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# Exchange of Price Information and the Japanese Anti-Monopoly Law

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The Japanese Anti-monopoly Law [Article 18-2] includes a price increase reporting system to oversee conscious parallelism or price leadership in an oligopoly market. We examined the relationship between exchange of price increase information (announcement, practice dates, and increase ratio) and conscious parallelism in Japanese manufacturing industries. We have reached the following conclusions: The leading company took a leadership role in announcement and practice dates and then the subordinate company coordinated or followed soon after the leading one. Examining the difference between the announcement date and the practice date, the subordinate company's difference was smaller than the leading one's. Furthermore, when the subordinate company led an announcement date, it also led the practice date. In many cases the subordinate company's increase ratios were larger than the leading company's. That is to say, the leading company took a leadership role on the announcement date, but the companies that actually necessitated the price increase were the subordinate companies rather than the leading one. We suggest that the anti-trust authority collects the report of minimum profit rate as a reason for price increase in order to make the regulation effective.

*JEL Classification Numbers* : K21, L41, L52

*Key Words* : Anti-Monopoly Law, Price Leadership, Conscious Parallelism

## 1. Introduction

In an oligopoly market, it is easy for major companies to raise their prices simultaneously. If we can prove that such simultaneous price increases were practiced through negotiation or by an agreement among companies, we can punish them as a price cartel. However, without such a concrete method, under interdependence (conscious parallelism) if a company raises the price, another company will do the same. Parallel price increases will be easily practiced. These parallel price increases are called "price leadership" or "conscious parallelism."

There has been a steady flow of papers on price leadership or conscious parallelism since it first appeared in a paper by Stigler (1947). His study was elaborated by Markham (1951) and further was expanded by Lanzillotti (1957) and Bain (1960). The literature on industrial organization has attempted to distinguish its various types according to differences in market structure, behavioral and even historical conditions (Monopolies and Mergers Commission, 1973 ; Schere, 1980). Three types of price leadership are commonly distinguished along with several case studies : dominant price leadership, barometric price leadership and collusive price leadership.

Although close examination shows the distinction to be rather hazy, these three types have been chosen for theoretical analysis. The dominant price leadership model has been employed to estimate the welfare losses due to monopoly power. However, according to Young (1997), the standard dominant price leadership model is not in keeping with a position of relative market power. Since Harberger's (1954) seminal article, there have been numerous estimates to assess welfare loss due to monopoly power. The majority of these estimates suggest that the welfare loss might be regarded as trivial. According to Harberger's estimate (1954), monopoly welfare losses as a percentage of gross output were less than 0.1% for U.S. economy. Recent estimate by Gisser (1986) suggested that these losses for U.S. manufacturing are also slightly greater than 0.1% of GNP. Even though the social costs of monopoly has been estimated as trivial, Young (1997) noted that such a model has not implied the effects of fringe firm's behavior on the dominant firm's power.

According to Markham (1954), barometric price leadership draws its name from the information sharing in the industry concerned. Thereafter, Stigler (1964) analyzed the importance of information. Much literature written after Stigler's paper has attempted to refine the limits of his thesis (see, e.g., Jacquemin and Slade, 1989 ; Shapiro, 1989 ; Tirole, 1988). However, there are other papers which analyze relationships between price leadership and information sharing. Rotemberg and Saloner (1990) analyzes that the firms play a super game and barometric price leadership is explained as just one of many collusive outcomes. Cooper (1996) analyzes potential information asymmetries as a cause of price leadership.

Collusive price leadership refers a market structure where there are only a few firms with high market shares and similar cost functions. The collusion implies that the price raise by a particular firm or group is accepted by the other firms.

There are other analyses of its stability and potential causes for price leadership. Judging from some established studies which theoretically and empirically analyzed price leadership, the price leadership's stability de-

pended on market structures (e.g., market share and cost conditions etc.) of the industry concerned (Ono, 1980 ; Uekusa, 1982 ; Aspremont, et al, 1983). As a cause of price leadership Deneckere *et al.* (1992) and Deneckere and Kovenok (1992) have analyzed the brand loyalty by consumers and the differences in production capacity respectively.

On the other hand, Holthausen (1979) used the risk aversion degree and analyzed theoretically why a particular company is able to play the price leadership role. His conclusion was that the company with a smaller risk aversion degree (or with higher market share) was able to more easily act as the leader than the company with a larger one. When we consider this fact from a realistic viewpoint, his conclusion was that the company with higher market share is able to easily act as the leader. Since, as a company with higher market share has many profitable opportunities in other commodity markets, the risk aversion degree in a particular commodity market is usually small. We consider that the determination factors of risk aversion degree are market structure factors, e.g., the diversification degree of a commodity (or specialization degree), difference of cost, and market share.

The best way to enforce a price leadership is to allow competing firms to directly observe each other's price information. Even if firms do not co-operate in the usual sense of the word, observing each other's price information may clearly reduce the strength of competition, and price competition in oligopoly market frequently results in destructive competition.

If we can prove that such price leadership was practiced through a negotiation or agreement among companies, we can punish them as a price cartel. As we could not prove this without evidence of explicit information exchange, hitherto price raises through price leadership<sup>1)</sup> were difficult to regulate legally. However, price leadership has the same economic abuses as a price cartel, and furthermore, the fact that price leadership occurs among companies with essentially different cost structures, indicates that it is an implicit price cartel.

The Japanese Anti-Monopoly Law (hereafter the JAML) has newly introduced the "parallel price increase reporting system" [Article 18- 2 ] to oversee such price leadership in the 1977, which was also the year the JAML was amended in order to strengthen its regulation effects.<sup>2)</sup> Before this system was enacted, many hidden cartels<sup>3)</sup> (*Yami Karuteru* in Japanese) were frequently

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1) Imamura (1992) analyzed the limits in both cartel regulations under the law and cartel regulation under conscious parallelism. See Posner (1976, pp.42-47) for the conscious parallelism.

2) On the history and content of anti-monopoly policy in Japan, see the Executive Bureau of the Fair Trade Commission (1997), Matsushita (1990, Chapter 1), and Nakagawa (1984, Chapter 5).

3) It was often considered that this system has an indirect aim to control price upswings, but Hatta and Ide, eds., (1989, Chapter 3) found that the JFTC did not always achieve this aim.

formed by large companies during the 1973 oil shocks.

Generally speaking, it is said that the price reporting system or price notification system “by converting otherwise ‘closed price’ markets into ‘open price’ markets, causes the pricing policies that they influence to conform to the general pattern” (Richardson, 1967, p.362). Anti-Monopoly authority hopes that gathering and publishing firm-specific transaction prices will improve information on the buyer side through market transparency, whereby seller competition will be stimulated and average transaction prices pushed down (Albæk, Møllgaard and Overgaard, 1997, p. 432). In 1993 the Danish antitrust authority, the Competition Council, introduced a system to gather and regularly publish such transaction prices for the concrete industry. Albæk, Møllgaard and Overgaard (1997) investigated whether such a system stimulated price competition in the industry concerned or not. As a result of this investigation,<sup>4)</sup> they concluded that “publication of prices allowed firms to reduce the intensity of oligopoly price competition and, hence, led to increased prices contrary to the aim of the authority” (Albæk, Møllgaard and Overgaard, 1997, p. 429).

The JAML has regulated cartels and parallel actions among companies. The definition of cartels is provided in Article 2 ( 6 ). The latter part of Article 3 prohibits an unreasonable restraint of trade (that is, cartels) among independent companies. Article 8 prohibits cartels through trade associations. On the other hand, parallel actions or Article 18-2, which is called the “reporting system on parallel price increases,” regulates tacit collusions other than cartels. By means of this reporting system, the Japanese Fair Trade Commission (hereafter the JFTC) has collected this price increase information : the reason for price increases, announcement dates, practice dates, and increase ratios.

Masuda (1998) surveyed the literature of industrial organization on price leadership and conscious parallelism, then examined the relationship between conscious parallelism and the anti-monopoly policy of Japan. In this paper, we pay attention to the announcement dates that are an exchange of information to promote conscious parallelism. When a specified company announces in advance price increase information, by thus reducing an uncertainty to a meeting of minds, the other companies can mutually coordinate the practice date and increase ratio. That is to say, we can understand that pre-announcement

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4) Fuller et al. (1990) and Schmitz and Fuller (1995) supported this finding. They have examined the effects of contract disclosure legislation passed by the US Congress on US railroad freight rates. They concluded that contract disclosure facilitated rate coordination and, hence, led to an increased rate. See Albæk, Møllgaard, and Overgaard 1997, p. 441. The author received the above two papers (1990 and 1995) from Professor P. B. Overgaard.

of such information results in “a communication of intention” to parallel actions.

In the next section, we will consider the definition of cartel in the Anti-Monopoly Law. In section 3, we will interpret the definition of conscious parallelism in the Anti-Monopoly Law [Article 18-2]. In section 4, we will investigate conscious parallelism in Japanese manufacturing industries. We have concluded that the leading company took a leadership role in announcement and practice dates and then the subordinate company coordinated or followed soon after the leading one. There were many cases that the subordinate company's increase ratios were larger than the leading company's. When examining differences between announcement dates and practice dates, the subordinate company's difference was smaller than the leading one. Furthermore, when the subordinate company leads an announcement date, the company concerned also leads the practice date. In other words, the leading company took a leadership role on the announcement date, but the companies that actually necessitated the price increase were the subordinate companies rather than the leading one. Finally, section 5 contains some concluding remarks.

## **2. Definition of Cartel by the Japanese Anti-Monopoly Law**

### **2.1 Definition**

In this section, we consider the difference between cartels defined by the law and conscious parallelism. The JAML prohibits an unreasonable restraint of trade among companies in the latter part of Article 3 and prescribed its definition in Article 2 (6).

Article 2 (6) is often understood by dividing it into two parts. The term unreasonable restraint of trade as used in the JAML (i) shall mean that any entrepreneur, by contract, agreement or any other concerted actions, irrespective of the names, with other entrepreneurs, mutually restrict or conduct their business activities in such a manner as to fix, maintain, or increase prices, or to limit production, technology, products, facilities, or customers or suppliers, (ii) thereby restraining, contrary to the public interest, substantially competition in any particular field of trade (Nakagawa, 1984, p. 5. This division is due to Masuda. ).

The former part (i) defines cooperation methods and illegal action types. In addition, the latter divides into two parts : concerted actions among various companies, its contents, mutual restriction, and concerted execution. The latter part (ii) describes the performance of cartels on market mechanisms.

According to this definition, a cartel is : (1) concerted activity among companies by means of a contract, agreement, or understanding, which (2) mutually restricts their business activities, (3) fixes prices, limits production

and other terms of business, and (4) which causes, contrary to the public interest, a substantial restraint of trade in any particular field of trade (Matsushita, 1990, p.38).

A plausible reason that cartels have been prohibited is not any illegal action itself, but because it obstructs the market competitive function. In this case, the public interest signifies market performances (high quality, low price level, and an innovation etc.) from maintaining competitive order. When the market mechanism is obstructed by any cartel, the public interest is incidental to the maintaining of competitive order.

Law defined cartels imply that, based on identification methods (contact and agreement etc.) of intention which were predetermined among independent companies, the cartel member itself was mutually restricted by an identification method, furthermore they executed its contents, and thus resulted in market dominance.

According to this definition, the JFTC confirms not only parallel conduct among companies, but also needs to prove an existence of communication of intention that was predetermined among companies.

In the 1949 Yuasa Mokuzai JFTC decision, which involved a typical case of concerted action based on tacit collusion, the JFTC judged that in order to prove concerted action, it is not only sufficient to just confirm an existence of parallel conduct but also an existence of any "communication of intention" among companies.

In practice, a "communication of intention" also equals any implicit evidence (an atmosphere of consensus) concerning the possibility of illegal conduct except an explicit contract, agreement, record of meeting and communication of intention by phone or verbally.

In this case, the JFTC judged that when a certain company expects another's reaction and thus takes a parallel action intentionally in concert with the latter, such an action among companies is attributable to a communication of intention. That is to say, the JFTC has judged that an agreement exists provided there is evidence to show that companies mutually communicated their intentions concerning their competitive conduct even if there is no proof of an agreement in the strict sense of there being "a meeting of minds" (Matsushita, 1990, pp.43-44).

Conscious parallelism signifies that companies intend or recognize interdependence, but do not mutually communicate an intention of parallel conduct. For example, a certain company expects the other's reaction, but does not take a parallel action intentionally, and as a result of independent decision-making, companies increased their prices simultaneously. It is often said that a certain company expects the other company's conjectural variations to its price or pro-

duction change, and as a result of conjunction with competitive intention, their prices increase by an identical or similar amount or percentage.

Price competition in oligopoly market originates from uncertainty that remains in expecting conjunctive reaction mutually. “Communication of intention” allows companies to reduce this uncertainty to act in concert with price manipulation. When companies take any communication of intention to reduce this uncertainty, we can guess that such an action has the characteristics of a cartel. That is to say, parallel conduct alone is not sufficient to constitute evidence of a cartel. If there is no evidence showing an exchange of information or communication of intention among companies, one of the requirements of Article 2(6) is lacking. In addition, conscious parallelism lacks the requirement of “mutual restriction” and “substantial restraint of competition.” Because companies do not mutually communicate their intentions relating to their competitive conduct, they are not restricted mutually and do not have competition restrictive intentions. It is recognized that using an uncertainty as a competitive strategy method resulted in a small difference of price increase ratio and date among companies.

As the upside of the kinked point in the kinked demand curve shows, a company with competitive intentions expects that the possibility of the other company following the price increase will be small. However, sending and receiving a signal (a communication of intention) to reduce uncertainty, a kinked point does not occur as Stigler (1947) analyzed. Therefore, when the JFTC judges conscious parallelism as a cartel, it is necessary to prove an existence of communication of intention to reduce uncertainty.

## 2.2 The Number of Cartel Cases

The JAML prohibits three basic categories of conduct, namely, (1) private monopolization (the former part of Article 3), (2) cartels or unreasonable restraint of trade (the latter part of Article 3 and Article 8-1(1)), and (3) unfair trade practices (Article 19). Although the JAML includes provisions dealing with various other kinds of economic conduct, each can be classified into one of the above three categories. (Matsushita, 1990, p. 5.)

Table 1 shows the number of decisions after the JAML was enacted in 1947. The number of cartel decisions increased in the 1960s during the rapid growth era. The number reached the peak in the period 1970-1979 during the two oil shocks of 1973 and 1978. After the second oil shock, the numbers of the latter of Article 3 and Article 8-1(1) decreased suddenly. This is due to the enactment of the reporting system on parallel price increase and the surcharge payment system<sup>5)</sup> on cartels.

5) Masuda (1996a) analyzed the effects of surcharge payment system on cartel regulation.

The number of the latter part of Article 3 decisions increased before and after 1980. On the other hand, the number of Article 8 decisions has decreased, due to the change of applied articles. Many cases relating to trade associations were disposed with Article 8 - 1 ( 1 ) as “substantially restraining competition in any particular field of trade” until 1972. However, after this year, many cases were disposed of with the latter part of Article 3 as “unreasonable restraint of trade” by the constituent entrepreneurs. For these reasons, the number of latter part of Article 3 decisions has increased gradually. After 1980, the number of decisions reversed between Article 8 and the latter part of Article 3. In recent years the number of cartel decisions has tended to increase. This is because, according to the Structural Impediments Initiative<sup>6)</sup> in 1990, the JFTC has strengthened its cartel regulation.

Table 1 . The Number of Decisions by the Japanese FTC

Article ∖ Year	Former Part of Article 3	Latter Part of Article 3	Article 8 - 1 ( 1 )	Article 19	Total
1947–1952	3	45	52*	27	75**
1953–1959	2	9	5	12	28
1960–1969	0	23	110	26	159
1970–1979	1	114	152	27	294
1980–1989	0	37	23	29	89
1990–1994	0	68	33	25	126
<b>Total</b>	6	296	323**	146	771

Notes. \* : This figure is the number of total Article 8 decisions that were judged by the Trade Associations Law.

\*\* : These figures do not include the actual figures during the period 1947-1952.

Article 3 : Prohibition of private monopolization (Former part) or unreasonable restraint of trade (Latter part).

Article 8 - 1 ( 1 ) : Substantially restraining competition in any particular field of trade.

Article 19 : Prohibition of unfair trade practices.

Sources : *Japanese Fair Trade Commission, Annual Report, and Japanese Fair Trade Commission, Decision Reporter.*

### 3. Definition of Conscious Parallelism by the Anti-Monopoly Law

#### 3.1 The Details of the Report Collecting System

Conscious parallelism by Article 18- 2 is sensitive to the interdependence in price setting, but it is oligopoly price setting under situations that do not

6) Contents of agreement concerning JAML can briefly be summarized as follows : It was (i) to increase budget and the number of personnel of investigation department, (ii) to ensure transparency of the JFTC enforcement process, and (iii) to raise the surcharges. Furthermore, the JFTC takes a positive attitude to (iv) criminal penalties, (v) damage remedy suits, and (vi) deterrence of bid-rigging cases.

mutually communicate an intention of parallel action. The article defined market structure with considerable interdependence (that is, market structure requirements) and parallel action (report collecting requirements).

In a market under the following market structure requirements, when major companies raise their prices simultaneously and satisfy the report collecting requirements, the JFTC can order such companies to provide it with reasons justifying the price increase.

**(a) The Market Structure Requirements**

The total prices of goods (this term refers to the price of goods minus the amount of taxes directly levied on them) of the same description or the total prices of services (this refers to the price of the services minus the amount equivalent to the amount of taxes levied on the recipients of such services) of the same description supplied in Japan (excluding those exported) during a one-year period designated by the Cabinet Ordinance, is in excess of 30 billion yen (60 billion yen after July 24, 1993), and the ratio of the total amount of such goods or services supplied by the three largest companies in terms of volume of supply to the aggregate volume of such goods or services of the same description supplied in Japan during such a one-year period exceed 70% (Nakagawa, 1984, p. 22).

**(b) Parallel Action (Report Collecting Requirements)**

Two or more major companies including the largest one (this term means the five companies each of which account for 5 % or more of the aggregate volume and rank among the five largest companies in Japan) raise the price they use as the basis of their transactions in such goods or services of the same description by an identical or similar amount or percentage within a period of 3 months (Nakagawa, 1984, p. 22).

### **3.2 Implications of Requirements**

In the event the above market structure requirements are satisfied, the JFTC inserts the item concerned into a separate table of application standards and supervises it.

Market structure requirements prescribe, in advance, such a market that conscious parallelism can be easily practiced. Companies that this requirement applies to are mainly big companies which belong to a highly concentrated oligopolistic industry, in which effective competition does not fully work. A significant feature of the report collecting requirements is that it is not necessary for the leading company to first raise its price. For example, after a subordinate company first raises its price, if the leading company follows such a

subordinate, the period covered will be a period of 6 months before and after this date, as we standardize the date which the leading company raises its price. As a result, this provision regulates not only dominant price leadership,<sup>7)</sup> but also barometric. As a reason why this provision accounts for much of the leading company's price increase, we can consider the following : even if a subordinate company expresses its price increase, if the leading company that occupies the largest market share (and thus holds substantial pricing power in the industry concerned) does not follow the subordinate, this provision assumes that price competition still exists in the market.

In addition to the current quotation (*Tatene* or *Kakaku Teian* in Japanese), wholesale and retail prices, the following case also will be the price covered : when the transaction is performed through an alternation of the discount rate from the current quotation, it is often the case that the current quotation is still fixed, but the discount rate is reduced. In such a case, this provision regards this reduction of discount rate as the price increase. Asahi Garasu Kabushiki Gaisha and Nihon Denki Garasu Kabushiki Gaisha adopted this method when raising the price of cathode ray pipe glass valves. In another case, when the standard price is fixed and then the volume is reduced, this provision regards this reduction as the essential price increase. Morinaga Nyugyo Kabushiki Gaisha adopted this method when raising the price of condensed milk. However, when an objective cause of price increase is obvious, such cases are excluded (for example, the price increases incident to the increase of the authorized price in which the increase is admitted by law or to the increase of excise and liquor taxes). Furthermore, when the domestic market is directly connected with the market price of an internationally traded commodity and where a price increase in the former market is an identical or similar amount or percentage with an increase in the latter one, this provision does not regard such an increase as a parallel price increase.

An identical or similar amount or percentage is said to make up the following difference : comparing the amount or percentage of increase of the leading company with that of subordinate one, the difference is the degree that it does not cause customer movement to occur. Generally, in manufactured goods where the difference of quality is less, it is said to be about 10%. In consumer's goods where the product differentiation is significant, it is said to be about 20-30%. However, these differences depend entirely on the circumstances.

This is also simply a reporting system that does not involve any substantial control over corporate behavior. However, in view of the fact that compa-

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7) On an empirical study of price leadership, refer to Masuda (1996a ; 1996b, and 1998).

nies usually do not wish to submit detailed financial data to the JFTC, this system serves as a deterrent to simultaneous price increases by companies in an oligopoly market. The JFTC specifies in advance the items covered based on the market structure requirements every fiscal year, and when any of those items have parallel price increases, the JFTC merely asks for the reasons for the price increase and do not inquire whether the companies concerned came to a mutual understanding or not, moreover, it does not force them to return to the previous price level. The JFTC gathers reasons relating to such pricing from the companies concerned, and then sends its outline as the *Annual Report* (*Nenji Hokoku* in Japanese) to the National Diet and thereafter publishes a *White Paper* open to the public. Through this procedure, the JFTC exposes the companies concerned to social criticism and encourages self-restraint with regard to irrational parallel price increase. However, since this system was enacted, it has been often appraised as merely justifying the companies to increase their prices cooperatively, provided that the JFTC does not monitor the primary element of pricing. We can thus assume that this provision has many limitations with regard to the regulation of parallel price increases.

### 3.3 The Number of Report Collecting Items

Before this price increase reporting system was enacted in 1977, during the 1973 oil shock, many hidden cartels (*Yami Karuteru* in Japanese) were formed frequently by large companies.

Table 2 shows the trend of report collecting item numbers. Until 1995, the number of the items covered has increased from 49 to 86, the accumulated numbers that the JFTC collected as reasons for the price increase was 71 items, and the number of companies was 238.

After the first oil shock, when raw material costs suddenly rose, price cartel cases frequently occurred. However, after the second oil shock in 1978, as the JFTC applied this system for many items or companies, the cartel cases reduced suddenly as shown in Table 1 ; this fact signifies that in the domestic market, which was linked directly with the market price of internationally traded commodities, the parallel price increases that were practiced by an identical or similar amount or percentage with the increase in the latter market have been permitted since this system was enacted. Such cases contradict the main objective of this system that intends to regulate administrated price behavior in oligopoly industries ; therefore, it may be necessary to improve the system. Because, the rise in market price of an internationally traded commodity is often absorbed through the rationalization effort in the domestic market.

Table 2 . Report Collecting Items

Cases · Items \ Year	1977	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
The Number of Items Covered*	49	56	56	67	67	61	61	68	68	68	74	74	74	74	83	83	87	87	86
of which Collected Items Numbers**	0	2	5	20	1	7	3	3	3	1	0	0	1	3	4	8	7	2	1
The Number of Companies Covered	0	6	13	70	2	25	9	11	7	4	0	0	5	11	13	30	23	7	2

Notes : \* This is the report collecting item numbers that the Japanese FTC specified in advance every fiscal year.

\*\* This figure shows that the Japanese FTC ordered the report every fiscal year.

Source : The data in the following Tables is calculated from the *Annual Report* unless otherwise noted.

## 4. Empirical Study of Conscious Parallelism

### 4.1 Cooperative Intention – Case Study –

We divide companies into two categories according to the *JFTC Annual Report*, one for the leading company with the largest market share within an industry, the other is for the subordinating companies. Many reasons for parallel price increases were due to cost increases : material, selling and general administration costs. However, there are some examples that companies increased literally with cooperative intention. For example, in the following three examples (see Tables 3 , 4 and 5 ) every subordinate company reported that in determining price increase ratio, they took into consideration the leading company's pricing behavior.

#### (1) Beer Industry in 1993

The leading Company : Kirin Brewery\*

The subordinate companies : Asahi Breweries, Sapporo Breweries, and Suntory

Every company reported the common reason that the liquor tax of beer products was raised to 14,008 yen (including excise tax) per kiloliter, they also reported that they would shift an increased tax to their selling prices. Determining the increase ratio, every subordinate company took into consideration Kirin's pricing as the leading company. That is, Asahi Breweries and Suntory followed Kirin for every product, and Sapporo Breweries took into consideration Kirin's pricing.

#### (2) Polished Plate Glass Industry in 1994

The leading company : Asahi Garasu\*

The subordinate companies : Nihon Itagarasu and Sentoral Garasu

The common price increase reason among companies was that it was necessary to evade a deficit in the plate glass sector because of selling price de-

creases. However, the subordinate company Nihon Itagarasu reported that in determining its selling price to secure a gross profit on sales, it took into consideration Asahi Garasu's pricing as the leading company.

### (3) Instant Coffee Industry in 1995

The leading company : Nesure Nippon\*

The subordinate company : AGF (Aginomoto General Foods)

The leading company Nesure Nippon, on examination of securing the same operating profit ratio as last year, and estimating a reasonable price level which was acceptable to consumers, reported that increase ratios in producer's price and retailer's recommended price averaged 12.89% and 13.11% respectively.

On the other hand, the subordinate company AGF, after investigating an average of expected revenues from October 1994 to March 1995 equalized to average revenue for the past three years (April 1991 to March 1994), reported that as a result of worrying price reduction in the leading company's rival goods, it could not help setting increase ratios of producer's price and retailer's recommended price by an average of 12.90% and 13.12% respectively.

Table 3 . Price Increase in Beer Industry

	Announcement date · Notification date to Client	Increase Practice date	Increase ratio <sup>1)</sup>
*Kirin	April 12, 1994.	May 1 .	Same ratio
Asahi	April 18, 1994.	May 1 .	Same ratio
Sapporo	April 19, 1994.	May 1 .	Same ratio
Suntory	April 19, 1994.	May 1 .	Same ratio

Note. 1) Price increase ratio of 4 companies was the same one in every beer products (ex. big, middle and small bottled beer, and canned beer).

Source : *The Annual Report*, 1993, p. 149.

Table 4 . Price Increase in Polished Plate Glass Industry

	Price Negotiation Starting Time	Predetermined time	Increase Practice date	Increase Ratio
*Asahi Garasu	the latter part of May, 1994.	Practice before shipment of July 1.	June 10.	6.6%
Nihon Itagarasu	the beginning of August, 1994.	Practice before shipment of October 1.	September 1.	4.5
Sentoral Garasu	the middle of July, 1994.	Practice from shipment of August 1.	August 1.	4.8

Source : *The Annual Report*, 1994, p. 127.

Table 5 . Price Increase in Instant Coffee Industry

	Announcement Date	Notification Date to Client	Increase Practice Date	Increase Ratio	
				Producer's Price	Retailer's Recommendation Price
*Nesure Nippon	December 5, 1994.	December 5, 1994.	January 1, 1995.	12.89%	13.11%
AGF	December 9, 1994.	December 9, 1994.	January 1, 1995.	12.90	13.12

Source : *The Annual Report*, 1994, p. 129.

Common features in every example were that the leading company acted as a leader in both announcement date and notification date to client. In observing practice dates, the leading company acted as a leader only in the polished plate glass industry, and the leading and subordinate companies were the same dates in the other two industries. In the polished plate glass industry, the leading company's increase ratio was larger than the subordinate's, but the subordinate company's increase ratio is larger than the leading's one in the instant coffee industry ; however, the difference was only 0.01%. In the beer industry, the leading's and subordinate's increase ratios were the same.

Judging from the determination process of the subordinate company's increase ratio, we can understand that the first announcement by the leading company functioned as a signal ("a communication of intention") to cooperative price increase in the industry concerned.

In above examples, as the leading company acted as a leader in both the announcement date and notification date to client, the subordinate company can coordinate with the leading one. Whether leading or subordinate companies acted as a leader in announcement date, such "a communication of intention" will be possible. Therefore, investigating the parallel price increase on announcement date, we can judge the formation of "a communication of intention" or "a mutual good understanding."

#### 4.2 Conscious Parallelism – An Empirical Study –

In an oligopoly market with considerable interdependence, pre-announcement of price increase information would become not only a means to promote price competition, but also "a communication of intention" to coordinate mutually. That is, such an announcement would operate as a competitive strategy weapon through reducing market uncertainty, but also a cooperative strategy. Through a specified company's announcement in the industry concerned, the other companies can mutually coordinate their increase practice date and increase ratio ; however, we cannot say that it has operated as either strategy weapon. When a company sends some signals to the other companies, in order to make such parallel actions effective, the industry concerned had better reduce the follower's differences in announcement date, practice date and in-

crease ratio. This is because, as such differences enlarge, market uncertainty also increases and thus a cooperative order within the business sector will change for the worse. In this section, we pay attention to such follower's differences.

The period of analysis is from 1990 to 1995 ; the data source is the *Annual Report*. The data was for price increase announcement date, notification date to client, increase practice date, and increase ratio. The number of items<sup>8)</sup> and companies covered were 25 and 86 respectively.

### (1) Parallel Action of Announcement Date

In 23 items which we can find the announcement date or negotiation starting time to client, the leading company led such dates in 15 items, and the subordinate companies did so in 8 items. The leading company led its announcement date in 14 cases except in the polished plate glass industry, for which the date is not confirmed, and then differences between the leading company's date and the subordinate's latest date averaged 29.5 days, the minimum following period was 3 days, the longest following period was 112 days. The standard deviation (and variation coefficient) of differences was 34.278 (and 1.162).

On the other hand, the subordinate companies led the announcement date in 8 cases, and then differences between the specified subordinate company's date and either the leading or other subordinate's latest day averaged 54.6 days, the minimum following period was 3 days, and the longest following period was 157 days. The standard deviation (and variation coefficient) of differences was 57.691 (and 7.211). As a result, when the leading company acted as a leader in announcement date, both following differences and variation coefficients were small.

### (2) Parallel Action of Practice Date

We can find the practice date in 19 items. We observe that the leading companies led the practice date in 11 items, in which the leading companies genuinely led 6 items, and the leading and subordinate companies led 5 items with the same date.

On the other hand, the subordinate companies led the date in 8 items, in

8) The items covered is as following. Mayonnaise · Dressing, Tire and Tube (Motor Vehicle), Cathode Ray Pipe Glass Valve, Cast Iron Pipe, Bus · Truck Chassis, Cold-Rolled Electrical Steel Belting, Ordinary Steel (Piping), High-Strength Tension Steel, Tinplate, Fluorescent Lamp Appliances, Forklifts, Passenger Cars (Ordinary · Compact), Ventilation Fans, Rice-Planting Machines, Combine Harvesters, Farm Tractors, Dry Cells (Battery), Polished Plate Glass, Instant Coffee, \*Ham and Sausage (Fish Meat), \*Beer, and \*Daily Newspapers (Nationwide). \* : These items reported the reason for price increase twice during the period of analysis.

which an individual subordinate led 5 items, and other subordinate ones led 3 items with the same date.

The following differences (the last increase date minus the first increase date) of 6 items, which was genuinely led by the leading company, averaged about 43 days. Such a following difference of 5 items, which was genuinely led by the subordinate companies, was about 56.4 days.

### (3) Difference between Announcement Date and Practice Date

When we calculated differences between announcement date and practice date in a total of 59 cases, it averaged about 43.4 days. Such differences of 30 cases, which shows the leading company announced the date faster than the subordinate, averaged about 53.3 days. Such differences of 29 cases, which shows the subordinate company's announcement was faster than the leading, averaged about 33.1 days. The shortest difference was 1 day, while the longest was 196 days.

There were no cases where the price increase was practiced simultaneously at the announcement date, and in any case, practice date was always notified to the client or predetermined in the announcement date.

Table 6 shows that 38 cases (about 64.4%) of total cases were practiced within about one month from announcement date. Mode of difference days was 11-15 days.

Table 6 . Distribution of Differences between  
Announcement Date and Practice Date

1 ~ 5	days	5
6 ~ 10		5
11 ~ 15		9
16 ~ 20		6
21 ~ 25		6
26 ~ 30		7
31 ~ 35		3
36 ~ 50		4
56 ~ 75		4
100 ~ 130		6
165 ~ 196		4
<b>Total</b>		<b>59</b>

Source : *The Annual Report, annual edition.*

#### **(4) Announcement Date, Practice Date, and Coordination of Price Increase**

The upper column in the Table 7 shows the relationship between announcement date and practice date. The leading company frequently led practice date at the same time as an announcement date, but in some cases the subordinate company led or was on the same date as the leading one.

In contrast, when the subordinate company led an announcement date, the company concerned always led the practice date. This signifies that the subordinate company's price increase was urgent, and thus the practice date became faster than the leading one.

The lower column shows the relationship between leader of announcement or practice dates, and the increase ratio. Observing both announcement and practice dates, there were many cases where the subordinate company's increase ratios ( $\triangle$ ) were larger than the leading company's ( $\bullet$ ). In other words, the leading company took a leadership role on announcement date, but the companies that actually necessitated the price increase were the subordinate companies.

### **5. Concluding Remarks**

We examined the relationship between exchange of price increase information (announcement, practice dates, and increase ratio) and conscious parallelism in Japanese manufacturing industries. We have reached the following conclusions :

The leading company took a leadership role in announcement and practice dates and then the subordinate company coordinated or followed soon after the leading. However, when we examine differences between announcement dates and practice dates, the subordinate company's difference was smaller than the leading. Furthermore, when the subordinate company led an announcement date, the company concerned also led the practice date. Irrespective of leaders, the subordinate company's increase ratio was larger than the leading company in many cases. That is to say, the leading company took a leadership role for the announcement date, but the companies that actually necessitated the price increase were the subordinate companies rather than the leading.

However, without a communication of intention, the price increase dates and increase ratios frequently approximate to be the same among companies. For example, Bain (1968) mentioned that when every company adopts the full-cost principle as the "common accounting system," and if the common cost factor among companies changes by the same degree, a parallel price increase becomes feasible. The price setting system of the industries covered in this pa-

Table 7 . Announcement Date, Practice Date, and Coordination of Price Increase

Date		Leading	Subordinate	Same	Unknown
Announcement\Practice		Leading	Subordinate	Same	Unknown
Leading		6	2	4	4
Subordinate		—	6	1	—
Leader\ Increase Ratio		●	△	Same	
Announcement Date	Leading	0.78 [ 6 ]	0.92 [ 6 ]	[ 2 ]	
	Subordinate	0.77 [ 1 ]	1.92 [ 6 ]	—	
Practice Date	Leading	1.3 [ 2 ]	1.17 [ 3 ]	—	
	Subordinate	0.1 [ 1 ]	1.7 [ 7 ]	—	
	Identical	0.59 [ 2 ]	0.81 [ 2 ]	[ 1 ]	

Notes. Leading shows that the leading company acts as a leader both announcement date and practice date, and then the subordinate follows the leader's increase date.

Subordinate shows that the subordinate company takes the leadership role in date and the leading one follows the subordinate's increase date.

● : the leading company's increase ratio is larger than the subordinate's.

△ : the subordinate company's increase ratio is larger than the leading company's.

[ ] : The number of samples.

We excluded the same date and ratio in calculating the average value. The figures used are only the confirmable ones. Many of unknowns are the steel products.

Source : *The Annual Report, annual edition.*

per is clearly the full-cost principle<sup>9)</sup>. The full-cost principle<sup>10)</sup> shows that approximation of price level among companies depends on the common cost factor and the minimum profit rate. Therefore, the JFTC needs to collect the report of minimum profit rate as a reason for price increase.

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9) The price setting system in these industries is clearly the full-cost principle. For example, Arai (1992) examined parallel price increases during the period December 1977-February 1992, and then classified the reasons (250 cases) for price increases by causes. Many reasons were due to cost increases, which held first rank, and occupied 54.4% (138 cases) of the total cases. Improvement of revenue and revision of profit rate, which require an increase in the mark-up ratio to secure normal profit in the full-cost principle, held 11.2% (28 cases). Including other costs, reasons for cost increases held 94.8% (237 cases) of the total cases.

10) Refer to Masuda (1996b) pp. 85-86.

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