

Analysis on Application of Financial Actuarial Science in Risk Control Strategies

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Abstract: During the rapid economic expansion of China, all industries, notably those associated with financial and insurance, are making profits from this rare opportunity. However, the competition is fierce. Therefore improving risk control capabilities and limiting the probability of risks in the business process could be a practical approach to enhance the market share, which is critical to the survival and development of financial enterprises. The ability to evaluate and hedge risks using knowledge from the actuarial sector is a key tool for risk prevention, thus, the operation of financial organizations dramatically benefits from having actuarial abilities. Based on this, this paper investigates the current challenges of actuarial calculations and proposes actuarial risk control strategies, hoping to assist financial insurance enterprises in effectively controlling financial risks and providing references for relevant staff of financial work.

Keywords: Financial Actuarial Science; Actuary; Risk Control

Introduction

By using statistical data and actuarial models, financial organizations can predict and minimize risks promptly, and support the stability of financial markets. The socialist market economy with Chinese characteristics has been encouraged due to the reform and opening-up policy, and Chinese actuarial work has gradually moved toward the right track. Nonetheless, with the sluggish start of actuarial research in China, financial enterprises are facing a complex external environment, coupled with a lack of risk awareness and legal concepts, resulting in severe risks in daily operations. Nowadays, more and more financial companies have realized the value of risk management control and regard risk hedging skills as an effective auxiliary means for the daily operation and development of enterprises in the market economy. It is expected to promote the long-term sustainable development of the financial industry.

1. The problems existing in the actuarial industry

1.1 Ignoring the importance of actuarial work

Currently, several Chinese financial companies ignore relevant risk control, which prevents them from effectively utilizing the valuable function of actuarial skills in risk management. Additionally, actuaries play a minor position in the management of financial organizations, which stops them from doing their duties effectively and from assisting businesses promptly in preventing financial losses.

1.2 Lack of actuarial talents in finance

Actuaries are crucial to risk management in the financial industry. In many developed countries, financial and insurance companies will train or hire teams of certificated actuaries. They place a high value on the professionalism of actuaries to ensure the efficient operation of their businesses. For these industries, good actuarial technology depends on the quality of actuarial skill, but for the reason that Chinese actuarial work only began relatively recently; there is no formal education system or training program for training financial and insurance actuaries in China, making it challenging to develop top-notch actuarial talent. At the moment, the lack of professional Chinese actuaries, insufficient professional knowledge, and immature working experience seriously affect the

long-term development of the Chinese financial and insurance industry.

1.3 Financial and insurance enterprises lack risk management

Since the management of the companies is deficient in risk control, most of financial and insurance enterprises in China lack a comprehensive and systematic risk monitoring system. Even an independent and mature actuarial department was not established in their companies. Due to this, they have less ability to handle emergencies on time, which results in their losses. More seriously, these corporations cannot tightly keep up with the latest developments in the financial industry since lacking advanced risk management system. The traditional risk control models rely on intuition or work experience for the identification and quantitative analysis of risks, which are short of rationality and scientificity, resulting in a horrible influence on financial companies.

1.4 Lack of primary actuarial data for finance and insurance

The lack of primary actuarial data on finance and insurance also becomes a considerable factor affecting the development of financial and insurance enterprises. The risks faced by financial and insurance enterprises are directly proportional to the amount of insurance, and an adequate risk prevention and control system can simply be established after careful analysis of actuarial data. Compared with foreign countries, there is still a wide gap between the actuarial methods currently utilized in China. Various problems exist in analysis, input, accumulation, storage, analysis, etc., and the overall technical level and actuarial skills should be promoted.

2. The control strategy of financial and insurance actuarial risk

2.1 Optimize the actuarial and risk management system

Financial and insurance companies should pay full attention to optimizing the actuarial mechanism and risk management system. The objective of building the actuarial department is to effectively reduce the possibility of financial risks due to the accuracy of actuarial data directly impacts the risk management capacities of companies. Consequently, the system should guarantee the thoroughness of data analysis, including actuarial calculations of external and internal data. In the context of economic globalization, the global financial mechanism has altered, and the actuarial theory of Chinese financial industry should also change accordingly. Currently, challenges for the Chinese financial and insurance industry are numerous, and traditional actuarial technology is no longer sufficient to satisfy those demands. For better hedging risks and maintaining business operations, majority of financial and insurance companies should learn to comprehensively use knowledge in the fields of computers, statistics, mathematics, etc. These businesses should innovate the capability based on the experience from foreign actuarial systems, further establish actuarial systems with Chinese features, and use new technology to advance the actuarial system combined with the current actual circumstances in our country. Simultaneously, these firms can benefit from other companies' previous successful experience, which helps the enterprises to withstand the adverse effects of operational hazards effectively. To optimize the risk management system, the following points should be taken into consideration: First, actuarial risk control for financial and insurance products should be based on the national circumstances of our country and construct a framework that satisfies the requirements of the present financial and economic situation. Second, the actuarial operations of financial and insurance companies must constantly adapt to market adjustments. Paying attention to the risks that shift in the international financial system, actively preventing and controlling globalization risks, and effectively reducing the risks faced by its business development. They should be banned from replicating the actuarial systems of developed nations in Europe and the United States. The third is to develop comprehensively, and there must be an equitable allocation of resources.

2.2 Establish a training system for financial and insurance actuarial talents

The banking and insurance industries in our country have a shortage of actuarial talents. As a result, it's vital to develop a reliable training program for actuarial staff and improve their skills. First and foremost, setting up a strong basis in mathematics and statistics for actuarial practitioners is significant, which can help employees better understand the knowledge afterwards. Secondly, it is also severe to enhance practitioners' capacity to use and integrate the financial knowledge and mathematical models they encounter. To maximize the value of actuaries and effectively support the continuous growth of our nation's financial and insurance industries, pertinent enterprises can also set up their actuarial talent training system in conjunction with the businesses involved in the enterprise.

For colleges and universities that offer actuarial education, professional education should contain the establishment of an adequate actuarial development system for actuaries. Based on actuarial education, a training model that combines professional

education and vocational education can be used to advance actuarial education, which can provide actuaries with more practical experience. Universities, insurance societies, sizable insurance companies, and commercial banks can work jointly to establish actuarial vocational training and examination certification courses, connecting pertinent professional education courses with professional qualification certification to raise the general standard of actuaries. Meanwhile, society should increase the tight connection between professional construction and actual areas since actuarial insurance information needs to be applied practically to improve one's ability. Colleges and universities should promote school-business collaboration, arrange for students to work in actual departments, and develop their practical skills.

2.3 Enrich the basic actuarial data of insurance enterprises

In the financial and insurance industry, insurance data is the premise and foundation of actuarial, and the lack of basic data will lead to the limitations of financial and insurance actuarial. Company managers should enrich the internal actuarial master data and promote data management. To facilitate timely storage and retrieval of data, financial and insurance enterprises can establish a data management database, analyze and summarize the data and upload it to the general IT platform of the enterprise, and meanwhile broaden the information collection channels, continuously improve the information database, and improve the industrial competitiveness of the enterprise.

In conclusion, the financial and insurance Actuarial directly impacts the development of my country's financial and insurance industry. Currently, our country lacks a mature talent training plan in the actuarial field, resulting in a limited number of actuaries in China, and the overall professional level is low, which is insufficient to meet the requirements of financial companies. Additionally, financial institutions ignore the importance of actuarial science in risk management and pay little attention to risk hedging, which causes many businesses to grow slowly. To achieve it, financial and insurance companies can improve the basic actuarial data of insurance companies by optimizing the actuarial mechanism and risk management system and establishing a financial and insurance actuarial talent training system. These measures can also help to promote the sustainable development of the financial and insurance industry.

References

[1] Zhang Y. Issues and Suggestions on the Construction of China's Product Actuarial Talent Team - Taking a Large State owned Financial and Insurance Group as an Example [J]. *Journal of Insurance Vocational College*, 2022,36 (01): 69-72.

[2] Guo J. The Impact of Financial Technology on China's Insurance Actuarial -- Taking Big data and Block-chain as an Example [J]. *Journal of Tianjin Vocational College of Commerce*, 2021,9 (02): 14-20.

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