

Analysis on the Operating Environment of Agricultural Insurance Company

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Abstract: The deterioration of global ecological environment results in the frequency and intensity of natural disasters, and many factors such as GDP, interest rate level, fiscal and monetary policy indirectly affect the development of agricultural insurance market. To analyze the operating efficiency and effect of insurance institutions, we should first make clear the current situation and characteristics of the natural environment, policy environment, social environment and technical environment in which insurance institutions operate agricultural insurance business, and analyze the current situation of natural environment and economic environment respectively according to the characteristics of agricultural production. It is the premise and basis of analyzing the strategic planning and operating efficiency of agricultural insurance companies to make clear the external environment of agricultural insurance companies.

1. Analysis on the Macro Environment of Insurance Institutions

The positive externality of agricultural insurance determines that insurance institutions supply agricultural insurance products at a premium level higher than the maximum acceptable to the insured. The government must actively participate in the construction of agricultural insurance market and ensure the stable development of agricultural insurance market through the exercise of legislation, supervision, subsidies and agency, so as to avoid the failure of agricultural insurance market [1]. The agricultural insurance market without the participation of the government is bound to be cold in supply and demand [2]. As the direct operating subject of agricultural insurance business in China, insurance institutions always carry out agricultural insurance business under the specific macro environment and industrial environment in a specific period.

The government's behavior directly affects the operating efficiency and operating effect of agricultural insurance business of insurance institutions under the macro environment and industrial environment. Insurance institutions in the agricultural insurance market, such as comprehensive property insurance companies, professional agricultural insurance companies, mutual agricultural insurance companies and insurance intermediary organizations, always operate agricultural insurance business in a specific macro environment. Macro environment is the synthesis of various

factors that indirectly affect the development of agricultural insurance business, so the impact of macro environment on agricultural insurance business is complex and time-delay [3].

To analyze the impact of government behavior on the operating efficiency and effect of insurance institutions, we should first make clear the current situation and characteristics of the natural environment, policy environment, social environment and technical environment in which insurance institutions operate agricultural insurance business, and analyze the current situation of natural environment and economic environment respectively according to the characteristics of agricultural production.

1.1 Natural Environment

The deterioration of global ecological environment leads to the increase of the frequency and intensity of natural disasters, the increase and concentration of agricultural risks, and the economic losses caused by disasters and accidents are increasing. Our country is one of the most serious natural disasters in the world, with many kinds of disasters, high frequency and wide distribution. There are many kinds of agricultural natural disasters in China, which are characterized by obvious regional characteristics, serious loss disasters and associated characteristics. Extreme weather and climate events are frequent, and agrometeorological disasters are frequent, which pose a serious threat to food and agricultural production. The uncontrollability of the natural environment increases the risk level of natural disasters faced by agricultural production, especially the sudden and catastrophic disasters cause huge economic losses to agricultural production and national industries [4]. In 1998, the direct loss of agriculture caused by flood disaster in river basin exceeded 500 billion yuan, and in 2008, the direct loss of agriculture caused by freezing rain and snow disaster in South China was 53.8 billion yuan. In 2018, the affected area of crops in China was 20814.3 thousand hectares, including 2585 thousand hectares of total crop yield and 264.46 billion yuan of direct economic loss.

When agricultural production is threatened by natural disasters such as drought, flood, geological disaster, wind disaster, hail disaster, frost disaster, disease and insect disaster, the government improves the level of natural risk management by supporting the construction of rural infrastructure, consolidating the foundation of modern agriculture and other measures [5]. Specific performance: first, we will continue to increase the government's budget for agricultural infrastructure, promote high-level, concentrated and continuous farmland with high standards, and promote the construction of farmland and water conservancy on a large scale. With the development of modern information technology and Internet, the government uses modern technology to promote the continuous innovation of agricultural insurance to provide technical support and promote the development of characteristic agriculture. The government attaches great importance to the important role of science and technology and vigorously implements the strategy of invigorating the country through science and education. According to the statistics of the Ministry of agriculture and rural areas, the contribution rate of agricultural science and technology progress in China was 48.0% in 2005, 53.5% in 2012 and 57.5% in 2017. Breakthroughs have been made in the epidemic laws and control of major animal and plant epidemics, agricultural remote sensing and information technology. We will reform and improve the system of agricultural technology extension, and widely promote advanced and applicable agricultural technologies such as dry farming, water conservation, soil

testing, formula fertilization, and unified control and governance. The coverage rate of improved varieties of major crops will be stable at over 96%. In terms of product development, financial subsidies are given, and innovative types of insurance such as price insurance, income insurance and local characteristic advantageous agricultural product insurance continue to appear. The cost of supervision in the field of agricultural production is enormous. In order to obtain the scale economic effect of collective production, we must pay a certain supervision cost, but the supervision cost of agricultural production is too high, and it is basically impossible to achieve.

According to the demand of agricultural insurance security, we have carried out timely tracking and in-depth mining, and developed the industry's first UAV special insurance product. To protect the development of modern agriculture. It greatly reduces the supervision cost of agricultural production. The application of advanced science and technology is conducive to the optimization of decision-making of farmers and agricultural insurance companies, and has a very important practical significance for modern agriculture. We will establish an unmanned survey system for agricultural disaster losses, reduce regulatory costs, establish a remote sensing database for agricultural risks, collect information on precision agricultural disasters, prevent agricultural disasters, and reduce agricultural production losses caused by natural disasters. The government's financial support behavior in the agricultural insurance market can improve the management efficiency and guarantee level of the agricultural insurance business in the insurance institutions, provide effective decision-making tools for scientific decision-making risk management strategies, and ensure the steady progress of the national agricultural production.

1.2 Economic Environment

GDP, interest rate, fiscal and monetary policy, inflation, unemployment rate, disposable income, exchange rate, energy supply cost, market mechanism, market demand and other factors indirectly affect the development of agricultural insurance market. After the founding of the people's Republic of China, the Central Committee of the party and the State Council vigorously promoted economic recovery and construction, and the national economy achieved considerable development. China's economic growth rate is significantly higher than the world average, ranking the first engine of world economic growth.

In 2018, China's GDP reached 90.03 trillion yuan, accounting for about 15.9% of the world economy. Two thousand and seventeen. The annual GDP is 82.08 trillion yuan, accounting for about 15% of the world economy. According to Table 1, in 2018, the original insurance premium income of the insurance industry was 3801.662 billion yuan, a year-on-year increase of 3.92%. In 2017, the original insurance premium income of the insurance industry was 3658.101 billion yuan, an increase of 18.16% year on year. Growth slowed down significantly. In the past five years, the ratio of the original premium income to the total GDP of the insurance industry has remained at about 4%.

Table 1: GDP and original insurance premium income from 2014 to 2018 Unit:100 million yuan.

Year	GDP	Insurance Premium Income	Premium growth	Agricultural Premium Income	Growth rate of premium income
2014	636463	20234.81	17.49%	325.78	6.26%

2015	676708	24282.52	20.00%	374.90	15.08%
2016	743585	30959.10	27.50%	417.71	11.42%
2017	820800	36581.01	18.16%	479.06	14.69%
2018	900300	38016.62	3.92%	572.65	19.54%

Data source: website of National Bureau of statistics, China Insurance Yearbook

In 2018, China's economic strength increased significantly, and its main aggregate indicators leaped to the forefront of the world. Premium collection in China in 2018

China's share of the global insurance market has increased from 0.1% in 1980 to 11% in 2018, and the accumulated premium of agricultural insurance has reached RMB 57.141 billion. A year-on-year increase of 19.54%, a year-on-year increase of 24.23%, a year-on-year increase of 3464.67 billion yuan in providing risk protection, a year-on-year increase of 15.6% in paying 42.315 billion yuan in compensation, a year-on-year increase of 15.9% in benefiting farmers' 62.4496 million times, and a total of 42.8 billion yuan in premium subsidies provided by governments at all levels, including 19.934 billion yuan from central government subsidies. As a representative of emerging Asian markets, China's insurance market is growing faster than other emerging markets. In the five years from 2014 to 2018, China's GDP grew significantly, maintaining its position as the world's second largest economy.

In 2018, the growth rate of insurance premiums worldwide exceeded the historical average. The growth rate of insurance premiums in developed countries is higher than the global average, and the growth rate of insurance premiums is close to the overall economic growth rate. The growth of emerging markets is strong. As the representative of emerging markets, China's growth rate slows down, which will be lower than the average value of nearly 10 years. From 2014 to 2017, the growth rate of the original insurance premium income kept high growth for four consecutive years, until 2018, the growth rate of the original insurance premium decreased to 3.92%. According to the statistics of the CIRC, the original insurance premium income of China in the first half of 2019 was 2.55 trillion yuan, and it is expected that the original insurance premium in 2019 will continue to grow. During the five years 2014-2018, agricultural insurance premium income has been in a high-speed growth stage. The average growth rate of agricultural insurance premium income in the five years is higher than the average growth rate of insurance premium, and the growth rate of agricultural insurance premium income is higher than the growth rate of GDP and the growth rate of original insurance premium income. In 2017, the amount of insurance provided by China's agricultural insurance was 1.09 trillion yuan. In the level of risk protection, China's agricultural insurance also has great potential. At present, the risk assurance of planting insurance in China is mainly based on the direct physical and chemical cost, and the amount of insurance is relatively low. Taking rice as an example, the level of risk guarantee only accounts for about 20% of the production cost. In the United States, where the agricultural insurance is more developed, the agricultural insurance is basically income protection, and the level of protection can generally fully cover the production cost. With the development of full cost insurance and income insurance, it can be expected that the level of agricultural insurance will be improved. It is predicted that by 2030, the risk guarantee level of China's agricultural insurance will be close to that of developed countries, and the insurance amount per unit of agricultural products is expected to be more than tripled on the current basis. The business growth momentum of agricultural insurance is strong.

The central government began to implement the policy of agricultural insurance premium subsidy in 2007, which is one of the main reasons for the continuous increase of agricultural insurance premium income. The central government and local governments have actively subsidized, and the scope of subsidies has been expanded from pilot areas to the whole country. Agricultural insurance has covered planting industry, aquaculture, forestry insurance and fishery insurance, while subsidized varieties cover major agricultural products. The coverage of agricultural insurance has increased significantly. According to Table 2, the average proportion of the total premium subsidies of the central government and local governments is more than 80%. The premium subsidy allocated by the central government has a good leverage effect, which promotes the increase of the premium income of agricultural insurance with obvious effect, and plays a positive role in agricultural risk prevention [6]. Premium income and insurance coverage continued to expand, while agricultural insurance premiums and compensation payments continued to increase. In 2019, the insurance premium subsidy of the central government has covered the whole country. Since January 1, 2017, the Circular of the Ministry of Finance on printing and distributing the administrative measures of the central government for the subsidy of the insurance premium of the planting industry has been implemented to provide better guidance for the management of the subsidy fund of the agricultural insurance premium of the central government.

Table 2: Fund of Agricultural Insurance Premium Subsidies Unit:100 million yuan

Year	Premium subsidy for agricultural insurance	Original insurance premium income
2016	158.3000	30959.10
2017	179.0449	36581.01
2018	199.3436	38016.62

Data source: website of the Ministry of finance of the people's Republic of China (<http://bxjg.circ.gov.cn/web/site0/tab5257/module14498/page3.htm>)

Under the active agricultural insurance subsidy policy of the central government, the number of insurance companies has increased year by year. In 2018, the number of agricultural insurance operators has increased to 35, and the concentration of agricultural insurance market has decreased. The agricultural insurance network expanded rapidly to the whole country, and the agricultural production capacity was further strengthened. The risk guarantee function of agricultural insurance is gradually reflected, and the fund leverage effect of agricultural insurance is increasingly obvious. Agricultural insurance plays an important role in dispersing the risk of agricultural production, restoring agricultural production and ensuring farmers' income.

1.3 Other Environment

Under the supervision and guidance of the CIRC, China established the China agricultural insurance reinsurance community (hereinafter referred to as "the agricultural community") in 2016, which was jointly initiated and established by 23 insurance companies with agricultural insurance operation qualification, such as the people's Insurance Company of China, and the China property reinsurance Co., Ltd., in order to improve the overall risk management level of agricultural insurance and serve as agricultural insurance. Based on the principle of providing sustainable and stable reinsurance guarantee, it is of great significance for the agricultural community to gather the

risk data accumulated by all its members in operating agricultural insurance for many years, to enhance the ability of agricultural insurance to cope with the risk of major disasters, to overcome the impact of short-term and volatility of external markets on the sustainable and stable development of agricultural insurance in China, and to ensure the stability of risk dispersion channels of agricultural insurance after major disasters. In 2016, the government helped develop science and technology insurance companies, and the first science and technology insurance company was established. We will promote the pilot project of "government + Bank + insurance" model for small loan guarantee insurance. We will establish a poverty alleviation and credit enhancement system for agricultural insurance, mainly including policy loans.

The government actively explores the business model of effectively participating in the agricultural insurance market. Through the comprehensive operation of various measures, we can reduce the multiple risks such as natural risks and economic risks faced by the main body of agricultural insurance in carrying out agricultural insurance business. Taking full account of the natural environment, economic environment and policy environment, the government's common role in the main body of agricultural insurance is to build a reasonable and effective agricultural insurance policy, cultivate the market-oriented public policy behavior of agricultural insurance institutions, and build a macro environment suitable for the development of the main body of agricultural insurance for the organization and improvement of the market-oriented operation of agricultural insurance.

2. Analysis on the Industry Environment of Agricultural Insurance Institutions

Before 2007, the scale of agricultural insurance premium in China was small, the expenditure of indemnity was small, and the ability to protect agricultural risk was not strong. In 2007, the pilot program of agricultural insurance premium subsidy by the central government began, and the central government's investment in agricultural insurance increased year by year. As of 2018, the original insurance premium income of China's agricultural insurance has reached 57.265 billion yuan. From 2005 to 2018, the premium income of agricultural insurance has increased steadily, the level of security has continued to improve, the financial strength has continued to increase, and the industry's risk prevention ability has continued to improve.

2.1 Analysis on the Scale of Agricultural Insurance Institutions

In China's agricultural insurance market, the number of insurance companies operating agricultural insurance business has only one PICC in the beginning, increasing to 35 in 2018, accounting for 41% of 85 property insurance companies in China. The companies ranking higher in the premium income market of agricultural insurance include professional agricultural insurance companies mainly engaged in agricultural insurance business and comprehensive property companies. The property insurance companies are different from the market orientation to the main business direction. In addition, their share in the agricultural insurance market also shows a large difference. The agricultural insurance premium income of 35 property companies in China was 48378.71 million yuan, accounting for 4.76% of the total income of property insurance. The ratio of agricultural insurance business income to total property insurance income increased slightly compared with 2016. As for the property insurance companies operating agricultural insurance

business, the higher the premium income of agricultural insurance, the stronger the guarantee ability provided by agricultural insurance business.

2.2 Industry Concentration of Agricultural Insurance Market

The government has created a favorable macro environment for the development of agricultural insurance business. The number of agricultural insurance subjects in China has gradually increased, and the level of risk protection has also increased. According to the cumulative percentage of agricultural insurance premium income, it is found that the top 10 property insurance companies have 93.2% of the agricultural insurance market share. Although the number of insurance companies operating agricultural insurance business has increased, which has changed the situation that PICC is the largest insurance company since the start of agricultural insurance business, the high concentration of agricultural insurance market still exists. The bottom 10 property insurers earned less than 1% of the market. Among them, the agricultural insurance premium income of ruizai enterprise and Business Insurance Co., Ltd. is RMB 0.4 million, which is in sharp contrast with the agricultural insurance premium income of PICC Property Insurance Co., Ltd. of 21866.48 million.

In order to judge the industry concentration of China's agricultural insurance market, the market concentration index is calculated by the heffering index and the heffering index. The heffering index and the withering index measure the impact of the market share of enterprises on the market concentration, and become the measurement index to judge the market structure concentration of the industry, which is important for the market power Quantitative indicators. The higher the hi index, the higher the industry concentration. The hi index of PICC Property Insurance is about 2043, which meets the standard that the hi index of the highly concentrated market recognized by the United States and the European Union is more than 2000. According to hi index and the calculation results of market share, it is found that PICC is the most dominant enterprise in China's agricultural insurance industry. This result accords with the important position of PICC in the development of agricultural insurance industry in China.

3. Summary

The basic function of agricultural insurance is to disperse the risk of agricultural production and compensate the loss of agricultural producers and operators. Agricultural insurance market insurance institutions through the operation of agricultural insurance products and other activities, agricultural insurance market insurance institutions after the insured, must occur in line with the terms of the insurance can be measured by currency economic losses, in order to obtain the corresponding economic compensation. The operation ability of insurance companies includes determining scientific and reasonable insurance rates, developing innovative and personalized products, and providing satisfactory insurance services for policy holders. China's agricultural production data lacks a unified and complete file management method, and the establishment of data files related to insurance business is short, so it is difficult to determine scientific and reasonable insurance rates based on previous experience, which brings difficulties to the innovation of agricultural insurance products. For some new business areas of agricultural insurance with high risk and high insurance amount, we should give full play to the overall advantages of industry data

and statistical resources to meet the scientific and accuracy requirements of personalized insurance products, and the demand for agricultural insurance related data is more urgent. Establish the industry shared data management method of agricultural insurance industry resources, data and relevant statistics to provide necessary and latest technology and knowledge support for personalized product design and development. It is the general premise to improve the risk guarantee level of agricultural insurance.

Actuarial science is very important for insurance companies, especially in risk control, risk pricing and the expanding regulatory demand. The profit level of an insurance company directly depends on the management level of the company's risk expectation, such as the expectation of premium income and pricing, which will certainly involve the establishment of risk model. If an insurance company does not do enough in risk model, it is likely to cause low pricing and insufficient premium income, which will further lead to the decline of the overall business level of the insurance company. At present, insurance companies usually use big data, forecast model and other data analysis methods to determine the insurance rate, that is, a large number of statistical data are input into the model, and then get the pricing model needed by insurance. What an insurance company must do in the underwriting process is to check the underwriting conditions, the insured amount, the premium rate, the deductible amount, etc., and focus on the selection of the subject matter of insurance, risk control, etc. Marketing is a necessary means for insurance companies to promote insurance products. Comprehensive insurance services and attractive marketing means will enable insurance companies to occupy a larger share of the market. Insurance companies will pay too much attention to marketing means rather than their own service quality, not only can not protect the rights and interests of consumers, and even these products will save the legal risks of insurance companies. In a word, when developing innovative insurance products in enterprises, the understanding and interpretation of existing national laws and regulations are not comprehensive, which will lead to uncertainty of loss.

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