

THE EFFECTS OF M&A ACTIVITY ON COMPANY VALUE IN JAPAN AND THE UNITED STATES: A COMPARATIVE STUDY

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Summary

By using stock price data (i.e., changes in shareholder wealth) to determine the effects of M&A activity on the value of both acquiring and target firms, a striking difference between Japan and the United States emerges. In the United States, M&A activity has a consistently positive effect on firm valuation, particularly for target firms. In contrast, the stock market in Japan tends to react negatively to M&A activity, resulting in reduced shareholder wealth for both acquiring and target firms.

I. *Introduction*

Mergers and acquisitions (M&A) are a part of everyday business life in the United States. Criticism of M&A has gathered strength in recent years, with some charging that the threat of hostile takeovers leads managers to abandon a long-term operating perspective in favor of near-sighted emphasis on short-term profits, thus contributing to the decline of American industry. Others maintain that M&A activity is not a zero-sum game, but rather adds to the wealth of those holding shares in the takeover target as the value of those shares increases. The latter view is supported by quantitative evidence accumulated by researchers in the field of finance.

In Japan, M&A activity has taken place principally as mergers. In recent years, an increasing number of both Japanese and non-Japanese companies have become targets for acquisition-minded Japanese firms. However, until today little attention has been focused in Japan on the impact of such activity on the value of the firms involved, and the issue as a whole has remained obscure.

If M&A activity has an impact on the value of the firms involved, this impact should be reflected in the market price for shares of stock in those firms. In other words, stock prices should serve as a good indirect indicator of the effects of M&A activity on the valuation of the firm.

This paper attempts to measure the effects of Japanese M&A activity on the valuation of the firm through an examination of stock prices, and to contrast those results with similar research conducted in the United States. It also will examine the impact that information, in the form of an announcement of a merger or acquisition, has on the valuation of the firms.

A secondary objective of this paper is to discover whether the effect of such information on stock prices may provide quantitative evidence of insider trading activity, an area of increasing attention in Japan today.¹

II. *Analyses of U.S. Data*

(1) Overview

In studies conducted to date in the United States, the impact of M&A activity on shareholder wealth is generally evaluated by measuring the abnormal returns on investment in the firms' stock. However, these studies differ in the type of M&A activity examined, the analytical model employed, the period under scrutiny, and the type of investment return data used.

For example, most studies have focused on mergers, public tender offers, or both. The capital asset pricing model and the market model are most often chosen to serve as the basis for analysis. Early studies used monthly investment return data, but with the increase in sophistication of research, daily data has been used, increasing the precision of the analytic results. Early studies also tended to use the actual consummation of the merger to determine the Event Date, while more recent studies have tended to use the day of announcement of the merger as the Event Date, to examine the information effect of such announcements on shareholder wealth. In addition, while early studies focused only on successful (i.e., ultimately consummated) M&A activity, later studies have compared the impact on shareholder wealth in both unsuccessful and successful instances of M&A.

Studies by Dodd (1980)² and Keown & Pinkerton (1981)³ were chosen for comparison with the effects of M&A activity on shareholder wealth in Japan. These two studies were chosen because both found statistically significant and very similar results and both use the same analytical model. In addition, the findings of each supplement those of the other. Dodd examined the impact of M&A activity on shareholder wealth for both acquiring and target firms, while Keown & Pinkerton studied target firms only, and over a longer period than examined by Dodd. Furthermore, while Dodd focuses principally on the impact on shareholder wealth, Keown & Pinkerton make important observations regarding insider trading that are significant for the present study's secondary objective.

The findings of both studies are fundamentally consistent with those of numerous other studies in the field, and can thus be considered to reflect current conditions in the United States. Before proceeding with a closer examination of these studies, it will be useful at this point to summarize these conditions, using the results of a survey conducted

¹ For further information on the connection between insider trading regulation and disclosure, as well as the practical effect of the Ministry of Finance's directive regarding "material information," see Kunio Ito, "Insaida Torihiki to Disukuroja" ["Insider Trading and Disclosure"], *Shoji Houmu*, December 15 and 25, 1988; also "Insaida Torihiki Kisei no Jissho Bunseki (II)" ["Quantitative Analysis of Insider Trading Regulation"] *Shoji Houmu*, April 25, 1990.

² P. Dodd, "Merger Proposals, Management Discretion and Stockholder Wealth," *Journal of Financial Economics*, 1980.

³ A.J. Keown and J.M. Pinkerton, "Merger Announcements and Insider Trading Activity: An Empirical Investigation," *Journal of Finance*, September 1980.

by Jensen & Ruback.⁴

Jensen & Ruback (1983) examined data from studies conducted during the period 1977–1983 that used the date of the M&A announcement as the Event Date. They then combined the data from each study, weighting it in accordance with the sample size involved. This calculation yielded an indication of the overall direction of the findings from the various studies.

Studies focusing on successful M&A only showed abnormal returns on investment in target firms ranging from 6.24% to 13.41% over the period Day –1 to Day 0 (the announcement date). The weighted average abnormal return for all studies was 7.72%. Abnormal returns over the period approximately one month before the announcement to Day 0 ranged from 13.30% to 21.78%, with a weighted average of 15.90%. In the case of acquiring firms, abnormal returns ranged from 0.20% to –1.09% over the period Day –1 to Day 0, with a weighted average of –0.05%. Abnormal returns over the period approximately one month before the announcement to Day 0 ranged from 0.20% to 3.48%, with a weighted average of 1.37%.

(2) Dodd's findings

Dodd (1980) carried out quantitative analysis relating to merger announcements for NYSE-listed companies published in the Wall Street Journal between 1971 and 1977. The sample included 151 acquisition targets and 126 acquiring firms. Negotiations involving 71 target firms and 66 acquiring firms were eventually successful, while talks involving 80 target firms and 60 acquiring firms were not consummated. Dodd measured the impact on shareholder wealth for the entire sample as well as each subsample by examining changes in stock price for each firm.

Dodd used the α and β parameters for the market model to calculate the residual. This prediction error expresses the abnormal returns on investment in the firms' stock, presumably as a result of the merger announcement. He then calculated the prediction error for each day as well as the average prediction error (PE) for the entire sample and each subsample. Finally, he calculated the cumulative average prediction error (CPE) from Day –40 to Day +40. Day 0 was set as the date of the takeover announcement in the Wall

TABLE I. CUMULATIVE AVERAGE PREDICTION ERROR, PERCENT (Dodd, 1980)

Key: A (all Firms)
C (consummated mergers)
U (unconsummated mergers)

Period	Target Firms			Acquiring Firms		
	A (151)	C (71)	U (80)	A (126)	C (66)	U (60)
(–1, 0)	13.04	13.41	12.73	–1.16	–1.09	–1.24
(–40, 0)	23.42	24.01	24.51	5.37	4.89	5.80
(+1, +40)	–1.99	3.96	–8.86	–0.20	1.18	–1.46

⁴ M. Jensen and R.S. Ruback, "The Market for Corporate Control: The Scientific Evidence," *Journal of Financial Economics*, 1983.

FIG. I. CPE: TARGET FIRMS (Dodd, 1980)

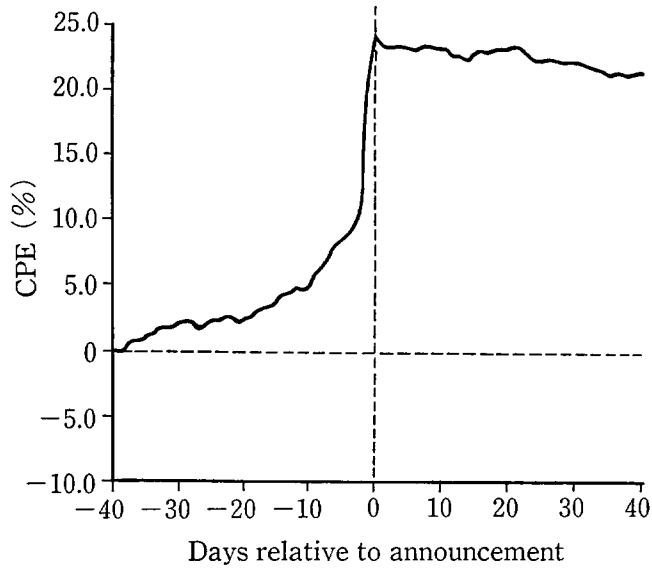
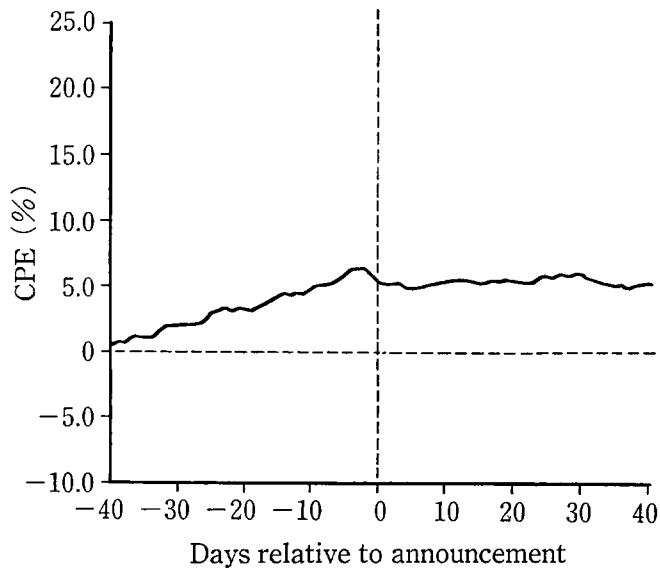


FIG. II. CPE: ACQUIRING FIRMS (Dodd, 1980)



Street Journal. The results of Dodd's calculations are set forth in Table I. Figure I and II show changes in CPE for target and acquiring firms respectively.

The CPE⁵ for all target firms for Day -1 was 8.74%; for Day 0, the CPE was 4.30%. T-test application resulted in values of 23.80 for Day -1 and 11.71 for Day 0, both figures

indicating significant positive abnormal returns.

For the acquiring firm group as a whole, CPE at Day -1 equaled -0.54% ($t=-2.46$); at Day 0, CPE was -0.62% ($t=-2.83$). T-test values were small relative to the target firm sample but deviated significantly from 0.

For the period Day -40 to Day 0, CPE for the target firm sample was quite high at 23.42% . Looking at the CPE for this group from Day -1 to Day 0, Dodd found that roughly half of total CPE was accounted for in the period up to the day of the announcement. Obviously, shareholders of target firms enjoyed high abnormal returns on their investments as a result of the takeover announcement. These results are largely consistent with those obtained by Jensen & Ruback.

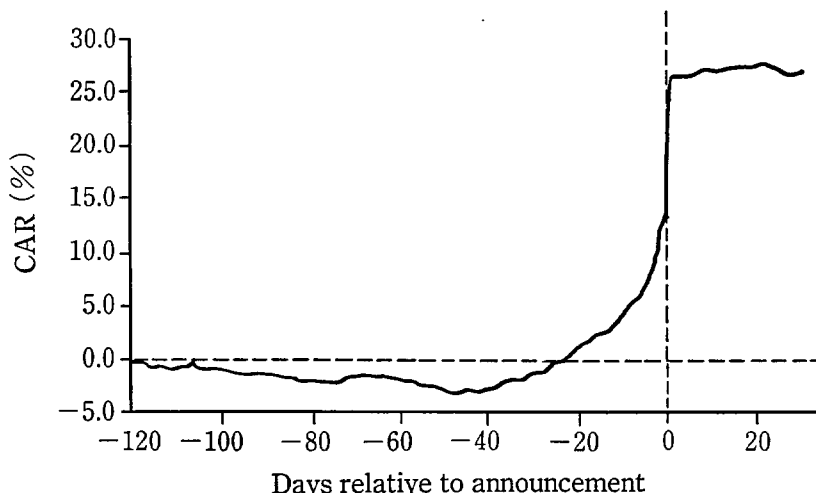
(3) Keown & Pinkerton's findings

Keown & Pinkerton (1981) studied stock price movements from Day -125 to Day +30 for 194 listed companies acquired between 1975 and 1978, using the same market model employed by Dodd. To eliminate bias in estimating α and β parameters, they examined data for the first 100 days and eliminated data for Day -25 to Day 0.

Based on the estimated parameters for this period, they calculated total abnormal returns as well as average abnormal returns on a daily basis. They also calculated cumulative average abnormal returns (CAR) for the period Day -125 to Day +30. Their results are shown in FIG. III.

The principal aim of Keown & Pinkerton's study was to obtain some confirmation

FIG. III. CAR: TARGET FIRMS (Keown & Pinkerton, 1981)



⁵ Dodd provides the following rationale for taking both Day 0 and Day -1. Takeovers are announced the day before the news appears in the Wall Street Journal. Announcements that take place before the close of NYSE trading are considered to have taken place on Day -1, while announcements that take place after the close of trading are considered to have taken place on Day 0.

of insider trading activity through careful examination of stock price movements. They found that total CAR became positive at Day -25 and reached roughly half of their ultimate maximum during the period up to the announcement. They also found positive average abnormal returns for 26 days during the period beginning at Day -27. These returns exceeded 10% for 10 days during the period beginning at Day -11 and deviated significantly from zero (0.05%) during the five days preceding the announcement. Finally, they showed that for a majority of firms in the sample, average abnormal returns were positive during each of the five days immediately preceding the announcement.

Based on these findings, Keown & Pinkerton concluded that considerable trading was being conducted by insiders anticipating a takeover. Furthermore, this activity began approximately a month before the takeover announcement, and during the period approximately 5 to 11 days before announcement, violations of the SEC's rule 10-b were clearly taking place (Keown & Pinkerton, 1981, p. 863).

Keown & Pinkerton's findings are also significant with regard to the impact of M&A activity on shareholder wealth and firm valuation. The average abnormal returns for Day -1 and Day 0 were 2.55% ($t=5.93$) and 12.02% ($t=11.53$) respectively. Both t-test values deviated significantly from zero. CAR for the same two-day period was 14.57%, close to Dodd's value of 13.04%.

To further compare findings from the two studies, the author calculated a CAR from Keown & Pinkerton's data of 27.95% for the period Day -40 to Day 0. This is close to Dodd's figure of 24.01% for his subsample of target firms in successful cases of M&A. The CAR for the period Day -125 to Day 0, not available in Dodd's study, was 25.28%.

In summary, Keown & Pinkerton's data analysis found a clear link between takeover announcements and firm valuation, in other words, increases in shareholder wealth. They also showed that roughly half of the abnormal return on investment in target firms is realized prior to the takeover announcement.

III. *Analysis of Japanese Data*

(2) Methodology

To date, there have been few studies in Japan examining daily stock price data for clues to the impact of M&A activity on shareholder wealth.⁶ The author therefore analyzed daily stock price data to measure the effects of M&A on shareholder wealth in Japan and to provide a comparison with the U.S. case.

Data were collected on 29 corporate takeovers in Japan during the period 1971-1987 where the firms involved were listed companies and the announcement appeared in the business daily *Nihon Keizai Shimbun* (Day 0). The data included 28 acquiring firms and

⁶ The following two papers focus on the economic effect of mergers in Japan: M. Suto, "Kabunushi ni Ataeru Gappei no Koka" ["The Effects of Mergers on Shareholders"], Japan Securities Research Institute (Technical Paper, Office of Statistics), 1981; S. Sakakibara, *Gendai Zaimu Riron* [Modern Financial Theory], Chikura Shobo, 1986. However, these sources differ from the present paper in that both use monthly data and neither specifies the data of the merger announcement.

TABLE II. SAMPLE FIRMS AND DATE OF MERGER ANNOUNCEMENT (Yr/Mo/Dy)

Acquiring Firm	Target Firm	Announcement
Kawasaki Heavy Industries	Kisha Seizo	71.6.1
Meiji Seika	Meiji Shoji	71.6.25
Sanyo Pulp	Kokusaku Pulp	71.8.23
Fuji Motor	Dainippon Kikai Kogyo	71.9.24
Mitsubishi Mining	Mitsubishi Cement	71.8.9
Nippon Light Metal	Nippon Light Aluminum	74.3.11
Kanebo	Kanebo Nakataki Seiyaku	74.4.5
Toyo Soda	Tekkousha	74.7.18
Nippon Heavy Chemical	Tohoku Jukagaku Kogyo	74.10.16
C. Itoh	Ataka	76.1.13
Godo Steel	Nippon Satetsu Kogyo	77.7.21
Lion	Lion Oil and Fat	77.10.31
Oji Paper	Nippon Pulp	78.10.4
Japan Miniature Bearing (Minebea)	Tokyo Rashi Manufacturing	81.4.1
	Shin Chuo Kogyo	81.4.1
	Shinko Tsushin Kogyo	81.4.1
Toyota	Toyota Motor Sales	82.1.23
Sumitomo Heavy Industries	Nittoku Metals	82.4.21
Kaken Chemical	Kaken Yaku Kako	82.4.22
Yokogawa Electric	Hokushin Electric	82.9.1
Kyocera	Yashika	83.4.1
Tokyo Sanyo Electric	Sanyo Vending Machine	83.7.27
Akai Electric	Akai Shoji	84.1.19
Toyama Machine	Nippei Sangyo	84.4.7
Daikyo Oil	Maruzen Oil	85.5.24
Minebea	Kanemori	85.10.27
Sanyo Electric	Tokyo Sanyo Electric	86.5.3
Toda Construction	Shimafuji Construction	86.8.23
Azuma Seikosho	Tochu Seiko	87.3.2
Crown	Tajiri Machine	87.5.26
Matsushita Electric	Matsushita Trading	87.8.31

31 target firms⁷ as shown in Table II. Data were analyzed over the period Day -119 to Day +19.

Following Dodd and Keown & Pinkerton, the following market model was employed:

$$\tilde{R}_{jt} = \alpha_j + \beta_j \tilde{R}_{mt} + \tilde{\varepsilon}_{jt}$$

where

\tilde{R}_{jt} = investment return on stock j for Day t

\tilde{R}_{mt} = investment return on the market portfolio for Day t

$$\beta_j = \text{cov}(\tilde{R}_{jt}, \tilde{R}_{mt}) / \text{var}(\tilde{R}_{mt})$$

$\tilde{\varepsilon}$ = error term, $E(\tilde{\varepsilon}_{jt}) = 0$

The following equation was used to calculate the residual (abnormal return):

$$\hat{\varepsilon}_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt})$$

⁷ The number of acquiring companies is smaller than the number of target firms because some cases involve mergers between more than two companies.

Estimates for α and β followed Keown & Pinkerton's example, using only the first 80 days of data.

The following equation was used to calculate average abnormal return (AR):

$$AR_t = \frac{1}{N} \sum_{j=1}^N \hat{\varepsilon}_{jt}$$

where N equals the sample size.

Finally, the following equation was used to calculate cumulative average abnormal return (CAR):

$$CAR = \sum_{t=1}^T AR_t$$

(2) Findings

Table III shows AR and CAR for target firms. Fig. IV plots the changes in CAR .

TABLE III. AR AND CAR FOR JAPANESE TARGET FIRMS

Day	AR (%)	CAR (%)	Day	AR (%)	CAR (%)	Day	AR (%)	CAR (%)
-60	-0.3636	-8.9714	-36	-0.7461	-12.1741	-12	0.6063	-10.3039
-59	-0.4817	-9.4531	-35	0.3327	-11.8413	-11	-0.2764	-10.5803
-58	0.9518	-8.5013	-34	-0.2096	-12.0510	-10	-0.2001	-10.7804
-57	-0.1131	-8.6145	-33	-0.0460	-12.0970	-9	1.1301	-9.6503
-56	0.3617	-8.2527	-32	-0.3269	-12.4240	-8	-0.5708	-10.2211
-55	0.1704	-8.0822	-31	-0.7445	-13.1686	-7	-0.6252	-10.8464
-54	0.0707	-8.0115	-30	0.4008	-12.7677	-6	0.2086	-10.6378
-53	0.2311	-7.7804	-29	0.3134	-12.4543	-5	1.0244	-9.6133
-52	-0.4002	-8.1806	-28	-0.1991	-12.6534	-4	0.4144	-9.1989
-51	0.2197	-7.9608	-27	-0.1230	-12.7765	-3	1.2691	-7.9297
-50	0.3904	-7.5704	-26	-0.7487	-13.5253	-2	1.0447	-6.8850
-49	0.2387	-7.3317	-25	1.0043	-12.5209	-1	2.6299	-4.2550
-48	-1.1950	-8.5267	-24	-0.4022	-12.9232	0	-1.3654	-5.6205
-47	-0.0618	-8.5885	-23	0.4752	-12.4479	1	-4.1094	-9.7299
-46	-0.1359	-8.7244	-22	-0.6058	-13.0538	2	-1.7191	-11.4491
-45	-1.1316	-9.8561	-21	-0.1395	-13.1933	3	1.0135	-10.4355
-44	-0.2372	-10.0934	-20	0.9916	-12.2017	4	-1.3600	-11.7955
-43	0.0984	-9.9949	-19	0.1068	-12.0948	5	-0.5868	-12.3823
-42	-1.0238	-11.0188	-18	0.4526	-11.6421	6	0.1422	-12.2401
-41	0.7553	-10.2634	-17	-0.0756	-11.7178	7	0.0136	-12.2264
-40	-0.4525	-10.7160	-16	0.0832	-11.6345	8	-1.3634	-13.5899
-39	0.2693	-10.4467	-15	0.9975	-10.6369	9	-0.7148	-14.3047
-38	-0.4256	-10.8723	-14	0.0851	-10.5518	10	-0.5428	-14.8476
-37	-0.5556	-11.4279	-13	-0.3584	-10.9102			

* Data for Day -60 to Day +10 only, after Keown & Pinkerton (1981).

FIG. IV. CAR: JAPANESE TARGET FIRMS

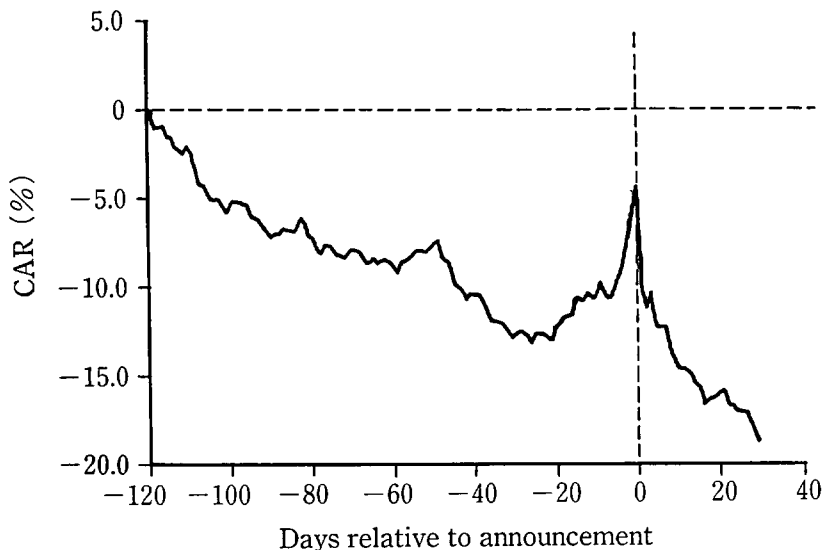


TABLE IV. AR AND CAR FOR JAPANESE ACQUIRING FIRMS

Day	AR (%)	CAR (%)	Day	AR (%)	CAR (%)	Day	AR (%)	CAR (%)
-60	-0.1663	-11.2838	-36	-1.2987	-12.7488	-12	0.3857	-12.9104
-59	-0.5346	-11.8184	-35	0.6642	-12.0846	-11	-0.5666	-13.4770
-58	0.3872	-11.4312	-34	-0.4743	-12.5590	-10	-0.0721	-13.4592
-57	0.7295	-10.7017	-33	0.4401	-12.1188	-9	-0.6186	-14.1678
-56	-0.2717	-10.9734	-32	-0.4811	-12.5999	-8	-0.2561	-14.4240
-55	0.5916	-10.3817	-31	-0.1373	-12.7373	-7	-0.2977	-14.7218
-54	-0.1278	-10.5096	-30	-0.1913	-12.9286	-6	0.3163	-14.4054
-53	-0.7089	-11.2185	-29	-0.1901	-13.1187	-5	0.9529	-13.4525
-52	-0.6256	-11.8442	-28	-0.7138	-13.8326	-4	0.0088	-13.4436
-51	0.0959	-11.7483	-27	0.6026	-13.2299	-3	-0.5063	-13.9499
-50	0.3525	-11.3958	-26	0.5271	-12.7023	-2	-0.1811	-14.1311
-49	0.3105	-11.0852	-25	-0.7541	-13.4569	-1	-0.0889	-14.2201
-48	-0.1274	-11.2127	-24	0.2771	-13.1798	0	1.2389	-12.9811
-47	-0.1986	-11.4114	-23	-1.0310	-14.2108	1	-1.8410	-14.8221
-46	0.7483	-10.6630	-22	0.0062	-14.2046	2	-1.6053	-16.4275
-45	0.0177	-10.6512	-21	-0.6762	-14.8808	3	-0.6380	-17.0655
-44	-0.3336	-10.9849	-20	1.1738	-13.7070	4	-0.1453	-17.2108
-43	-0.3890	-11.3740	-19	0.9318	-12.7751	5	-0.5712	-17.7821
-42	0.5601	-10.8138	-18	-0.2034	-12.9786	6	-0.0192	-17.8014
-41	-0.1015	-10.9153	-17	-0.1467	-13.1253	7	0.1959	-17.6055
-40	-0.2680	-11.1833	-16	0.2077	-12.9175	8	0.2096	-17.3958
-39	0.0424	-11.1409	-15	-0.2832	-13.2008	9	-0.2207	-17.6166
-38	-0.2825	-11.4234	-14	-0.3565	-13.5573	10	-0.4801	-18.0968
-37	0.2733	-11.1501	-13	0.2611	-13.2962			

* Data for Day -60 to Day +10 only.

AR for Day -1 and Day 0 was 2.63% ($t=3.69$) and -1.37% ($t=-0.72$) respectively. For Day +1, AR was -4.11% ($t=-2.78$, significant at 10%). Thus there is a large and significant movement in opposite directions for AR over the period Day -1 to Day +1.

CAR from Day -1 to Day 0 was 1.27%, while from Day -40 to Day 0 the value was 4.64%. For the period Day -119 to Day 0, CAR was -5.62%. The largest value for CAR up to the day of the announcement, 7.91%, was obtained for the period from Day -26 to Day 0. Over the period from Day 0 to Day +29, CAR was -13.13%.

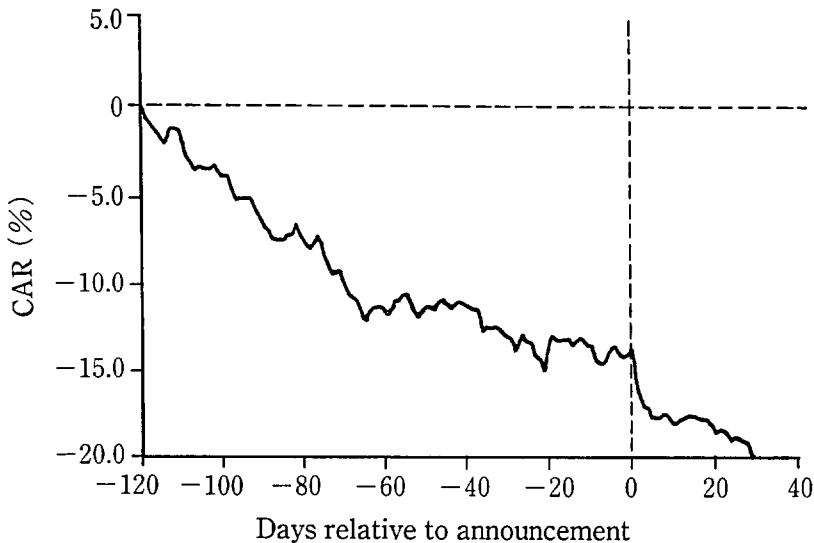
Table IV shows AR and CAR for acquiring firms. Graph V plots the changes in CAR.

AR for Day -1 and Day 0 was -0.09% ($t=-0.14$) and 1.24% ($t=1.50$) respectively. The t values here are not statistically significant. For Day +1, AR was -1.84% ($t=-1.69$, significant at approximately 10%). CAR for the period Day -1 to Day 0 was 1.15%, while CAR for the period Day -40 to Day 0 was -2.07%. Finally, CAR for the period Day -119 to Day 0 was -12.98%.

The author then investigated whether there were any differences in the financial characteristics of firms in the target group as compared with those in the acquiring group. First, to discover possible differences in systematic risk associated with investment in the target as opposed to the acquiring firms, average β values were calculated for each group, yielding a value of 0.50 for the acquiring firms and 0.91 for the target firms.⁸ Thus, it appears that acquiring firms actually carry a higher systematic investment risk than do target firms.

Table V provides average values and standard deviations of principal financial indices for the two groups. The table points to the following financial differences between acquiring and target firms. First, acquiring firms tend to be two to three times larger than target firms. Acquiring firms also have a higher ratio of equity to total assets (34%) than do

FIG. V. CAR: JAPANESE ACQUIRING FIRMS



⁸ The sample included two negative betas in the acquiring firm group and four in the target firm group.

TABLE V. PRINCIPAL FINANCIAL INDICES: ACQUIRING AND TARGET FIRMS

Units: Millions of yen, percent

Key: A—Average

S—Standard deviation

	Acquiring Firms		Target Firms	
	A	S	A	S
Sales	522,704	1,172,650	335,316	825,275
Net Income	15,071	42,404	4,877	17,496
Total Assets	364,139	578,270	138,455	284,355
Equity	125,329	295,565	26,164	65,123
% Return on Total Assets	4.42	4.87	3.47	7.96
% Return on Equity	16.77	15.43	2.40	6.30

target firms (19%). Finally, acquiring firms have a healthy return on equity, while target firms' return on equity is quite low.

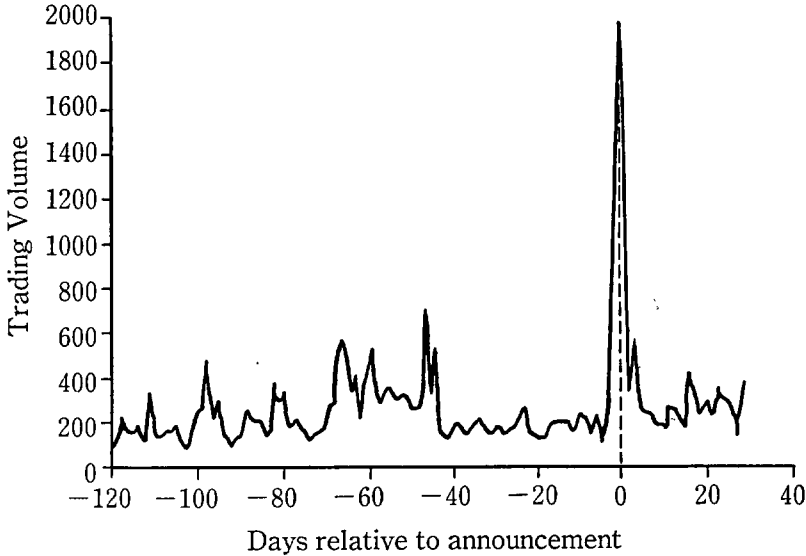
IV. Comparative Analysis

Let us first compare the differences between Japan and the United States in terms of the impact of M&A on the wealth of shareholders of the target firms. The studies reviewed so far indicate that shareholders of U.S. target firms realize abnormal returns of 13.0% to 14.6%, while shareholders of Japanese target firms realize abnormal returns of only 1.3%. Evidently, U.S. equity markets regard acquisitions as likely to have a favorable impact on the target firm's value, thus a takeover announcement is considered good news for the target firm's shareholders. In contrast, equity markets in Japan do not seem to regard acquisitions as likely to add to the value of the target firm. In addition, cumulative abnormal returns of 24.0% to 28.9% to investment in the target firm can be expected in the United States over the period Day -40 to Day 0, while the comparable figure for Japan is only 4.6%. Clearly, market participants in the United States and Japan have widely differing expectations regarding the effects of acquisitions on the target firm's value.

Despite these striking differences, important similarities also emerge from an examination of the situation in the two countries. Dodd found that abnormal returns rise sharply at about Day -10, and show a further sharp increase at about Day -3. Keown & Pinkerton found an even clearer evidence of stock price movement ahead of the announcement, with abnormal returns beginning a rapid rise at approximately Day -20. When we turn to the results from Japan, however, we find that CAR falls consistently from 120 days before the announcement to about Day -20, when it reverses course and begins to rise. The rate of increase accelerates at around Day -6, and amounts to about 10% during the period Day -6 to Day 0.

As Keown & Pinkerton state, this phenomenon suggests the presence of insider trading activity. Problems remain, however, in proving this conclusively. Jensen & Ruback point out that even before an acquisition announcement is made, a variety of information is released with the potential to alert market participants to the possibility of a takeover. Thus, changes in the target firm's price ahead of the announcement may simply be the result of an objective reaction to such news on the part of market participants. This possibility

FIG. VI. TRADING VOLUME IN JAPANESE TARGET FIRMS' STOCK



requires further investigation before the increase in the target firm's stock price is attributed to insider trading. However, there are two indicators of insider trading in Japan that do not exist in the United States. One is the consistent decline in the target firm's stock price that begins approximately 120 days before the announcement and eventually amounts to a drop of about 13%. The other is the fact that CAR continues its decline even after the announcement, falling approximately 13% more from Day 0 to Day +29. It is difficult to account for these phenomena simply in terms of investors' objective reaction to information, released ahead of the takeover announcement, that might alert them to the possibility of the takeover.

Figure VI shows relative average trading volume in the stock of acquiring firms, setting the trading volume at Day -5 equal to 100. Clearly, trading volume increases sharply about six days before the announcement. If we assume that changes in CAR beginning around 20 days before the announcement are due to trading by insiders, we cannot ignore the effects of M&A activity on shareholders of Japanese target firms. Rather than being viewed as a potential source of synergy between the acquiring and target firms, takeovers in Japan are generally viewed as "counter-synergistic," i.e., as detracting from the value of the target firm.

However, it is uncertain whether this "counter-synergy theory" can account for all aspects of Japanese equity markets' reaction to M&A. One possibility is that investors revise their valuation of the target firm downward if information released to the markets ahead of the takeover announcement includes new and unfavorable information about the target firm. This would lead to the "information theory."⁹ In any case, the continued decline

⁹ For further information on the synergy and information theories, see M.A. Desai and E.H. Kim, "The Rationale Behind Interfirm Tender Offers," *Journal of Financial Economics*, 1983.

of CAR in Japan following the announcement suggests that Japanese markets are inefficient relative to those in the United States, where CAR changes little once the announcement is made.

Moving on to a comparison of CAR for acquiring firms in the two countries, we find that while CAR for U.S. firms amounts to -1.2% for the period Day -1 to Day 0, the comparable figure for Japan is an equal and opposite 1.2% . For the period Day -40 to Day 0, the U.S. figure is 5.4% , in contrast to -2.1% for Japan. For the period Day -119 to Day 0, CAR for Japanese acquiring firms shows a sharp decline to -13.0% .

Caution is in order, however, when comparing the impact of M&A on acquiring firms' shareholder wealth in the two countries. Research indicates that while shareholders in U.S. target firms realize large wealth gains, shareholders in acquiring firms experience only a small positive, and sometimes even a negative, impact on their wealth. At the same time, there are a number of uncertainties involved with the measurement of these effects.

First, some acquiring firms announce their intention to engage in M&A before the announcement of a particular takeover takes place. Thus, the effects of such earlier announcements are already reflected in the firm's stock price when the actual takeover announcement is made, leaving only the incremental change in the stock price based on the takeover announcement to take place. Minebea is one example of a Japanese company that has made its readiness to engage in M&A publicly known. Studies by Shipper & Thompson (1983)¹⁰ and Asquith, Bruner & Mullins (1983)¹¹ that have attempted to deal with this problem have been only partially successful.

Second, acquiring firms' size and equity value are generally much larger than those of target firms. Thus M&A activity by acquiring firms may have relatively little impact on overall firm valuation. This certainly seems to be the case for acquiring firms in Japan, as suggested by Fig. V.

The above considerations indicate that caution is needed when comparing the impact of M&A on shareholder wealth for acquiring firms in Japan and the United States. Yet even if the impact on shareholder wealth for U.S. acquiring firms has been underestimated, the contrast with the result for Japan—where observed—suggests that the differences between the situation in the two countries is substantial and profound. Clearly, the data indicate that the valuation of Japanese acquiring firms also suffers as a result of M&A activity.

V. Conclusion

The foregoing examination of the impact of M&A activity on the value of a firm based on changes in stock price and shareholder wealth, indicates that significant differences exists between Japan and the United States, both for acquiring and target firms.¹² While take-

¹⁰ K. Schipper and R. Thompson, "Evidence on the Capitalized Value of Merger Activity for Acquiring Firms," *Journal of Financial Economics*, 1983.

¹¹ P. Asquith, R.F. Bruner and D.W. Mullins, "The Gains to Bidding Firms from Mergers," *Journal of Financial Economics*, 1983.

¹² For the author's views on why Japanese stock markets react this way to mergers, as well as the strategic implications for firms of such behavior, see Kunio Ito, "M&A to Senryakuteki IR" ["M&A and Strategic Investor Relations"], *Business Research* (Kigyō Kenkyū Kai), July 1989.

overs clearly increase the wealth of shareholders of U.S. target firms, market participants in Japan react to M&A activity by lowering their valuation of both acquiring and target firms. Differences between Japan and the United States in terms of the environment and motivation for M&A activity have long been recognized. The unexpectedly strong contrasts revealed by the present study, however, suggest that the underlying differences may be more profound than was previously realized.

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