Proceedings of the 10th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/2026.37144

The Impact Mechanism of Egg Price Fluctuations—Based on the Fundamentals and Financial Behavior

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Abstract. As a basic consumer food, eggs play an important role in improving the consumption level of residents and maintaining social stability. At the moment, the price of eggs fluctuates greatly. To this end, this paper analyzed the change factors of egg prices by constructing "fundamentals + behavioral economics + financial market" three-dimensional analysis framework. In the end, the noise interference transaction problem and price anchoring effect of egg and egg futures retail investors are widely used, and the influence of the marginal imbalance of the fundamental supply and demand of the fundamental supply and demand is greatly caused, and the industry cycle overmodulation phenomenon is caused. Financial derivatives linkage is a key catalyst for the abnormal fluctuation of the short-term price, the current price of egg futures, the unilateral hype of speculative capital, and the inventory regulation of the selling of the middlemen, and the short-term fluctuation of the current price.

Keywords: Egg futures, Loss aversion, Egg prices, Financial markets, Behavioral economics

1. Introduction

Eggs are an important part of national basic consumption and are closely related to the consumer price index and agricultural economic development. At present, the price of eggs is more volatile, and it is affected by internal risks, such as the change of egg chicken farming cycle, consumption and production of seasonal change, pork and other factors. On the other hand, it is affected by external risk interference, such as changes in feed prices such as international soybean and changes in policy. The previous literature has formed a more mature research system: the supply end around the egg chicken, the cost of feed, the disease, the barrier cycle, etc. Factors such as the cost of consumption and the price of other substitutes; It also includes human factors, national policies and other variables, which can explain the cyclical price of eggs and provide basic reference for this study.

Previous studies have focused on fundamental factors, but less combined with behavioral economics and financial market perspectives. From the point of view of behavioral economics, the previous study did not link to the price of the group behavior economy and egg price, ignoring the factors that people "pursue and fall, blindly follow the wind and so on irrational investment behavior, unable to explain the rapid and fluctuation of the price of eggs in the short term." From the financial market perspective, the analysis of the financial derivatives of eggs is less, and there is no

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careful study of the different effects of hedging and speculative funds on the stock of eggs. Overall, the lack of behavioral economics and financial markets in the past has been difficult to match the actual situation of the depth of fusion of today's financial markets and the market for the market for the frozen.

In this paper, this paper build a three-dimensional analysis framework of fundamentals, behavioral economics and financial market behavior. Through the traditional supply and demand of eggs, the basic economic logic of the cost transmission theory, and the influence of the market opinion on the market and the fluctuation of the equilibrium price of the commodity transaction, the paper introduces the effect of the egg derivatives and the speculative money index to analyze the impact of different financial markets on the physical market price.

At the theoretical level, this paper will break the basic analysis of the traditional single egg price, and integrate the behavioral economics and financial markets into the egg price analysis system and improve the theory of egg price volatility. At the real level, the conclusions of this study can help the relevant departments of the state to designated policies to support agricultural development, to make reasonable expansion of aquaculture, reduce the risk of business, and to play a role in promoting the rational and healthy development of the egg financial market.

2. Theoretical basis

2.1. Theory of supply and demand equilibrium

Marshall's theory of supply and demand equilibrium is the core theory of the formation and fluctuation of market commodity prices. The theory is that the price of market goods is balanced by the interaction of supply and demand. When the demand price of the commodity and the supply price of the goods are the same, the price of the goods is called the equilibrium price, according to the price of the goods. The demand side is determined by the price of the commodity's marginal utility, and the supply side is determined by the various costs of the producer, which jointly determine the market price of the goods [1].

At the same time, according to the time dimension difference, the deep logic of the egg price wave cycle is clearly explained. In the short term, this work will focus more on the impact of demand on commodity prices. In the long term, the production cost of goods is more important to the effect of commodity price. In the short term, the price of the egg is relatively fixed, the production cannot be increased in time, and the price of the egg will have a large fluctuation in the price of the holiday, the season or the sudden disease, and the price of the egg will be formed in the short term. In the medium term, the price of eggs is affected by the cost of breeding, and the overall displacement of the egg equilibrium price is promoted. In the long run, the farmers will adjust the size of the eggs to affect the total supply of eggs in the market, and the long-term equilibrium price will form a reasonable market price around the stable production cost.

In short, the egg market price will fluctuate around the market equilibrium price. When the market price is higher than the equilibrium price, the farmers gain a lot of profit and expand the size of the farm to increase the production of eggs, increase the total supply of eggs in the market, and cause the supply to be greater than the demand, and the egg market price will fall back. When the market price is below the equilibrium price, the loss of the farmers increases and reduces the size of the farm, reducing the production of eggs, reducing the total supply of eggs in the market, causing the demand to be greater than the supply, the egg market is in short supply and the egg market price will rebound.

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2.2. Cost conduction theory

Bacon put forward the theory of "rocket and feather": higher prices in the upstream of commodities are prone to a sharp rise in downstream products, but as a fall, the price of downstream products will not be shown immediately, and the transmission lag is obvious [2]. The Von Carmon-Taubadel and Goodwin proposed in the distribution of agricultural products that the farming industry was a non-asymmetric cost conduction field [3]. Meyer and Von Carmon-Taubadel pointed to two types of apt factors: market structure factors, producers and middlemen, such as producers, are hungry for more profit margins, change space, and increase the price of goods while upstream costs rise, and when upstream costs fall, the market creates a lag effect for commodity prices. Second, the cost factor, the increase of new sales channels and the resigning of the price related contracts have hidden costs, and the farmers want to minimize the loss [4]. Peltzman thinks that more than 2/3 consumer goods have a "slow fall" phenomenon, and eggs are used as basic consumer goods to meet the rules [5].

When corn and soybean meal prices rise, the profit of the egg farmers fell, and overall eggs prices were adjusted. When feed falls, farmers and middlemen are hungry for more profits and slow down the price of eggs, thereby increasing their profit margins, with significant cost transmission of stagflation and asymmetric.

2.3. Basic theory of behavioral economics

2.3.1. Theory of finite rationality and noise trading

In reality, market participants often do not have the ability to maintain complete rationality in a long time, and individuals tend to be limited by rational constraints, while most individuals do not investigate the physical market, and the limited resources and incomplete market information are often interfered with by empiricism.

Xuehui He proposed that the market is full of noise information, such as rumors, local market and online short-term hot information, which often has no effect on the supply and demand of physical goods. However, individual traders tend to be disturbed by noise information, such as panic or excitement, ignore the objective facts of the real industry, cause the current price to be removed from the fundamentals, and produce false and low spot prices [6].

In the egg market, the retail investors of the egg market, the middlemen and the egg futures cannot maintain the long-term rational behavior, it is difficult to master the change of the national market egg chicken, the real inventory and the changes of the relevant policies, which are usually affected by the noise information such as the network information, the media number and the false information. Under the influence of various information, the market expects to change in the short term, and the price of the egg is left out of the reasonable equilibrium price range.

2.3.2. Loss aversion

Kahneman and Tversky proposed Loss aversion, the loss of the same scale brings the psychological pain of the same scale, which is 2 to 2.5 times the psychological effect of generating benefits [7]. This asymmetric psychological expectation will lead to irrational behavior in the production, storage and sales of the real economy.

When the price of the product drops, the market production main to reduce the loss, thereby reducing the capacity, accelerating the supply of the product in the market less than the demand, and therefore promoting the rapid rise of the price. During the price rise, the market workers will

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produce expectations of falling product prices, resulting in a fear of future losses, limiting capacity and slowing the speed of supply and demand to balance. At the same time, the trade chamber of commerce will refuse to cut down the inventory behavior to reduce its losses, and the final market will form a difficult and difficult situation.

2.4. The theory of the linkage conduction of the expected price

The price of eggs and the wholesale price of the egg market are linked. The two are based on the theory of warehouse holding cost, price discovery and volatility, and there is a balanced relationship between the long-term dimensions. The egg is bound by the price fluctuation interval due to the storage cycle and the high cost of the egg. Meanwhile, the arbitrage behavior in financial markets is driving the month's price convergence. The collection of futures market information is widely used, which can reflect the expected changes of the shelf, the cost of breeding, the market demand, etc., so as to form the transmission path of the wholesale price of the eggs, and the change of supply and demand of the egg market will play a role in the egg futures market, which will affect each other and balance each other [8].

The transmission path is divided into direct conduction paths and indirect pathways. The direct transmission path, the change of the price of the egg, the change of the wholesale price of the egg, the change of the egg order price can lead to the change of the price of the egg, and the egg due to the change of supply and demand of the disease, the season, the stop period and so on, which will have a reverse effect on the egg futures. Indirect transmission path, the change of the price of corn, soybean meal, etc., will be used in the wholesale price of the egg, and then the synchronous conduction to the egg futures market [8].

3. The current situation and characteristics of egg price fluctuation in China

3.1. The price of eggs runs the whole trend in the long run

The long-term central concussion rises and the bottom moves year by year. In the past decade, the spot price center of the egg has continued to rise. Zhao and Qinstated that core drive is the long-term cost of feed (corn, soybean meal), the increase of environmental protection and infrastructure investment, the retail continued to pull out of the high industry average farming cost, the low-price operating period is significantly shorter, it is difficult to make a long-term fall in the cost line [9].

The total supply and demand balance, but the structural gap is normalized. Domestic eggs have just been stable in consumption, and the daily consumption, baking and food processing demand of residents has been steadily increasing. The scale of the production of the scale is higher, the capacity regulation elasticity decreases, and once the industry losses are concentrated in the line, it is easy to have a cross-quarterly supply gap, the long price upward cycle, the long-term "weak balance, the shortage" pattern.

The periodic amplitude expands, and the price difference continues to widen. Early industry retail investors, the supplementary column is flexible. In the past five years, the concentration of capacity has been adjusted for stagflation. The long-term trend of the bottom is slowly lifted and the top is constantly refreshing, the peak of the seasonal rising band is high, the short-term correction of the light season is only a short period of time, and there is no long-term decline.

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3.2. Periodic volatility of egg prices

The cycle starts for the industry's deep loss, and the farmers are concentrated in the early stages of the reduction of the eggs and the chicken, and the supply of the grain is falling, and the supply and supply contraction will open the price of the price. After the high price of the price, the farmers concentrated on the young chicken, the new chicken was concentrated in the next month, and the surplus was in the fall period. Sustained losses return to capacity and complete a cycle. The capacity of the production capacity has been delayed by 4-6 months, and the addition of the egg supply is the core logic of the medium- and long-term pricing.

Annual seasonal small cycle, fixed fluctuation window. In June, the annual price low of the year, high temperature and wet loss, the end of the afternoon preparation, the school holiday demand weak; In July-September, the high temperature of the traditional peak, the high temperature reduced the egg rate and the high temperature of the Mid-Autumn festival and the beginning of the year of the year. In October, after the double saving of the two seasons, the rally was slightly rebounded before the Spring Festival, and after the Spring Festival, it was weakened again, forming "a low one year low" standard seasonal curve [9].

Low price loss: continuous elimination of the old chicken, reducing the lining, the supply of the continuous contraction, supporting the reverse of the price bottom. High - price - profit: the delay of the farmers and the large size of the chicken, the forward supply has increased, and the price of the farmers has fallen back. The market mood amplification cycle, the loss of the general pessimism accelerated to the capacity, the optimistic supplementary column exacerbated the excess, the price swings of the cycle.

4. Analysis of the influence factors of egg price volatility

4.1. Traditional fundamentals

Supply end core capacity constraint, determine the price of the medium- and long-term bottom. In the case of egg and egg chicken, the profit loss directly leads to the rhythm of the chicken and the lining. In the industry's deep loss, the farmers concentrated on the elimination of old eggs, reduced the production of chicken seedlings, and the supply of eggs in the city after the four months of the four months, which supported the price continued. In the industry, the industry has delayed the elimination of the old chicken, the large number of young chickens, the forward egg supply has soared and the price of the egg has been suppressed. At the same time, the extreme heat and cold will reduce the egg rate in the short term, causing the periodic supply to contract and change the short-term price trend.

Demand ends seasonal rigid differentiation, forming annual price fluctuation benchmark. Consumption is divided into the daily needs of the people's livelihood and the two major sectors of the festival. The daily food and household consumption demand has been stable, and the fluctuation is smaller. The Mid-Autumn festival, the Spring Festival, the end of the festival, the school season is a centralized preparation period, the food processing plant, the wholesaler in advance of the purchase, the short-term demand surge. In the light of summer, the market consumption of the Spring Festival is obviously weak, the demand downward direct drive the seasonal fall of the price of the egg, and the seasonal mismatch of supply and demand is the annual fixed fluctuation period.

The cost of raising costs is rigid and the cost support interval is constructed. Zhao and Qin pointed out that corn and soybean meal are the core ingredients of the egg chicken feed, which accounts for 70%-80% of the breeding assembly [9]. Corn, soybean meal is affected by food

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harvest, import and export and international commodity prices, and directly changes the industry break-even. When the price of raw materials increases sharply, the production of the breeding loss is expanded, the farmers actively go to the production capacity and raise the price of the egg price for the long term. When the feed raw material is pouring down, the low price of the egg is higher and the price of the price is easier to run, and the cost line becomes the important support and pressure position of the price.

4.2. Behavioral economics perspective of the city ranter behavior factor

The sheep effect causes the production pin to sync with the wind. The market is clearly followed by behavior [10]. In the early days of the small increase in price, a handful of farmers were reluctant to sell, the middlemen were stocking up, and the rest of the market subject was a lot of goods, and the price was fast. When the price fell slightly, some farmers were selling panic, eager to hunt chickens, traders concentrated their inventories, and the market formed a collective selling of the stampede. Small and medium retail information is delayed, easily follow the mainstream operation of the market, further amplecting short-term price shock.

The anchor effect forms the price expectation solidification. The market body will be the price anchor of the high point and low point, forming the prediction of solidification. When the price of the egg is kept high, the farmers are anchored at a high price, and they are not willing to ship at a low price. After the low price of the egg price, the market's default low price is the norm, and even if the supply and demand margins improve, farmers will also be able to deliver quickly and slow prices. This anchor is expected to delay the price return to a reasonable equilibrium interval and extend the duration of unilateral fluctuations.

4.3. Financial markets and middlemen trading behavior factors

The price of the egg to guide the spot market expectation, the stage is fluctuating. Egg futures have a price finding function, which is based on forward storage and demand and demand, and futures will directly change the expectations of spot traders and farmers [11]. When futures continued to rise, the spot market was rising, and middlemen were active in increasing inventories. Futures fell sharply, the city was empty, and the spot flow rate increased rapidly. The current rate of current price is resonant, amplifying the daily fluctuation of spot, breaking the seasonal moderate operation rhythm.

The middlemen stock goods, the selling of the inventory regulating behavior shocks the short-term current price. Middlemen are the core of the inventory buffer. In the run-up to the price increase, the middlemen increased the acquisition of the region, the hoarding of eggs, the short-term flow of goods was tightened, and the wholesale price was quickly pushed. The lower market is clearing inventories, stopping the goods, the market circulation of eggs, and the price is falling quickly. The egg preservation cycle is short, the intermediary inventory regulation behavior does not have the long-term buffer ability, the short-term hoarding is easy to cause the price anomaly jump and fall [11].

Speculative funds across the city have been hyped, and the periodic anomalies have been exacerbated [11]. Financial speculation is characterized by the low threshold of egg futures, which is more or less empty when supply and demand are weak. Supply and demand are in a weak equilibrium state, and the unilateral holdings of large speculative funds will push up or crack the futures price rapidly, and reverse the reverse conduction to the spot market. Superposition media price coverage to expand market sentiment, ordinary farmers and traders are exposed to the financial

DOI: 10.54254/2754-1169/2026.37144

market interference from the real and supply and demand, which has led to abnormal fluctuations such as the sharp season of light and the fall of the peak season.

5. Conclusion

According to the multidimensional study of this paper, the price fluctuation of eggs is the result of the cooperative effect of traditional fundamentals, market subject behavior and financial derivatives. The important mechanism of price fluctuation ampliation, the noise interference transaction problem and the price mooring effect of the egg futures retail investors, will distort the adjustment of rational capacity and the pace of the spot trading, and the influence of the marginal imbalance of the basic supply and demand of the fundamentals, the prolonged single term of the unilateral market, and the expansion of the price fluctuation, which causes the industry cycle overmodulation. The trading behavior of financial derivatives is the key catalyst for the abnormal fluctuation of short-term price, the unilateral speculation of the egg futures, the unilateral speculation of speculative capital, the inventory regulation of the selling of the middlemen, and the sale of the inventory regulation, which can easily break the normal seasonal supply and demand balance, and the short-term fluctuations of the current price of the current goods. Overall, the three main factors are the transmission and superposition of the three factors, the fundamental locking of the long-term trend, the main body behavior is the fluctuation of the cycle, the financial transaction triggers the short-term movement, and the whole wave transmission system of the egg price is built together.

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