

Does the Mandatory Adoption of Outside Directors Improve Firm Performance and Corporate Governance in Japan?

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Abstract

This paper examines the economic consequences of the introduction of regulations that mandate listed firms to appoint outside directors in Japan. The Japanese Companies Act revised in June 2014 mandates listed firms to appoint at least one outside director or disclose the reason for non-adoption. Although half of listed firms in Japan had no outside directors before the revision of this act, most listed firms have outside directors nowadays. I find that mandatory adopters experience significant increases in profitability and cash holdings but decreases in payouts to shareholders after the revision of the act. On the other hand, I find no significant effect of the mandatory adoption of outside directors on firm value and corporate governance. These results suggest that the adoption of outside directors increases firm profitability but worsens the agency costs of free cash flow and does not improve corporate governance; therefore, it fails to promote firm value in Japan. Moreover, I find no clear evidence that the adoption of independent and multiple outside directors is more or less influential than that of affiliated and single outside directors.

JEL classification: G34, G38, K22

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1. Introduction

Outside directors are considered to play a monitoring role and increase firm performance. Conventional wisdom and theoretical research both emphasize that outside directors can improve corporate governance, increase accounting performance, and enhance firm value (Fama, 1980; Fama and Jensen, 1983). Although a number of empirical studies examine whether and how the proportion of outside directors on the board affects firm performance and corporate governance, their findings on the effect of outside directors are mixed (Hermalin and Weisbach, 2003; Denis and McConnell 2003). Thus, there is ongoing debate about the effect of outside directors on firm performance and corporate governance.

This paper analyzes the effects of outside director adoption in Japan using a treatment

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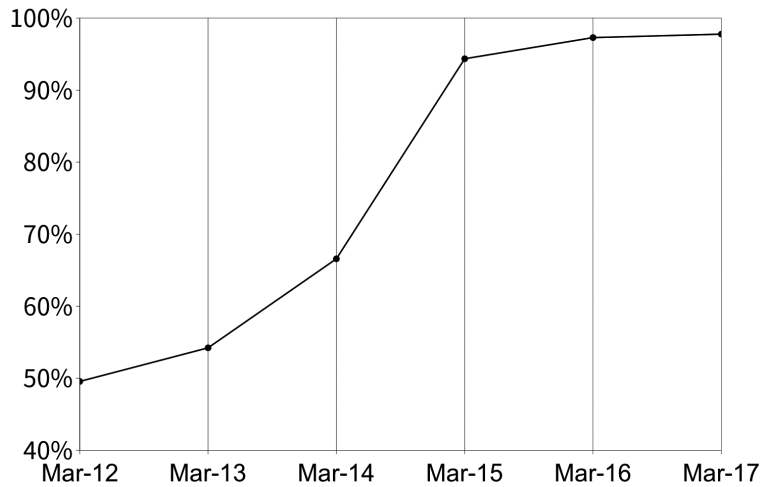
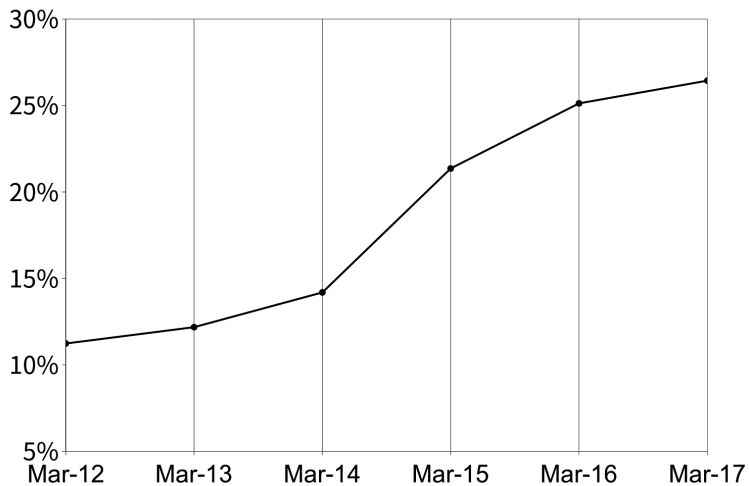
Panel A: Percentage of listed firms that appoint outside directors**Panel B: Percentage of outside directors on board**

Fig 1. This figure plots the percentage of listed firms that appoint outside directors and percentage of outside directors on board in the March fiscal year ending, between 2012 and 2017. In this study, listed firms are restricted to all non-financial firms with a March fiscal year end and a positive shareholder equity.

sample that has been mandated to appoint outside directors. The Japanese Companies Act was revised in June 2014; the revised Article 327 (2) mandates that listed firms either appoint at least one outside director or disclose the reason for non-adoption at the annual

shareholders meeting. Nearly all listed firms in Japan have at least one outside director, compared to approximately half of the listed firms before the revision (see Figure 1).

Japanese companies have been criticized for their poor performances and corporate governance as the composition of their boards varies from that in Western countries and some developed countries in terms of characteristics of directors and board committee systems. Japanese firms have a one-tier board system as the United States. However, most Japanese firms have a board of corporate auditors (*kansayaku-kai*) instead of standing committees of boards¹. A board of corporate auditors is a unique Japanese system: they audit financial statements and business executions and are independent of the board of directors. Furthermore, they can attend board of director meetings but do not have voting rights.

In addition, most Japanese firms did not appoint outside directors. Panel A in Figure 1 shows that over half of the Japanese listed companies did not have outside directors before 2014, whereas all of them appoint outside directors at the present time. However, panel B in Figure 1 reveals that their director boards are dominated by inside directors as most Japanese-listed firms still have only one or two outside directors. By contrast, firms in the United States and most developed countries have outside director-dominated boards and only a few insiders. Linck, Netter, and Yang (2008) indicate that the boards of U.S. firms comprise two-thirds of outside directors on average. Dehaene, Vuyst, and Ooghe (2001) show that the average number of outside (inside) directors is 5.59 (2.78) in Belgium. Mak and Li (2001) report the mean proportion of outside directors on boards is 57% in Singapore.

Therefore, it is important to investigate whether and how mandatory outside director adoption leads to improved performance and corporate governance in Japan. This study provides additional evidence of the effect of adopting an outside director on firm performance and corporate governance. I use a difference-in-differences (DID) analysis to mitigate the endogeneity of outside director adoption. Prior research suffers from an endogeneity issue, and some studies attempt to correct for such endogeneity using simultaneous equation methods; however, most do not find that outside directors have a significantly positive effect on firm performance (Bhagat and Black, 2002; Hermalin and Weisbach, 1991).

This paper aims to clarify the effect of outside director adoption on firm performance and corporate governance. Using a simple DID analysis, mandatory adopters are identified as firms that first adopted outside directors in the fiscal year ending between June 2014 and May 2015, when the Companies Act was revised and implemented, respectively. Voluntary

¹ In 2014, approximately only 60 of over 3000 listed firms had three standing committees of the board, such as nominating, compensation, and audit committees; in 2019, only about 80 listed firms had three standing committees.

adopters are identified as firms that had already adopted outside directors before June 2014. I also compare mandatory adopters with control firms selected from voluntary adopters and nonadopters using the nearest neighbor propensity score matching.

Moreover, the characteristics of outside directors in Japan differ from in the U.S. and other developed countries. Most outside directors are independent in the U.S. and other developed countries. In 2002 in the United States, the New York Stock Exchange and Nasdaq proposed self-regulation to require listed firms to have a majority of independent directors, and the Securities and Exchange Commission approved this self-regulation in 2003. In Japan, however, some listed firms appoint outside directors associated with affiliated firms such as financial institutions, corporate groups, and business partners, known as *Keiretsu*, to fulfill the revised criteria. Financial institutions, corporate groups, and business partners composed *Keiretsu* through their cross-shareholdings². Thus, this paper investigates the effects of independent and affiliated outside director adoptions. It distinguishes between outside directors with affiliated firms and independent outside directors, as some Japanese firms now appoint outside directors from within affiliated firms. Outside directors who come from affiliated firms are reluctant to monitor management to avoid hampering existing business relationships. In addition, some appoint two or more multiple outside directors in line with the Japanese Corporate Governance Code released in June 2015 by the Tokyo Stock Exchange; instead of imposing a legally binding regulation, this Code requests listed firms to appoint at least two outside directors to secure shareholders' rights and raise firm value. Thus, this paper also investigates the effect of multiple and single outside director adoptions.

My main findings are as follows. First, mandatory outside director adopters experience significant increases in profitability after the adoption compared to voluntary adopters and control firms. Second, mandatory adopters experience significant increases in cash holdings and significant decreases in payouts to shareholders after the revision of the Companies Act. Finally, mandatory adopters do not see significant changes in firm value and corporate governance. These results suggest that the adoption of outside directors improves profitability but worsens the agency costs of free cash flow and does not affect corporate governance; therefore, mandatory outside director adoption does not improve firm value in Japan. In addition, I find independent outside directors improve profitability and CEO turnover while affiliated outside directors worsen the agency costs of free cash flow thorough increasing cash holdings and decreasing payouts. I also find that multiple and single outside director adoptions both promote profitability. However, I find no clear

² Financial institutions, such as banks, trust banks, and insurance companies, not only provide debt financing and financial services in general but also held equity positions in the corporations. Corporate groups and business partners, such as customers or suppliers, also hold shares in each other's firms.

evidence that the independent outside directors are more or less influential than affiliated outside directors and that multiple outside directors are more or less influential than single outside director.

This study contributes to the literature in several important aspects. First, I provide evidence on the mixed findings whether outside directors improve firm performance and corporate governance. Indeed, this paper empirically indicates that outside director adoption improves firm profitability but worsens the agency costs of free cash flow and does not improve board governance; therefore, outside director adoption fails to enhance firm value in Japan. In other words, my results imply that outside director's advising role improves profitability but worsens agency costs of free cash flow, thus outside director adoption fails to increase firm value in Japan. On the other hand, Faleye, Hoitash and Hoitash (2011) find that intensive outside directors' monitoring function improves corporate governance but impedes their advising role and negatively affects firm value in the U.S. Second, my results suggest that the effect of independent outside director adoption on firm performance and corporate governance is not significantly different than that of affiliated outside director adoption. Moreover, the effect of multiple outside director adoption is not more or less influential than single outside director adoption. These results suggest that more outside directors would not be more effective on firm performance and corporate governance. Finally, this study provides policymakers with the empirical implications of the effect of mandatory outside director adoption in Japan.

The rest of this paper is organized as follows. Section 2 reviews the related literature. Section 3 discusses the research design. Section 4 describes the data and summary statistics. Section 5 presents the empirical results, and Section 6 concludes.

2. Prior literature and hypothesis development

Theoretical research suggests that outside directors play an important role on boards. Fama (1980) and Fama and Jensen (1983) emphasize that outside directors mitigate the conflict between managers and shareholders and discipline internal managers. Their hypotheses predict that outside directors improve firm performance and corporate governance. In other words, outside directors are expected to improve corporate governance and mitigate agency costs, thus raising profitability and firm value.

Some empirical research supports the belief that outside directors monitor boards and improve performance and corporate governance. Weisbach (1988) finds that CEO turnover due to low firm performance is higher in firms with outside director-dominated boards than in those with inside director-dominated boards. Rosenstein and Wyatt (1990) find significantly positive returns around the announcement for a new outside director appointment. Nguyen and Nielsen (2010) find that significant negative returns to the sudden

death of outside directors. Rosenstein and Wyatt (1990) and Nguyen and Nielsen (2010) imply that outside director adoptions positively affect firm value. Choi, Park and Yoo (2007), Dahya and McConnell (2007), and Liu, Miletkov, Wei, and Yang (2015) find that the proportion of outside directors positively relates to profitability or firm value in Korea, the United Kingdom, and China. Furthermore, Black and Khanna (2007) and Black and Kim (2012) reveal that board reforms that include requirements of outside director proportion lead to positive effects on the firm value in India and Korea³. Duchin, Matsusaka, and Ozbas (2010) find that independent directors improve firm performance when the cost of acquiring information about the firm is low.

However, other empirical research does not support the notion that outside directors improve firm performance. Hermalin and Weisbach (1991), Mehran (1995), and Klein (1998) find no evidence that the proportion of outside directors on the board positively relates to firm performance. Faleye et al. (2011) find that monitoring-intensive boards where the majority of independent directors serve on two or more principal monitoring committees improve corporate governance but decrease firm value due to disruption to the directors' advising function. Moreover, Agrawal and Knoeber (1996), Mak and Li (2001), and Bhagat and Black (2002) find negative relationships between the proportion of outside directors on the board and firm performance, even after controlling for endogeneity. Hermalin and Weisbach (1988) and Bhagat and Black (2002) find that poorly performing firms appoint more outside directors.

Thus, these empirical studies suffer from the endogeneity problem. Furthermore, they are conducted in countries with a majority of outside directors on the boards and examine the marginal effect of outside directors on firm performance. In addition, firm value is affected by the costs and benefits of outside directors; for example, outside directors' intensive monitoring role impedes their advising role and leads to the negative effect on firm value (Faleye et al., 2011).

In addition, it is unclear whether the adoption of outside directors leads to improvement in firm performance and corporate governance due to the composition and unique characteristics of boards in Japan. The Japanese context also allows us to directly investigate the benefit of outside director adoption. Since 2014, the Japanese government has reinforced the corporate governance mechanism, and reformed the Companies Act in June 2014. In the revised Companies Act, Article 327 (2) mandates that listed firms appoint at least one outside director or disclose the reason for non-adoption at the annual shareholders meeting. Most Japanese listed firms only appointed one or two outside directors before 2014, thus the

³ Fauver, Hung, Li, and Taboada (2017) find that board reforms lead to positive effects on the firm value in cross-country.

proportion of outside directors on the board was approximately 25%, on average. Moreover, half of listed firms did not appoint outside directors before 2014.

Therefore, it is possible to investigate the effect of outside director adoption on firm performance and corporate governance mitigating endogeneity. I expect firm performance and corporate governance in mandatory adopters to increase more than that in voluntary adopters, since governance quality in mandatory adopters is as high as that in voluntary adopters through mandatory adoption of outside directors.

H1: Mandatory adopters improve firm performance and corporate governance more than voluntary adopters.

Independent outside directors are thought to play an important role in decision-making and disciplining managers, as they have incentives to exercise their judgment independently and free of management influence (Fama, 1980; Fama and Jensen, 1983). Nguyen and Nielsen (2010) find the sudden death of independent outside director greater affect firm values than that of affiliated outside directors and inside directors. Additionally, independent outside directors are expected to have an incentive to maintain and even improve their reputation and competency in directorial markets. Brickley, Lease, and Smith (1988) find that pressure-resistant shareholders with no business relationships with their investee firms vote against contested proposals that arise in conflicts between shareholders and managements, whereas pressure-sensitive shareholders with business relationships with their investee firms vote in line with management.

Indeed, some Japanese firms now appoint affiliated outside directors to fulfill the criteria of the revised Companies Act, as these affiliated outside directors might be less likely to monitor top management and discipline managers. For example, Mitsubishi Motors appointed four affiliated outside directors from Mitsubishi Heavy Industries, Mitsubishi Corporation, and Nissan at the end of the 2017 fiscal year.

Thus, I expect independent directors to be more likely to arbitrate the conflict between shareholders and managers than affiliated outside directors with a previous or current occupation in business-related financial institutions or firms would.

H2: Mandatory adopters that appoint independent directors improve firm performance and corporate governance more than others.

The Japanese government has also introduced non-binding regulations such as Japan's Stewardship Code and Japan's Corporate Governance Codes⁴. The Tokyo Stock Exchange released the Japan's Corporate Governance Code in June 2015. Although this code is not

legally binding, it requests listed firms to appoint at least two outside directors to secure shareholders' rights and raise firm value.

H3: Mandatory adopters that appoint multiple outside directors improve firm performance and governance more than others.

3. Research design

As the Japanese Companies Act was revised on June 20, 2014 and implemented on May 1, 2015, I divide the sample into three groups: mandatory adopters, voluntary adopters, and non-adopters. Mandatory adopters include firms that first adopted outside directors in the fiscal year ending between June 2014 and May 2015. Voluntary adopters include firms that had already adopted outside directors before June 2014. Non-adopters are firms that did not have outside directors before May 2015. I also divide the sample into two time periods: the pre-revision period before June 2014 and the post-revision period thereafter.

This paper tests whether profitability, firm value, agency cost of free cash flow, and corporate governance in mandatory adopters improved after the Companies Act was revised relative to voluntary adopters and control firms. Table 1 reports the definition of variables. First, *ROE* (net earnings/lagged equity) and *ROA* (ordinary income⁵/lagged total assets) are used as proxies for firm profitability. Second, *Tobin's q* ((market value of equity+book debt)/total assets) and *MV* (ln[market value]) are used as proxies for firm value. Third, *Cash holding* (cash and cash equivalents/total assets) and *Payout* ([dividends+share repurchases]/total assets) are used as proxies for the agency costs of free cash flow. Jensen (1986) states that high free cash flow destroys firm value by wasting resources on low-return projects and that dividend payments reduce the agency costs of free cash flow. Faulkender and Wang (2006) and Dittmar and Mahrt-Smith (2007) find that a one-dollar increase in cash holdings leads to less than a one-dollar increase in firm value on average. Finally, *abnormal accruals* and *CEO turnover* are used as proxies for corporate governance. *Abnormal accruals*, referred to as earnings quality, are the absolute value of discretionary accruals generated from the modified CFO Jones model proposed by Kasznik (1999)⁶. Discretionary accruals are

⁴ Japan's Stewardship Code, introduced in February 2014, requests that institutional investors such as asset owners and asset managers discharge their stewardship responsibility through their engagement with investee firms and exercising voting rights. Japan's Corporate Governance Code, introduced in June 2015, requests that listed firms ensure that shareholders exercise and enhance their rights.

⁵ Ordinary income stands for earnings before tax and extraordinary income and losses.

⁶ I obtain similar results whether the discretionary accruals are calculated by the Jones model (Jones, 1991) and the modified Jones model (Dechow, Sloan, & Sweeney, 1995). Shuto (2007) documents that the explanatory power of modified CFO Jones model is higher than other models for Japanese listed firms.

Table 1. Variable definitions

<i>Mandatory</i>	An indicator variable that takes the value of one for a firm that first adopted outside directors between June 2014 and May 2015. Outside directors are board members who are not current and retired employees in 10 years, who are not relatives of directors or executives, or who are not persons with conflicts of interest or related to the firm's business.
<i>Mandatory with independent</i>	An indicator variable that equals one for a mandatory adopter that appointed independent outside directors. Independent directors are outside directors who are not current and retired directors or employees in affiliated firms, and who were not corporate auditors or advisors before being appointed as outside directors.
<i>Mandatory with affiliated</i>	An indicator variable that equals one for a mandatory adopter that appointed affiliated outside directors. Affiliated outside directors are outside directors who are current and retired directors or employees in affiliated firms, and who were corporate auditors or advisors before being appointed as outside directors.
<i>Mandatory with multiple</i>	An indicator variable that equals one for a mandatory adopter that appointed two or more outside directors.
<i>Mandatory with single</i>	An indicator variable that equals one for a mandatory adopter that appointed an outside director.
<i>Post</i>	An indicator variable that takes the value of one for the years after June 2014.
<i>ROE</i>	Net income/lagged equity
<i>ROA</i>	Ordinary income/lagged total assets
<i>MV</i>	Ln(market value)
<i>Tobin's q</i>	(market value of equity+book debt)/total assets
<i>Cash holdings</i>	Cash and cash equivalents/total assets
<i>Payout</i>	(dividends+share repurchases)/total assets
<i>Abnormal accruals</i>	Abnormal accruals are the absolute value of discretionary accruals generated from the modified CFO Jones model proposed by Kasznik (1999).
<i>CEO turnover</i>	An indicator variable that takes one if CEO turnover occurred in the fiscal year, zero otherwise.
<i>Director ownership</i>	Shareholdings by directors
<i>Financial ownership</i>	Shareholdings by financial institutions
<i>Foreign ownership</i>	Shareholdings by foreign investors
<i>AST</i>	Ln(total assets)
<i>LEV</i>	Debt/total assets
<i>Sales growth</i>	Sales/lagged sales – 1
<i>Board size</i>	The number of directors

calculated using a cross sectional modified CFO Jones model on basis of the NIKKEI industry classification and fiscal year. Klein (2002) and Xie, Davidson, and DaDalt (2003) indicate that independent directors and audit committees improve earnings quality. Faleye et al. (2011) find that monitoring-intensive boards are negatively associated with abnormal accruals. *CEO turnover* is an indicator variable that equals one if there was a CEO change in a given fiscal year and 0 otherwise. Weisbach (1988) finds that CEO turnover due to lower stock performance or lower profitability is higher in firms with outside director-dominated boards than in those with inside director-dominated boards, which suggests that outside directors monitor top management.

First, the effect of mandatory outside director adoption is tested by estimating Equation (1):

$$Y_{i,t+1} = \beta_1 \text{Mandatory}_i \times \text{Post}_t + \sum \beta_j \text{Controls}_{i,t} + \varepsilon_{i,t}. \quad (1)$$

where the dependent variable, Y , represents firm profitability (*ROE* and *ROA*), firm value (Tobin's q and *MV*), the agency costs of free cash flow (*Cash holding* and *Payout*), and corporate governance quality (*Abnormal accruals* and *CEO turnover*) for firm i and year t ⁷.

The interaction term is defined as a mandatory adopter dummy (*Mandatory*) \times post-revision dummy (*Post*). This term captures the effect of outside director adoption on firm profitability, firm value, agency costs of free cash flow, and corporate governance. *Mandatory* is an indicator variable that takes the value of one for a firm that first adopted outside directors from June 2014 to May 2015. Board members who are not current and retired employees in 10 years, who are not relatives of directors or executives, or who are not persons with conflicts of interest or related to the firm's business are classified as outside directors. The classification is based on the information provided in annual (securities) reports. *Post* is an indicator variable that takes the value of one for fiscal year ends after June 2014.

The control variables that control for ownership structure and firm characteristics are identified as follows: shareholdings by directors (director ownership), foreign shareholders (foreign ownership), and financial institutions (financial ownership) as well as the natural logarithm of total assets (*AST*), debt to assets (*LEV*), and *sales growth*.

Second, to distinguish between the effects of independent and affiliated outside director adoption, this study estimates Equation (2):

⁷ This paper mainly reports the results based on DID regression as I believe that DID regression is suitable for my analysis. I obtain similar results when I estimate discontinuity regression.

$$Y_{i,t+1} = \gamma_1 \text{Mandatory with independent}_i \times \text{Post}_t + \gamma_2 \text{Mandatory with affiliated}_i \times \text{Post}_t + \sum \gamma_j \text{Controls} + \varepsilon_{i,t}. \quad (2)$$

Mandatory with independent is an indicator variable that equals one for a mandatory adopter that appointed independent outside directors from June 2014 to May 2015. *Mandatory with affiliated* is an indicator variable that equals one for a mandatory adopter that appointed affiliated outside directors from June 2014 to May 2015. Independent and affiliated outside directors are classified on the basis of outside directors' personal business careers. Independent outside directors are outside directors who are not current and retired directors or employees in affiliated firms, and who were not corporate auditors or advisors before being appointed. Affiliated (gray) outside directors are outside directors who are current and retired directors or employees in affiliated firms, and who were corporate auditors or advisors before being appointed as outside directors⁸. This classification is based on the information provided in corporate governance reports as well as biographical information from NIKKEI executive database.

Finally, I distinguish the effects of multiple and single outside director adoption to estimate Equation (3):

$$Y_{i,t+1} = \delta_1 \text{Mandatory with multiple}_i \times \text{Post}_t + \delta_2 \text{Mandatory with single}_i \times \text{Post}_t + \sum \delta_j \text{Controls} + \varepsilon_{i,t}. \quad (3)$$

Mandatory with multiple is an indicator variable that equals one for a mandatory adopter that appointed two outside directors or more from June 2014 to May 2015. *Mandatory with single* is an indicator variable that equals one for a mandatory adopter that appointed one outside director from June 2014 to May 2015.

4. Data and summary statistics

Financial data and ownership data are obtained from the NIKKEI NEEDS Financial QUEST database. Governance data such as CEO name and date appointed are taken from NIKKEI NEEDS CGES. Board composition data as well as Outside directors' careers and dates of appointment are collected from NIKKEI NEEDS executive database. The sample is

⁸ Some mandatory adopters appointed outside directors from former corporate auditor, former inside director, or adviser to fulfill the criteria of revised Companies Act in Japan. I obtain similar results when I identify independent outside directors as outside directors that do not have relationships with major trading partners, shareholders, creditors and personal relationships with the firms. In this criterion, outside directors that were corporate auditors or advisors before being appointed as outside directors are identified as independent outside directors.

restricted to all non-financial firms with fiscal year end in March and for which data are available from 2012 to 2017. Further, firms are excluded that have negative shareholder equity. The final sample consists of 2,109 firms and 10,507 firm-year observations. The top and bottom 1% values of all the continuous variables are then winsorized.

I classify these listed firms into mandatory adopters, voluntary adopters, and non-adopters. Mandatory adopters are firms that first appointed outside directors between June 2014 and May 2015. Voluntary adopters are firms that have already appointed outside directors prior to June 2014. Non-adopters are firms that did not appoint prior to May 2015. Technically, I classify these groups based on the number of outside directors registered in Annual Securities Reports in the March 2014 and March 2015 fiscal year ends. Mandatory adopters, voluntary adopters, and non-adopters consist of 587 firms, 1,403 firms, and 119 firms, respectively⁹. In this study, I do not directly compare mandatory adopters with non-adopters since most of the 119 non-adopters appointed outside directors after June 2015. In addition, non-adopters are small firms and their ownership is dominated by directors and managers, relative to mandatory adopters and voluntary adopters.

Table 2 provides the summary statistics of firm characteristics. Profitability (*ROE* and *ROA*) and firm value (*Tobin's q* and *MV*) in mandatory adopters are significantly lower than those in voluntary adopters. The agency costs of free cash flow in mandatory adopters are higher than those in voluntary adopters. Cash holdings in mandatory adopters are higher than those in voluntary adopters. Corporate governance in mandatory adopters is lower than that in voluntary adopters. Abnormal accruals in mandatory adopters are higher than those in voluntary adopters, but this difference is not significant. The possibility of CEO turnover in mandatory adopters is lower than that in voluntary adopters. Director shareholdings in mandatory adopters are significantly higher than those in voluntary adopters. By contrast, shareholdings by foreign investors and financial institutions are significantly lower in mandatory adopters than in voluntary adopters. The median board size in mandatory adopters is seven, with no outside directors. The median board size in voluntary adopters is eight, two of whom are outside directors. Furthermore, in most, the chairman of the board is consistent with CEOs. However, these summary statistics do not reflect the impact of the revision of the Companies Act.

First, the univariate comparisons of profitability, firm value, the agency costs of free cash flow, and corporate governance are set around the revision of the Companies Act using the DID analysis. This simple method accounts for the unobserved differences between mandatory and voluntary adopters¹⁰. Table 3 reports the mean values of firm performance

⁹ When I identify voluntary adopters as firms that had already adopted outside directors before June 2013, I obtain the same results. Over 350 firms adopted outside directors in the fiscal year preceding the revision of the Companies Act.

Table 2. Summary statistics

	Mandatory adopters		Voluntary adopters	
	Mean	Median	Mean	Median
<i>ROE %</i>	6.540***	6.294***	7.212	6.957
<i>ROA %</i>	5.188***	4.684***	5.820	5.006
<i>Tobin's q</i>	1.017***	0.755***	1.348	0.987
<i>MV</i>	9.348***	9.182***	10.402	10.209
<i>Cash holding %</i>	20.161***	17.012***	19.466	16.178
<i>Payout %</i>	0.868**	0.703***	0.803	1.050
<i>Abnormal accruals %</i>	2.232	1.634*	2.275	1.559
<i>CEO turnover</i>	0.126**	0.000**	0.144	0.000
<i>Director ownership %</i>	6.855***	2.867***	4.609	0.661
<i>Financial ownership %</i>	15.639***	14.000***	19.476	17.795
<i>Foreign ownership %</i>	6.079***	2.450***	12.334	8.377
<i>AST</i>	10.276	10.197	11.080	10.914
<i>LEV</i>	0.489	0.501	0.485	0.478
<i>Sales growth %</i>	3.777***	2.936**	4.612	3.344
<i>Board size</i>	7.609***	7.000***	8.530	8.000
<i>Number of outside directors</i>	0.642***	0.000***	1.776	2.000

I identify mandatory adopters as firms that first adopted outside directors between June 2014 and May 2015 and voluntary adopters as firms that had already adopted outside directors before June 2014. The means and medians in mandatory adopters are compared with those of voluntary adopters using a two-tailed *t*-test and Wilcoxon tests. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

and corporate governance measures across mandatory and voluntary adopters in the pre- and post-revision periods. As shown in Panels A and B, mandatory adopters have significantly greater improvements in *ROE* and *ROA* than voluntary adopters, which suggests that mandatory adoption of outside directors improves profitability. However, in Panels C and D, mandatory adopters display significantly lower changes in *Tobin's q* and *MV* than voluntary adopters, which suggests that mandatory adoption of outside directors deteriorates firm value. In Panel E, mandatory adopters exhibit significant increases in *Cash holding*, whereas Panel F shows significant decreases in *Payout* relative to voluntary adopters. These results suggest that mandatory adoption of outside directors aggravates the agency costs of free cash flow. Panel G shows both mandatory and voluntary adopters experience significant

¹⁰ I performed the statistical test of the difference in growth rates in variables across the mandatory adopters and voluntary adopters during pre-revision periods. These statistical tests suggest that the parallel trend assumption is almost valid.

Table 3. Difference-in-differences analysis of performance around mandatory outside director adoption

		Pre-revision (a)	Post-revision (b)	(b) - (a)
Panel A: Difference-in-differences analysis of <i>ROE</i>				
<i>Mandatory adopters</i>	(i)	6.122	7.161	1.039***
<i>Voluntary adopters</i>	(ii)	7.208	7.200	-0.007
	(i)-(ii)	-1.087***	-0.039	1.047***
Panel B: Difference-in-differences analysis of <i>ROA</i>				
<i>Mandatory adopters</i>	(i)	4.999	5.464	0.465***
<i>Voluntary adopters</i>	(ii)	5.795	5.840	0.043
	(i)-(ii)	-0.796***	-0.375*	0.422***
Panel C: Difference-in-differences analysis of <i>Tobin's q</i>				
<i>Mandatory adopters</i>	(i)	0.997	1.056	0.059**
<i>Voluntary adopters</i>	(ii)	1.300	1.422	0.122***
	(i)-(ii)	-0.303***	-0.366***	-0.063**
Panel D: Difference-in-differences analysis of <i>MV</i>				
<i>Mandatory adopters</i>	(i)	9.272	9.457	0.185***
<i>Voluntary adopters</i>	(ii)	10.316	10.528	0.215***
	(i)-(ii)	-1.044***	-1.071***	-0.030*
Panel E: Difference-in-differences analysis of <i>Cash holding</i>				
<i>Mandatory adopters</i>	(i)	19.655	20.946	1.290***
<i>Voluntary adopters</i>	(ii)	19.154	19.921	0.761***
	(i)-(ii)	0.501	1.024	0.530**
Panel F: Difference-in-differences analysis of <i>Payout</i>				
<i>Mandatory adopters</i>	(i)	0.801	0.968	0.167***
<i>Voluntary adopters</i>	(ii)	0.982	1.210	0.228***
	(i)-(ii)	-0.181***	-0.242***	-0.060***
Panel G: Difference-in-differences analysis of <i>Abnormal accruals</i>				
<i>Mandatory adopters</i>	(i)	2.342	2.064	-0.278***
<i>Voluntary adopters</i>	(ii)	2.360	2.153	-0.208***
	(i)-(ii)	-0.018	-0.089	-0.070
Panel H: Difference-in-differences analysis of <i>CEO turnover</i>				
<i>Mandatory adopters</i>	(i)	0.125	0.129	0.005
<i>Voluntary adopters</i>	(ii)	0.148	0.138	-0.009
	(i)-(ii)	-0.023***	-0.009	0.014

This table presents the results of the difference-in-differences analyses based on all mandatory and voluntary adopters from 2012 to 2017. I identify mandatory adopters as firms that first adopted outside directors between June 2014 and May 2015 and voluntary adopters as firms that had already adopted outside directors before June 2014. The pre-revision period is before June 2014, while the post-revision period is after June 2014. As I examine the effect of mandatory outside director adoption on performance in the next fiscal year, performance in the pre-revision period is obtained by averaging each firm's mean performance in the March 2013, March 2014, and March 2015 fiscal year ends, and performance in the post-revision period is obtained by averaging each firm's mean performance in the March 2016 and March 2017 fiscal year ends. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

decreases in abnormal accruals in post-revision periods, although these differences between them are not significant. As shown in Panel H, mandatory adopters do not experience significant changes in *CEO turnover*, which suggests that mandatory adoption of outside directors does not significantly affect board governance.

The next section estimates multivariable regressions and selects control firms to control for firm characteristics, given the following backdrop. The Japanese stock market has increased since 2013, and large firms' stock prices have rapidly increased. In addition, the Japanese government released Japan's Stewardship Code in February 2014 and the Tokyo Stock Exchange released Japan's Corporate Governance Code in July 2015 to reinforce corporate governance. In addition, the next section distinguishes (i) the effect of independent outside director adoption from that of affiliated outside director adoption and (ii) the effect of multiple outside director adoption from that of single outside director adoption in terms of firm performance and corporate governance. In my sample, 334 firms were mandatory adopters that appointed only independent outside directors (1,665 firm-year observations), whereas 193 firms were mandatory adopters that appointed only affiliated outside directors (963 firm-year observations). Another 60 firms were mandatory adopters that appointed both independent and affiliated outside directors (298 firm-year observations). In my sample for testing the effect of multiple and single outside director adoption, 203 firms were mandatory adopters with multiple outside directors (1012 firm-year observations), whereas 384 firms were mandatory adopters with a single outside director (1914 firm-year observations).

5. Empirical results

In this study, I estimate the ordinary least squares (OLS) regressions in Equations (1), (2), and (3) to investigate the effect of mandatory outside director adoption on firm performance and corporate governance except for the analysis for *CEO turnover*. I estimate the logistic regression in Equations (1), (2), and (3) to investigate the effect of mandatory outside director adoption on *CEO turnover*. In the OLS regression, I tabulate the coefficient estimates and *t*-statistics, in square brackets, based on robust standard errors clustered at the firm level. In the logistic regression, I tabulate the coefficient estimates and *z*-statistics, in square brackets, based on robust standard errors clustered at the firm level.

This study estimates separate regressions for the different samples to compare mandatory adopters with voluntary adopters and control firms. First, I compare mandatory adopters with voluntary adopters and non-adopters. Second, I compare mandatory adopters with voluntary adopters. Finally, I compare mandatory adopters with control firms selected from voluntary adopters and non-adopters using the nearest neighbor propensity score matching without replacement¹¹. In the propensity score matching, I estimate the logistic regression using *Mandatory*, an indicator variable that takes the value of one for a firm that first

adopted outside directors from June 2014 to May 2015, as the dependent variable. The independent variables are the logarithm of *board size*, *ROE*, *Tobin's q*, *MV*, *AST*, *LEV*, and *sales growth* in the March 2015 fiscal year end, and *ROE*, *Tobin's q*, and *MV* in the March 2014 fiscal year end. I also add the industry dummy to propensity score model. Table A1 in the Appendix reports the results of the logistic regression of the propensity score model. In addition, Table A2 presents the summary statistics of control firms and indicates that control firms have almost similar characteristics to mandatory adopters.

5.1 Effect of mandatory outside director adoption on firm performance and corporate governance

Table 4 presents the effect of mandatory outside director adoption on firm performance and corporate governance. Panels A and B report the effect of mandatory outside director adoption on profitability. The coefficients of *Mandatory*×*Post* are positive and significant in all columns, which indicates that firm profitability in mandatory adopters improves significantly relative to that in voluntary adopters and control firms after the revision of the Companies Act.

Panels C and D in Table 4 report the effect of mandatory outside director adoption on firm value. Panel C shows that the coefficients of *Mandatory*×*Post* are negative and significant. On the other hand, Panel D shows that the coefficients of *Mandatory*×*Post* are negative but not significant. These results suggest that mandatory adoption of outside directors does not significantly improve firm value.

Panels E and F in Table 4 present the effect of mandatory outside director adoption on the agency costs of free cash flow. Panel E of Table 4 shows that the coefficients of *Mandatory*×*Post* are positive and significant, which indicates that mandatory adopters experience significant increases in cash holdings. Panel F of Table 4 also shows that the coefficients of *Mandatory*×*Post* are negative and significant in columns (1) and (2). The coefficients of *Mandatory*×*Post* are also negative and significant when I compare mandatory adopters with control firms selected from voluntary adopters using other criteria, as mentioned in footnote 11. These results indicate mandatory adopters experience significant decreases in payouts to shareholders relative to voluntary adopters.

Panels G and H in Table 4 present the effect of mandatory outside director adoption on corporate governance. Panel G in Table 4 reports the effect of mandatory outside director

¹¹ I obtain similar results when I select control firms using the following criteria: 1) control firms within voluntary adopters with the nearest propensity score; 2) control firms within the same industry and with similar *ROA* and ΔROA in the fiscal year ending in March 2015, following Lie (2001); and 3) control firms with similar market value and book-to-market value in the fiscal year ending in March 2015, following Barber and Lyon (1997).

Table 4. Effect of mandatory adoption of outside directors

Panel A: Effect of mandatory adoption of outside directors on ROE			
<i>Dependent variable</i>	<i>ROE_{t+1}</i>		
	Mandatory adopters vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	0.987*** [2.822]	1.025*** [2.875]	1.103*** [2.602]
<i>Director ownership</i>	0.038 [1.543]	0.054** [2.036]	0.019 [0.709]
<i>Foreign ownership</i>	0.152*** [3.084]	0.160*** [3.167]	0.063 [1.153]
<i>Financial ownership</i>	0.174*** [4.288]	0.173*** [4.164]	0.205*** [3.458]
<i>AST</i>	-12.633*** [-7.299]	-12.459*** [-6.913]	-13.316*** [-5.456]
<i>LEV</i>	41.48*** [10.449]	41.834*** [10.301]	42.036*** [7.405]
<i>Sales growth</i>	0.044*** [3.847]	0.039*** [3.286]	0.039*** [2.660]
<i>Adj. R²</i>	0.461	0.457	0.455
<i>N</i>	10514	9919	5852
Panel B: Effect of mandatory adoption of outside directors on ROA			
<i>Dependent variable</i>	<i>ROA_{t+1}</i>		
	Mandatory adopters vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	0.310** [2.278]	0.321** [2.313]	0.288* [1.763]
<i>Director ownership</i>	0.018 [1.379]	0.024* [1.690]	0.006 [0.459]
<i>Foreign ownership</i>	0.066*** [3.091]	0.068*** [3.094]	0.025 [1.065]
<i>Financial ownership</i>	0.097*** [6.158]	0.095*** [5.921]	0.118*** [5.383]
<i>AST</i>	-4.892*** [-8.466]	-5.003*** [-8.230]	-4.970*** [-6.570]
<i>LEV</i>	1.776 [1.337]	1.670 [1.213]	2.797 [1.544]
<i>Sales growth</i>	0.038*** [8.925]	0.038*** [8.437]	0.029*** [5.74]
<i>Adj. R²</i>	0.740	0.738	0.744
<i>N</i>	10514	9919	5852

Panel C: Effect of mandatory adoption of outside directors on Tobin's q

<i>Dependent variable</i>	<i>Tobin's q_{t+1}</i>		
	Mandatory adopters		
	vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	-0.055** [-2.055]	-0.048* [-1.789]	-0.057* [-1.764]
<i>Director ownership</i>	-0.001 [-0.479]	0.000 [-0.061]	-0.003 [-0.946]
<i>Foreign ownership</i>	0.017*** [4.205]	0.016*** [4.006]	0.016*** [3.154]
<i>Financial ownership</i>	0.017*** [4.159]	0.015*** [4.112]	0.020*** [3.832]
<i>AST</i>	-0.281** [-2.095]	-0.315** [-2.355]	-0.167 [-0.888]
<i>LEV</i>	2.615*** [7.423]	2.545*** [7.169]	2.614*** [5.222]
<i>Sales growth</i>	0.002** [2.286]	0.002** [2.456]	0.000 [0.428]
<i>Adj. R</i> ²	0.772	0.766	0.761
<i>N</i>	10514	9919	5852

Panel D: Effect of mandatory adoption of outside directors on MV

<i>Dependent variable</i>	<i>MV_{t+1}</i>		
	Mandatory adopters		
	vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	-0.010 [-0.648]	-0.008 [-0.482]	-0.005 [-0.271]
<i>Director ownership</i>	0.004** [1.981]	0.004** [2.106]	0.003 [1.450]
<i>Foreign ownership</i>	0.010*** [4.271]	0.010*** [4.108]	0.008*** [2.592]
<i>Financial ownership</i>	0.014*** [5.559]	0.013*** [5.534]	0.016*** [4.972]
<i>AST</i>	0.408*** [4.333]	0.399*** [4.031]	0.436*** [3.229]
<i>LEV</i>	0.166 [1.073]	0.197 [1.219]	0.225 [1.157]
<i>Sales growth</i>	0.002*** [4.097]	0.002*** [4.070]	0.001 [1.457]
<i>Adj. R</i> ²	0.964	0.964	0.949
<i>N</i>	10514	9919	5852

Panel E: Effect of mandatory adoption of outside directors on cash holdings

<i>Dependent variable</i>	<i>Cash holding</i> _{<i>t</i>+1}		
	Mandatory adopters		
	vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	0.510** [1.975]	0.483* [1.845]	0.989*** [3.223]
<i>Director ownership</i>	0.007 [0.349]	0.007 [0.310]	-0.027 [-1.246]
<i>Foreign ownership</i>	0.013 [0.538]	0.007 [0.312]	0.020 [0.562]
<i>Financial ownership</i>	-0.019 [-0.791]	-0.023 [-0.946]	-0.014 [-0.380]
<i>AST</i>	-0.565 [-0.717]	-0.578 [-0.699]	-0.046 [-0.040]
<i>LEV</i>	-8.205*** [-3.888]	-8.768*** [-3.996]	-4.015 [-1.332]
<i>Sales growth</i>	0.006 [0.854]	0.004 [0.589]	-0.008 [-0.899]
<i>Adj. R</i> ²	0.897	0.897	0.894
<i>N</i>	10514	9919	5852

Panel F: Effect of mandatory adoption of outside directors on payouts

<i>Dependent variable</i>	<i>Payout</i> _{<i>t</i>+1}		
	Mandatory adopters		
	vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	-0.044** [-2.108]	-0.056*** [-2.614]	0.004 [0.155]
<i>Director ownership</i>	0.000 [-0.225]	0.000 [0.053]	-0.004** [-2.169]
<i>Foreign ownership</i>	0.009*** [3.474]	0.009*** [3.311]	0.014*** [4.220]
<i>Financial ownership</i>	0.013*** [5.072]	0.013*** [5.000]	0.013*** [3.808]
<i>AST</i>	0.175** [2.008]	0.177* [1.947]	0.052 [0.623]
<i>LEV</i>	-1.219*** [-6.236]	-1.256*** [-6.053]	-0.883*** [-4.968]
<i>Sales growth</i>	0.003*** [5.383]	0.003*** [5.244]	0.002*** [3.412]
<i>Adj. R</i> ²	0.818	0.817	0.797
<i>N</i>	10514	9919	5852

Panel G: Effect of mandatory adoption of outside directors on Earnings quality

<i>Dependent variable</i>	<i>Abnormal accrual</i> _{<i>t</i>+1}		
	Mandatory adopters		
	vs. others (1)	vs. voluntary adopters (2)	vs. control firms (3)
<i>Mandatory</i> × <i>Post</i>	-0.070 [-0.801]	-0.073 [-0.819]	-0.085 [-0.826]
<i>Director ownership</i>	0.004 [0.524]	0.008 [1.063]	-0.008 [-0.839]
<i>Foreign ownership</i>	0.019* [1.705]	0.018 [1.581]	0.022 [1.310]
<i>Financial ownership</i>	0.017 [1.546]	0.019* [1.647]	0.027* [1.876]
<i>AST</i>	-0.793** [-2.219]	-0.897** [-2.388]	-0.466 [-0.759]
<i>LEV</i>	1.355* [1.729]	1.417* [1.732]	0.376 [0.344]
<i>Sales growth</i>	-0.006** [-2.269]	-0.006** [-2.062]	-0.006** [-2.028]
<i>Adj. R</i> ²	0.367	0.369	0.348
<i>N</i>	10514	9919	5852

Panel H: Effect of mandatory adoption of outside directors on CEO turnover

Dependent variable	CEO turnover _{t+1}					
	Mandatory adopters					
	vs. others	vs. voluntary adopters	vs. control firms	vs. others	vs. voluntary adopters	vs. control firms
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Mandatory</i>	0.134	0.113	0.113	0.288*	0.284*	0.186
× <i>Post</i>	[1.026]	[0.857]	[0.721]	[1.825]	[1.774]	[1.005]
<i>Mandatory</i>				-0.022	-0.025	-0.008
× <i>Post</i> × <i>ROE</i>				[-1.439]	[-1.578]	[-0.424]
<i>Mandatory</i>	-0.161**	-0.162**	-0.171*	-0.229**	-0.235**	-0.249**
	[-2.086]	[-2.056]	[-1.883]	[-2.520]	[-2.528]	[-2.253]
<i>Mandatory</i>				0.011	0.012	0.013
× <i>ROE</i>				[1.322]	[1.371]	[1.226]
<i>Post</i> × <i>ROE</i>				0.004	0.006	-0.013
				[0.565]	[0.879]	[-1.187]
<i>ROE</i>				-0.017***	-0.018***	-0.016**
				[-4.080]	[-4.040]	[-2.033]
<i>Director ownership</i>	-0.003	-0.002	-0.003	-0.002	-0.001	-0.003
	[-0.917]	[-0.523]	[-0.733]	[-0.583]	[-0.223]	[-0.644]
<i>Foreign ownership</i>	0.002	0.002	-0.002	0.003	0.003	-0.001
	[0.458]	[0.559]	[-0.419]	[0.85]	[0.945]	[-0.208]
<i>Financial ownership</i>	-0.011***	-0.010***	-0.015***	-0.010***	-0.010***	-0.014***
	[-3.686]	[-3.396]	[-3.414]	[-3.568]	[-3.286]	[-3.375]
<i>AST</i>	0.072**	0.061**	0.100**	0.077***	0.064**	0.100**
	[2.556]	[2.117]	[2.264]	[2.739]	[2.262]	[2.323]
<i>LEV</i>	0.460***	0.505***	0.450**	0.549***	0.594***	0.528***
	[3.140]	[3.345]	[2.279]	[3.747]	[3.930]	[2.703]
<i>Sales growth</i>	-0.003	-0.003	-0.007*	-0.001	-0.001	-0.005
	[-1.105]	[-1.009]	[-1.903]	[-0.249]	[-0.234]	[-1.401]
<i>Pseudo R</i> ²	0.009	0.009	0.014	0.013	0.013	0.018
<i>N</i>	10505	9910	5846	10505	9910	5846

This table reports the effect of mandatory outside director adoption on profitability, firm value, the agency costs of free cash flow, and corporate governance. Column (1) combines mandatory adopters with voluntary adopters and non-adopters. Column (2) combines mandatory adopters with voluntary adopters. Column (3) combines mandatory adopters with control firms selected from voluntary adopters and non-adopters using nearest neighbor propensity score matching without replacement. Panels A to G report the results of the OLS regression in Equation (1). Panel H reports the results of the logistic regression in Equation (1). *Mandatory* is an indicator variable that takes the value of one for a firm that first adopted outside directors between June 2014 and May 2015. *Post* is an indicator variable that takes the value of one for the years after June 2014. In Panel A to G, each regression includes year and firm dummies and numbers in square brackets are *t*-statistics based on robust standard errors clustered at the firm level. In Panel H, each regression includes year and industry dummies and numbers in square brackets are *z*-statistics based on robust standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

adoption on earnings quality. Panel G shows that the coefficients of *Mandatory*×*Post* are not significant. These results suggest that mandatory adoption of outside directors does not significantly improve earnings quality. Panel H in Table 4 presents the effect of mandatory outside director adoption on board governance. Panel H reports the logistic regression results and shows that the coefficients of *Mandatory*×*Post* are positive but not significant in columns (1) to (3). Columns (4) to (6) investigate the effect of mandatory outside director adoption on CEO turnover-performance sensitivity and show the coefficients of *Mandatory*×*Post*×*ROE* are negative but not significant. These results suggest that mandatory adoption of outside directors does not significantly improve CEO turnover and CEO turnover performance sensitivity.

These results suggest that outside director adoption improves profitability but worsens the agency costs of free cash flow and does not enhance earnings quality and corporate CEO turnover; therefore, mandatory adoption of outside directors does not raise firm value. The results also imply that outside directors tend to work on advising management on management issues rather than monitoring management in Japan. This is consistent with Aronson (2015) pointing out that the function of Japanese director boards is more likely to solve management issues than to monitor top managements.

5.2 Effect of independent and affiliated outside director adoption on firm performance and corporate governance

Table 5 presents the results that distinguish between the effects of independent and affiliated outside director adoption on firm performance and corporate governance. Panels A and B in Table 5 report the effects of independent and affiliated outside director adoption on profitability. The coefficients of *Mandatory with independent*×*Post* are positive and significant in all columns whereas the coefficients *Mandatory with affiliated*×*Post* are positive but not significant. The coefficients *Mandatory with affiliated*×*Post* are also not significant when I compare mandatory adopters with control firms using other criteria, as mentioned in footnote 11. These results indicate that independent outside director adoption leads to significant improvements in the profitability of mandatory adopters after the revision of the Companies Act. On the other hand, affiliated outside director adoption does not enhance profitability. However, the F-statistics do not reject the hypothesis that the effects of the adoption of independent and affiliated directors are equal, which suggests that the impact of independent outside director adoption on profitability is more or less significant than that of affiliated outside director adoption.

Panels C and D in Table 5 present the effects of independent and affiliated outside director adoption on firm value. Panel C shows that the coefficients of *Mandatory with independent*×*Post* are not significant, whereas the coefficients of *Mandatory with affiliated*×

Post are negative and significant. The coefficients of *Mandatory with affiliated*×*Post* are also negative and significant when I compare mandatory adopters with control firms using other criteria, as mentioned in Footnote 11. These results suggest that mandatory adopters that appoint affiliated outside directors experience significant decreases in *Tobin's q*. However, Panel D shows that the coefficients of *Mandatory with independent*×*Post* and *Mandatory with affiliated*×*Post* are not significant. The F-statistics also suggest that the effect of independent outside director adoption on firm value is not significantly different from that of affiliated outside director adoption in both Panels C and D. These results suggest that mandatory adoption of outside directors does not significantly promote firm value, even when mandatory adopters appoint independent outside directors.

Panels E and F in Table 5 report the effects of independent and affiliated outside director adoption on the agency costs of free cash flow. Panel E shows that the coefficients of *Mandatory with independent*×*Post* are positive and significant in all columns and *Mandatory with affiliated*×*Post* are positive and significant in column (3), which indicates that mandatory adopters experience significant increases in cash holdings relative to control firms when they appoint independent outside directors or affiliated outside directors. Moreover, the F-statistics suggest that the effect of independent outside director adoption on cash holdings is not significantly different than that of affiliated outside director adoption. Panel F shows that the coefficients of *Mandatory with affiliated*×*Post* are negative and significant in columns (1) and (2); however, the coefficients of *Mandatory with independent*×*Post* are not significant. The coefficients of *Mandatory with affiliated*×*Post* are also negative and significant when I compare mandatory adopters with control firms using other criteria, as mentioned in footnote 11. These findings indicate that mandatory adopters that appoint affiliated outside directors experience significant decreases in payouts to shareholders. The F-statistics also indicate that the effect of independent outside director adoption on payouts is significantly different from that of affiliated outside director adoption on payouts for shareholders. These results imply that independent outside directors increase cash holdings through improvements in profitability, whereas affiliated outside directors increase cash holdings through decreases in payouts. Thus, these results imply that the adoption of affiliated outside directors is more likely to worsen agency cost of free cash flow than that of independent outside directors.

Panels G and H in Table 5 report the effects of independent and affiliated outside director adoption on corporate governance. Panel G in Table 5 presents the effect of independent and affiliated outside director adoption on earnings quality. Panel G shows that the coefficients of *Mandatory with independent*×*Post* are not significant, and that the coefficients of *Mandatory with affiliated*×*Post* are negative but not slightly significant. The F-statistics suggest that the effect of independent outside director adoption on earnings

Table 5. Effect of independent and affiliated outside director adoption

Panel A: Effect of independent and affiliated outside director adoption on ROE				
<i>Dependent variable:</i>		<i>ROE_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	1.085*** [2.631]	1.113*** [2.674]	1.195*** [2.595]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_2	0.557 [1.286]	0.587 [1.341]	0.630 [1.330]
<i>Director ownership</i>		0.038 [1.524]	0.054** [2.015]	0.018 [0.677]
<i>Foreign ownership</i>		0.151*** [3.077]	0.159*** [3.159]	0.062 [1.139]
<i>Financial ownership</i>		0.175*** [4.305]	0.173*** [4.181]	0.207*** [3.483]
<i>AST</i>		-12.654*** [-7.309]	-12.483*** [-6.924]	-13.362*** [-5.466]
<i>LEV</i>		41.471*** [10.448]	41.823*** [10.300]	42.011*** [7.403]
<i>Sales growth</i>		0.044*** [3.850]	0.039*** [3.289]	0.039*** [2.666]
<i>Adj. R²</i>		0.461	0.457	0.455
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		0.788	0.782	0.898
<i>N</i>		10514	9919	5852
Panel B: Effect of independent and affiliated outside director adoption on ROA				
<i>Dependent variable</i>		<i>ROA_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	0.424*** [2.756]	0.433*** [2.785]	0.424** [2.472]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_2	0.123 [0.697]	0.132 [0.744]	0.110 [0.588]
<i>Director ownership</i>		0.018 [1.369]	0.024* [1.680]	0.006 [0.442]
<i>Foreign ownership</i>		0.066*** [3.090]	0.068*** [3.093]	0.024 [1.040]
<i>Financial ownership</i>		0.097*** [6.184]	0.095*** [5.947]	0.118*** [5.428]
<i>AST</i>		-4.895*** [-8.470]	-5.007*** [-8.234]	-4.978*** [-6.570]
<i>LEV</i>		1.773 [1.335]	1.666 [1.211]	2.793 [1.541]
<i>Sales growth</i>		0.038*** [8.931]	0.038*** [8.443]	0.029*** [5.751]
<i>Adj. R²</i>		0.740	0.738	0.745
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		1.634	1.629	1.769
<i>N</i>		10514	9919	5852

Panel C: Effect of independent and affiliated outside director adoption on Tobin's q

Dependent variable	Tobin's q_{t+1}	Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × Post	γ_1	-0.037 [-1.141]	-0.031 [-0.960]	-0.040 [-1.113]
<i>Mandatory with affiliated</i> × Post	γ_2	-0.083*** [-2.727]	-0.078** [-2.541]	-0.088** [-2.545]
<i>Director ownership</i>		-0.001 [-0.477]	0.000 [-0.061]	-0.003 [-0.943]
<i>Foreign ownership</i>		0.017*** [4.194]	0.016*** [3.994]	0.016*** [3.140]
<i>Financial ownership</i>		0.017*** [4.157]	0.015*** [4.110]	0.020*** [3.827]
<i>AST</i>		-0.280** [-2.090]	-0.314** [-2.353]	-0.164 [-0.874]
<i>LEV</i>		2.611*** [7.420]	2.540*** [7.166]	2.604*** [5.213]
<i>Sales growth</i>		0.002** [2.283]	0.002** [2.454]	0.000 [0.422]
<i>Adj. R²</i>		0.772	0.766	0.761
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		1.246	1.263	1.329
<i>N</i>		10514	9919	5852

Panel D: Effect of independent and affiliated outside director adoption on MV

Dependent variable	MV_{t+1}	Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × Post	γ_1	0.008 [0.432]	0.010 [0.539]	0.013 [0.616]
<i>Mandatory with affiliated</i> × Post	γ_2	-0.032 [-1.549]	-0.030 [-1.435]	-0.028 [-1.269]
<i>Director ownership</i>		0.004** [1.980]	0.004** [2.104]	0.003 [1.445]
<i>Foreign ownership</i>		0.010*** [4.263]	0.010*** [4.101]	0.008** [2.570]
<i>Financial ownership</i>		0.014*** [5.565]	0.013*** [5.542]	0.016*** [4.986]
<i>AST</i>		0.408*** [4.342]	0.399*** [4.039]	0.437*** [3.237]
<i>LEV</i>		0.165 [1.062]	0.195 [1.208]	0.221 [1.137]
<i>Sales growth</i>		0.002*** [4.097]	0.002*** [4.070]	0.001 [1.456]
<i>Adj. R²</i>		0.964	0.964	0.949
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		2.057	2.027	2.210
<i>N</i>		10514	9919	5852

Panel E: Effect of independent and affiliated outside director adoption on cash holdings

<i>Dependent variable</i>		<i>Cash holding_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	0.570*	0.548*	0.970***
		[1.838]	[1.758]	[2.858]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_2	0.357	0.334	0.726**
		[1.100]	[1.025]	[2.086]
<i>Director ownership</i>		0.006	0.006	-0.028
		[0.340]	[0.302]	[-1.274]
<i>Foreign ownership</i>		0.013	0.007	0.019
		[0.539]	[0.314]	[0.554]
<i>Financial ownership</i>		-0.019	-0.023	-0.013
		[-0.778]	[-0.934]	[-0.347]
<i>AST</i>		-0.574	-0.586	-0.090
		[-0.729]	[-0.709]	[-0.080]
<i>LEV</i>		-8.201***	-8.764***	-4.010
		[-3.891]	[-3.999]	[-1.334]
<i>Sales growth</i>		0.006	0.004	-0.008
		[0.855]	[0.589]	[-0.897]
<i>Adj. R²</i>		0.897	0.897	0.894
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		0.227	0.230	0.302
<i>N</i>		10514	9919	5852

Panel F: Effect of independent and affiliated outside director adoption on payouts

<i>Dependent variable</i>		<i>Payout_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	-0.012	-0.023	0.030
		[-0.510]	[-0.919]	[1.141]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_2	-0.066***	-0.076***	-0.027
		[-2.912]	[-3.266]	[-1.093]
<i>Director ownership</i>		0.000	0.000	-0.004**
		[-0.218]	[0.064]	[-2.185]
<i>Foreign ownership</i>		0.009***	0.009***	0.013***
		[3.473]	[3.313]	[4.189]
<i>Financial ownership</i>		0.013***	0.013***	0.013***
		[5.085]	[5.011]	[3.844]
<i>AST</i>		0.177**	0.180**	0.052
		[2.029]	[1.973]	[0.630]
<i>LEV</i>		-1.221***	-1.258***	-0.887***
		[-6.241]	[-6.057]	[-4.978]
<i>Sales growth</i>		0.003***	0.003***	0.002***
		[5.377]	[5.236]	[3.412]
<i>Adj. R²</i>		0.818	0.817	0.797
<i>F-statistic for testing the hypothesis that γ_1 and γ_2 are equal</i>		2.761*	2.660	3.046*
<i>N</i>		10514	9919	5852

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Panel G: Effect of independent and affiliated outside director adoption on earnings quality

<i>Dependent variable</i>		<i>Abnormal accruals</i> $t+1$		
		Mandatory adopters		vs. control firms
		vs. others	vs. voluntary adopters	
		(1)	(2)	(3)
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	0.006 [0.067]	0.004 [0.039]	-0.006 [-0.054]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_2	-0.182 [-1.486]	-0.184 [-1.494]	-0.200 [-1.550]
<i>Director ownership</i>		0.004 [0.523]	0.008 [1.064]	-0.008 [-0.846]
<i>Foreign ownership</i>		0.019* [1.694]	0.018 [1.570]	0.021 [1.289]
<i>Financial ownership</i>		0.017 [1.551]	0.019* [1.652]	0.027* [1.884]
<i>AST</i>		-0.791** [-2.220]	-0.895** [-2.389]	-0.460 [-0.752]
<i>LEV</i>		1.344* [1.715]	1.406* [1.718]	0.351 [0.320]
<i>Sales growth</i>		-0.006** [-2.272]	-0.006** [-2.064]	-0.006** [-2.034]
<i>Adj. R</i> ²		0.367	0.369	0.349
<i>F</i> -statistic for testing the hypothesis that γ_1 and γ_2 are equal		1.488	1.474	1.584
<i>N</i>		10514	9919	5852

Panel H: Effect of independent and affiliated outside director adoption on CEO turnover

Dependent variable	CEO turnover _{t+1}						
	Mandatory adopters						
	vs. others	vs. voluntary adopters	vs. control firms	vs. others	vs. voluntary adopters	vs. control firms	
	(1)	(2)	(3)	(4)	(5)	(6)	
<i>Mandatory with independent</i> × <i>Post</i>	γ_1	0.254* [1.880]	0.238* [1.750]	0.243 [1.604]	0.338** [2.066]	0.336** [2.039]	0.242 [1.329]
<i>Mandatory with independent</i> × <i>Post</i> × <i>ROE</i>	γ_2				-0.009 [-0.555]	-0.011 [-0.679]	0.007 [0.391]
<i>Mandatory with affiliated</i> × <i>Post</i>	γ_3	-0.118 [-0.749]	-0.134 [-0.845]	-0.139 [-0.818]	0.096 [0.478]	0.092 [0.455]	-0.001 [-0.007]
<i>Mandatory with affiliated</i> × <i>Post</i> × <i>ROE</i>	γ_4				-0.031 [-1.390]	-0.033 [-1.450]	-0.018 [-0.803]
<i>Mandatory with independent</i>		-0.150** [-1.996]	-0.150** [-1.970]	-0.151* [-1.754]	-0.197** [-2.259]	-0.202** [-2.268]	-0.204* [-1.922]
<i>Mandatory with independent</i> × <i>ROE</i>					0.006 [0.737]	0.006 [0.781]	0.007 [0.705]
<i>Mandatory with affiliated</i>		0.053 [0.310]	0.053 [0.309]	0.033 [0.184]	-0.129 [-0.498]	-0.132 [-0.505]	-0.146 [-0.538]
<i>Mandatory with affiliated</i> × <i>ROE</i>					0.027 [1.424]	0.027 [1.439]	0.026 [1.348]
<i>Post</i> × <i>ROE</i>					0.002 [0.36]	0.004 [0.661]	-0.017 [-1.506]
<i>ROE</i>					-0.016*** [-3.923]	-0.017*** [-3.870]	-0.015* [-1.816]
<i>Director ownership</i>		-0.003 [-0.897]	-0.002 [-0.510]	-0.003 [-0.694]	-0.002 [-0.54]	-0.001 [-0.186]	-0.003 [-0.583]
<i>Foreign ownership</i>		0.002 [0.500]	0.002 [0.606]	-0.002 [-0.431]	0.003 [0.886]	0.003 [0.987]	-0.001 [-0.243]
<i>Financial ownership</i>		-0.011*** [-3.639]	-0.010*** [-3.345]	-0.014*** [-3.335]	-0.010*** [-3.532]	-0.010*** [-3.243]	-0.014*** [-3.321]
<i>AST</i>		0.071** [2.538]	0.061** [2.107]	0.097** [2.210]	0.076*** [2.730]	0.064** [2.260]	0.099** [2.288]
<i>LEV</i>		0.453*** [3.091]	0.498*** [3.290]	0.441** [2.225]	0.537*** [3.641]	0.580*** [3.814]	0.506** [2.560]
<i>Sales growth</i>		-0.003 [-1.113]	-0.003 [-1.018]	-0.007* [-1.921]	-0.001 [-0.252]	-0.001 [-0.237]	-0.005 [-1.393]
<i>Pseudo R</i> ²		0.010	0.010	0.014	0.013	0.013	0.019
<i>F</i> -statistic for testing the hypothesis that γ_1 and γ_3 are equal		3.462*	3.476*	3.573*	1.021	1.043	1.059
<i>F</i> -statistic for testing the hypothesis that γ_2 and γ_4 are equal					0.842	0.812	1.095
<i>N</i>		10505	9910	5846	10505	9910	5846

This table reports the effect of independent and affiliated outside director adoption on profitability, firm value, the agency costs of free cash flow, and corporate governance. Column (1) combines mandatory adopters with voluntary adopters and non-adopters. Column (2) combines mandatory adopters with voluntary adopters. Column (3) combines mandatory adopters with control firms selected from voluntary adopters and non-adopters using nearest neighbor propensity score matching without replacement. Panels A to G report the results of the OLS regression in Equation (2). Panel H reports the results of the logistic regression in Equation (2). *Mandatory with independent* is an indicator variable that equals one for a mandatory adopter that appointed independent outside directors. *Mandatory with affiliated* is an indicator variable that equals one for a mandatory adopter that appointed affiliated outside directors. *Post* is an indicator variable that takes the value of one for the years after June 2014. In Panel A to G, each regression includes year and firm dummies and numbers in square brackets are *t*-statistics based on robust standard errors clustered at the firm level. In Panel H, each regression includes year and industry dummies and numbers in square brackets are *z*-statistics based on robust standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

quality is not significantly different from that of affiliated outside director adoption. Panel H in Table 5 shows the effects of independent director adoption and affiliated director adoption on board governance. In Columns (1) to (3), the coefficients of *Mandatory with independent* \times *Post* are positive and significant, whereas the coefficients of *Mandatory with affiliated* \times *Post* are not significant. The F-statistics also suggest that the effect of independent outside director adoption on CEO turnover is significantly different from that of affiliated outside director adoption. These results indicate that independent outside director adoption improves CEO turnover. In addition, I investigate the effects of independent director adoption and affiliated director adoption on the CEO turnover-performance sensitivity. In Columns (4) to (6), the coefficients of *Mandatory with independent* \times *Post* \times *ROE* and *Mandatory with affiliated* \times *Post* \times *ROE* are not significant. I do not find that independent and affiliated outside directors significantly improve CEO turnover performance sensitivity.

These results suggest that the adoption of independent outside directors enhances profitability, whereas it does not improve agency costs of free cash flow and corporate governance, and therefore, does not affect firm value. These results also suggest that the adoption of affiliated outside directors does not significantly improve profitability and corporate governance, but worsens agency costs of free cash flow by increasing in cash holdings through decreasing in payouts; therefore, it declines *Tobin's q*. However, I find no clear evidence that the effect of independent outside director adoption on firm performance and corporate governance is more or less influential than that of affiliated outside director adoption.

There are plausible explanations that the adoption of independent outside directors will not be more influential than the adoption of affiliate outside directors in Japan. First, as two-thirds of mandatory adopters appointed at least an independent outside director in my sample, their quality may be insufficient to mitigate the conflict between managers and shareholders and discipline internal managers. This is because more than 600 listed firms appointed at least one outside director in the 11 months between the revision of the Companies Act and its implementation. Second, Aronson (2015) points out that a Japanese board is more likely to focus on management issues instead of monitoring. The adoption of outside directors would improve profitability but not significantly change corporate governance in Japan even when firms appoint independent outside directors.

5.3 Effect of multiple and single outside director adoption on firm performance and corporate governance

Table 6 presents the results that distinguish between the effects of multiple and single outside director adoption on firm performance and corporate governance. Panels A and B report the effects of multiple and single outside director adoption on profitability. Panel A

Table 6. Effect of multiple and single outside director adoption

Panel A: Effect of multiple and single outside director adoption on ROE				
<i>Dependent variable</i>		<i>ROE_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with multiple</i> × <i>Post</i>	δ_1	1.371** [2.549]	1.410*** [2.598]	1.494** [2.521]
<i>Mandatory with single</i> × <i>Post</i>	δ_2	0.784* [1.944]	0.820** [2.006]	0.896* [1.915]
<i>Director ownership</i>		0.038 [1.548]	0.054** [2.041]	0.019 [0.717]
<i>Foreign ownership</i>		0.152*** [3.086]	0.160*** [3.169]	0.063 [1.159]
<i>Financial ownership</i>		0.174*** [4.286]	0.173*** [4.162]	0.205*** [3.454]
<i>AST</i>		-12.646*** [-7.303]	-12.473*** [-6.917]	-13.346*** [-5.463]
<i>LEV</i>		41.508*** [10.454]	41.864*** [10.307]	42.102*** [7.414]
<i>Sales growth</i>		0.044*** [3.847]	0.039*** [3.286]	0.039*** [2.66]
<i>Adj. R²</i>		0.461	0.457	0.455
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.926	0.932	0.950
<i>N</i>		10514	9919	5852
Panel B: Effect of multiple and single outside director adoption on ROA				
<i>Dependent variable</i>		<i>ROA_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with multiple</i> × <i>Post</i>	δ_1	0.395** [1.995]	0.407** [2.041]	0.375* [1.718]
<i>Mandatory with single</i> × <i>Post</i>	δ_2	0.266* [1.665]	0.275* [1.699]	0.241 [1.317]
<i>Director ownership</i>		0.018 [1.381]	0.024* [1.693]	0.006 [0.463]
<i>Foreign ownership</i>		0.066*** [3.092]	0.068*** [3.095]	0.025 [1.068]
<i>Financial ownership</i>		0.097*** [6.158]	0.095*** [5.922]	0.118*** [5.383]
<i>AST</i>		-4.895*** [-8.466]	-5.007*** [-8.230]	-4.977*** [-6.570]
<i>LEV</i>		1.782 [1.341]	1.676 [1.218]	2.812 [1.551]
<i>Sales growth</i>		0.038*** [8.925]	0.038*** [8.437]	0.029*** [5.739]
<i>Adj. R²</i>		0.740	0.738	0.744
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.325	0.339	0.343
<i>N</i>		10514	9919	5852

Panel C: Effect of multiple and single outside director adoption on Tobin's q

<i>Dependent variable</i>	<i>Tobin's q_{t+1}</i>	<i>Mandatory adopters</i>		
		<i>vs. others</i>	<i>vs. voluntary adopters</i>	<i>vs. control firms</i>
		(1)	(2)	(3)
<i>Mandatory with multiple</i> \times <i>Post</i>	δ_1	-0.077* [-1.880]	-0.070* [-1.698]	-0.080* [-1.778]
<i>Mandatory with single</i> \times <i>Post</i>	δ_2	-0.043 [-1.421]	-0.037 [-1.195]	-0.044 [-1.264]
<i>Director ownership</i>		-0.001 [-0.481]	0.000 [-0.063]	-0.003 [-0.949]
<i>Foreign ownership</i>		0.017*** [4.203]	0.016*** [4.004]	0.016*** [3.151]
<i>Financial ownership</i>		0.017*** [4.158]	0.015*** [4.111]	0.020*** [3.829]
<i>AST</i>		-0.280** [-2.089]	-0.314** [-2.350]	-0.166 [-0.879]
<i>LEV</i>		2.613*** [7.426]	2.543*** [7.172]	2.610*** [5.226]
<i>Sales growth</i>		0.002** [2.286]	0.002** [2.456]	0.000 [0.430]
<i>Adj. R²</i>		0.772	0.766	0.761
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.772	0.766	0.761
<i>N</i>		10514	9919	5852

Panel D: Effect of multiple and single outside director adoption on MV

<i>Dependent variable</i>	<i>MV_{t+1}</i>	<i>Mandatory adopters</i>		
		<i>vs. others</i>	<i>vs. voluntary adopters</i>	<i>vs. control firms</i>
		(1)	(2)	(3)
<i>Mandatory with multiple</i> \times <i>Post</i>	δ_1	-0.004 [-0.167]	-0.001 [-0.052]	0.001 [0.027]
<i>Mandatory with single</i> \times <i>Post</i>	δ_2	-0.013 [-0.745]	-0.011 [-0.607]	-0.009 [-0.397]
<i>Director ownership</i>		0.004** [1.983]	0.004** [2.108]	0.003 [1.452]
<i>Foreign ownership</i>		0.010*** [4.272]	0.010*** [4.109]	0.008*** [2.595]
<i>Financial ownership</i>		0.014*** [5.558]	0.013*** [5.534]	0.016*** [4.971]
<i>AST</i>		0.407*** [4.330]	0.399*** [4.027]	0.435*** [3.225]
<i>LEV</i>		0.167 [1.076]	0.197 [1.222]	0.226 [1.163]
<i>Sales growth</i>		0.002*** [4.096]	0.002*** [4.068]	0.001 [1.456]
<i>Adj. R²</i>		0.964	0.964	0.949
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.119	0.13	0.117
<i>N</i>		10514	9919	5852

Panel E: Effect of multiple and single outside director adoption on cash holdings

<i>Dependent variable</i>		<i>Cash holding_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with multiple</i> × <i>Post</i>	δ_1	0.581 [1.601]	0.553 [1.514]	1.062*** [2.671]
<i>Mandatory with single</i> × <i>Post</i>	δ_2	0.473 [1.511]	0.445 [1.412]	0.951*** [2.688]
<i>Director ownership</i>		0.007 [0.350]	0.007 [0.311]	-0.027 [-1.243]
<i>Foreign ownership</i>		0.013 [0.539]	0.007 [0.313]	0.020 [0.563]
<i>Financial ownership</i>		-0.019 [-0.791]	-0.023 [-0.947]	-0.014 [-0.381]
<i>AST</i>		-0.567 [-0.720]	-0.581 [-0.703]	-0.051 [-0.045]
<i>LEV</i>		-8.200*** [-3.887]	-8.763*** [-3.995]	-4.003 [-1.329]
<i>Sales growth</i>		0.006 [0.854]	0.004 [0.588]	-0.008 [-0.900]
<i>Adj. R²</i>		0.897	0.897	0.894
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.063	0.062	0.066
<i>N</i>		10514	9919	5852

Panel F: Effect of multiple and single outside director adoption on payouts

<i>Dependent variable</i>		<i>Payout_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with multiple</i> × <i>Post</i>	δ_1	-0.033 [-1.098]	-0.045 [-1.486]	0.017 [0.525]
<i>Mandatory with single</i> × <i>Post</i>	δ_2	-0.050** [-2.081]	-0.062** [-2.529]	-0.003 [-0.117]
<i>Director ownership</i>		0.000 [-0.223]	0.000 [0.055]	-0.004** [-2.168]
<i>Foreign ownership</i>		0.009*** [3.475]	0.009*** [3.312]	0.014*** [4.222]
<i>Financial ownership</i>		0.013*** [5.071]	0.013*** [4.999]	0.013*** [3.805]
<i>AST</i>		0.175** [2.001]	0.177* [1.940]	0.051 [0.609]
<i>LEV</i>		-1.218*** [-6.228]	-1.255*** [-6.044]	-0.881*** [-4.945]
<i>Sales growth</i>		0.003*** [5.383]	0.003*** [5.244]	0.002*** [3.414]
<i>Adj. R₂</i>		0.818	0.817	0.797
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		0.269	0.267	0.363
<i>N</i>		10514	9919	5852

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Panel G: Effect of multiple and single outside director adoption on earnings quality

<i>Dependent variable</i>		<i>Abnormal accruals_{t+1}</i>		
		Mandatory adopters		
		vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)
<i>Mandatory with multiple</i> × <i>Post</i>	δ_1	-0.176 [-1.421]	-0.178 [-1.420]	-0.200 [-1.460]
<i>Mandatory with single</i> × <i>Post</i>	δ_2	-0.013 [-0.130]	-0.017 [-0.164]	-0.025 [-0.214]
<i>Director ownership</i>		0.004 [0.521]	0.008 [1.061]	-0.008 [-0.849]
<i>Foreign ownership</i>		0.019* [1.703]	0.018 [1.578]	0.022 [1.305]
<i>Financial ownership</i>		0.017 [1.547]	0.019* [1.649]	0.027* [1.878]
<i>AST</i>		-0.789** [-2.214]	-0.893** [-2.383]	-0.458 [-0.747]
<i>LEV</i>		1.347* [1.72]	1.409* [1.723]	0.357 [0.326]
<i>Sales growth</i>		-0.006** [-2.267]	-0.006** [-2.060]	-0.006** [-2.024]
<i>Adj. R²</i>		0.367	0.369	0.348
<i>F-statistic for testing the hypothesis that δ_1 and δ_2 are equal</i>		1.318	1.279	1.513
<i>N</i>		10514	9919	5852

Panel H: Effect of multiple and single outside director adoption on CEO turnover

<i>Dependent variable</i>		<i>CEO turnover_{t+1}</i>					
		Mandatory adopters					
		vs. others	vs. voluntary adopters	vs. control firms	vs. others	vs. voluntary adopters	vs. control firms
		(1)	(2)	(3)	(4)	(5)	(6)
<i>Mandatory with multiple</i>	δ_1	0.034	0.013	0.012	0.338	0.334	0.226
<i>× Post</i>		[0.171]	[0.068]	[0.058]	[1.372]	[1.349]	[0.852]
<i>Mandatory with multiple</i>	δ_2				-0.045*	-0.047*	-0.029
<i>× Post × ROE</i>					[-1.693]	[-1.780]	[-1.027]
<i>Mandatory with single</i>	δ_3	0.184	0.163	0.163	0.279	0.274	0.180
<i>× Post</i>		[1.184]	[1.039]	[0.913]	[1.492]	[1.454]	[0.854]
<i>Mandatory with single</i>	δ_4				-0.014	-0.016	0.001
<i>× Post × ROE</i>					[-0.731]	[-0.853]	[0.033]
<i>Mandatory with multiple</i>		-0.182	-0.185	-0.186	-0.257*	-0.264*	-0.273*
		[-1.494]	[-1.503]	[-1.414]	[-1.805]	[-1.841]	[-1.746]
<i>Mandatory with multiple × ROE</i>					0.012	0.013	0.015
					[1.037]	[1.079]	[1.097]
<i>Mandatory with single</i>		-0.149*	-0.149	-0.164	-0.214**	-0.219**	-0.236*
		[-1.668]	[-1.638]	[-1.604]	[-2.018]	[-2.028]	[-1.910]
<i>Mandatory with single × ROE</i>					0.011	0.011	0.013
					[1.008]	[1.051]	[0.990]
<i>Post × ROE</i>					0.004	0.006	-0.013
					[0.565]	[0.878]	[-1.183]
<i>ROE</i>					-0.017***	-0.018***	-0.016**
					[-4.084]	[-4.042]	[-2.038]
<i>Director ownership</i>		-0.003	-0.002	-0.003	-0.002	-0.001	-0.003
		[-0.909]	[-0.515]	[-0.725]	[-0.571]	[-0.211]	[-0.626]
<i>Foreign ownership</i>		0.002	0.002	-0.002	0.003	0.003	-0.001
		[0.467]	[0.569]	[-0.391]	[0.849]	[0.945]	[-0.192]
<i>Financial ownership</i>		-0.011***	-0.010***	-0.015***	-0.010***	-0.010***	-0.014***
		[-3.681]	[-3.389]	[-3.426]	[-3.551]	[-3.267]	[-3.369]
<i>AST</i>		0.072**	0.061**	0.100**	0.077***	0.065**	0.101**
		[2.568]	[2.129]	[2.282]	[2.752]	[2.275]	[2.345]
<i>LEV</i>		0.460***	0.505***	0.452**	0.548***	0.593***	0.528***
		[3.143]	[3.347]	[2.288]	[3.739]	[3.921]	[2.698]
<i>Sales growth</i>		-0.003	-0.003	-0.007*	-0.001	-0.001	-0.005
		[-1.107]	[-1.012]	[-1.907]	[-0.237]	[-0.223]	[-1.385]
<i>Pseudo R²</i>		0.009	0.009	0.014	0.013	0.013	0.019
<i>F-statistic for testing the hypothesis that δ_1 and δ_3 are equal</i>		0.417	0.414	0.413	0.041	0.042	0.026
<i>F-statistic for testing the hypothesis that δ_2 and δ_4 are equal</i>		-	-	-	1.011	1.016	0.900
<i>N</i>		10505	9910	5846	10505	9910	5846

This table reports the effect of multiple and single outside director adoption on performance profitability, firm value, the agency costs of free cash flow, and corporate governance. Column (1) combines mandatory adopters with voluntary adopters and non-adopters. Column (2) combines mandatory adopters with voluntary adopters. Column (3) combines mandatory adopters with control firms from voluntary adopters and non-adopters using nearest neighbor propensity score matching without replacement. Panels A to G report the results of the OLS regression in Equation (3). Panel H reports the results of the logistic regression in Equation (3). *Mandatory with multiple* is an indicator variable that equals one for a mandatory adopter that appointed two or more outside directors. *Mandatory with single* is an indicator variable that equals one for a mandatory adopter that appointed an outside director. *Post* is an indicator variable that takes the value of one for the years after June 2014. In Panel A to G, each regression includes year and firm dummies and numbers in square brackets are *t-statistics* based on robust standard errors clustered at the firm level. In Panel H, each regression includes year and industry dummies and numbers in square brackets are *z-statistics* based on robust standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

shows that the coefficients of *Mandatory with multiple×Post* and *Mandatory with single×Post* are positive and significant. Panel B shows that the coefficients of *Mandatory with multiple×Post* are positive and significant, and also that the coefficients of *Mandatory with single×Post* are positive and significant. These results indicate that both mandatory adopters that appointed multiple outside directors and those that appointed a single outside director experience significant increases in profitability after the revision of the Companies Act. Moreover, the F-statistics suggest that the effects of multiple and single outside director adoption on profitability are not significantly different.

Panels C and D in Table 6 report the effects of multiple and single outside director adoption on firm value. The coefficients of *Mandatory with multiple×Post* are negative and slightly significant in Panel C, whereas those are not significant in Panel D. The coefficients of *Mandatory with single×Post* are not significant in Panels C and D. These results indicate that neither multiple outside director adoption nor single outside director adoption significantly affects firm value. Moreover, the F-statistics suggest that the effects of multiple and single outside director adoption on firm value are not significantly different.

Panels E and F in Table 6 show the effects of multiple and single outside director adoption on the agency costs of free cash flow. In Panel E, the coefficients of *Mandatory with multiple×Post* and *Mandatory with single×Post* are positive and significant in column (3) which suggests that both multiple and single outside director adoption increase cash holdings. On the other hand, Panel F shows that the coefficients of *Mandatory with single×Post* are negative and significant in columns (1) and (2). The coefficients of *Mandatory with single×Post* are also negative and significant when I compare mandatory adopters with control firms using other criteria as mentioned in footnote 11. These results indicate that mandatory adopters that appoint a single outside director experience significant decreases in payouts to shareholders. On the other hand, in Panels E and F, the F-statistics suggest that the effects of multiple and single outside director adoption on the agency costs of free cash flow are not significantly different.

Panels G and H in Table 6 show the effects of multiple and single outside director adoption on corporate governance. Panel G in Table 6 presents the effects of multiple and single outside director adoption on earnings quality. In Panel G, the coefficients of *Mandatory with single×Post* and *Mandatory with multiple×Post* are negative but not significant. Panel H in Table 6 reports the effects of multiple and single outside director adoption on *CEO turnover*. In Panel H, I find no significant effect of multiple and single outside director adoption on CEO turnover and no significant difference. Columns (4) and (6) examine the effect of multiple and single outside director adoption on CEO turnover performance sensitivity. Columns (4) and (5) show that the multiple outside director adoption increases CEO turnover performance sensitivity. However, the F-statistics suggest

that the effects of multiple and single outside director adoption on CEO turnover performance sensitivity are not significantly different.

These results suggest that multiple and single outside director adoption improves profitability. On the other hand, single outside director adoption increases the agency costs of free cash flow by decreasing payouts to shareholders. However, I find no clear evidence that the effect of multiple outside director adoption on firm performance and corporate governance is more or less influential than that of single outside director adoption.

6. Conclusion

This study examines whether mandatory adoption of outside directors affects firm performance and corporate governance in Japan. The Japanese Companies Act was revised in June 2014 to reinforce corporate governance mechanisms. In this revised act, Article 327 (2) mandated that listed firms either appoint at least one outside director or disclose the reason for non-adoption at the annual shareholders meeting. Nearly all listed firms in Japan have at least one outside director, although half had no outside directors before 2014. The revision of the Companies Act thus provides a suitable opportunity to investigate the effect of outside director adoption on firm performance and corporate governance.

Outside directors are thought to play a monitoring role and increase firm performance. Conventional wisdom and theoretical research both emphasize that outside directors have the potential to improve corporate governance and increase firm performance. However, while a lot of empirical studies examine the relationship between the proportion of outside directors on the board and firm performance and corporate governance, most do not find evidence to support these theories.

This paper clarifies the effects of outside director adoption in Japan using DID analysis. I find that mandatory adopters experience statistically significant increases in profitability after the revision of the Companies Act relative to voluntary adopters and control firms. Moreover, mandatory adopters see statistically significant increases in cash holdings and significant decreases in payouts after the revision. On the other hand, I find no evidence that mandatory adopters experience a significant change in firm value and corporate governance. These results suggest that the adoption of outside directors improves profitability but worsens agency costs of free cash flow and does not improve corporate governance; therefore, the adoption of outside directors does not raise firm value.

Moreover, this paper examines whether the effect of outside director adoption is related to the independence and the number of outside directors. Mandatory adopters that appoint independent outside directors improve profitability and increase cash holdings. These results suggest that the adoption of independent outside directors improves profitability but does not mitigate agency costs of free cash flow and does not improve corporate governance.

Hence, even independent outside director adoption does not raise firm value. On the other hand, mandatory adopters that appoint affiliated outside directors worsen Tobin's q , increase cash holdings, and decrease payouts to shareholders. These results suggest that affiliated outside director adoptions worsen the agency costs of free cash flow and firm value. Further, mandatory adopters that appointed multiple outside directors and those that appointed a single outside director both experience improvements in profitability, whereas mandatory adopters that appointed a single outside director experience decreases in payouts to shareholders. In addition, the results suggest that the adoption of multiple outside directors and a single director both enhance profitability; however, it does not promote firm value or mitigate the agency problem. I find no clear evidence that the adoption of independent and multiple outside directors is more or less influential on firm performance and corporate governance than that of affiliated and single outside directors.

There are some plausible explanations that outside directors lead to improvements in profitability in Japan, while they fail to enhance corporate governance and firm value. One explanation is that outside directors are more likely to play an important role in advising and solving management issues, as opposed to monitoring. Another explanation is that outside directors may have insufficient attributes to mitigate conflicts between managers and shareholders and discipline internal managers in Japan, as over 600 listed firms appointed at least one outside director simultaneously.

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Appendix**Appendix A****Table A1. Results of the logistic regression for propensity score matching**

<i>Dependent variable</i>	Mandatory
<i>Ln(Board size)_t</i>	1.137*** [6.088]
<i>Director ownership_t</i>	0.010* [1.790]
<i>Financial ownership_t</i>	0.004 [0.570]
<i>Foreign ownership_t</i>	-0.029*** [-3.480]
<i>ROE_t</i>	0.010 [1.314]
<i>MV_t</i>	-0.430 [-1.513]
<i>TQ_t</i>	0.048 [0.320]
<i>ROE_{t-1}</i>	0.000 [0.018]
<i>MV_{t-1}</i>	-0.056 [-0.201]
<i>TQ_{t-1}</i>	-0.076 [-0.381]
<i>AST_t</i>	0.174 [0.905]
<i>LEV_t</i>	-0.663 [-1.386]
<i>Sales growth_t</i>	-0.010* [-1.797]
<i>Pseudo R²</i>	0.100

This table reports the results of the logistic regression for propensity score matching. Using this propensity score matching model, I select control firms from voluntary adopters and non-adopters. *Mandatory* is an indicator variable that takes the value of one for a firm that first adopted outside directors between June 2014 and May 2015. Time t is the March 2015 fiscal year. Robust standard errors are clustered at the firm level, and z -statistics are noted in square brackets. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table A2. Summary Statistics of mandatory adopters and control firms.

	Mandatory adopters		Control firms		(a) – (b)
	Mean	SD	Mean	SD	
	(a)		(b)		
<i>ROE %</i>	6.54	9.38	6.37	9.50	0.17
<i>ROA %</i>	5.19	4.64	5.04	4.78	0.15
<i>TQ</i>	1.02	0.91	1.06	0.99	-0.04*
<i>MV</i>	9.35	1.32	9.30	1.47	0.05
<i>Cash holdings %</i>	20.16	13.05	19.60	13.76	0.56
<i>Payout %</i>	0.87	0.78	0.90	0.84	-0.03
<i>Abnormal accruals %</i>	2.23	2.17	2.29	2.32	-0.05
<i>CEO turnover</i>	0.13	0.33	0.14	0.35	-0.01
<i>Director ownership %</i>	6.85	10.23	6.82	11.50	0.04
<i>Financial ownership %</i>	15.64	10.55	15.62	11.35	0.02
<i>Foreign ownership %</i>	6.08	8.21	6.19	8.62	-0.11
<i>AST</i>	10.28	1.22	10.21	1.43	0.06*
<i>LEV</i>	0.49	0.19	0.49	0.20	0.00
<i>Sales growth %</i>	3.78	12.25	3.80	12.58	-0.02
<i>Bord size</i>	7.61	2.72	7.98	2.96	-0.37***
<i>Number of outside directors</i>	0.64	0.89	1.42	1.13	-0.78***

I identify mandatory adopters as firms that first adopted outside directors between June 2014 and May 2015 and control firms selected from voluntary adopters and non-adopters using nearest neighbor propensity score matching. The means in mandatory adopters are compared with control firms using a two-tailed *t*-test. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

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