Going-Private Transactions and Ex-Post Firm Behaviors: Evidence from Japanese Management Buy-outs*

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Abstract

This paper examines the effects of going private (i.e., ceasing public trading of company stock) on subsequent corporate behavior. More specifically, this paper identifies the effects of going-private transactions on corporate restructuring, investment, and innovation activities (patents, R&D) using Japanese going-private type management buy-out (MBO) data. Firms that conducted public-to-private MBO are matched with firms that have similar attributes to clarify empirically whether going private promotes corporate innovation activities or restructuring. The study described herein also tests factors underlying changes after going private using a hypothesis related to motives for going private. According to the results, restructuring behaviors are observed after going private, but firm innovation activities are not confirmed among the MBO firms. Buyout funds enhance MBO firms' investment after the transactions are completed, but have no effect on innovation activities.

Keywords：Going private, MBO, Difference-in-Differences

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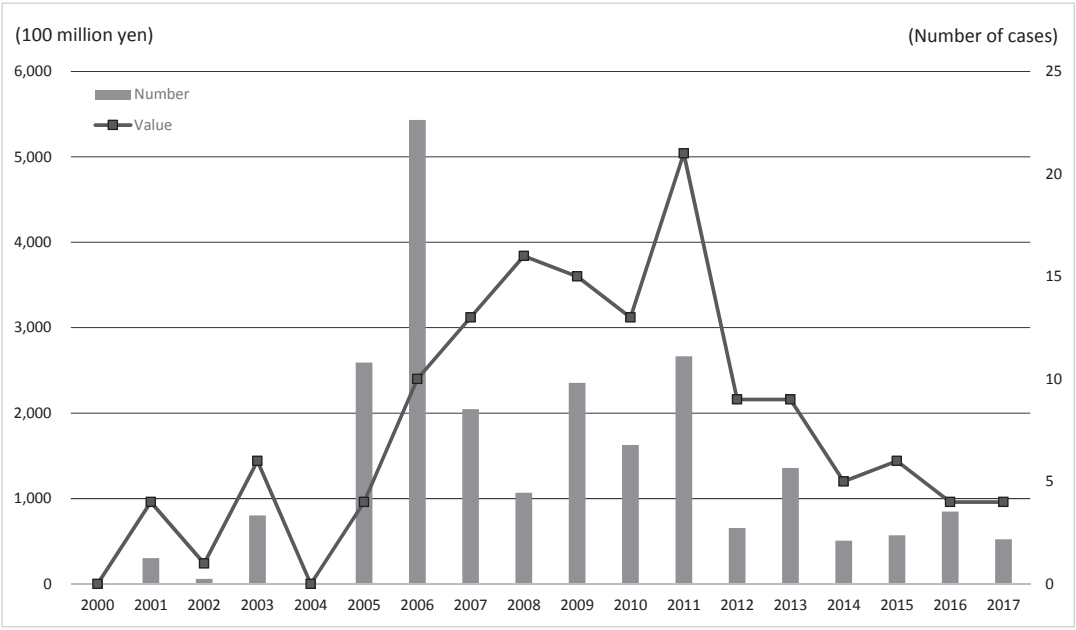
* This study is conducted as a part of the Project "Frontiers in Corporate Governance Analysis" undertaken at the Research Institute of Economy, Trade and Industry (RIETI). This study uses microdata of the questionnaire information based on "the Basic Survey of Japanese Business Structure and Activities" which is conducted by the Ministry of Economy, Trade and

1. Introduction

This study empirically examines the effects of exiting the stock market on subsequent firm behaviors. More specifically, the study examines whether public-to-private (PTP) management buyout (MBO) deals induce subsequent value-enhancing behavior. Reasons for going private are often cited. Going private frees the company from market pressure for short-term results and eases the pursuit of long-term growth strategies. Do transactions related to going private promote drastic restructuring or long-term investments such as R&D, which may be difficult to undertake while listed?

An MBO, a form of leveraged buyout (LBO), is acquisition of a company by its management. In addition to the PTP type, which involves changing the company to private ownership at the time of a buyout, there are MBOs of other types, such as divestment type, business succession type, and receivership type (CMBOR, 1991). In the U.S., MBOs have been practiced since the 1980s. In Japan, they have been conducted since the end of the 1990s. The first PTP type MBO was done in 2001. Since 2006, the number of cases have been about 10 per year

Figure 1　PTP MBO in Japan



(Source)　Prepared by the author based on "RECOF M&A Database" of RECOF Data.

Industry (METI), and the Kikatsu Oyako converter and the Kikatsu Shoken-code converter, which are provided by RIETI. The author is grateful to seminar participants at RIETI and at the Study Group on Capital Markets and Corporate Governance at the Japan Securities Research Institute. An earlier version of this paper circulated as RIETI Discussion Paper Series 21-E-067. This work was supported by JSPS KAKENHI Grant Number 19K01736.

(Figure 1). Although it has been on a downward trend since 2014, seven PTP MBOs were done during January-June 2020. Unlike ordinary mergers and acquisitions, the corporate organization and management team of a company are maintained before and after the buyout, making it a good subject for analysis to assess changes that occur later because of the going-private transaction.

Going-private transactions can exert both positive and negative effects on a firm's long-term investment. If private ownership frees a company from pressure to produce short-term results, gives it more freedom in management, and makes it more oriented toward long-term growth, then going private can be expected to promote drastic restructuring and long-term investment. However, if the market, especially institutional block shareholders, were to provide proper monitoring, then firm long-term investments would be expected to stagnate by going-private transactions. Compared to capital investment, R&D investment is usually more difficult to disclose because of its highly specialized nature and concerns about information leakage to rival companies. In addition, because of the high degree of uncertainty of R&D investment and because of its long-term nature, equity finance tends to be used rather than debt when raising funds externally (Carlin and Mayer, 2004; Brown et al., 2009). Therefore, if restrictions are imposed on financing by going-private transactions, then corporate innovation activities might stagnate.

This study empirically investigates going-private transactions and their promotion of restructuring and long-term investments by implementing difference-in-differences (DID) analysis in regression framework on datasets consisting of firms that implemented PTP MBO and matched firms with attributes similar to those firms. Hypotheses suggesting causes of ex-post firm behaviors are also tested. For ex-post analysis of going-private transactions, the availability of data is an issue. For this study, data of a company after going private are taken from the Basic Survey of Japanese Business Structure and Activities of the Ministry of Economy, Trade and Industry (METI) of Japan. This study can be expected to produce suggestions about the listing system and corporate governance.

The rest of the paper is organized as follows. Section 2 introduces related literature and presents some working hypotheses. Section 3 presents a description of the dataset used for the empirical analysis and the econometric framework. Section 4 reports results of the empirical analysis. Section 5 is dedicated to the conclusion and issues to be addressed by future studies.

2. Preceding Studies and Working Hypotheses

This study first examines going-private transactions and their putative inducement of value-enhancing behaviors. Then possible causes of behaviors from the hypotheses are

tested in terms of the motives for going private.

Theories related to motivations for going private are of two lines: those based on the trade-off between the costs and benefits of going public and those based on agency theory.[1] Regarding the former, motivations for ceasing the public trading of shares of ownership can be inferred as the reverse of those for offering shares of ownership to the public. If the relative benefits of going public exceed the costs of doing so, then firms are likely to go public. If the opposite is true, then currently public firms are likely to be transformed by managers or others into privately held companies. The benefits of going public include stock liquidity (reduced transaction costs), access to stock markets, and risk-sharing with shareholders. Bharath and Dittmar (2010) confirmed the effects of visibility, as measured by analyst coverage, and liquidity, as measured by the share turnover ratio, on going-private decisions made by U.S. firms.

Public firms incur indirect costs such as restrictions on behaviors to maintain listing and face undervaluation of the stock price because of information asymmetry, in addition to annual listing fees, audit fees, and costs associated with disclosure. Undervaluation caused by information asymmetry makes it difficult to raise capital and exposes the firm to the threat of takeovers. Nose and Ito (2009, 2011) analyze going-private deals in Japan and confirm that correcting undervaluation is a key motive for going private. This finding is consistent with earlier studies (e.g., Halpern et al., 1999; Weir et al., 2005).

The second line is agency-cost related theories. In a public firm with dispersed share ownership, management does not necessarily act in line with the shareholder interests because they do not own enough shares of a firm. For example, managers might receive private benefits from committing the company to excessive investments with negative net present value. Going-private transactions might eliminate such agency problems between shareholders and management.

This study particularly examines hypotheses that are likely to be related to value-enhancing behaviors. First, incentive realignment is discussed: a hypothesis related to agency costs. Firms with diversified ownership and small managerial stakes incur agency costs, but MBOs are expected to alleviate agency problems and increase corporate value by increasing managerial stakes (Jensen and Meckling, 1976). Firms with low ex-ante managerial stakes have more room for increased managerial stakes after an MBO. Thus, they enjoy a greater effect of incentive realignment, which is likely to enhance corporate value after a buyout through drastic restructuring and/or long-term investments.

The incentive realignment hypothesis has been confirmed from earlier studies of LBOs

1 Aslan and Kumar (2011) comprehensively present theories related to motives for going public and private.

and MBOs. Kaplan (1989) reported that firms which conducted MBOs in the U.S. in the 1980s experienced increased operating income, decreased capital expenditures, and increased net cash flow, from which they inferred that the changes were realized through improved incentives. Smith (1990), after studying MBOs in the U.S., also found improvement in operating returns, which were the result of improved management incentives. Mehran and Peristiani (2010) studied determinants of the decision to go private by IPO firms in the U.S. for 1990 and 2007. They identified that firms with more free cash flow and a low market-to-book ratio were more likely to go private, which suggests that alleviating agency problems through incentive realignment was a determinant for going-private decisions.

Hypothesis 1: A firm with a smaller managerial stake before an MBO will be more active in subsequent value-enhancing behaviors.

Next, the hypothesis related to buyout funds is discussed. Involvement of buyout funds in PTP MBOs can enhance value creation thereafter. The monitoring provided by buyout funds as block shareholders can alleviate previously existing agency problem (Shleifer and Vishny 1986). In addition, various management reforms by a fund, which Kaplan and Strömberg (2009) called "operational engineering," might promote ex-post value creation.

Both buyout fund-backed PTP MBOs and non-fund-backed MBOs exist. In a fund-backed MBO, corporate value can be improved by the value creating function of the fund described above. Whether the fund increases the corporate value from a long-term perspective or aims for a shorter-term gain as a financial buyer, however, cannot be determined in advance. How assets, numbers of employees, capital, and R&D expenditures change after a buyout fund-backed PTP MBO can be examined empirically. Of the PTP MBO firms in the sample analyzed for this study, 43.6% involved a buyout fund. The rest did not.

Amess et al. (2016) analyzed effects of private equity (PE) backed LBOs on innovative output based on concluded agreements in the U.K. They found that LBOs have a positive effect on patent stock, but the effect was observed only for private-to-private transactions. They concluded that PE firms facilitate firm innovation activities by relaxing financial constraints. Aslan and Kumar (2011) examined going-private deals in the U.K. during 1996–2006. The firms exhibited decreased investment but had increased profits after going private, especially among firms bought out by private equity investors, which were consistent with agency-cost-based theories of going private. Boucly et al. (2011), after studying LBOs conducted in France, reported that after LBO firms became more profitable, they grew much faster than their

peer group, issued additional debt, and increased capital expenditures. They also found that post-buyout growth was concentrated among private-to-private transactions, concluding that private equity funds created value by relaxing credit constraints. Lerner et al. (2011) examined U.S. LBO deals, thereby finding that LBO firm patents were more cited. The LBO firms had no shifts in the fundamental nature of the research. They became more concentrated in important areas of companies' innovative portfolios after the deals.

Hypothesis 2a: PTP MBO firms with buyout funds are more active in subsequent value-enhancing behaviors.

Hypothesis 2b: PTP MBO firms with buyout funds are less active in subsequent value-enhancing behaviors.

3. Analytical Method and Dataset

3.1 Dataset

As the sample used to verify the working hypothesis in the preceding section, a dataset was developed consisting of firms that implemented PTP MBOs and control firms for comparison with the MBO firms. The MBO sample includes firms in manufacturing and information/telecommunications industries which undertook PTP MBO between 2001 and 2017. To select firms engaged actively in R&D, firms in these industries were chosen. Industry classifications were based on the Securities Identification Code Committee's 33 sectors. The MBO cases were specified from "RECOF M&A Database" of RECOF Data. The analysis examined 39 PTP MBO firms for which control firms were chosen using the matching method described below.[2]

Financial data and other firm information were obtained from the Basic Survey of Japanese Business Structure and Activities of the Ministry of Economy, Trade and Industry (METI) and NPM data services provided by Financial Data Solutions.[3] The METI data are survey-based data which cover enterprises with 50 or more employees and which also have paid-up capital or investment funds of over 30 million yen. The "IIP Patent Database" of the Institute of Intellectual Property (IIP) was used for patent data. Also, the "Connection Table with IIP Patent Database" and "NISTEP Dictionary of Corporate Names" of the National Institute of Science and Technology Policy (NISTEP) of the Ministry of Education, Culture, Sports, Science and Technology (MEXT) were used to connect patent data with financial data. As for patent data, the numbers of granted patents weighted by citations on a consolidated basis

2 For analyses using patent data, 26 PTP MBO firms were available because of data availability of patent data.

3 NPM data cover public firms only.

were used.[4] In principle, consolidated data were used. However, non-consolidated data were used for firms when consolidated data were unavailable.

3.2 Analytical Method

This study implements DID analysis in a regression framework for a dataset including firms that conducted PTP MBO, and matched firms. Matching is done by coarsened exact matching (CEM) methodology of Iacus et al. (2012) using information of the fiscal year immediately before the MBO. The outcome variables are R&D expense scaled by sales (R&D), the number of granted patents weighted by citations is logarithmically transformed after adding 1 (Patents), capital expenditure scaled by total assets (CAPEX), logarithm of the number of employees (Employee), logarithm of labor costs (Labor cost), logarithm of total assets (Assets), increment of affiliated companies (Aff_inc) and decrement of affiliated companies (Aff_dec), logarithm of sales (Sales), ROA, operating margin (SalesProf), and total asset turnover (AssetTurn).

Then ROA is decomposed into the operating margin (operating income divided by sales), which expresses earning power, and total asset turnover (sales divided by total assets), which expresses management efficiency. R&D expenditures, the number of patents, and capital expenditures represent firm long-term behaviors. Changes in the number of employees, labor costs, total assets, and the number of affiliated companies represent restructuring behaviors. Also, ROA and ROA-related variables and sales represent firm performance.

The average of outcome variables over five years is taken before and after going private, taking the difference between ex-post and ex-ante values. The reason for taking the average of these variables is to secure the sample size because some observations are missing from METI data at around the time of going-private transactions. Subsequently, these values are regressed on the MBO dummy, for which 1 is assigned to PTP MBO firms, and on year dummies. The coefficient on the MBO dummy is the DID estimate because the dependent variable is defined as the difference between the post- and per-MBO averages.

The R&D expenses are deflated by R&D deflators for business enterprises taken from "Indicators of Science and Technology" published by MEXT. All other nominal values are deflated by an industry level GDP deflator. To mitigate the effects of outliers, R&D expenses, the number of granted patents, and capital expenditures are winsorized at the top one percent level. The number of employees, labor costs, total assets, sales, ROA, PBR, and debt to assets ratios are winsorized at the top and bottom one percent level. Descriptive statistics of the sample are presented in Table 1.

4　Citations in patent databases are citations made by the Japan Patent Office examiners.

The hypotheses introduced in the preceding section are tested using difference-in-difference-in-differences (DDD) analysis. For hypothesis 1, which states that firms with lower managerial stakes before the MBO will be more active in subsequent value-enhancing behaviors, a dummy variable is created that assigns 1 to firms with director shareholding ratios lower than the sample median in the fiscal year immediately before the MBO. The coefficient of the interaction term between the dummy variable (DIREC dummy) and the MBO dummy is the DDD estimate. Examination of this coefficient reveals a difference in effects of going-private transactions on ex-post firm behaviors between groups with low and high ex-ante managerial stakes. For Hypothesis 2 related to the effect of buyout funds on ex-post firm behaviors, a dummy variable that assigns 1 to deals that involve buyout funds (Fund dummy) is created, with which one can check the coefficient of the Fund dummy.

Matching is done by coarsened exact matching (CEM) (Iacus et al., 2012), a nonparametric matching method that bounds the imbalance between treated and control groups. In CEM, each covariate is divided into bins. A set of strata is created for every combination of bins. Each treated observation in a particular stratum is matched with control observations in the same stratum. Firms are matched in terms of PBR, sales, and debt to assets ratios (Leverage), similarly to earlier studies (Renneboog et al. 2007; Bharath and Dittmar, 2010). Because the timing of going private is different each case, control firms that are in the same industry are matched for each PTP MBO firm using information of the fiscal year immediately before the MBO.

For this analysis, PTP MBO transactions conducted during 2001–2017 are analyzed. However, some events during this sample period might strongly affect MBO firm behavior. First, METI issued MBO guidelines in September 2007.[5] Second, the Tokyo High Court produced a decision on litigation over the TOB price of Rex Holdings in September 2008. These events might alter the behavior of firms that consider PTP MBO and firms that actually conduct MBO. In fact, Inoue et al. (2010) reported a trend by which management paid higher acquisition premiums after the case against Rex Holdings. Therefore, DID estimation is performed by dividing the sample between periods before and after 2007 to incorporate consideration of the effects of such factors.[6]

4. Results

First, the quality of the matching is confirmed. Table 2 presents covariate

5 Formal name of the guideline is "Guidelines for Management Buyout (MBO) to Improve Corporate Value and Secure Fair Procedures."

6 Other factors might affect decisions to conduct PTP MBOs including the internal control reporting system enforced in 2008 (J-SOX Act) and the Lehman Brothers bankruptcy, which occurred in the same year.

Table 1　Descriptive statistics

	MBO firms					Control firms					All listed manufacturers				
Variable	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
R&D	39	0.021	0.020	0.000	0.075	103	0.029	0.034	0.000	0.213	24,454	0.028	0.037	0.000	0.213
Patents	26	1.461	1.639	0.000	4.787	80	1.556	1.677	0.000	5.591	26,625	1.588	2.076	0.000	7.485
CAPEX	39	0.042	0.039	0.002	0.198	103	0.037	0.038	0.000	0.223	24,454	0.042	0.042	0.000	0.723
Employee	39	6.940	7.162	4.836	8.717	103	6.847	6.788	4.779	8.305	24,454	8.457	9.861	3.912	12.860
Labor cost	39	7.694	8.211	5.433	9.963	103	7.616	7.644	2.900	9.249	24,429	8.894	10.026	2.450	13.280
Assets	39	10.148	9.983	8.344	11.516	103	10.297	10.116	7.022	11.594	24,454	12.099	13.814	4.563	17.674
Inc of Affiliated (Aff_inc)	35	0.143	0.494	0	2	93	0.151	0.488	0	3	24,333	0.692	4.837	0	349
Dec of Affiliated (Aff_dec)	35	0.257	1.197	0	7	93	0.172	0.974	0	9	24,333	0.428	3.272	0	200
Sales	39	10.112	10.068	7.896	11.357	103	10.170	10.075	7.717	11.502	24,454	11.991	13.556	3.399	17.162
ROA	39	0.051	0.034	-0.008	0.115	103	0.040	0.040	-0.101	0.128	24,454	0.056	0.058	-0.152	0.245
PBR	39	0.702	0.449	0.230	2.220	103	0.707	0.361	0.230	2.007	24,261	1.433	1.560	0.230	10.913
DIREC	39	0.107	0.117	0.000	0.422	103	0.062	0.104	0.000	0.551	24,454	0.073	0.119	0.000	0.551
Leverage	39	0.381	0.164	0.079	0.689	103	0.385	0.149	0.079	0.718	24,454	0.474	0.207	0.079	0.938

Table 2　Covariate imbalance in matched and unmatched data

Variables	Unmatched L1	Matched L1
Year	0.2537	0.0000
Industry	0.1938	0.0000
PBR	0.4079	0.2371
Sales	0.4017	0.0707
Leverage	0.3061	0.0427
Multivariate L1	0.9999	0.8126

imbalances before and after CEM. L1 statistics measure the covariate imbalance between treated and control groups. L1 takes a value between zero and one. A lower value represents a lower imbalance. Multivariate L1 statistics show overall imbalance. Univariate L1 statistics show imbalance separately in each variable. Matching reduces the multivariate L1 statistics by nearly 20%. For all covariates, post-matched L1 statistics are significantly lower than the pre-matched statistics.

Now, the effects of going-private transactions on ex-post firm behaviors are assessed. The DID analysis results are presented in Table 3. The number of employees and labor costs decrease significantly after going private (columns 4 and 5). In fact, some cases support such results. For instance, JST Co., Ltd., a steel tower and bridge manufacturer that conducted an MBO in 2010, solicited voluntary retirement upon announcement of the MBO. Although no change is apparent in the number of affiliated companies (columns 7 and 8), total assets are lower after the MBO. The operating margin does not change (column 11), but total asset turnover increases (column 12), and ROA increases (column 10) after going private. These results suggest that MBO firms downsize by cutting assets and employees. As a result, management efficiency increases, as does ROA. Such increased management efficiency is consistent with results reported by Kawamoto (2020), who studied effects of Japanese PTP MBOs on corporate performance.

Capital expenditure does not change as a result of PTP MBO. Moreover, R&D investment and the number of citation-weighted patents, representing the outcomes of R&D activities, show no change. Therefore, although some restructuring behaviors are observed, effects of going-private transactions on firm innovation activities were not confirmed, on average, among the MBO firms sampled for this study. As described above, numerous earlier studies have confirmed that correction of undervaluation by share prices is a key motive for going private. If Japanese firms' main motive for going private is to correct share price undervaluation, then it is not surprising that we can observe no long-term growth strategy of these firms. These results are consistent with the results of earlier studies.

Next, DID analysis results are assessed for the sample split in 2007. Panel A of Table 4 presents results found for the year before 2007. Panel B presents results of the year after 2007. For the sample before 2007, labor cost, assets, and asset turnover are not significant compared to results obtained for the full sample. However, operating margins rise significantly by going-private transactions before 2007. For the sample after 2007, unlike results obtained for the full sample, the numbers of employees and ROA are not significant. Comparison of results obtained before and after 2007 shows higher profitability

Table 3　PTP MBO and ex-post firm behaviors

Dependent var	R&D	Patents	CAPEX	Employee	Labor cost	Assets	Aff_inc	Aff_dec	Sales	ROA	SalesProf	AssetTurn
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MBO	-0.002	0.049	0.000	-0.151**	-0.177***	-0.200**	-0.078	0.092	-0.110*	0.015**	0.009	0.100**
	(0.003)	(0.153)	(0.006)	(0.065)	(0.060)	(0.080)	(0.096)	(0.133)	(0.064)	(0.007)	(0.008)	(0.041)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.271	0.358	0.139	0.153	0.196	0.237	0.096	0.202	0.187	0.228	0.172	0.182
Observations	142	106	148	148	147	148	148	148	148	148	148	148

(Footnotes)　1)　Robust standard errors are in parentheses.
2)　***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 4　PTP MBO and ex-post firm behaviors (dividing sample period)

Panel A: Before 2007

Dependent var	R&D	Patents	CAPEX	Employee	Labor cost	Assets	Aff_inc	Aff_dec	Sales	ROA	SalesProf	AssetTurn
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MBO	-0.005	-0.136	-0.007	-0.262**	-0.157	-0.069	0.005	0.042	-0.061	0.024***	0.022**	0.029
	(0.003)	(0.215)	(0.012)	(0.113)	(0.101)	(0.110)	(0.067)	(0.077)	(0.088)	(0.009)	(0.010)	(0.051)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.103	0.277	0.085	0.169	0.124	0.055	0.307	0.198	0.137	0.396	0.338	0.169
Observations	56	54	59	59	59	59	59	59	59	59	59	59

Panel B: After 2007

Dependent var	R&D	Patents	CAPEX	Employee	Labor cost	Assets	Aff_inc	Aff_dec	Sales	ROA	SalesProf	AssetTurn
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MBO	0.001	0.232	0.005	-0.075	-0.190**	-0.291**	-0.135	0.126	-0.144	0.009	0.000	0.149**
	(0.004)	(0.213)	(0.004)	(0.076)	(0.075)	(0.111)	(0.155)	(0.218)	(0.089)	(0.010)	(0.011)	(0.059)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.288	0.389	0.233	0.167	0.233	0.221	0.085	0.201	0.148	0.138	0.088	0.206
Observations	86	52	89	89	88	89	89	89	89	89	89	89

(Footnotes)　1)　Robust standard errors are in parentheses.
2)　***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

before 2007 and more downsizing restructuring after 2007. It remains uncertain, however, whether these differences are caused by the MBO guidelines of METI or the Rex Holdings lawsuit. Differences in profitability or downsizing restructuring might derive from the 2007–2008 financial crisis. Unfortunately, identifying the causes of the differences is impossible.

Are different effects observed for firms of different types, based on DDD analysis results? First, the existence and types of differences in ex-post firm behaviors are assessed because of differences in ex-ante managerial shareholding. Table 5 shows that coefficients of interaction terms between MBO and DIREC dummies take a significant value only for total assets, but significance is inferred at the 10% level. Therefore, incentive realignment is not related strongly to behavior of firms after an MBO. These results are consistent with results of earlier studies demonstrating that the key motive for going-private transactions is correction of share price undervaluation.

Next, buyout fund effects on subsequent firm behaviors are assessed. Table 6 shows that MBO transactions in which buyout funds are involved do not reduce assets as much as those without funds, which might be attributable to the increase in the number of subsidiaries. Among firms without buyout funds, sales drop after the MBO, but no such change is observed among fund-involving cases. Although ROA was not found to be different between deals with and without buyout funds, buyout funds apparently affect ex-post investment behaviors. Xu (2011) reveals the role of The Carlyle Group, a PE fund, in Kito Corporation's MBO, through a case study. After the MBO, Kito followed Carlyle Group advice to select and concentrate businesses by closing down subsidiaries that were not closely related to its core business and by selling off low-profit businesses, while simultaneously expanding investments in overseas subsidiaries and establishing new ones. The results presented here are consistent with such cases.

5. Conclusion

This paper presents an empirical examination, using Japanese going-private type MBO data, of the effects of delisting (i.e., going private) on subsequent firm behaviors. Difference-in-differences analysis in a regression framework was implemented on a dataset that included firms that conducted public-to-private MBOs and matched firms. In addition, hypotheses about post-MBO firm behaviors are tested using difference-in-difference-in-differences analysis.

Justifications for going private include freeing a company from pressure to achieve short-term results and easing its pursuit of a long-term growth strategy. If such is the case, then going-private transactions can be expected to promote drastic restructuring and long-term investment. From difference-in-

Table 5　Effects of incentive realignment

Dependent var	R&D	Patents	CAPEX	Employee	Labor cost	Assets	Aff_inc	Aff_dec	Sales	ROA	SalesProf	AssetTurn
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MBO	0.000	-0.039	-0.002	-0.211**	-0.179**	-0.350***	-0.020	0.232	-0.124	0.013	0.004	0.173***
	(0.005)	(0.219)	(0.004)	(0.093)	(0.084)	(0.124)	(0.123)	(0.153)	(0.092)	(0.009)	(0.011)	(0.063)
DIREC	0.001	-0.264	-0.010	-0.103	-0.034	-0.063	0.024	0.392**	-0.001	0.000	-0.003	0.019
	(0.003)	(0.210)	(0.007)	(0.090)	(0.081)	(0.087)	(0.112)	(0.175)	(0.104)	(0.007)	(0.008)	(0.042)
MBO × DIREC	-0.003	0.188	0.006	0.125	0.008	0.297*	-0.114	-0.308	0.026	0.004	0.010	-0.144
	(0.006)	(0.336)	(0.013)	(0.141)	(0.128)	(0.171)	(0.179)	(0.294)	(0.140)	(0.013)	(0.015)	(0.091)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.273	0.375	0.159	0.167	0.198	0.264	0.097	0.252	0.187	0.229	0.175	0.206
Observations	142	106	148	148	147	148	148	148	148	148	148	148

(Footnotes)　1)　Robust standard errors are in parentheses.
2)　***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 6　Effects of buyout funds

Dependent var	R&D	Patents	CAPEX	Employee	Labor cost	Assets	Aff_inc	Aff_dec	Sales	ROA	SalesProf	AssetTurn
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
MBO	0.001	-0.031	0.002	-0.187**	-0.244***	-0.389***	-0.205*	0.217	-0.211**	0.013	0.006	0.155***
	(0.004)	(0.206)	(0.005)	(0.083)	(0.074)	(0.102)	(0.111)	(0.186)	(0.082)	(0.009)	(0.010)	(0.057)
Fund	-0.006	0.137	-0.004	0.082	0.154	0.434***	0.292*	-0.288	0.231**	0.004	0.007	-0.127*
	(0.005)	(0.252)	(0.011)	(0.119)	(0.105)	(0.130)	(0.152)	(0.200)	(0.105)	(0.013)	(0.014)	(0.073)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.278	0.360	0.140	0.157	0.210	0.315	0.105	0.213	0.213	0.229	0.174	0.205
Observations	142	106	148	148	147	148	148	148	148	148	148	148

(Footnotes)　1)　Robust standard errors are in parentheses.
2)　***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

differences analysis results, some restructuring behaviors and improvements in management efficiency and profitability were observed, but firm long-term investments such as innovation activities were not confirmed, on average, among the sampled MBO firms.

Regarding hypotheses related to post-MBO value-enhancing behaviors, the hypothesis related to incentive realignment was not supported. For the hypothesis related to buyout fund effects on value-enhancing behaviors, the results of difference-in-difference-in-differences analysis show that firms with buyout funds increase the numbers of affiliated companies, total assets, and sales. Results show that buyout funds enhance firm investments, but they exert no influence on innovation activities.

Finally, some issues remain. Currently, ex-ante managerial shareholding ratios are used for testing the incentive realignment hypothesis, with testing of the hypothesis under the assumption that effects of incentive realignment are greater for firms with lower ex-ante managerial shareholding ratios because those firms have more room to increase their post-MBO managerial shareholding ratios. However, the hypothesis can be tested more accurately by obtaining data related to the ex-post ownership structure.

Regarding buyout fund effects on post-MBO corporate behavior, this study examined average effects of buyout funds, but funds are diverse, differing in nationality, attributes, experience, etc. Therefore, the heterogeneity of such funds should be emphasized in analyses. In fact, Cressy et al. (2007), who analyzed PE funds in buyouts in the U.K. from the late 1990s through the early 2000s, reported that ROA and sales growth rates were significantly higher in cases led by independent funds, funds specialized in industries of the investment target companies, and funds specializing in buyouts. Meuleman et al. (2009) analyzed buyout cases in the U.K. between 1993 and 2003 and reported that the experience and number of portfolio companies of PE funds affected the subsequent profitability, efficiency, and growth potential of cases in which they had been involved.

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