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# Practice Research on Futures Price Insurance of Agricultural Products in China

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**Abstract** Since the implementation of pilot program on futures price insurance of agricultural products in 2015, it has achieved good results. This paper summarizes the practice on futures price insurance of agricultural products and brings forward the following recommendations: expanding the scale, speeding up the coming of new options and futures varieties into the market, strengthening supervision, controlling risk, and actively exploring income insurance.

**Key words** Insurance, Futures of agricultural products, Commodity options

## 1 Introduction

With the implementation of the Belt and Road Initiative and continuous advance of agricultural modernization, agriculture has been increasingly affected by market risk which sometimes exceeds natural risks. The price insurance of agricultural products is the development direction and inevitable trend of China's agricultural insurance. The Central Document No. 1 in 2017 points out that we will explore the establishment of income insurance system for agricultural products. It is necessary to promote agricultural futures and options market construction, actively guide agriculture-related enterprises to use futures and options to manage market risk, and steadily expand the "insurance + futures" pilot program, which is of great significance to improving agricultural risk management system and agricultural market system.

## 2 Meaning and operating mode

Based on the futures price of agricultural products and the pre-set target price, the futures price insurance of agricultural products uses futures to reproduce options for building price insurance products, and the insurance products with price difference are paid out when the market price is lower than the target price. The operation of futures price insurance of agricultural products involves three main parties: insurance company; futures company; the insured (agricultural cooperatives, agricultural enterprises or individual farmers, etc.). The insurance companies first sign the target price insurance contract with the insured farmers, and the insurance companies determine the risk premium in accordance with the probability of futures price of this agricultural product lower than the pre-set target price in price insurance in previous years, and charge the insured after adding additional costs and reasonable profits as total premium. At the same time, the insurance companies promise that in the insurance period, the insurance companies start compensation procedures and give compensation when the av-

erage daily closing price of the insured agricultural futures is lower than the target price level agreed by the contract. At the same time, to transfer loss of risk, the insurance companies sign a cooperation agreement with futures companies, and pay option money to buy the same amount of overwriting options.

## 3 Practice

On August 14, 2015, China's first "insurance + futures"-based price insurance of agricultural products came into being. China People's Property Insurance Co., Ltd. signed an egg insurance contract with Beijing Weijia Group, and signed a corn insurance contract with Jinzhou Yixian Guiyong Corn Cultivation Professional Cooperative and Yixian Huamao Grain Cultivation Professional Cooperative. The insurance contracts made it clear that if the corn or egg price was lower than the agreed price of insurance in the given month, the insurance companies would give compensation according to the insured amount and price difference (Table 1). In the light of the results, China People's Property Insurance Co., Ltd. paid 241100 yuan compensation for corn price loss to farmers at the end of year, with loss ratio of 208.2%, and paid the first-phase 65300 yuan compensation for egg price loss to Beijing Weijia Group, with the loss ratio of 51.04%. This "futures + insurance" mode offered a good compensation for the insured, so that the farmers had strong willingness to be insured and the insurance companies never suffered from losses. The risk of loss of China People's Property Insurance Co., Ltd. was avoided mainly by signing contracts with subsidiaries of futures company and purchasing the off-the-shelf options. The futures company's subsidiary continues to hedge against the risk by replicating the options after receiving the corn put options of insurance company. In 2016, Dalian Commodity Exchange carried out 12 pilot programs of "insurance + futures" in Heilongjiang, Jilin, Liaoning, Inner Mongolia and Anhui, and all the 12 pilot programs received acceptance, involving 0.2 million t corn and soybean, providing 4158 farmers with price insurance services, a total of 4.82 million yuan claims, which effectively protected the basic income of farmers. In August

2016, Zhengzhou Commodity Exchange issued a notice to give support for the pilot program of "insurance + futures" serving agriculture, countryside and farmers. The pilot crop varieties included cotton and sugar, and there were 10 "insurance + futures" pilot programs entering into the actual operation phase, covering 8 provinces (autonomous regions), including 5 key counties included in the national plan for poverty alleviation through development in Yunnan, Xinjiang and Hubei. Project funds were used to subsidize premium for farmers or new agricultural business entities in the form of "fee waiver". Shanghai Futures Exchange is brewing the pilot program of rubber futures to start the "insurance + fu-

tures" project. Carrying out the futures price insurance of agricultural products broadens the business scope of agriculture-related insurance agencies, while increasing the business income without increasing the cost; it also broadens the channels for the commercial banks, rural credit cooperatives and other institutions to carry out insurance agent intermediary business. At the same time, the price insurance of agricultural products will also reduce the risks of credit associated with agriculture, which is conducive to attracting financial institutions to expand the size of loans, reducing financing costs and improving the enthusiasm for serving farmers, agriculture and countryside.

Table 1 Basic terms of corn futures price insurance products

Insurer	Dalian Branch of China People's Property Insurance Co., Ltd.	
The insured	Jinzhou Yixian Guiyong Corn Cultivation Professional Cooperative	Yixian Huamao Grain Cultivation Professional Cooperative
Object of insurance	Corn	Corn
Insured quantity	800 t	200 t
Insurance term	September 1, 2015—August 31, 2016	
Target price	2160 yuan/t	2160 yuan/t
Insurance amount	1.728 million yuan	0.432 million yuan
Claim settlement price	Arithmetic average of the daily closing price of corn futures contract selected from September 1, 2015 to August 31, 2016	
Payment amount	Max (target price-settlement price, 0) number of insured subject	
Premium ratio	Ministry of Agriculture to bear 70%, the insured farmers to pay 30%	

4 Recommendations

(i) The scale of agricultural products in pilot program is limited and there is a need for further expansion. For example, the pilot program launched by Dalian Commodity Exchange in 2016 involved 0.165 million t corn, 0.035 million t soybean, far less than China's 220 million t corn production and 12 million t soybean. The insurance companies, insurance regulators, local agricultural departments and village cadres should make joint effort to guide the futures price insurance of agricultural products so as to enhance farmers' willingness to be insured and expand the scale of insurance. (ii) It is necessary to accelerate the launching of new options and futures into the market. The agricultural prices fluctuate frequently, and in the insurance cycle, the probability of claims is much higher than that of other insurance types. If the prices of agricultural products plummet, the insurance companies may face the huge risk that the premiums can not cover the amount of compensation. Therefore, the choice of a reasonable price risk hedging tool has become the key to the success of the insurance. In terms of the new tools, the soybean meal futures and options of Dalian Commodity Exchange was traded on March 31, becoming the first domestic variety of commodity options on market. Carrying out soybean meal and sugar pilot program helps to improve contract farming model, and enhance the healthy development of "insurance + futures" project on soybean and sugar. Especially in "insurance + futures" project, the futures company can take advantage of floor traded options market to achieve risk hedging and reduce the current high hedging costs and risks. There are many kinds of agricultural products, and we can introduce more futures and options varieties and carry out futures price insurance business of agricultural products. (iii) It is necessary to strengthen supervision and con-

trol risk. There is a need to explore the establishment of centralized clearing platform for floor traded options, make the relevant futures exchange bear the responsibility of the central counterparty, enhance the transparency and real-time supervision of floor traded options, resolutely crack down on the speculation in the name of risk hedging, and reduce credit risk of floor traded options. At the same time, it is necessary to strengthen special supervision on futures price insurance market of agricultural products, make good institutional arrangements for underwriting and claiming standards, market entry and exit, and prevent illegal false insurance. (iv) It is necessary to actively explore income insurance pilot program. The agricultural income insurance takes the agricultural income as the subject of insurance, and is a kind of insurance for the insured when their actual income is below the security income level due to crop yield reduction or price fluctuations caused by the factors within the scope of insured liability. The risk coverage of agricultural product income insurance is extended from natural risk to market risk. Agricultural income insurance is more in line with the expectations of farmers and can protect the income of farmers. The "income insurance" begins to be included in some pilot programs. China can learn from the practice of the US agricultural income insurance and make timely exploration of the income insurance system in line with China's national conditions, so as to further improve the ability of insurance to serve agriculture, farmers and rural areas.

References

[1] REN BT. On the new mode of the insurance industry serving agriculture, rural areas and farmers from "insurance + futures" in China[J]. Shanghai Insurance,2017(2): 34-37. (in Chinese).

not limited by that there is not irrational value (standardized regression coefficient more than 1) in standardized estimate value model chart. Factor loads of five observed variables of product risk latent construct are respectively 0.81, 0.79, 0.74, 0.71 and 0.75; factor loads of three observed variables of time risk latent construct are respectively 0.73, 0.70 and 0.71; factor loads of two observed variables of financial risk latent construct are respectively 0.94 and 0.79; factor loads of three observed variables of privacy risk latent construct are respectively 0.79, 0.78 and 0.06. Time risk and financial risk significantly affect purchase intention ( $P=0.005$ ,  $0.023 < 0.05$ ), and standardized path coefficients are respectively 0.5 and  $-0.26$ . Among them, time risk is positively related to purchase intention, which violates from theoretical logic. Therefore, only financial risk significantly affects purchase intention.

## 6 Conclusions and suggestions

**6.1 Conclusions** (i) The relationship between perceived risk and purchase intention in total sample. Empirical research thinks that perceived risk is main obstacle of affecting consumer's product purchase intention. In this paper, the impact of perceived risk on consumer's online shopping intention to fresh fruit in total sample is checked. It is found that product risk significantly negatively affects consumer's purchase intention. Under the condition that other conditions are changeless, when product risk increases by one unit, purchase intention decreases by 0.4 unit. If the risk exceeds consumer's expected benefit, consumer could cancel purchase intention, and purchase process finishes. Hence when consumer's perceived level on product risk is very high, purchase intention declines, and purchase decision could be canceled. (ii) The impact of perceived risk among different groups on purchase intention. For consumer groups with and without online shopping experience, they have larger difference in perceived risk. For consumer with online shopping experience, financial risk significantly negatively affects purchase intention. Under the condition that other conditions are changeless, when financial risk increases by one unit, purchase intention decreases by 0.26 unit. Under the condition that other conditions are changeless, when product risk increases by one unit, purchase intention decreases by 0.21 unit. For consumer without online shopping experience of fruit, he does not know how to identify the information from website and sellers and differentiate the product. For consumer who does not buy fruit online and does not know how to select fruit online, he very concerns the product's fresh degree and food safety problem. The consumer without online shopping experience of fruit also may consider other

risks. But he more concerns the expected loss brought by product risk. Therefore, consumer has been reluctant to try online shopping fresh fruit.

**6.2 Suggestions** (i) Consumer should actively collect various information before online shopping fresh fruit, take effective risk avoiding measures to control and prevent risk occurrence. Firstly, identifying seller information. When online shopping fresh fruit, consumer should sufficiently understand seller's related information. When selecting store, consumer should select the store with high grade as much as possible for better purchase. Secondly, identifying product information. Consumer should refer to photo and check if product picture is clear. Finally, consumer needs referring to buyers' evaluation, and carefully screening high-quality evaluation information, such as the information with photo and objective evaluation text. (ii) Seller should check raw material supply link of fresh fruit and select excellent-quality goods supply, and pesticide residue should reach international stipulated range. In frozen storage link, seller should timely inspect goods, control storage temperature, and select reliable logistics company for complete package and transportation by refrigerated truck. Seller needs opening consumption experience, authentication system and direct observation, thereby obtaining consumer's trust. (iii) Taobao's user amount is huge, and Alipay payment is convenient. But some consumers also worry that their personal information and bank card password are stolen by hackers. Therefore, as the third party platform, Taobao should continuously update Alipay software to prevent hacker invasion. Meanwhile, Taobao rule should be perfected continuously, and the behavior leaking buyer's information should be punished. Meanwhile, internal structure of Taobao software should be optimized continuously to prevent hacker stealing consumer's information.

## References

- [1] BAUER R. Consumer behavior as risk taking[M]. Dynamic Marketing for a Changing World Chicago: America Marketing Association, 1960: 389–398.
- [2] TIAN D, ZHENG XP, ZHANG XS, *et al.* Agricultural factors influencing perceived risk of internet consumers[J]. Journal of Agricultural Mechanization Research, 2010(3): 90–93, 103. (in Chinese).
- [3] HUANG LL. A comparative study on valued potential customers and current customers perceived risks of online shopping fresh agricultural products[D]. Wuhan: Huazhong Agricultural University, 2014. (in Chinese).
- [4] FEATHERMAN MS, PAVLOU PA. Predicting e-services adoption: A perceived risk facets perspective[J]. International Journal of Human-Computer Studies, 2003, 59(4): 451–474.
- price insurance in China[J]. Price:Theory & Practice,2016(8): 137–140. (in Chinese).
- [4] FENG LQ, FANG XH. More share options will be appeared on the market in future[N]. China Business News,2017–3–31. (in Chinese).

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- [2] AN Y, FANG R. Suggestions on the combination mode of agricultural price insurance and agricultural commodity futures in China and the policies[J]. Economic Review,2016(7): 64–69. (in Chinese).
- [3] LI YY. On the local practice and sistem perfection of agricultural product