can be divided into interest rate risk, foreign exchange risk and commodity risk. The investment in big data applications in the financial industry has increased year by year, and it has become the traditional industry with the highest enthusiasm and investment in big data applications in addition to information and communication. Overall, the emerging big data technology will show a rapid convergence with the financial business, which will bring important opportunities for the future development of the financial industry.

It is very complicated and difficult to analyze and process the large financial database with mixed load. It is not only time-consuming and laborious to analyze and analyze massive data sequentially, but also has the risk of threatening system security. Table 2 shows the basic requirements of financial big data analysis technology. It can be seen that data parallel computing analysis technology is the key to data processing in the financial big data era.

| Table 2 Basic Requirements of Financial Big Data Analysis Technology |
|---------------------------------------------------------------|
| **Features** | **Describe** |
| High scalability | Extensible for large-scale parallel data processing |
| High performance | Quick response to query and analysis requirements of massive data |
| Low cost | High cost performance based on universal hardware server |
| Fault Tolerance | Independent of hardware reliability, individual (or all) operations can be performed in case of error reporting |
| Easy to use and open interface | Compatible with traditional SQL interface, it can be used for multi-dimensional data query and analysis. |
| Country compatibility | Support Traditional Business Intelligence Analysis Tools |

3. The Response Measures of Financial Industry
The key to cope with the impact of big data on the financial industry is to give full play to the advantages of traditional financial institutions with firm beliefs, and to seek innovative ways of new financial institutions, so as to achieve all-round development from multiple perspectives. The development of foreign financial markets is earlier than that of China, so ISO starts earlier than China in formulating financial data standards. For some general and basic standards, our country usually adopts tenders. And make appropriate amendments and modifications when necessary. However, after the corresponding international standards were updated and revised, China's financial data standards did not follow up in time. It is suggested that expert resources such as supervisory departments, trade associations, financial institutions and standardization research institutions should be centralized to set up a working group on financial big data standards as one of the working groups on technical standards in professional fields under the National Technical Committee for Financial Technology Standardization. Therefore, the financial big data standard system will be further improved and the preparation of various standards will be promoted. Under the macroeconomic restructuring and the gradual marketization of interest rates, domestic financial institutions are increasingly affected by financial disintermediation, which is characterized by the loss of core liabilities, narrowing of profit margins, and the need to adjust business positioning. Start with the top-level design, consider the development of the whole situation, and always
keep the customer demand-oriented, and actively strive to construct the financial institution's own big data scale, but also to ensure information security.

By extracting the two variables of financial loan type V34 and financial loan amount V15, the loan amount disturbance maps under different loan types are drawn. The abscissa is the loan type and the ordinate is the loan amount. Run to get Figure 1.

![Fig. 1 Scattered Chart of Loan Quota without Loan Type](image)

In addition, starting from the top-level design, facing the overall consideration of development, and always keep customer demand-oriented, actively strive to construct the large data scale of financial institutions themselves, but also to ensure information security. At the same time, we also find that the number of domestic financial big data standards is more than that of ISO/TC68. We should strengthen exchanges and cooperation with international regulatory organizations, international standardization organizations and research institutions, introduce advanced international ideas and successful practices in a timely manner, participate in the preparation of international standards, and increase the voice of standard-setting. And through the development of big data standardization work to train a group of proficient business, good at data, familiar with the technology of the composite team, to achieve comprehensive utilization of financial industry data, support scientific decision-making to do a good job of human resources. Strengthen the protection of key industry information, sensitive personal information and critical infrastructure, establish an accountability mechanism, and jointly strengthen the judicial department to crack down on all kinds of violations. Negative growth can be identified in advance, making follow-up project reserves and bank-enterprise docking more targeted. The complete information security system will enhance the establishment of the information security level protection system by strengthening the security certifications such as identity authentication and digital certificates, and effectively protect data security.

4. Summary
The meaning of financial big data is not only limited to itself, but also caused by the increasingly popular network behavior of human beings, including the data producers, communicators, users' true intentions and preferences, non-traditional meaning and structure data. It is. In general, big data finance presents a variety of characteristics such as network, greatly reduced information asymmetry, high efficiency, multi-level industry structure, highly personalized finance and de-mediation. This is something that traditional finance does not have. At present, this technology is still in the early stage of development, and some key issues remain to be resolved. However, through the achievements of automatic coding machine, we can see that deep learning has novel ideas and great potential. It is entirely possible to have a great impact on machine learning and artificial intelligence technology in the next few years, which deserves our attention. It is this kind of big financial data that changes the production and sale of products step by step, enterprises and consumers. Even changing the original nature of market competition, I believe that in the future, the impact and change of big financial data is not only the financial industry, but also the development and progress of the whole society. In order to ensure the
security of big data, financial institutions must grasp three key links. Actively strengthen communication with customers in data security and data use, enhance customers’ data security awareness, and form a synergistic effect of large data risk management.

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