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The MSG Industry

In-depth Report

Rated "positive" for the first time

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The Rise of a New Empire and the Battle of MSG

Report Summary

●Sauces & Condiments industry is the "hidden champion" behind food processing and catering industries and the biggest slice of it is the market for taste- enhancing condiments. Monosodium Glutamate (MSG), being the representative of taste-enhancing condiments, thus has a very important position.

●After a century of development, the Monosodium Glutamate (MSG) industry has had its center of supply and demand shifted away from Japan, via Taiwan and South Korea, to mainland China. In this vast country, now home to over 70% of the MSG industry, new leaders such as the Fufeng Group Limited have emerged after the battles of 2006-2008.

●Being a basic commodity in daily life, MSG production experiences weaker periodic movements. Early recoveries, before the economic downturn had bottomed, were also found in the MSG industry. On the other hand, coupled with booms in food processing, retailing and catering industries, China's MSG industry is still maintaining annual growth rate of around 10%. Furthermore, the present "Dual-Sector" economy and the continuing trend of urbanisation will both provide further drive to the growth of MSG industry.

●This report is basically a macro level review, but it also takes a glimpse at the middle tier of the industry hierarchy. For details on the state of the MSG industry in mainland China and its development, please refer to our later reports.

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Introduction: A new, yet also old industry

China is a major country in the world with great tradition of fine food; its Sauces & Condiments industry is a heritage that has been passed down for thousands of years. Condiments like soy sauce and vinegar had originated in China and spread to the world; various pastes and fermented bean curd have also been in use for thousand years. We could say that Sauces & Condiments is an old industry, but on the other hand, MSG and other new condiments have developed rapidly in this century, with the advances in fermentation technology and improved standards in laboratory analysis.

With improved living standards, consumers are no longer content with purely using chemical products for taste-enhancing effects. A trend has emerged where sauces and condiments are being upgraded, renewed and diversified. New technologies, new recipes, new consumer groups and choices have brought about new varieties and new colour to this long-standing old industry. This paper starts from looking at the Sauces & Condiments industry, but its main focus is actually on glutamic acid and the MSG industry.

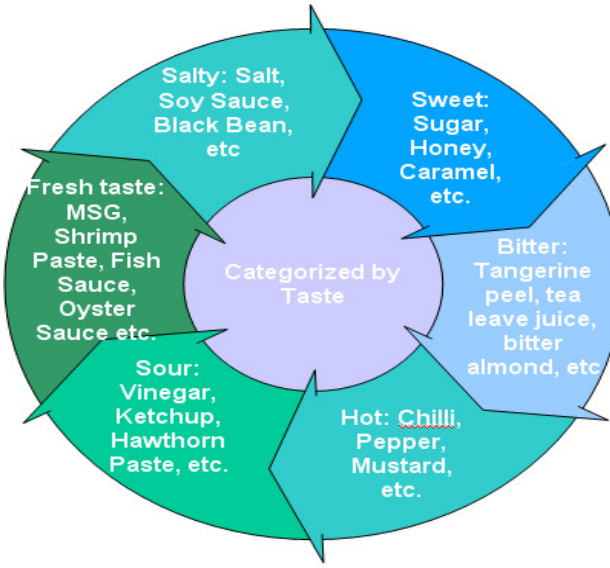
Sauces & Condiments industry: A Giant Invisible Cake

Sauces & Condiments

Sauces and condiments are beneficial food supplements that add colour, aroma, and flavour to dishes. Its main function is to enhance the quality of dishes to satisfy consumer demands for sensory gratification, stimulating appetite and hence improving health. People's attention is too often drawn only to the hot consumption figures in food and catering industries but ignoring the huge market hidden behind for sauces & condiments. In recent years the international sauces & condiments industry had developed very rapidly. It has been reported that the variety of products produced around the world has reached 45,000. In 2006, turnover of this industry reached US$ 218 billions, which is 10% of the entire food industry globally. Using the space based calculating method generally accepted in the industry internationally; catering business in the mainland China amounted to over RMB 1.5 trillion in 2009, about 10 % of that, i.e. RMB 150 billion, was sales amount of sauces and condiments. This did not include sauces and condiments that made their way into households through other distribution channels. Such a huge slice of the cake, it really should not be ignored or swept under the carpet.

China has a long history and rich knowledge in making many sauces and condiments. Among them are traditional oriental varieties as well as introduced or newly emerged varieties. According to different taste-presentation of the sauces and condiments, we may subdivide them into seven basic categories:

Figure 1: Categories of Condiments and Representative Products

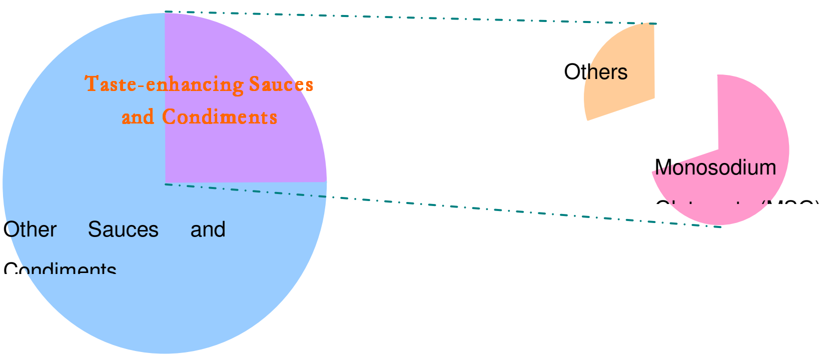


Source of information: Encyclopaedia; Research Institution of Changjiang Securities

In addition to single-flavoured sauces and condiments, there are many composite-flavoured sauces and condiments such as curry oil, sweet soybean paste, fermented bean curd paste, pepper salt and so on.

According to preliminary estimates, the capacity of consumer market for taste-enhancing products in mainland China is over RMB30 billion*, almost 25% the total industry capacity. It is therefore is a very important product category. In this category, 70% of direct market capacity is taken up by traditional taste-enhancing products represented by MSG. MSG, therefore, can still be regarded to be the most important product today, in mainland China's market for taste-enhancing condiments.

Figure 2: Sauces & Condiments Market Capacities in Mainland China



* Estimations based on publicly available data: total capacity of the MSG industry was 1.8 million tons in 2008, final unit price RMB 14,000 / ton; chicken essence and chicken powder was 40 million tons, unit price RMB 25,000 / ton; other taste-enhancing products such as oyster sauce, shrimp paste, fish sauce etc., were not included.

Source of information: Researched and compiled by Research Institution of Changjiang Securities

MSG

In a strict sense, taste-enhancing products have experienced three stages of development according to differences in its formulation: the first generation products used amino acids as the main raw material for taste enhancement; the second generation uses taste-enhancing nucleotide as the main ingredients for taste enhancement and the third generation uses yeast extract. According to estimates based on publicly available data, China's annual output of nucleotides is about 20,000 tons while yeast extract is about 50,000 tons. Due to the multiplier effect of amino acids and taste-enhancing nucleotides*, common taste-enhancing products currently on the market in China, such chicken powder, would have both types of the above-mentioned taste-enhancing ingredients included in its main raw materials.

The main constitute of MSG is 99% L-sodium glutamate monohydrate compound , using carbohydrates (starch, rice, honey, and other sugar substances) as raw materials, going through fermentation with micro-organisms (Corynebacterium glutamicum, etc.), extraction, neutralization and crystallization to produce a white crystal or powder with special fresh tastes.

According to China Fermentation Industry Association, in 2008 the domestic demand for MSG was 1.66 million tons, 2008 exports was 200,000 tons. In the international market of the same year, Ajinomoto's production was about 300,000-400,000 tons, Vedan International's production about 200,000 tons according to statistics. From the above figures, the overall capacity of MSG in the current global market is 2,500,000 tons. Adding other overseas companies such as South Korea's CJ and Elephant, mainland Chins's market would account for roughly 70% of total global capacity. This is to say that the "China factor" has become more and more important.

Glutamic Acid

As main raw material upstream to the production of MSG, glutamic acid is certainly one of the contents not to be missed (to produce one ton of MSG requires approximately 0.8 tons of glutamic acid). There are over 20 kinds of amino acids that make up protein. Glutamic acid and lysine are the two types that have very large annual production outputs around the world. Generally speaking, glutamic acid is mainly used in the following areas:

* Mixing WMP with sodium glutamate would significantly increase the taste-enhancing effects compared to each ingredients on its own.

Table 1: Uses of Glutamic Acid

Area of Use	Primary Use
Downstream product development	L-chloro-ethyl ester glutamic acid, L-threonine, Poly-glutamic acid, etc.
Food industry	Sodium Glutamate
Cosmetics Industry	Synthetic Biosurfactants, as nutrient formula for skin and hair
Material Industry	Poly-glutamic acid can be used as degradable plastics that is environmentally friendly
Pharmaceutical Industry	Glutaminecan prevent and treat hepatic coma; Glutamic acid can be a supplement for the central nervous system and cerebral cortex

Source of information: "Uses of Glutamic Acid"

In overseas countries, only 52% of glutamic acid is used directly in condiments whereas 48% is used as intermediates in chemical, pharmaceutical and health food industries*; At home at the moment, the principal usage of glutamic acid is in condiments, almost 99% is used in the production of MSG*. According to statistics from the China Fermentation Industry Association, China's output of glutamic acid was close to 1.4 million tons in 2008. Applying the ratio, there should at least be 1.2 million tons used in the production of sodium glutamate. An integrated model of glutamic acid-sodium glutamate has become mainstream for today's successful business enterprises.

High concentration of demand for glutamic acid has created a close link between its upstream production and the downstream production of MSG. This kind of production chain is not to be overlooked when analyzing an industry. This will be discussed in the report that follows.

The shift of supply and the rise of a new leader

Industrial migration: China is now the new supply centre

Professor Kikunae Ikeda discovered in 1908 that sodium glutamate is in fact the substance in seaweed soup that gave it the fresh flavour. Since then, people began a new understanding of the freshness taste. From then on, the MSG industry had gone through a whole century of development, and **its production had spread from Japan to the world. Due to the combined factor of production capacity and consumer demand, further industrial migration has resulted in mainland China becoming the world's new supply centre of glutamic acid and MSG.**

* Another view is that the 700,000 tons capacity of the glutamic acid market in foreign countries is also mainly used in the production of MSG. Yet the widening range of other uses of glutamic acid means room for development in the profit margin.

* An internet source says 85% of glutamic acid in China is used in the production of MSG.

Stages of Development in the MSG Industry

The world's MSG industry had basically followed the path of migrating its supply centre from Japan to Taiwan, then to South Korea, and then to mainland China – today's new centre of the industry. Looking at the development history of the three former centres and of three representative business leaders, we have found that the industry giants were in fact replicating similar development paths:

♦ For more than 40 years from the end of WWII to 1990's, leaders in the industry, including Ajinomoto, all eyed Southeast Asia as the major springboard for expanding abroad. Countries like Vietnam, the Philippines and Indonesia were the most favoured.

♦ Moving into the 1990's, the market of mainland China has invariably become the centre of attention for leaders in the industry, and the reason for adjustments.

Table 2: Summary of MSG Production Migration in the World

	Ajinomoto	Vedan	CJ (South Korea)
The Beginning and Growth	**1908** Began MSG production		
	1910---1954 Set up distribution centers in South **Korea, China Taiwan, Mainland China**; Began exporting products	**1954** Began MSG production	
	1956 Ajinomoto New York (now Ajinomoto U.S.A., Inc.) Ajinomoto Brazil		
Industry Giants Targeting Southeast Asia	**1958** Philippines united Chemicals Co (now AJINOMOTO PHILIPPINES CORPORATION)		
	1960 Ajinomoto Co., (Thailand) Ltd.		
	1961 Ajinomoto (Malaysia) Berhad AJINOMOTO FOODS DEUTSCHLAND GMBH		
	1963 Ajinomoto Italy (withdrawn in 1977)		**1963** Began MSG production
	1968 Ajinomoto del Peru S.A		

	1969 PT Ajinomoto Indonesia		
	1973 Ajinomoto Singapore		**1977** Began nucleic acid production
	1991 Ajinomoto Vietnam	**1991** Production plant in Vietnam	**1988** MSG and Lysine production plant in Indonesia
Mainland China: Rise of a New Power	**1994** Ajinomoto Chun Hua (春花) (China)		
	1995 Ajinomoto Lian Yun Gang (China) (Ajinomoto Ru Yi)	**1995** Takeover of Xiamen Maotai	
	1996 Ajinomoto (China) Co., Ltd.		**1997** Production plant in the Philippines
	1997 Ajinomoto Lian Hua (China)	**1999** Maotao plant began MSG production	
	2002 Ajinomoto Shanghai		**2001** Vietnam pet food plant
	2003 Ajinomoto India Ajinomoto France		**2003** Chengdu, Shenyang pet food plants
		2005 Venda Shangdong XueHua (雪花) Venda Shanghai	**2005** Tianjin, Harbin pet food plants **2006** Shanghai Food & Services Centre Changsha pet food plant **2007** Vietnam baking plant

Source of information: Company Web-Sites & Annual Reports, Compiled by Research Institution of Changjiang Securities

Driving Forces of Industrial Migration: Production Costs and Market Demand

Looking at the migration history of the MSG industry, we believe two important

factors - production costs and market demand - were the driving forces behind the scene. Furthermore, industrialization and urbanization have also caused the industry's migration through changes in two perspectives – the costs and the demand.

♦ In the second stage, when the industry giants were moving abroad, their respective countries and regions had basically completed the preliminary stage of industrialization and had a moderately high degree of urbanization. In 1970, urbanization ratio was 72% in Japan, 55.3 %in South Korea and close to 60% in Taiwan. In the process of industrialisation, an increased level of urbanization is often accompanied by rising labour costs and price increases in agricultural products. While the main costs of the fermentation production process of MSG are from agricultural products such as corn, rice and labour, moving the supply centre abroad and regional restructure would only be natural.

Obvious gaps is observed in Labour Costs expressed in monthly income

Huge difference is observed in Agricultural Product Prices (indicative of price differences of raw

Table 3: Production Costs in Japan, South Korea and Taiwan significantly higher than Mainland China

Monthly income (in RMB)	Japan	South Korea	China Taiwan	Mainland China
2007	3681.43	3018.29	1370.26	284.47
	Japan	**South Korea**	**China Taiwan**	**Mainland China**
50kg	**Japonica rice**	**Rice**	**Japonica rice**	**Corn**
Dec 2007	243.33	140.42	12.56	10.24

Source of information: Country Statistics; CEIC; Bloomberg; Research Institution of Changjiang Securities

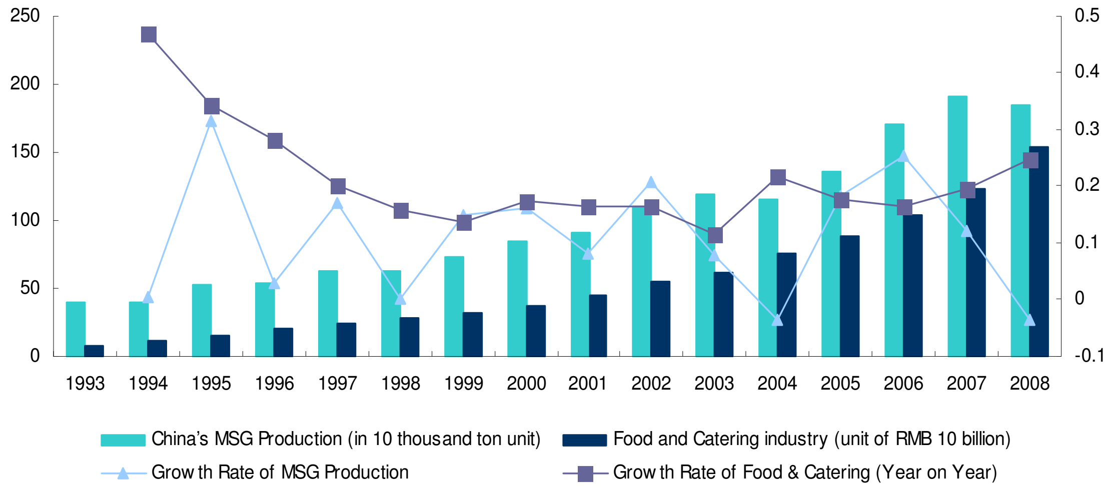
♦ On the other hand, growth in economy inevitably accompanies growth in consumption. Consumers are paying increasing attention to health and quality. This, to a certain degree, has inhibited the demand for traditional products. Take Japan for example, during the 1960s the public had already started to notice extracts based condiments; moving into the 90's, customer requirements in relation to food had become even more sophisticated. Consumer demands for delicious fresh flavour both in catered as well as processed food were translated into stronger and stronger demands for new types of taste-enhancing condiments.

At the present moment Japan's domestic demand for MSG has stabilized at the 105,000 ton level; 40% of which is used in household condiments while 60% is used in producing composite--flavour condiments and in manufacture of processed food. In 2005, MSG import was 77,000 tons, a 10% increase compared to 2004. This has also reflected the situation of restructure in Japan's domestic system of supply-demand.

Power of Mainland China: The Rise of a New Empire

Vast market capacity and low resource costs of mainland China had matched the MSG industry's drive in search of a new center. Since early 90s, China's MSG industry enjoyed a period of rapid growth. This burst in growth coincided with the timing of migrating abroad by the international giants, proving that driving forces behind the scenes were at work. An evidential witness was the rapid growth of the catering industry, which also began during the same period.

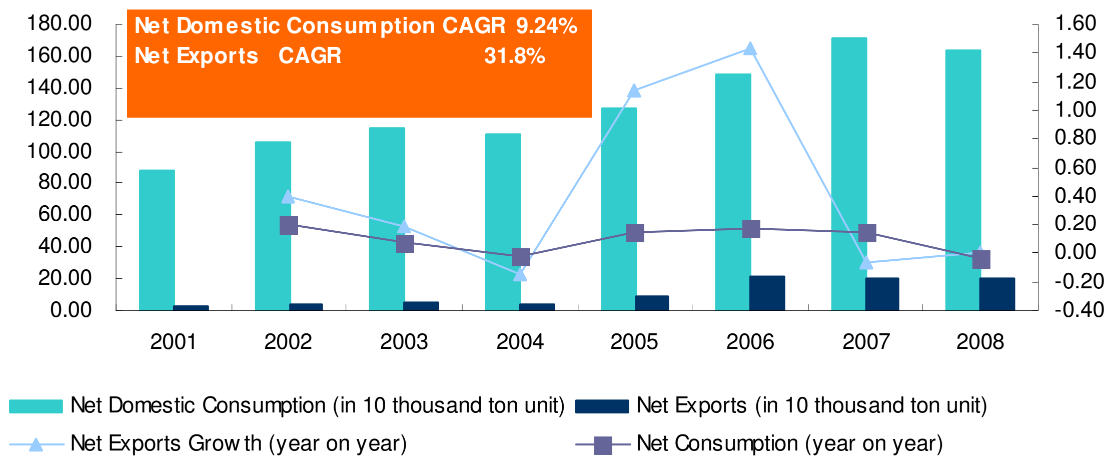
Figure 3: Boom in China's catering industry coupled with rapid growth in MSG industry



Source of information: Infobank; Wind; Research Institution of Changjiang Securities

Net growth in domestic consumption and net growth in exports seem also announcing the awakening of mainland China as an emerging industry centre of MSG.

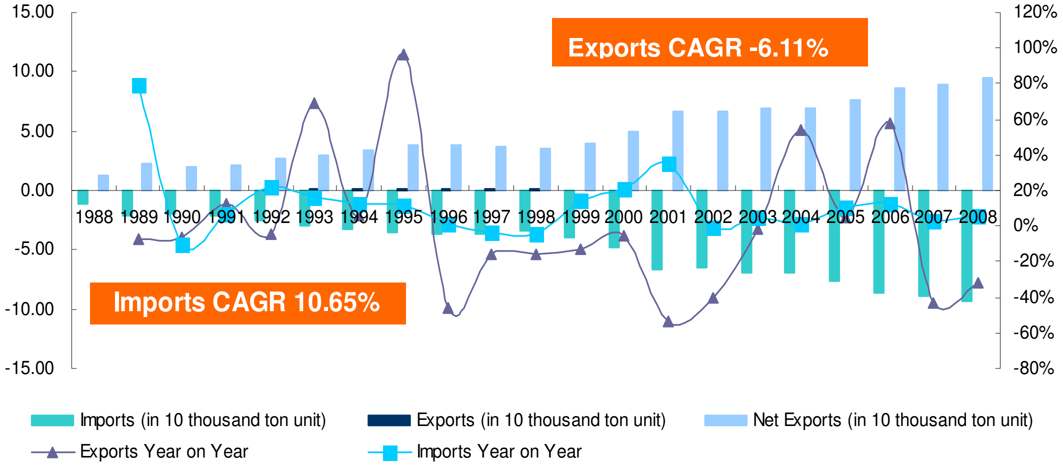
Figure 4: China's Net MSG Consumption and Exports



Source of information: Chinese Customs; Infobank; Wind; Research Institution of Changjiang Securities

Imports and exports data from the customs of Japan, traditional empire of the MSG industry, have also provided corroborative evidences. In 2001, when China's exports growth had achieved a breakthrough, Japan's exports plunged 53% and imports in the same year increased by 36%. In the twenty-one year period from 1988 to 2008, Japan's average growth of MSG exports was 6.11%, while average growth of MSG imports was as high as 10.65% over the same period - symbolising a gradual weakening in Japan's MSG industry.

Figure 5: Shrinking Japanese MSG Exports Corroborated with Rapid Growth of Mainland China



Source of information: Japanese Customs; Research Institution of Changjiang Securities

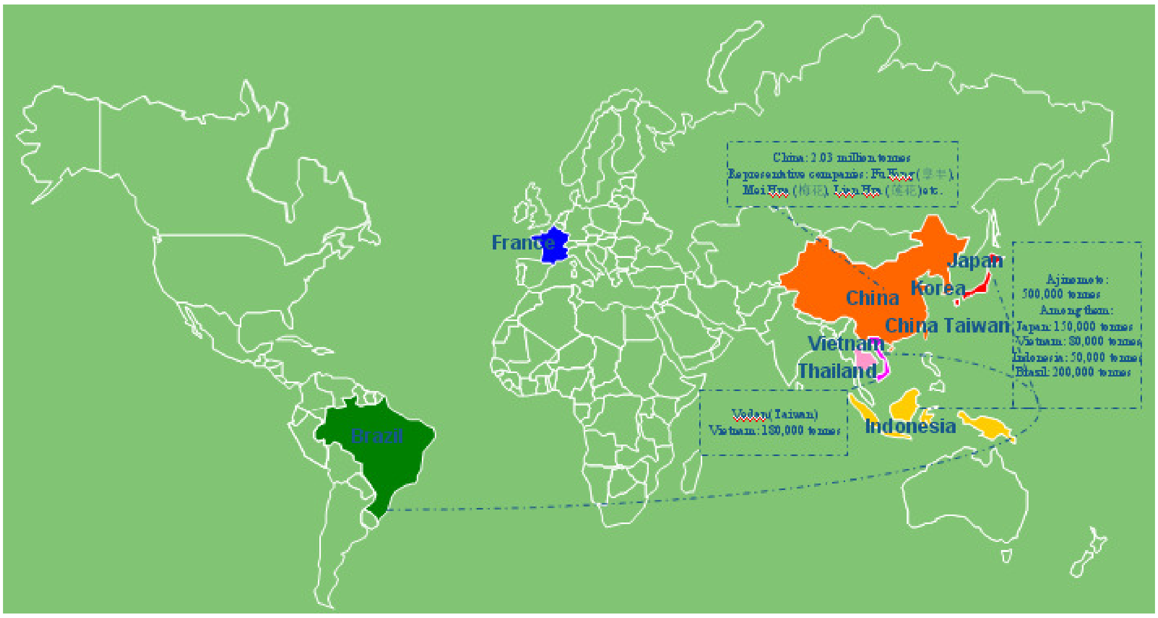
A New World Map of the MSG Industry

As of 2008, the world's 2.5 million ton MSG market was distributed as follows: around 92% or 2.3 million ton of production capacity was concentrated in Asia, with mainland China accounting for 80% of it (including China Taiwan), followed by Vietnam, accounting for 11.3% of Asia's capacity, Japan 6.5% *, and Indonesia 2.2%.

As shown in the new world map of the MSG industry below, the rise of mainland China is clearly visible. Also, from the two formerly discussed driving forces of industry migration, we could not find, in the short term, a market as huge and as low-cost as the mainland China. Particularly on the demand side, in mainland China consumer habits have been well adapted to the MSG as taste-enhancing condiments. What the industry needs to do is to continue to expand and grow in this rich and fertile land.

* Based on the sorted public information, it appeared that the production capacity in Japan was less than 150,000 tonnes by drawing inferences from the actual data of Japan's import and export.

Figure 6: World Map of the MSG Industry



Source of information: Compiled by Research Institution of Changjiang Securities from Fermentation Industry Association, Adjustment and Research (调研), and the Internet

Wars Prior to Empire Establishment: Emergence of New Power

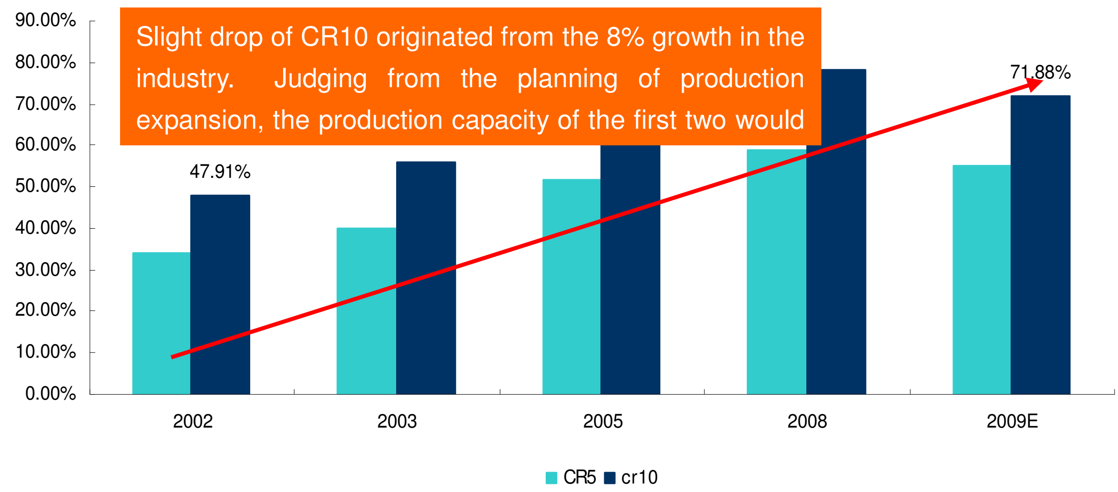
The creation of every empire has to undergo "the baptism of blood and fire". Perhaps, it may win partial victory. However, after numerous wars, the ultimate winner is the forward looking strategist with the comprehensive master plan. The same can also be applied to the glutamic acid and MSG industry.

War Situation: As at November 2009

According to the statistics* of China Fermentation Industry Association, the CR10 market share of the MSG industry rose from 44% to 78% from 2002 to 2008 in China. The level of concentration has increased by 34%. It was expected that as at the end of 2009, the original number of productive enterprises exceeding one hundred would decrease drastically. 75% of MSG would be supplied by 12 enterprises with a production capacity of over 40,000 tonnes. Obviously, the market was in favour of the dominant enterprises such as Fufeng.

* The statistics of China Fermentation Industry Association was incomplete. We hereby simulated a part of the data based on the statistics of the entire industry in line with its trend.

Figure 7: Changed in the Level of Concentration in the MSG industry



Source of information: China Fermentation Industry Association and Research Institution of Changjiang Securities

At the same time, the glutamic acid market has experienced drastic integration as well: In 2002, there was a total of more than 140 enterprises manufacturing MSG and glutamic acid in China. Most of them possessed the annual fermentation capacity of less than 20,000 tonnes of glutamic acid. After the industry adjustment in the past few years, particularly the industry integration from the end of 2006 to the first quarter of 2008, the effective production capacity of the industry has decreased substantially. As at November 2009, the number of major glumatic acid manufacturers in Mainland China has decreased to seventeen. In particular, the production output of glutamic acid by the top 10 enterprises with an actual production capacity of over 60,000 tonnes accounted for approximately 75% of the glutamic acid fermentation capacity in Mainland China. The CR10 of the industry captured a market share of 38%.

Weapons: Strategist's Judgment + Soldiers' Capability of Surprise Attack + Low Cost Fortress

From the end of 2006 to the 1st and 2nd quarter of 2008, China's glumatic acid industry and MSG industry have undergone a large-scale integration recently. **The complete integration started at the up-stream glumatic acid industry and ended at the down-stream MSG industry:** Starting from 2006, the prices of major raw materials including corn, coal and sulfuric acid have increased substantially. It was difficult for the glumatic acid as the interim raw materials to transfer the cost. At this time, the dominant enterprises took the initiative in commencing the price war. As a result, many small and medium enterprises, which were weak by themselves, either stopped production or wound up business. The fall in the price of glumatic acid has stimulated the momentum to expand production in the down-stream MSG industry. As the portion of chemical synthetics did not require too much funds, there was obvious impact for the MSG industry to expand production, while the increase in supply suppressed the price of MSG. They have become the subjective factors for the integration of the MSG industry.

The production of glumatic acid and MSG has a history of nearly 100 years[*] in China. Quite a number of well-established enterprises were founded several decades ago in the industry. However, why have such enterprises as Fufeng and Meihuo founded less than twenty years ago become the winners in the recent industry integration?

- **Success of low-cost strategy is the outcome and the more important factor is the strategic judgment made in advance on the industry.** The head office of Fufeng Group is in Shandong. The head office of Meihuo Group is in Hebei. However, two years before the cost turbulence, they have transferred their main production capacity to Shaanxi and Inner Mongolia respectively. In the course of transferring the production capacity, Fufeng displayed its "Fufeng Speed" which is still a popular topic of conversation up to the present moment: Counting from confirmation on the strategic decision-making to the planning and design of production capacity, as well as from the selection of production site and commencement of construction to the launch of production for economic benefits, Fufeng Group merely spent less than a year to complete Boji Phase 1 project in Shaanxi. In the following period from 2005 to 2008, the Group has completed the construction of the production capacity of Boji Phase 2 and Inner Mongolia Phase 1, 2 and 3. **Perhaps by taking one earlier step in light of the forthcoming changes in the industry, it was able to stay away a bit further from facing the risk of closure, and taking action faster might possibly obtain a bit more initiative.**
- **Layout is one of the major ways to construct the low-cost fortress. The construction of optimal top-down production chain is another effective means for the enterprise to outperform the others.** As at November 2009, among the top ten MSG production enterprises, eight of them have proceeded with the integrated design and production of glutamic acid and MSG. The production capacity comprised up to 65.9% of the entire market. Out of these eight enterprises, the glutamic acid production capacity of only two was able to fully satisfy their production of MSG; five provided barely enough glutamic acid production capacity to satisfy their production of MSG and one needed to purchase a part of the glutamic acid from outside suppliers. The integration of production chain has caused the competition among enterprises to shift from individuals to chains. The enterprises with optimal control of the production chain would have greater stability during the industry fluctuation.
- **Synergy between production capital and finance is one of the major strategies**

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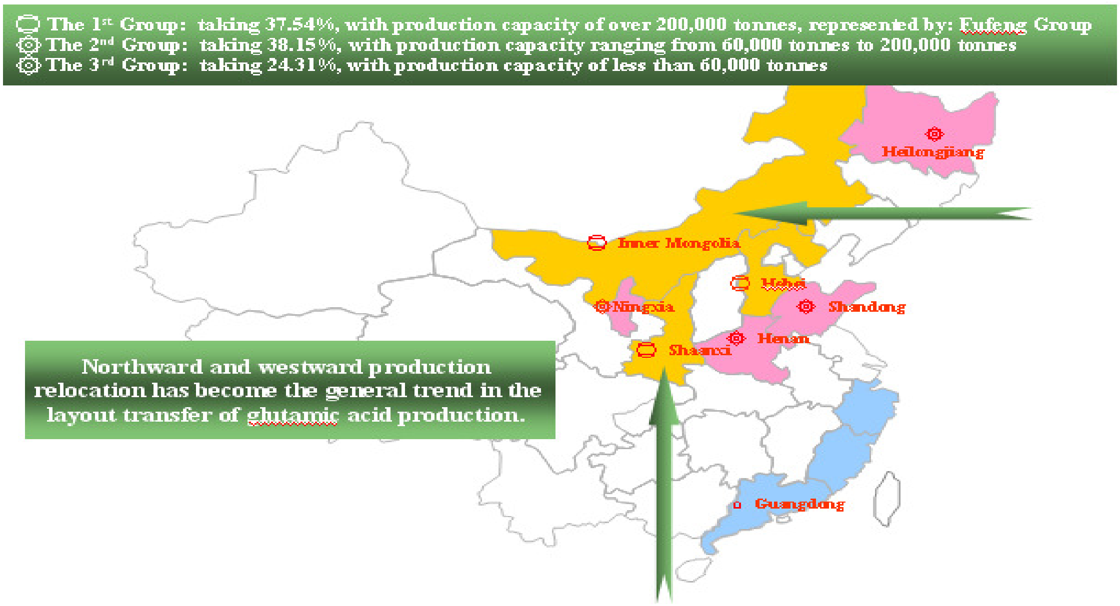
* [*] The MSG industry in Mainland China started nearly 100 years ago when Wu Yun Chu succeeded in extracting monosodium glutamate from cereals by means of hydrolysis in 1921.

of the leading enterprises. Fufeng Group was listed on the Hong Kong Stock Exchange in early 2007. Meihuo obtained the capital contribution of US$200 million from New Horizon and CDH in early 2008. Favoured by the capital market, the company has created support for its development. At the same time, it has also boosted the influence of the enterprise's brand to some extent.

Figure 8: Distribution of Glutamic Acid Production Capacity in China as at November 2009



Source of information: China Fermentation Industry Association and Research Institution of Changjiang Securities

Rigidity of Demand and Existing Growth Capability

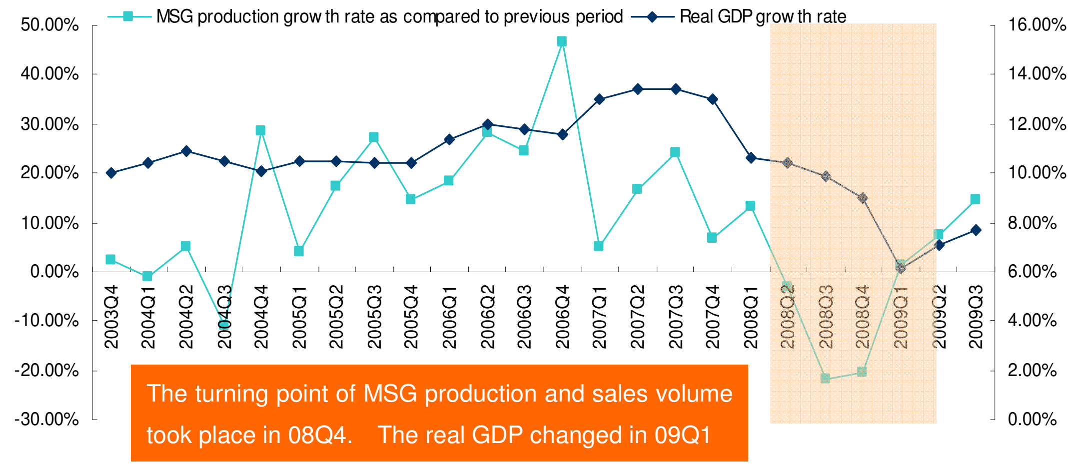
99% supply of the glutamic acid in China market is for the down-stream MSG production. MSG consumed by the general public is characterized by fast consumption and more standardized product quality. Consequently, the demand of glutamic acid depends on the orientation of the MSG industry to a very large extent.

Rigidity of Demand and Capability of Resisting Industry Life Cycle

Being connected to the daily consumption of the general public, **the MSG industry has shown the characteristics of stable demand and rapid recovery**. During the worldwide financial crisis in 2008, the demand of industries ranging from the large-scale commodity transactions of the nonferrous metal to the electronics industry has undergone drastic downturn, revealing a typical risk of the cyclical industry. Our survey of the actual demand variation of the food industry and its sub-industries in time of substantial economic fluctuation has led to a core conclusion: **The impact on the food industry featuring necessity of consumption is indirect during the economic downturn, and, in addition, the real demand of the industry would reach its lowest level in advance of the real GDP.** The meaning behind it is that in time of the economic downturn and the shift towards low-end consumption, the necessities of consumption will be preferred.

We found that it was the same for the MSG industry as well.

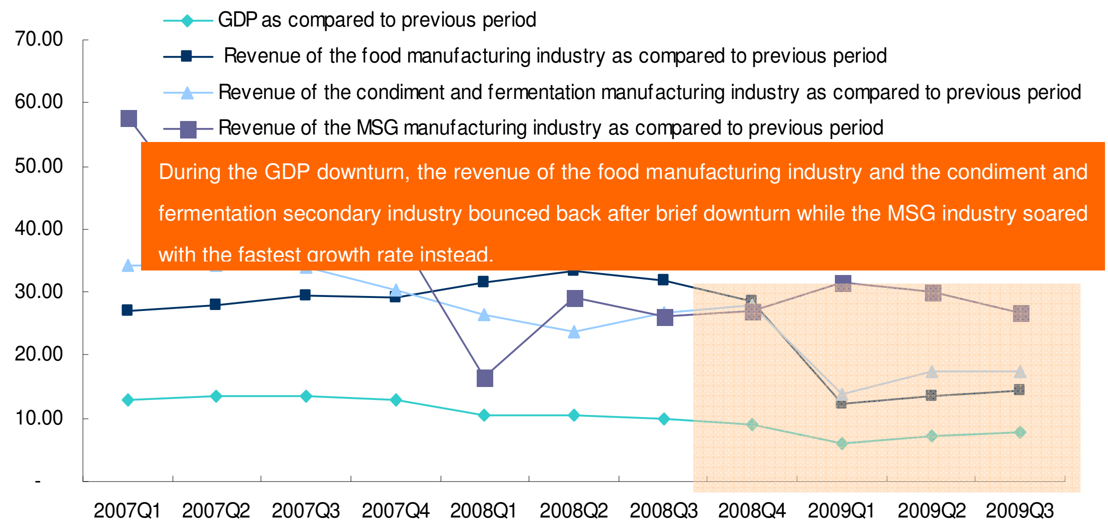
Figure 9: The MSG Industry on the Leading Edge in Economic Recovery



Source of information: Wind and Research Institution of Changjiang Securities

The real consumption merely reflected the situation of demand and as mentioned above: The integration of MSG industry took place from 2006 to the 3rd quarter of 2008. Accordingly, it might be possible that the industry itself also had undergone fluctuation in production capacity. **Furthermore, by means of examining and comparing the economic performance indexes of the industry, we found that the MSG industry had stable performance during the economic fluctuation, and was one of the sub-industries having the most outstanding performance of the food industry.**

Figure 10: The Growth Rate of the MSG Industry Took the Lead in the Food Industry



Source of information: Wind and Research Institution of Changjiang Securities

The following table listed the revenue growth rate of the macro economy, the food manufacturing primary industry, various secondary industries, and the tertiary sub-industries of the condiment and fermentation manufacturing industry. We found that the revenue growth rate of the MSG industry has ranked the first in the industries since 2009.

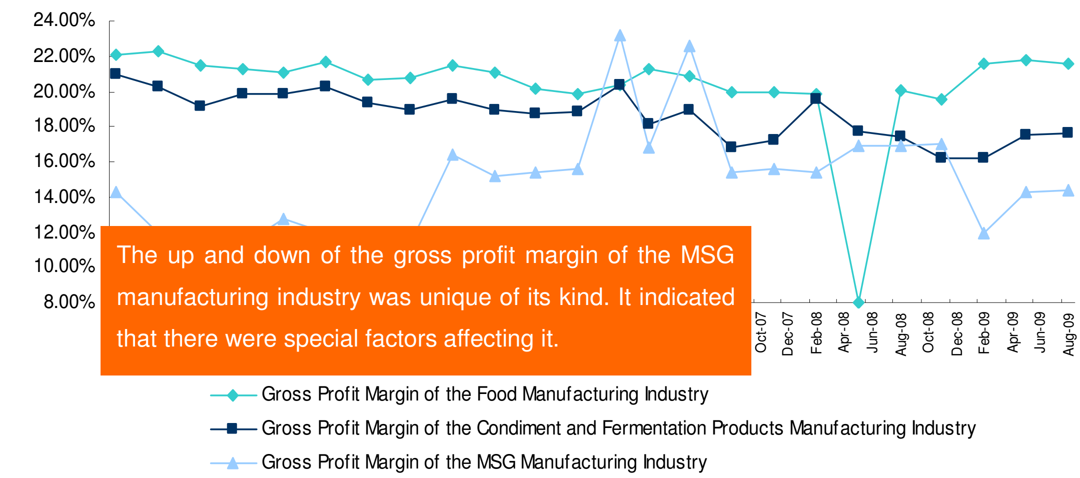
Table 4: Growth Rate of the Food Industry and Sub-industries

Growth Rate As compared to previous Period	Food Mfg.	Baked Food Mfg. Industry	Sweets, Chocolate and Conserves Mfg. Industry	Convenience Food Mfg. Industry	Other Food Mfg. Industries	Canned Food Mfg.	Liquid Milk and Dairy Products Mfg. Industry	Condiment and Fermentation Products Mfg. Industry	Other Condiment And Fermentation Products Mfg. Industry	MSG Mfg.
2009Q1	12.30%	13.25%	13.06%	11.46%	18.77%	18.40%	2.85%	13.88%	6.13%	31.57%
2009Q2	13.47%	13.30%	17.99%	13.36%	17.01%	14.72%	4.87%	17.41%	7.32%	29.96%
2009Q3	14.45%	16.01%	18.87%	15.53%	17.74%	13.88%	5.44%	17.50%	8.71%	26.86%

Source of information: Wind and Research Institution of Changjiang Securities

By examining and checking the gross profit margin index, we also inferred that: The MSG industry had its own profit model and regular pattern. This kind of cycle was different from our so-called macroeconomic cycle.

Figure 11: Variations of the Industry Gross Profit Margin



Source of information: Wind and Research Institution of Changjiang Securities

Existing Growth Capability

In Mainland China, in spite of the competition in the condiments of the second generation and the third generation, however, we are of the opinion that the MSG industry will not decline accordingly. On the contrary, we believe that the growth momentum of the new empire of glutamic acid and MSG still exists. At the present stage, the demand structure of MSG can be classified roughly into three aspects: The food processing industry consumes around 50% of the MSG supply; the catering industry consumes 30% and the household consumption takes 20% approximately. The growth of these three channels will become the momentum of motivating the market development of condiments.

- The Food Manufacturing Industry

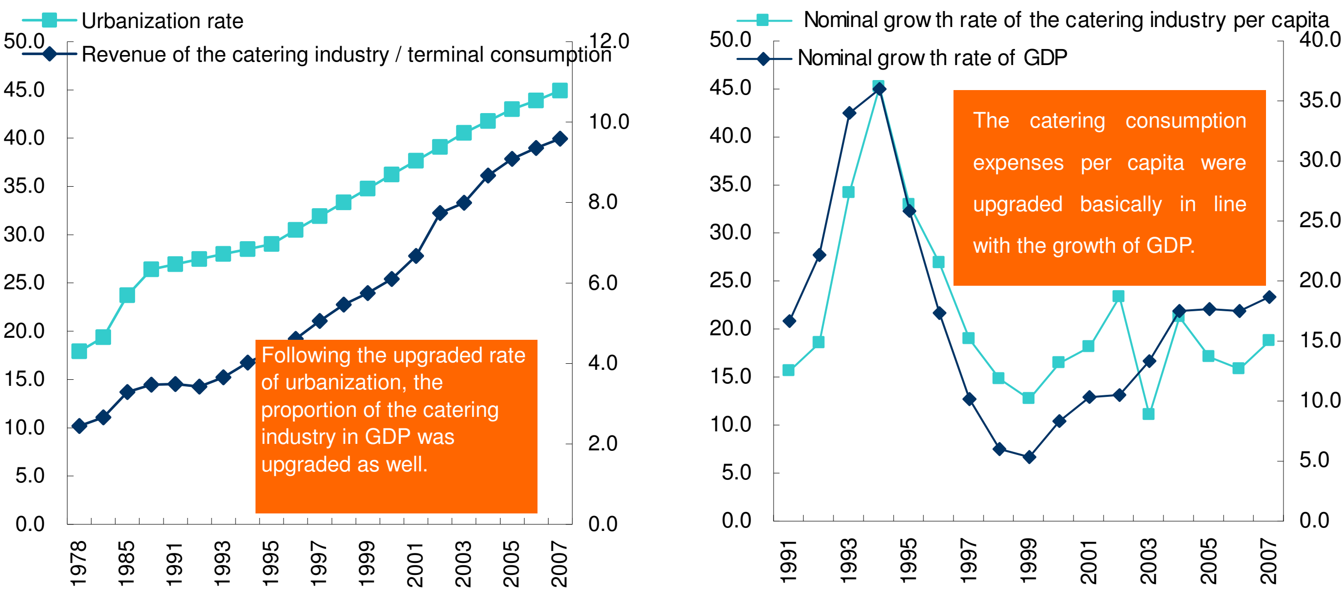
  In the food manufacturing industry, MSG is mainly used in: the convenience food such as the convenience noodle, the hot pot base, the pickles, the fast frozen food, the aquatic products, and the meat products, as well as the composite flavouring agents such as the chicken essence, the chicken powder, various kinds of soup broth, the flavour enhancer, and the sauce.

  In the first eight months of 2009, the food manufacturing industry has managed to offset the adverse effects of the financial crisis. It brought about the revenue of RMB541.81 billion from its major business, with a growth of 14.5% as compared to previous period. At the same time, the condiment and fermentation manufacturing industry brought about the revenue of RMB77.58 billion from its major business with a growth of 17.5% as compared to previous period. In particular, the MSG manufacturing industry brought about the revenue of RMB23.93 billion from its major business with a growth of 26.86% as compared to previous period. In comparison with previous period, the GDP achieved the goal of 8% in 2009. The resistance to the cyclical life of the food industry has become the important security for the growth of the MSG industry.

- Terminal Catering

  As at August, the total consumption of China's nation-wide catering industry reached RMB1,133.2 billion, with a growth of 17.8% as compared to previous period. This figure was already RMB27.7 billion higher than the accumulated amount of the first nine months in 2008. According to the statistics, out of the consumption of terminal catering, 10% of the amount was used to purchase the condiments. **The experience showed explicitly that the "explosive" catering industry was closely related to the level of economic development, particularly the level of urbanization. The extension of our economic development and urbanization process would continue to provide the catering industry with the opportunity to grow.** On the other hand, the competition in the catering industry was the competition between taste and flavour to a certain level. Hence, the condiments formed an integral part.

Figure 12: Upgraded Urbanization Gave Birth to the Development of the Catering Industry: The Consumption per Capita Soared Correspondingly



Source of information: Wind, CEIC, and Research Institution of Changjiang Securities

- Household Consumption

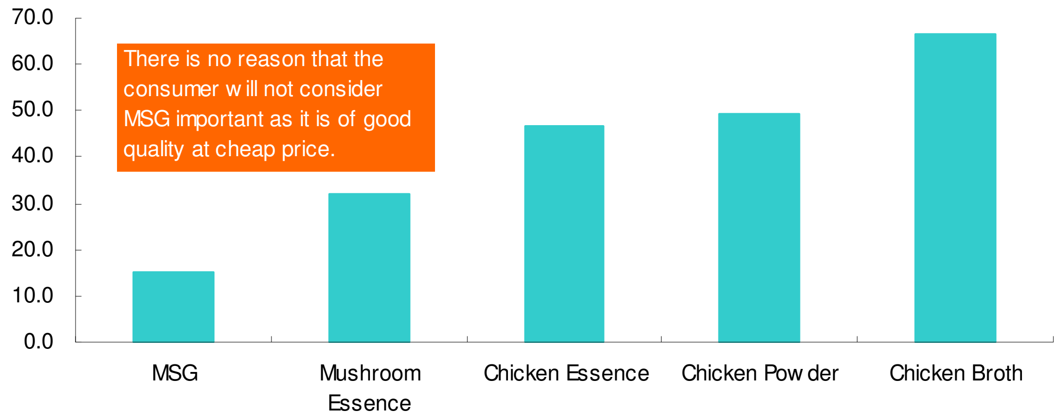
Household consumption refers mainly to the daily household demand. It is mainly achieved through the terminal channels such as the supermarket and the retail. Following the upgrade trend of condiments, the growth of the MSG industry in the individual household consumption domain is mainly due to the diversified economic models in China. At present, the demand of condiments including the chicken essence and the chicken powder of later generation grows faster in the developed economic regions in Eastern and Southern China. It also shows explicitly that there is still room for the market of traditional condiments in the less developed economic regions such as Central China and Western China.

On the other hand, following the collapse* of the theory that MSG is harmful, the

* In 1973, the FAO/WHO Codex Alimentarius Commission (CAC) of the United Nations included MSG under Category A (1) of Food Additives fully approved by the Joint FAO/WHO Expert Committee on Food Additives of the United Nations. In 1987, "the cancellation of the stipulation on the limit of MSG consumption" was adopted during the 19th Session of the FAO/WHO Codex Committee on Food Additives convened of the United Nations in Hague. That is, it does not require any maximum limit at all and can be used according to the food processing needs as far as possible. The Food and Drug Administration of the U. S. A., after collecting over 9,000 types of literatures and experiment data, proceeded with a further experiment on animals with a conclusion that long-term consumption of MSG constituted no hindrance to mankind subjected to the current dosage and method. In 1999, China completed the pathological experiment concerning

consumer's choice of condiments has become more rational. MSG, as the most mature flavour enhancer with higher performance-price ratio, will remain to be one of the choices for household consumption.

Figure 13: Comparable Unit Prices of Various Types of Condiments – Performance-price Ratio of MSG Remained the Highest



Source of information: Network and Research Institution of Changjiang Securities

We are of the opinion that the growth rate of around 8% - 10% of the MSG industry is sustainable. **Hence, on the premise that the demand of MSG is still growing stably, we are of the opinion that the accompanying glutamic acid industry will have similar growth rate too.**

Preliminary Conclusion: Who will be the king?

Let us take an inside look into the industry

While the overseas MSG magnates are adjusting their global production layout gradually, the MSG industry is also preparing for reform in China unnoticeably. The forward looking enterprises on the leading edge having taken aggressive possession of the low-cost zones outperformed their counterparts finally in the overwhelming industry integration in 2007. This industry reshuffle has brought about direct result. That is, the number of over one hundred MSG enterprises in early 2007 has decreased to less than twenty by 2008. Obviously, the dominant enterprises have possessed the majority of production capacity. In particular, the top brands have included Fufeng, Meihuo and Lotus. Let us concentrate on the several leading enterprises in the industry. We may find out that it is not surprising at all that they have taken the lead in the industry reshuffle under the guidance of the self-developed regular patterns of the MSG industry.

MSG on long-term basis. The conclusion obtained from the experiment was fully in line with the international one. That is, the consumption of MSG was safe.

In a traditional manufacturing industry, the advantage of competitive cost is the basic momentum for the rapid growth of the enterprise. It is particularly true for the MSG industry. The majority of the domestic MSG enterprises were originally founded in Eastern China or the coastal cities, most of which were located in Eastern China and Northern China. Such layout is capable of obtaining some of the chemical raw materials at low cost, but the most important cost factor for manufacturing MSG should be corn and energy (coal). Obviously, the coastal region in Eastern China is far away from the main domestic cereal producing areas and also without any obvious advantage in the supply of coal. Following the on-going growth in the domestic demand, the enterprises have their own planning for their nation-wide layout. In particular, Fufeng and Meihuo have taken the fastest action. In 2004, Fufeng extended its development to the northwest region. Tong Liao Meihuo Biotechnology Co., Ltd. was incorporated in 2003. Both enterprises shifted their development to the western region almost simultaneously. One can say that the two elite magnates are competing against each other to take the lead. Their judgment has gone beyond that of the domestic enterprises in general. In the subsequent industry reshuffle, both enterprises wiped out the small factories in Eastern China and Southern China in 2007. By expediting their move with aggressive expansion of production capacity and taking over the market not yet filled up, they have managed to become the two biggest enterprises in the industry.

Well, what is the actual situation of the current development of the glutamic acid and MSG industry in Mainland China? Does the industry profit have its own characteristics? What are the critical factors affecting the industry development? We are going to discuss them in the follow-up article.