



# Grain Financialization and Food Security: A Chinese Perspective

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## Abstract

The globalization led by financial capital has already resulted in 'grain financialization' (or grain dollarization), which is the most important factor giving rise to the grave situation in global food security, as well as turmoil in developing countries that rely heavily on grain imports.\*

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This article analyzes food security issues in the twenty-first century in the context of international financial globalization. In particular, it pays attention to developing countries' discontents and crises due to grain financialization, as well as China's strategies in dealing with the dual risks existing in grain and financial markets.

### **Keywords**

Globalization, financialization, grain, food security, developing countries, China

## **Introduction**

The globalization<sup>1</sup> led by the financial capital has already resulted in 'grain financialization' (or grain dollarization),<sup>2</sup> which is the most important factor in aggravating global food security, as well as causing turmoil in developing countries that rely heavily on grain imports. This essay focuses on food security issues in the twenty-first century in the context of international financial globalization. In particular, it looks at the crisis and discontent arising in developing countries due to grain financialization, as well as China's strategies in dealing with the dual risks faced in grain and financial markets. At present, the global supply and demand of wheat, maize, rice and soybeans are essentially in a state of equilibrium, without obvious gap between two sides. This indicates that the supply-demand relationship in international grain market is not the main factor that causes severe fluctuations in grain prices. Rather, there is a close correlation between the severe fluctuations in international grain prices and the several rounds of quantitative easing undertaken in the United States as its monetary strategy.

Ever since the financial crisis erupted in Wall Street in 2007, the US government adopted a 'super quantitative easing' strategy to transfer the costs of the crisis, triggering inflation globally. The enormous amount of US dollars (USD) issued has produced increasing surplus liquidity which has been infused in the grain market, leading to wild price fluctuations. Thus, the grain market has become the 'garbage dump' of excessive financial liquidity. Every major rise and fall serves to digest the surplus liquidity that has been produced by the dominant nations in the West. Both these aspects show that the operation of the grain market has gone beyond the normal realm and the 'financial properties of grain' have been artificially created.

Surplus liquidity continues to strengthen speculative financial capital, which is impacting the grain futures market, creating an increasingly obvious mismatch between the financial properties of grain and the pricing conditions (production–sale, supply–demand, etc.) in the traditional sense. Financial speculative capital has, therefore, become the main factor of the abnormal price fluctuations in grain futures market, and also the main reason in causing food crises around the world. Such a phenomenon has serious impacts on the international community because of fluctuations in grain markets and persistent high price level. As a result, countries with ‘monoculture economies’ have fallen to starvation. We witness street riots in the Middle East, and various other crises of sovereignty. This article highlights the different aspects of grain financialization and its impact of the international community.

## **The International Grain Market in the Twentieth Century**

Looking back at the history of the second half of the twentieth century, we can find four major episodes of fluctuations in international grain prices. The first grain price surge occurred between 1973 and 1974, when the United States, Europe, China and the USSR, among other countries, had previously lowered grain production. In this situation, the USSR had to purchase grain in large quantity from the international market, giving rise to rapid increase in grain price. The second spike in grain price emerged between 1980 and 1981, when the grain prices rose as a result of the year-by-year growth in the trade volume of cereals, alongside reduced production in the main exporting countries. It was particularly significant for rice, whose international price rose to approximately USD 300 per ton. The third surge in prices occurred between 1989 and 1990, when the price of wheat rose to USD 175 per ton. This cycle of price surge was then quickly suppressed by the export subsidy strategy of the United States and Europe. The fourth surge in prices appeared between 1995 and 1996, because grain producing regions like Russia substantially decreased production and developing countries experienced stagnant production, creating a crisis in international grain production. This fuelled the trend of rising international demand for grains, thus pushing the prices to a historical high in the international market.

Looking back at these four fluctuations in grain prices in the second half of the twentieth century, it may be observed that international grain prices underwent major changes every seven to eight years, thus displaying

a cyclical process. There was also a 'classical' economic reason for grain price fluctuations in the twentieth century: Almost every time that the key grain producing countries had lower production, it would lead to higher demands from those countries on the international grain market, resulting in a grain price surge. Even though the third grain price surge was rapidly suppressed by the export subsidy strategy of the United States and Europe, the fact that the supply and demand relationship together had determined the cyclical fluctuations of grain price could not be negated. However, as the world entered the new century, there appeared a new phase in the trend of international grain market price. Compared to the twentieth century, the greatest difference was that the relationship between price fluctuations and supply–demand fundamentals had become increasingly fuzzy.

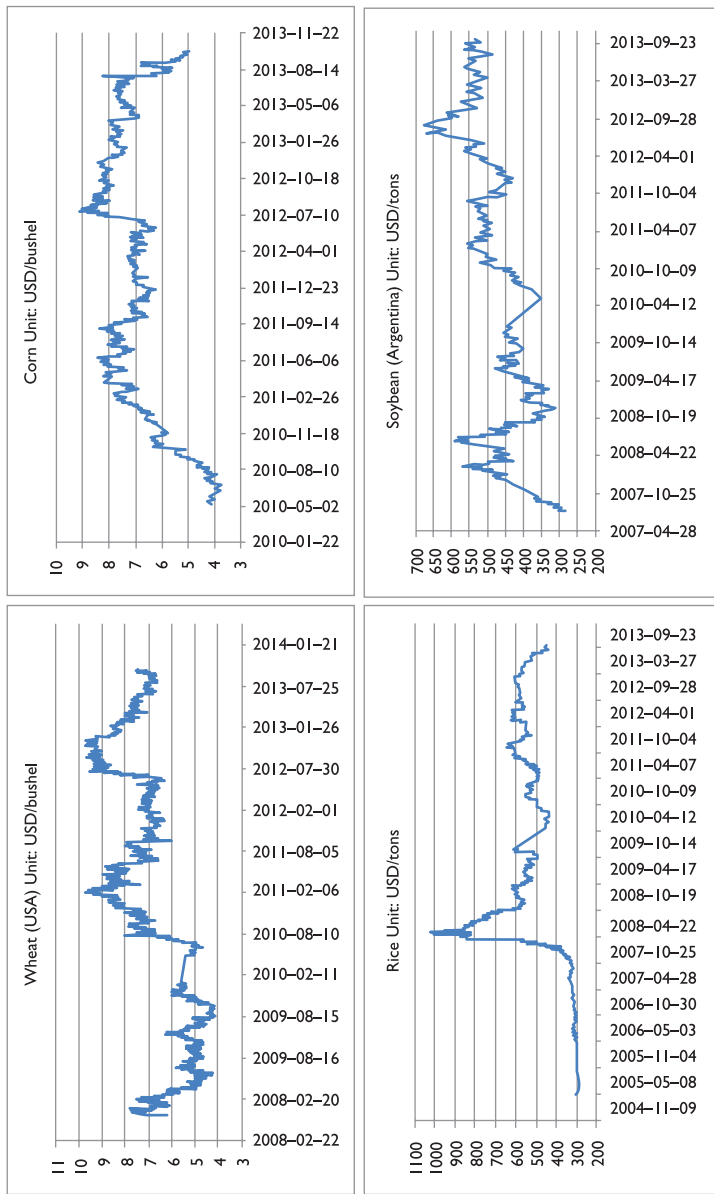
## **International Grain Price Fluctuations in Recent Years**

According to the United Nations Food and Agriculture Organization's (FAO) *Crops Prospects and Food Situation* (FAO, 2011a, 2011b), the total global production of the three major grain crops, wheat, maize and rice, grew by 3.5 per cent in 2010–2011, reaching approximately 2,323 million tons, which was close to the historical high. This had not yet included crops such as potatoes, beans and other crops for animal feeds (FAO, 2011b). Looking at the overall inventory, maize, soybean and rice were all well-stocked, with supply higher than demand throughout the period, except in a small timespan for production and demand of wheat in 2012. Global grain supply and demand were generally in equilibrium during this period.

However, in recent years, the international prices of major grains have fluctuated severely, with substantial surges and falls occurring frequently. International spot price fluctuations of wheat, maize, rice and soybeans are shown in Figure 1.

Given the equilibrium of supply and demand in recent years, the international spot price of grains, wheat, maize and soybeans, has demonstrated a rising trend. The monthly and daily international spot price of grains has also showed severe price fluctuations.

The analysis performed by some international institutions reveals that the more severely the grain price fluctuates, the more disconnected it becomes from the forces of supply and demand. According to *Food Price Watch* by the World Bank (2011), from October 2010 to January 2011, the



**Figure 1.** Price fluctuation of four staples in the international spot market in recent years

Source: Data collected from Wind Info website: <http://www.wind.com.cn/en/edb.html>

international grain price rose substantially by 15 per cent. Compared with the previous year, the increase was 29 per cent, close to the historical high set during the 2008 grain crisis. In 2010, some grain prices had already broken previous records, where price of maize rose violently by 52 per cent, wheat by 49 per cent and soybeans by 28 per cent (FAO, 2011a). Yet, during this period, the supply and demand of grain globally was essentially in equilibrium; in effect there was no reason for the grain price surge if we take into account the economic fundamentals. It can be seen, therefore, that while global grain supply and demand is still a factor in the determination of prices, they are not the key factors explaining severe grain price fluctuations.

## **Grain Financialization is Equal to US Dollarization**

The operations of financial capital and international competition no longer follow the traditional geopolitical strategy. Instead, the current geopolitics has currency hegemony at its core. Since the 1970s, the financial capital has increasingly taken on a central role in the global division of labour, allocation of resources and distribution of wealth. As a result, currency power overtook geopolitical power to become the new pivot in international relations in the era of financial capitalism. After the USSR broke up, the ‘unipolar’ hegemony of the United States empowered the dollar, which was allowed to advance with minimal restraints and bring about the globalization of financial capital. This set up the hegemony of the USD as the basis for all international relations. It is the era of ‘geo-monetary-politics’, which has given rise to a global system of the geo-monetary strategy that has strengthened the US power. This is a new type of hegemony with three aspects at its core: US capital, energy (oil) and food (grain).

Since the 1980s, Western financial capital has begun to detach itself from the real economy. The pursuit of high returns that exceed the average rate of return in the society resulted in the expansion of a virtual capital market and sucked up liquidity on a large scale. Georg V. Lehecka analyzes correlations, price return distributions, cointegration and Granger-causalities between aggregate food and stock markets from 1990 to 2012, by using data from the FAO Food Price Index and the MSCI World Stock Market Index. He argues that the linkages between food and financial markets have increased, in particular substantially during the

financial stress of the Lehman crisis and the Great Recession (Lehecka, 2013). This link operates by relying on financial markets such as stock and futures, spreading 'authoritative' interpretations and information on supply and demand forecasts in accordance with the intent of financial capital. This forms a general expectation that is favourable to financial capital seeking profits. With the focused investment of capital, small and medium investors looking for opportunities are attracted to follow suit in the market. In a short time, this pushes up the price of financial products, forcing spot prices to rise. Speculators then sell the financial products and spot products at the higher price level. When corrective information about market prediction is published, the prices of financial products are drastically driven down, in turn decreasing spot price. In this process, monopolistic financial capital and industrial capital, through creating price variations within a short time, realize extraordinary profits by buying low and selling high.

The elements of 'monetary hegemony' can be summarized as follows: The political power of the USD is secured by geo-political relations. It has the right of resources pricing which determines the security of the industrial chain. Its core is a credit system derived from sovereignty with independent fiscal and monetary policy. In the expansion of capital, the US capital armed with USD can make huge profits in the competition of a financialized global economy and transfer the costs to others (Lan, Linzhou, & Tiejun, 2012). Since the Wall Street crisis of 2008, the United States has alleviated its own debt crisis through a quantitative easing policy. The establishment of USD as a world currency is closely coordinated with the US oil and grain strategies, forming a 'triangular structure'. In the international oil and grain markets, the surplus dollars are absorbed like garbage dumped in a landfill site. This is precisely the system that the United States is using to extend its current unipolar global hegemony, which means making use of its military might to construct its political strength, which, in turn, empowers the US monetary system to become the *de facto* global currency. The triangular 'geo-monetary-political' strategy has resulted in the whole world becoming the handling field of excessively issued USD, as well as taking on the institutional cost that the United States has transferred to other nations under financial globalization.

The United States has issued surplus dollars for a long time to implement a quantitative-easing strategy, causing the long-term expectation of dollar depreciation, leading to a worldwide flooding of liquidity. Zhu Binyuan has pointed out that, based on the development of international currency and financial market to date, the definition of 'liquidity' has

already experienced a fundamental change (Zhu, 2012). Liquidity no longer only means the quantity of money supply or loan/deposit differentials of banks. For example, today, while the broad measure of money supply M2 is 122 per cent of the global gross domestic product (GDP), it represents only 11 per cent of global liquidity. Securitized bonds account for 142 per cent of the global GDP, but only 13 per cent of global liquidity. On the other hand, from 1998 to 2012, the volume of open positions in all derivative financial instruments in the nominal amounts outstanding of the underlying assets has increased from 94.3 trillion to 685 trillion USD, a growth of 627 per cent. It was almost nine-fold the global GDP in 2012. Moreover, from 1998 to 2013, the annual trading turnover in financial derivatives has increased from 694.3 trillion to 2,978.9 trillion USD, a growth of 329 per cent (Lazový & Sipko, 2014). Financial derivatives as compared to the global GDP are as high as 802 per cent, accounting for about 75 per cent of global liquidity. According to the statistics, 65 per cent of USD circulates outside the United States. Of the USD 7 trillion international reserves, two-thirds is in USD assets. Eighty-six per cent of global foreign exchange transactions are USD transactions, while almost half of international debts are USD securities. The deluge of liquidity with a speculative nature has been influencing the rising international prices of grains. As the website of Business Insider mentioned, 'The grain crisis was in effect a USD crisis.' At the same time, the deluge of liquidity also resulted in a closer and closer relationship between the grain, currency, foreign exchange and futures markets, as well as the financial derivatives market (Fan & Liu, 2012).

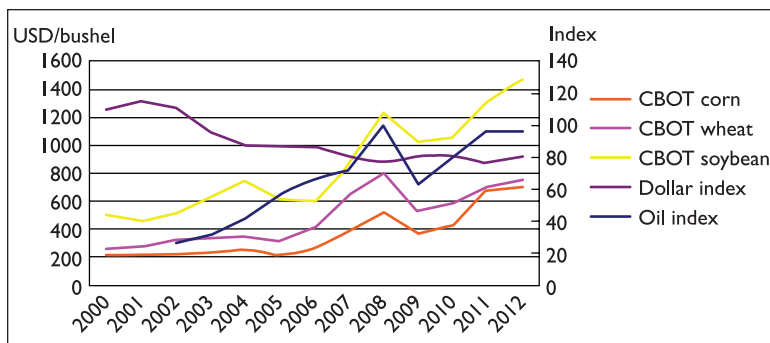
Following the international financial crisis, the strategy of US-led Western developed countries to increase money supply has resulted in the emergence of an enormous amount of low-cost capital in the international economic system, which allows the developed countries to use that surplus capital to undertake speculative activity, again and again. As the real economy lacks the ability to absorb surplus capital, large amounts of capital exited the investment of stock markets and entered the commodity futures market, creating an extraordinary boom in the latter with the infusion of large amounts of speculative capital. Among these, agricultural commodity futures are the main focus of speculative capital. The financial investment in commodities has grown rapidly, with assets under management approaching USD 410 billion in the first quarter of 2011, which constituted more than a two-fold growth, as compared with 2008. The majority of investments in recent years has been concentrated in exchange traded products (ETPs) tracking commodities (Dwyer, Gardner, & Williams, 2011).



Gao Fan and Gong Fang, who conducted empirical research on the fluctuations of international grain market prices from 1961 to 2010, pointed out that the internal mechanism of the fluctuations in international grain price has undergone a structural change before and after 2000 (Gao & Gong, 2011). Prior to this, the supply–demand fundamental was the main factor impacting price fluctuation. From 2000 onwards, financial and energy properties became the main areas impacting grain price fluctuation. Financial factors (i.e., the US three-month yield or the Federal benchmark interest rate) and the energy factor (average international energy price) could explain as much as 98.08 per cent of the impact on international grain price. The empirical research of Jin Sanlin and Zhang Jiangxue showed that the prices of international agricultural commodities such as soybeans, maize, rice and wheat were mostly affected by factors such as the USD index, international oil price, supply–demand situation and market speculations. In particular, the USD index is the most obvious of all impacting factors (Jin & Zhang, 2012).

As seen from Figure 2, for a long time the price of major grain products such as wheat, maize and soybeans in the international market had a similar trend as that of crude oil price, showing a rather intuitive positive correlation, but an opposite trend to changes in the USD rate, with an obvious intuitive negative correlation. The similar trend of crude oil price and the major grain commodity price have indicated that factors impacting their changes had something in common, and that common factor was the value of the USD. That is: The more the dollar is depreciated, the greater liquidity in the international economic system, and the further grain prices and energy prices will rise.

There is a close relation between the rise and fall of international grain price and the 2008 financial crisis as well, as well as the US monetary strategy of introducing the three consecutive quantitative easing initiatives. This can be gauged by inspecting the relationship of international price trends of the four key grain items in recent years and relating them with the state of the global economy. From the material on international grain price as shown in Figure 2, it can be seen that, before the financial crisis in the second half of 2008 had spread worldwide, the United States had already entered an era of zero interest rate policy, thereby facilitating the overall rising trend of global food product prices. From August 2007, the US Federal Reserve has reduced interest rates 10 times, with interest rates falling from 5.25 per cent to the target zone of 0–0.25 per cent. In addition, the benchmark rate was reduced 12 times and decreased by 525 base points to 0.5 per cent. In the post-financial crisis era, since 2008, the international grain market became increasingly



**Figure 2.** Price fluctuation of staples, USD and crude oil in international market

**Source:** Data collected from US Ministry of Agriculture website.

sensitive to the policy of the US Federal Reserve. The mechanism of this is precisely ‘grain dollarization’, or ‘grain financialization’, which has little to do with supply–demand relations.

On the surface, financialization is the economic phenomenon arising from excessive money supply and its derivatives, but it certainly does not belong to the category of inflation in the sense of traditional economics. Inflation is, in effect, still a case of the virtual (financial) economy’s passively and excessively increasing money supply due to changes in the state of the real economy. The most essential difference of ‘financialization’ is that the virtual (financial) economy makes use of excessive money supply and its derivatives to generate surplus liquidity in order to control pricing in the real economy. This in turn leads to an increased control of the real economy, so as to achieve, with active awareness, the economic behaviour of realizing wealth accumulation through manipulating short-term price variations.

The financial and industrial capitalists manipulate the financial and spot markets through creating short-term price variations to buy low and sell high. In a capital-intensive operation, they realize the goal of making abnormally enormous profits. As this is an act of blatantly robbing small and medium investors in the financial market, as well as small enterprises and producers who produce the commodities, financialization is a kind of predatory economic activity of serious injustice and immorality. In the same vein, countries that manipulate global capital markets through financial globalization transfer the crisis to the real economy, thereby seriously impacting the livelihood of ordinary people. At the level of

ideology, the adherents of such a system tend to produce discourses to justify this kind of super-profit financialization that takes advantage of others to benefit themselves. Of course, the pretext and key to 'financialization' is the separation of finance from industry. This process has coincided with the Western developed countries developing from industrial capitalism into financial capitalism.

The financial economy, concerned with buying and selling on the financial markets, in contrast to the real economy, concerned with producing commodities and services, is a new economic phenomenon of the international economic system, in the case of increasing liquidity that reaches the level of a deluge. This outcome is inevitable in the development of capitalism's economic system, wherein the role of financial economy exceeds that of the real economy in the national and international economic system. It is also a situation in which the influence of financial capitalists on the economy surpasses that of industrial capitalists.

In this context, the phenomenon of 'grain financialization' presents us with a cross-sectional view of the financialization of the real economy, in the sense that the international spot prices of grain are increasingly being determined by the agricultural commodity futures market and by monetary liquidity itself. Since the agricultural commodity futures market is capital's main battleground for looting profit, the US Department of Agriculture, which propagates information and shapes market expectations, is their accomplice, while grains like maize and soybeans turning into agro-fuels becomes their main channel.

Under these circumstances, every sector within a national economy will be confronted with financialization, referring to financial capital taking control of industrial economic development, as shown in the increasing dependence of product pricing on the relevant financial commodity markets, while the influence of supply and demand fundamentals is decreasing. In the same vein, the financialization of the international grain market is an embodiment of the financialization of grain industries, as nations around the world become increasingly linked in the process of global economic integration. Spot price in the international grain market is increasingly determined by the impact of agricultural produce futures markets and of capital liquidity itself, while the fundamental aspect of supply and demand has become relatively less important.

## Transferring the Costs of Financialization to Developing Countries

Although grain financialization may have led to severe fluctuations of international grain prices, it is also responsible for the maintenance of the high prices of food through speculation by international capital and hoarding by manipulative merchants. The FAO food price index showed that food prices increased from USD 188.0 to USD 229.9 in 2010–2011, breaking previous records (FAO, 2017). Another example of speculation by financial capital is as follows. The US Commodity Futures Trading Commission (CFTC) statistics in the same period showed that up to 24 May 2011, US commodity net long futures and options had a growth of 7.6 per cent, to 1.17 million lots, whereas in the three weeks earlier, it had declined by 27 per cent. Consequently, hedge funds had increased substantially the net long position of wheat futures and options, the extent of which was 155 per cent (Huang, 2011). Generally speaking, the result of market speculative behaviour on grain price fluctuation is very obvious: Every time global supply quantity has a 3–5 per cent fluctuation, speculative activity in the international market could amplify the grain price fluctuation by three times, which is to say, grain price fluctuation could reach 10–15 per cent.

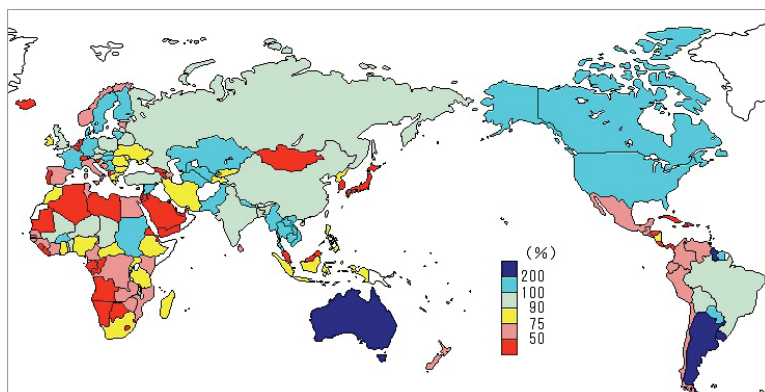
Most developing countries are impacted by the external transfer of inflation by financial capitalist countries. The large amount of surplus liquid capital is the main reason for driving up grain prices. Therefore, it is the unreasonable system that is the main cause of starvation among poverty-stricken people. On this basis, policy-makers from developing countries should not take heed of the perspectives influenced by Western ideology, which are cast in terms of so-called orthodox ‘grain and agriculture’ studies; instead, they should explore different studies and methodologies, and reach their own conclusions. In particular, new changes have emerged in price trends in the international grain market since the twenty-first century, which do not permit the use of supply–demand fundamentals to analyze the kind of cyclical grain price fluctuations which were evident in the twentieth century.

Against the background of grain financialization, most former colonized countries with a ‘monocultural’ economic structure, as a legacy of colonialism, are made to bear the institutional cost when encountering global inflation and the crisis caused by the core countries through expansions of financial credit. International organizations confirmed that in 2008 there were 38 countries with grain shortages, the main reason

being the impact of surplus financial capital on the grain market, causing substantial increase in grain prices. According to the World Bank, within the one year from 2010 to 2011, for most countries that imported grain in accordance with a Western dietary lifestyle, such as having bread as staple grain, the biggest problem was the large increase in the price of wheat and maize. Consequently, 68 million poverty-stricken people with average daily incomes at around the poverty line were directly affected. Of these, more than 44 million poor were reduced to abject poverty. The World Bank pointed out, in particular, that as rice was the staple grain for East Asian societies they were not as seriously hit by this increase in grain price as in other regions (World Bank, 2012). Zhang Zhenwu pointed out that following the internationalization of financial market, the transaction mode of 'hoarding and speculation' has emerged in the 'production, supply and distribution' of the agricultural produce market (Zhang, 2007). The surplus and speculative capital intervened at multi-levels in the grain markets through buying low and selling high, becoming an important force in causing food price fluctuations. As a result, the uncertainty factor of price fluctuation increases, and the risk of market transactions and even asset bubbles are amplified. When the financial properties of grain are larger than commodity properties, the result is not the lack of grain but its unaffordability. Decrease in production due to natural disasters will not persist, but financial transactions of agricultural products led by developed countries will nevertheless become their effective tool for transferring financial risks.

Let us compare Figures 3 and 4. In the context of grain financialization, it can be seen that many countries with a low level of grain self-sufficiency have encountered hunger and malnutrition to some extent. For example, among African countries it is rare to have grain self-sufficiency. Most rely on grain imports with some countries having a self-sufficiency rate less than 50 per cent. As a result, when hoarding and speculation create shortage of food supply and, therefore, the prices are high, most African countries face a serious extent of hunger, or relatively serious hunger. Africa becomes the region where malnutrition is the worst. Another example is Mongolia, which relies heavily on grain imports, with a self-sufficiency rate under 50 per cent, and which encountered serious hunger and malnutrition in 2008. Further examples include Central American countries in general, which have self-sufficiency rates between 50 and 75 per cent. In 2008, some of the countries, for example, Mexico and Panama, had moderate hunger to relatively serious hunger.

In 2009–2010, the year after the Wall Street financial crisis erupted, the US quantitative easing policy led to large increases in global grain

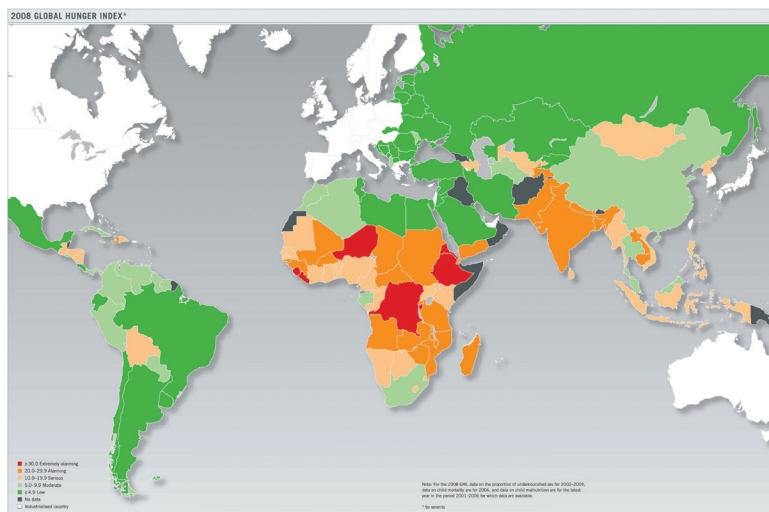


**Figure 3.** Food self-sufficiency ratio of each nation in 2003

**Source:** Ministry of Agriculture, Forestry and Fisheries of Japan (Honkawa Date Tribune, <http://www2.ttcn.ne.jp/honkawa/0319.html>)

prices. In particular, in North African regions, wheat strands and flour which were seriously in shortage, price increases of more than 100 per cent occurred, and maize price increased by 70 per cent. This led to riots in North Africa and the Middle East, resulting in political crises. At this time, the reason that Asian regions were relatively stable was because more than half of the people in this region were still self-sufficient peasants, able to internalize external risks. The price of their main staple grain, rice, had only risen by 34 per cent.

As shown in Figure 4, countries in North African and Middle East regions generally have low self-sufficiency rates for grain. The dependency rate on grain imports is too high. The author pointed out that at the time of the grain price surge of 2010–2011 there were sudden outbreaks of political revolts on the streets of Egypt and North African countries, where wheat imports exceeded 50 per cent. One political outburst followed after another, as the urban poor could not withstand the crisis of the continuously rising grain price. Although Egypt and those North African countries were not worse off than others in Africa in terms of the hunger situation, hunger among urban poor added to the social stresses of high youth unemployment, which stood at over 50 per cent. Such were the basic conditions for the persistence of the street movements. Although the impact of Western political ideology ushered in a change of government in Egypt, this change of political regime did not in fact have any impact on solving the difficult issues of the past (Dong et al., 2011).



**Figure 4.** Global Hunger Index 2008

**Source:** Hunger Index released jointly by Washington based International Food Policy Research Institute (IFPRI), Germany based Welthungerhilfe, and Concern Worldwide. [https://commons.wikimedia.org/wiki/File:GHI\\_2008\\_map.jpg](https://commons.wikimedia.org/wiki/File:GHI_2008_map.jpg)

**Notes:** Areas in black were without information; areas in red were serious hunger; areas in orange were relatively serious hunger and areas in green were moderate hunger. In the ranking of global grain crisis, Africa had the highest score. Of this, Congo ranked worst out of 88 countries where hunger was most serious. India was also relatively serious, ranked 66. North Korea was 53rd. China was in 15th, in light green region, not considered in grain crisis.

It is worthwhile noting that Egypt was once a country with better economic benchmarks than China. Egyptian GDP per capita had exceeded USD 5,000 much earlier. Economic growth rate was also much better than the average developed countries. It went down only because of the setback caused by economic crises. Nevertheless, it still had growth potential. Looking at the structure of the Egyptian national economy, its service industry accounted for 50 per cent of GDP, while agriculture accounted for 13–14 per cent. This is typical of a modernized economic structure of an ‘inverted pyramid’: the general requirement of structural adjustments has been realized. Furthermore, Egypt has been a long-term ally in the US Middle East strategy. Over a long period of time, it has been subject to the protection of the latter in international politics and economics. It can be seen from this that the impact generated

from grain financialization and the price being borne by developing countries can be nothing short of disastrous (Dong et al., 2011).

## Food Security in China

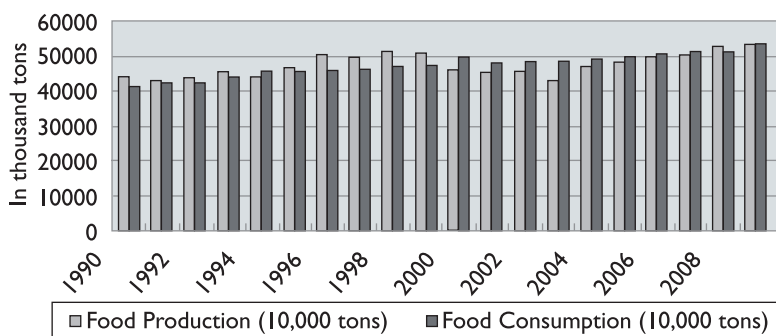
In the more than 60 years since the establishment of the People's Republic of China, the country basically succeeded in obtaining grain self-sufficiency, except for a certain number of years. Food security has been somewhat stable overall. According to the information from the Ministry of Agriculture, in the 10 years prior to 2013, grain production in China had recorded 10 years of consecutive growth in total production.

However, during this same period, the grain imports of China had increased substantially. The grain self-sufficiency rate has long fallen below the official security threshold of 95 per cent. Some research showed that it was lower than 88 per cent. Those responsible for the official agricultural policies pointed out that imported agricultural produce already reached an equivalent of 600 million *mu* of arable land, one-third of the red line of 1.8 billion *mu* set by the state.<sup>3</sup> If this is confirmed, then agricultural imports into China would account for one-fourth of domestic consumption.

From Figure 5, it can be observed that the trends of China's grain consumption quantity and production quantity variations are generally similar. For example, since 2003, grain production in China has continuously increased, and at the same time grain consumption quantity has continued to rise. The watershed year was 2000, before which on average all years had production quantity higher than consumption quantity, except in 1994. Yet, during 2000–2007, grain production in China was lower than the total consumption quantity. Even adding the quantity of grain import, grain supplies in China still lagged behind consumption quantity. Nevertheless, the abundant grain harvest in 2008 turned around the situation of lower grain supply than demand in China. It can be seen from Figure 5 that there is a trend of a rising gap in China's grain demand, especially after 2003. Although production has been increasing year after year, the rate of production rise is still insufficient to satisfy the continuous increase in demand.

Due to the impact of many kinds of factors such as supply and demand, China's requirement of grain is showing a rising trend. Table 1 presents the situation of net grain imports as a proportion of total grain demand in China since 1999.





**Figure 5.** China food consumption and production, 1990–2009

**Source:** Wang Jinyan (2012).

When a production–demand gap emerges in China, the import of grain crops like wheat, rice and soybean is an important means to fill the gap. From Table 1, it can be seen that 2004 was a key moment for grain import/export for China. Before this, China was a net exporting country, whereas afterwards China became a net grain importing country. Furthermore, in recent years there has been a rising trend in net imports as percentage of total demand. The statistics of grain imports also showed an increasing proportion of imported grain relative to total grain consumption. China for the first time became the largest importer of US agricultural produce in 2010, and the value of imports reached as high as USD 17.5 billion, accounting for 15.1 per cent of the US agricultural exports (USDA, 2011). In 2011, China imported 52.64 million tons of soybeans, accounting for 82.4 per cent of total grain imports for this period. In addition, the import of maize was 1.75 million tons, an increase of 11.5 per cent, while the import of wheat was 1.258 million tons, an increase of 2.2 per cent. In July 2011, the import of maize to China reached 0.1726 million tons, setting the record on the highest single month import. Simultaneously, the export of rice and non-husked rice from China has been decreasing. In 2011, the export of rice and non-husked rice was 0.516 million tons, reduced by 17.1 per cent (National Bureau of Statistics of China, 2012). Following 2010, China again became a net importing country of maize. Grain commodities such as soybean and maize which had a higher extent of increase in the international grain market were all insufficient in terms of supply in China. The import of soybeans as a proportion of consumption accounted for a high of 80 per cent. In 2015, China imported a total of 81.69 million tons of soybeans (National Bureau of Statistics of China, 2016).

**Table 1.** China food production, demand and proportion of food imported in aggregate demand (%), 1999–2009

year	Food production (10,000 tons)	Net Food Imports (10,000 tons)	Food demand (10,000 tons)	Proportion of food imported in aggregate demand (%)
1999	50838.58	–399	50364	–0.79
2000	46217.52	–1063	47710	–2.23
2001	45263.67	–532	48450	–1.10
2002	45705.75	–1198	48000	–2.50
2003	43069.53	–1992	48500	–4.11
2004	46946.95	2412	49367	4.89
2005	48402.19	2173	50575	4.30
2006	49804.2	2342	52090	4.50
2007	50160.3	2223	50161	4.43
2008	52870.9	2881	51770	5.56
2009	53082.1	4264.5	52145	8.18

**Source:** Wang Jinyan (2012).

At this point, fluctuations in the international futures market price for the main grain commodities such as wheat, maize, soybeans and non-husked rice will inevitably impact the domestic futures market price, differing only in degree. The most obvious impact will be on soybeans, then maize. Non-husked rice has the least impact. Yet soybean is the grain crop for which China is most heavily dependent on imports, followed by maize, and these two grain crops are the ones that the United States has the highest proportion of global production and export. Therefore, price fluctuations in the international grain futures market such as the Chicago Futures market are mostly affected by production and supply in the United States.

Take soybean as an example. Foreign capital enters China's agricultural market starting with livestock husbandry. Zhang Zhenwu pointed out that China's intensive animal farming model, and in particular its modernized pig husbandry model, was learnt from the United States: The pig species is composed purely of the 'foreign triad', the feed recipe is the standardized formula 'maize + soybean pulp + trace elements' and the raising mode is large-scale industrial. As a result, China's pig husbandry model has fallen into a dependence on maize and soybean pulp, which is to say soybeans. In recent years, because of the need to

develop livestock husbandry, China has imported large quantity of maize and soybeans, mostly as feed, thus objectively creating the condition for the impact of the international grain market on domestic grain market price, especially in the feed markets and husbandry (Zhang, 2007).

In recent years, the development of China's agricultural commodity markets has led to obvious improvements; covering 13 types of agricultural commodity futures, including grain, cottons, edible oil and sugar, the transaction volume of 2011 agricultural commodity reached 573 million lots, accounting for 54.33 per cent of the overall futures market. China has become the world's second largest agricultural commodity market. Nevertheless, among the Chinese agricultural commodity futures market participants, individuals accounted for about 90 per cent, with legal persons and institutional investors accounting for only 10 per cent, thereby showing an obvious speculative characteristic (An & Chang, 2013). As such, China would not be able to serve the functions of price discovery and hedging, and would be far removed from possessing the conditions of becoming an influential pricing centre for the world's agricultural commodities. At the same time, it would easily become the field for domestic hot money to speculate on grain price, taking advantage of price fluctuations in the world's grain markets. In July 2012, when the international grain price surged, enormous amounts of hot money from Jiangsu and Zhejiang regions flowed into the Dalian Commodity Exchange (DCE) to speculate on soybean and soybean pulp. Within two days, the number of transaction contracts on soybean and soybean pulp increased drastically to a one-day historical high level and pushed up the futures price. Immediately afterwards, speculative capital rapidly dumped the contracts and retreated, demonstrating obvious speculative activity (Grains and Oils E-News Information, 2012).

In fact, the futures price of DCE and the corresponding international futures market have shown a very strong correlation. With soybean as an example, the heavy reliance on external soybeans has shaped the correlation characteristic between domestic and external soybean futures price; that is, between domestic demand increase, international soybean futures price increase and domestic soybean futures price increase. It also resulted in the domestic soybean futures market becoming the most impacted market by international grain market financialization. To some extent it revealed a regular pattern: A species that is more domestically insufficient and that is more land intensive will be more subject to impact by grain financialization.

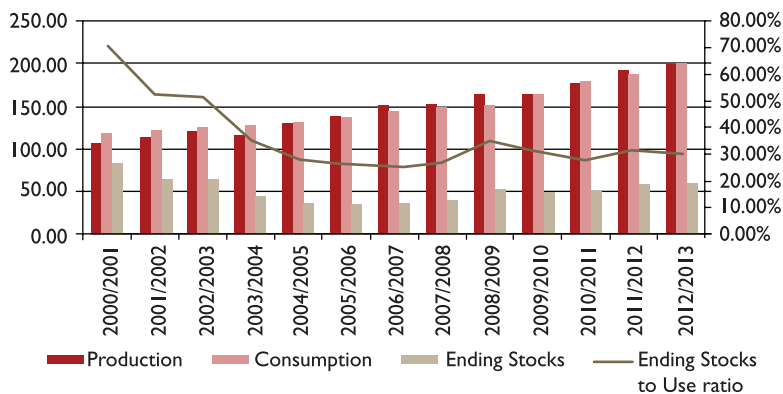
In 2012, Liu Xingqiang, the general secretary of DCE, stated that the futures price of soybean became No. 1; soybean pulp and soybean oil in

DCE had a correlation of over 85 per cent with the relevant futures price in the US Chicago Mercantile Exchange (CME). One may say that the domestic futures market of soybean and soybean products is the shadow of the international market, directly portraying the financialization characteristic of the international soybean market. In addition, over 200 participants in the Dalian futures exchange were domestic companies with foreign enterprise background, 4 per cent of DCE's legal person accounts. The big four grain companies of the world, ADM, Bunge, Cargill and Dreyfus, as well as well-known large international grain enterprises, such as Yihai Kerry, Noble Group, and Toepfer, have all become members or clients of the Dalian Exchange to trade on hedge and arbitrage (Liu, 2012).

The Chinese government recognizes that the issue of food security is presently contextualized in a process of globalization that involves capitalist rivalry within an international system of nation-states. It knows that safeguarding the country's food security is not simply a matter of fine-tuning along the tide in accordance with the international market, since the latter has increasingly come under the control of speculative capital. Instead, it is necessary to start from a rationality of security and strengthen the comprehensive reform that will facilitate China's regulation of food security. As emphasized by President Xi Jinping, 'the rice bowl of Chinese must be firmly held in our own hands at all time'. The Chinese government makes it a long-term fundamental state policy to have a firm grip on grain production and to realize food security based on domestic supply. This is the most important security policy in response to the financialization of international grain market.

From Figure 6, it can be seen that since 2000, China's grain production has shown a long-term rising trend, and from 2004 to 2012 it realized a nine-year continuous growth. Grain production in 2012 went up by 3.58 million tons compared to the prior year. Grain inventory has remained stable since 2004, above the alarm threshold of 17 per cent. It indicates that China's grain production capability is continuously rising, playing a key role in guaranteeing food security and maintaining stability in the domestic grain market price.

In Table 2, it can be observed that China's dependence of non-husked rice, wheat and maize on external sources is low. Self-sufficiency rates of these grain crop species were all above 98 per cent. Of these, non-husked rice has reached almost 100 per cent of self-sufficiency. The following proposition seems to be proven by experience: Staple crops that are more dependent on outside sources will be more greatly impacted by international grain market price.



**Figure 6.** China food production and consumption

**Source:** Peng Sisi (2013).

**Table 2.** China's staple dependency rate (%)

Year	Corn	Wheat	Rice	Soybean
2000	0.03	0.38	0.30	44.85
2001	0.01	0.87	0.31	35.75
2002	0.00	0.29	0.35	59.62
2003	0.00	2.86	0.65	49.25
2004	0.01	7.22	0.79	61.76
2005	0.04	1.05	0.56	62.55
2006	0.01	0.33	0.41	65.23
2007	0.03	0.02	0.51	75.15
2008	0.03	0.43	0.52	76.19
2009	0.83	1.36	0.53	82.80
2010	0.60	0.81	0.56	76.77
2011	0.91	1.05	0.30	80.19

**Source:** Li Wenzheng (2011).

## **China's Strategies in Dealing with International Grain Financialization**

### *National Grain Reserves*

According to Nie Zhenbang, the former Director of the State Administration of Grain, while the drought in 2012 in the United States had impacted the international grain market, China was able to maintain grain market stability due to sufficient central and local reserves, as well as other factors such as an abundant summer harvest (Nie, 2012). The stability of reserves quantity has become one important factor in insulating against the uncertainties brought about by grain financialization. Therefore, keeping an adequate reserve is the key to suppressing grain price fluctuation and maintaining grain market stability. At present, China's grain reserves are mainly kept in the central and other levels of government, as well as enterprises and peasant households. Overall, the reserve capability has improved.

China has essentially resolved the problems in grain sales and grain reserves through enhancement of storage capacity. Up to the end of 2010, there were 18,326 storage enterprises with total storage capacity of 390 million tons. Of this, the storage capacity of new warehouses built after 1998 had reached 146 million tons, accounting for 37.1 per cent of the total capacity. The storage capacity of those with advanced storage design such as ventilation mechanism, computerized thermostat and circulation fumigation had reached 266 million tons, 192 million tons and 142 million tons, respectively, accounting for 67.7 per cent, 48.8 per cent and 36.1 per cent of the total capacity, respectively. Edible oil tank storage capacity was 14.08 million tons, covered shed 15 million square metres and total storage area 202 million square metres. According to a stock inspection survey in 2010, state-owned grain reserves had showed the reported quantity to be genuine and precise. The quality of stock was good and the storage was safe. According to a sampling check in 2010, 97.3 per cent of the state's grain inventory was up to benchmark quality, 99.3 per cent of appropriateness (Wang, 2011).

### *Encouraging Cooperation from Peasants*

Our research team has launched rural reconstruction experiments in many regions in China, making use of local resources and localized innovations to accumulate experiences in sustainable development of

agriculture, the countryside and the peasantry. The fact that the grain reserves of Chinese peasants were almost half of their annual grain production quantity indicates a revival of the rationality of peasant economy, based on the peasant household as an operating unit and able to deal with exogenous threat by internalizing risk under the pressure of grain market price fluctuation.

The proactive policy response was that in 2007, the State Administration of Grain launched the special project on scientific storage of grain by peasants. Up to June 2011, almost two million peasant households had installed new types of grain storage facilities, in 25 provinces around the country, which reduced the annual loss in grain storage by 255 million kilograms, an equivalent of the output by good arable land of 490,000 *mu*, thus helping peasant households to obtain an extra income of RMB 480 million. During the Twelfth Five-Year Plan period, the state further will help install standardized grain storage facilities for eight million peasant households. By then, Chinese peasant household grain storage condition will undergo a fundamental improvement (Wang, 2011).

Further suggestions would include, first, to give priority to establishing integrated cooperatives and to speed up the organization of peasants to form the necessary conditions for integrating agriculture with the agro-service industry and for innovating the business model of using the composite profits to support agriculture. In addition, this innovation should be in conjunction with fiscal investment from the state in supporting grain production. Second, urban–rural unification with regard to food security should be promoted, to deepen the development of the ‘dual agriculture’ which involves urban citizen participation. Moreover, an urban consumption model should be promoted based on rationality and frugality, to replace the dreadful trend of wasteful consumerism. With organic integration of these two, it will serve the purpose of stabilizing peasant cooperatives as the new operating units in grain production, as well as protecting national food security that involves urban citizens, as consuming subjects, in diverse social participation.

### *Persist with Capital Controls*

USD capital is the major agent of international hot money. International speculative capital flows into China’s agricultural commodity market to seek profits. This is the direct channel for the dollarized grain market to impact China’s food security. This tendency should be controlled.

Concrete proposals would include not making any commitment to financial liberalization as the goal of reform. Control over capital should absolutely not be loosened. Since the financial crisis in Wall Street, even the IMF has published documents admitting to the need to adopt capital controls. Their thinking is that if the capital account of emerging countries is opened, then the inflow of international capital will be even more blatant, and that would further lead to imbalance in the global economy. For China, the impact of both the 1997 and the 2008 exogenous financial crises was resolved. The reason, according to the majority view of the international community, was that it had benefited from the state's strict control over capital flow. In the recent 10 years, although hot money has had many channels to flow in, the impact on China's grain market was not too obvious. The reason is again that capital flow controls remain the most effective way in preventing grain financialization from turning into a crisis.

### *Participate in Futures Market Trading*

According to some reports, in recent years the trading volume growth rate in China's futures market has clearly exceeded that of international markets. The 12 agriculture commodity futures markets in China had transaction volumes reaching 449 million lots in 2007, and a transaction amount over RMB 21 trillion, at par with the national GDP for the first time (Liu, 2007). In 2008, the transaction amount surpassed RMB 30 trillion. In 2015, the transaction volume was 3.578 billion lots, amounting to RMB 554.23 trillion (Sun & Xia, 2016). In terms of regulations, China was the first in establishing the Futures Market Monitoring Center in 2006, to perform real-time monitoring on all capital flows, in order to discover on a timely basis and prevent speculative capital from entering the futures market and making malign moves to interfere with price relationships between futures and spots markets.

The function of the agricultural commodities market is to discover price and help production operators evade risk in business. Therefore, participating actively in futures market trading and properly applying trading tactics will help grain and edible oil processing enterprises, as well as agricultural producers, avoid price risks and increase profits. In the context of the financialization of the international grain market, this point is of particular importance.

At present, more than a few grain and edible oil enterprises in China have already started to participate in grain futures market trading,



domestically and internationally, and are able to achieve risk-management to some extent. According to some reports, at present about 60 per cent of China's soybean oil enterprises are involved in futures business, including foreign and domestic enterprises. It has been reported that large-scale state-owned grain and edible oil enterprises are also taking part in futures business. Of this, China Agri-Industries Holding Limited's daily involvement in futures market may be as high as RMB 100 million, and its volume of positions also ranks among the top in the business. It is estimated that about 3 per cent of China Agri-Industries Holding Limited's gross margin profit now comes from futures trading. Taking Sichuan Province as an example, among the 200 or so grain and edible oil enterprises, more than 50 have already participated in futures trading, and they are showing an increasing trend in terms of participating enterprises.

### *International Cooperation*

Food security and fair trade should be actively promoted both internationally and domestically as part of poverty alleviation and development. On the one hand, the principle that countries and regions must hold their bowls in their own hands should be emphasized to make sure their citizens' health will not be damaged and their country's interests will not be exploited. On the other hand, a fair-trade system should be promoted to replace the current trading system, advocating the inclusion of resource and environmental costs as well as national security costs in grain price, in order to realize the fairness principle and protect peasants' interests. Furthermore, ecological agriculture should be actively promoted and recognized globally as more important than food production, through multi-lateral or bilateral international cooperation. It is beneficial in various ways, such as in protecting the environment, preserving cultures and promoting positive values. Agriculture, ecological as it must be, should be multi-functional. This should be put into practice in conjunction with a strategy of diverse currencies pricing for major agricultural products, to reduce the impact of bulk commodity financialization arising from the overflowing dollar liquidity. Furthermore, there should be active cooperation with international organizations such as the FAO to establish effective coordinating and regulatory mechanisms to monitor the mobility of private capital in grain markets, on the one hand, and the operation of futures markets, on the other. This will help to control and reduce the manipulation of international grain prices by speculative capital and regulate the extent of financialization of domestic grain markets.

On another front, multi-lateral international cooperation among peasants and rural development organizations should particularly be encouraged, especially to promote ‘going global’ of *sannong* (agriculture, rural regions and peasants) in developing countries. In this realm, it is essential to abandon the model of direct and imposing government intervention. Rather, through the ‘purchase’ of service from concerned community organizations within and outside China, it is essential to launch targeted people-to-people exchanges and build social, cultural and political conditions on various aspects and levels that are beneficial to China’s *sannong* ‘going global’.

## Concluding Remarks

This essay has shown that global financialization of grain poses a significant challenge to food security in China and other developing countries. International grain prices are not decided by demand and supply, which results in an unstable grain market and aggravated gap between the rich and the poor. Developing countries should adopt the policy of food security by food self-sufficiency, peasant and organic agriculture, and rural–urban cooperation, and by enhancing the ability of food storage. They should also strengthen the supervision and regulation of the futures and financial markets, thus defending themselves from international speculative capital. Finally, encouragement should be given to national grain enterprises to actively participate in the trading of grain futures market at home and abroad. This will help to enhance the power of national governments and companies within the global grain pricing mechanism of global markets.

## Notes

1. This article is the output of the sub-project on ‘International Comparative Studies on National Security in the Process of Globalization’ led by Sit Tsui, Southwest University under a major project on ‘The Structure and Innovation Mechanism for Improving Rural Governance as a Base of National Comprehensive Security’, led by Wen Tiejun, Renmin University of China. The major project is funded by the National Social Science Foundation of China (No. 14ZDA064). This article is also based on the project on ‘Grain Financialization and the Strategic Study on Grain Security of China’, also funded by the National Social Science Foundation of China (No. 14BGJ048).
2. Grain financialization or grain dollarization refers to the speculative activity of financial capital in international grain markets with USD currency transactions, which causes price fluctuations.
3. The unit of land in China is *mu*, whereby 15 *mu* equals 1 hectare.

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