

## Glutamic Acid and MSG Industry

## In-depth Report

“Buy/Recommended” Rating Maintained

2010-1-13

The end of hard times – the strong gets stronger

## Report Summary

- # The previous analysis in different dimensions including degree of production concentration, strength of industry barrier and the business model lead a conclusion that there are now clearly recognisable tiers in China's glutamic acid & MSG industry. Fufeng stands out of its peers.
- # In the previous two reports, we have analysed the performances of Fufeng and others after the cycle of consolidation. As we expected, increased production concentration has brought a golden era in 2009 to leading enterprises such as Fufeng and they Enjoyed a continued strong growth in both revenue and gross profit.
- # We have analysed the costs of the industry and do not foresee unfavorable changes in this area in the next half year. Although more companies are expected to enter into this sector during the recovery period, the implementation of smoke gas treatment standards will lead to another round of industry consolidation. However, enterprises such as Fufeng are already prepared for this round of policy-oriented consolidation.
- # Our study on the development history of global glutamic acid & MSG industry shows the current industry development has the following: export-oriented international market development; market-oriented end Blue Ocean; and technology-oriented industry extension. Fortunately we have continued to observe that China's leading enterprises in the industry are moving towards these directions.

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## Introduction: Golden era in 2009 for the Glutamic acid & MSG Industry

In the second part of this report series, we focused our discussion on the current state of China's glutamic acid & MSG industry and explored critical issues such as stability of the current structure and the industry's profit cycle. After the industry completed a round of consolidation in Q4 2008, prices of MSG and its related products had rebounded as the domestic supply declined. China's glutamic acid & MSG industry had entered the golden times of 2009. What then, after this consolidation cycle, is the state of the industry's structure? What is the industry leaders' performance? What are the changes in the industry's environment? What are the new moves by the industry players? What will the structure of the industry look like in future? Following the previous two reports, this report completes the series with a focus on the micro level.

## Emerging an Order For the Glutamate & MSG Industry

At the end of 2008, China's glutamic acid & MSG industry started to emerge an order. Clearly structured tiers, recognisable industry leaders and followers, appeared after fierce and chaotic competitions. To begin this report, we first look at the structures in the industry.

### Sphere of Competition: Market Share

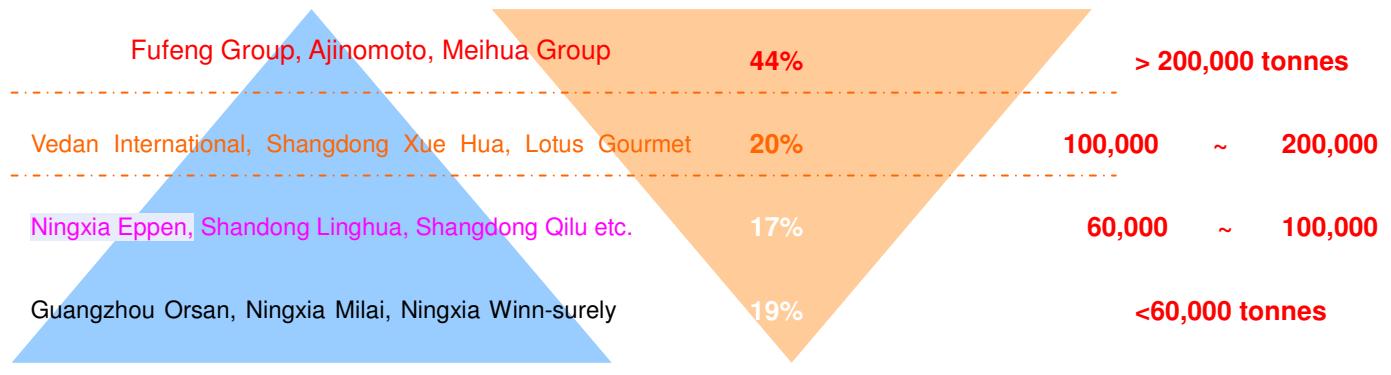
**Monopolies tend to occur in the glutamic acid<sup>1</sup> industry due to the sector's stable structure. The tiers in the glutamate and MSG industry mainly depends on the supply of the glutamic acid.** After all, the more concentrated the supply of glutamic acid is, the more obvious its downstream MSG producers' dependency is. This has certainly challenged existing regional businesses that relied on their brand name for survival.

By categorizing the production output into a scale of 200,000, 100,000 and 60,000 tonnes, and by distribution of number of enterprises in 2009, the glutamic acid industry showed a pyramid structure. CR3 supplies about 44% of glutamic acid in the global market, while CR6 supplies about 64%.

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<sup>1</sup> \* See second article section for proof.

**Figure 1: Pyramid Structure of the Global Glutamic acid & MSG Industry (by production capacity of the glutamic acid)**

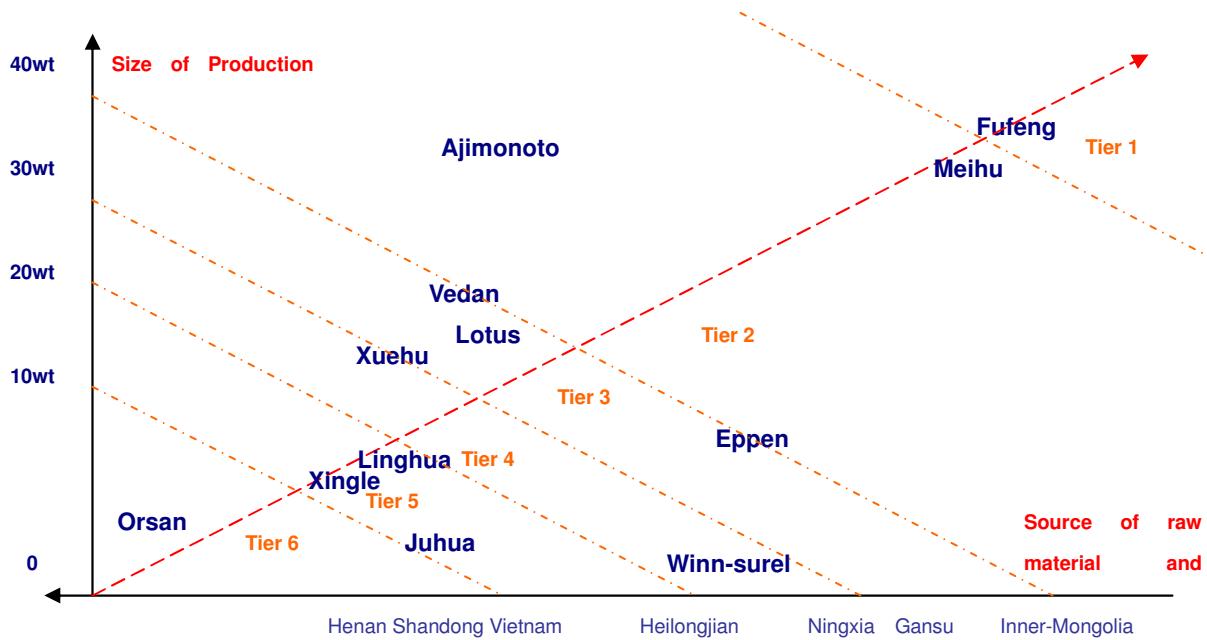


Source: Research Department of Changjiang Securities

## Sphere of Competition: Low Cost Advantae

The low-cost advantage was clearly seen during the consolidation process of the industry. The stability of the industry is correlated to the ability to price low by which the industry players can be classified. “Production scale” and “costs of production base” are used as the two dimensions in a coordinate system. The graph shows that producers with the largest scale of production and the lowest costs of the production base are located furthest from the point of origin. The graph is shown as follows:

**Figure 2: Tiers of the Glutamic acid & MSG Industry by Industry Barrier**



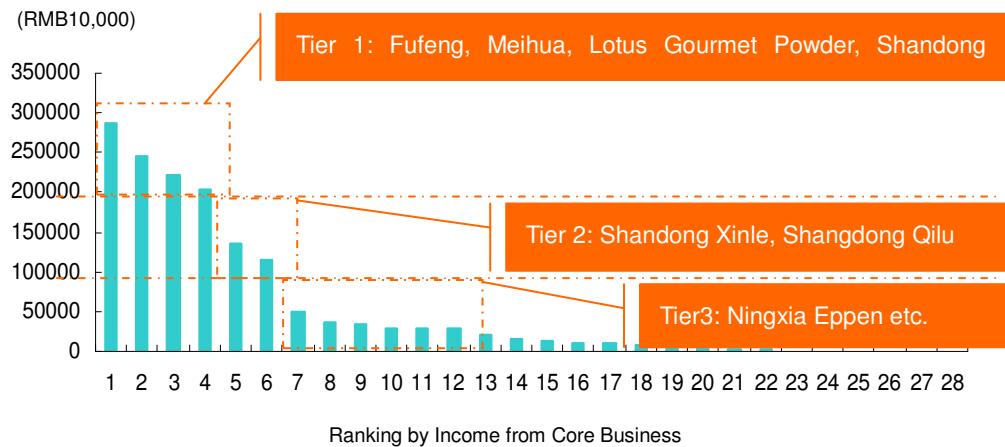
Source: Research Department of Changjiang Securities

## Sphere of Competition: Company's Revenue

Data in 2008 are used again, due to difficulties in obtaining industry data, in ranking the industry players according to their revenue. As shown below, both Fufeng and Meihua generated revenue of more than RMB3.5 billion in 2008, while Lotus Gourmet Powder posted revenue of RMB2.05 billion in 2008. was setting it apart from other companies in CR2; Ningxia Eppen's revenue exceeded RMB1 billion.<sup>2</sup>

<sup>2</sup> \* Source of information - News reports.

**Figure 3: Economy of Scale and Tier in Glutamic acid & MSG Industry<sup>3</sup> (2007 Data)**



Source: ISI and Internet, compiled by Research Department of Changjiang Securities

<sup>3</sup> \* Total revenue of Ajinomoto's amino acids segment was equivalent to RMB17 billion in 2007, showing the industry leader's strong position in the amino acid sector.

It can be seen that Fufeng has already overtaken Ajinomoto to become the world leader in the glutamic acid and MSG sector,. As the production sites of Ajinomoto basically spans across overseas markets such as Southeast Asia, it is not unacceptable to suggest that Fufeng has become the most competitive glutamic acid and MSG producer in China.

## Performance of Leading Enterprises in Stable Environment

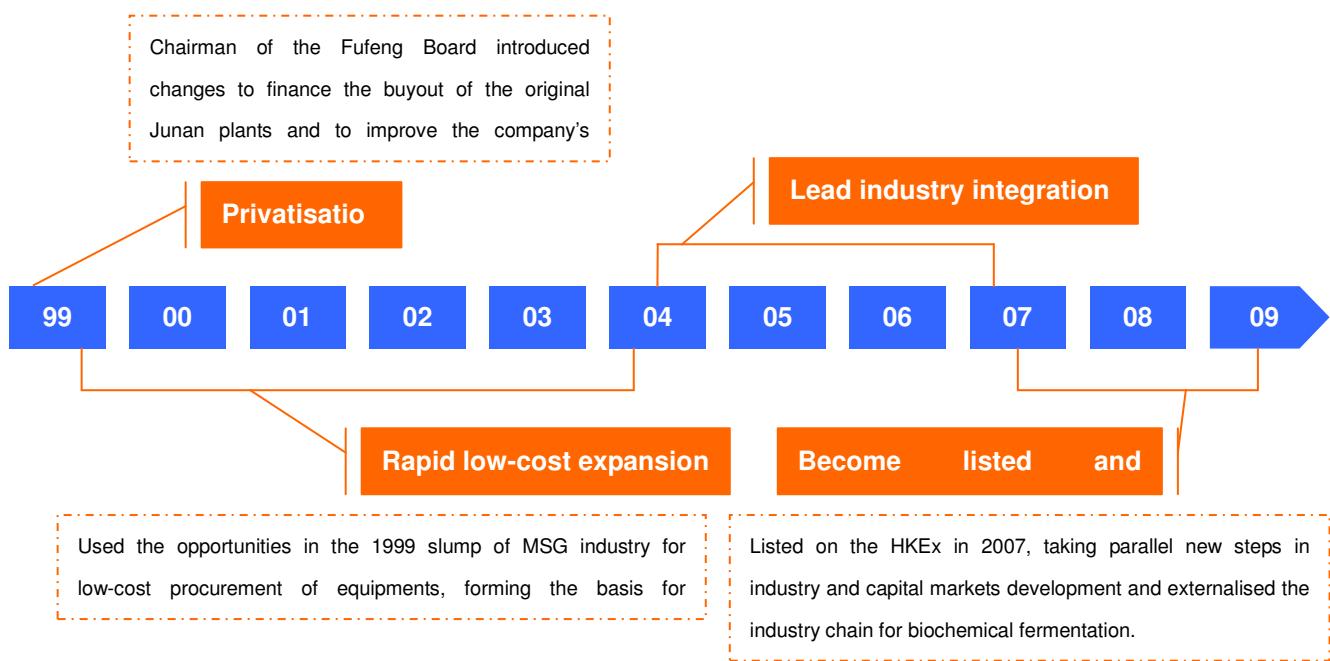
### The First Group

#### The Fufeng Group (0546.HK)

Shandong-based Fufeng Group (0546.HK), an international bio-chemical manufacturer, is a listed company on Hong Kong Stock Exchange's Main Board. It is the world's largest glutamic acid and MSG producer and one of the top three producers of xanthan gum. The company is expected to produce 350,000 tonnes of glutamate and 280,000 tonnes of MSG in 2009, representing 25% and 17% of the domestic market share respectively.

Established ten years ago, the Fufeng Group had successfully transformed from a nearly-collapsed, small state-owned factory to a dominant player in the glutamic acid & MSG industry. The rapid development of Fufeng Group has been termed the "Fufeng Speed". The company's development history is summarized as follows:

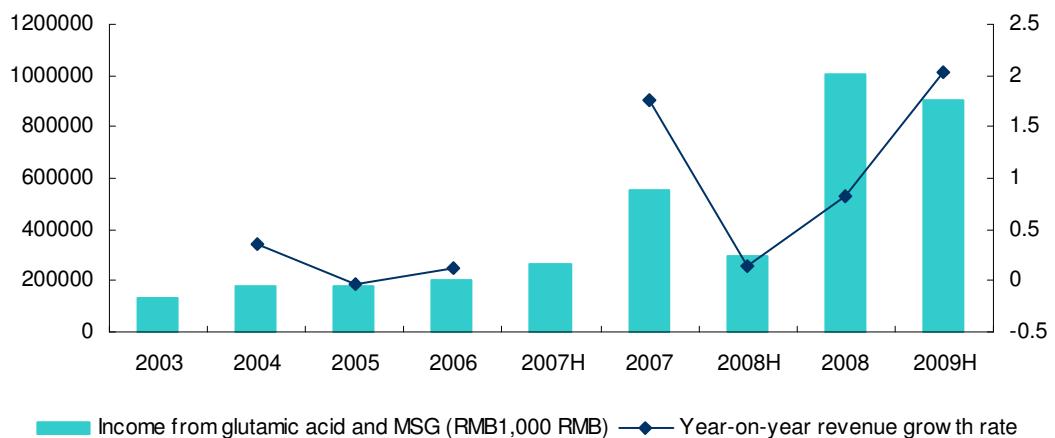
**Figure 4: Development History of the Fufeng Group**



Source: Fufeng Group website, compiled by Research Institute of Changjiang Securities

The strategy of "expanding two wings (R & D and strong management) and mobilising two forces (capital and human resources)" and the idea of rapid expansion have led the development of Fufeng over the past ten years. After several years of preparation, the company entered a period of rapid growth.. The total revenue from glutamic acid and MSG businesses soared from RMB340 million in 2003 to RMB2.06 billion in 2008 at a compound annual growth rate of 43%. If only the MSG business segment<sup>4</sup> was considered, the compound annual growth rate between 2003 and 2008 would have been as high as 47.4%.

**Figure 5: Fufeng Group Revenue of the MSG Business Segment**

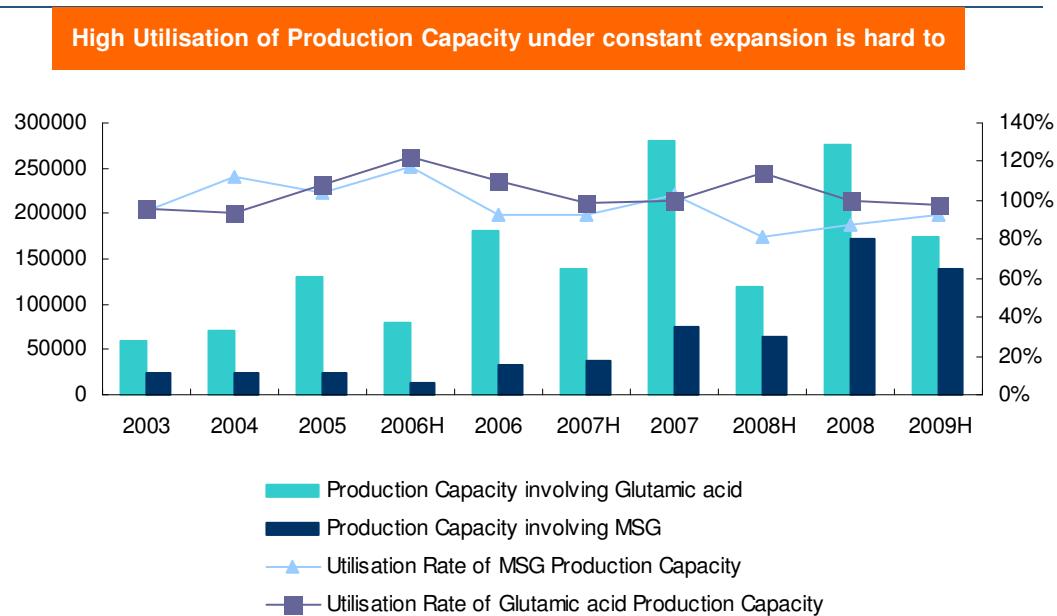


Source: Fufeng Group Annual Report, Research Department of Changjiang Securities

The company's production capacity has been growing strongly. The more impressive point was that the pace of capacity expansion had always been kept ahead of the market demand. This was reflected in the sustained high utilisation rate of production capacity.

<sup>4</sup> \* Revenue from the MSG business segment rose from RMB450 million in 2003 to RMB3.13 billion in 2008.

**Figure 6: Fufeng Group Maintains High Utilisation of Production Capacity**



Source: Fufeng Annual Reports, Research Department of Changjiang Securities

Fufeng Group pays serious attention to development in human resources and new products. After ten years of growth, the company has established a team of employees that includes dozens of post-graduates and over 1,800 university graduates (accounting for 24.06% of total number of staff). The company invests over RMB 50 million in R&D every year to widen its income source and diversify products by sales and new fermentation product development.

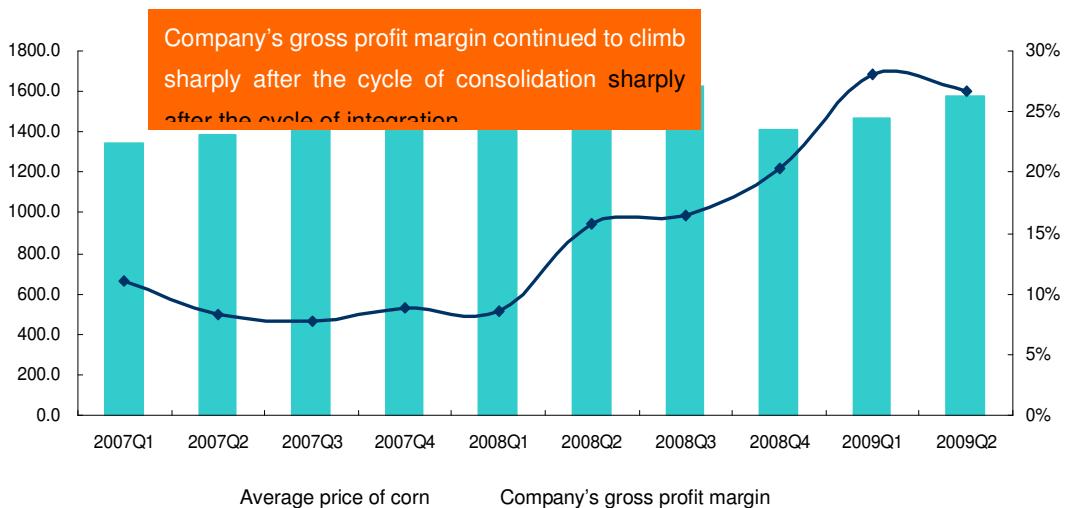
Fufeng Group has built a countrywide marketing network and logistics system after a decade of development. It has established offices and product warehouses across the country, implemented a regional customer service strategy centred around the warehouses which ensures the services can meet customers' needs in time throughout the country, and established a close cooperative customer relationship. The company's products are now available in over 50 countries and regions, and the branches in Inner Mongolia have begun to introduce and implement the BRC system<sup>5</sup>.

<sup>5</sup> \*BRC is a system now widely adopted by international buyers as a global food safety standard. Unilever, Nestle, Kraft and other well-known international companies also comply with BRC standard during supply-audits, the food safety requirements are comprehensive and detailed.

**Figure 7: Fufeng Group's Domestic Distribution Network**

Source: Fufeng web-site, Research Department of Changjiang Securities

As the initiator of industry consolidation, Fufeng has been enjoying the benefits brought about by industry consolidation since mid-to late 2008: the company's gross profit margins continued to rise and are significantly higher than that of the competitors in the industry. This strength has equipped Fufeng well to fight for battles.

**Figure 8: Fufeng Group's Profit Margin Continued to Improve Significantly**

Source: Fefeng Annual Report, Investigation and Research Material, Wind, Research Department of Changjiang Securities

**Sewage treatment is a big problem for the glutamic acid and MSG producer. However, the treatment of smoke gas is technically more challenging than sewage treatment.** After many years of investments in scientific research, Fufeng Group has fundamentally solved the problem of smoke gas purification in the production process of glutamic acid. The ability to handle the industry pollution will become one of the new competitive edges for the company as the government has increased its attention to environment protection and has implemented more stringent regulations.

Generally speaking, outstanding strategic vision of Fufeng Group's leadership and its strong implementation team would enable the enterprise to catch every opportunity in the

industry and benefit from it. A complete industrial production chain, covering corn processing, glutamic acid fermentation, MSG production, corn by-products development and fertilizer production, can maximize the efficient use of raw materials; Economy of scale, first-mover advantage, location advantage and high capacity utilisation all come together to create a "credible threat" to the peers, enabling the enterprise to emerge as winner from the glutamic acid and MSG industry consolidation. Advanced environmental protection facilities and sewage treatment capabilities allow the companies to place itself on a high position and be well prepared for future development.

In the future, the Fufeng Group is expected to be able to make use of fluctuations in the industry to further strengthen its dominant position both in the areas of glutamic acid and MSG. Meanwhile, it will continue to upgrade its products, enhance the branding and improve sales channel to differentiate from its peers, and directly serve the end users to benefit from a higher premium prices. As an industry leader, the company will be well positioned to take advantage of opportunities in the exports market.

### **The Meihua Group**

The Hebei-based Meihua Group ranks the second biggest manufacturer in China of glutamic acid and MSG. With two large production bases at Langfang in central Hebei province and Tongliao in North Eastern Inner-Mongolia province, the group spans its business scope across the chemical industry, traditional agricultural value-added processing industry and high-end biotechnology industry. The Meihua Group produced 250,000 tonnes of glutamic acid and 260,000 tonnes of MSG in 2008, constituting 18% and 17% of the market share respectively. The Group's revenue grew a year-on-year 18.7% to RMB4.12 billion (when? In 2008?) , which fully demonstrated the group's strength in difficult climates.

The Meihua Group has links to Fufeng as it was previously a distributor of the Fufeng Group. The company's most important feature is its possession of the industry's most complete production chain, covering everything from producing corn to MSG and fertilizers, as well as the production chain of raw materials like liquid ammonia and concentrated sulphuric acid.

Meihua introduced two international funds, CDH and New Horizon Capital in 2008, indicating that the company was well recognised. The new investors laid a solid foundation for its future development.

In May 2009, the company was exposed in CCTV's popular talk show for its violation of environmental standards, resulting in a partial suspension of its glutamic acid production.

### **The Second Group**

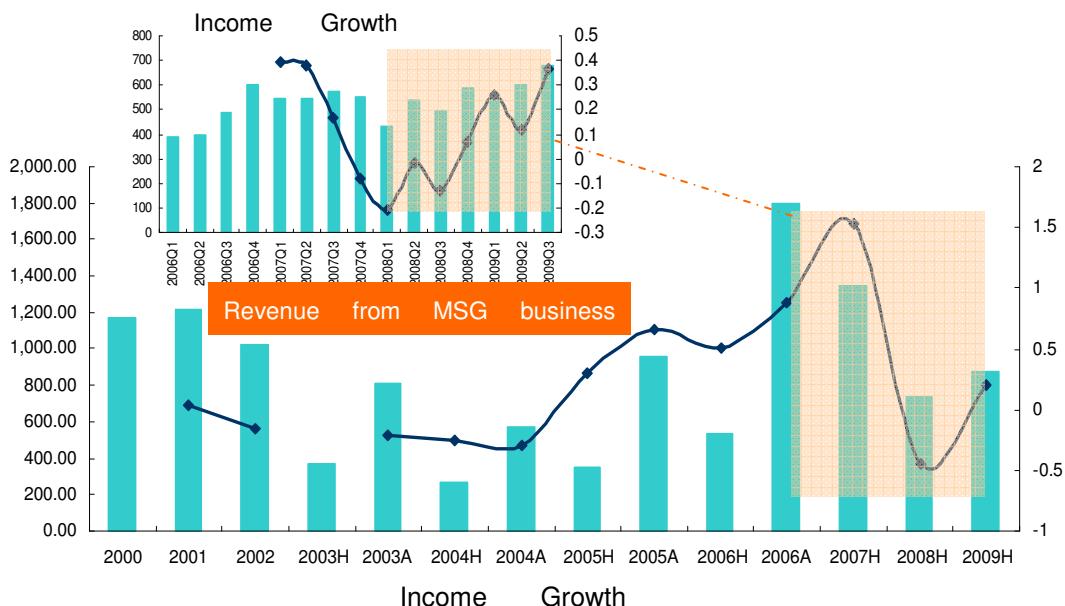
#### **Lotus Gourmet Powder (600186.SH)**

The MSG manufacturer Lotus Gourmet Powder, China's well-known brand, has an annual production capacity of 150,000 tonnes of glutamic acid, 300,000 tonnes of MSG, 300,000 tonnes of premium grade flour, 40,000 tonnes of wheat gluten, 50,000 tonnes of glucose,

200,000 tonnes of fodder, and 200,000 tonnes of synthetic fertilizer. It is the only MSG producer using wheat as a main raw material in MSG production.

The company's revenue from MSG businesses has grown rapidly since 2008. The main reason was still the increase in both price and quantity at the end of the cycle of industry consolidation. The company, having 15% of its annual income from exports, is relatively well known in the international market.,

**Figure 9: Revenue Analysis of Lianhua MSG and Diagram of Recent Revenue**

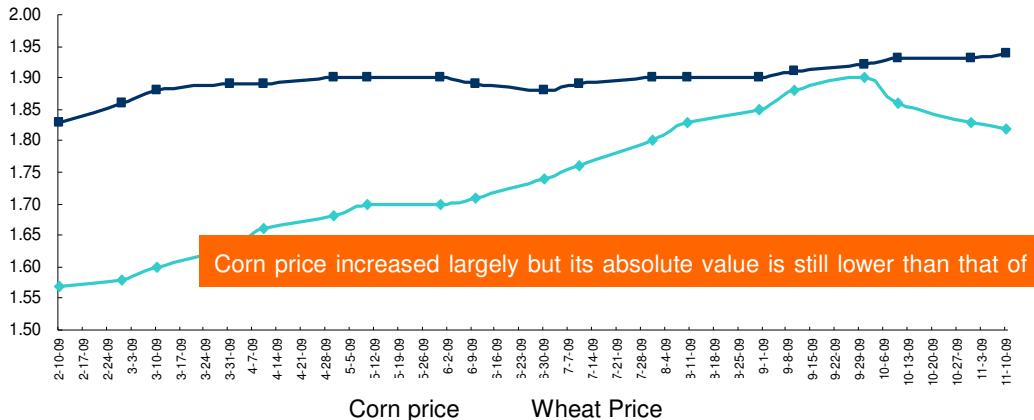


Source: Wind, Research Department of Changjiang Securities

Despite the recent rise in MSG prices, Lotus Gourmet Powder said in a notice that "Due to raw material supply situation being increasingly tense ... ... profitability in 2009 is not expected to change significantly." We believe two issues are behind the statement that is needed to be discussed in more details:

- There is no cost advantage in using wheat as raw material of MSG

Some products of Lotus Gourmet Powder (about 50%) use wheat as main raw material. Three tonnes of wheat is needed to produce one tonne of MSG. Since 2009, the absolute price of wheat is higher than corn although wheat price has only slightly increased. Thus, currently there is no cost advantage in using wheat as raw material.



#### ■ The importance of production integration

In Lotus Gourmet Powder's announcement ".....the company's ability to self-produce glutamic acid is seriously affected while the spot price of glutamic acid, at which the company buy, is constantly on the rise ... ..." mainly refers to the company's own production capacity of 130,000 tonnes of glutamic acid (equivalent to 162,500 tonnes of MSG) could not support its own 240,000 tonne of MSG production capacity. As we have discussed in the previous sessions, the downstream MSG production will be increasingly restrained by upstream glutamic acid supply links as the glutamate industry consolidates solidly,. The issue of integration is much related to security and stability of the enterprises, and Lotus Gourmet Powder's announcement seems to be a very good interpretation. Interestingly, Fufeng Group is the main glutamic acid supplier for Lotus Gourmet Powder..

The development of the listed company is greatly restricted by the serious capital tied-up problem between the group and the listed company, stemming from structural reasons. This could be seen in its stagnant revenue. .The company can currently sustain its survival, thanks to its well-known brand name developed over many years, as well as its advanced technologies and extensive sales channels. The company's competitive edge slightly weakens compared to the growing enterprises with more flexible institutional structures. . We believe it is utmost important for the company to mobilize its inventory assets and streamline capital investments to renew the vitality of the business.

#### Taiwan's Vedan International (2317.HK)

Taiwan-based Vedan International (2317.HK), the island's long established MSG producer, is currently one of the largest in Southeast Asia. With integrated production design, its main products range from glutamic acid, MSG, lysine, fertilizer, fodder and so on. The company's glutamic acid output is 180,000 tonnes, of which 150,000 tonnes are from Vietnam and 30,000 tonnes from Taiwan. Its annual production capacity of MSG is 220,000 tonnes.

Vedan International mainly uses molasses and natural gas as raw materials, as their costs are low in the Southeast Asian region. While covering the Southeast Asian market, the

company began to expand into China since 2005, and set up MSG production facilities in Xiamen, Shanghai and Shandong successively. Meanwhile, the company also ventured engaged in the production of flavoured condiments to enhance added-value in its products.

In September 2008, the company's glutamic acid production was partially halted due to a violation of Vietnamese environmental standards. But full production is expected to resume in Q4 this year.

**Figure 10: The MSG and glutamic acid (GA) business revenue of Vedan**



Source: Financial statements of Vedan International; Research Department of Changjiang Securities

The major production facilities of Vedan International locate in Vietnam. They used unusual raw materials such as cassava and molasses as the key ingredients. Compared with corn and wheat, the direct cost of cassava and molasses is lower. But it is difficult to obtain composite by-products since cassava and molasses are starch materials. Hence, in terms of unit contribution, there is no significant competitive edge than corn. Moreover, the prices of these two materials have a positive correlation with international sugar and oil prices. The current sugar price is in a bullish trend while the oil price may rise as a result of the anticipated economic recovery. Thus, the prices of cassava and molasses in Vietnam have shown a continuous rising trend this year. Vedan International admitted in its Interim Report 2009 that: “when international demand picks up and the prices of oil and most agricultural products start to rise in the second half of 2009, the prices of cassava and molasses will follow.”

## Looking at the coming half year

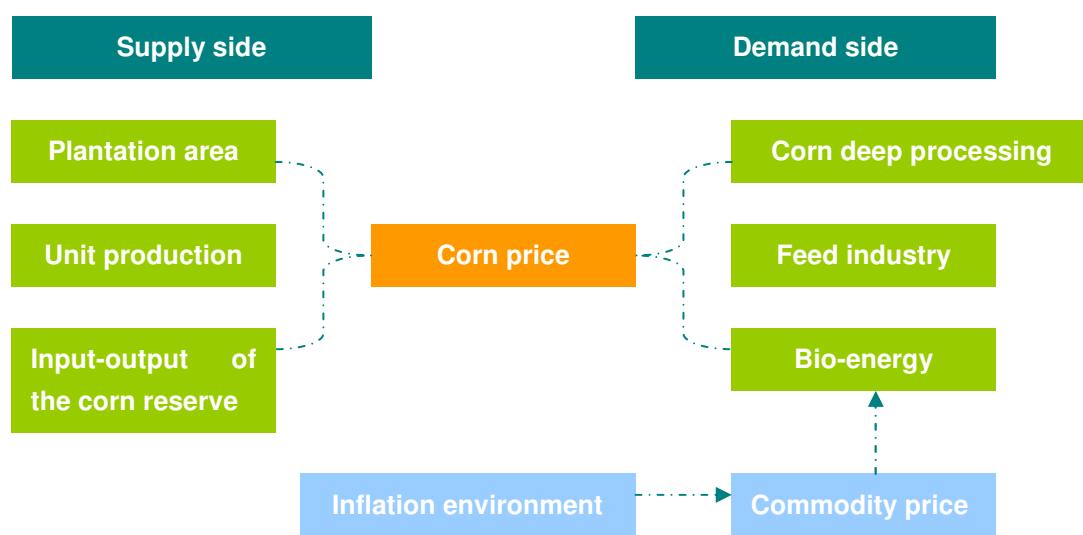
Looking at the half year from the end of 2009 forward, we will focus on two issues based on the aforesaid “Two Periods” of the industry, namely the raw material cost trends of the glutamic acid and MSG industry (the cost period), and the newly increased production capacity in the supply side (the consolidation period).

## The formation mechanism of raw material prices

### Corn

China is the second largest corn production country next to the United States, yielding 160 – 170 million tonnes annually. 80% of the corn is used for animal feed, 20% is used as the raw material for corn deep processing products, such as starch and sugar. Corn price is determined by supply and demand in general. However, China has implemented a corn reserve scheme to regulate the surplus and deficiency of the produces so as to smooth the price level variation.

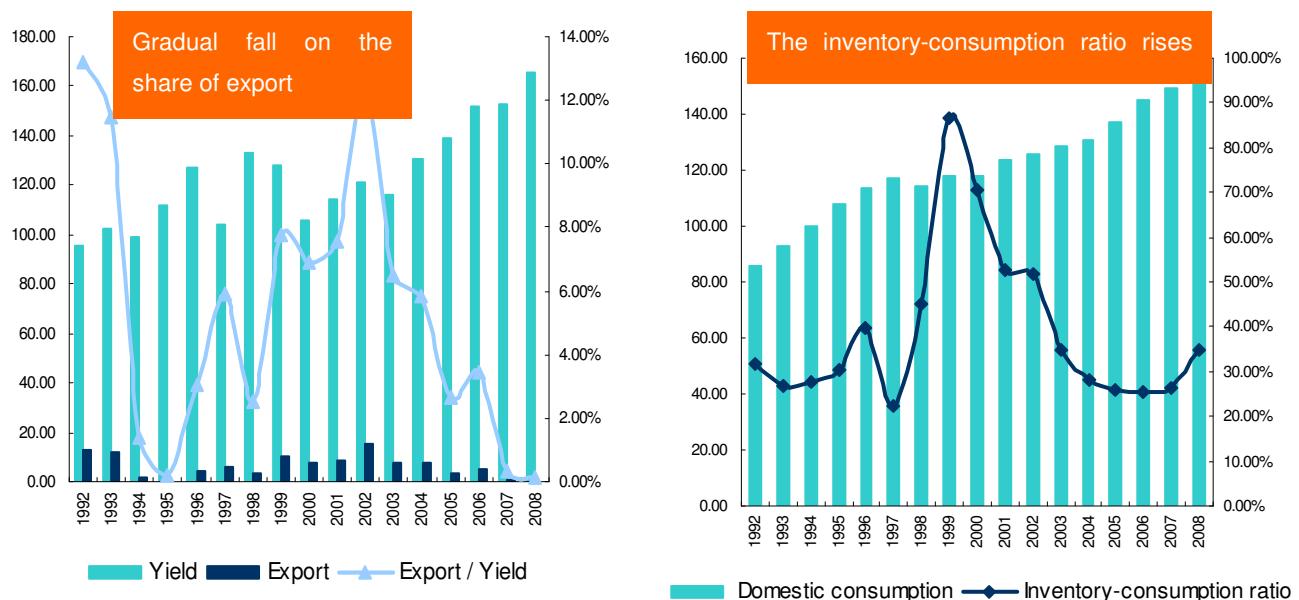
**Figure 11: The formation mechanism of corn price**



Source: Research Department of Changjiang Securities

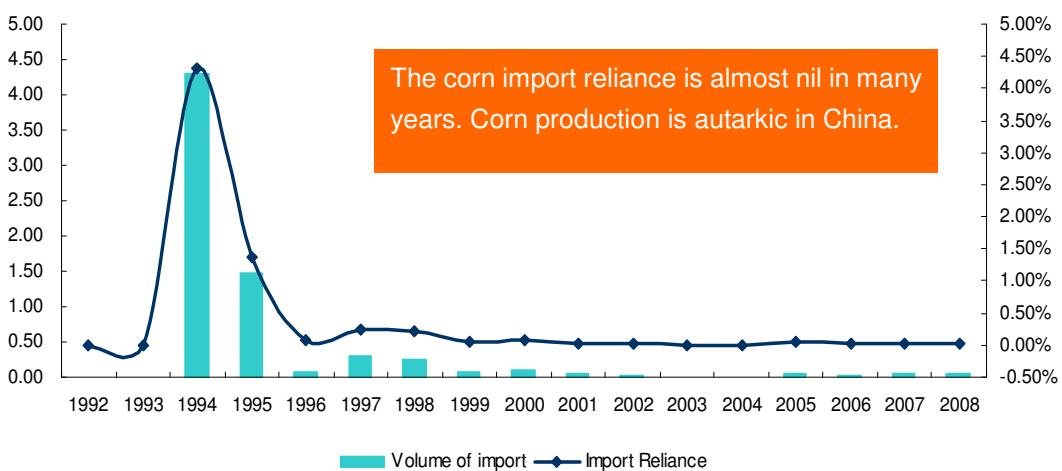
China had a bumper crop of corn in 2008. In the meantime, the economic crisis has brought down the level of demand as well as the foreign imported inflation pass-through. Chinese corn stocks are abundant.

Figure 12: Yield, sales, inventory and export of corn in China



Sources: CEIC, Bloomberg, Wind, and Research Department of Changjiang Securities

Figure 13: Import of corn in China



Sources: CEIC, Bloomberg, Wind, and Research Department of Changjiang Securities

The key factor affecting the recent corn price is the reports of a 30% reduction of corn production due to a drought in the Northeast, leading to a frenzy purchase by the dealers. Yet, although the corn yield in Northeast and Southeast provinces has been adversely affected by the drought, the yield in northern China, Huanghui area and Southwest provinces remains good as there has not been any remarkable natural misfortune. In overall view of the different production areas, it is expected that there will be a year-on-year increase in unit production and production level. Consolidating the production and growth situations in different regions of corn production, it is expected that the nationwide corn production in 2009 will reach 165.5 million tonnes, representing a

0.3% decrease. However, the reduction has not changed the overall pattern in the last two years that the corn supply was abundant.

The directional sale of corn reserve in the fourth quarter of 2009 is an important event. The directional sale is a result of the end of a one-year long inventory period. New corn produces will be stocked at the end of the year. With an abundant reserve it is an issue to deal with the old stock properly.. The essences in the directional sales are as follows:

- The sales are only conducted in the Three Northeast Provinces and Inner Mongolia.
- Sale to Fufeng Group in Inner Mongolia at the price of RMB 1,570 per tonne (tax included, or RMB1,389 per tonne with tax excluded).
- The government subsidizes RMB150 per tonne. After deducting the cost of logistics, storage, and capital cost, the subsidy is around RMB80 – 100 per tonne.
- The quota of the sales is completed in the fourth quarter of 2009.

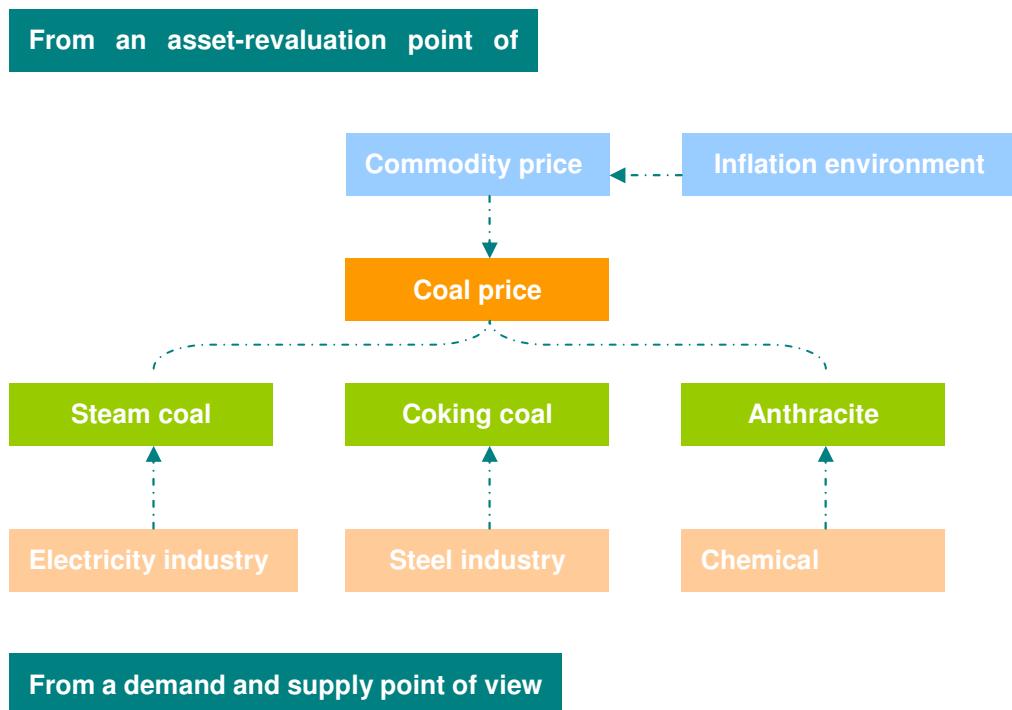
**We believe that corn price may fall in the fourth quarter of 2009 due to ample supply and the sales of the stock.**

### Coal

In the supply side, overproduction sets the price of coal. Highly concentrated production capacity facilitates the implementation of production limit. In the demand side, the demand for different types of coal is mainly affected by the profitability of the downstream industries. To put it more clear, steam coal depends on the operation of the electricity industry, coking coal depends on the demand by the steel industry, while anthracite depends on the recovery of the chemical industry.

Moreover, the rise of oil price would somehow pull up the coal price. Nevertheless, the surge in 2008 could hardly happen again under the current market condition.

Figure 14: The formation mechanism of coal price



Source: Research Department of Changjiang Securities

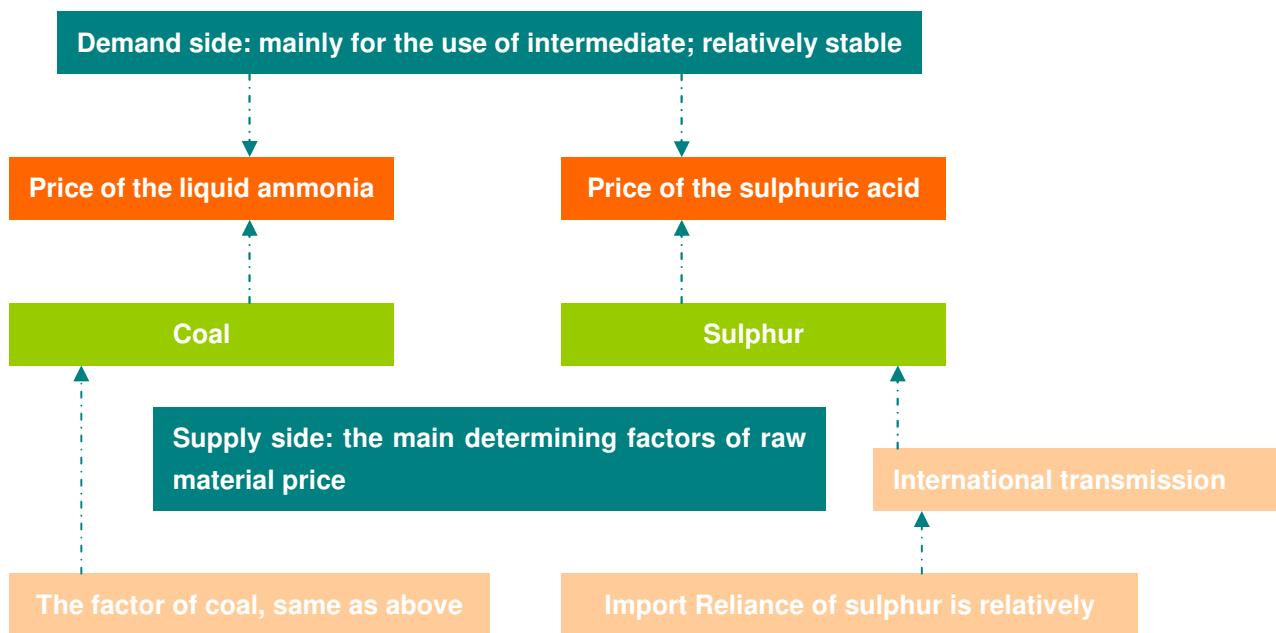
Our researchers on coal industry believe that coal price is easy to rise but difficult to fall. Nevertheless the surge in 2008 will hardly happen again. The supply and demand of steam coal is steady, so the price will not experience a large fluctuation. Market news indicates that Shenhua Group may raise the price by RMB30 per tonne for contracted coal, which is around 5% increase. The price for pithead coal will remain stable.

#### Liquid ammonia and concentrated sulphuric acid

Liquid ammonia and sulphuric acid are very basic chemical agents used by many production industries with mature technology. The main downstream demand for liquid ammonia is urea production, while the sulphuric acid is used in industries such as metallurgy and mining. Therefore some enterprises invested in producing synthetic ammonia and sulphuric acid by themselves. The demand for these two chemicals is relatively stable.

In the supply side, the price of raw materials is the key factor. It takes 1.55 tonne of coal to produce 1 tonne of liquid ammonia, 0.33-0.35 tonne of coal to produce 1 tonne of sulphuric acid. The prices of coal and sulphur become the main determining factor of the supply and the price.

**Figure 15: the formation mechanism of the prices of liquid ammonia and concentrated sulphuric acid**



Source: Research Department of Changjiang Securities

**Liquid ammonia** – As outlined above, coal price will not encounter a huge fluctuation. It is expected that the price of liquid ammonia will remain stable in the second half of the year.

**Sulphuric acid** – The frenzy speculations on sulphur by the international speculators caused the ten-fold increase in October 2008. As the import and export are limited, the probability of recurring such an unusual surge is little. **Our researchers on chemical industry believe that there may exist stimulus affecting the price of sulphuric acid** But the overall price level will maintain stable.

## Cost forecast

Our macro strategy department believes that CPI will turn positive in the fourth quarter of this year. But a sharp rise of the inflation rate will be unlikely next year (middle phase of the economic recovery). Under this circumstance, the commodity prices of agricultural products and natural resources including corn and coal will hardly encounter a surge like in 2008. They will be relatively stable.

## New changes in the supply side

The important trends in the supply side we have traced are:

- Newly increased production capacity: **according to the latest information, the first and second groups have plans to resume and expand production. The most important among the others is the expansion project of Fufeng Group for**

**an annual production of 70,000 tonnes of glutamic acid (Baoji) and 150,000 tonnes of MSG (Inner Mongolia).** Fufeng Group's production capacity of glutamic acid and MSG will reach 420,000 tonnes and 430,000 tonnes respectively in 2010. On the other hand, Taiwan Vedan International resumed its 50,000 tonnes production capacity in the fourth quarter of 2009, which will impact on the industry. However, given that the industry has a 10% annual natural growth rate (i.e. 150,000 tonnes), the impact of the production resumption by Vedan will not be substantial.

- The industry consolidation – If the previous industry reform and consolidation was actively initiated by the leading enterprises, we believe that the next round of reform and consolidation will be guided by governmental policies. The policy may initiate a mandatory smoke gas control scheme on the entire glutamic acid and MSG industry.

At present, Fufeng Group is the only enterprise who is able to eliminate all visible smoke and odor during the glutamic acid fermentation process. The investment in smoke gas control is relatively high:, which **costs RMB50 million for every 100,000 tonnes of glutamic acid production capacity. It may be unaffordable for some SMEs.** The new standard is anticipated to bring another reform and consolidation in the industry (at least a raise on the entrance barriers).

## Reliable threats under the dynamic game theory

As the industry performs better in the second half of 2009, we are surprised that none of the major glutamic acid enterprises carried out any large-scale production expansion. We believe that the leading enterprises have already built enough barriers and exerted a “reliable threat” is the reason.

For the time being, it takes one year to expand a production capacity of 100,000 tonnes of glutamic acid. Building a new production capacity takes at least one and a half years. The aforesaid gross profit margin will form a ‘threat’ during the expansion of a new enterprise – the leading enterprises will speedily adjust their pricing strategies according to their competitors’ actions. A new price war will considerably reduce the expected profit of an industry latecomer. This is the reason why some enterprises with less economic strength will not rashly expand their production.

## A new market trend – the strong gets stronger

### The insights from Japanese and Korean experiences

On the future development of the glutamic acid and MSG industry, we believe the following aspects could be of importance.

#### Export

Tapping the western market is a new growth point for many Chinese outstanding enterprises in the MSG industry. China has superseded Japan to become the largest MSG exporting country in the world. It is increasingly common for overseas food and seasoning industries to use MSG as an additive. Other than US Food and Drug Administration (FDA),

the Joint FAO/WHO Expert Committee on Food Additives (14th Session) have conducted biochemical studies and test on the glutamic acid and sodium contained in the MSG, with the conclusion that MSG as a food product is extremely safe. In other words, the door of the western market is now open for the Chinese MSG industry which holds competitive edges in cost and quality.

## From a low cost strategy to a differential strategy

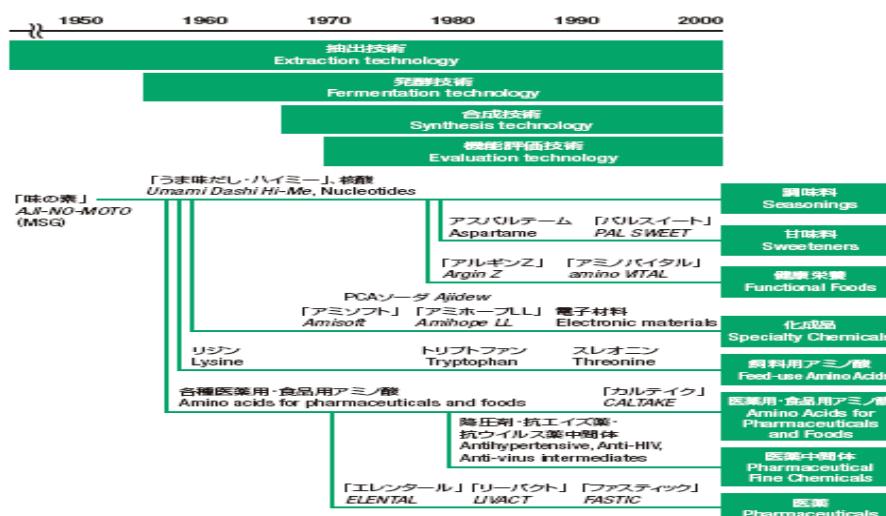
As outline above, in the trend of upgrade and replacement in the seasoning industry, differentiation will become a driving force to obtain extra gains. To put it clearly, we believe the following differentiations will be adopted in the future.

- 1) Product differentiation – including the small differences in finery, packaging and formula. More importantly, we look forward to the development of the MSG industry towards the second and third generation products.
- 2) Channel differentiation – some enterprises with considerable business strength may re-position and transform themselves from finished product suppliers to end-product suppliers, thus setting foot in the distributing channel.
- 3) Brand building – since there is a lack of regional brands and the market homogeneity is strong, building a brand will help market expansion. It becomes one of the issues for enterprises with considerable business strength to take serious..

## The extension of fermentation industry chain

An outstanding enterprise will always evaluate risk in advance. More importantly, it can spot opportunities ahead of time. Through our analysis on the development of Japanese Ajinomoto Group and Korean CJ Corporation, it is found that both of these two world-renowned seasoning companies have opted for diversification.

**Figure 16: the development path of fermentation industry: insights from Ajinomoto Group**

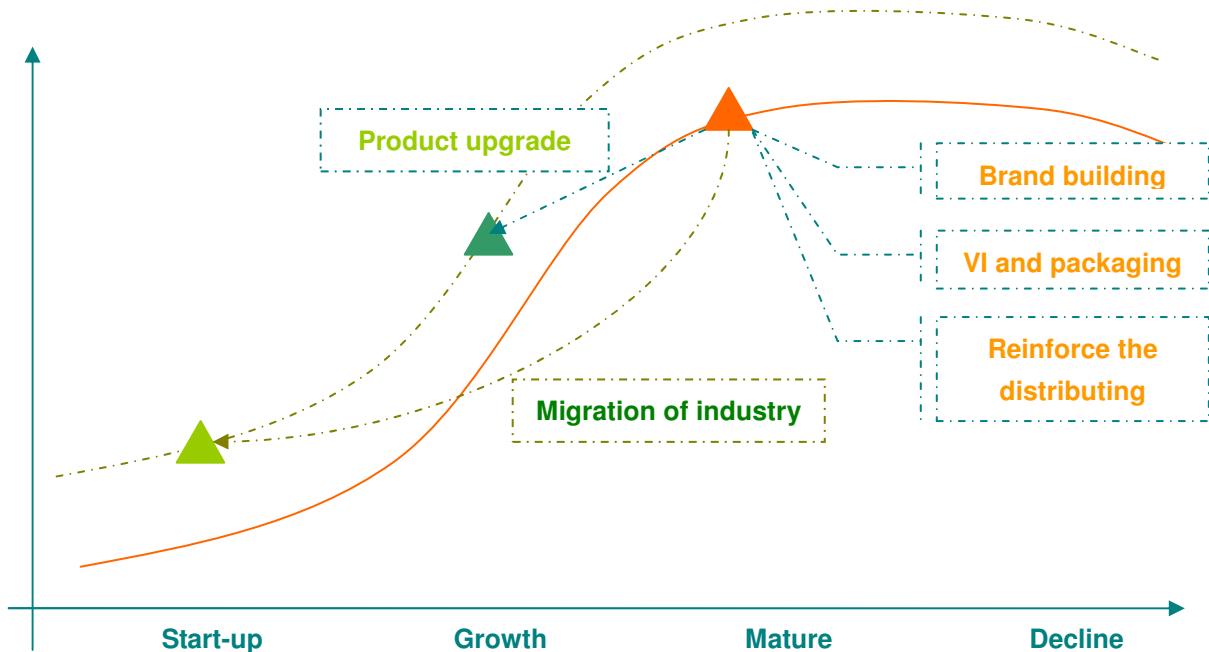


Source: Financial statements of Ajinomoto Group, compiled by the Research Department of Changjiang Securities

The internal industry chain can be extended in the following directions:

- 1) Explore the existing industry chain and produce products with higher added value.
- 2) Based on the accumulated technology to develop similar fermented products. Of course, the current segmented sector like lysine is not a particular good option. But since there is a considerable room to explore in the current fermentation section, opportunities on other options are for sure available.

**Figure 17: the internal development path for MSG industry**



Source: Research Department of Changjiang Securities

## Leading enterprises' attempt to explore a new growth point

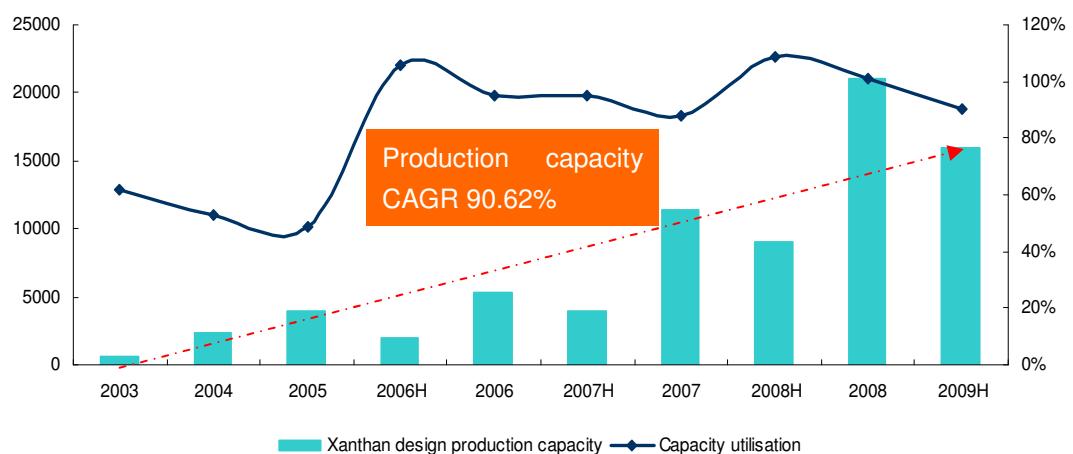
### Exploring new 'frontier' in Xanthan market: the success model of cultivating the fermentation industry by Fufeng Group

- From catching up to getting beyond: dominating in the xanthan market

Xanthan is an acidic polysaccharides secreted from *Xanthomonas campestris*. This functional hydrosol was studied overseas in the 1950s and put into use at the end of 1960s. FDA officially approved xanthan as a food additive in 1969. Since then, xanthan has been studied and followed with interest due to its good physical properties such as high viscosity, thixotropy, and stability of its dispersed solution. It is widely used in food industry, oil extraction, coating products and etc. Currently the xanthan market is highly monopolized by some dominating companies, namely Fufeng Group, the US CP Kelco, and Shandong Deosen Corporation.

There are high technical barriers for the production of xanthan, which directly leads to its high price and high added value. Fufeng Group discovered its market potential in the beginning of the 21<sup>st</sup> century. By investing in research and development, Fufeng smartly penetrated into this high-tech sector. Its designated production capacity was only 667 tonnes in 2003 and grows to 32,000 tonnes up to 2009, accounting for 30% share of the global market!

**Figure 18: acceleration of Fufeng's xanthan business**



Source: Financial statements of Fufeng Group; Research Department of Changjiang Securities

In the course of its success in developing the xanthan business, Fufeng Group chose to base in Inner Mongolia due to the low raw material cost. The decision gained a competitive advantage in cost to release its product capacity quickly. Another right strategy to mention is that they employed an all-in-one business model, especially on the control over heat and electricity resources. Its competitor, Shandong Deosen Corporation, set its base in Shandong and failed to control the crucial heat and electricity resources, leading to a high production cost up to RMB18,000 per tonne of xanthan, RMB10,000 higher than Fufeng!

■ Develop by-products of industry chain: potential new growth point

Apart from developing and reinforcing its glutamic acid-MSG and xanthan business, Fufeng Group also prepares for its future growth, develops potential new growth points, and produces new products such as chicken essence, corn oil, and branched chain amino. Since 2008, the company has invested more in brand building and promotion campaign so as to aid the end-point sales of its upgraded seasoning products in terms of branding and its distribution channels.

Fufeng Group has become the number one supplier in the xanthan market, developed branched chain amino outside its industry chain, and upgraded its products to corn oil and chicken essence. In the process of its development path, we can see a leading enterprise possesses a profound vision to the industry development and makes the right decisions!

## Summary on new moves in the industry

We are glad to find that other than Fufeng Group, other outstanding enterprises in the Chinese glutamic acid-MSG industry are also moving towards the aforesaid development path for reform and consolidation. It shows that our analysis answers to the industry needs. There are some new trends as follows:

**Table 1: New moves of the market leaders in the glutamic acid-MSG industry**

Enterprise	Move	Grounds
Meihua Group	Develop xanthan	
	Introduce strategic investors and plan stock listing	Interaction of capital and industry, forming a financial base
	Develop Isoleucine	Extend the internal fermentation industry chain
Vedan International	Resolve environmental issues in Vietnam	Enjoy a competitive advantage in the next industry reform and consolidation
Lianhua MSG	Seek to resolve the problem of bad debt	Seek to revitalize the capital
	Build new corn deep processing project	Large-scale development
Ningxia Eppen	Produce starch and liquid ammonia	All-in-one business model
		Extend the internal fermentation industry chain

Source: compiled by the Research Department of Changjiang Securities

## Summary and Conclusion of the Series Report

As we observe the Chinese glutamic acid-MSG industry, we have analyzed different macro, middle, and micro aspects of the development of the industry in our three reports. Our views are summarized as follows:

- As the international glutamic acid-MSG industry shifts, China has ascended to be new fertile soil for the development of glutamic acid-MSG industry. Under the macro environment of urbanization coupled with the characteristics of a binary economic structure going to exist in mid term and continuous economic growth, it is expected that the demand will enjoy a 8% - 10% increase annually.
- After the epic industry reform and consolidation in 2007, Fufeng Group has risen as an influential leader in the industry. The glutamic acid industry is a high-investment and high-tech sector. Thus the concentration ratio is firstly generated in this area. The leading enterprise has built the low-cost barrier, which put them to the leading role in the industry.
- As the reform and consolidation ended in 2008, a high degree of concentration has

given the leading enterprises a big boost to their profitability. Both Fufeng and Meihua have enjoyed a continuous considerable growth in their revenue and gross profit. The staged business opportunities brought by the fluctuation in the supply side are crucial in glutamic acid-MSG industry investment.

- We have conducted a mechanism analysis and forecast on the industry cost. We believe there will not be any vicious event on the cost in the upcoming six months. As the industry profitability picks up, more enterprises will enter the MSG market. However, a new policy-driven industry reform and consolidation is on the way, as the anticipated smoke control scheme will likely be implemented. Enterprises like Fufeng may come first with advantages in the next round of reform and consolidation by leveraging their investment in scientific research and environmental protection.
- By studying the development history of the glutamic acid-MSG industry, we believe the development trend at present stage will include export-oriented strategy opening up the international market, market-oriented strategy creating a “Blue Ocean” (new market space), and technology-oriented industrial expansion. We are glad that the leading enterprises in the Chinese glutamic acid-MSG industry are moving on this track.

Our three reports have covered the existing issues in the industry fundamentally. Through our analysis, we believe with reasons that the leading enterprises like Fufeng Group will continue to occupy a pivotal role in the development of the industry. Sweet after sweat. The strong gets stronger!

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