

Analyzing the Problems of Agricultural Futures Market in China

Guanzeng Ren*

School of Business, Macau University of Science and Technology, Macau, China

* Corresponding Author Email: 1210019523@student.must.edu.mo

Abstract. The agriculture is a fundamental sector for the development of society, and agricultural products play a key role in the economy. The equilibrium of agricultural product supply and demand is intimately linked to societal steadiness and the welfare of individuals. Consequently, the efficient functioning of the market for agricultural products is vital for economic growth. Agricultural product manufacturing and sales face multiple hazards, such as climatic change, natural disasters, market fluctuations, etc. Agricultural futures serve as a financial tool for the agricultural products market, providing essential hedging and risk management functions. The establishment and development of the agriculture futures market enables farmers and agricultural companies to hedge against agricultural product price fluctuations, reducing business operation risks. This promotes market stability and contributes to the healthy development of the economy. Additionally, investors can participate in the agricultural futures market to obtain investment income through price fluctuations. The agricultural futures market plays a significant role for farmers, agricultural companies, and investors. Therefore, researching and exploring this market is of great theoretical and practical importance and necessity.

Keywords: China, agricultural, futures market.

1. Introduction

Despite the rapid development of China's futures market in recent years, various social and environmental factors, such as the opening to foreign financial markets, uncertainty of international import and export trade, public health, etc., have led to the exposure of several problems and challenges. There are four main problems and challenges. First, the variety of agricultural futures is limited, and the structure of futures products has limitations. Second, the composition of futures investors is unbalanced. The excessive speculation has emerged. Additionally, the performance of futures is mediocre, leading to less-than-ideal hedging effects. Facing these problems, if there is lack of perfect and strict market supervision, the operational efficiency of the futures market and the right and equity of the participants may be undermined. Therefore, it is necessary to strengthen the regulation of agricultural futures market and to improve market laws and regulations and institutional policies, so that maintaining the fairness and transparency of the market. The in-depth research and analysis of these issues can provide theoretical support and policy recommendations for the development of agricultural futures market and promote the development of agriculture and the stability of the economy.

2. Challenges

2.1. Variety and Structure

In recent years, China's futures market has expanded significantly. In 2023, trading agriculture future products accounts for 6 of the top 10 most traded agricultural futures products worldwide. Additionally, China has 4 of the top 20 fastest-growing agricultural futures products [1]. According to the websites of Dalian Commodity Exchange and Zhengzhou Commodity Exchange, China's agricultural futures market has a total number of 26 future products (listed in Table 1), including Grains, cash crops, livestock products, forests and trees, and fibers. So there are various types of portfolios to the market, provided farmers and companies with more hedging strategies, adapting to the market's complexity and diversity.

However, compared to some developed foreign futures markets, the main categories of China future market are still mainly focused on food product futures. For some categories, such as livestock products, future market in China only has 2 futures products for pigs and eggs. In contrast, the Chicago Mercantile Exchange in the United States offers futures for live cattle, feeder cattle, lean pork, and pork with a larger number of categories and a more detailed and specific classification. Another important category of natural climate futures is temperature futures in foreign countries. These futures are important not only for agricultural production to avoid risk, but also for public sectors such as heating companies to use. However, the market in China still lacks sufficient awareness and attention to this kind of future market. And there are no signs of development of this market.

Table 1. Listed types of agricultural futures in China

Categories	Dalian Commodity Exchange	Zhengzhou Commodity Exchange
Grains	Corn, Corn starch, Soya soybean No.1, Round-grained rice	Wheat, Wheat Hard, Japonica rice (JR), Long-grained rice (RI), Long-grained rice (LR), Peanut
Cash crops	Soya bean No.2, Soybean meal, Soybean oil, Palm oil	Palm oil, Rapeseed, Rapeseed oil Rapeseed meal, Apple, Jujube, Sugar
Livestock	Eggs, Live pigs	
Forests, and trees	Fiberboard, Plywood	
Fiber		Cotton yarn, Cotton

2.2. Imbalanced Investor Structure

In the futures market, there are 3 types of participants based on the purpose of trading: hedgers, speculators, and arbitrageurs. The futures market originated from agricultural forward contracts market. Early futures trading was focused on underlying assets such as agricultural products. Farmers and food manufacturers used future trading to fix a certain trading price in advance, avoiding the risk of price fluctuations. Therefore, the primary purpose of agricultural futures was mainly for hedging.

Standardized contracts and margin have lowered the cost and threshold for speculators to enter the future market. Speculators rely on their judgement on market price trends and buy and sell frequently, which leads to increase in market volume and narrowing the price spread. The presence of speculators increases the liquidity in the futures market and makes transactions easier to complete for hedgers. The presence of speculators facilitates hedgers in finding counterparties so entering and exiting the market are more freely. Therefore, hedgers are the primary market makers, while speculators promote market liquidity. It is beneficial to the operational development of the future market to maintain a reasonable ratio of speculators and hedgers participating in market transactions.

However, if the ratio is not reasonable and when it is too small, the market lacks speculative trading volume and has limited liquidity. On the other hand, if the ratio is too large, the market becomes too speculative relative to hedgers, resulting in increased price volatility. China's futures market participants, including institutional clients, corporate clients, and other customers, account for a lower proportion of total turnover compared to mature foreign markets. This suggests that China's futures market is still dominated by retail investors. According to the latest date of the Futures Industry Association (FIA), institution customers account for more than 80% of the total customers in the U.S. market [2]. China's futures market must be strengthened by individual investors accounted for the main shift to institution companies as the main of the investor structure.

2.3. Excessive Speculation

Excessive speculation has been a common issue in China's futures market. During the early ten years of development of China's market, several incidents of excessive speculation occurred, such as the "Shanghai 'Round-grained rice future' incident", "the Suzhou 'Red Soya Bean future' incident" and the "Guanglian 'Round-grained rice future' incident".

Excessive speculation can lead to sharp price fluctuations both in the agricultural futures market and spot market, increased transaction costs, and higher risk levels. This undermines market stability and effectiveness. Investors who hold large amounts of money can cause excessive speculation and create spurious supply and demand, which results in significant fluctuations in the futures prices of relevant grain future products. For instance, market participants and speculators, with the advantage of capital and creating warehouse receipts, may create artificially spurious demand, leading to a sharp increase in the volume of long positions and trading volume, causing related market prices to rise dramatically [3].

Fluctuations in futures market prices have a significant impact on spot market prices, resulting in loss of market transactions and reduced market efficiency, which can cause significant economic losses for agriculture industry. There is not a completely accurate and effective quantitative standard to measure the moderateness of speculation based on current conditions and theories. Only several empirical indicators, such as the ratio of futures traders, the difference in basis, the delivery rate of real goods and the contract turnover rate, can be used as references [4].

2.4. Hedging Efficient

The price discovery function and hedging effectiveness of certain agriculture futures products in China market is not well performed, which constrains the general functioning of the China futures market.

From the point of view of the function of price discovery, with the rapid development of the financial market, a large influx of funds into the domestic agricultural futures market, making some agricultural futures prices appear more and more intense bubble price phenomenon. For example, corn, soybean oil and other agricultural commodities futures products has appeared the price bubble phenomenon in the first few years.

In terms of hedging, China's agricultural futures products have not demonstrated a good hedging effect. Developed foreign futures markets have shown that agricultural commodity futures should have a hedging effect of over 90%. Relevant data suggests that the US agricultural futures market is able to avoid approximately 80% of the risk. There is also a high level of enthusiasm among participants in futures trading, and the hedging tool has been fully utilized [5].

However, in China market, the hedging effect of domestic futures is significantly lower than that of foreign markets. Previous research has shown that among the three agricultural futures products, cotton has the best hedging performance at 14.202789%, followed by corn at 11.681093%, and wheat has the lowest at 0.654974%. Compared to the hedging performance of the same agricultural products abroad, all three products show a poor hedging performance. From the participants' perspective, the number of industrial institution investors entering China's agricultural futures market is small. For instance, industrial customers hedging participation ratio is less than 50% for future products such as natural rubber, sugar, rapeseed meal, and corn starch in China [6]. The low hedging effect may discourage companies from participating in the futures market. This is not helpful for enterprises to effectively prevent price risk and may also negatively affect the futures market's price discovery function.

3. Suggestins

3.1. Optimizing Products Structure

To optimize products structure, the exchange and relative government sector should focus on improving the margin system, handling fee regulations, and the delivery process for existing agricultural futures, especially for futures that account for a large proportion of transactions in the market. For the future products that are being developed and have not yet been introduced to the market, government sectors should expedite the approval process and enhance the efficiency of the relevant organizations in approving the products. Generally, maintaining grain futures products as most important products is necessary.

To provide more risk management tools and methods for the national policy 'three rural' and rural revitalization, the research and development work should focus on accelerating the introduction of chicken, milk, and agricultural index futures products. This should be done by learning from the product structure of well-developed foreign markets and combining it with the actual needs of the domestic market. The aim should be to enrich the whole industry chain futures products [7].

3.2. Enhancing and Improving Education to Investors

The low participation ratio of institutional investors is one of the major reasons for the problem of imbalance in the investor structure. Institutional investors generally control a larger amount of capital and have a longer investment cycle, which can effectively enhance the scale of the futures market and improve operational quality and stability of the market [8]. Thus, to enhance the attractiveness and effectiveness of the agricultural futures market, it is crucial to improve the publicity and education of institutional investors in the aspect of using agricultural futures products. Additionally, the level of knowledge and education of agricultural industry participants on futures is also a significant factor that affects the investor structure. This will help farmers, small and medium-sized institutions, and companies to understand the future market and use hedging tools correctly and actively. By doing these, more hedge investors could reduce the risks associated with their production and operation.

3.3. Improving the Regulatory and Warning Mechanism

The regulatory system of the futures market in China is not enough mature and perfect. The relevant laws and regulations are insufficient, and the penalties are not severe and powerful. These factors contribute to excessive speculation. Government can enhance the laws and regulations on market monopoly and inside trading and strengthen the penalties for behaviors that undermine the fairness, impartiality, and openness of future market transactions. At the beginning of the futures market in China, there was not an establishment of the national unified market supervision mechanism, so there is no consistent planning, resulting in the blindness of the development [9].

To solve this issue, the government should establish a unified national futures supervisory department and agency for agriculture future market. Additionally, a risk warning mechanism for agricultural futures should be established. Excessive speculation can cause significant price fluctuations and bubbles. The mature GSADF and BSADF methods available in the market can measure China's agricultural futures market, while the LPPLS method can predict the creation and bursting of bubbles under specific conditions [10]. These methods can help individual investors and small and medium-sized enterprise (SME) investors avoid risks, prevent malicious speculation and market manipulation, and avoid losses.

3.4. Improve the Futures Trading and Delivery System

In order to increase hedging efficiency and the number of hedging participants, it is essential to continuously improve the trading system. For instance, there are some helpful methods, including reducing hedging transaction fees, simplifying the transaction process, improving the margin system, and adjusting margin ratio to lower the trading the cost and threshold for hedgers. Additionally, constraints on the convenience of hedgers and the delivery system of underlying assets. At present,

there are too complicate number of fees set for the delivery process, such as commodity entry fees, storage fees, exit fees, quality inspection fees, delivery handling fees, etc. Therefore, exchanges in China can appropriately simplify the setting of fees and reduce the costs of storage and delivery; in addition, the layout design of delivery warehouses also needs to be considered. Due to the production and sales of agricultural products in China has features of concentrated producing areas and dispersed sales areas, the establishment of additional delivery depots in multiple locations can reduce the cost of warehouse receipt registration and the transport cost of the physical agricultural goods delivery [11].

4. Conclusion

In summary, agricultural futures have an obvious impact on the effective and stable operation of the agricultural market. For agricultural producers and investors, agricultural futures play a crucial role in reducing risks and generating profits respectively. Despite China's futures market has been developing in recent years, however, In a changing macro-environment, the agricultural futures market currently faces several problems and challenges, including a lack of variety in futures product types, products structural limitations, imbalanced investor structure, excessive speculation, the mediocre performance of futures and unsatisfactory hedging efficient. These problems are detrimental to the stability and effectiveness of the agricultural markets in China.

Therefore, several solutions can be considered for the development of domestic market, including optimizing the product structure, enhancing investor education, more establishment of regulatory and warning mechanisms, improving the futures trading and delivery system, etc. These not only can be helpful to establish a foundation for the safe and stable operation of China's agriculture future market, but also could be positive to effective operation and continuous development of China's agricultural industry.

References

- [1] Zhang Jian. Research on the Development Problems and Countermeasures of Agricultural Products Futures Market in China. Liaoning: Dalian Maritime University, 2014.
- [2] Li, X., Ma, W. Analysis of the Current Situation, Problems, and Countermeasures in the Development of China's Agricultural Futures Market. In International Conference on Business and Policy Studies, 2023: 804-814.
- [3] Pu Lei. Analysis of excessive speculation in Chinese futures market. Hubei: Wuhan Engineering University 2013.
- [4] Hou, V. L. Derivatives and dialectics: The evolution of the Chinese futures market. *NYUL Rev.*, 1997, 72: 175.
- [5] Lien, D., Tse, Y. K., Tsui, A. K. Evaluating the hedging performance of the constant-correlation GARCH model. *Applied Financial Economics*, 2002, 12(11): 791-798.
- [6] Zhu Lin. Playing the hedging function of agricultural futures to control the price fluctuation risk of agricultural industry chain. *Chinese Agricultural Society*, 2022, 22(6): 13-15.
- [7] Kang, M. G. An introduction to market-based instruments for agriculture price risk management. Rome, Italy: Food and Agriculture Organization of the United Nations, 2005.
- [8] Cheng An, Guo Weidong, Li Guoging. Development status, problems and countermeasures of China's agricultural futures market. *Agricultural Economy*, 2022, (6): 120-122.
- [9] Zhang Kun. Research on the effectiveness of agricultural futures market in China. Hebei: Hebei University, 2014.
- [10] Yang Xiao. Bubble measurement of newly listed agricultural futures in China and analysis of the nature of bubbles-Taking jujube futures and apple futures as examples. Beijing: Capital University of Economics and Business, 2022.
- [11] Wu, Lingliang, Ju, Ronghua. Measuring the effectiveness of delivery system in China's agricultural futures market. *China Circulation Economics*, 2023, (12): 79-89.