The effects of activist board representation on targets' performance in Japan[1]

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Abstract

This study investigates the impact of activist board representation on corporate performance in Japan, the second-largest activist market in the transition of the governance system. Activist board representation signals long-term commitment to target firms, rather than traditional activism characterized by short-termism. Using a difference-in-differences approach, this study analyzes eight cases to compare performance changes between the target and control firms. The findings reveal that the return on equity and return on assets of listed target firms improve post-intervention, suggesting a positive influence of activist board representation. However, this improvement was not observed in the target firms that were delisted after the intervention.

Keywords: activist board representation; hedge fund; shareholder activism; corporate governance; operating performance; Japan
JEL classification: G23; G34; K22

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1. INTRODUCTION

The purpose of this study is to examine the effect of activist board representation on target performance in Japan, the second-largest activist market (Becht et al., 2017). Activist board representation has increased in US public companies and, to a lesser extent, in Japan. Activist hedge funds or their nominated non-affiliated representatives can hold one or more board seats by replacing corporate managers, including CEO or CFO. Hedge funds may hold shares for longer periods when they obtain board seats, and are involved in corporate strategies and operations. Thus, activist board representation signals a long-term commitment to target firms, which contrasts with short-termism, a typical criticism of traditional hedge fund activism (Christie, 2019).

Previous studies on hedge fund activism in the US and Japan provide evidence that is consistent with Jensen's (1986) cash flow theory. Although some studies find at least partial improvements in operating profits (Brav et al., 2008; Clifford, 2008), others report that hedge fund activism does not enhance profitability (Buchanan et al., 2020; Hamao and Matos, 2018; Kikuchi et al., 2023; Klein and Zur, 2007; Miyachi and Takeda, 2021). Both types of studies find a decrease in assets and an increase in payouts and leverage, suggesting that hedge fund activism is associated with significant asset selloffs.

However, more recent studies indicate that hedge funds increasingly seek board representation, which signals long-term commitment to target firms (Christie, 2019). This trend has also been observed in Japan, which has been experiencing a governance system transition under the Stewardship Code (SWC) and the Corporate Governance Code since the mid-2010s. In particular, SWC requires institutional investors to be responsible for enhancing the corporate value and sustainable growth of investee firms through dialogue and engagement (Financial Services Agency, 2020). Since then, the number of activist board members has increased in Japan.

Although a recent case study of activist board representation in Japanese firms observes improvements in return on equity (ROE) and return on assets (ROA) after the intervention (Sakai, 2022), it examines only two cases, and the methodologies used in the previous study do not establish a causal relationship between activist board representation and target performance. To fill this gap, this study employs difference-in-differences (DID) to compare the change in firm performance between target and control firms in the same industry.

When simply comparing pre- and post-intervention periods, it is impossible to isolate the impact of institutional or policy changes from the influence of naturally occurring trends. To control for the effect of these trends, DID analysis establishes a control group that represents the counterfactual. In essence, DID measures the treatment effect by

comparing the difference between the treatment and control groups before and after the intervention. By using DID, we find an improvement in the ROE and ROA of target firms listed after activist board representation. However, such a change was not observed for the target firms delisted after the intervention.

This study contributes to the literature by providing new findings on the effect of activist board representation in Japan, which has the potential to enhance the operating performance of target firms. However, such success is not always guaranteed, as target firms choose delisting after the intervention in the oldest three cases in Japan.

The remainder of this paper is organized as follows. Section 2 provides a literature review and develops our hypotheses. Section 3 explains the methodology and data. Section 4 presents the results of this study. Concluding remarks are provided in Section 5.

2. LITERATURE REVIEW

According to previous studies, the largest market for hedge fund activism is the US, followed by Japan and the UK (Becht et al., 2017). Thus, it is natural that earlier studies concentrated on the US market. The literature on the US underscores that hedge funds have the ability to improve corporate management and determine the necessary operational and strategic changes to improve firm performance, as reflected in the positive market reactions to hedge fund activism (Brav et al., 2008; Clifford, 2008; Greenwood and Schor, 2009; Klein and Zur, 2007).

However, previous studies provide mixed results on operating performance after hedge fund activism. While some studies find at least partial improvements in operating profits (Brav et al., 2008; Clifford, 2008), others report that hedge fund activism does not enhance profitability (Klein and Zur, 2007). Both types of studies observe a decrease in assets and an increase in payouts and leverage, suggesting that hedge fund activism is associated with significant asset sell-offs, consistent with Jensen's (1986) free cash flow theory.

Among studies using multi-country data, Becht et al. (2017) demonstrate that abnormal returns in Europe align with those found in US studies at the announcement of hedge fund activism. By contrast, their Japanese sample yields high initial returns and insignificant long-run returns, a phenomenon not observed in other countries.

Several studies have investigated the causes and effects of activist funds on the Japanese stock market (Buchanan et al., 2020; Gillan et al., 2022; Hamao and Matos, 2018; Inoue and Kato, 2007; Kikuchi et al., 2023; Miyachi and Takeda, 2021; Ono, 2008; Tanaka and Goto, 2019; Uchida and Xu, 2008). These studies find positive market

responses to activist interventions, but note no improvement in operating performance, such as ROE/ROA, after the intervention (Buchanan et al., 2020; Hamao and Matos, 2018; Kikuchi et al., 2023; Miyachi and Takeda, 2021). In particular, Kikuchi et al. (2023), focusing on the second wave of activism after the mid-2010s, employ the DID methodology to investigate the effect of activist intervention on targets, revealing that the intervention tends to decrease the targets' ROA and increase leverage two years after the intervention, consistent with the free cash flow theory.

In summary, previous empirical studies on hedge fund activism provide evidence consistent with Jensen's (1986) free cash flow theory. According to this theory, firms can reduce agency conflicts between managers and shareholders by reducing the excess cash on hand and obligating managers to make continuous payouts in the form of increased dividends and interest payments to creditors. Hedge fund activists frequently demand that target firms buy back their own shares, cut their CEO's salary, or initiate dividends, aligning with this view.

While earlier studies suggest that hedge funds seldom seek control (Brav et al., 2008), recent studies indicate that hedge funds increasingly seek board representation (Christie, 2019). Compared to traditional hedge fund activism, which is criticized for its short-termism, activist board representation signals a long-term commitment to target firms (Christie, 2019).

Bessiere et al. (2011) present two case studies of activist board representation in French companies. Using event study methodologies, they find that markets reacted positively to actions taken by hedge funds and disregarded the target's opposition to the funds, ultimately preventing the fund from selling the target. Their study suggests that initial market responses may not align with the final outcome and that the success of hedge fund activism should be assessed by the primary objective–the sales of the target. Similarly, Sakai (2022) examines two case studies on activist board representation in Japanese companies. He observes positive market reactions to the targets' acceptance of a board member from activist funds and improvements in ROE and ROA after approval.

Although these two studies offer case studies of activist board representation, their methodologies do not establish a causal relationship between activist board representation and target performance. To address this gap, this study employs DID to compare the change in firm performance between target and control firms in the same industry.

Testing hypotheses are formulated considering the previous findings on activist board representation, which claim that activist board representation indicates a long-term commitment to target firms and that the effect of activist intervention on target performance depends on whether the activist intervention is successful. The classification

of successful or unsuccessful activist board representation depends on whether the target firms were delisted after the intervention.

H1: The operating performance of listed target firms improves after activist board representation compared with peer firms.

H2: The operating performance of delisted target firms does not improve after activist board representation compared with peer firms.

3. METHODOLOGY AND DATA

We first search for activist board representation using *Nikkei Telecom*, one of Japan's largest databases from newspaper articles, and identified eight cases that took place prior to 2023 (Table 1). In 2009, Steel Partners demanded the first activist representation and was accepted by Aderans, a company that provides wigs and hair transplantation services. Although Aderans' financial performance improved after the intervention, all the remaining cases were observed during the second wave of activism, starting in the mid-2010s.

(Table 1 here)

Of the eight cases, three target firms decided to be delisted after the intervention, and five are still operating their businesses. In other words, we classify the first three cases, which target Aderans, Kuroda Electric, and Toshiba, as unsuccessful cases to test H2 and the remaining five cases as successful cases to test H1. For each target firm, we select three control firms listed as peer firms by *Kaisha Shikiho*, a Japanese company handbook covering all listed firms in Japan.

We then estimate the following model to perform DID using the financial data of the target and control firms:

$$y_{it} = \alpha_i + \beta_i Target_{it} + \gamma_i Post_t + \delta_i (Target \times Post)_{it} + JGAAP_{it} + \varepsilon_{it} \quad (1)$$

The dependent variable *y* is the variable associated with the operating performance. *Target* is a dummy variable that takes the value of one for target firms and zero for control firms. *Post* is a dummy variable that takes the value of one for the period after targets accept activist board representation and zero otherwise. *Target* × *Post* is an interaction term, which is the focus of our analysis. *JGAAP* is a dummy variable that takes the value of one when the firm uses financial reporting based on the Japanese Generally Accepted Accounting Principles and zero otherwise. ε is the disturbance term.

The dependent variable *y* includes *ROE*, *ROA*, *Cash*, *LnAssets*, *Sales*, and *Equity*. *Cash* represents the cash-to-asset ratio. *LnAssets* is the natural logarithm of total assets. *Sales* represents sales growth. *Equity* is shareholders' equity ratio. We use quarterly data for *ROE*, *ROA*, *Cash*, *LnAssets*, *Sales*, and *Equity*. All financial data are retrieved from

SPEEDA, a database of firms' financial performance worldwide.

We conduct analyses dividing the samples into the following three groups:

[Group 1] All target and control firms

[Group 2] Target firms listed at the beginning of 2024 and their control firms.

[Group 3] Target firms delisted by the end of 2023 and their control firms

The estimation period is taken from three years before the activist board representation to fiscal year (FY) 2023, or to the year of delisting.

4. RESULTS

4-1. Univariate Analyses

Table 2 provides the descriptive statistics for Group 1. Panels A and B report the performance before and after activist board representation, respectively. According to Panels A and B, the difference between target and control firms is not statistically significant for all variables except *ROA*, which is lower for target firms before activist board representation. This result suggests that activists tend to choose target firms with a lower *ROA*. However, Panel C shows that control firms increase *ROA* later, resulting in an insignificant difference in *ROA* between target and control firms in Panel B. By contrast, *LnAsset* is not significantly different between target and control firms in Panel B. However, Panel C shows that target firms increase *LnAsset* while control firms decrease it significantly, leading to Panel B showing that target firms have significantly larger *LnAsset* than control firms.

(Table 2 here)

Table 3 provides the descriptive statistics for Group 2. Similar to Table 2, Panels A and B show that the difference between target and control firms is not statistically significant for all variables except *ROA*, which is lower for target firms before activist board representation. However, Panel C shows that both target and control firms increase *ROA* after activist board representation, resulting in an insignificant difference in *ROA* between target and control firms in Panel B. By contrast, *LnAsset* is not significantly different between target and control firms in both panels.

(Table 3 here)

Table 4 provides the descriptive statistics for Group 3. Panels A and B show that the difference between target and control firms is not statistically significant for all variables except for *LnAsset*, which is larger for target firms after activist board representation. Panel C reports that *LnAsset* for control firms decreases significantly at the 1% level in contrast to the insignificant change for target firms in the same period.

(Table 4 here)

4-2. Multivariate analyses

To investigate the combined effects, Model (1) is estimated for the three groups. Ordinary least squares estimation (OLS) is used for the estimation. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity consistent standard errors and covariance are employed for those that reject the null hypothesis of homoscedasticity. The variance inflation factors are less than five for all models, indicating that the model is exempt from multicollinearity.

The estimation results for Group 1 are presented in Table 5. *Target* has significantly positive coefficients for *Cash* and negative coefficients for *ROE* and *Equity*. These results indicate that target firms have smaller *ROE* and *Equity* and larger *Cash* than control firms before activist board representation. *Post* has significantly positive coefficients for *ROA*, *Sales*, and *Equity* and negative coefficients for *LnAsset*. These results suggest that *ROA*, *Sales*, and *Equity* are larger after activist board representation, while *LnAsset* is smaller. However, our focus *Target* × *Post* has no significant coefficient, indicating that there is no difference in these variables between target and control firms after activist board representation. *JGAAP* has significantly positive coefficients for *Cash* and *Equity* and negative coefficients for *LnAsset*. These results are consistent with the notion that firms using J-GAAP tend to have larger *Cash* ratios and shareholder *Equity* and smaller *LnAsset* than control firms.

(Table 5 here)

The estimation results for Group 2 are presented in Table 6. *Target* has significantly negative coefficients for *ROE*, *ROA*, and *Equity*. These results indicate that target firms have smaller *ROE*, *ROA*, and *Equity* than the control firms. *Post* has significantly positive coefficients on *ROE*, *ROA*, and *Sales*. These results suggest that *ROE*, *ROA*, and *Sales* are larger after activist board representation. As a result, our focus *Target* × *Post* has a significantly positive coefficient for *ROE* and *ROA*, indicating that these variables increase for target firms compared to control firms after activist board representation. These results are consistent with those of H1.

(Table 6 here)

The estimation results for Group 3 are presented in Table 7. *Target* has significantly positive coefficients for *ROE*, *Cash*, and *LnAsset*. These results indicate that target firms have a larger *ROE*, *Cash*, and *LnAsset* than control firms. *Post* has significantly positive coefficients for *Cash* and *Equity* and a negative coefficient for *LnAsset*. These results suggest that *Cash* and *Equity* are larger after activist board representation, while *LnAsset* is smaller. Our focus *Target* × *Post* has a significantly negative coefficient for *ROE* and

Cash and a positive coefficient for *LnAsset*, indicating *ROE* and *Cash* increase for target firms compared to control firms after the activist board representation and *LnAsset* decrease. The results for ROE are consistent with H2.

(Table 7 here)

The results for *JGAAP* differ between Tables 6 and 7. According to Table 6, *JGAAP* has significantly positive coefficients for *ROE*, *ROA*, *LnAsset*, and *Cash*. By contrast, according to Table 7, *JGAAP* has significantly positive coefficients for *Cash* and *Equity*, and negative coefficients for *ROE*, *ROA*, and *LnAsset*.

4-3. Discussion

The regression results can be interpreted as follows: Before activist board representation, target firms in any group tend to have smaller shareholder equity-to-asset ratios than control firms (*Target* in Tables 5 to 7). By contrast, while ROE and ROA are smaller for target firms than for control firms in Group 2 (*Target* in Table 6), ROE and cash-to-asset ratio are larger for target firms than for control firms in Group 3 (*Target* in Table 7). The characteristics of Group 3 may indicate that target firms in Group 3 have more room for activists to demand shareholder returns by reducing cash, consistent with Jensen's free cash flow theory. Thus, after activist board representation, target firms have smaller ROE and cash-to-asset ratios than control firms (*Target* × *Post* in Table 7).

On the contrary, activists may be involved in enhancing the ROE and ROA of target firms in Group 2, as they have lower ROE and ROA (*Target* in Table 6). Thus, after activist board representation, target firms in Group 2 have larger ROE and ROA than control firms (*Target* × *Post* in Table 6). In summary, our regression results are consistent with H1 and H2. Compared to the previous study, our Group 2 results align with those of Sakai (2022), who exclusively examined ROE and ROA for two Group 2 companies: Kawasaki Kisen and Olympus.

The difference in results between Groups 2 and 3 may stem from differences in timing. Group 3 firms represent the first three instances of activist board representation. Although two of these cases occurred after the SWC and CGC, activist funds may not have prioritized long-term engagement as strongly compared to more recent cases. Conversely, activist funds involved in Group 2 target firms were more likely to adhere to the principles of the SWC and CGC, emphasizing their responsibility to enhance corporate value and sustainable growth through active engagement.

It is important to note that most target firms in Table 1 adopted activist board representation after 2019. This short sample period may have contributed to the observed

improvement in ROE and ROA. Therefore, further research is necessary to investigate the long-term effects of activist board representation.

4-4. Robustness check

Notably, the number of *Post* differs across firms. As shown in Table 1, Aderans, Kuroda Electric, and Toshiba chose to delist eight, one, and four years after the activist board representation. Additionally, *Post* includes the period until March 2024 for the remaining firms. To address this point, additional tests are performed by taking three years after activist board representation as *Post* in six cases (Aderans, Toshiba, Kawasaki Kisen, Olympus, Suncorporation, and JSR).

The estimation results using Group 2 are presented in Table 8 and are similar to the results in Table 6. *Target* has significantly negative coefficients for *ROE*, *ROA*, and *Equity*. *Post* has significantly positive coefficients on *ROE* and *ROA*. As a result, our focus *Target* × *Post* has a significantly positive coefficient for *ROE* and *ROA*, consistent with H1.

The estimation results using Group 3 are presented in Table 9 and are similar to the results in Table 7. *Target* has significantly positive coefficients for *ROE*. *Post* has significantly positive coefficients for *Cash* and negative coefficients for *LnAsset*. Our focus, *Target* × *Post* has a significantly negative coefficient for *ROE*. The results for ROE are consistent with H2. *JGAAP* has significantly positive coefficients for *Cash* and *Equity* and negative coefficients for *ROE*, *ROA*, and *LnAsset*.

(Tables 8 and 9).

5. CONCLUDING REMARKS

This study aims to examine the effect of activist board representation on target performance in Japan, the second-largest activist market (Becht et al., 2017). The DID analysis based on eight Japanese cases provides evidence that the ROE and ROA of listed target firms increase after activist board representation. This result contrasts with previous studies on hedge fund activism, which provide evidence consistent with Jensen's (1986) cash flow theory. However, such an improvement is not always observed for target firms delisted after the intervention.

Although this study provides new findings in the related literature, we acknowledge this limitation. As the number of cases is limited, we employ quarterly data. However, data associated with shareholder returns, such as dividend payouts, are reported only annually. If the number of activist board representations increases, it would be useful to examine the effect on shareholder returns using annual data. In addition, the limited data prevents us from examining the long-term effects of activist board representation.

Therefore, future research using accumulated data is necessary.

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Table 1: Cases of activist board representation in Japan

Target firm	Activist fund	Year of acceptance	Year of delisting	Control firms (selected by Kaisha Shikiho)
Aderans	Steel Partners	2009	2017	Artnature, Taya, M.H.Group
Kuroda Electric	Reno	2017	2018	Elematec, SIIX, Ryoden
Toshiba	Effissimo	2019	2023	Hitachi, Mitsubishi Electric, Mitsubishi Heavy Industries
Kawasaki Kisen	Effissimo	2019		Nippon Yusen, Mitsui O.S.K. Lines, NS United
Olympus	ValueAct	2019		Canon, Fujifilm, Terumo
Suncorporation	Oasis	2020		NSW, Fujishoji, Ye Degital
JSR	ValueAct	2021		Nissan Chemical, Shin-Etsu Chemical, Tokyo Ohka Kogyo
Fujisoft	3D Investment	2022		TIS, DTS, CAC Holdings

Source: This table was compiled by the author using articles published in *Nikkei Shimbun*, *Nikkei Business*, *Kaisha Shikiho*, and other sources.

Table 2: Descriptive statistics for all target firms and control firms

Panel A: Performance of all firms before the activist board representation							
	Target firms		Control firms		Difference		
	Mean (A)	No.	Mean (B)	No.	(C)=(A) - (B)	t-stat	
ROE	0.39	90	1.55	285	-1.16	-0.37	
ROA	0.22	96	0.91	285	-0.69	-2.03	**
Cash	21.07	97	18.68	292	2.39	0.44	
LnAsset	12.77	97	12.73	292	0.04	0.45	
Sales	-1.17	93	2.32	264	-3.49	-0.27	
Equity	45.52	97	52.79	292	-7.27	-0.61	

Panel B: Performance of all firms after the activist board representation							
	Target firms		Control firms		Difference		
	Mean (D)	No.	Mean (E)	No.	(F)=(D) - (E)	t-stat	
ROE	3.20	127	2.65	361	0.55	0.31	
ROA	1.07	127	1.44	361	-0.36	-0.87	
Cash	19.47	126	19.67	360	-0.19	-0.05	
LnAsset	12.84	127	12.26	361	0.58	6.75	***
Sales	0.55	127	6.21	361	-5.66	-0.55	
Equity	49.06	127	56.39	361	-7.33	-1.11	

Panel C: Change in performance of all firms								
	Change			Change			Difference	
	(G)=(D) - (A)	t-stat		(H)=(E) - (B)	t-stat		(C) - (F)/(G) - (H)	
ROE	2.80	0.64		1.10	2.45	**	1.70	
ROA	0.85	1.34		0.53	4.11	***	0.32	
Cash	-1.59	-0.23		0.99	0.50		-2.58	
LnAsset	0.08	0.85	**	-0.47	-5.83	***	0.54	
Sales	1.72	0.10		3.89	0.61		-2.17	
Equity	3.54	0.24		3.60	0.93		-0.06	

Table 3: Descriptive statistics for listed target firms and control firms

Panel A: Performance of listed target firms before the activist board representation

	Target firms		Control firms		Difference		
	Mean (A)	No.	Mean (B)	No.	(C)=(A) - (B)	t-stat	
ROE	-1.72	60	1.75	175	-3.47	-1.14	
ROA	-0.24	60	1.23	175	-1.47	-6.46	***
Cash	22.97	61	21.87	179	1.09	0.09	
LnAsset	12.73	61	12.71	179	0.02	0.22	
Sales	0.53	57	3.59	163	-3.06	-0.18	
Equity	43.84	61	58.69	179	-14.85	-1.50	

Panel B: Performance of listed target firms after the activist board representation

	Target firms		Control firms		Difference	
	Mean (D)	No.	Mean (E)	No.	(F)=(D) - (E)	t-stat
ROE	5.64	75	3.92	226	1.72	0.55
ROA	2.20	75	2.18	226	0.02	0.04
Cash	19.30	74	18.95	225	0.35	0.04
LnAsset	13.15	75	13.11	226	0.04	0.47
Sales	1.98	75	9.39	226	-7.41	-0.33
Equity	46.69	75	60.75	226	-14.06	-1.23

Panel C: Change in performance of listed target firms

	Change			Change			Difference
	(G)=(D) - (A)	t-stat		(H)=(E) - (B)	t-stat		(C) - (F)/(G) - (H)
ROE	7.36	1.28		2.17	5.59	***	5.19
ROA	2.44	3.71	***	0.95	11.90	***	1.49
Cash	-3.67	-0.23		-2.92	-0.78		-0.75
LnAsset	0.42	3.98	***	0.40	5.20	***	0.02
Sales	1.46	0.06		5.81	0.41		-4.35
Equity	2.85	0.20		2.06	0.29		0.79

Note: *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

Table 4: Descriptive statistics for target firms delisted prior to 2024 and control firms

Panel A: Performance of delisted firms before the activist board representation						
	Target firms		Control firms		Difference	
	Mean (A)	No.	Mean (B)	No.	(C)=(A) - (B)	t-stat
ROE	4.62	30	1.23	110	3.40	0.24
ROA	1.00	36	0.40	110	0.60	0.34
Cash	17.85	36	13.63	113	4.23	0.87
LnAsset	12.83	36	12.76	113	0.07	0.21
Sales	-3.86	36	0.27	101	-4.12	-0.09
Equity	48.36	36	43.44	113	4.92	0.09

Panel B: Performance of delisted firms after the activist board representation							
	Target firms		Control firms		Difference		
	Mean (D)	No.	Mean (E)	No.	(F)=(D) - (E)	t-stat	
ROE	-0.32	52	0.52	135	-0.84	-0.25	
ROA	-0.56	52	0.19	135	-0.75	-0.56	
Cash	19.72	52	20.86	135	-1.14	-0.29	
LnAsset	12.40	52	10.84	135	1.56	5.03	***
Sales	-1.52	52	0.87	135	-2.39	-0.18	
Equity	52.49	52	49.10	135	3.39	0.25	

Panel C: Change in performance of listed target firms						
	Change		Change			Difference
	(G)=(D) - (A)	t-stat	(H)=(E) - (B)	t-stat		(C) - (F)/(G) - (H)
ROE	-4.94	-0.32	-0.71	-0.35		-4.24
ROA	-1.56	-0.64	-0.21	-0.33		-1.35
Cash	1.87	0.32	7.23	2.47	**	-5.36
LnAsset	-0.43	-1.28	-1.92	-6.33	***	1.49
Sales	2.34	0.05	0.61	0.10		1.74
Equity	4.12	0.06	5.66	1.38		-1.53

Note: *** and ** indicate statistical significance at the 1% and 5% levels, respectively.

Table 5: Operating performance between all target and control firms before and after the activist board representation

	ROE			*ROA*			*Cash*			*LnAsset*			*Sales*			*Equity*		
Variable	Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.	
C	1.900	0.002	***	0.893	0.003	***	11.148	0.000	***	15.251	0.000	***	1.128	0.540		46.520	0.000	***
Target	-1.167	0.204	*	-0.685	0.114		3.128	0.051	*	-0.210	0.192		-3.388	0.194		-6.654	0.005	***
Post	1.096	0.069		0.526	0.070	*	1.029	0.264		-0.487	0.001	***	3.930	0.025	**	3.656	0.008	***
*Target*Post*	1.654	0.172		0.323	0.574		-2.025	0.320		0.347	0.128		-2.065	0.548		0.426	0.884	
JGAAP	-0.470	0.417		0.022	0.937		10.137	0.000	***	-3.396	0.000	***	1.559	0.350		8.439	0.000	***
Obs.	863			869			875			877			845			877		
Adjusted R^2	0.008			0.006			0.124			0.420			0.012			0.079		
S.E. of regression	7.597			3.659			12.066			1.815			21.615			17.489		
F-statistic	2.806	**		2.320	*		31.921	***		159.565	***		3.495	***		19.782	***	

Notes:

1. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity-consistent standard errors and covariance are used for the estimation of *Cash*, *LnAsset*, and *Equity*.
2. The estimation period spans from three years before the approval of activist board representation to the year of delisting.
3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Operating performance between target and control firms listed in 2024 before and after the activist board representation

	ROE			*ROA*			*Cash*			*LnAsset*			*Sales*			*Equity*		
Variable	Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.	
C	0.618	0.232		0.641	0.002	***	13.652	0.000	***	14.500	0.000	***	1.135	0.690		59.981	0.000	***
Target	-3.260	0.011	**	-1.361	0.000	***	2.721	0.236		-0.333	0.105		-2.689	0.475		-15.105	0.000	***
Post	2.307	0.000	***	1.020	0.000	***	-1.981	0.139		0.191	0.262		6.120	0.015	**	1.906	0.314	
*Target*Post*	5.199	0.003	***	1.498	0.014	**	-0.793	0.791		0.017	0.951		-4.242	0.392		0.791	0.808	
JGAAP	1.350	0.013	**	0.700	0.001	***	9.810	0.000	***	-2.141	0.000	***	2.894	0.248		-1.536	0.192	
Obs	536			536			539			541			521			541		
Adjusted R^2	0.100			0.098			0.090			0.256			0.015			0.108		
S.E. of regression	6.262			2.469			13.816			1.588			24.336			17.853		
F-statistic	15.851	***		15.521	***		14.223	***		47.477	***		3.019	**		17.353	***	

Notes:

2. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity-consistent standard errors and covariance are used for the estimation of *Sales*.

2. The estimation period spans from three years before the approval of activist board representation to the year of delisting.

3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Operating performance between target and control firms delisted by 2024 before and after the activist board representation

	ROE			*ROA*			*Cash*			*LnAsset*			*Sales*		*Equity*		
Variable	Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.	Coefficient	Prob.	
C	3.163	0.003	***	0.999	0.080	*	8.132	0.000	***	15.891	0.000	***	0.790	0.627	32.359	0.000	***
Target	4.041	0.028	**	0.664	0.473		3.542	0.057	*	0.457	0.028	**	-4.087	0.390	3.543	0.388	
Post	-0.278	0.807		-0.079	0.899		5.932	0.000	***	-1.176	0.000	***	0.698	0.704	3.032	0.034	**
*Target*Post*	-5.138	0.028	**	-1.491	0.220		-3.941	0.076	*	0.682	0.009	***	1.634	0.767	1.330	0.769	
JGAAP	-3.229	0.002	***	-0.995	0.079	*	9.267	0.000	***	-5.279	0.000	***	-0.841	0.673	18.692	0.000	***
Obs.	327			333			336			336			324		336		
Adjusted R^2	0.036			0.005			0.304			0.789			-0.002		0.345		
S.E. of regression	8.799			4.803			8.048			1.360			15.718		12.717		
F-statistic	4.020	***		1.396			37.539	***		313.955	***		0.807		45.110	***	

Notes:

1. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity-consistent standard errors and covariance are used for the estimation of *Cash*, *LnAsset*, *Sales*, and *Equity*.
2. The estimation period spans from three years before the approval of activist board representation to the year of delisting.
3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Operating performance between target and control firms listed in 2024 before and after the activist board representation

	ROE			*ROA*			*Cash*			*LnAsset*			*Sales*		*Equity*		
Variable	Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.	Coefficient	Prob.	
C	0.521	0.421		0.627	0.005	***	10.663	0.000	***	14.653	0.000	***	0.320	0.925	61.011	0.000	***
Target	-3.972	0.014	**	-1.539	0.000	***	8.280	0.002	***	-0.597	0.020	**	-4.924	0.283	-16.440	0.000	***
Post	2.505	0.000	***	1.057	0.000	***	0.124	0.929		-0.034	0.870		4.704	0.139	2.220	0.368	
*Target*Post*	6.605	0.004	***	1.653	0.019	**	-2.318	0.519		0.067	0.841		1.667	0.791	-5.478	0.137	
JGAAP	1.225	0.100		0.542	0.029	**	10.800	0.000	***	-2.081	0.000	***	4.651	0.139	-5.638	0.000	***
Obs	376			376			381			381			361		381		
Adjusted R^2	0.118			0.119			0.131			0.231			0.011		0.149		
S.E. of regression	6.809			2.394			12.970			1.640			25.954		19.177		
F-statistic	13.544	***		13.660	***		15.290	***		29.598	***		1.990	*	17.580	***	

Notes:

1. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity-consistent standard errors and covariance are used for the estimation of *Sales*.
2. The estimation period spans from three years before the approval of activist board representation to three years after.
3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9: Operating performance between target and control firms delisted by 2024 before and after the activist board representation

	ROE			*ROA*			*Cash*			*LnAsset*			*Sales*			*Equity*		
Variable	Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.		Coefficient	Prob.	
C	3.427	0.029	**	1.187	0.161		9.833	0.000	***	15.746	0.000	***	-1.593	0.301		31.598	0.000	***
Target	6.716	0.025	**	0.901	0.534		2.783	0.277		0.339	0.198		-0.025	0.997		1.538	0.783	
Post	-0.280	0.886		-0.219	0.837		3.652	0.009	***	-0.912	0.001	***	3.093	0.146		2.286	0.301	
*Target*Post*	-9.485	0.020	**	-2.983	0.153		-0.400	0.896		0.520	0.136		-6.771	0.320		4.065	0.521	
JGAAP	-5.493	0.002	***	-2.142	0.020	**	9.867	0.000	***	-5.469	0.000	***	-3.934	0.090	*	23.817	0.000	***
Obs.	181			187			190			190			178			190		
Adjusted R^2	0.068			0.027			0.284			0.782			0.012			0.392		
S.E. of regression	11.335			6.192			8.439			1.483			15.176			14.914		
F-statistic	4.280	***		2.275	*		19.772	***		170.547	***		1.542	**		31.505	***	

Notes:

1. Based on the White test, Huber-White-Hinkley (HC1) heteroskedasticity-consistent standard errors and covariance are used for the estimation of *Cash*, *LnAsset*, *Sales*, and *Equity*.
2. The estimation period spans from three years before the approval of activist board representation to three years after.
3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.