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粮食安全与农产品

期货市场 ④ 发 展 研 究

何蒲明 ◎ 著



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粮食安全与农产品 期货市场发展研究

Study on Food Security and The
Development of Agricultural Futures Market

何蒲明 著

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前 言

中国的特殊国情决定了粮食安全问题一直是社会各界关注的焦点问题之一，特别是由于国际粮食形势的风云变幻，粮食安全问题日益成为政府进行宏观决策所必须考虑的重要因素之一。而期货市场以其独特的经济功能，在维护粮食安全方面能够发挥其特殊的作用。从最近五年来的几个中央一号文件和“十一五”规划可以看出，党中央、国务院一直非常重视粮食安全问题和农产品期货市场的发展。

粮食期货市场是我国粮食市场体系的重要组成部分之一，我国的粮食期货市场建设已经取得长足进展，正在逐步向规范化、法制化和国家化轨道发展，在国际上的影响力也在快速提升。小麦、玉米和大豆等主要粮食品种，已经成为我国农产品期货的主力品种，而且稻谷期货也在社会各界的努力下，于2009年4月在郑州商品交易所成功上市。粮食期货市场的特有作用得到了有效的发挥。目前粮食期货市场已经与粮食收购市场、零售市场和批发市场共同构成了我国粮食市场的完整体系。多年的实践证明，积极发展粮食期货市场和稳步拓展粮食期货贸易，有效地利用期货市场特有的价格发现和风险转移的经济功能，对于指导农民种地卖粮、促进农民增收，对于帮助粮食企业开展套期保值，规避价格风险，完善粮食流通体制改革和粮食储备制度，为国家粮食宏观调控提供决策依据都具有积极的作用。

本书以农产品期货市场为手段，以保障粮食安全为目标，

首先说明了期货市场的产生和发展的历史必然性；然后对中国农产品期货市场的有效性进行了检验；再围绕影响粮食安全的有关因素，阐述了其与农产品期货市场的关系，较为全面和系统地探索了在粮食购销市场化的环境下，如何在稳定粮食生产和粮食价格、完善粮食流通体制和国家粮食储备制度、改善粮食国际贸易、增加农民收入、提高政府宏观调控的能力等方面，进一步发挥农产品期货市场的经济功能，为保障粮食安全提供一个新的角度和思路。显然，对以上问题的回答，无论在理论上还是在实践方面，均具有重要意义，尤其是在进一步深化粮食购销市场化改革的新形势下，对于突破传统的研究粮食安全问题的思路，用新的角度来研究和保障中国的粮食安全具有重要的参考价值。

本书在研究方法上采取理论分析与实证分析、宏观分析与微观分析相结合的方法，研究了如何利用农产品期货市场保障粮食安全，得出一些有价值的研究结论。

俗话说“工欲善其事，必先利其器”，利用期货市场保障粮食安全的前提是有一个完善的农产品期货市场，如果我们有一个覆盖广泛的、信息广为粮食经营者知悉和利用的农产品期货市场，既能减缓粮食产量和价格的波动，又能规避市场风险，还能增强政府调控粮食市场的能力，进而可以实现国家的粮食安全。因此，本书最后根据研究的基本结论，提出了相关政策建议。

何蒲明

2009.03.05

摘 要

近年来，随着中国市场经济的发展和粮食体制改革的加快，特别是由于国际粮食形势风云变幻，粮食安全问题日益成为政府进行宏观决策所必须考虑的重要因素之一。粮食安全问题涉及的工作主要包括三项：一是国内的粮食生产和供给，二是国内的粮食储备和轮换，三是粮食的进出口调剂。粮食生产周期长，受自然条件和市场影响大，从而造成粮食生产和价格的波动性。目前的粮食流通体制容易造成粮食供求的结构性矛盾。中国储备粮吞吐机制不灵活，宏观调控效率低，在一定程度上会人为造成供求失衡。随着中国农产品市场开放度不断提高，中国的粮食贸易也面临着较大的风险。而期货市场以其独特的经济功能，在维护粮食安全方面能够发挥其特殊的作用。从最近五年的几个一号文件和“十一五规划”中可以看出，国家一直非常重视粮食安全问题和农产品期货市场的发展。

本书在前人研究基础上，以蛛网理论、仓储理论、套期保值理论、波动理论、要素禀赋理论、经济全球化理论和理性预期理论为理论框架，以完善农产品期货市场为手段，以保障国家粮食安全为研究目标，围绕影响粮食安全的有关因素，采取理论分析与实证分析、宏观分析与微观分析相结合的方法，研究粮食安全与农产品期货市场的关系，回答了在粮食购销市场化的环境下，如何在稳定粮食生产和粮食价格、完善粮食流通体制和国家粮食储备制度、改善粮食国际贸易、增加农民收入、提高政府宏观调控的能力等方面，进一步发挥农产品期货市场的经济功能，为保障粮食安全提供一个新的角度和思路。本书的主要内容和结论

如下:

(1) 期货市场的产生与发展是商品经济和市场经济发展的必然结果,有其历史必然性。期货市场虽然产生于国外,但在我国社会主义市场经济体制中同样可以发挥独特的作用。实证研究表明,我国期货市场与经济增长存在着显著的正相关性,并且存在长期均衡关系,期货市场的发展可以促进我国经济增长,期货市场在国民经济中占据的地位越来越重要。

(2) 综合有关学者的研究成果,运用 5 个粮食安全的评价指标对中国粮食安全的基本状况进行分析。结合农产品期货市场的经济功能和粮食安全指标,对粮食安全与农产品期货市场的关系进行分析。

(3) 运用相关系数、协整检验、Granger 因果检验、Garbade-Silber (GS) 模型、方差分解等评价方法对我国三大粮食期货市场发现价格功能进行实证分析,发现期货市场在价格发现功能中均处于主导作用,但相对来讲,大豆和玉米期货市场的价格发现功能要优于小麦期货市场。运用误差修正模型和最优套期保值比率评价指标对我国三大粮食期货市场套期保值功能进行实证分析,发现粮食期货进行套期保值后,将明显地降低不进行套期保值的收益方差,能够有效地规避现货价格风险。

(4) 运用 Cox-Stuart 趋势检验对我国粮食产量及其播种面积的变化进行检验,发现我国粮食产量总体上呈上升趋势,但播种面积呈下降趋势。通过对粮食生产波动的横向比较和纵向比较发现,粮食生产波动具有不稳定性,多数年份的波动系数超过了 2%,但市场化改革后粮食生产波动的强度要低于改革前的水平。在四大粮食品种中,稻谷对粮食总产量的贡献最大,而且稻谷产量的变动对粮食总产量变化的影响也最大。通过对粮食价格波动的横向比较和纵向比较发现,粮价指数波动幅度大于其他相关价格指数,而且市场化改革后粮食价格波动的强度要高于改革前的水平。粮食价格与粮食产量存在着长期稳定的均衡关系,互为格

兰杰原因,但产量变化对价格变化的影响要大于价格变化对产量变化的影响,产量的变化往往滞后于价格的变化,具有发散型蛛网的特征。构建了一个基于改进型的蛛网理论分析框架,解释了期货市场机制减缓粮食现货市场价格和产量绕均衡点波动的机理。

(5) 通过对中国粮食流通体制改革进程的回顾发现,改革对粮食期货市场的发育产生了重要影响。改革虽然进程曲折,但始终坚持了市场化的方向,而且改革一直贯穿着粮食安全这条主线。我国粮食购销市场化改革取得了一定的成效,但也面临着一些问题,而利用期货市场可以进一步完善粮食购销市场化改革。粮食物流体系水平是决定粮食流通能力的主要因素之一,成为制约粮食安全的重要因素,而发展粮食期货市场有助于构建现代粮食物流体系。

(6) 虽然中国粮食储备管理取得了一定成绩,但在现货市场进行储备粮的运作存在较大的风险,而且通过分析粮食储备与粮食价格的关系,发现储备粮在平抑市场粮价波动方面的效果不是很显著,存在一定程度的“逆向操作”现象,而利用农产品期货市场可以降低储备粮运作风险,提高运作效率。

(7) 本书通过考察中国粮食贸易的地位,分析中国合理利用国际市场解决粮食安全问题必要性和可行性,并结合粮食进出口企业对外贸易面临的风险和全球商品定价机制,对粮食定价权的缺失对中国粮食安全造成的影响进行了分析,并通过以小麦为例,对国内外农产品期货市场关系进行实证研究后,进一步证实中国缺乏定价权。所以,本书认为应进一步完善农产品期货市场,建立主要粮食品种的价格形成中心,提高我国在国际粮食市场中的定价权和话语权,协调粮食内外贸易政策,利用国际粮食期货市场,改革粮食储备体系,规避粮食贸易风险,建立新的粮食安全预警体系,发展大粮商,利用期货市场在国际市场上谋求国家粮食安全。

(8) 目前实施的粮食直补对于促进农民增收的作用很小，粮食安全与农民增收存在一定“矛盾”，而期货市场不失为协调二者的新思路，但农户利用期货市场存在诸多制约因素，目前中国农民主要是间接利用期货市场。

(9) 本书提出了利用农产品期货市场保障粮食安全的一系列建议，包括加大期货知识宣传和普及力度，培植农产品期货市场主体，扩大农产品期货品种和规模，建立健全现、期货市场信息发布和传递制度，积极稳妥地扩大期货市场的对外开放和国际化程度，加强期货市场与现货市场关联度，在中部地区的武汉建立一个期货交易所等。对于在粮食购销市场化改革的环境下，全球经济一体化的背景下，稳定中国粮食生产与价格，完善粮食流通体制，通过储备粮运作效率，合理利用国际粮食市场，增加农民收入具有十分积极的现实意义。

关键词：粮食安全 粮食生产 粮食价格 粮食流通 粮食储备 粮食贸易 农民增收 农产品期货市场

Abstract

In recent years, with the development of market economy in China and the accelerating pace of food system reform, especially because of the changeable international food situation, issues on food security become one of the important factors that the government must consider when makes macro decisions. Issues on food security mainly involve three aspects: one is the domestic food production and supply, the second is domestic food reserves and rotation, the last is the regulation of food import and export. Food production cycle is long and easy to be affected by natural conditions and market changes, which results in the volatility of food production and price. The current circulation system of food is easy to cause the structural contradiction of food supply and demand. The handling mechanism of food reserves in China is lack of flexibility, and the efficiency of macro-controlling is low, which causes to some extent distortions in food supply and demand. With the further opening of agricultural market, food trade of China is also facing greater risk. The futures market which has unique economic functions can play a special role in the maintenance of food security. The several No. 1 files and eleven plannings in recent five years show that China has been paying seriously attention to the food security issues and the development of agricultural futures market.

Based on the previous studies, the book employs various

theories as the theoretical framework which includes theories of cobweb, warehousing, hedging, volatility, factor endowments economic globalization and Rational expectation. In the dissertation, ensuring the national food security is analysed as the research target and improvement of agricultural futures market as a method. By considering the various relevant factors affected food security and using combined methods of theoretical, empirical, macro and micro analysis, the dissertation analyses the relationship between food security and the agricultural product futures market, and explains how to furtherly exploit the economic functions of agricultural futures market under the market environment of food purchasing in order to stabilize food production and prices, to improve food circulation system, state food reserves system and food international trade, to increase the farmers' income, and to improve the ability of government's macro-regulation. The study in this dissertation provides new ideas and a new perspective to ensure food security. The main content and conclusions of the dissertation are as follows:

Firstly, the emergence and development of futures market is the inevitable result of the development of the commodity economy and the market economy, and has its historical inevitability. Although futures market emerges in abroad, it may play the unique role similarly in our socialist market economic system. The empirical study indicates that there is a remarkable relevance and long-term balanced relations between futures market in China and the economic growth, and futures market's development can promote the economic growth, so futures market is playing a increasing important role in the national economy.

Secondly, based on comprehensive related research, the dis-

sertation use five evaluating indicators of food security to analyse the basic conditions of food security in China and analyses the relationship between food security and agricultural futures market by combining the economic functions of agricultural futures market and the evaluating indicators.

Thirdly, using evaluation methods such as correlation coefficient analysis, cointegration test, Granger causality test, Garbade-Silber (GS) model and variance decomposition, the article analyses empirically the price discovery function of the three largest grain futures markets in China and finds that the futures markets all play a key role in the price discovery function, but relatively speaking, the price discovery function of the soybean and corn futures market is superior to the wheat futures market. Using error correction model and evaluation indicator of the optimal hedging ratio, the article carries on the empirical analysis of the hedge function of the three largest grain futures markets, and discovers that the grain stock will reduce obviously the income variance of non-hedge after carrying on hedging, so it can evade the spot price risk effectively.

Fourthly, by using Cox-Stuart tendency test for the food production and cultivated area it is found that the overall tendency of food production in China is on the rise, but the cultivated area is declining. The transverse and longitudinal comparison of the food production fluctuation discovers that the fluctuation of food production is instable, and in most of years the coefficient of fluctuation is over 2%, but the intensity of fluctuation after the marketization reform is lower than that before the marketization reform. Among the four varieties of food, the greatest contribution to the total food output is rice, which also has the lar-

gest influence on the changes of total food output. Based on the transverse and longitudinal comparison of food price fluctuation, it is discovered that the fluctuation range of food price index is higher than that of other relevant price indexes, and after marketization reform the intensity of food price fluctuation is higher than before. There is a stable equilibrium relationship and mutual granger causality between food price and food output, however, the output changes have a greater influence on price changes than that of the price changes on output changes, the variation of output often lags behind price changes and has the characteristics of divergent cobweb. A improved theoretical framework of the cobweb is constructed to explain the mechanism that the futures market slows the volatility of food price and output in actual market around the equilibrium point.

Fifthly, based on review on food circulation system reform in China, it is discovered that the reform has produced important influence on the development of food futures market. Although the reform experienced a zigzag process, the marketization direction of reform has been insisted, and the food security is the main line of the reform. China has made some achievements about marketization reform of food purchasing, but also faces with some problems, and exploiting futures market can furtherly perfect the marketization reform of food purchasing. Because the level of food logistics system is one of the decided factors of food circulation ability, food logistics system becomes the main factor that restricts food security, and the development of food futures market is helpful to construct modern food logistics system.

Sixthly, although China has made certain achievements in food reservess management, the operation of food reservess in

the actual market exists great risk, and through the analysis of relationship between food reservess and food prices, it is found that there is not very significant effect in leveling fluctuation of food market prices by food reservess, and to a certain extent, there exists the phenomenon of reverse operation. Using agricultural futures market can reduce operating risks and improve the operation efficiency of food reservess.

Seventhly, through the analysis of the food trade status of China, the dissertation analyses the necessity and feasibility of exploiting international market reasonably to solve food security problems. Considering the risks that the enterprises engaging in food importing and exporting trade face with and global commodity pricing mechanism, the dissertation analyses the influence of lackness of pricing right on food security in China. The dissertation takes wheat as an example and empirically studies the agricultural futures market at home and abroad, and furtherly confirms the lackness of pricing right for China. Therefore, the book argues that we should perfect agricultural futures market, establish pricing mechanism centre of key food varieties, enhance the pricing right and the right to speak in the international food market, coordinate trade policies, exploit international food futures market, improve food reserves system, avoid food trade risk, establish new pre-warning system of food security, develop large dealers, use futures markets in international markets for the national food security.

Eighthly, the direct food subsidies currently implemented have a little effect to promote farmers' income, and there exists certain contradiction between food security and farmers' income, and the futures market is a new method to coordinate the contra-

diction. However, there are many factors that restrict the use of futures market by farmers, currently farmers in China use futures market indirectly.

Ninthly, the book proposes a series of proposals about using agricultural futures market to ensure food security. These proposals include popularizing knowledge on futures market, cultivating bodies of agricultural futures market, expanding the scale and varieties of agricultural futures, establishing and perfecting information releasing and transferring system in the futures market and actual market, actively yet prudently enhancing the degree of opening-up and internationalization in the futures market, strengthening the degree of association between the futures market and actual market, in central region, establishing a futures exchange in wuhan. In the environment of marketization reform of food purchasing and under the background of global economic integration, the proposals have positive significance for the stability of food production and price in China, perfection of food circulation system, improvement operating efficiency of food reserves, reasonable utilization of the international food market and increasing farmers' income.

Key words: Food Security; Food Production; Food Prices; Food Circulation; Food Reserves; Food Trade; Increasing Farmers' Income; Agricultural Futures Market

目 录

前言

摘要

Abstract

第一章 导论	1
第一节 研究的背景、目的和意义	1
第二节 拟解决的关键问题	4
第三节 基本概念的界定	5
第四节 文献综述	9
第五节 研究方法、技术路线及可能的创新	36
第二章 商品经济、市场经济与期货市场	42
第一节 商品经济的产生与发展	42
第二节 市场经济的产生与发展	47
第三节 期货市场的产生与发展	53
第四节 期货交易的基本特征	58
第五节 期货市场：市场经济发展的必然选择	66
第六节 期货市场在我国经济发展中作用的实证研究	75
第七节 期货市场优化微观资源配置的实证分析 ——以大豆期货为例	86
第八节 本章小结	91

第三章 中国粮食期货市场经济功能的实证研究	92
第一节 农产品期货市场经济功能的评价指标	92
第二节 中国粮食期货市场经济功能的实证研究	99
第三节 本章小结	116
第四章 粮食安全与农产品期货市场的内在关系	117
第一节 中国农产品期货市场的产生与发展	117
第二节 农产品期货市场的经济功能	124
第三节 粮食安全的评价指标	127
第四节 粮食安全与农产品期货市场的内在关系	134
第五节 本章小结	140
第五章 粮食生产和价格与农产品期货市场	141
第一节 中国粮食生产波动的基本特征	141
第二节 中国粮食价格的波动分析	156
第三节 期货市场与现货市场的价格联动机制 及其相互作用	174
第四节 本章小结	181
第六章 粮食流通与农产品期货市场	183
第一节 基于粮食安全的中国粮食流通体制改革	183
第二节 粮食购销市场化改革取得的初步成效及 面临的问题	197
第三节 利用期货市场完善粮食购销市场化改革	208
第四节 利用期货市场促进粮食物流发展：基于 粮食安全的视角	214
第五节 本章小结	222