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Competitivity of the Japanese Highly Concentrated Industries — The Chicago School's Approach* —

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This paper has two purposes. The first is to re-examine Brozen's disequilibrium hypothesis of the persistence of high rate of return. As an index of his hypothesis, we will adopt the relative variance value and variation coefficient in the rate of return. The second is to calculate the above two indexes in the rate of return, the concentration ratio in the Japanese highly concentrated industries and then to consider the competitivity of the industries concerned. We conclude that the competitivity of the Japanese highly concentrated industries will tend to strengthen.

1. Introduction

In the industrial organization analysis[1], as to a positive correlation between concentration ratio and rate of return, two schools have conducted several theoretical and empirical analysises.

The "Harvard School" to which Bain (1951) and Mann (1966) belong, has interpreted this correlation with the shared asset model. It has depicted that, the more the concentration ratio of industry raises, the easier it takes conscious parallelism, and also that high rate of return is a product which originates from such cooperative pricing behavior. It regards such a cooperative pricing behavior as an asset which is shared among companies that belong to the highly concentrated industries. This interpretation is called the shared asset model.

On the other hand, Brozen (1969-a, 1969-b, 1970, 1971) and Demsetz (1973) who represent the "Chicago School", have interpreted this correlation with the disequilibrium and the efficiency hypotheses[2]. Brozen argues that, the high rate of return in highly concentrated industries signifies a disequilibrium situation and exists at a particular period, when a market is converging to the long-run equilibrium, and that it will equalize among industries in the long-run. Demsetz states that, the difference in rate of return will originate from efficiency, particularly economies of scale due to firm size.

We recognize that such a discrepancy of interpretation between these two schools is, as Posner (1979, p.948) noted,"technical rather than ideological".

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Mueller (1986) found that there are persistent differences in profitability and market power among large U.S. companies. Companies with persistently high rate of return are found to have high market shares and sell differentiated products. Furthermore, Odagiri and Yamawaki (1990) analyzed the persistent degree of differences in profitability among companies. They also compared the persistence of differences in profitability between U.S. and Japanese companies.

In this paper, we will follow Brozen's disequilibrium hypothesis and will investigate the competitivity (efficiency of resource allocation) among the highly concentrated industries in Japan. Like Brozen, we will not investigate any elements of competitive strategy (for example, advertising, R & D investment and merger & acquisition). Instead, we will calculate the relative variance value and variation coefficient in the average rate of return, its difference and a concentration ratio as an index that indicates the extent and continuity of disequilibrium situation. We find that the competitivity among industries will tend to strengthen. The reason is that the dispersion of difference in rate of return among industries tends to be small and also the number of industries with either competitive or monopolistic tendency in both the rate of return and the concentration ratio are few.

In the next section, we will introduce Brozen's analytical technique. In section 3, we will explain ours and, then, re-examine Brozen's study. Brozen paid attention to a movement of average rate of return and its difference as a criterion to judge competitivity. In his paper (1969-a), he emphasized the market performance (the rate of return) as a guideline to antimonopoly policy. In section 4, we will investigate the competitivity in the Japanese highly concentrated industries. We examine the stability into the top three company concentration ratio (CR_3) and the Herfindahl Index (H.I.) in addition to the rate of return. Finally, section 5 contains some concluding remarks.

2. Brozen's Analytical Technique

In this section, we will introduce Brozen's reconsideration technique (1970) against Bain's study (1951).

A) Bain's Study (1951)

The number of industries: 42.

The period of analysis: 1936-40.

The index of rate of return: Net profit after income taxes as a percentage of net worth.

The analytical technique: As a criterion that distinguish between the highly concentrated industries and the low concentrated ones, he divided 42 industries into those with more and less than 70 percent of value product supplied by the first eight firms in 1935.

Bain finds a difference in the rate of return among the two concentration ratio classes. The rate of return, in highly concentrated 21 industries (70-100%), is 11.8%. In the low concentrated 21 industries (0-70%), it is 7.5%. With this finding, Bain approved the shared asset model that when concentration ratio raises, the rate of return will also increase, even though he accepted a number of reservations[3] against it.

B) Brozen's (1970) Analytical Technique

Brozen criticizes the fact that Bain's conclusion investigated only the difference in rate of return at a particular period during the equilibrating process. In observing two periods, which he considered the long-run, he hypothesizes that the average rate of return and its difference will tend to be reduced by competitive pressure from the other markets.

To investigate his hypothesis, Brozen proposed the following two indexes. The first one is that, if there are no barriers to entry over the two periods (the first period and the second period), average rate of return will decline more in the second than in the first. Furthermore, if the amount of decline in average rate of return over the two periods is used as an index of the rapidity of entry, the amount of decline is greater in the highly concentrated industries than in the low concentrated ones. The second index is that, regarding average rate of return in total industries (42) as average rate of return in the long-run equilibrium situation (Brozen considered this rate of return as the long-run equilibrium profit), the amount of decline in difference between this long-run equilibrium profit and the other concentration ratio classes will be greater in the second period than in the first one.

Brozen investigated these two indexes with the same technique except that he extended the period of analysis in Bain's study (the first period = 1936-40, the second period = 1953-57). In examining the first index, average rate of return declined in 15 industries out of 42, particularly, this rate of return declined in 11 out of 21 highly concentrated industries (see Brozen, 1970, Table 1, p.282). In judging the rapidity of entry from the last right column in our Table 1, we see that the rapidity of entry into the highly concentrated industries is greater than that into the low concentrated ones.

To examine the second index in Table 1, when we regard the average rate of return in the total industries (0-100%) as the long-run equilibrium profit and calculate the difference between this rate of return and the other concentration ratio classes, we find that all the differences decrease. However, the average rate of return in the highly concentrated industries was still higher than that in the total industries. In addition, when we consider the high concentration ratio class (b) as the long-run equilibrium profit, we also find that all the differences are reduced. With these analytical results, Brozen supported his disequilibrium hypothesis.

Table 1. Trend of Difference in Average Rate of Return for 42 Industries

Concentration Range (Number of Industries)		Difference								Difference over Two Periods
		a − b, c, d, e		b − c, d, e		c − d, e		d − e		
		1936-40	1953-57	1936-40	1953-57	1936-40	1953-57	1936-40	1953-57	
a. 0-100%	(42)	9.6%	11.1%							+1.5%
b. 70-100	(21)	−2.2	− 0.6	11.8%	11.7%					−0.1
c. 0- 70	(21)	2.1	0.5	4.3	1.1	7.5%	10.6%			+3.1
d. 50- 70	(9)	3.8	0.8	6.0	1.4	1.7	0.3	5.8%	10.3%	+4.5
e. 0- 50	(12)	0.9	0.3	3.1	0.9	−1.2	− 0.2	−2.9	− 0.5	

Note: For example, the figure (−2.2%) in the concentration ratio (70-100%) is the difference between 11.8% (average rate of return in 70-100%) and 9.6% (average rate of return in 0 -100%).

The calculations of the following differences are similar to the above one.

Source: Calculated from Data in Brozen's Study (1970, Table 1, p.282).

3. Hypothesis of the Competitivity Among Industries: Re-examination of Brozen's Study

A) Hypothesis of the Competitivity Among Industries

In the Industrial organization analysis, the price-cost margin (PCM) has been used as an index of market competitivity. That is to say, when industries realize an efficient resource allocation (or Pareto optimality), price among industries equates its marginal cost and also equates marginal opportunity cost in the long-run equilibrium. Therefore, the self-equity capital profit rate will be the same among companies. As the difference between price and marginal cost increases, resource allocation will be inefficient. In this paper, the competitivity among industries is the following.

From the efficiency point of view, the essential for a market economy to be workable is not to strictly equalize the rate of return in Neoclassical Economics, but to allow some capital to smoothly move toward profitable markets. Even if some difference in rate of return remains, the point is whether or not markets are flexible to make this difference disappear. According to this economic thought, a more useful method is to inquire the extent and continuity of disequilibrium situation. As an index in this situation, we will calculate the relative variance value and variation coefficient in average rate of return and its difference.

We will examine the extent and continuity of disequilibrium situation by observing both the trend of average rate of return and its difference, and the stability of dispersion from the average rate of return. For example, if average rate of return in the second period is less than that in the first one and its difference between

the two periods reduces, and also the dispersion (which is showed by the relative variance value and the variation coefficient) from the mean decreases, we recognize that such an industry has a competitive tendency which is stable or tends to strengthen. On the other hand, if the average rate of return and its difference increase and the dispersion reduces over the two periods, we recognize that such an industry has a monopolistic tendency, which is stable or tends to strengthen. Furthermore, we consider that, if an industry does not have either tendency, it is instable.

B) Re-examination of Brozen's Study

For example, Table 2 shows the stability of average rate of return that Brozen used for reconsideration of Bain's study. When we observe the trend of the average rate of return, which is Brozen's first index, we find that it increases in both the total industries (0-100%) and the low concentrated industries (0-70%), and somewhat decreases in the highly concentrated industries (70-100%). This finding signifies that, in Brozen's sense, the selected 42 industries do not necessarily show a competitive tendency. In addition, as the relative variance value and variation coefficient in the average rate of return decreases, monopolistic tendency strengthens somewhat. A glance at Table 2 shows that the shared asset model can still be approved.

Table 3 indicates that the difference in average rate of return, which signifies Brozen's second index, still remains. When the dispersion of each concentration ratio classes to that of total industries decreases through time, the difference in the rate of return between each class and total industries also tends to decrease. When we observe the trend of the two correlation ratios, the extent and continuity of the

Table 2. Stability of Average Rate of Return

Concentration Range	Average Rate of Return		Relative Variance Value		Variation Coefficient	
	1936-40	1953-57	1936-40	1953-57	1936-40	1953-57
0-100%	9.6%	11.1%	2.312971	1.079215	.490851	.311812
70-100	11.8	11.7	1.428894	1.274725	.347984	.330077
0- 70	7.5	10.6	2.390730	.797125	.564592	.274227
50- 70	5.8	10.3	.734866	1.157497	.355951	.335229
0- 50	8.7	10.8	2.826916	.531559	.570029	.221852

Note: The term "relative variance value (S^2/mean)" describes the ratio of the variance [$S^2 = \Sigma (x_i - \bar{x})^2/n$] to the mean, where ($x_i - \bar{x}$) is the deviation of x_i from $\bar{x}$, $\bar{x}$ is the mean (average rate of return), and n is the number of industries.
The term "variation coefficient (S/mean)" describes the ratio of the standard deviation ($\sqrt{s^2}$) to the mean. This index is useful to compare the deviation across data with different means.

Source: Same as for Table 1.

Table 3. Extent and Continuity of Difference

Concentration Range	Correlation Ratio			
	Relative Variance Value Each Class/Total Industries		Variation Coefficient Each Class/Total Industries	
	1936-40	1953-57	1936-40	1953-57
70-100%	.617774	1.181159	.708940	1.058577
0- 70	1.033619	.738616	1.150231	.879463
50- 70	.317715	1.072536	.725171	1.075010
0- 50	1.222201	.492542	1.161308	.711493

Source: Same as for Table 1.

Table 4. Trend of Correlation Ratio over Two Periods

Concentration Range		A. Average Rate of Return in Each Class	B. Average Rate of Return in Total Industries	C. Variance Value between A and B	D. Variance Value in Total Industries	Correlation Ratio (C/D)
1936	70-100%	11.8%				
	0- 50	7.5	9.6%	6.125	22.204524	.275845
	50- 70	5.8				
40	0- 50	8.7				
1953	70-100%	11.7%				
	0- 50	10.6	11.1%	.335	11.979286	.027965
	50- 70	10.3				
57	0- 50	10.8				

Source: Same as for Table 1.

disequilibrium situation tend to increase in the highly concentrated industries, whereas they tend to decrease in the low concentrated ones.

Furthermore, Table 4 shows the correlation ratio (C/D) which is the ratio of variance (C) relative to the variance in the total industries (D). When we observe the movement of correlation ratio, we find that the difference among concentration ratio classes tends to reduce.

To sum up, from the above analysis of the extent and continuity of the disequilibrium situation, as for Brozen's first index (Table 1), we found that each concentrated industry tended to move toward the long-run equilibrium. When we examined the stability in average rate of return (Table 2), this stability tended to be monopolistic in both total industries and low concentrated industries, and tended to be competitive in highly concentrated ones. As for Brozen's second index (Table 3), when we observed the correlation ratio between each concentrated industry and

total industries, the extent and continuity of the difference tended to be monopolistic in the highly concentrated industries, and to be competitive in the low concentrated ones. On the other hand, the difference among concentration ratio classes (Table 4) tended to reduce through time.

In this way[4], by calculating the dispersion in average rate of return and its difference, we can understand more clearly Brozen's disequilibrium hypothesis and the competitivity among industries.

4. Competitivity of the Japanese Highly Concentrated Industries

The number of industries: 20.

The period of analysis: 1971-77 (the first period).
1978-85 (the second period).

The index of rate of return: Ratio of operating return on total capital of the top three companies.

The index of production concentration ratio: The Herfindahl Index (H.I.) in 1980.

Highly Concentrated Industries.

Type[I] H.I. 3,000-.
- Beer (3),
- Whiskey (3),
- Color Photograhic Film (Popular) (3),
- Canning (Food) (2),
- Plate Glass (3),
- Chemical Seasoning (3),
- Piano (2),
- Motorcycle (3).

Type[II] H.I. 1,800-3,000.
- Tire and Tube (Motor Vehicle) (3),
- Synthetic Washing Preparation (Household) (2),
- Automobile (3).

The figure in parentheses are the number of companies.

In these industries, the production concentration ratio is the following: the top-company-concentration ratio is above 50%, or the top-two-company-concentration ratio is above 75%. Since the 1977 amendment in the Antimonopoly Law, these 11 industries have been under supervision by its Section 2 (7), Section 8-4 [Supervision against monopolistic situations] and Section 18-2 [Reporting requirement on parallel price increase]. These 11 industries are representative oligopoly industries in Japan.

Low Concentrated Industries.

H.I. 1,000-1,800.

Condensed Milk (3),
Telephone (3),
Aluminium Sash (3),
Insecticide (2).

Competitive Industries.

H.I. 500-1,000.

Ham and Sausage (3),
Soy (2),
Sugar (3),
Cement (3),
Corrugated Cardboard (2).

A) Stability in the Rate of Return

We calculate Brozen's two disequilibrium indexes. The number of industries, with lower average rate of return in the second period than in the first, are 10 (including 7 industries in [H.I. 1,800-]) out of 20 (see Appendix 1).

When we regard the average rate of return in the total industries (20) as the long-run equilibrium rate of return and examine the trend of the difference between these two rates, we find that the number of industries where the difference reduces from the first period to the second, are 6 industries out of 20 (see Appendix 2).

In addition, when we regard the average rate of return in all manufacturing corporations as the long-run equilibrium rate of return and examine the trend of the difference between these two rates, we find that the number of industries where the difference decreases are 7 out of 20 (see Appendix 3). We find that these industries are converging to Brozen's long-run equilibrium.

Next, in Table 5, the movement of the difference does not show any definite trend. A tendency that suggests Brozen's second index, is shown only in the competitive industries. In judging the rapidity of entry from the last right column, we can recognize that the rapidity of entry into the highly concentrated industries (H.I. 1,800-, especially, in Type [II]) is greater than that into the other concentrated ones.

In Table 6, we calculated the relative variance value and variation coefficient in order to examine the extent and continuity of disequilibrium situation. In the total industries (H.I. 500-), the low and the competitive industries, the average rate of return increases. This finding signifies that they have a monopolistic tendency in the Brozen's sense. When we observe the movement of relative variance value and variation coefficient, we can recognize that its monopolistic tendency is instable in

Table 5. Trend of Difference in Average Rate of Return for 20 Industries

Concentration Range (Number of Industries)		Difference										Difference Over Two Periods
		a − b, c, d, e, f		b − c, d, e, f		c − d		d − e, f		e − f		
		1971-77	1978-85	1971-77	1978-85	1971-77	1978-85	1971-77	1978-85	1971-77	1978-85	
	H.I.											
a. Total Industries	(20) 500-	6.9%	7.3%									+0.4%
b. High	(11) 1,800-	−1.0	0.3	7.9%	7.0%							−0.9
c. Type [I]	(8) 3,000-	−0.8	−0.1	0.2	−0.4	7.7%	7.4%					−0.3
d. [II]	(3) 1,800-3,000	−1.2	1.2	−0.2	0.9	−0.4	1.3	8.1%	6.1%			−2.0
e. Low	(4) 1,000-1,800	0.4	−1.8	1.4	−2.1	1.2	−1.7	1.6	−3.0	6.5%	9.1%	+2.6
f. Competitive	(5) 500-1,000	1.6	0.5	2.6	0.2	2.4	0.6	2.8	2.3	1.2	2.3	
a'. All mfg. Corporations		6.9	6.4									
b'. 500-		0	−0.9									
c'. 1,800-		−1.0	−0.6									
d'. 3,000-		−0.8	−1.0									
e'. 1,800-3,000		−1.2	0.3									
f'. 1,000-1,800		0.4	−2.7									
g'. 500-1,000		1.6	−0.4									

Source: Appendix 1.

Table 6. Stability of Average Rate of Return

Concentration Range	Average Rate of Return		Relative Variance Value		Variation Coefficient	
	1971-77	1978-85	1971-77	1978-85	1971-77	1978-85
H.I. 500-	6.9%	7.3%	.029400	.045377	.065275	.078842
1,800-	7.9	7.0	.058590	.025714	.086118	.060609
[I] 3,000-	7.7	7.4	.014471	.019932	.043352	.051900
[II] 1,800-3,000	8.1	6.1	.510229	.077254	.250981	.112537
1,000-1,800	6.5	9.1	.192527	.053022	.172103	.076332
500-1,000	5.3	6.8	.429111	.225184	.284542	.181976
All mfg. Corporations	6.9	6.4	.457764	.124414	.257571	.139426

Source: Same as for Appendix 1.

the total industries, whereas it is stable or tend to strengthen in the low and competitive ones. On the other hand, in the highly concentrated industries (H.I. 1,800-), as the average rate of return reduces and also the two indexes decrease (especially, in Type [II]), we can conclude that its competitive tendency is stable or tends to strengthen. In Table 7, when we compare the trend of dispersion in each concentration ratio classes with that in total industries, we can notice that the extent and continuity of difference tend to reduce and that competitive tendency in all the concentration ratio classes is stable or strengthens. In addition, from Table 8, we can remark that the difference in average rate of return among concentration ratio

Table 7. Extent and Continuity of Difference

Concentration Range	Correlation Ratio			
	Relative Variance Value Each Class/Total Industries		Variation Coefficient Each Class/Total Industries	
	1971-77	1978-85	1971-77	1978-85
H.I. 1,800-	1.992857	.566675	1.319311	.768740
3,000-	.492211	.439253	.664144	.658279
1,800-3,000	17.354728	1.702492	3.844979	1.427374
1,000-1,800	6.548537	1.168477	2.636584	.968164
500-1,000	14.595612	4.962514	4.359127	2.308110

Source: Same as for Table 6.

Table 8. Trend of Correlation Ratio over Two Periods

Concentration Range		A. Average Rate of Return in Each Class	B. Average Rate of Return in Total Industries	C. Variance Value between A and B	D. Variance Value in Total Industries	Correlation Ratio (C/D)
1971	H.I. 3,000-	7.7%				
	1,800-3,000	8.1	6.9%	1.2	.202857	5.915497
	1,000-1,800	6.5				
77	500-1,000	5.3				
1978	H.I. 3,000-	7.4%				
	1,800-3,000	6.1	7.3	1.235	.33125	3.728302
	1,000-1,800	9.1				
85	500-1,000	6.8				

Source: Same as for Table 6.

classes tends to reduce.

From the facts analyzed above, we can mention the following. Judging from the trend of the relative variance value and variation coefficient, monopolistic tendency with the total industries was instable, whereas its tendency with the low and competitive industries tended to strengthen. However, judging from Tables 7 and 8, we can conclude that all the concentration ratio classes have a stable or strengthening competitive tendency, as Brozen suggested. We think that these industries are exposed to considerably competitive pressure from the other markets.

B) Stability in the Rate of Return and the Concentration Ratio in the Highly Concentrated 11 Industries (H.I. 1,800-)

Tables 9 and 10 show the stability of the rate of return and the concentration

Table 9. Trend and Stability of Rate of Return (H.I. 1,800-)

	a) Stability in Each Industry		
	Mean	Variation Coefficient	Industry
Monopolistic	1971-77 < 1978-85	1971-77 > 1978-85	2: [I] Plate Glass, Chemical Seasoning.
Competitive	>	>	4: [I] Beer, [II] Synthetic Washing Preparation, Motorcycle, Automobile.
Instable	>	<	3: [I] Canning, Piano, [II] Tire and Tube.
	b) Stability as compared with All mfg. Corporations		
Monopolistic	1971-77, 1978-85 > All mfg. Cor.	1971-77, 1978-85 < All mfg. Cor.	1: [II] Automobile.
Competitive	<	<	1: [I] Beer.
Instable	<	>	———

Source: Same as for Appendix 1.

Table 10. Trend and Stability of Concentration Ratio

	a) Stability in Each Industry		
<CR_3>	Mean	Variation Coefficient	Industry
Monopolistic	1970-77 < 1978-84	1970-77 > 1978-84	1: [I] Piano.
	=	=	2: [I] Plate Glass, Color Photograhic Film.
Competitive	>	>	3: [I] Canning, Chemical Seasoning, [II] Automobile.
Instable	>	<	3: [I] Beer, Whiskey, [II] Tire and Tube.
<H.I.>			
Monopolistic	1970-77 < 1978-84	1970-77 > 1978-84	3: [I] Beer, Piano, Plate Glass.
Competitive	>	>	6: [I] Color Photograhic Film, Canning, Chemical Seasoning, Motorcycle, [II] Tire and Tube, Automobile.
Instable	>	<	———
	b) Stability as Compared with All mfg. Corporations		
<CR_3>			
Monopolistic	1970-77, 1978-84 > All mfg. Cor.	1970-77, 1978-84 < All mfg. Cor.	2: [I] Color Photograhic Film, Plate Glass.
Competitive	<[1]	>[2]	———
<H.I.>			
Monopolistic	1970-77, 1978-84 > All mfg. Cor.	1970-77, 1978-84 < All mfg. Cor.	1: [II] Tire and Tube.
Competitive	<	>[3]	———

Notes: 1) Over the two periods, there were no industries with lower ratio than that in all mfg. corporations.
2) The number of industries with variation coefficient above that in all mfg. corporations, were 5 industries ([I] Whiskey, Canning, [II] Tire and Tube, Synthetic Washing Preparation, and Automobile).
3) In 10 industries except the Tire and Tube, these indexes were above those in all mfg. corporations.

Source: Appendix 4.

ratio in the highly concentrated 11 industries. In Table 9, there are few industries with continually monopolistic tendency in average rate of return. The industries with this tendency are only the plate glass and the chemical seasoning. The industries with competitive tendency are the beer, the synthetic washing preparation, the motorcycle and the automobile industries. Compared with all manufacturing corporations, the industry with monopolistic tendency is only the automobile. The beer industry tends to be competitive. In the automobile industry, the competition among the top three companies tends to strengthen, whereas its relationship within all manufacturing corporations is stable or monopolistic. The competition among the three top beer industries and the competition between the beer industry and the other manufacturing corporations tends to strengthen.

Brozen used the trend of average rate of return and its difference as a criterion to judge competitivity among industries. In his paper (1969-a), he emphasized the market performance (the rate of return), as a guideline to antimonopoly policy.

In addition to his analytical method, as a criterion to judge competitivity among industries, we examine the stability into the top three companies concentration ratio (CR_3) and the Herfindahl Index (H.I.). The stability of CR_3 signifies a competitive relationship among the top three companies, and the H.I. signifies a competitive relationship within *the gyokai*, i.e., the sector concerned. In Table 10, only the piano industry and the plate glass industry possess a monopolistic tendency in both the CR_3 and the H.I. In the color photograhic film industry, we find a monopolistic tendency among the top three companies, and a competitive tendency within *the gyokai*. The canning, the chemical seasoning and the automobile industries hold a competitive tendency in both the CR_3 and the H.I. In the beer industry, we find an instable competitive tendency among the top three companies, and a monopolistic tendency within *the gyokai*. Furthermore, when we observe the stability relative to all manufacturing corporations, we notice that there are few industries with either monopolistic or competitive tendency. The industries with monopolistic tendency are the color photograhic film, the plate glass (in the CR_3) and the tire and tube (in the H.I.).

From the facts analyzed above, as the number of industries with monopolistic tendency is small and the total industries are instable, in a way, we can recognize that these industries are exposed to considerably competitive pressure from the other markets.

For example, over the two periods, the number of industries, where the variation coefficient in CR_3 is greater than that in all manufacturing corporations, is 5 industries ([I] Whiskey, Canning,[II] Tire and Tube, Synthetic Washing Preparation, and Automobile) out of 11. Similarly, over the two periods, the number of industries, with a greater variation coefficient in the H.I. than in all manufacturing

corporations, is 10 industries ([I] Beer, Whiskey, Color Photograhic Film, Canning, Plate Glass, Chemical Seasoning, Piano, Motorcyle, [II] Synthetic Washing Preparation, and Automobile) out of 11 (see Appendix 4). We notice that, in these industries, the market shares are considerably instable.

5. Concluding Remarks

In this paper, we analyzed the Japanese highly concentrated industries with the Brozen's disequilibrium hypothesis. As an index which indicates the extent and continuity of disequilibrium, we calculated the relative variance value and variation coefficient in both the rate of return and the concentration ratio. Our conclusion is that the high rate of return in the highly concentrated industries tend to equalize the long-run equilibrium rate of return as Brozen suggests. We find that the highly concentrated industries are generally exposed to competitive pressure from the other markets. This is due to the fact that there are few industries with persistently monopolistic tendency and that almost all the industries are instable in a way.

A subject for future research is to investigate competitive strategy within these highly concentrated industries.

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Footnotes

1) The papers of the two schools are collected in Goldschmid, Mann, and Weston (1974).

2) The "Efficiency School" writers, who analyze about market power, advance the following three main hypotheses: (1) that monopoly is merely an embodiment of efficiency,(2) that collusion is the only real form in which monopoly power occurs, and (3) that monopoly profits are dissipated in advance, during the struggle to gain monopoly. That is to say, the "efficiency school" view is that monopoly power simply does not and cannot exist or have important effects, as a matter of economic logic (see Shephard, 1988, p.397). Shephard apointed out some contradictions that contained these hypotheses and showed their weakness from the market-imperfection in real world. He also suggests to investigate the following: What proportion of monopoly power is explained by superior efficiency? How comparatively strong are dominance and collusion? How much of monopoly profits are dissipated in advance? (See ibid., p.415).

3) Bain pointed out the following reservations: the character of definitions of industry and rates of return, the limitation of data, the period covered or the character of the sample, the relationship on elements (entry barriers, advertising) beside concentration ratio (see Bain, 1951, pp.323-324).

4) By means of the same index, we reached a conclusion that approved the Brozen's disequilibrium hypothesis of a positive correlation between the height of barriers and the rates of return. See Masuda (1991).

Appendix 1. Trend of Ratio of Operationg Return on Total Capital of the Top Three Companies

	(Number of Companies)	Average Rate of Return 1971-77	1978-85
H.I. 3,000-			
Beer	(3)	6.4%	6.3%
Whiskey	(3)	6.4	7.1
Color Photograhic Film	(3)	8.7	9.1
Canning	(2)	8.7	8.5
Plate Glass	(3)	5.2	7.5
Chemical Seasoning	(3)	6.7	7.9
Piano	(2)	14.0	6.4
Motorcycle	(3)	6.9	5.9
Mean (8 Industries)		7.7	7.4
H.I. 1,800-3,000			
Tire and Tube	(3)	8.4	6.5
Synthetic Washing Preparation	(2)	8.7	5.0
Automobile	(3)	7.2	6.8
Mean (3 Industries)		8.1	6.1
H.I. 1,000-1,800			
Condensed Milk	(3)	4.5	3.9
Telephone	(3)	4.0	8.3
Aluminium Sash	(3)	6.8	7.5
Insecticide	(2)	14.9	16.4
Mean (4 Industries)		6.5[1)]	9.1
H.I. 500-1,000			
Ham and Sausage	(3)	8.8	7.7
Soy	(2)	8.7	6.5
Sugar	(3)	0.7	5.6
Cement	(3)	3.1	5.3
Corrugated Cardboard	(2)	5.2	8.9
Mean (5 Industries)		5.3	6.8
Total (20) Industries		6.9	7.3
All mfg. Corporations		6.9	6.4

Note: 1) This figure does not include average rate of return in the insecticide industry in 1971-73.
Sources: The Nihon Keizai Shimbunsha (annual edition).
Ministry of Finance (annual edition).

Appendix 2. Trend of Difference from the Average Rate of Return of Total Industries (20)

Average Rate of Return in 20 Industries	1971-77 6.9% Difference	1978-85 7.3% Difference
Beer	0.5%	1.0%
Whiskey	0.5	0.2
Color Photograhic Film	−1.8	−1.8
Canning	−1.8	−1.2
Plate Glass	1.7	−0.2
Chemical Seasoning	0.2	−0.6
Piano	−7.1	0.9
Motorcycle	0	1.4
Tire and Tube	−1.5	0.8
Synthetic Washing Preparation	−1.8	2.3
Automobile	−0.3	0.5
Condensed Milk	2.4	3.4
Telephone	2.9	−1.0
Aluminium Sash	0.1	−0.2
Insecticide	−8.0	−9.1
Ham and Sausage	−1.9	−0.4
Soy	−1.8	0.8
Sugar	6.2	1.7
Cement	3.8	2.0
Corrugated Cardboard	1.7	−1.6

Source: Appendix 1.

Appendix 3. Trend of Difference from the Average Rate of Return of All Manufacturing Corporations

	1971-77	1978-85
Average Rate of Return in All mfg. Corporations	6.9%	6.4%
	Difference	Difference
Beer	0.5%	0.1%
Whiskey	0.5	− 0.7
Color Photograhic Film	−1.8	− 2.7
Canning	−1.8	− 2.1
Plate Glass	1.7	− 1.1
Chemical Seasoning	0.2	− 1.5
Piano	−7.1	0
Motorcycle	0	0.5
Tire and Tube	−1.5	− 0.1
Synthetic Washing Preparation	−1.8	1.4
Automobile	−0.3	− 0.4
Condensed Milk	2.4	2.5
Telephone	2.9	− 1.9
Aluminium Sash	0.1	− 1.1
Insecticide	−8.0	−10.0
Ham and Sausage	−1.9	− 1.3
Soy	−1.8	− 0.1
Sugar	6.2	0.8
Cement	3.8	1.1
Corrugated Cardboard	1.7	− 2.5

Source: Appendix 1.

Appendix 4. Trend and Stability of Concentration Ratio

	CR_3				H.I.			
	Average		Variation Coefficient		Average		Variation Coefficient	
	1970-77	1978-84	1970-77	1978-84	1970-77	1978-84	1970-77	1978-84
Beer	93.8%	91.4%	.009630	.009899	4262.6	4350.7	.041810	.014795
Whiskey	96.8	94.4	.008805	.019826	5475.6	5761.4	.052727	.084462
Color Photograhic Film	100.0	100.0	0	0	6549.3	6043.0	.037074	.024379
Canning	88.7	85.7	.034685	.014682	3848.9	3459.6	.103264	.018780
Plate Glass	100.0	100.0	0	0	3647.4	3657.6	.025898	.020937
Chemical Seasoning	85.3	82.3	.009666	.009085	3898.4	3267.3	.049157	.038673
Piano	89.5	91.6	.013843	.010447	4594.1	4634.9	.049261	.031176
Motorcycle	93.0	94.1	.008560	.009161	3564.5	3353.1	.100042	.054043
Tire and Tube	79.2	78.9	.008628	.012864	2998.3	2907.3	.023190	.013016
Synthetic Washing Preparation	70.6	76.3	.026184	.057739	2207.0	2599.1	.060858	.119578
Automobile	84.1	72.3	.072692	.013360	2978.8	2196.7	.134569	.030170
All mfg. Corporations[1)]	50.0[2)]	50.6	.008383	.010564	1444.0	1445.4	.023439	.013895

Notes: 1) The figures in this sector are weighted average values.
2) This figure does not include the CR_3 in 1970.

Sources: Ide and Hatta., (1989, Table 4.7, Table 4.8, pp.84-85).
The Fair Trade Institute, No.451, p.33, No.458, p.26.
The Fair Trade Institute (annual edition).

References

1. Bain, J.S. (1951). "Relation of Profit Rates to Industry Concentration: American Manufacturing, 1936-1940", *Quarterly Journal of Economics, August*, pp.293-324.
2. Brozen, Y. (1969-a). "Significance of Profit Date for Antitrust Policy", *Antitrust Bulletin, Spring*, pp.119-139.
3. _____ (1969-b). "Barriers Facilitate Entry", *Antitrust Bulletin, September*, pp. 851-854.
4. _____ (1970). "The Antitrust Task Force Deconcentration Recommendation", *Journal of Law and Economics, October*, pp.279-292.
5. _____ (1971). "Bain's Concentration and Rates of Return Revisited", *Journal of Law and Economics, October*, pp.351-369.
6. Demsetz, H. (1973). "Industry Structure, Market Rivalry, and Public Policy", *Journal of Law and Economics, April*, pp.1-9.
7. Goldschmid, H.J., Mann, H.M. and Weston, J.F., eds., (1974). *Industrial Concentration: The New Learning*, Little, Brown and Company, Boston, USA.
8. *Hogin Kigyo Tokei Nenpo Tokushu (Special Issues of Corporate Business Statistics: Annual Edition)*, Ministry of Finance: Japan (in Japanese).
9. Ide, H. and Hatta, E., eds., (1989). *Kasen Sangyou no Keizaigaku (Economics of Oligopoly Industries)*, Keiso Shobo : Tokyo (in Japanese).
10. *Kosei Torihiki Iinkai Nenji Hokoku (The Fair Trade Commission, Annual Report)*, Kosei Torihiki Kyoukai (The Fair Trade Institute), Tokyo (in Japanese).
11. *Kosei Torihiki (Fair Trade, Monthly Edition)*, Kosei Torihiki Kyokai (The Fair Trade Institute): Tokyo (in Japanese).
12. Mann, H.M. (1966). "Seller Concentration, Barriers to Entry, And Rates of Return in Thirty Industries, 1950-1960", *Review of Economic and Statistics, August*, pp.296-307.
13. Masuda, T. (1991). "A Note on Brozen's Approach to the High Rates of Return in the Highly Barriered Industries", *Economic Journal of Hakkaido University, July*, pp.49-57.
14. Mueller, D.C. (1986). *Profits in the Long Run*, Cambridge : Cambridge University Press.
15. *Nikkei: Kaisha Nenkan (Annual Corporation Reports)*, The Nihon Keizai Shimbunsha: Tokyo (in Japanese).
16. Odagiri, H. and Yamawaki, H. (1990). "The Persistence of Profits in Japan, and The Persistence of Profits: An International Comparison", in D.C. Mueller., ed., *The Dynamics of Company Profits: An International Comparison*, Cambridge: Cambridge University Press.
17. Posner, R.A. (1979). "The Chicago School of Antitrust Analysis", *University of Pennsylvania Law Review, April*, pp.925-948.
18. Shepherd, W.G. (1988). "Three "Efficiency School" Hypotheses about Market Power", *Antitrust Bulletin, Summer*, pp.395-415.