# Five Essays on Antitrust Economics

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Contents

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This monograph is designed to serve as a fragment of antitrust economics, mainly applied economics to Japanese cases. In the United States, there is a useful precedent, Kwoka and White (2004), "The Antitrust Revolution," which provides a description of recent antitrust cases written by economists who were involved in them. The book supplies insight into economists' thinking, evaluation of economic evidence, and economic influences.

This monograph has two features in common with the book: First, it is the first antitrust economics analytical study of the Japanese situation. Japanese competition law and policy have almost a 60-year history, but I believe that this type of economic analysis approach has been used previously only by Miwa (1982). Each chapter of this monograph provides an economic perspective on an interesting industry and the policy issues that it raises in contemporary Japan. Second, it includes policy implication in detail. The Japanese Antimonopoly Act has many unique and complicated systems. Therefore, it is difficult to apply economic theory directly and to suggest adequate policy implication for law enforcement; however, the author presents an organized evaluation of the economic and legal significance of the proceedings.

The monograph contains five chapters, as follows.

Chapter one is "Recent Developments in Japanese Antitrust Issues Involving Intellectual Property Rights." This article provides recent developments in Japanese

antitrust issues involving intellectual property rights, in reference to the OECD 1998 IPR report or Iyori and Uesugi (1994). The IP- Guidelines issued by the JFTC in July 1999 will be broken down based on the recent cases. The IP-Guidelines' new approaches are to explain the relationship between intellectual property rights and the Antimonopoly Act by focusing on the analysis of "the exercise of rights" in article 23 of the AMA and to illustrate exhaustion of IP rights based on a Supreme Court decision.

Chapter two is "An Airline Merger in Japan: a case study revealing principles of Japanese merger control." This paper is a case study of a Japanese merger control in the airline industry. The objective is to investigate the underlying principles of the JFTC manifest in a domestic merger of airlines, using the reports available. Based on a checklist arranged by Röller, Stennek and Verboven (2000), the merger control policy of the JFTC is competition-oriented, systematic in design and transparent. But the policy shows a tendency toward regulation.

Chapter three is "Antitrust Priority under Deflation." This paper aims to integrate effective antitrust implementation for cartels and monopolizations during inflationary or deflationary periods. An inflationary period ostensibly causes a rise in the demand and cost in industry and makes to ease to maintain or increase collusive behavior (cartels), whereas a deflationary period causes the inverse. However, neither inflation nor deflation itself induces any monopolization conduct. For policy implications, it is necessary during deflationary periods to give priority to monopolization in the antitrust area rather than to collusive conduct.

Chapter four is "Competition and Cooperation in Fuel Oil Public Bidding." In November 1999, the Japanese Fair Trade Commission (JFTC) took a legal measure affecting participants in bids for oil delivery work ordered by the Self-Defense Forces.



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In September 2000, the Korean Fair Trade Commission (KFTC) took a legal measure affecting participants in bids for oil delivery work ordered by the Korean Ministry of National Defense. Enactment of these measures was not related, though there is a similarity between the cases, both of which involve oil delivery companies obtaining special procurement privileges via security authorities. We researched these cases and speculated as to why the industry is conducive to collusion. We established three points of focus: (a) A smaller payoff by deviation than by collusion, (b) Larger payoff by bid rotation than by competition, and (c) Sufficiently large discount factor. We then analyzed several measures in the plan for Japanese procurement reform. The implementation can clarify the points of focus integral to eradicating the participants' collusion incentive.

Chapter five is "Examination and Analysis of Monopolization Economics." In this paper we analyze a high-tech firm monopolization case in detail and apply two monopolization theories to the facts of the case. First, we test the theory of Aghion and Bolton (1987); an incumbent's contracts can act as a barrier to entry. Second, we examine a series of the theories of Schmalensee (1978), Judd (1985) and Ashiya (2000); multiproduct incumbent firms may exit in response to entry. Although the case showed a special treatment and unique event, the analysis is useful for examining future monopolization cases. We have discussed (i) exclusion of an equivalently efficient party by means of any contracts, rebates, etc., and (ii) exclusion by means of preemption in differentiated productions.

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# Chapter One

## Recent Developments in Japanese Antitrust Issues Involving Intellectual Property Rights

Recent Developments of Japanese Antitrust Issues Involving Intellectual Property Rights


## Abstract

This article provides recent developments of Japanese antitrust issues involving intellectual property rights, after the OECD 1998 IPR report(1) or Iyori and Uesugi, 1994(2). The IP-Guidelines issued by the JFTC July 1999 will be broken down based on the recent cases. The IP-Guidelines' new approaches are to explain the relationship between intellectual property rights and the Antimonopoly Act (AMA) by focusing on the analysis of "the exercise of rights" in article 23 of the AMA and to illustrate exhaustion of IP rights based on a Supreme Court decision.




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Recent Developments of Japanese Antitrust Issues Involving Intellectual Property Rights

## I. History

The history of Japanese antitrust law is the Antimonopoly Act (AMA) enacted in 1947 and the derivative designation, "Unfair Trade Practices" designated in 1982 (Fair Trade Commission Notification No.15). Antitrust cases involving intellectual property rights are mainly adopted by the designation in Japan, such as Amano Pharmaceutical Co. Ltd. in 1970, and Komatsu etc. in 1981.

There was a notification system on international transaction to the Japanese Fair Trade Commission (hereinafter "JFTC"), and the JFTC investigated international contracts including intellectual property rights which was notified. For the standard of the investigation, the JFTC made a guideline on patent and know-how international licensing in 1968, then amended in 1989. Thereafter, the notification system has abolished.

Recently, as antitrust cases involving intellectual property rights increased and new guidelines announced in the United States and the EU, the JFTC drew up the new guidelines concerning intellectual property rights in 1999.

## II. Basic Issues

In July 1999, the Japanese Fair Trade Commission (hereinafter; "JFTC") issued the Guidelines for Patent and Know-how Licensing Agreements under the Antimonopoly Act (3) (hereinafter; "IP-Guidelines"). The guidelines provide: "The legal framework to protect intellectual property rights such as patents is considered to have procompetitive effects,



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since it encourages firms to conduct research and development and can thus become an impetus for the development of new technologies and products using such technology." It continues that "on the other hand, on occasion, the party who licenses the technology will also seek to impose certain restrictions on the business activities of the party who is granted the license, such as on the research and development, production or sales activities of the licensee, and in some cases the said restrictions may have an adverse effect on competition in a particular product or technology market, depending on the form and content of the restrictions." (4)

In this regard, the IP-Guidelines state that

"in applying the Antimonopoly Act to technology transactions, it is important both to facilitate the achievement of the procompetitive effects that are expected to come from protecting the IPR system and technology transactions, and at the same time, to ensure that such protection is not used in a way that deviates from the basic purposes of the IPR system or that has an adverse effect on competition in product or technology markets." (5)

This is the basic idea of enforcing the Antimonopoly Act (hereinafter "AMA") for intellectual property right issues in Japan.

**III. The Relationship Between Intellectual Property Rights and the AMA**

Section 23 of the AMA provides: "The provisions of this Act shall apply to such acts recognizable as the exercise of rights under the Copyright Act, the Patent Act, the Utility Model Act, the Design Act, or the Trademark Act."(6)

The IP-Guidelines provide detailed explanations. As having been enacted for the purpose of

confirming the IP-Guidelines recognize that: (i) "Acts recognizable as the exercise of rights" under the Patent Act, etc. are not subject to the AMA and shall not constitute a violation of the AMA, but that: (ii) Even if the acts are considered to be the "exercise of rights" under the Patent Act, etc., if the acts are considered to deviate from or run counter to the purposes of the intellectual property rights system especially to encourage innovation, they will no longer be deemed as "acts recognizable as the exercise of rights" and the AMA shall be applicable to them (7).

After evaluating the act in light of the provisions of Section 23 of the AMA, if the AMA is deemed applicable, the AMA will then, in accordance with Parts 3 or 4 of the IP-Guidelines, be evaluated to determine whether it falls under unreasonable restraints of trade, private monopolization or unfair trade practices, etc.

**IV. Cross-licensing or Multiple-licensing**

Cross-licensing, by allowing the reciprocal use of patents, etc. held separately for multiple right holders, can have a procompetitive effect by increasing the utility value of the patents, etc. or by promoting technological exchanges among the right holders, and therefore, it in itself does not pose a problem of unreasonable restraint of trade. When multiple licensing is conducted by granting non-exclusive licenses to multiple licensees on common conditions that are set forth by the licensor, this does not usually pose a problem under the AMA.

Nevertheless, that a patent cross-licensing agreement or the multiple licenses for patents, etc. imposes mutual restrictions on the sales price, manufacturing volume, sales volume,

sales outlets, sales territories or other aspects of the patented products and substantially restricts competition in a market for particular products, then it will be illegal under the AMA as an unreasonable restraint of trade. Moreover, when restrictions are mutually imposed regarding the fields of research and development, the parties to whom the license may be granted or the technology that may be used, etc., and as a result competition in a market for particular products or particular technologies is substantially restricted, it will also be equally illegal. (8)

In the case which involved Hinode Co. and six others (Hearing Decision, No. 2, 1991) (9) with regard to the procurement of iron lids for the public sewer system by Fukuoka-city government, the government decided that specifications in the utility model of Hinode would be used for the procurement on the condition that the utility model would also be licensed to other firms. In connection with this non-exclusive licensing agreement between Hinode and the six firms, the involved firms decided that the price estimate of Hinode would be the lowest among the ones to be submitted to the local government for the lids, and decided on the price and the margin rate of the lids sold to the construction firms. In addition, it was agreed that the share of the total sales volume of Hinode would be 20%, with the remainder to be evenly divided among Hinode and the six firms. These and other acts were found to be in violation of Section 3 of the AMA.

**V. Patent Pools**

Patent pools may have a procompetitive effect. Unless third parties are restricted in their ability to use the pooled patents under reasonable conditions, patent pools themselves will

not become problematic as private monopolization or unreasonable restraint of trade.

There may be situations in which it becomes difficult to conduct business activities in a particular field of trade without licenses for the patents, etc. of particular products, because right holders competing in a market for the products form a patent pool relevant to that particular field of trade, and consequently, agree to pool all existing and future improved technologies in the patent pool. In this situation, if the right holders refuse to grant licenses to new entrants or to particular existing entrepreneurs without justifiable reasons, or take other measures that impede the entry of other firms or make it difficult for existing firms to conduct business, it will be illegal under the AMA as private monopolization if these acts substantially restrict competition in a market for particular products or technologies. (10)

In the case which involved Sankyo Co. and nine Pachinko machine manufacturers (hereinafter "ten Pachinko machine manufacturers") (Recommendation Decision, No.5, 1997)(11), ten Pachinko machine manufacturers held a large number of patent rights relevant to Pachinko machines, and these companies produced approximately 90 percent of them supplied in Japan. The management of the intellectual property rights, including patent rights, was entrusted to a company (the "management company") established by the members of amusement device manufacturers, and the ten Pachinko machine manufactures substantially participated in decisions on granting these rights. When the ten pachinko machine manufacturers faced losing their dominant position from new entrants, they refused to grant non-exclusive licenses of their rights so as to make it impossible for these potential entrants.

The JFTC determined that this refusal to license patents etc., excluded new entrants



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attempting to manufacture Pachinko machines, and substantially restricted competition in the field of Pachinko machine manufacturing. Moreover, this conduct was not recognized as a proper exercise of rights under the Patent Act and/or the Utility Model Act. As a result, the JFTC issued a recommendation under Section 3 of the AMA, and consequently, issued a cease and desist order against measures preventing new entry to that market.

**VI. Licensing Intellectual Property Rights as an AMA Violation**

Patent licensing agreements can raise a number of antitrust issues including restrictions on the scope of licensing territory and on research and development. When such restrictions in the agreements are not considered to be the "exercise of rights" under the Patent Act, etc., the restrictions will be examined with the part 4 of the IP-Guidelines in order to determine whether it is within the category of unfair trade practices. (12)

(1) Restrictions regarding the scope of licensing

In patent licensing agreements, the licensor may impose restrictions on the licensee for the purpose of limiting the scope within which the licensee can exploit technology, by such means as granting licenses separately to manufacture, use, or sell, limiting the duration of the license to a period within the life of the patent rights, granting licenses limited to a territory within Japan or restricting the exploitation (manufacture, use, sales, etc.) of the patent to a specified field of technology. Those kinds of licensing activities that can be classified as "exploitation" activities controlled by the Patent Act, etc., are considered to be an exercise of rights provided for under the Patent Act, etc. Since such acts are perceived to

have a negligible effect on competition in a market, they are not considered to cause problems under the AMA.

If a licensor imposes restrictions on a licensee limiting the sales territory, sales fields or customers for the patented products in situations where it is recognized that the licensor's patent rights in Japan have been exhausted, and the extent to which the restrictions impede fair competition will be determined on a case-by-case basis in light of their effect on competition in a market in accordance with the views stated in Part 2 of the "Guidelines Concerning Distribution Systems and Business practices (1991, JFTC)"(13).

(2) Restrictions and obligations in accompany with licensing

In the patent or know-how licensing agreements, a licensor may impose various restrictions on a licensee regarding the business activities of the licensee, such as requirement for the licensee to pay a royalty based on the production volume of specified products, restriction on the licensee's use of the technology after expiration of the patent rights, requirement for the licensee to accept licensing of two or more patents or technologies as a package, prohibition of the licensee from challenging the validity of the patent, restriction on the licensee's research and development activities, and/or requirement for the licensee to license or assign improvements to the licensor. Furthermore, there are some other restrictions including restrictions on production volume, obligations regarding the quality of the patented products, produced by the licensee, restrictions on resale prices, and/or obligation to use a trademark, etc.

A majority of such restrictions in patent licensing agreements are not considered to be an

exercise of rights under the Patent Act, etc., and therefore, the extent to which the restrictions impede fair competition will be determined in light of their effect on competition in a market.*14

(3) Microsoft Case

In the case which involved Microsoft Co. (Recommendation Decision, No.21, 1998) (15), Microsoft unjustly caused personal computer manufacturers (Fujitsu, NEC, IBM Japan, Compaq, etc.) to tie its word-processing software "Word " to its spreadsheed software "Excel" since 1995, and personal information manager software "Outlook" to "Excel" since 1997, when it license their software for the purpose of installing or bundling them to personal computers.

The JFTC issued a recommendation, and consequently issued a cease and desist order based on the fact that the conducts of the company fell into violation of Section 19 of the AMA (Unfair Trade Practices), Item 10 of Designation of Unfair Trade Practices (Tie-in Sales) in December 1998.

The JFTC also issued warnings to Microsoft based on suspected violations of Section 19 of the AMA, Item 11 (Dealing on Exclusive Terms) in November 1998(16): (i) The JFTC had the suspicion that Microsoft refused the license fees of operating systems to personal computer manufacturers, on the condition that the manufacturers stopped installing a competing browser software on their personal computers; and (ii) the JFTC had the fact that Microsoft made contracts with major internet service providers in Japan, which provided that they would distribute only Microsoft browser software in exchange for offering referral

services by its operating system.

The significance of this case it that it is the first case in which computer software was dealt with as a form of property under the AMA. And also, the JFTC showed its strict stance against any high-tech companies that violate the AMA.

(4) NTT DoCoMo Case

In the case involving NTT DoCoMo (17), NTT DoCoMo had certain patents with respect to mobile phones, and licensed mobile manufacturers the patents to produce mobile phones. In accordance with this agreement, if they sold any patent products other than NTT DoCoMo, manufacturers had to consult with NTT DoCoMo. NTT DoCoMo unjustly used this agreement to delay competitors' selling of new products, and tended to impede the competition by restricting the freedom of the licensee in order to maintain its dominant position in the mobile phone market.

The JFTC pointed out that NTT DoCoMo's activities might have deviated from the purpose of the intellectual property rights systems in April, 1999, and NTT DoCoMo voluntarily issued improvement programs of its license agreement.

NTT DoCoMo has a dominant market share, but in order not to impede innovation by new entrants the JFTC rapidly took measures.

**VII. Parallel Imports**

It is also necessary to take into account whether the intellectual property rights have been exhausted. A patent holder, in its exploitation of the patented invention, not only has

exclusive possession of the rights to manufacture and use patented inventions, but also to sell patented products. When parties with a license granted individually from the patent holder sell the patented products, this act would also infringe upon the patent rights in form. When the patented products are distributed lawfully according to the wishes of the patent holder, however, in the domestic context, it means that the patent rights have already achieved their objective and that the patent rights for the products have been exhausted. Consequently, restrictions on the sale of patented products that were once lawfully distributed according to the wishes of the patent rights holder are handled in the same manner as restrictions on the sale of products in general under the AMA.

(1) Supreme Court decisions concerning the suspension of the infringement of patent rights, etc. (18)

In one case, a German manufacturer of aluminum wheels that owns patents both in Germany and Japan (the "Plaintiff") brought up an action against two Japanese distributors (the "Appellant") seeking a ban on sales conducted by them and alleging that the parallel imports to Japan constitute an infringement of the patent rights in Japan. Although the Tokyo District Court endorsed the Plaintiff's allegation, the Tokyo High Court overruled the lower court's holding on appeal, endorsing the Appellant's allegations. Subsequently, in July 1997, the Supreme Court concluded the case.

The Supreme Court, held as follows:

"When a patent holder in Japan, or a person who has the rights equivalent to those of a patent holder, sells patented products outside of the country, the patent holder may not

exercise its patent rights with respect to the products, to a transferee, unless the patent holder and the transferee agreed to exclude Japan from the territory of sale or use of the products, and to a third party transferee who purchased the products from the first transferee or any subsequent transferee, unless the patent holder and the transferee agreed to exclude Japan from the territory of sale or use of the products and such an agreement is expressly indicated on the products".

The reason is that; "in cases where a patent holder sells patented products outside of the country, it is naturally assumed that a transferee or a third party, a subsequent transferee, would import these products to Japan for its business, or use or sell these products to another party in Japan."

This judgment seems to have significant meanings in terms of competition policy. It addresses the fact that, given international trade practices, a patent holder may not suspend parallel imports or claim compensation for damages caused by parallel imports based on the infringement of patent rights in such cases as stated in the judgment. Although the judgment also holds that patent rights are not always immediately exhausted if a patent holder transfers patented products outside the country. With regard to international agreements, Article 6 of the TRIPs Agreement (Agreement of Trade-Related Aspects of Intellectual Property Rights, in the WTO Agreements) stipulates that this agreement shall not apply to the issue of patent right exhaustion for the purpose of resolving disputes. Moreover, because of the lack of an international agreement on the question of the relationship between parallel imports and patent rights, this matter requires international discussion.

(2) Tokyo District Court judgment regarding compensation for damages caused by the infringement of distribution rights of copyright holders (19)

On July 1, 1994, the Tokyo District Court delivered a judgment for a case in which some parallel importers sought a remedy through damages compensation. Those importers alleged that they had suffered from the conduct of licensed sellers of copyrighted audio discs and video discs in Japan, which attempted to halt parallel imports to Japan on the grounds that the parallel import of these products constituted an infringement of the copyrights licensed in Japan, such as distribution rights. This judgment addressed Tokyo District Court's view with respect to the relationship between copyrights and parallel imports. (20)

**VIII. Joint R&D**

A joint research and development project (R&D project) would improve the efficiency of research and development and encourage technological innovations through: (i) the reduction of costs, distribution of risk or shortening of the period of time necessary for research and development; and (ii) the complement of technologies held by firms in different lines of business. Accordingly, such projects are regarded as having pro-competitive effects.

Nevertheless, joint R&D projects could raise antitrust concerns because such projects sometimes substantially restrain competition in the relevant market, or because arrangements to carry out such projects could hinder fair competition. On April 20, 1993,

the JFTC released "the Antimonopoly Act Guidelines Concerning Joint Research and Development" (the "Joint R&D Guidelines")*21.

The Joint R&D Guidelines announced the JFTC's general views regarding joint R&D and arrangements thereof. The Joint R&D Guidelines provide that the decisions as to whether such R&D projects may substantially restrain trade in the relevant technology or product market under the AMA shall be made on a case-by-case basis taking into consideration their pro-competitive effects. The Joint R&D Guidelines also provide that a comprehensive examination of various factors shall be made, including (i) the number of participants and their market shares, (ii) characteristics of the research and development, (iii) a need for joint undertaking, and (iv) duration. Moreover, the Joint R&D Guidelines classified certain types of arrangements for the Joint R&D projects into (i) those which are not considered to fall under unfair trade practices in principle, (ii) those which may fall under unfair trade practices, and (iii) those which are highly likely to fall under unfair trade practices.

The restriction on the participation by other entrepreneurs to a joint R&D project, including a refusal to license, would not usually by itself be cause for antitrust concern under the Joint R&D Guidelines. It could, however, be an offence of the AMA as an exception. If the total market share of the participants is fairly high and if an entrepreneur is restricted from participating in a joint R&D project to develop technologies indispensable for standardization, it may be difficult for its business to carry on, and is thus exposed to the danger of being excluded from the market. On the other hand, an entrepreneur restricted from participating in a Joint R&D project but guaranteed access to the results, may not find it difficult for its business to carry on, thus not raising any concern under the AMA.

## IX. Comparing the IP-Guidelines to the old system

The international notification system was abolished on June 18, 1997. There is no need to notify any international transaction to the JFTC. If parties hope to get a prior review of the antitrust concerns of their transactions, they can use the prior consultation system (which is similar to a business review letter system). Any firm (or association) that is considering entering into an agreement that includes intellectual property rights can consult with the JFTC. The JFTC examines whether the conduct described in the application would constitute a violation of the AMA and notifies the applicant of its judgment in writing. If the reply states that the proposed conduct will not conflict with the AMA, no legal measure will be taken against that conduct. Any party requesting a prior consultation shall submit an application as well as relevant data and materials to the secretary general of the JFTC.

The JFTC did not change its stance on the licensing of intellectual property rights when issuing the IP-Guidelines, which is evident in recent cases. I would summarize and classify approaches of licensing clauses in the IP-Guidelines in appendix.

## X. Conclusion

The stance of the IP-Guidelines takes a competition-oriented course unlike the old guidelines' administrative one. It is similar to the approach of the United States (Antitrust Guidelines for Licensing of Intellectual Property (n)) rather than that of EU (Regulation concerning Patent and Know-how Licenses (m)). And, the new contribution of IP-Guidelines is to explain the relationship between intellectual property rights and the

AMA by focusing on the analysis of "the exercise of rights" in the article 23 of the AMA and to illustrate exhaustion of IP rights based on the Supreme Court decision. The guidelines and recent active enforcement of the AMA contribute innovation to consumer welfare in Japan.

* First Secretary, Economic Section, Embassy of Japan. The views in this paper are those of the author. They do not necessarily reflect the opinion of the Embassy of Japan or the Japanese Fair Trade Commission. I thank Ai Hattori and Ann Rollins for their thoughtful help on earlier drafts. Koki.arai@nifty.ne.jp

(1): OECD, "Competition policy and Intellectual Property Rights" (1998), http://www.oecd.org/d at/clp/Roundtables/IPR00.htm

(2): H. Iyori and A. Uesugi, "The Antimonopoly Laws and Policies of Japan" (1994) Federal legal publications, Inc. / New York

(3): JFTC, "Guidelines for Patent and Know-how Licensing Agreements under the Antimonopoly Act" (1999), http://www.jftc.admix.go.jp/e-page/guideli/patent99.htm

(4): ibid., Part I, 1.

(5): ibid., Part I, 1.

(6) Section 23 of the AMA, http://www.jftc.admix.go.jp/e-page/acts/amact.txt

(7): IP-Guidelines, Part 2, 1.

(8): ibid., Part 3, 2. and 3.

(9): Hearing Decision, No. 2, 1991 "Case against Hinode Suidou Kiki Co. and Six Firms" (September, 1997)



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(10): IP-Guidelines, Part 3, 2. and 3.

(11): Recommendation Decision, No.5, 1997 "Case against Sankyo Co. and Ten Firms" (August, 1997)

(12): IP-Guidelines, Part 4

(13): JFTC, "Guidelines Concerning Distribution Systems and Business Practices" (July, 1991) , [Japanese text : http://www.jftc.admix.go.jp/guidelione/dtgl/index.htm]

(14): IP-Guidelines, Part 4.

(15): Recommendation Decision, No.21, 1998 "Case against Microsoft Co. Ltd." (December 1998), http://www.jftc.admix.go.jp/e-page/press/1998/19981214.htm

(16): JFTC, "Warnings to Microsoft Co. Ltd. and Microsoft Corporation" (November 1998), http://www.jftc.go.jp/e-page/press/1998/19981120.htm

(17): JFTC Press Release, "About NTT DoCoMo's Permitting to Sell Mobile Phone to Other Than NTT DoCoMo" (April 1999) [Japanese text : http://www.jftc.admix.go.jp/pressrelease/99.a pril/99042701.html]

(18): Supreme Court, "Case concerning Auto Wheel Parallel Import" (July 1997)

(19): Tokyo District Court, "Case Regarding Compensation for Damages Caused by the Infringement of Distribution Rights of Copyright Holders" (July 1994)

(20): The District Court held as follows: "In Japan, there is no unambiguous statute or established judicial precedent declaring that distribution of video cassette duplicates of a copyrighted film, without a license by a copyright holder, does not constitute an infringement of copyrights, i.e., distribution rights. [...] Because the video cassettes in this case are manufactured and sold in the United States by permission of the copyright holder

of the film, it is understood that there were no restrictions on subsequent distribution or circulation within the United States under Article 109 (a) of the US Copyright Act or the First Sale Doctrine. However, because there was not sufficient evidence to prove the fact that the aforementioned license in the US permitted the distribution of the products in Japan and that payment was made with such distribution in mind, the distribution of these video cassettes brought to Japan through parallel import is deemed to constitute an infringement of distribution rights in Japan, on the grounds that it is licensed in the United States."

(21): JFTC, "Guidelines concerning Joint Research and Development" (April, 1993) [Japanese Text : http://www.jftc.admix.go.jp/guideline/kyoudou.html]

(m): http://europa.eu.int/comm/competition/antitrust/legislation/natintro/en/int3g.html

(n): http://www.usdoj.gov/atr/public/guidelines/ipguide.htm

Appendix



| *IP-Guidelines* | *Signal grouping* | *Notes* |
|---|---|---|
| Restrictions on resale prices<br>Restrictions on sales prices | In principle, these restrictions will fall within the category of unfair trade practices and be in violation of the Antimonopoly Act. (Red Clauses) | |
| Restrictions on use of technology and obligations to pay a royalty after expiration of patent rights<br>Restrictions on research and development activities<br>Obligations to assign rights and grant exclusive licenses for improvement inventions<br>Restrictions on the manufacture and use of competing products and on employing competing technology (after the expiration or termination of the licensing agreement)<br>Restrictions on the quality of patented products, raw materials and components | These restrictions will likely fall within the category of unfair trade practices and be in violation of the Antimonopoly Act. (Yellow Clauses) | It is highly likely to fall within the category of unfair trade practices and be in violation of the Antimonopoly Act. |

| *IP-Guidelines* | *Signal grouping* | *Notes* |
|---|---|---|
| Restrictions on territory (if a licensor imposes restrictions on a licensee limiting the sales territory for the patented products in situations where it is recognized that the licensor's patent rights in Japan have been exhausted) | (Yellow Clauses) | If such restrictions have an adverse effect on competition in a market, they will fall within the category of unfair trade practices and be in violation of the Antimonopoly Act. (the extent to which the restrictions impede fair competition will be determined on a case-by-case basis in light of the purpose and form of the restrictions and significance of their effect on competition in a market). |
| Restrictions on the field of technology (if a licensor imposes sales restrictions, irrespective of restrictions on the field of technology) | | |
| Obligations to pay a royalty based on the production volume of the specified products | | |
| Licensing of more than one patent as a package | | |
| Obligations not to contest the validity of the patent | | |
| Obligations to grant nonexclusive licenses for improvement inventions | | |
| Obligations not to assert the licensee's patent rights | | |
| Unilateral termination provisions | | |
| Restrictions on production volume and frequency of use (regarding restrictions on the maximum production volume of the patented products or the maximum number of times of use of the patented process) | | |
| Restrictions on the manufacture and use of competing products and on employing competing technology | | |
| Restrictions on sources of raw materials and components | | |

| *IP-Guidelines* | *Signal grouping* | *Notes* |
|---|---|---|
| Restrictions on the quality of patented products, raw materials and components | | |
| Restrictions on sales volume (regarding restrictions on the maximum production volume of the patented products or the maximum number of times of use of the patented process) | | |
| Obligations to use a trademark | | |
| Restrictions on the locations to which a licensee can export, the export price, or the volume that the licensee can export or impose an obligation to export through a person designated by the licensor | | |
| Granting licenses separately to manufacture, use and sell | These agreements will not, in principle, fall within the category of unfair trade practices. (Green Clauses) | |
| Restrictions on duration | | |
| Restrictions on territory | | |
| Restrictions on the field of technology | | |
| Obligations to pay a royalty based on the production volume of the specified products (as the basis for the royalty in order to make its calculation easier) | | |
| Restrictions on use of technology and obligations to pay a royalty after expiration of patent rights (as it is recognized to be an installment payment or deferred payment of royalty) | | |
| Licensing of more than one patent as a package (to guarantee the effectiveness of the licensed technology) | | |
| Obligations not to contest the validity of the patent (if the licensee contests the validity of the patent rights) | | |

| *IP-Guidelines* | *Signal grouping* | *Notes* |
|---|---|---|
| Restrictions on research and development activities (a reasonable duration to the extent it is necessary to prevent unauthorized exploitation of the licensed know-how) | | |
| Obligations to grant nonexclusive licenses for improvement inventions | | |
| Obligations to notify knowledge and experience obtained | | |
| Obligations to make best efforts to use | | |
| Obligations to protect secrecy | | |
| Restrictions on production volume and frequency of use (a minimum production volume of the patented products or a minimum number of times of use of the patented process) | | |
| Restrictions on the manufacture and use of competing products and on employing competing technology (for a short period after the expiration or termination of the licensing agreement to the extent it is necessary to prevent unauthorized exploitation of the licensed know-how) | | |
| Restrictions on sources of raw materials and components (to procure raw materials and components from designated sources to the extent it is necessary to guarantee the effectiveness of the licensed technology or to maintain the goodwill of the trademark) | | |
| Restrictions on the quality of patented products, raw materials and components (to the extent it is necessary to guarantee the effectiveness of the licensed technology or to maintaining the goodwill of the trademark) | | |

| *IP-Guidelines* | *Signal grouping* | *Notes* |
|---|---|---|
| Restrictions on sales volume (a minimum production volume of the patented products or a minimum number of times of use of the patented process) | | |
| Restrictions on sales of competing products (for a short period after the expiration or termination of the licensing agreement to the extent it is necessary to prevent unauthorized exploitation of the licensed know-how) | | |

# Chapter Two

## An Airline Merger in Japan: a case study revealing principles of Japanese merger control

An Airline Merger in Japan: a case study revealing principles of Japanese merger control


## Abstract

This paper is a case study of a Japanese merger control in the airline industry. The objective is to investigate the underlying principles of the JFTC through a domestic merger on airlines, where reports are available. From applying a checklist arranged by Röller, Stennek and Verboven (2000), the merger control policy of the JFTC is competition-oriented, systematic designed and transparent. But the direction of the policy is a kind of regulatory one.

Japanese Merger Control: An Analytic Case Study of Airline Merger

## 1. Introduction

The international dimension of merger decisions has been prominent in a number of high-profile cases recently such as GE/Honeywell case, Boeing/McDonnell-Douglas case. In some cases, there are some conflicts among national antitrust agencies in their final decision. Therefore, the Antitrust Division, Federal Trade Commission and European Commission sought a set of "best practices" for coordinating future merger reviews on October 2002. So there are many articles for the merger control in international market such as Neven and Röller (2000) and Reynolds and Ordover (200). On the other hand, there are few studies of Japanese merger control enforcement. The reasons are (i) that nothing with eventful international conflicts happened until now, and (ii) that very few cases with controversy occurred so far. The Fair Trade Commission of Japan (hereinafter "the JFTC") issued a significant interim decision regarding Japanese airline merger on March 15, 2002, and the JFTC delivered the following result of the case on April 26, 2002. This paper studies the JFTC's releases deceptively and analyzes the result by using a checklist of international merger control arranged by Röller, Stennek and Verboven (2000). A target of this paper is an airline merger case, Japan Airlines Co. Ltd. (hereinafter "JAL") (number two in a market) and Japan Airsystem Co. Ltd. (hereinafter "JAS") (number three in a market) through establishment of a joint holding company.

The main concern regarding this checklist is that the report by Röller, Stennek and Verboven (2000) is based on an analysis of the efficiency defense. This also applies to the checklist that was developed. As a result many other issues regarding the assessment of

competitive effects are not included in the checklist. For example the much debated substantive criteria of dominance vs. substantial lessening of competition is not in that checklist. Moreover, it does not appear that the JAL/JAS merger case was primarily focused on efficiency considerations. Instead, other issues – such as the competitive effects of the merger (entry, etc.) – have been central to the case. Notwithstanding, it is beneficial for us to analyze the JAL/JAS merger case by using the checklist in the following points; (i) the first comprehensive review of the Japanese merger control case from the international standard criterion and (ii) to clarify tentative theory ("the competition-oriented policy") for the future work.

The rest of this paper is as follows. Section two researches Japanese merger control analysis so far. Section three and four are breakdown of the interim report and final resolution of the JFTC's airline merger case. Section five is analysis from a viewpoint of the checklist of merger control assessment. Section six is conclusion.

## 2. Japanese Merger Control

There are few studies of Japanese merger control enforcement neither theoretically nor empirically. Blonigen, Ellis and Fausten (2000) deal with Japanese merger performance and implication indirectly, but they don't touch with competition aspect of mergers. Nakamura, Shaver and Yeung (1995), Nakamura (2002) and Yeh and Hoshino (2002) handle with merger's effect for productivity or performance directly, however their researches lack concept of merger control enforcement. Although Arai (2001) surveys antitrust developments regarding intellectual property rights, the research has no merger review. An empirical study of merger in the market is Odagiri and Hase (1989), which

surveys the 243 sample of Japanese mergers and leads to some tendency of mergers. The only article of the Japanese merger enforcement policy is Watanabe and Tamai (2001), which explains the Japanese system, guidelines and a few cases. However all of these articles are not comprehensive analysis of Japanese merger control case. On a subject of airline merger, many articles are delivered already in the U.S. and EU[1].

The background of the case is as follows: With the aim of building a business structure capable of coping with the challenge of global competition, JAL and JAS are contemplating the creation of a holding company to become the parent of the two airlines in October 2002. The primary purpose of the merger of the number two firm (JAL) with the number three firm (JAS) in a market is to increase the competitiveness of JAL/JAS vis-à-vis their main competitor All Nippon Airways (hereinafter "ANA").

The JFTC issued an interim report for business consolidation by JAL and JAS through establishment of a holding company on March, 2002. The report said that based on the explanations offered by the parties to the proposed scheme, it is likely to be a substantial restraint of competition within the area of domestic air passenger transportation business. The parties responded some remedial measures on April, 2002. Based on the explanation and remedial measures presented by the parties and on promotion measures implemented by the Ministry of Land, Infrastructure and Transport, the JFTC concluded and issued that the proposed consolidation with remedial measures is unlikely to constitute a breach of

[1] Borenstein (1990) confirms conclusions which are that market power leads to price increases explained by Werden et al. (1991) from analysis of Northwest/Republic airlines and TWA/Ozark mergers. Beutel and McBride (1992) analyze a market power by means of a residual demand approach for Northwest/Republic airlines case. The analysis of Neven and Röller (1996) or Clougherty (2002) are the useful in the future works for the Japanese merger control policy review. See Section six.

Article 10 of the Antimonopoly Act[2] on April, 2002.

### 3. Analysis of JAL/JAS case

(1) Examination from the viewpoint of Antimonopoly Act

(i) Particular fields of trade

In this particular case, the JFTC's examination focused on the domestic air passenger transport business area, the business area of transporting air passengers leaving from or arriving at Haneda Airport[3], the business area of transporting air passengers leaving from or arriving at Itami Airport[4] and the area of specific domestic air routes (i.e. the routes operated by JAL and JAS concurrently). The examination did not focus on the areas of international air passenger transport business or of international air cargo transport business and domestic air cargo transport business, since more than one powerful competing air carrier in international transport businesses exists and domestic air cargo business is conducted in conjunction with air passenger transport business.

(ii) Expected effects on each area of trade

The consolidation pushes up the aggregate share of the two parties in each business area in terms of the number of passengers carried and the number of flights to a level which, if

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[2] The Antimonopoly Act is an antitrust law in Japan. The official name is "Act Concerning Prohibition of Private Monopolization and Maintenance of Fair Trade (Act No. 54 of April 14, 1947)."
Sec.10 [Prohibition of particular stockholding by a company, filing requirement]
"(1) No company shall acquire or hold stock of any other companies where the effect of such acquisition or holding of stock may be substantially to restrain competition in any particular field of trade, or shall acquire or hold stock of other companies through unfair trade practices."
This is a type of US-style standard, which is discussed at 5 (3).

[3] Haneda Airport is main domestic airport of Tokyo area in Japan.

[4] Itami Airport is main domestic airport of Osaka area in Japan.

combined with the share of ANA, would account for nearly all the business conducted in the respective business areas.

With regard to specific domestic air routes, the proposed consolidation would result in monopoly or duopoly on nearly all the 32 air routes operated by the two airlines concurrently.

(2) Impact on competition examined

(i) Concerted fare-setting actions

(a) Actual fare settings

Concerted fare-setting actions, as described below, have already been practiced in the past by major airlines such as JAL, JAS and ANA (hereinafter "the Big Three"). Should the Big Three become the big two as a result of the consolidation; it will become easier for them to resort to such concerted fare-setting actions.

| | |
|---|---|
| The circumstances that facilitate such concerted fare-setting actions | The fares (including discounted fares) are publicized in advance and apply equally to all passengers; hence competing air carriers can easily ascertain the prices charged by their competitors and generally follow suit by setting similar fares. |
| Ordinary Fares | The Big Three raised the level of the Ordinary Fares, a benchmark for all airfares |



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| | |
|---|---|
| | by approximately 15% for air travel taking place on all air routes from April 2000. The new fares set by the Big Three are almost identical. |
| Discounted Fares | Discounted Fares are set by the Big Three almost simultaneously, at almost the same price and with similar terms and conditions. |
| Concerted actions to match new airlines' fares | The Big Three are setting fares in concert in order to match the cheaper prices offered by the two brand-new airlines. |

(b) Limitations on fare-setting actions at congested airports

As the demand for departures and arrivals at congested airports surpasses the feasible number of takeoffs/landings of aircraft, the competent authorities are allocating a quota for the maximum permissible number of slots (the number of takeoffs/landings allowed) available to each airline (such allocated quotas are not to be reviewed until 2005). This means that airlines may decide on their route and the frequency of flights only within the framework of the allocated quota of slots, making it difficult for them to expand their business through competition. This is a factor that aggravates the airlines' behavior of setting fares in concert.

(c) What the parties allege in regard to fare-setting actions

In regard to the concerted fare-setting actions described above, the parties allege that they have no alternative than to follow ANA in fare setting since it is ANA who has the power to control prices. According to the JFTC, however, the fact that the two new airlines, who are much smaller in size than JAL and JAS, are actually setting competitive prices, albeit only on certain specific air routes, there is no reason why it should be difficult for JAL and JAS to adopt competitive prices against ANA, contrary to what the parties allege.

(ii) The degree of impact on competition if the Big Three becomes the big two

Judging from the past pattern of specified flights discount fare-setting by the Big Three as described below, a reduction in the number of major carriers would cause considerable impact on competition. The relationship between the number of carriers serving each air route and the pattern of setting specified flights discount fares indicates that the proportion in which specified flights discount is applied to all flights becomes smaller as the number of carriers serving that particular route decreases. In addition, if the number of major carriers is reduced to two because of a consolidation, there will no longer be a chance for JAL to enter the routes operated by JAS and ANA or by JAS only, or for both JAL and JAS to enter the routes operated by ANA only.

(iii) Limited competitive pressure from newcomers

It is difficult for newcomers to enter the domestic air transport business in Japan due to the reasons outlined in (a) - (d) below. For the same reasons there is limited room for the two new airlines to expand their business and their stimulating effect on

competition is confined to specific routes only. As the competitive pressure from the newcomers is so limited, they are unlikely to act as a deterrent to concerted fare-setting actions on the part of major airlines.

(a) Difficulty in entering domestic air transport business

The entry into domestic air transport business by newcomers is hampered by the limited availability of airport facilities such as boarding bridges and passenger check-in counters and of aircraft maintenance capabilities. Furthermore, the entry of foreign airlines into this area is, in principle, prohibited under Civil Aeronautics Law. Under such circumstances it will be difficult to expect new carriers to provide a stimulating effect on competition.

(b) Difficulty in entering the routes that use congested airports

At congested airports where the available number of slots is already limited, a certain number of slots are being reserved for the potential entry of new carriers in the future. However, this number is considerably small. Therefore, it is particularly difficult for newcomers to enter the routes that utilize congested airports.

(c) The limited effects of new entries

Even if newcomers are admitted they would have to face the limited availability of airport facilities, the need to secure aircraft maintenance services and also, particularly at congested airports operation within the allocated number of slots. Although a certain number of slots are reserved for the potential entry of new carriers in the future, such a quota does not include allocations for the two new

airlines[5]. The two new airlines also face difficulties in constructing their own computer reservation system and mileage service. For these reasons, although they are yielding positive effects on competition on the particular routes they have entered, they face difficulties in the further expansion of their business and the effects of their activities on other routes are still limited.

(d) Overall business capabilities

By forming an extensive network including overseas routes, JAL and JAS would gain a competitive advantage over other air carriers including the two new airlines in providing services such as mileage service program, etc.

(iv) The significant disadvantage that the proposed consolidation would cause to general consumers

General consumers, who have no power to negotiate prices and therefore no choice but to accept the fares set by airlines, are likely to suffer considerable disadvantages if the concerted fare-setting actions by major airlines are made easier as a result of the consolidation.

(3) Impact on travel industry

In view of the fact that a large part of air transport services is arranged through the intermediary of travel agencies, the JFTC showed a survey by means of hearings and questionnaires in order to seek the views of the travel industry regarding the possible

[5] Skymark Airlines Co. Ltd. and Hokkaido International Airlines Co. Ltd. Both since 1998.

impact of the proposed consolidation on tourism. The survey revealed that about a half of the travel agents surveyed feel that they will be affected by the consolidation in some way or other.

(4) Conclusions of the interim report

The proposed consolidation, which reduces the Big Three to the big two and pushes up the shares of the parties substantially in the business areas, is likely to give the parties a power to control the market or make it easier for them to resort to concerted fare-setting actions. This gives rise to the apprehension that they may put up a common front with their major competitor, ANA. Considering that newcomers would provide only limited competitive pressure and are unlikely to act as a deterrent to the concerted fare-setting behavior on the part of major airlines, the proposed consolidation is likely to result in a substantial restraints of competition and the JFTC took steps to convey such areas of concern to the parties concerned and released the report on March 15, 2002.

**4. Remedial Measures and Analysis**

(1) The remedial measures to be taken by the parties

The parties proposed consolidation responded to the JFTC's interim report with some remedial measures on April 23, 2002, as below[6]:

[6] Additional competition promotion measures are envisaged by the Ministry of Land, Infrastructure and Transport. Reflecting the changing circumstances in the recent times and with the aim of improving the level of services provided to users through promotion of competition, the Ministry is now adopting the following additional competition promotion measures:
(i) Measures adopted until February 2005
(ii) The overall review of takeoff-and-landing slots allocation scheduled in February 2005
(iii) Support given to new airlines in regard to the use of airport facilities

(i) Steps to promote new entry

(a) Return of takeoff-and-landing slots

Effective October 2002, the parties would return to the Ministry of Land, Infrastructure and Transport nine turnaround slots out of the slots they currently hold at Haneda Airport. Furthermore, should the Ministry's "competition promotion slots" to be created with nine turnaround slots prove insufficient before the planned reallocation of slots in February 2005; the parties will return to the Ministry up to three additional turnaround slots at Haneda.

(b) Remedial measures in favor of new airlines regarding airport facilities

The parties would make available for new airlines such airport facilities as boarding bridges, gate parking spots and check-in counters which they currently hold for themselves, should the new airlines so desire.

(c) Cooperation with new airlines by means of undertaking various services such as aircraft maintenance

If so desired by new airlines, the parties would actively provide such services as may be needed by the new airlines when entering air transport business or continuing with or expanding their operations, e.g. aircraft maintenance services and airport ground services.

(ii) Measures concerning airfares etc.

(a) Measures concerning airfares

Normal fares would be cut by 10% across the board on all the main routes operated by

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(iv) Support given to new airlines in regard to providing various services, such as aircraft maintenance

the parties and would not be raised during a period of at least three years. Specified flights discount fares and advance purchase discount fares would be granted for all flights on all the main routes operated by the parties in competition with another major airline and on the main routes on which the parties would become the sole carrier. The level of such discounts would be identical with that prevailing on the routes currently operated by three competing airlines.

(b) Promotion of competition and enhancement in the level of services provided by means of an expanded route network

The parties would seek entry into or increase the frequency of flights on the routes where another major airline is the sole carrier or is predominant in the number of flights.

(2) The analysis to the remedial measures

(i) The enhanced likelihood of effective competition as a result of business expansion, etc. by new airlines

(a) Evaluation of the return and reallocation of takeoff-and-landing slots

Regarding evaluation of situation prior to February 2005, whereas the new airlines who are operating with six slots already allocated to them are unable to increase the number of their flights any further in the present circumstances mentioned above, one is planning to increase the frequency of its services by nine more return flights prior to the review of takeoff-and-landing slots allocation by the Ministry of Land, Infrastructure and Transport scheduled in February 2005. The Ministry now makes such business expansion by the new airline concerned possible by the parties' remedial

measure of returning nine slots at Haneda and by the creation of competition promotion slots. The creation of slots by the Ministry yields the nine additional slots necessary to meet the requirements of the expansion plan. Also, in view of the parties' willingness to give up an additional of three slots if the new airlines require more than nine slots, it is considered likely that the new airlines would be able to expand their business without difficulty until February 2005. It follows, therefore, that effective competition is likely to continue until February 2005, albeit on certain specific air routes only.

Regarding evaluation of situation posterior to February 2005, as to the takeoff-and-landing slots to be allotted from February 2005, the Ministry intends to implement an overall review of all the existing slots and further increase its competition promotion slots so as to enable new airlines to expand their operations on an equal competitive footing with major airlines. The existence of a new airline that has concrete plans to compete with major airlines in its bid for full-scale business development once the necessary number of slots is obtained, and the positive effects produced by the below mentioned measures related to airport facilities, indicate that the growth of such a new airline into a competitive carrier capable of effectively challenging major airlines, is a highly probable outcome.

(b) Evaluation of measures regarding access to airport facilities by new airlines

The remedial measures proposed by the parties and the competition promotion measures envisaged by the Ministry, together with similar steps that may be taken by another major airline who is not a party to the proposed merger, would contribute to

and facilitate the business expansion, etc. of the new airlines by providing greater support related to airport facilities.

(c) Evaluation of the cooperative measures undertaken through the provision of various services, such as cooperating aircraft maintenance, to benefit new airlines

The remedial measures, together with similar steps that may be taken by another major airline, would lead to various services such as aircraft maintenance being provided more readily, and would contribute to and facilitate the business expansion of the new airlines who would now find it easier to ask other carriers to undertake such services. These measures are so interested that this situation is similar to the regulatory requirement for, e.g.. incumbent local telephone companies to offer "unbundled" components to prospective entrants[7]. Various services such as aircraft maintenance are not regulated, and new airlines could cause harm to new airlines. In conclusion, it has not happened.

One of the reasons may be that the aircraft maintenance service or various services are sometimes independent division in terms of accounting in the larger airlines or a subsidiary. Inter alias, because of the cost reason, even the larger airlines often outsourced various services for overseas, such as TAECO (Taikoo Aircraft Engineering Co.) in Xiamen (China) or SASCO (ST Aviation Services Co.) in Singapore, in these days. The remedial measures are credible for the new airlines from the background of these potential competitors.

(ii) Measures related to airfares, etc.

The remedial measures such as (a) reducing normal fares; (b) increasing the number of specified flights discount fares and advance purchase discount fares; and, (c) seeking entry into or increasing the frequency of flights on the routes where another major airline is currently a sole carrier or is predominant in the number of flights, proposed by the parties are considered worthy of positive evaluation as it outlines a means through which general consumers may benefit from the efficiency achieved by the integration.

(4) Conclusion of the final resolution

For the foregoing reasons, the JFTC concluded and issued that the implementation of the proposed integration plan would not constitute a substantial restraint of competition within the area of domestic air transport business on April 26, 2002.

Furthermore, in order to ensure that the proposed remedial measures are effectively implemented, the JFTC issued to take measures of asking the parties to take the necessary steps prior to the integration where feasible, continuing to monitor progress and to be conscious of all the relevant issues, and keeping close contact with the Ministry of Land, Infrastructure and Transport with a view to promoting competition in this area.

**5. Assessment of the JFTC's decision**

This is an epoch-making case of Japanese merger control enforcement policy history, which issued interim report pointed problems publicly with the first case so far. Therefore, this is informative case description to assess Japanese merger policy compare to

[7] As in the US Telecom Act of 1996.

international one.

The International Competition Network (ICN) Merger Working Group is discussing the analytical framework for merger control internationally. The final paper for ICN annual conference arranged by ICN Merger Working Group, Analytical Framework Sub-group listed issues of abstract questions such as "What is merger policy for?" "Which mergers should be reviewed?" "How should qualifying mergers be assessed?" and "How does the chosen analytical framework impact on remedies and procedure?" It is difficult for the national authorities to reach tangible results of analytical methods; however these questions are too broad to analyze a specialized case from a viewpoint of international criteria.

A checklist arranged by Röller, Stennek and Verboven (2000) is one of the most capable criteria based on reviews of seven OECD countries' merger control systems. The aim of that article is to establish to design a new persuasive control system that takes efficiencies into account; thus the checklist is not conclusive issue. Nevertheless, the checklist shows all-round dimension of merger control to compare country by country. Therefore, it is conducible to assess the above explained airline merger case (hereinafter the JAL/JAS case) of the Japanese merger control enforcement by using the checklist.

The linkage between economics and the research questions here is mainly two points. The first point is to be able to apply a theory to real world and to receive the feedback. It is always necessary to look back the applied an economic thinking in policy matters to the real situation like Scheffman and Coleman (2002) and Katz (2002). The second point is to establish a tentative theory based on economic intuitive that is extracted from a real case study. As Borenstein (1990) mentioned the airline industry character is that market power results from airport dominance, the theory extracted from a real case study is quite

valuable.

The checklist using this analysis constitutes of 19 items as below, each item is being applied for the JAL/JAS case of the JFTC's merger control. However some items (particularly efficiency related questions) are clipped shortly:

(1) Welfare standard

Four standards have been discussed in the checklist: (i) total surplus standard, and (ii) consumer's surplus standard.

It seems that the JFTC uses consumer's surplus standard in the JAL/JAS case due to its price concerns. In addition to the concerns, the evaluation of slots, facilities and service provision is aware of effective competition with new airlines. This recognition would be assessed in not only consumer's surplus standard but also total surplus standard. It is hard to interpret the authority's standard of welfare from available materials, but the key phrase stands by the main concerns of the authority. In this case, consumer's surplus standard is strongly supported from the phrase of that "(g)eneral consumers, who have no power to negotiate prices and therefore no choice but to accept the fares set by airlines, are likely to suffer considerable disadvantages...," in the interim report.

(2) International competitiveness

In some jurisdictions, the international competitiveness of the domestic firms is considered an objective for the merger control[8].

It has been difficult to persuade the JFTC to take international competitiveness into

consideration under the Japanese statutory language. In case of the JAL/JAS case, the remedial measures include the undertaking of 10% price cut or promotion for new entrants, which will be damp measures in the parties' international competitiveness.

Why was not the international competitiveness considered? Firstly, JAL/JAS argued that it was necessary to integrate them for the purpose of survival under the global competition of the world's mega-carriers. They did not, however, allege that the international competitiveness made cost advantages or consumer's conveniences. The JAL/JAS stated only the necessity of "the trends of world integration[9]." This allegation looks like or seems to be that their desire to have international competitiveness is not to get cost efficiency from the international competitiveness but to have a dominant position itself (or only emulation of ANA). Therefore the JFTC did not refer the allegation of the international competitiveness as a merit of the merger. Instead of that, the JFTC played up the general consumers' disadvantage from the consolidation[10].

(3) Mode of competition

Competition authorities consider information about the mode of competition in the market such as "unilateral effects" and "co-ordinated effects"; Bertrand model and Cournot model. The JFTC considers both "unilateral effects" and "co-ordinated effects" through Bertrand model based on actual competitive condition in airline industry (complementary to Cournot model). In particular concerning coordination effect, the JFTC pointed out in the interim report that "(t)he proposed consolidation,..., is likely to give the parties a power to control

[8] See Gal (2003), pp201-202.
[9] The opinion of JAL. <http://www.jal.jp/corporation/key07/key_1.html (in Japanese)>

the market or make it easier for them to resort to concerted fare-setting actions."

If the language of the Japanese statute is similar to the EU language, such as "create of strengthen a dominant position" standard, then the merger may have been challenged under a theory of "collective dominance" which would be consistent with the fear of increased likelihood of price coordination in the more concentrated post-merger industry. Although the language of the Japanese statute is a type of US-style, this point is to be addressed[11].

Concerning this point, one well-known economic idea, such as larger second-ranked firms can significantly lower leaders' margins[12], is behind the JFTC's decision. It is reflected in the positive evaluation for JAL/JAS's measures related to airfares, 4 (2) (ii) (seeking entry into or increasing the frequency of flights on the routs where another major airline is currently a sole carrier or is predominant in the number of flights).

(4) Efficiencies as an offense (anticompetitive effect)

Cost savings can have negative side effects. If two firms merge and lower their variable costs, they become a tougher competitor. If the cost reduction is big enough, the competitors are driven out of the market, or that new entry is blocked. This thinking is a striking difference between US and EU antitrust practice[13].

This type of efficiencies as an offence did not discussed in this JAL/JAS case explicitly. Alternatively, the JFTC examines overall aspect of the JAL/JAS case from the viewpoints of impact on competition. In this examination, on the assumption of cost savings the

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[10] See 3(2) (iv), page 11.
[11] See footnote 2.
[12] Kwoka and Ravenscraft (1986).
[13] See Patterson and Shapiro.

access of facilities and business contestability of new airlines are considered. In particular, the analysis of congested airport shows that the limitation of competition in the interim report is resolved in variety ways of competition after the remedy of return of takeoff-and-landing slots, facilities favor, and services undertaking. Primarily, the purpose of this consolidation of JAL/JSA is to obtain cost competitiveness to ANA. Thus the efficiencies as an offence are not so highly visible.

(5) Pass-on (pro-competitive effect)

Competition authorities need to assess not only the existence and magnitude of efficiencies but also the extent to which the cost savings are passed on to consumers.

The JFTC carefully examines pass-on effect and this is one of the crucial points to reach the final resolution. The result is that normal fares would be cut by 10% (and the parties would seek entry into the frequency of flights on another sole carrier routes).

The fact that the JFTC considered the pass-on effect important is itself one of the evidence that the agency leans toward a consumer surplus rather than total surplus standard.

(6) Standard of proof

There are a lot of standards of proof for future efficiencies such as "clear and convincing evidence," "credible," "clearly demonstrated."

Based on the explanation and information presented by the parties with regard to the consultation, the JFTC adopts a standard of the enhanced likelihood of effective competition. In addition, the JFTC states that the authority continues to monitor the progress and keeps close contact with the Ministry of Land, Infrastructure and Transport

with a view to promoting competition.

(7) Full versus partial defense

Some competition authorities have chosen to explicitly state which types of efficiencies that are less likely to be considered.

It seems that the JFTC takes efficiencies resulting from rationalization by the merger including economies of scale, scope, and synergy, totally, in the JAL/JAS case[14].

(8) Merger guidelines/Notice

Several competition agencies have chosen to publish the way they analyze mergers including the way efficiencies are considered, but some has published Notices.

The JFTC issues several guidelines such as "Guidelines for Interpretation on the Stipulation that 'The Effect May Be Substantially to Restrain Competition in a Particular Field of Trade' Concerning M&As (21 December 1998)", explicitly the JFTC applies these thinking in the JAL/JAS case.

(9) The other items

There are the other eight items in the checklist; future viability; inefficiencies; net effect; measurement; merger specificity; discounting; burden of proof; prosecutorial discretion versus litigation; and rebuttal versus defense (many of them are efficiency issues).

All of them is unrelated or no implication in the JAL/JAS case.

(10) Overall assessment

It is difficult to put together above assessments and establish policy analysis with rigor. However, it is beneficial for our future research to establish a tentative theory of the character of the merger policy of the JFTC. From above discussion applying checklist item-by-item, it is natural to deduce that the JFTC's merger control is competition-oriented policy. Especially, that is demonstrated by the JFTC which is used consumer's surplus standard (item (1)) and the JFTC considers both "unilateral effects" and "co-ordinated effects" through Bertrand model based on actual competitive condition in airline industry (item (4)) without any competitiveness interests (item (2)). And the JFTC's merger policy is based on case-by-case method (item (7)), full consideration (item (9)) and merger guidelines thinking (item (10)). The analysis of these items provides the policy is seem to be systematic designed and transparent.

(11) Regulatory feature

On the other hand, the merger policy of the JFTC has not only interventionist but also regulatory feature. For example, the remedial measure of undertakings of normal fares 10% cut (item (6)) is like a price regulation. That the JFTC would keep close contact with the Ministry of Land, Infrastructure and Transport is also for the competition authority to be another regulator (item (8)).

Any competition agency can permit a merger "with conditions," especially behavioral conditions. This case includes remedial measures concerning airfares, such as 10% cut etc. This type of outcome is likely to make the JFTC as another regulator.

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[14] See JFTC's statement (2002/4/26).

After all setting up arrangement of the new JAL/JAS company, Iraq war has happened. And Severe Acute Respiratory Syndrome (SARS) news makes headlines around the world. Both affect direct hit the airlines, especially international airlines including JAL/JAS. Thus, JAL/JAS re-open the airfares' discussion to want to raise 10 % (to set back original fares). The JFTC heard the reason to raise the airfares and then did not run into objection the revising. Because of staff ability's limitation and the ambiguous standard of the extent of price freezing, the competition agencies can not be a regulator. The JFTC choose a requirement of accountability of the raising airfares to JAL/JAS. It is better way than to be another regulator.

**6. Conclusion**

This paper breaks down the JFTC's merger control through the JAL/JAS case, descriptively. The system of the Japanese merger control process is competition-oriented, systematic designed and transparent. But the direction of the policy is a kind of regulatory one.

There are a few controversial cases in Japanese merger control policy up to the present. In the deflation phase or cold stock market period, it is not good for merger control policy development due to the small number of merger itself. Today, the international antitrust discussion has processed in several places, such as ICN, OECD, etc. already.

In this paper, the tentative theory is established. The important expand is whether this policy is good or bad (normative analysis) or how the policy is determined (from the perspective of political economy). The former question can be examined in experimental analysis of the firm's data. The latter question can be approached both economics and politics in the firms or the authorities.

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# Chapter Three

# Antitrust Priority under Deflation

Antitrust Priority under Deflation

Abstract

This paper aims to integrate effective antitrust implementation for cartels and monopolizations under inflationary or deflationary periods. An inflationary period causes to push up the demand and cost in industry ostensibly and makes to ease to maintain or increase collusive behavior (cartels), while deflationary period vice versa. However inflation or deflation doesn't induce any monopolization conduct. For the policy implication, it is necessary to take priority for monopolization in the antitrust area during the deflation period rather than for collusive conduct.

Antitrust Priority under Deflation

## 1. Introduction

There have been two significant areas of development in industrial organization and antitrust implementation recently. The first development is in the study of the relationship between collusive behavior and the business cycle (boom or recession). Many articles discussed the response of oligopolies to fluctuations in the demand for their products since the seminal work of Green and Porter[1]. The other development is the result of an epoch-making antitrust case, the United States v. Microsoft[2]. Much of the drama and media episode centered on the battle between the software giant and the government. From a perspective of economics of this case, both sides' economists testified in detail by using economic concepts before the court while many academics issued related papers. Indeed both developments have not yet finished.

In a landmark paper, Green and Porter examined the nature of self-enforcement cartels in demand uncertainty, and concluded that price is unstable under recession[3]. Rotemberg and Saloner argued that Implicit collusion of oligopolies makes they likely perform more competitively in periods of high demand, because deviation of cartel pricing in high demand periods tends to be larger than in low demand periods[4]. The robustness of the

[1] Edward J. Green & Robert H. Porter, *Non-cooperative Collusion under Imperfect Price Information*, 52 Econometrica 87 (1984).

[2] 235 F. 3d 34 (D. C. Cir.), cert. denied, 122 S. Ct. 350 (2001)

[3] See *supra* note 1.

[4] Julio Rotemberg & Garth Saloner, *Supergame-theoretic Model of Business Cycle and Price Wars*



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discussion by using a deterministic cycle of boom and recession is examined and collusive prices were higher in booms is showed in theoretically[5]. The importance of prediction through discount factor falling is also pointed out through mathematical modeling[6]. And a recent study provided a characterization of the most collusive prices and showed that the most-collusive prices may be procyclical when the demand growth rate is positive[7]. All of these focus on non-cooperative collusive behavior in oligopolies, but it is useful to take advantage of the analysis about firms' collusive conduct that is possible to be violated in the real world.

The United States Court of Appeals for the District of Columbia Circuit issued an opinion regarding the case of the United States v. Microsoft on June 28, 2001[8]. The Antitrust Division of the Department of Justice announced that it had reached settlement of the case with Microsoft on November 2, 2001. The central part of the opinion is that "we *(Per Curiam of the Court of Appeals)* affirm in part ... the District Court's judgment that Microsoft violated Section 2 of the Sherman Act by employing anticompetitive means to

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*during Booms*, 76 AM. ECON. REV. 390 (1986).

[5] John Haltiwanger & Joseph E. Harrington Jr., *The Impact of Cyclical Demand Movements of Collusive Behavior*, 22 RAND J. ECON. 89 (1991).

[6] Michihiro Kandori, *Correlated Demand Shocks and Price Wars during Booms*, 58 REV. ECON. STUD. 171 (1991). Kandori extended the demand shocks to serially correlated shocks and showed the robustness of countercyclical pricing.

[7] Kyle Bagwell & Robert Staiger, *Collusion over the Business Cycle*, 28 RAND J. ECON. 82 (1997). Bagwell and Staiger integrated these studies and exhibited that collusive prices are weakly procyclical (countercyclical) when demand growth rates are positive (negative).

[8] See *supra* note 2.

maintain a monopoly in the operating system market[9]." There are many articles concerning this case both academically and journalistically, both from the Government's side and Microsoft's side, and both theoretically and empirically. Gilbert and Katz guided the central economic issues raised by the Microsoft case[10]. "Economic Policy Issues Regarding Microsoft," one of the session themes of the 120th annual meeting of the American Economic Association, included Fisher (who represented the Government side) and Schmalensee (who represented the Microsoft side)[11]. The theoretical analysis of economics in Section 2 of the Sherman Act is to obtain the concept of monopolization identified by barriers of entry.

Based on these considerable advances, this paper aims to integrate effective antitrust implementation for cartels and monopolizations under inflationary or deflationary periods. The rest of this paper is structured as follows. Section Two of this paper explains collusive behaviors under the inflationary or deflationary situation. Section Three deals with monopolization in the inflation or deflation situation. Based on the results of these analysis, Section Four suggests that for the policy implication it is necessary to take priority for monopolization in the antitrust area in the deflation period rather than for collusive conduct, because the greater the deflation, the greater the monopolization (the greater

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[9] United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001), at 7.

[10] Richard J. Gilbert & Michael L. Katz, *An Economist's Guide to U. S. v. Microsoft*, 15 J. Econ. Persp. 25 (2001).

[11] Franklin M. Fisher, *The IBM and Microsoft Cases: What's the Difference?* 90 Am. Econ. Rev. 180 (2000); Richard L. Schmalensee, *Antitrust Issues in Schumpeterian Industries*, 90 Am. Econ. Rev. 192 (2000).

inflation, the greater collusion).

**2. Collusive Behavior under Inflation or Deflation**

The core idea of Green and Porter[12] is that in an imperfect information world, when a firm declining prices the firm doesn't know whether the price decline is a result of a cartel collapse or not. Therefore, in a recession period, it is difficult to maintain cartel behavior in industries. The essence of Rotemberg and Saloner's idea is that the boom phase leads a firm to increase present deviating payoffs than the sum of the future profits[13]. Accordingly, in a boom phase, it is hard to hold collusive behavior both theoretically and empirically. At a glance, these two papers are inconsistent with each other. Haltiwanger and Harrington explained the reason for this inconsistency, which is caused by Rotemberg and Saloner's assumption that demand shocks are independently and identically distributed (i.i.d.)[14]. A result of the i.i.d. assumption is that firms' expectations on future demand are independent of current demand. Then they showed that an asymmetric pattern yields to the possibility that price may be procyclical during booms and countercyclical during recessions.

Empirical studies are another important method. Baker surveyed empirical studies that included the recent development of law enforcement on coordination enhancing conducts and analyzed recent coordination views[15]. There is not much robust causation but modest

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[12] See *supra* note 1.

[13] See *supra* note 4.

[14] See *supra* note 5.

[15] Jonathan B. Baker, *Policy Watch: Developments in Antitrust Economics*, 13 J. Econ. Persp. 181 (1999)

endorsement of procyclical collusive pricing behavior from Porter's pioneering work to Genesove and Mullin's recent study[16].

One of the core antitrust provisions prohibits cartel conduct. Section One of the Sherman Act states that "(e)very contract,..., in restraint of trade ... is declared to be illegal.[17]" This concept is that while there should have been competitive equivalence in a market, if businesses restrict competition jointly, it causes a loss on certain public welfare. And even though it would be applied to a kind of cost outside a market for the recovery, preparing the specialized agency that removes such a state can be regarded as an effective approach from overall national economic welfare[18].

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[16] Robert H. Porter, *A Study of Cartel Stability: The Joint Executive Committee, 1880-1886*, 15 BELL J. ECON. 301 (1983). Porter showed price wars were caused by an unanticipated change in demand. See also, Timothy F. Bresnahan, *Empirical Methods for Industries with Market Power*, Chapter 17, HANDBOOK OF INDUSTRIAL ORGANIZATION II, Elsevier Science Publishers B.V. New York, (1989). Bresnahan surveyed empirical studies of industries with market power and concluded that anticompetitive conduct caused a high price-cost margin. Hiroyuki Odagiri & Takashi Yamashita, *Price Mark-Ups, Market Structure, and Business Fluctuation in Japanese Manufacturing Industries*, 35 J. IND. ECON. 317 (1987). They demonstrated an analysis corresponding with Green and Porter's as well. David Genesove & Wallace P. Mullin, *Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case*, 91 AM. ECON. REV. 379 (2001). They reviewed the Sugar Institution in detail and emphasized the importance of communication in collusive conduct to maintain market order, which might be effective on cartel benefits procyclically.

[17] 15 U.S.C.§1

[18] Harrington's recent research is a clue of discussion about relationship cartel pricing and an antitrust authority. See Joseph E. Harrington Jr., *Cartel Pricing Dynamics in the Presence of an Antitrust Authority*, Johns Hopkins University Working Paper No. 486, (Dec. 2002) at

For an analysis of inflation effect on collusive behavior, an entity i of homogenous firm is in a market (market 1) without entry, and a demand curve of product $x_1$ which entity i faces is downward. Firm i's cost is constant except for cost related to collusion.

During collusion, the equilibrium on price and output in the market moves from point $A_1$ (competitive equilibrium) to point $B_1$ (collusive equilibrium) on the demand curve. $\Pi A_1(x_1)t$ is the total amount of each firm's benefit of the point $A_1$ on the demand curve at period t, which is discounted as present value. $C(x_1)_t$ is the total amount of each firm's cost per $x_1$ in doing collusion at period t: $C(x_1)_t$ = (collusion arranging cost) + probability*penalty. The "collusion arranging cost" means direct cost of establishing or maintaining collusion among firms (negotiation, communication, etc.). The "probability" in above equation is a ratio of discovery on antitrust violation, and the "penalty" is firm's cost from the discovered antitrust violation. In this regard, $C(x_1)_t$ is regarded as an antitrust enforcement variable because the probability of discovery on violation (and often the penalty, too) is affected by antitrust authorities' struggle to investigate and prosecute the case. When collusion occurs and is maintained at period t, $\Pi B_1(x_1)_t$ minus $C(x_1)_t$ is more than $\Pi A_1(x_1)t$ ($\Pi_1 B_t$ is the total amount of each firm's benefit of the point $B_1$ at period t, which is discounted as present value.). We obtain formula (1):

$$\Pi B_1(x_1)_t - C_{1t} > \Pi A_1(x_1)_t. \qquad (1)$$

The demand shocks include two aspects: current and future aspect. Haltiwanger and Harrington state that "(t)wo key features to cyclic fluctuations are identified. First, the

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<http://www.econ.jhu.edu/People/Harrington/pricingdynamics12-02.pdf>.

gain to deviation from the established pricing rule varies over the cycle and is highest when demand is strongest. Second, the discounted loss from such a deviation is also found to vary over the cycle and is lowest during a recession as demand is anticipated to be falling in the immediate future[19]." The former is the current gain aspect and the latter is the future gain aspect. In the boom periods, there is a mix of these two aspects. According to early theoretical and empirical studies, future gain aspect is modestly stronger, and it is common for firms to take maintaining collusive behavior into consideration.

Regarding antitrust violation of collusion such as cartels, bid riggings, etc. beyond only implicit collusive behavior among entities, there is a procyclical relationship between cases and booms (particularly inflation) more obviously. Based on enforcement experience, there are three reasons: (i) It is difficult for cartel entities to make their price up only for material or labor cost up by itself, until overall price level in economy is being increased (reason of background). (ii) There has been the unique situation under which entities should or could make their price up jointly (reason of motivation). (iii) Cartels that have been happening cause subsequent price level up (reason of consequence). These reasons are derived from boom phase, particularly they are kind of nominal roots of inflation. (For complementary calculation, correlation coefficient between every fiscal year's nominal GNP deflator and the number of the case on the unfair restraint of trade of the Antimonopoly Act (the antitrust law of Japan) 1956-1999 is 0.46.)[20]

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[19] See Haltiwanger and Harrington at 102; *supra* note 5.

[20] It is not easy to use the number of the case of any Article of the Antimonopoly Act (the antitrust law of Japan) due to various factors affecting other than inflation. The data are available in the Cabinet Office's website (http://www.cao.go.jp/) and the annual report of the Japanese Fair Trade Commission

Theoretically, the boom period affects collusive behavior increase modestly. As a matter of fact, particularly an inflationary period causes to push up the demand and cost in industry ostensibly and makes to ease to maintain or increase collusive behavior (cartels), while deflationary period vice versa. Therefore, collusive behavior (cartels) seems to be procyclical in the real world.

In these regards, $\Pi_1 B_t$ would be going up with t's moving in (1) rather than $\Pi_1 A_t$ in the inflationary periods. We obtain relation (2):

$$\frac{d\Pi_1 B_t}{dt} > 0. \qquad (2)$$

To the contrary, under the deflationary period, price is constantly decreasing, and $\Pi_1 B_t$ would go down with t's moving in (1) rather than $\Pi_1 A_t$.

### 3. Monopolization under Inflation or Deflation

Another main article of the Sherman Antitrust Act is Article Two regarding trade monopolization and states that "(e)very person who shall monopolize ... shall be deemed guilty of a felony.[21]" Traditionally, the offense of monopolization has two elements: "(i) the possession of monopoly power in the relevant market and (ii) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident." (See United States v. Grinnell Corp.,[22].)

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(1999).

[21] 15 U.S.C. §2.

[22] 384 U.S. 563, 570-71 (1966). The requirements are summed up by the court in the United States v.

In addition, there is some discussion of the monopolization in the "New Economy." In a case law world, there is no consensus among commentators on the question of whether, and to what extent, current monopolization doctrine should be amended to account for competition in technologically dynamic markets characterized by network effects, information goods or lock-in effects. Indeed, there is some suggestion that the economic consequences of network effects and technological dynamism act to offset one another, thereby making it difficult to formulate categorical antitrust rules absent a particularized analysis of a given market up to now. This was also mentioned in the Microsoft case[23]. Through the Microsoft case, the theoretical analysis of economics in Section 2 of the Sherman Act is to obtain the concept of monopolization identified by barriers of entry.

In an economics world, monopolization has been dealt with through many definitions of barriers to entry. Classically, Bain defined that the extent to which, in the long run, established firms can elevate their selling prices above the minimal average costs of

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Microsoft Corp., *supra* note 2, (II. A., at 14). While merely possessing monopoly power is not itself an antitrust violation, it is a necessary element of a monopolization charge. The Supreme Court defines monopoly power as the power to control prices or exclude competition. More precisely, a firm is a monopolist if it can profitably raise prices substantially above the competitive level. Where evidence indicates that a firm has in fact profitably done so, the existence of monopoly power is clear. Because such direct proof is only rarely available, courts more typically examine market structure in search of circumstantial evidence of monopoly power. Under this structural approach, monopoly power may be inferred from a firm's possession of a dominant share of a relevant market that is protected by entry barriers. "Entry barriers" are factors (such as certain regulatory requirements) that prevent new rivals from timely responding to an increase in price above the competitive level.

[23] Also this is mentioned in the Court of Appeal opinion, see *supra* note 2, at 12.



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production and distribution without inducing potential entrants to enter the industry.[24] These views were challenged by Baumol, Panzar, and Willig who argued that one firm in a market did not mean no competition due to thread of potential entrants by using contestable market concept[25]. Then there is the common idea that a barrier to entry is a mobility barrier on capital impedes, technological condition or historical consumer preference. The Microsoft case provides concrete illustrations such as "removing any desktop icons, folders, or 'Start' menu entries", "altering the initial boot sequence" and so on.

Empirical studies other than the Microsoft case were also surveyed by Baker. A Rising Rival's Cost (Salop and Sheffman) and other non-price exclusionary acts, such as most-favorite-customers clause, are identified in order to obtain market power[26].

As a situation of a market (market 2) under monopolization, an entity i is in a market, and the demand curve of product $x_2$ which entity i faces is downward. Firm i's cost is constant except for cost related to monopolization.

During monopolization, the equilibrium moves from point $A_2$ (contestable competitive equilibrium) to point $B_2$ (monopolized equilibrium) by barriers to entry conducted by the

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[24] Joe S. Bain, INDUSTRIAL ORGANIZATION, 2nd Ed. Wiley, John & Sons, Inc., New York (1968).

[25] William J. Baumol, John C. Panzar & Robert D. Willig, CONTESTABLE MARKETS AND THE THEORY OF INDUSTRIAL STRUCTURE, Harcourt C. Pub., New York (1982).

[26] Steven C. Salop & David T. Scheffman, *Rising Rivals' Costs*, 73 AM. ECON. J. 267 (1983). Monopolization through rival's rising cost and other non-price exclusive conducts is brought up by them. See also, Thomas Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Rising Rivals' Costs to Achieve Power Over Prices*, 96 YALE L. J. 209 (1986), Eric B. Rasmussen, . Mark Ransmeyer & John S. Wiley, *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991), and B. Douglas Bernheim & Michael D. Whinston, *Exclusive Dealing*, 106 J. POL. ECON. 64 (1998).

entity i. $\Pi A_2(x_2)t$ is benefit of the entity i of the point $A_2$ on the demand curve at period t, which is discounted as present value. $C(x_2)_t$ is cost per $x_2$ by doing monopolization of the entity i: $C(x_2)_t$ = (monopolization arranging cost) + probability*penalty. The "monopolization arranging cost" means direct cost of establishing or maintaining collusion among firms (exclusionary behaviors' cost, etc.). The "probability" in above equation is a ratio of discovery on antitrust violation in monopolization, and the "penalty" is firm's cost from the discovered antitrust violation. In this regard, $\Pi B_2(x_2)t$ is benefit of the entity i of the point B at period t, which is discounted as present value. When monopolization occurs and is maintained at period t, $\Pi B_2(x_2)_t$ minus $C_{2t}$ is more than $\Pi A_2(x_2)_t$. Then we obtain formula (3):

$$\Pi B_2(x_2)_t - C(x_2)_t > \Pi A_2(x_2)_t. \qquad (3)$$

With regard to booms or recessions, almost all demand shocks are irrelevant to monopolization and the exclusion of potential entrants from the market. The barrier that is easy to fluctuate in a shock is not a good mobility barrier for the monopoly firm; once we suppose that in a monopolized market there is a robust mobility barrier in any demand shock. What the antitrust law should regulate is the monopolized barrier that is difficult for new entrants to overcome both in inflation and deflation.

Now suppose that in an inflation phase, monopolized firm's price is constantly increasing with the inflation. In any phase, there is no change in the firm's monopolization conduct. Therefore, in the inflation phase (price and cost level goes up with t) the level of $\Pi B_2(x_2)_t$ and $\Pi A_2(x_2)_t$ would goes up with t's moving as well as the level of price and cost in (3).



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Similarly, under a deflation phase, price and cost is constantly decreasing, and $\Pi A_2(x_2)_t$ and $\Pi B_2(x_2)_t$ level would be the same shifting as the price and cost. Inflation or deflation doesn't induce any monopolization conduct.

## 4. Antitrust Priority

These preparations tell us about antitrust enforcement priorities. In the inflation period, collusion behavior (cartels) increases, and in the deflation period collusion decreases vice versa. Monopolization maintains a constant level both in the inflation phase and deflation phase. Therefore, in the inflation period, antitrust enforcement should focus on collusion conduct. In the deflation period, antitrust enforcement should focus more on monopolization than collusive conduct.

This intuitive thinking can be confirmed by the following. There are market 1 (collusive market) and market 2 (monopolized market) in economy.

When there is a cartel situation, we already have the formula (1).

$$\Pi B_1(x_1)_t - C(x_1)_t > \Pi A_1(x_1)_t. \qquad (1)$$

For this reason, an enforcement agency takes measures such as strengthening their investigation in order to increase the probability of identifying a violation of antitrust law. $C(x_1)_t$ consist of (collusion arranging cost) + probability*penalty. The antitrust enforcer takes some resources as follows formula (4):

$$\Pi B_1(x_1)_t - \Pi A_1(x_1)_t \geqq C(x_1)_t. \qquad (4)$$

When there is a monopolization situation, we already have the formula (3).

$$\Pi B_2(x_2)_t - C(x_2)_t > \Pi A_2(x_2)_t. \tag{3}$$

The similar way to think of the formula (1), we have following an inequality (5).

$$\Pi B_2(x_2)_t - \Pi A_2(x_2)_t \geqq C(x_2)_t. \tag{5}$$

Now, the total amount of enforcement activity ($C(x_1)_t + C(x_2)_t$) should be efficient under the condition of avoiding collusion or monopolization. Therefore, we can minimize the enforcement activity, subject to following conditions.

Min ($x_1$, $x_2$: $C(x_1)_t + C(x_2)_t$)

s.t. (4), (5), $C(x_1)_t \geqq 0$, and $C(x_2)_t \geqq 0$

This is solved by the following[27]:

$$\frac{d}{dx_1} C(x_1)_t = \frac{d}{dx_1} (\Pi B_1(x_1)_t - \Pi A_1(x_1)_t) \tag{6}$$

[27] The Kuhn-Tucker first-order conditions with respect to $C(x_1)_t + C(x_2)_t$, (4) and (5) imply an appropriate continuity, differentiability and convexity.

$$\frac{d}{dx_2}C(x_2)_t = \frac{d}{dx_2}(\Pi B_2(x_2)_t - \Pi A_2(x_2)_t)\,. \qquad (7)$$

This solution means that the optimal enforcement level per production is equal to a marginal benefit from collusive conducts per product in each industry (from (6) and (7)).

In the boom (inflation) period, $\Pi B_1(x_1)_t$ goes up with t more than $\Pi A_1(x_1)_t$ due to (2). Therefore, it is necessary that $C(x_1)_t$ would go up with t. On the other hand, $\Pi B_2(x_2)_t$ and $\Pi A_2(x_2)_t$ are the same moving. Thus the optimal enforcement against for cartel conducts would go up more than the enforcement against the monopolization in the inflation period.

In the deflation period, the optimal enforcement effort against for cartel conduct would go down. In contrast to the inflation period, it becomes important thing to enforce antitrust law for monopolization conducts.

**5. Conclusion**

Antitrust enforcers have a conventional understanding, which is that cartel cases increase in the inflation period. It is quite simple because it is possible to raise prices, jointly or not, in only boom times. Other anecdotal evidence is that the political pressure to permit antitrust exemptions increases in the recession period. This is because self-collusive behavior implicitly in the industry cannot work in the recession period, then firms need to introduce coercive power in order to maintain a cartel legally.

Monopolization, however, has emerged both in boom times and recession. Bigger cases are discovered in boom periods up to now. The reason is possibly that the importance of antitrust policy itself is reduced in overall economic policy in the recession. Therefore, the resources of antitrust agencies shrink in recession periods.

Cartels happen procyclically and monopolizations constantly. Accordingly, in the inflation period collusive conduct should be given antitrust priority, and in the deflation period monopolization should be emphasized. Taking into consideration this policy not only has real implication but also an announcement effect for the real world. Once the antitrust authorities adopt this policy, then how to change an entity's conduct will be needed to advance research.

Another frontier is to include merger and acquisition activities into this priority model and establish a comprehensive antitrust enforcement theory. In general, merger and acquisition activities are correlated with a stock market that is linked to boom and recession closely (One of the initiations is a study of Andrade, Mitchell and Stafford[28]). It would be, however, hard to find the relationship between antitrust problems in a transaction of merger and acquisition and the boom or recession.

[28] Gregor Andrade, Mark Mitchell & Erik Stafford, *New Evidence and Perspectives on Mergers*, 15 J. ECON. PERSP. 103 (2001).



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# Chapter Four

# Competition and Cooperation in Fuel Oil Public Bidding

Collusion in Fuel Oil Public Bidding

(An Analytical Case Studies in Japan and Korea)


## Abstract

In November, 1999, the Japanese Fair Trade Commission (JFTC) took a legal measure to participants in bids for oil delivery work ordered by the Self-Defense Forces. In September, 2000, the Korean Fair Trade Commission (KFTC) took a legal measure to participants in bids for oil delivery work ordered by the Korean Ministry of National Defense. Enactment of these measures was not related, though there is a similarity between the cases, which involve oil delivery companies obtaining special procurement privileges via security authorities. We researched these cases and speculated as to why the industry is conducive to collusion. We established three points of focus: (a) Not so large payoff in deviation than in collusion, (b) Larger payoff in bid rotation than in competition, and (c) Sufficiently large discount factor. Then we analyzed several measures in the plan for Japanese procurement reform. The implementation can clarify points of focus integral to eradicating the participants' collusion incentive.

Competition and Cooperation in Fuel Oil Public Bidding

## 1. Introduction

In November, 1999, the Japanese Fair Trade Commission (JFTC) investigated participants making bids for oil delivery work ordered by the Self-Defense Forces based on the provisions of the Antimonopoly Act (AMA: Japanese Antitrust Law), and took a legal measure to eleven parties because, based on the provision of Subsection 2 of Section 48 of the Act, these companies were in violation of the provision of Section 3 (Prohibition of unreasonable restraint of trade) of the Act. In September, 2000, the Korean Fair Trade Commission (KFTC) investigated participants in bids for oil delivery work ordered by the Korean Ministry of National Defense based on the provisions of the Monopoly Regulation and Fair Trade Act (MRFTA: Korean Antitrust Law), and took a legal measure to five parties because the companies were in violation of the provision of Subsection 1 of Section 19 (Prohibition of Unfair Collaborative Acts) of the Act.

Enactment of these measures was not related, though there is a similarity between the cases, which involve oil delivery companies obtaining special procurement privileges via security authorities. We researched these cases and speculated as to why

the industry is conducive to collusion. Subsequently, we address theoretically how bid-rigging can be prevented and assess actual bidding reform principles.

This paper constructs as follows: Section two explains the Japanese case, section three the Korean case. Section four analyzes common and different points between these cases. Section five discusses model analysis of bidding firms and presents several points of bidding system reform to be kept in mind. Section six assesses the actual reform policies of procurement in relation to the points presented in section five. Section seven provides concluding remarks.

## 2. Japanese Case

### 2.1 The defense facilities administration agency case

On November 17, 1999, the JFTC issued a recommendation to eleven oil companies, which had engaged in bid-rigging in oil procurement by the defense facilities administration agency. The JFTC also requested the agency to maintain fair and free competition in its bidding for procurement including recurrence prevention such as reforming the monitoring system or securing bidding information, and to take measures to maintain adequate bidding enforcement.

The defense facilities administration agency orders almost all gasoline,

kerosene, diesel oil, crude oil, and jet fuel by means of designated competitive bidding. At that time, the agency designates bidding participants from qualified entities who registered the list with some qualification. The number of contracted procurements by the agency is six or seven in one fiscal year, and each designated competitive bidding session differentiates types of oil and locations of bases. The agency's procurement process is as follows: First, the agency makes designations of competitive bidding (low price competition, type by type, location by location). When no participant reaches the agency's estimated price for the contract, the bidding process is repeated (up to three times). Then the agency initiates negotiation with the participant who made the lowest bid in the last (third) round of bidding in order to reach the estimated price for the contract. If the agency cannot agree with the negotiating participant, the agency terminates the negotiation and establishes a new estimated price for the contract based on that negotiation. Thereafter, the agency initiates designated competitive bidding based on the new estimated price.

2.2 Brief of violation of conduct

Since at least April, 1995, the twelve companies[1] have been determining among

[1] In April, 1999, Nippon Oil and Mitsubishi Oil are merged. Then, twelve players change eleven players.

themselves who will be the successful bidder of the designated competitive bidding to the agency based on the actual quantity of each firm in previous years in an effort to stabilize their quantities and profits. The process is as follows:

(a) For every bidding, just prior to the designated bidding day, they hold a meeting to agree on who will be the successful bidder. They choose the successful bidder based on a plan to distribute the jet fuel bids among the firms made by a manager of Cosmo oil corporation (He is a fixer of this case). Regarding gasoline, kerosene, diesel oil, and crude oil, they reveal their primary interests to each other, which are their preferential bases and items as well as their individual evaluation of the bases and items. Then; (i) if a bidding involves only one firm, then the firm is the successful bidder; (ii) if bidding involves several firms, then the Cosmo manager decrees the champion based on the actual performance in the previous year; and (iii) if there are no firms bidding, then the Cosmo manager awards the contract to a firm[2].

(b) All of them have a consensus of ill usage of the procurement system and practice. First, the agency makes designated competitive bidding (type by type, location by location). The participants of twelve firms do not bid for the bidding to raise the price of oil. They offer an impossible price for the contract with the agency, then the

[2] However, the participants did not disclose their real cost structure but agreed the successful bidder and the price.

high-bidding is repeated three times. Any participants other than the planned successful bidder decline the non-planned bidding before the third round of bidding. Then the agency initiates negotiation with the planned successful participant who offers the lowest bid in the last (third) round of bidding. In the negotiation, the planned successful bidder does not agree with the agency to raise the price of oil. Finally, the agency establishes a new estimated price for the contract and another designated competitive bidding based on the new estimated price. The planned successful bidder accepts the new estimated price (which is suggested by the bidder), and other participants assist the designed competitive bidding. Twelve companies had been receiving almost every order from the agency in such a manner, respectively.

**3. Korean Case**

3.1 The Ministry of National Defense case

On September 27, 2000, the KFTC slapped five oil companies including SK, LG-Caltex, and S-Oil, with a lawsuit for 190.1 billion won (approximately $150 million) in surcharges for conspiring on bids to supply oil to the military. The KFTC also turned its findings over to prosecutors and requested that they take legal action against the oil companies. The KFTC also requested that the Ministry reform portions of the bidding

system regarding acquisition and estimating for contract price, based on its investigation.

3.2 The oil bidding and acquisition system

Based on a request from each demanded military annually, the acquisition office of the Ministry of National Defense concludes oil acquisition contracts for each bidding company after the Ministry completes the designated competitive bidding. This bidding formality is of two types: First is unit price bidding. According to article 22 of the law[3] regarding a contract in which one party is the government, when it is necessary to continue to supply something, this bidding involves competition in terms of unit price for a contract within the annual budget. The second is request quantity bidding. According to article 17 of the cabinet order of that law, when it is necessary to acquire many goods, this bidding involves competition in terms of unit price and ability to supply a specific quantity of the goods.

The office of the Ministry announces the year's bidding schedule in the beginning of the year, then collects bidding firms' application price for the Ministry of Commerce, Industry and Energy. The office estimates the price for a contract, then

[3] Korean Accounting Law.

conducts bidding to acquire a winning bid. When no bidder meets the estimated contract price, then the office raises the contract estimate and announces a new round of bidding and the process is repeated.

3.3 A brief description of violation of conduct

The KFTC recognizes five companies for the following conduct: When they participate in oil acquisition bidding to the acquisition office of the Ministry of National Defense every year, before the bidding, executives of the firms meet at a restaurant in Seoul and agree on implementation of the agreement by working-level consultation without changes. Then the working-level consultation agree on who will be the successful bidder, price, and dummy price for all schedules of the military oil bidding and implement these things jointly[4]. This conduct was recognized for financial years 1998, 1999, and 2000.

**4. Common / Different points**

4.1 Points of difference

In the case of Japan, the participants decide on the successful bidder for every bidding

[4] The participants collude with each others in their several sales condition, but the negotiation details (whether to disclose their cost one another or not) are not recognized



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round before making their respective bids, and defeat any rise in the estimated price during the first stage of bidding. In the case of Korea, the participants decide on the successful bidder, price, and dummy price for all schedules of the military oil bidding before making their respective bids.

These two cases differ in the following points:

(a) The number of participants. The Japanese case involves twelve participants, the Korean case five.

(b) The cost and benefit of each participant. Each firm in Japan and in Korea has an independent and different cost and benefit function.

(c) The formality of the bidding. The Japanese style of bidding is complicated; the Korean style is repeat bidding.

(d) The content of the bidding. Japanese bidding is segmented base-by-base and oil-by-oil; Korean bidding is unit price bidding.

4.2 Points of commonality

The two cases have substantially common points, as follows:

(a) The purchaser is the only governmental entity involved; In Japan, this entity is the defense facilities administration agency. In Korea, it is the acquisition office of the

Ministry of National Defense. Generally, the cost-consciousness and incentive of the government is not stronger than that of the private sector.

(b) The goods are homogenous, difficult to differentiate, difficult to reserve, and market-priced; Japan goods are gasoline, kerosene, diesel oil, crude oil, and jet fuel. Korean goods are medium and high thion-diesel oil including jet fuel (JP-8).

(c) The participants are fixed; Japan is almost all of twelve firms, and Korea is all five of five.

(d) The bidding is scheduled every quarter or more frequent of the year (in Japan) or annually (in Korea), and the bidding and successful bidder is open without delay (an announcement is issued to each participant).

(e) Violations of conduct are decided with great circumstances ex ante; in the case of Japan, the participants defeat a rise in the estimated price in the first stage of bidding then the successful firm, according to plan, wins the bid. In the case of Korea, the participants decide on the successful bidder, price, and dummy price for all schedules of the military oil bidding before making their respective bids.

(f) After the investigation had been completed and measures had been taken, the competition authority made requests on the procurement side; The JFTC requested the agency to maintain fair and free competition in its bidding for procurement; to seek to



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prevent recurrences by, for example, reforming the monitoring system or securing bidding information; and to take measures to maintain adequate bidding enforcement. The KFTC based on its investigation, requested the Ministry to reform the acquisition and estimation for contract price portions of its bidding system.

## 5. Model Application

### 5.1 Previous studies

We can apply a model to the two cases. Of course each case has unique reason to practice such violation; we can however abstract many factors such as the number of participants, market structure (share, regulation, etc.), cost and benefit function of each firm, and formality of the bidding. In this regard, we can suppose that a firm is a symmetric, homogenous, independent, no-market power.

This type of bid-rigging is similar to cartel conduct in an oligopoly situation. The type of cartel in repeated games has attracted a great deal of attention among economists, especially after the breakthrough paper by Friedman (1971). Friedman's paper introduces trigger strategy equilibria as well as folk theorem. Also, there are many papers on topics such as imperfect observation (Green and Porter, 1984) and perfect monitoring (Rotemberg and Saloner, 1986). Our case analysis is analogous to the

Rotemberg and Saloner type; in particular, the point of similarity is that demand shifts are observable.

Further, there have been several auction collusion analysis studies. McAfee and McMillan (1992) deal with bidding coordination with or without side-payments in a one-shot game. Several works tackle case studies, such as Japanese price-fixing conspiracies (McMillan; 1991), highway construction bid rigging (Porter and Zona; 1993), forest service timber sales' bidding collusion (Baldwin, et al.; 1997), and school milk cartel bidding (Pesendorfer; 2000)[5]. Aoyagi (2003) extended this framework to repeated games. That paper shows that collusion is possible through intertemporal payoff transfer even if there is no side payment in infinitely repeated auctions. His model has a few good features, including: (i) the assumption that the auctioneer uses the same auction format every period; (ii) the two-bidders model, the qualitative conclusions of which would be applicable to three or more bidders; and (iii) the bidders' private signals are independent across periods.

We apply his model to the cases in Japan and Korea. Note that the participants in bidding are twelve or five. However, as long as attention is restricted to collusion by grand coalition, we can adopt this scheme. In these cases, bidder communication is

[5] Fabra (2003) deals with repeated auctions from a uniform and discriminatory viewpoint of tacit collusion. Klemperer (2004) surveys comprehensive literatures. Baba (200) is also a useful reading.



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explicit in the sense that reporting of private signals is done separately from bidding in the stage auction. Then, we can apply the conduct of the cases into the dynamic bid rotation scheme in Aoyagi's Theorem 2 of section four in Aoyagi (2003) .

Our situation to be applied to the theorem involves the repeated stage-auction, first-price sealed-bidding, independent private values, and a sufficiently large discount factor. In this situation, we can obtain strictly higher payoff by means of a bid rotation scheme.

5.2 Application to the known facts

Several analytical case descriptions are as follows:

(a) Not so large payoff in deviation than in collusion

For a firm, the structure of the slope of the cost function is increasing escalated. We can assume that every periods' cost structure of the firms are similar ones. In fact, fuel oil cost of each firm is mainly decided by international commodity market. Costs in economics terms (other than that from commodity market) can be considered as constant during the periods. This type of cost structure is similar to that of repeated game explanation so far (see, Rotemberg and Saloner (1986)). And this case can be applied in context of these explanations.

In this situation, if a firm deviates a stage and obtains a contract to supply a large quantity of oil products, then it is difficult for the firm to obtain so many benefits due to the resulting cost problem (for example, the delivery site is located in a distant or remote part of the country.). Thus, one deviation's benefit is not so larger than that achieved by repeated cooperation.

In addition, the participants of the repeated auction stage are fixed during the periods. The authority does not include any new entrants. And the information of the successful bidder and the price of the bidder is announced for all the participants quickly after the bidding. These factors lead all the participants other than a deviator to impose a penalty right after the deviation. There is almost no room to think unobservable deviation problem. Therefore, a deviator cannot obtain large benefits under the desk.

In the information exchange stage, in fact, they reveal their intimate information (their preferential bases and items as well as their individual evaluation of the bases and items). Indeed each firm may have an incentive to provide false information (to assert larger demand to get larger bids), however the long-time quota for every firms are managed in the participants. Participants can not provide false information.



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(b) Larger payoff in bid rotation than in competition

One difference between competitive bidding and rotating bidding is that pricing oil products with collusion can obtain larger payoffs not only in terms of monetary benefits but also stabilized supply of certain of quality with a foreseeable price in the market-priced product. If payoffs between in bid rotation and in competition are in similar ones, a firm might not collude others under the antitrust penalty risk.

Even a firm recognizes its illegal situation in itself, the firm conduct collusion for the purpose of the expected larger payoff in bid rotation including penalty probability.

(c) Sufficiently large discount factor

Before the initiation of the competition authority's investigation, participants in both cases were not aware of any problems in their practices, and did not anticipate that these practices would be terminated. These circumstances allowed them to expect a large discount factor.

Additionally, in the Japanese case, the initiation of collusion occurred directly after the oil shock (in 1973). Although the discount factor is not linked directly to the interest rate, the interest rate's rapid depletion is likely to have some relationship to the occurrence of collusion due to recognition of increase in the discount factor.

5.3 Procurement side's (ineffective) measure

The procurement sides make a guess in order to make it difficult for participants to collude in bidding. First, they establish a complicated bidding system; for example, first the agency sets up designated competitive bidding (type by type, location by location), and when no participant reaches the agency's estimated price for the contract, there is another round of bidding up to three rounds, etc. These processes are needed with some effort of bidders, but the measures do not induce competition to each participant. The complex processes lead the participants to make detailed arrangements.

Second, they make every possible effort to come up with a precise estimate price. Indeed, the estimate price is one of the focal points of the bidding or negotiation, and collusive participants confer about how to raise the estimate price by deceptively acting so as to induce the agency to terminate the negotiation and establish a new (higher) estimated price for the contract.

**6. Reform assessment**

6.1 The points of the system to be reformed

The application of the model to the facts of both cases indicates several general things



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to be kept in mind in reform of the bidding system.

(a) Larger payoff in deviation than in collusion

We should consider what factors increase the benefit of deviation from collusion. For example, financial incentive might induce a firm to deviate in order to increase its share of the procurement or to decrease the rate of mark-up. And also, a deviator cannot be paid any penalty from the deviation, for example a successful bidder would not be announced for every participant. Further, one unit or term of bidding can be made higher in order to allow a more significant difference between the winner and the losers.

(b) Smaller payoff in bid rotation than in competition

The differences in payoff between bid rotation and competitive bidding should be decreased. For example, the expected price can be estimated more conservatively. Once the procurement office commits to calculate severe estimated price, even the payoff in bid rotation is not so large. Then the firm should consider whether to collude or not including smaller payoff as well as antitrust penalty. It causes to shrink the incentive of antitrust collusion with small payoff.

Additionally, the standard of the product could be reformed from special standard to commercial base standard in order to go along with market price fluctuation. Further, a bonus could be given to firms supplying market-based pricing (assuming a

standard was established).

(c) Small discount factor

A small discount factor should be made systematically. For example, the framework of the bidding system can be drastically changed every five or ten years, with system changes announced beforehand. Further, if a designated competitive bidding system is chosen in the future and duly announced, the participants of the bidding would be reshuffled. These changes as well as the announcement make participants to promote an opportunistic conduct. When the procurement authority changes a bidding system next stage, a firm should deviate out of collusion so far because this stages deviation would not be punished internally in next stage. This method affects discount factor to become small.

In addition, new entrants that are supported authority would be created from wholesale trading firms with a commission (that is, whose firm has an incentive to economize margins) in order to create brand-new participants de novo. The new bidding system creation (as well as the announcement) including forced new entrants is a kind of regular reshuffle in order to make small discount factor.

6.2 Japanese reform assessment



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We consider the reform program made by the heads of the procurement reform in the defense facilities administration agency. The heads issued a "Definite Plan of Procurement Reform" in April 1999. The agency implements the plan in the overall procurement system.

In the plan, there are several items to be enforced for systematic reform:

(i) Procurement system reform (to strengthen the competitive mechanism, to reduce the life cycle cost of supplied equipment, to stimulate cost-cutting incentives (including financial incentives ) for the firm side),

(ii) Procurement organization reform (to reform central procurement of the defense facilities administration agency, to reexamine the structure of the organization and the job rotation system, to arrange the monitoring system so that monitoring is conducted by a third party, to reinforce education and offer training courses with regard to procurement businesses), and

(iii) Review the Self-Defense official's reemployment (to change the administrative process).

Although this plan applies not only to fuel oil procurement but also overall procurement of Self-Defense facilities and equipment, we can briefly evaluate the plan in light of the implications of the model analysis. For example, the financial incentive

for cost-cut schemes in procurement of oil has a beneficial effect because the incentive contract is fitted to the countermeasure against the incentive compatibility condition for truth-telling of our analysis. In addition, the plan for reforming from special standard to the commercial standard is attractive to new entrants, and gaining new entrants will lead to a smaller payoff in bid rotation than in competition.

## 7. Concluding remarks

This paper focuses on the antitrust case of fuel oil procurement by a defense agency in Japan in 1999 and in Korea, in 2000, and applies a bidding collusion model to consider the conditions and countermeasures. As a matter of course, both cases have unique and special factors, but we abstract some details of the respective situations to analyze. Our results provide three realistic points to keep in mind: (a) Not so large payoff in deviation than in collusion, (b) Larger payoff in bid rotation than in competition, and (c) Sufficiently large discount factor. Then we consider measures that could be taken to implement Japanese procurement reform. The goal of reform is to eradicate the collusion incentive. This paper contributes applications of the model to real cases and clarifies collusion incentives and countermeasures in layman's language.

Our important extension of application of the model is to accumulate case

studies based on the economic framework, especially recent leniency programs' effect such as Motta and Polo (2003), Hinloopen (2003). It is necessary to establish a collusion-free system design, to which end additional studies such as cases of bid rigging in the construction industry (called "dango") are needed[6]. Moreover, the experimental approach (e.g., Nihashi et al. 2000) is also useful. The main conclusion of the experiments in Nihashi et al. (2000) was that an outsider, a subject who is not allowed to communicate with other subjects, has a robust effect to prevent other subjects from colluding and to decrease the winning price considerably. This is an interesting result when we consider ways in which to reform the bidding system. We can and should build up an effective and realistic bidding system by applying theoretical result and findings from additional studies.

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# Chapter Five

## Examination and Analysis of Monopolization Economics

Examination and Analysis of Monopolization Economics

Abstract

In this paper we analyze a high-tech firm monopolization case in detail and apply two monopolization theories to the facts of the case. First, we test the theory of Aghion and Bolton (1987); an incumbent's contracts can act as a barrier to entry. Second, we examine a series of the theories of Schmalensee (1978), Judd (1985) and Ashiya (2000); multiproduct incumbent firms may exit in response to entry. Although the case showed a special treatment and unique event, the analysis is useful for examining future monopolization cases. We have discussed (i) exclusion of an equivalently efficient party by means of any contracts, rebates, etc., and (ii) exclusion by means of preemption in differentiated productions.

Examination and Analysis of Monopolization Economics

## 1. Introduction

In March 2005, the Japanese Fair Trade Commission (JFTC) investigated a high-tech firm[1] for the private monopolization of CPU (central processing unit) sales based on the provisions of the Antimonopoly Act (AMA)[2], and took legal measures against the company because, based on the provision of Subsection 2 of Section 48 of the Act, it was in violation of the provision of Section 3 (Prohibition of private monopolization) of the Act. The corporation is a giant among the companies worldwide that produce CPUs, but it was not their size that was in violation of the AMA. Rather, it was the company's conduct that caused it to be investigated for monopolization in Japan[3].

In this paper, we analyze the case in detail and apply two monopolization theories to the facts of the case. First, we test the theory of Aghion and Bolton (1987), which states that an incumbent's contracts can act as a barrier to entry. They show that the incumbent seller who faces a threat of entry into the entity's market will sign certain

[1] See JFTC pressrelease; < http://www.jftc.go.jp/pressrelease/05.march/05030802.pdf > (in Japanese).
[2] AMA: Japanese Antitrust Law.
[3] In the United States, the U.S. Federal Trade Commission (USFTC) brought an antitrust lawsuit against Intel Corporation with regard to monopolization in June 1998 (that was settled in March 1999). In the European Union, the European Commission, Directorate General for Competition initiated the proceeding of Intel's anticompetitive action based on the AMD's complaint in October 2000.

types of contracts that prevent the entry of some lower-cost producers, even though they do not preclude entry completely. In contraposition to this theory, when a firm is able to enter a monopolized market, the incumbent has not signed such contracts. We seek to establish the difficulty of the assumption from the viewpoint of the conduct violated.

Second, we examine the theories of Schmalensee (1978), Judd (1985), and Ashiya (2000); incumbent firms may deter entry by preemptive investment in new goods, but multiproduct incumbent firms may exit in response to entry. Furthermore, the incumbent may allow the entry of weak firms and use it to alter a strong firm's entry decision. In contraposition to this discussion, if a strong firm's entry occurs, the incumbent has not employed the strategy of allowing a weak firm into the market. We show that Intel employed a similar strategy by allowing a K-6 CPU to enter the market, but the weak firm grew strong and became a competitive firm.

Further, the present paper speculates about the criteria for monopolization. There have been many studies on predatory pricing, and some studies on non-price monopolization practices. Based on our analytical study, we argue that the criteria for monopolization are (i) exclusion of an equivalently efficient party by means of any contracts, rebates, etc., and (ii) exclusion by means of preemption of product differentiation. The criteria are testable, fruitful, of extended scope, and conservative.

This paper is organized as follows. Section two is an overview of the CPU market. Section three develops a test of the Aghion-Bolton principles. Section four develops a test of the Judd-Ashiya principles. Section five suggests criteria for monopolization. Section six contains concluding remarks.

## 2. CPU Market Overview

(1) CPU market

The CPU is the core part of a computer, controlling processes such as recognizing data, operating calculations based on programs, and input and output data. Originally, the CPU was developed by Intel. In 2004, Intel had a 90% share of the CPU market for IBM-compatible machines, while AMD had 5% to 10% of the market and Transmeta had an even smaller percentage.

AMD had developed and produced a Microsoft Windows-compatible processor. Introduced in 1999, the AMD Athlon processor entered the market and began to compete with Intel's CPUs. Before that, AMD had been producing a CPU family based on licensed technology from Intel, and the products operated on the same platform of the Microsoft Windows-compatible processor. After AMD entered the market, if a PC manufacturer changed product lines from the Intel CPU to the AMD Athlon CPU, the

manufacturer had to invest in retooling its factory not only to use the component itself but also to follow the specific conventions of the product line. However, some consumers welcomed the new entrant to the market from the point of view of its performance and price.

(2) The conduct of Intel[4]

Starting in 2001, Intel conducted for PC manufacturers not to use competitor's CPU. Intel offered sales rebate account or MDF (Market Development Fund: fund of PC marketing) on some conditions.

(3) Private Monopolization

The AMA states the following.

Article 3: No entrepreneur shall effect private monopolization or unreasonable restraint of trade.

Article 2(5): The term "private monopolization" as used in this Act shall mean such business activities, by which any entrepreneur, individually or by combination or conspiracy with other entrepreneurs, or by any other manner, excludes or controls the

[4] The JFTC's pressrelease, footnote 1.

business activities of other entrepreneurs, thereby causing, contrary to the public interest, a substantial restraint of competition in any particular field of trade.

The words "exclude" and "control" are interpreted to mean that an entity would have difficulty maintaining or entering into a business. And "a substantial restraint of competition" means "to decrease competition itself, and to come to the situation under which an entity or a group can control the market to make use of price, quality, quantity, and other conditions, based on to the extent of arbitration[5]." This scheme is similar to the concept of willful acquisition or maintenance in the U. S. antitrust law (Sherman Act, Section Two).

The above-mentioned conduct on the part of Intel is illegal based on the articles of Private Monopolization. The JFTC issued its recommendation according to the AMA in March 2005.

**3. Test of Aghion-Bolton Principles**

(1) Basic Idea

The study of Aghion and Bolton (1987) is a seminal work not only in contract theory

[5] Toho Shin Toho case, Tokyo high court (1951).



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but also in industrial organization including competition policy. They show that the incumbent seller who faces a threat of entry into the entity's market will sign certain types of contracts to prevent the entry of some lower-cost producers into the market, even though they do not preclude entry completely. Before this paper, there were very few studies that included analytical model formulation for monopolization.

The principles of Aghion and Bolton are very general. Under the complete (symmetric) information, when the incumbent offers a contract with some condition of liquidated damages, the incumbent can be strictly better off signing the contract and the buyer is not worse off. Further, they state that under asymmetric information about probability of entry, the optimal contracting solution has several alternatives depending on the situation.

This theory extends to industry-level monopolization conduct. If each customer believes that the others will sign, each also believes that no rival seller will enter, and thus an individual customer loses nothing by signing the exclusionary agreement and will indeed sign (Rasmusen, et al., 1991; Segal and Whinston, 2000). Several works extend the basic idea to two producers of differentiated products and two identical retailers (Gabrielsen; 1997), and to two segments involving small anonymous and large non-anonymous buyers (Gans and King, 2002).

(2) Test by Contraposition

In contraposition to the principles of Aghion and Bolton, when a firm enters a monopolized market, the incumbent does not have the types of contracts just described, or the entrant pays large liquidation damages. If the incumbent has the liquidity damages type of contract, they can obtain damages from the buyer with cancellation of the contract. From the industry's point of view, the features of any type of CPU deliver the same functions or utility, such as running PC with Windows OS. Therefore, in this subsection, we can treat all CPUs as the same basic product. Given this situation, AMD brought a brand new Athlon CPU onto the market, and Intel exhibited some conduct characteristic of monopolization against AMD. We will now consider which assumptions are correct and which are not.

The reason we can apply these principles to the case is that the AMD's new entrant was of consequence to Intel. If the new entry had been very small and of no significance, Intel might have let it go. In this case, however, Intel demonstrated monopolization conduct in order to exclude AMD from the CPU market .

(a) Exit cost

First, they assume only Bertrand competition after entry occurs. Without any exit costs, this assumption is correct because the payoff does not become negative. However, with some exit costs, suppliers would compete each other in prices by deficit balance up to the exit costs. So the expected payoff of the buyer (equations (2) and (11) of the Aghion and Bolton paper) is larger than that of the realistic situation[6]. In addition, it is difficult to describe the liquidated damages under the actual contract between a PC manufacturer and Intel. Theoretically, we can imagine huge liquidated damages in the contract as well as the use of a long-term or infinite contract. However, in a real-world business transaction, the buyers tend to avoid being locked into an inferior position in the future, so they avoid letting the seller have the dominant position as a monopolistic supplier. Thus, PC manufacturers welcomed the entry of AMD into the market. The Aghion-Bolton principle does not include a buyer's reluctance about an incumbent monopoly having bargaining power.

(b) Dynamic efficiency

Second, this theoretical structure describes a one-shot game. Therefore, for

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[6] Shapiro (2004) pointed out not only the necessity of a huge R&D investment but also complicated cross-licenses that present operational difficulties.
In the U.S., the USFTC's complaint pointed out the difficulty of entry as well as exit referred to in the Digital Equipment Corporation case.

example, in the first period, it is hard for AMD to obtain a positive profit in CPU sales under Bertrand competition. In the second period, AMD can have a better profit than expected. Thus, for the purpose of gaining a large profit in the next period, AMD entered the CPU market, and Intel fought intensely against AMD. This anecdotal evidence is shown by stock market activity. The cumulative abnormal return of the Intel stock price after AMD's Athlon press release was in a significantly negative direction, and that of AMD was negative too, but the direction of the AMD's CAR, conversely, changed to positive. (See the Appendix.)

(c) Consumer factor

Third, the buyer has a large endogenous switching cost in a CPU transaction, which is the specific factory line construction cost and the costs of changing the brand name and software network externality. However, in fact, AMD entered the market and Intel planned to exclude AMD. In the CPU industry, the final demand is decided by the consumer. Indeed, it is important for CPU makers to control PC manufacturers, but PC manufacturers cannot create original demand. Therefore, advertising has played a role in this monopolization incident[7]. Though the principles of Aghion and Bolton are

[7] This is one of the reasons for the "Intel Inside Program."

correct in theory, there are situations in which a monopolized incumbent sells to the last customer directly. In this case, there was room for AMD to enter the CPU market by virtue of the choice of the consumer.

(d) Signaling

Fourth, the event of AMD's entering the market and Intel's monopolization conduct is explained by the informational asymmetry. The asymmetric information constrains the monopoly power of the incumbent and the buyer with respect to the entrant on the ground of the Aghion-Bolton principles. Indeed, Intel could not actually be aware of AMD's cost, but Intel could presume the cost structure of AMD because they knew the cost of AMD's previous product in comparison with its own cost. If Intel believed in its own efficiency in comparison with that of AMD, Intel would have offered a short-term contract. In fact, Intel induced PC manufacturers to sign exclusive and long-term contracts with its rebate program. Intel's main reason for monopolization appeared to be to get AMD by the throat as a distribution channel and asphyxiate AMD in terms of the minimum efficient scale requirement of producing the CPU.

(3) Review of the Principles

According to the above discussion, the Aghion-Bolton principles are not a perfect model of the CPU market with an incumbent (Intel) and an entrant (AMD). One of the principles did provide a better description of the real episode, however. As mentioned above, Intel sought to obtain exclusive contracts. This type of contract is a large burden for PC manufacturers if they decide to change the CPU from Intel to AMD. One aspect of this type of contract is the larger entry cost for an entrant such as AMD to compensate the PC manufacturers for acquiring AMD CPUs. If AMD wants to enter the market, then AMD pays the compensation for Intel through the PC manufacturers as a penalty for the manufacturers' breaking the contracts. These behaviors are analyzed by the Aghion-Bolton principles.

We focus on four points of the assumptions of Aghion-Bolton from a realistic point of view. The first point shows that it is necessary to include exit costs. Further, the more detailed the contract, the more widespread the use of exclusive contracts. Intel could not obtain an exclusive contract not only because of their limited bargaining power but also because of the uncertainty of the contracts. The second point shows that a dynamic trend of cost function is necessary to analyze monopolization. The regulation of monopolization is for the competition process, not for the competitor alone. The third point shows that even Intel can have optimal contracts with PC manufacturers; AMD

might still be able to enter the market by exploiting the consumer's demand directly. The fourth point shows that because of all the information asymmetry, theories do not necessarily work in the real world; that is, the presumption of a competitor's cost may be effective, but may be a blind guess. In fact, Intel sought to have certain exclusive contracts, but it did not succeed.

**4. Test of Judd-Ashiya Principles**

(1) Basic Idea

The study by Schmalensee (1978) is another seminal work in the monopolization field of industrial organization. It is based on analysis of a ready-to-eat breakfast cereal industry antitrust case. The core idea is that an incumbent firm may deter market entry by substitutes by being the first firm to produce the new goods and by crowding the market with product variation sufficiently to leave no niche for potential entrants. Gelman and Salop (1983) show "judo economics," in which an entrant in a single-product market is allowed credible limit of his capacity, thereby causing the incumbent to react less aggressively to the entry. A similar and more general analysis is offered by Judd (1985), which is that the strategy is not credible if an exit cost is small. The entrant makes no price precommitment or any capacity limitation in any market the

entity enters, but by staying out of certain goods, the entity gives the incumbent an acceptable retreat. The main point of Judd's discussion is that the incumbent has an ex post incentive to withdraw some products in response to entry by another firm[8]. Ashiya (2000) extended Judd's principles. An incumbent firm that is confronted by a strong entrant may welcome a weak entrant. If the weak entrant moves before the strong entrant, the incumbent concedes the product space intentionally and permits the weak firm to be in the market. Then the market is filled up and entry of the strong firm is prevented. This is a unique point of view, which is that the weak entrant's success is due to the strong firm.

(2) Test by Contraposition

The basic idea is a part of the explanation of the monopolized firm's behavior. Intel used a similar strategy (by letting the K-6 CPU be in the market), but the weak firm (AMD) grew strong enough to compete.

In contraposition to the discussion of Judd and Ashiya, if the strong firm's

[8] Judd considers a simple example with two close substitutes, say apples and oranges. All firms can produce them at the same constant marginal cost after they bear fixed costs, and they compete on price. Suppose that the incumbent produces both goods, and that entry occurs with the apple. If the incumbent continues to produce apples, it will earn zero gross profit from apples, and the price war in apples will reduce the demand for oranges. In contrast, if the exit cost is not high, then the incumbent can do better by stopping the production of apples, since this raises the price of apples and the profits from oranges. Thus, it will leave the apple market, and consequently entry by a new firm will occur.

entry occurs, the incumbent has not employed a strategy that lets the weak firm be in the market. Therefore, we suggest several points to be considered in their models' assumption, based on the analysis of the Intel monopolization case.

First, situations in the Judd model and in the real world are similar in essence; for example, in the case of a high-performance CPU and a low-performance CPU and two firms, Intel and AMD, the nature of competition is unexplained (a part of Bertrand, a part of Cournot). The stage developments are plausible in some sense, if viewed as follows: (stage 1) Intel decides to produce CPUs, (stage 2) AMD knows Intel's decision and decides to produce CPUs, (stage 3) both firms make exit decisions simultaneously[9], (stage 4) firms play the duopoly game of the CPU market structure. In this discussion, the crucial elements are firms' profits and the level of entry and exit costs.

Judd presents Assumption 1 through Assumption 9 for the market structure. In Assumption 1 through Assumption 7, on one hand, there is a kind of general condition of normal market competition, in which, for example, post-entry profits are always non-negative and post-entry economies of scale are not so severe that competition forces profits to be negative. On the other hand, Assumption 8 and Assumption 9 have certain implications for his conclusion. Assumption 8 and 9 state that it is better to be a

[9] The meaning is that Intel does not know AMD's decision when Intel decides, and vice versa.

differentiated duopolist than a multiproduct firm competing head-to-head with one of the products, even if the multiproduct firm must bear exit costs to become a differentiated duopolist. In other words, these assumptions say that apples and oranges are good substitutes and that head-to-head competition is intense.

These principles are not directly applied to the actual duopoly situation of the CPU market. Intel sought to obtain monopolistic power of both high- and low-performance CPUs after AMD had entered their low-performance CPU (K-6 series) in the market. Intel brought out the Celeron CPU in competition with the AMD K-6. AMD sought to obtain another market share, for the purpose of having high-performance CPU market revenue. AMD threw the Athlon into the high-performance CPU market in defiance of the larger research and development cost. Then Intel engaged in monopoly conduct rather than a concession strategy. Although Judd's Assumptions 8 and 9 are feasible and fruitful for clarifying a changing situation before and after one's entry, we cannot apply them to the situation of the CPU market competition. The situation of the duopoly competition is that both firms seek to obtain revenue from both goods. It is difficult to assume that apples and oranges are good substitutes for one another for companies that seek to produce both goods.



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(3) Ashiya's principle

Ashiya developed Judd's principles to apply to weak and strong entrants. In the real world, Intel faced a strong competitor, AMD, at first. In this regard, Intel could not have used a concession strategy, which allows a weak entrant (e.g., Transmeta) to be in the market. Ashiya indicates that even though Intel desired a monopoly position, Intel could not deter the entry of AMD (a strong entrant) by itself, even though Intel can choose any number of products to put on the market. Therefore, Intel chose monopoly conduct, and such conduct is in violation of the AMA.

With regard to CPU market competition, AMD states that:

"The AMD story is also shaped by a fervent belief in the merits of competition. Without free and open competition, innovation suffers. Therefore, the customer suffers, with fewer choices, higher costs, and slower growth. During every era of our existence, AMD has been dedicated to keeping the playing field open and fair for all comers, helping to ensure that our industry is driven to create technology that really works for people.[10]"

This statement indicates that AMD recognized the competition with Intel in the CPU market de novo. Notwithstanding that position, it is difficult to find any mention of

[10] From the AMD website: < http://www.amd.com/us-en/Weblets/0,7832_10554,00.html>.

"competition" on Intel's website. This is probably because Intel cannot deter the entry of a strong entrant, thus Intel promotes its advances in technology with or without competition.

(4) Review of the Principles

Although the Judd-Ashiya principles are plausible in goods of a subsidiary, we can see that the CPU sale (high/low performance) is a kind of substitutable goods. The Judd-Ashiya principles point out an important requirement of a monopolization investigation, which is the significance of identifying the relevant market. And we should extend the welfare analysis of the principles in the future.

## 5. Monopolization Criteria

(1) Overview of Monopolization Criteria

The requirements for monopolization are similar among the U.S., E.U., and Japan. These are (1) market power and (2) willful acquisition or maintenance of the power[11]. Our target is to clarify willful acquisition or maintenance of market power.

[11] An attempt at monopolization (which includes intent, anticompetitive conduct, and dangerous probability) is another issue.
The Supreme Court of the United States identified the elements of the offense in United States v. Grinnell Corp. (384 U.S. 563 (1966)). The same manner of thinking is applied in Japan and EU.

The willful acquisition or maintenance of market power includes predatory pricing, tying, exclusive dealing, and so on. The Microsoft decision shows what we think of as monopolization, comprised of four steps[12].

The D. C. Circuit identified several principles: First, the monopolist's act must have an "anticompetitive effect;" second, the plaintiff has the burden of proving this; third, if a plaintiff successfully establishes a prima facie case, then the monopolist may proffer a "procompetitive justification" for its conduct and, if it does, the burden shifts back to the plaintiff to rebut the claim; and fourth, if the defendant's justification is unrebutted, then the plaintiff must demonstrate that the anticompetitive harm of the conduct outweighs the procompetitive effect.

Our main focus is on the fourth step. Based on the above analytical study, we argue that the criteria for monopolization are (i) exclusion of an equivalently efficient party by means of any contracts, rebates, etc., and (ii) exclusion by means of preemption in differentiated production.

(2) Criteria guidelines based on the Aghion-Bolton principles

The first conduct we want to discuss is any conduct that has the effect of excluding an

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equivalently efficient party. We can take the Aghion-Bolton principles into consideration along with real world observations such as the fact that an important condition of the principle is the buyer's and the consumer's preference. The less important the role of the buyer (e.g., a PC manufacturer) or the consumer in the transaction with the supplier, the worse the social surplus that will be obtained from the competition in the market by means of the supplier offering an exclusive contract. Thus, we stress that market power (which displays a supplier's bargaining power) analysis affects the possibility of the exclusion effect. If a small firm's conduct is no problem and is legal, the same conduct by the dominant firm might be a violation of monopolization rules because the dominant firm has market power.

Furthermore, according to the implications of the case as it is described here, it is hard for Intel to enter into a long-term contract because the PC manufacturers are reluctant to make this type of contract. PC manufacturers thought of the high probability of a competitor entering the market as a counter bargaining power, because the CPU market is a rapidly developing, very profitable market. If the market has already matured, a long-term contract is more effective, and the foreclosure influence becomes diffused, which is different than the case of a developing market.

Therefore, the principles of monopolization allow us to use market power

analysis with exclusion analysis. Our previous analysis clearly differentiates willful acquisition or maintenance of power from the market power analysis. In Aghion-Bolton principles and real world observation, the analysis of willful acquisition or maintenance of power encompasses the analysis of market power. And an understanding of the dynamics of the market situation is necessary for analyzing conduct.

(3) Criteria guidelines based on the Judd-Ashiya principles

Let us consider the second guideline for monopolization, the exclusion by means of preemption in differentiated products on the market. As discussed above, if Assumption 8 of Judd's principles has not been met in the real world, we might make arrangements to preempt the differentiated production. Even if there is a head-to-head competition in one of the multiple products made by a monopolized firm, the monopolized firm making multiple products would keep a newcomer from entering the market. In particular, Intel would seek to fulfill the spectrum of CPU categories (high- and low-performance), not in order to increase its revenue but to keep AMD from supplying the minimum efficient quantities. The product differentiation is not a strategy to achieve monopolization but the result of revenue maximization by a monopolistic firm.

The likelihood of a monopolistic firm allowing a newcomer to continue

producing a product as part of a multiple-products market is small based on the case observation. In the real world, the cross elasticity among multiple products is not large. By contrast, if a newcomer enters one product, the incumbent often takes aggressive steps, such as predatory pricing, to counter that introduction. Therefore, we should watch a monopolized firm with multiple differentiated products, even if there is not any ideal commitment problem.

## 6. Concluding Remarks

We have examined the Intel monopolization case and enumerated the guidelines for considering monopolization. Although the case showed a special treatment and unique event, the analysis is useful for examining future monopolization cases. We have discussed (i) exclusion of an equivalently efficient party by means of any contracts, rebates, etc., and (ii) exclusion by means of preemption in differentiated production. What is necessary for the analysis of the exclusion of an equivalently efficient party by means of any contracts, rebates, etc., is to use market power analysis with exclusion analysis and to analyze the dynamics of the market situation. It is also important to watch for monopolization by any company with multiple differentiated products.

The Aghion-Bolton principles and Judd-Ashiya criterion are both testable,

fruitful, of extended scope, and conservative, so we tested these principles. We found that some of the assumptions are quite academic and not practical. That notwithstanding, these works are highly useful for giving real cases academic consideration. Compared to studies of cartel behavior, monopolization studies are too few to apply to the real event. This paper's contribution is the first application of both principles to consideration of an actual AMA case .

In future research, we will apply the case study to monopolization theory. As cases accumulate, we can compare them in view of antitrust in the U.S., E.U., and Japan, not only in terms of their similarities but also their differences, and we will ultimately be able to enforce adequate monopolization regulation.

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**Appendix**

We calculate the monthly excess return based on the efficient markets hypothesis. We first regress the monthly rate of return of the relevant entities (AMD and Intel) on the monthly DOW or NASDAQ rate of return and a constant term using ordinary least squares for a clean period from 120 months before the announcement to 21 months before the announcement. We then calculate the fitted value of the monthly rate of return for the period from 20 months before the announcement to 20 months after the announcement using the estimated coefficients from the aforementioned regression. Finally, we calculate the monthly excess return during the event period by subtracting the fitted value of the monthly rate of return from the actual monthly rate of return.

We use the period from 120 months to 21 months before the Athlon announcement only to estimate $\alpha$ and $\beta$ of the expected rate of return on stocks, and we use the period from 20 months before the merger announcement to 20 months after the Athlon announcement when looking at the impact of the Athlon announcement on abnormal returns.

$$R_{i,t} = \alpha_i + \beta R_{M,t} + \varepsilon_{i,t}$$

$R_{i,t}$ : Monthly return of i stock in month t, $R_{M,t}$ : Monthly return of DOW or NASDAQ in month t,

$\alpha_i$, $\beta_i$ : coefficient value calculated by ordinary least square in clean period.

AMD[13]

Dependent Variable: AMD
Method: Least Squares
Date: 01/26/05 Time: 23:14
Sample: 1 100
Included observations: 100

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| NYSE | 0.002088 | 0.000257 | 8.138575 | 0.0000 |
| C | 1.332270 | 1.128714 | 1.180343 | 0.2407 |

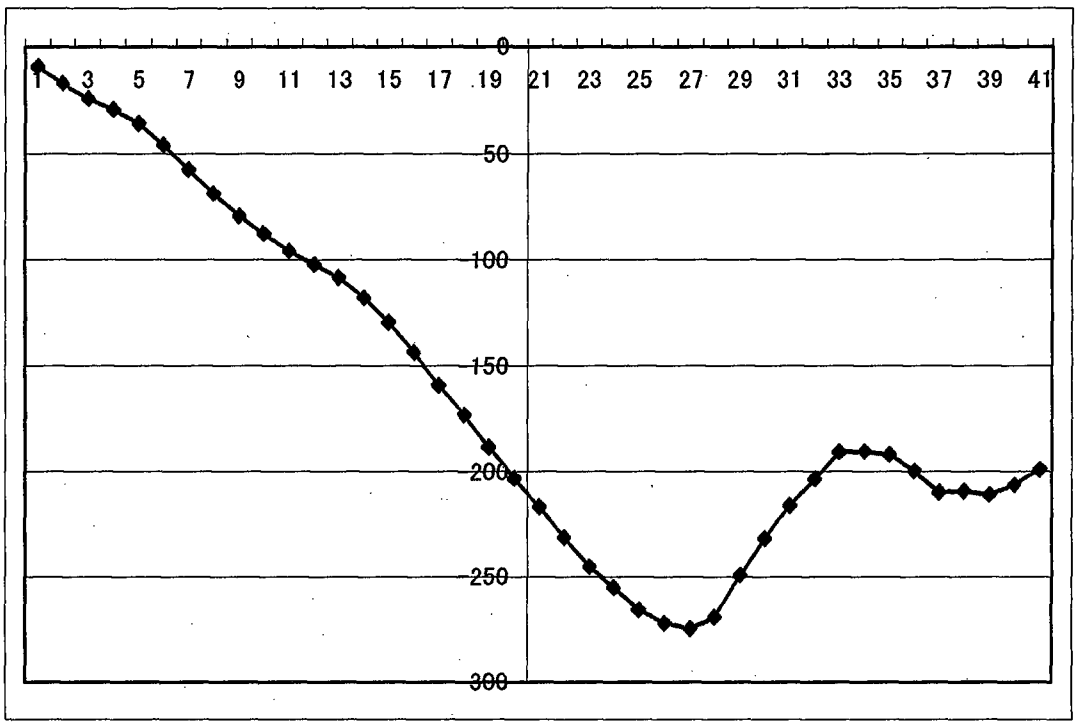
| | | | |
|---|---|---|---|
| R-squared | 0.403299 | Mean dependent var | 9.968600 |
| Adjusted R-squared | 0.397210 | S.D. dependent var | 4.953946 |
| S.E. of regression | 3.846220 | Akaike info criterion | 5.551856 |
| Sum squared resid | 1449.754 | Schwarz criterion | 5.603960 |
| Log likelihood | -275.5928 | F-statistic | 66.23640 |
| Durbin-Watson stat | 0.179025 | Prob(F-statistic) | 0.000000 |

Substituted Coefficients:

AMD = 0.002087631083*NYSE + 1.332269786

CAR of AMD

[13] Software was EViews ver. 4.1 (Quantitative Micro Software).




INTEL

Dependent Variable: INTEL

Method: Least Squares

Date: 01/26/05 Time: 23:16

Sample: 1 100

Included observations: 100

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| NASDAQ | 0.016472 | 0.000560 | 29.43103 | 0.0000 |
| C | -7.747220 | 0.483558 | -16.02129 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.898360 | Mean dependent var | 5.355000 |
| Adjusted R-squared | 0.897323 | S.D. dependent var | 5.891528 |
| S.E. of regression | 1.887840 | Akaike info criterion | 4.128541 |
| Sum squared resid | 349.2661 | Schwarz criterion | 4.180644 |
| Log likelihood | -204.4271 | F-statistic | 866.1857 |
| Durbin-Watson stat | 0.163929 | Prob(F-statistic) | 0.000000 |

Substituted Coefficients:

INTEL = 0.0164721398*NASDAQ - 7.747220025

CAR of INTEL