

The Influence of the Uncertainty of Sino-US Economic and Trade Policy on the Volatility of Corn Futures Market

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Abstract. China and the United States are key players in the global agricultural trade network and important trading partners that interact with each other. However, against the background of escalating trade frictions between China and the United States and the outbreak of the global epidemic, the issue of food prices has once again received much attention. As an indispensable and important part of Sino US trade, corn futures are constantly affected by the uncertainty of the economic and trade policies of the two countries. Based on this, this article, on the basis of establishing a basic theoretical framework for analysis, further explores the transmission mechanism and channels of the impact of trade policy uncertainty on the price of corn futures between China and the United States. It is found that the price changes of corn futures between China and the United States mainly consist of the trade path and the financial path. Accordingly, this article proposes that China and the United States should further strengthen economic and trade consultations, communication and collaboration, strengthen scientific and technological innovation, and promote trade market diversification and other relevant policy recommendations, providing reference opinions and suggestions for the development of Sino US trade relations and the stability of global food prices.

Keywords: Trade policy uncertainty, corn futures, Sino-US trade friction, economic globalization.

1. Introduction

Since the reform and open policy, the economic and trade relations between China and the United States have become increasingly close. To this day, they have grown into the most influential and largest bilateral trade relations in the world. The trade of agricultural products between China and the United States has always been the focus of all parties, and it is also a major issue related to the food security, national economy and people's livelihood of the two countries [1]. Corn is one of the three major food crops in the world. In particular, corn futures, as the earliest agricultural futures market established in China, has played an irreplaceable role in hedging, price discovery and other aspects. Exploring a suitable corn futures pricing model is of great practical significance to better grasp the futures price, improve the market system and supervise the corn futures market. However, since the Sino-US trade frictions occurred, the dynamic as well as changing situation has led to the continuous changes in the import and export situation of corn and its substitutes, which has affected China's corn futures market.

2. Theoretical analysis

2.1. The Complex Economic and Trade Relationship between China and the United States Affects the Corn Trade Pattern

Bulk agricultural products such as corn are highly related to the international market, which makes food deeply linked to the international political and economic pattern, and the interaction between economy and politics is much closer [2]. After joining the WTO, China has rapidly changed from a net exporter of corn to a net importer. At present, besides soybeans, corn has become China's second largest grain import product. For a long time, China's corn has shown a complex situation of large-scale growth in import, domestic production and inventory at the same time. Since China's accession to the World Trade Organization, China's corn trade has been in the process of constant change. The

complex economic and trade relationship between China and the United States has a great impact on China's corn trade pattern.

On March 23rd, 2018, Trump, President of the United States signed a memorandum of understanding on the imposition of tariffs on imported goods from China. On April 3rd, the United States issued a list of proposals for the imposition of tariffs. The next day, the Chinese government decided to increase tariffs by 25% on 106 U.S. products of 14 categories, including soybeans, corn, wheat, sorghum, cotton flowers and other agricultural products. At the same time, in April 2018, the Chinese government announced that it would impose a 25% tariff on agricultural products such as soybeans, corn and sorghum originating in the United States, resulting in a reduction in the import of corn and sorghum from the United States. In the case of intensified Sino US trade disputes, China's imports of agricultural products from the United States declined significantly, which in turn increased its agricultural trade with Brazil, Argentina, Australia and other countries along the "the Belt and Road" [3].

However, in February 2020, the State Council issued the Announcement on the Exclusion of Market-based Procurement of Merchandise with Tariff Added to the United States, announcing that "for imported goods that meet the conditions and are purchased from the United States in accordance with the principles of market and commercialization, we will no longer impose the countervailing tariff of our 301 measures against the United States within a certain period of time", of which corn and sorghum are in the list of goods that can be applied for exclusion. The conclusion of the first stage of the Sino-US trade agreement has promoted the growth of agricultural products import trade, including corn. According to Reuters, on July 14, 2020, China purchased 1.762 million tons of US corn per day, the largest daily purchase volume since 1992. This news has also been confirmed by the US Department of Agriculture. According to the statistics of the United States Department of Agriculture, the total export of corn from the United States to China in 2020 was 1.2 billion US dollars, the highest since 2012 [4].

2.2. China's Dependencies on Imports of Agricultural Products has Further Increased

Trade frictions between China and the United States have an impact on China's grain prices, which further increases China's dependencies on imports of agricultural products, which leads to a "trade dilemma" [5].

The United States is the largest exporter of agricultural products in the world, and the price of its agricultural products plays an important role in the international market price. Due to production costs, agricultural subsidies and other factors, the price of agricultural products in the United States has remained at a relatively low level for a long time, and is the main driver of the low price of international agricultural products. The "upside down" phenomenon of the price and cost of grain in the United States is undoubtedly related to the country's hefty agricultural subsidy policy [5]. In response to the continuous decline in US grain prices, the cost of grain production in China is rising. This is because with the continuous growth of China's economy and the transformation of agriculture towards scale, mechanization and capital deepening, the prices of various agricultural production factors such as land, labor and capital have changed significantly. The sharp increase in agricultural production costs has directly lead to the rise in the price of domestic agricultural products along the agricultural production chain, resulting in the "upside down" situation that the price of some domestic agricultural products such as grain is more than 30% higher than the international level. For the reason that the United States, as the largest exporter of agricultural products in the world, has the pricing power of major international agricultural products (especially grain crops), in this Sino-US trade friction, China's counter-measures in the agricultural field is a Pyrrhic victory: if the price of agricultural products is opened to the international market, the price of domestic agricultural products may plummet, and thus damage the interests of farmers; Launching a tax increase on agricultural products exported from the United States is likely to further push up the price of domestic agricultural products, thus triggering inflation; The adoption of subsidy policies to guide farmers to adjust

agricultural structure, such as planting soybeans and corn, will further tension the supply and demand of the originally scarce cultivated land resources, and bring a series of unpredictable consequences.

2.3. The Uncertainty of the United States' Trade Protection Policy has Severely Impacted the Price of Corn in China

The uncertainty of US trade policy has obvious time-varying impact on China's agricultural products import and export trade. The impact of US trade policy uncertainty on China's agricultural trade is different in different periods; The impact of the uncertainty of US trade policy on the trade of different agricultural products in China is different.

The United States is the largest economy in the world, and also an important agricultural product trading country. The adjustment and uncertainty of the United States trade policy will affect the world agricultural product trade situation. In particular, China's agricultural trade flow is large, and Sino-US agricultural trade is frequent, and the uncertainty of US trade policy will inevitably affect the import and export trade of China's agricultural products. From the perspective of different periods, the change of the uncertainty of the United States trade policy will affect the trend of Sino-US agricultural trade, and the impact mechanism of the uncertainty of the United States trade policy on the fluctuation of agricultural trade in different periods and under different policy and institutional frameworks is different, which also reflects the time-varying characteristics of the impact to a certain extent. Since the Trump administration came into power, the trend of anti-globalization and trade protectionism has become increasingly prevalent, Sino-US trade frictions have occurred frequently, and trade relations have fluctuated. Whether from the perspective of global economic policy environment or the international agricultural trade market, the negative impact of the uncertainty of US trade policy continues to exist.

3. Transmission and the mechanism of action

The price changes of corn futures in China and the United States are mainly reflected by trade path and financial path. In trade path, the uncertainty of trade policy will have an impact on the import and export trade of corn between China and the United States, and the trade frictions and tariff restrictions between China and the United States will lead to price changes; The financial channel reflects the impact of international commodity price changes, domestic policy environment and other factors on investor sentiment, and then affects the price of corn futures market. The following is a theoretical analysis of the impact mechanism of Sino-US trade policy uncertainty on the price of Sino-US corn futures from the specific impact path of the two channels.

First, trade path. Trade path is the primary way to link the prices of agricultural products at home and abroad [6]. Previous studies have shown that the higher the degree of market opening, the larger the scale of trade, and the higher the degree of external dependence of agricultural products, the stronger the price linkage and transmission effect between domestic and foreign markets [7]. This means that if the United States adjusts the export price of corn through trade policies, the import price of Chinese corn will also change, and this change in corn price often directly affects the spot market of Chinese corn. When the international price of corn spot rises to a point where the difference between its price and the domestic price exceeds a certain transaction cost, the trade chamber will transport relatively cheap domestic products to the international market, resulting in a decline in domestic supply and a rise in domestic prices; On the contrary, when the international price of a certain variety falls to a point where the gap between its lower price and the domestic price is greater than the transaction cost, traders will increase imports from the international market, leading to an increase in domestic supply and a decrease in domestic price. However, if the United States restricts its corn export through trade policies, it will affect China's corn import sources, and corn producers and corn processing enterprises' expectations of the relationship between supply and demand of corn will drive the spot price of corn to rise. Relevant studies have also shown that there is price discovery

and price induction between the spot price and futures price of corn in China, and changes in the spot price of corn will inevitably affect the price of corn futures [8].

Second, financial path. In the context of global commodity financialization, the motivations and strategies of financial investors make the operation rules and evolution characteristics of commodity markets more and more similar to traditional financial markets. Therefore, as a financial derivative, changes in the financial market environment will inevitably affect the corn futures market. The impact of the uncertainty of the US trade policy on the financial market is mainly reflected in two aspects. On the one hand, the commodities related to corn are mainly energy commodities and related substitutes. Changes in the uncertainty of US trade policy will affect the prices of energy commodities such as crude oil and other agricultural products; On the other hand, in response to the uncertainty of the US trade policy, China will also make corresponding policy adjustments, such as by adjusting the exchange rate, foreign exchange reserves and other ways, so that the financial policy environment of China's corn futures prices will also change. Changes in the price, policy and environment of the financial market will directly affect the investor's investment sentiment and behavior, and then affect the price of China's corn futures. As the financial attributes of agricultural products continue to strengthen, factors such as international liquidity impact, financial crisis, cross-market arbitrage and speculation of international hot money, investor sentiment and herd behavior will also act on the agricultural products market, making the cross-border contagion effect between the U.S. and China corn markets similar to the financial market [9]. Therefore, the uncertainty of US trade policy will also affect the price of US corn futures through market factors, and due to the close relationship between China and the international market, the relevance of the corn futures market is highly relevant. There is a price spillover effect between the corn futures markets of China and the United States, which will interact and influence each other [10].

4. Conclusion

The impact of Sino-US trade policy uncertainty on China's soybean price fluctuation is mainly indirect. The uncertainty of trade policy further affects the price of Chinese soybeans through the change of economic growth, causing the price of Chinese soybeans to show the characteristics of sharp rise and slow decline, which has a negative impact on maintaining the stability of Chinese soybean prices. Therefore, it is more important to pay attention to the research on the uncertainty of Sino-US trade policy to maintain the stable development of the macro-economy of the two countries and maintain the stability of the price of agricultural products. Under the realistic background of great downward pressure on the economy, slow recovery of the world economy, and complex and volatile trade relations between China and the United States, only by maintaining the stability of the prices of agricultural products such as corn can we ensure the sustained, healthy and stable development of the national economy.

The outbreak of Sino-US trade war has objectively created a stage opportunity for China to optimize the import market layout and establish a diversified overseas agricultural product supply system. However, since 2019, Sino-US trade frictions have been intermittent, and the major frictions are difficult to continue. China may increase the import of agricultural products from the United States, and consumer enterprises' enthusiasm for purchasing domestic corn and stock behavior will decline significantly, affecting the activity of China's corn futures market.

Based on the above research conclusions, the following policy implications are proposed for reference. Firstly, improve the response mechanism to trade policy uncertainty, improve the trade market regulation system, realize the forward-looking, timely, moderate and progressive nature of trade market regulation, and mitigate the adverse impact of trade policy uncertainty.

Secondly, China will continue to strengthen economic and trade consultation, communication and cooperation with the United States, reach consensus on the issue that trade cooperation between China and the United States is conducive to promoting economic prosperity and stability of both sides, and strive to resolve differences between the two sides in the process of economic and trade cooperation.

At the same time, it is necessary to take necessary economic countermeasures against the trade protectionism of the United States, exchange short-term economic fluctuations for the consideration of the long-term economic development of the two sides, promote the two sides to reach a bilateral trade agreement, make the Sino-US economic and trade cooperation develop along the correct track of equality, mutual benefit, inclusiveness and mutual trust, provide favorable conditions for the stability of the price of bulk agricultural products, and reduce the uncertainty of the price fluctuation of agricultural products.

Furthermore, strengthen scientific and technological innovation, promote technological progress in China's agriculture, continuously improve agricultural total factor productivity, improve the yield, quality and economic benefits of China's corn planting advantage areas, and further enhance the international competitiveness of domestic corn. Formulate a long-term strategy for agricultural development, adhere to high-quality development, fully rely on agricultural technology progress, implement it step by step in the long term, and implement policies accurately in the short term. We will continue to adhere to the adjustment of agricultural structure, optimize the planting structure, variety structure, scale structure, and factor structure, enhance the resilience and security of China's corn supply, smooth the circulation of agricultural products in the domestic market, maintain the stability of the macro economy, and resist the adverse effects of changes in the United States economic and trade policies.

Last but not the least, China should continue to strengthen diversified agricultural trade cooperation and promote the diversification of trade markets. We will continue to expand agricultural trade with other countries, optimize the regional structure of agricultural trade, eliminate unilateral dependence, and diversify trade risks. Since China's land resource constraints and external dependence on corn have been at a high level and will not change significantly in the short term, we should expand the scale of soybean trade with other major agricultural production countries through more diversified corn import channels, optimize the international and domestic circulation of agricultural trade, and avoid major impact on China's corn prices due to changes in one country's economic policies.

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