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Professionals on Corporate Boards: How do they affect the bottom line?

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Abstract

Licensed professionals, such as accountants and lawyers, play a variety of roles when they sit on corporate boards. This paper sheds light on what role professional-directors play under what circumstances, and its consequences for corporate performance. We develop a two-dimensional framework, enabling us to identify the 'wise counsel' role in relation to the professional-capital dimension, and the 'cop' and 'entrepreneur' roles in relation to the risk-taking dimension. Using a dataset of all publicly quoted companies in Japan during 2004-2015, we demonstrate that the presence of professional-directors increases profitability and corporate value in all sectors, indicative of their 'wise counsel' role. We also show that the presence of professional-directors leads to higher stock return volatility in regulated industries, evidence of their role as 'entrepreneurs'. By contrast, professional-directors lower stock return volatility in less regulated industries, indicative of their role as 'cops'. Our theory and findings on the contingent effects of professional roles on firm performance have implications for corporate governance. They also shed light on a key question in strategic management, that is, the role of professionals as a specific type of resource in explaining performance heterogeneity.

Keywords: Professionals, Lawyers, Accountants, Corporate governance, Board of directors.

JEL Classification: M12, L84, G32, G34

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Comments welcome

INTRODUCTION

In recent decades, firms have been appointing more licensed professionals such as accountants and lawyers on their boards (Litov, Sepe, & Whitehead, 2014; Naiker & Sharma, 2009). But we do not know enough about what roles they play under what circumstances. Indeed, these 'professional-directors' (i.e. professionals on boards) play various roles with tensions between them, acting as gatekeepers ('cops') to reduce malfeasance (Coffee, 2006), as strategic advisors ('counsel') to add value to the firm (Bagley, 2008), or as promoters of creative solutions to new opportunities ('entrepreneurs') thus enhancing the firm's risk appetite (Nelson & Nielsen, 2000).

However, different streams of research have prioritized one role over another. In particular, the monitoring (or gatekeeping) role is emphasized in the corporate governance literature grounded in finance and economics (Adams, Hermalin, & Weisbach, 2010; Shleifer & Vishny, 1997). By contrast, strategy scholars regard professionals as playing a counsel or entrepreneurial function, enhancing competitive advantage (Bagley, 2008; Bagley, 2010; Hillman & Dalziel, 2003). Recent legal scholarship also focuses on the strategic value-adding role of lawyer-directors and lawyer-CEOs (Henderson, Hutton, Jiang, & Pierson, 2017; Litov et al., 2014).

Against this backdrop, the professions literature has not forgotten the multiple roles that professionals play in relation to corporate management (Empson, Muzio, Joseph Broschak, & Hinings, 2015; Nelson & Nielsen, 2000). This paper builds on this insight to develop theory and evidence on contingencies of varied professional roles and their impact on corporate performance. What are the circumstances under which professional-directors are likely to play one role rather than others? And what is the impact of each role on firm performance?

This study addresses these questions by building on, and modifying, the professions literature to apply to the specific situation of professionals on corporate boards. Professional-directors are under-studied in corporate governance literature. Greater attention has been paid to the role of CEOs and board independence (Adams et al., 2010; Johnson, Daily, & Ellstrand, 1996), and treating outside directors as a homogenous group is problematic. Professionals on boards are also under-studied relative to their role as external advisory agents (Coffee, 2006) working at professional service firms (Empson et al., 2015; Greenwood, Hinings, & Brown, 1990) or as in-house functional heads (Morse, Wang, & Wu, 2016). Moreover, given separate scholarship in accounting and law, there is a tendency to focus on lawyers only (Litov et al., 2014) or accountants only (Naiker & Sharma, 2009). This study attempts to combine the two fields to investigate the presence of more than one type of professional-directors.

We develop and test our hypotheses using a panel data of all publicly quoted companies in Japan during 2004-2015. Japan provides an ideal setting for analyzing board effectiveness given dramatic changes in corporate governance practices since the late 1990s. In particular, in contrast to US and UK boards which have had lawyers and accountants since the early twentieth century (Matthews, Anderson, & Edwards, 1998), the appointment of professionals on Japanese boards began for real only since around 2000. This enables us to examine the impact of the first introduction of professional-directors. In Japan. Not withstanding skepticism that their appointment is mere window dressing, we demonstrate that licensed professionals have a material impact on corporate performance under certain circumstances, and therefore constitute an important category of board members, especially outside directors (Miyajima & Ogawa, 2012). Moreover, strategy research on Japanese boards is rare (exceptions are Wiersema and Bird (1993) and Wiersema, Nishimura, and Suzuki (2018)). This is a missed opportunity given that

Japanese top management teams are characterized by behavioral integration (Hambrick, 2005) and shared responsibility (Aoki, Jackson, & Miyajima, 2007; Dore, 1988), the attributes that the upper echelons approach emphasizes.

This study contributes to research on the contingent effects of executive backgrounds on organizational outcomes, by focusing on licensed professionals on corporate boards. Our study provides insights on contributions professionals make to strategic decision-making inside corporations, a neglected topic in the professions literature (Sako, 2013). In particular, we identify professional-director roles along two distinct dimensions, the 'wise counsel' role based on their human and relational capital – what we call *professional capital*, and the 'cop' and 'entrepreneur' roles that result from variation in their *risk-taking* disposition. This study also draws implications for corporate governance generally and board composition specifically (Adams et al., 2010). By clarifying in what ways licensed professionals contribute to board independence and effectiveness, we go beyond the agency role of directors to examine their roles in influencing corporate strategy (Daily, Dalton, & Cannella, 2003; Johnson et al., 1996).

The rest of the paper is structured as follows. The next section develops hypotheses concerning the contingent performance effects of professional-directors as cops, counsel, and entrepreneur. One contingency we examine is government regulation. Next, we justify why Japan provides an appropriate context for this study, present the data and findings, and address the endogeneity problem inherent in studies of this kind (Adams et al., 2010; Hambrick, 2005). We then interpret our findings in light of other evidence, discuss implications, and conclude.

THEORY AND HYPOTHESES

Professionals on Corporate Boards

The central issue in our study is the varied impact of the presence of professional-directors on corporate performance. We begin with reviewing the professions literature to shed light on this question, in order to characterize a variety of roles that professional-directors play as a result of their training, expertise, and ethics.

Licensed professionals such as accountants and lawyers are distinguished by their expert knowledge and code of ethics. Professionals possess expert knowledge in a specific domain which they protect by licenses, excluding those without a license from practicing the profession (Abbott, 1988; Empson et al., 2015; Teece, 2003). At the same time, professionals abide by professional codes of ethics (Dinovitzer, Gunz, & Gunz, 2015), which predispose them to defend specific values of benefit to board effectiveness. For example, accountants and auditors value objectivity and independence in the sense of being free from conflict of interest, and have formal obligations for public disclosure (Coffee, 2006). Lawyers value autonomy, and are similarly suited to act as gatekeepers with respect to corporate management (Coffee, 2006; Morse et al., 2016).

The combination of expertise and ethics distinctive of licensed professionals lead them to play a variety of roles. One typology of such roles as applied to in-house lawyers is 'cops, counsel, or entrepreneurs' (Nelson & Nielsen, 2000). 'Cops' limit their advice to legal mandates, and police business decisions that compromise legal risks. 'Counsel' give legal advice to business managers in order to facilitate wise business decisions. In-house lawyers may also act as 'entrepreneurs' to pursue business opportunities unlocked by innovative use of law. Nelson & Nielsen (2000) consider these roles as behavioral dispositions that the same lawyer adopts as he sees fit. That is, the same lawyer may play different roles in different circumstances. They also regard 'counsel' as the default role

for most inside lawyers, though some are more predisposed to play the 'cop' role or the 'entrepreneur' role.

Building on their insight, this study goes beyond, and modifies, Nelson & Nielsen (2000) in at least three ways. First, the three roles conceived for in-house lawyers will be applied to professionals who sit on corporate boards. While accountants and lawyers have different areas of expertise, they play overlapping and at times similar roles with respect to monitoring the corporations' financial performance and advising in business projects such as M&A deals ("…the world of corporate lawyers probably more closely borders on that of the accountant than that of the litigator/advocate" (Coffee, 2006: 193)). Being directors, professional-directors do not merely advise and monitor, but take on considerable responsibilities by participating in strategic decision-making.

Second, an important factor overlooked by Nelson & Nielsen (2000) involves the impact of firms' external environmental contingencies on the roles played by professionals. Professionals may have their individual disposition to adopt a certain role, given their perception about the legitimate role of professionals inside business corporations. But they have to be put in specific circumstances and given corresponding opportunities to be able to enact that role in practice. One prominent approach is to identify incentives (financial or positional) to allocate professional time to these roles. For example, general counsel (Chief Legal Officers) may be compensated in stock options, and have a financial incentive to trade off gatekeeping in favor of greater risk-taking (Morse et al., 2016). General counsel who join senior management are also found to increase firm credit risk (Ham & Koharki, 2016). In our study, we hold these positional and financial incentives relatively constant, as professionals we examine are all on boards

and tend to be paid a flat fee as non-executive directors.[1] An alternative approach taken here is to identify environmental contingencies, such as the market and non-market (e.g. regulatory) conditions in which the firm is situated. The alignment of professional roles to the environment is under-explored and is a focus of our study.

Third, another important issue concerns the heterogeneity of licensed professionals, and consequently the performance impact of the distinctive roles they might play. Here, we take a cue from the upper echelons theory (Hambrick, 2007; Hambrick & Mason, 1984), which examines top management team (TMT) characteristics as proxies for the executives' cognitive and psychological processes (Hambrick, 2007) and link them to firms' strategic direction and performance (Finkelstein, 1992; Finkelstein & Hambrick, 1990; Hambrick, Cho, & Chen, 1996; Tihanyi, Ellstrand, Daily, & Dalton, 2000; Wiersema & Bantel, 1992). Building on these studies, we focus on the links between professional expertise as one type of TMT characteristics and corporate performance, mindful of the need to unpack the endogeneity problem. The possibility of two-way causation, that TMT characteristics are both an antecedent and a consequence of firm outcomes, was highlighted upfront by Hambrick and Mason (1984), and remains a major methodological challenge (Carpenter, Geletkanycz, & Sanders, 2004).

A Two-dimensional Framework for Exploring the Contributions of Licensed Professionals on Corporate Boards

As a first step in developing our theory, we identify a two-dimensional typology of professional-director roles with *professional capital* and *risk-taking* as the two dimensions. The *professional-capital* dimension is about professional-directors' human capital and relational capital, which influence the quality of professional advice and

[1] According to a corporate governance survey in 2002, only 13.8% of outside directors were paid in stock options compared to 91.4% of inside directors (see Miyajima, H., Haramura, K., & Inagaki, K. (2003), Chart 3-20).

judgment in specific situations. The *risk-taking* dimension, by contrast, is about the extent to which professional-directors influence the board's risk appetite regardless of the quality of professional capital. Unpacking the two dimensions imply that the varied professional roles of 'cop, counsel, entrepreneur' do not lie on a single spectrum. We develop hypotheses for each of these dimensions below.

Professional-directors as 'wise counsel'

Firms select board members for their capacity to provide 'wise counsel'. With such input, the board can make strategic decisions that enhance sustainable competitive advantage. The wisdom of any counsel derives from essential management resources, which may be broken down into human capital (Becker, 1964) and relational capital (Kale, Singh, & Perlmutter, 2000; Nahapiet & Ghoshal, 1998). Human capital for professionals is about their expertise and professional ethics (Dinovitzer et al., 2015), which is applied to make effective strategic decisions. Relational capital is the relational aspect of social capital and is derived from personal relations that professionals develop over time (Adler & Kwon, 2002), including with other professionals, policy-makers, and regulators. This enables the firm to better control its external environment (Boyd, 1990; Hillman, Cannella, & Paetzold, 2000; Hillman & Dalziel, 2003; Pfeffer, 1972; Pfeffer & Salancik, 1978). We expect human capital and relational capital to be positively correlated with experience. We argue that wise counsel derives from professional-directors' capacity to combine their human capital and relational capital.

Licensed professional-directors bring specific kinds of expertise – e.g. accounting or legal – which is combined with their knowledge of the company's business operations and their environment to arrive at board-level decisions. Prior research in resource dependence tradition focused on relational capital, and found evidence of board-environment alignment. In particular, companies in regulated and capital intensive

industries tended to have lawyers and finance specialists (Pfeffer, 1972) and outside directors with backgrounds in politics or law (Agrawal & Knoeber, 2001) on their boards. Professional-directors may help firms to shape the environment in their favor by influencing government regulations (Pfeffer & Salancik, 1978). Professionals might also work alongside ex-politicians on corporate boards to advance political connections for the firm (Agrawal & Knoeber, 2001; Helland & Sykuta, 2004; Lester, Hillman, Zardkoohi, & Cannella, 2008). While these studies provide systematic evidence of board-environment alignment, the performance impact of such alignment is presumed but not tested (an exception is Hillman (2005)).

By contrast, prior research in law and strategy has focused on human capital, arguing that professional-directors' expertise add to the quality of strategic decisions made. Studies in this tradition theoretically and empirically demonstrate their impact on enhancing firm competitive advantage. In particular, Bagley argues that 'legally astute' firms have top management teams with an absorptive capacity to take legal advice into account when making strategic decisions (Bagley, 2008). Empirical evidence also exists that lawyer-directors (Litov et al., 2014) and lawyer-CEOs (Henderson et al., 2017) enhance corporate valuation. This strand of research however gives no regard to the external environment nor relational capital, thus ignores board-environment alignment.

Professional-directors can be 'counsel' in the sense of providing professional advice in specific business context, with a view to enhancing the firm's long-term competitive advantage. Financial compliance for listed companies, disclosure rules, and accounting regulations has become more complex, leaving significant scope for interpretation. In this context, professional-directors apply their expert knowledge to interpret the relevant laws and regulation, and provide advice on how best to comply in specific situations. Given much scope for interpreting laws and regulations in specific circumstances to arrive

at case-by-case solutions, the impact of acting as 'counsel' applies equally to all sectors. The test of the claim that the counsel has been wise is in its impact on profitability and corporate valuation. Moreover, as their knowledge about the company's internal operations and its environment deepens with tenure, professional-directors become more effective in applying their human and relational capital over time.

These arguments lead us to our first hypothesis:

Hypothesis 1A (Counsel). Professionals on boards bring functional benefits to companies, increasing profitability and corporate valuation.

Hypothesis 1B (Counsel). Professional-directors with longer tenure bring greater functional benefits to companies than those with shorter tenure, increasing profitability and corporate valuation more.

Professional-directors as cops vs entrepreneurs

Professional-directors sit on corporate boards, and as such go beyond giving advice. They are party to the decisions boards make. Accountants and lawyers on boards are guardians of financial and legal risks. Strategic decisions, to acquire a company or to establish overseas operations for instance, involve balancing judgments about business opportunities against these risks. At two ends of the risk-taking spectrum, risk-averse 'cops' tend to trump these business opportunities, while 'entrepreneurs' endorse or at times enhance the board's risk appetite. But what determines the professional-directors' opportunities to influence the risk appetite of the boards on which they sit?

As applied to professionals at large, in-house lawyers act as 'cops' when they limit their advice to legal mandates (Nelson & Nielsen, 2000). Similarly accountants acting as 'cops' limit their work to audit and financial regulatory compliance. When professional-directors function as 'cops', they act as gatekeepers who promote compliance and monitor management to reduce malfeasance (Coffee, 2006; Morse et al., 2016). Cops may be

guardians of financial reporting compliance, reducing compliance breaches in accounting and insider trading regulations. They may also monitor a broader variety of management behavior in order to enhance internal controls of corporations. Cops essentially safeguard shareholders' interests, contributing towards lowering agency costs of monitoring managerial behavior, particularly when such agency costs are high in the face of dispersed share ownership.

An important environmental factor that may facilitate professional-directors to act as 'cops' is the nature of government regulation. Corporate boards in regulated industries require professionals to advise on how to comply with regulations, and to avoid infringements and subsequent litigation (Hillman, 2005). Of course, there are more gates to be kept in regulated than in less regulated industries. In regulated industries, however, all directors, professional and non-professional, are keenly aware of the need to comply. Moreover, professionals (including internal and external auditors, and external and in-house lawyers) act as 'cops' to conduct due diligence in regulated sectors. By the time major business proposals are placed on board agenda, there is little scope remaining for professional-directors in regulated industries to add further value as 'cops'.

By contrast in relatively unregulated industries, professional-directors are more likely to be put on the spot to act as gatekeepers given greater discretion in management decisions in such environment. 'Cops' are watchdogs that reduce downside risks, and their risk-aversion is given greater scope for application in less regulated industries. Risk-averse stance will be reflected in corporate performance in the form of reduced volatility in stock returns. Thus, our second hypothesis is as follows.

Hypothesis 2 (Cops). Professionals on boards act as cops, reducing volatility in stock returns, especially in less regulated industries.

At the other end of the *risk-taking* spectrum, professional-directors may act as 'entrepreneurs'. Lawyers and accountants are guardians of legal risk and financial risk respectively. As such, they may become naysayers when they see new business opportunities that would lead to taking greater-than-acceptable risks. But professionals acting as 'entrepreneurs' find creative solutions to business deals, endorsing or effecting an increase in the board's risk appetite, thus realizing both upside and downside risks.

Nelson and Nielsen (2000) define entrepreneurial professional roles, applied to in-house lawyers, as giving priority to business objectives than legal analysis, and attribute the entrepreneurial tendencies of in-house lawyers to their efforts to 'adapt their images and lawyering styles to the prerogatives of contemporary management' (Nelson and Nielsen, 2000: 457). They go onto describe how entrepreneurial lawyers see 'law itself as a source of profits and an instrument to be used aggressively in the marketplace' (Nelson and Nielsen, 2000: 466). This view of law as a mechanism through which major transactions are executed applies to M&A deals, new market entry, and venture funding. More broadly, professional-directors may regard their knowledge in accounting or law as enabling the creation and implementation of novel options in structuring business contracts, enhancing the value of intangible assets (such as patents and brands), and pushing the boundary of legality via taking advantage of legal loopholes (Bagley, 2010).

With respect to the firm's external environmental factor, the degree of regulation is relevant. The relative absence of regulation may predispose all board members, including professional-directors, to veer towards becoming 'entrepreneurs'. However, professional-directors can make a material difference especially at companies in regulated sectors, where the board may look to them to anticipate and manage financial and legal compliance in highly risky projects. Thus, the endorsement of risk-taking by

professional-directors may lead firms to take riskier decisions than in their absence. The above argument leads us to the third hypothesis, as follows:

Hypothesis 3 (Entrepreneurs). Professionals on boards act as entrepreneurs, increasing volatility in stock returns, especially in regulated industries.

Our theoretical and empirical approach ultimately identifies the professional role as revealed via its impact on corporate performance. Thus, the wise 'counsel' role is manifested in investment decisions that lead to higher profit and corporate valuation. The wisdom derives from putting *professional capital*, combining professional-directors' human capital and relational capital, in the service of specific contexts of the firm and its environment. Separate from this *professional-capital* dimension, the other two roles lie along the *risk-taking* dimension. At one extreme, the 'cop' role is most clearly manifested in low stock return volatility signaling risk-averse decisions. At the other extreme, the 'entrepreneur' role is manifested in much risk-taking, leading to high volatility in stock returns.

DATA & METHODS

To test our hypotheses, we focus on publicly quoted companies in Japan. Constructing our dataset involved matching data from three sources, namely Nikkei Needs CGES (Corporate Governance Evaluation System), Directory of Directors (*Yakuin shikiho*) by Toyo Keizai, and Development Bank of Japan (DBJ) data. We start from the 2004 list of listed firms and construct an unbalanced panel of listed firms from 2004 to 2015. We chose to start the data in 2004 because some corporate governance variables we employ are available only from 2004. After dropping observations with missing data, our final sample consists of 39877 firm-year observations during the 2004-2015 period. Before describing the variables for analysis, we highlight changes in corporate governance

practices in Japan prior to and during the period of our study, as a background to why Japanese corporations came to appoint professional-directors.

History of Professionals in Corporate Governance in Japan

Japan provides an ideal setting for analyzing the impact of appointing professional-directors. Corporate boards in the United States and Britain had accountant-directors and lawyer-directors at least since the early part of the twentieth century (Matthews et al., 1998). By contrast, professional-directors had been relatively absent on Japanese boards until 2000, but have grown rapidly since then. This compressed contemporary history enables us to examine the impact of appointing a professional-director for the first time on corporate performance. But why have Japanese firms come to appoint professionals on their boards with this timing?

A confluence of factors has led to the appointment of licensed professional-directors alongside the emergence of outside directors. The lackluster performance of Japanese companies during the 'lost decade' of the 1990s led to a call for a shift from operational excellence to strategic focus. Attempts to revive the competitiveness of Japanese firms were both legislative and non-legislative. Among the former, the pure holding company became legal again in 1997 after 50 years of banning this corporate form. Policy-makers came to pay greater attention to the effectiveness of corporate boards at the holding company level, which were expected to focus on group-wide strategy. The adoption of consolidated accounts since 1999 also facilitated providing boards with group-wide overview in an era when Japanese companies became more diversified and international (Miyajima, Haramura, & Inagaki, 2003).

Another legislative push came in the form of the 2003 revision of the Commercial Code and the subsequent 2006 revision of the Company Law, which gave the option for quoted companies to introduce a committee system (*shimei iinkai tou setchi gaisha*). The

committee system refers to the establishment of the audit, nomination, and remuneration committees for which each must have at least 3 members of whom the majority must be outside directors. The diffusion of this committee system has been slow. In 2017, 83.4% of all quoted companies (72.9% of companies quoted on Tokyo Stock Exchange First Section) did not have a nomination committee; and 81.5% (70.1% of TSE First Section companies) did not have a remuneration committee (JPX, 2017). However, awareness of this system is thought to have promoted the appointment of outside directors. This bodes a major shift for Japanese corporate boards traditionally dominated by internally promoted top managers along with directors sent from main banks and group companies. According to Saito (2011), three-quarters of the largest 500 firms in Japan had a board composed entirely of inside directors in 1997. The proportion of firms listed in the first section of Tokyo Stock Exchange with at least one outside director rose gradually to 35% in 2005 (Saito, 2015) and 48.7% in 2010, then jumped from 64.4% in 2014 to 95.8% in 2016 (JPX, 2017).

Among the non-legislative attempts to enhance strategic focus, two are notable. First, following the onset of the banking crisis in 1997, companies and banks swiftly dissolved their cross-shareholdings, while domestic and foreign institutional investors managing investment trusts or pension funds emerged as prominent shareholders after 2000. Consequently, the proportion of cross-shareholdings in total shares declined from 15.3% in 1995 to 9.0% in 2008, and the proportion of shares held by foreigners increased from 15.0% in 2004 to 26.7% in 2015 (Miyajima & Hoda, 2015; Miyajima & Kuroki, 2007; Miyajima & Nitta., 2011). Foreign institutional investors not only lowered the protection for Japanese companies from stock market pressures, but were associated with improving corporate governance (Gilson & Milhaupt, 2006) and curving real earnings manipulation (Guo, Huang, Zhang, & Zhou, 2015).

Second, starting with Sony's initiative in 1997, major companies created the executive officer (*shikko yakuin*) system with the aim of separating strategy from execution. Specifically, the board was to focus on agile decision-making about company-wide strategic directions, while executive officers attended to day-to-day execution at each business unit (Kubo, 2010). This led to a dramatic decline in board size, for example from 38 directors in 1997 to 10 in 1998 at Sony, and from 58 in 2002 to 26 in 2003 at Toyota. In 2013, Toyota further reduced its board size to 16 directors, of whom 3 were outside directors and 1 a foreign director.

To summarize, the emergence of professional-directors at Japanese companies is part and parcel of a trend towards enhancing strategic focus, with holding companies, consolidated accounts, committees, institutional investors, and smaller boards enabled by the executive officer system. Most notably, the rise of professional-directors is associated with outside directors, increasing from 23.5% in 2004 to 64.8% in 2015 (and 88.6% in 2016) in our sample. In the past, outside directors were not truly outsiders, as they were sent from main banks and parent companies (Kubo 2010). More recently, they are more independent outsiders, including professionals who are the focus of our study. Securing outside directors has proven difficult (Miyajima et al., 2003), and increasing the ratio of outside to inside directors remains a top concern in improving board composition (Deloitte, 2017). In this context, professionals may be considered one pool of talent that corporate boards can tap into.

Insert Table 1 about here

Dependent Variables

Our study tests the three hypotheses with various measures of corporate performance as the main dependent variables (see Table 1 for variable descriptions). Following the

literature, we chose three indicators of firm performance for this study. The data source is the Nikkei Needs CGES (Corporate Governance Evaluation System).

Return on assets. Our first dependent variable is *Return on asset,* which is calculated using the usual method of returns divided by total assets for firm *i* in time *t.*

Tobin's Q. The second dependent variable, *Tobin's Q,* is calculated as the ratio of the total market value of the firm divided by the total asset value for firm *i* in time *t*.

Volatility of stock returns. We calculate a measure of the volatility of stock returns. The variable, *Stock return volatility,* is calculated as the standard deviation of daily stock returns over a three-year period (i.e. from *t-3* to *t*) for firm *i* in time *t.*

Independent Variables

We construct our independent variables on professionals by using the Directory of Directors (*Yakuin shikiho*) published by Toyo Keizai. This directory lists all board members of publicly listed companies in Japan. Board members are directors (*torishimariyaku*), who are either executive (inside) or non-executive (outside). The directory provides details concerning each director, including his or her educational and professional qualifications and work experience. We focus on whether or not a director is one of two professional types requiring a license to practice: a lawyer (*bengoshi*), or a certified public accountant (*konin kaikeishi*) (accountant for short).

Professionals. We calculate a variable, *Professional director ratio,* as the proportion (percentage) of professionals (lawyers and accountants) to the total number of directors on the board for firm *i* in year *t*. The proportion of professionals to the total number of directors increased from 0.41% in 2004 to 2.69% in 2015 (see Figure 1). The proportion of companies with either lawyers and/or accountants on their boards also increased from 2.67% in 2004 to 17.09% in 2015 (see Figure 2). We also calculate *Outside director professional ratio,* the proportion of outside directors who are professionals, in order to

examine the professional-director effect as distinct from the outside-director effect. In additional analyses, we also make a distinction between *Inside professional director ratio*, the ratio of inside professional-directors to the total number of directors, and *Outside professional director ratio*, the ratio of outside professional-directors to the total number of directors[2].

Lawyers. We calculate a variable *Lawyer director ratio* as the percentage of lawyers to the total number of directors on the board for firm *i* in year *t*. The ratio of lawyers increased from 0.18% in 2004 to 1.64% in 2015 (see Figure 1), and the proportion of companies that have at least one lawyer on their boards increased from 1.40% in 2004 to 11.59% in 2015 (see Figure 2).

Accountants. We calculate a variable *Accountant director ratio* as the proportion (percentage) of accountants to the total number of directors and auditors on the board for firm *i* in year *t*. The ratio of accountants increased from 0.22% in 2004 to 1.04% in 2015 (see Figure 1), and the proportion of companies with at least one accountant-director increased from 1.32% in 2004 to 6.66% in 2015 (see Figure 2).

Insert Figures 1 and 2 about here

Defining Regulated and Less Regulated Industries

In order to test our hypotheses H2 and H3, we subdivide our sample into two groups, those firms in regulated industries and those in less regulated industries, following Hillman (2005). In our Japanese sample, regulated industries are Foods, Chemicals, Pharmaceuticals, Oil & Coal Products, Electric Power & Gas, Information &

[2] One of the important characteristics of corporate governance in large Japanese firms is that firms tend to have a board of statutory auditors (*kansayaku*) in addition to the board of directors. In this study, we focus on directors, not on statutory auditors. It would be interesting to see the effect of professional statutory auditors in a separate study, as their role might be different from those of professional directors.

Communication, Banks, Securities & Commodity Futures, Insurance, Other Financial Business, and Real Estate. Less regulated industries consist of Machinery, Electrical Appliances, Transportation Equipment, Precision Instruments, and Wholesale and Retail Trade. These industrial sector definitions are based on the one used by Tokyo Stock Exchange, which identifies 33 separate sectors. See Appendix 1 for how the 33 sectors correspond to our classification of regulated and less regulated industries. We also show in Figure 3 the incidence of professionals by industrial sector. This shows that higher proportions of companies in regulated industries have professionals on their boards than in less regulated industries.

Insert Figure 3 about here

Control Variables

We use seven control variables in our main regressions, as follows.

Firm size. We indicate firm size by using a variable *Total asset*, which is the natural log of the total asset of the firm. The data source is the Development Bank of Japan (DBJ) data. Large firms are likely to have larger boards. They may also have better networks to be able to appoint professionals on their board.

Board size. We measure a variable *Board size* by counting the total number of directors. Large boards have the advantage of heterogeneous expertise and experienc, but potential difficulties in reaching consensus decisions. In our sample, the average board size declined from 10.9 directors in 2004 to 7.5 directors in 2015.

Tokyo Stock Exchange listing. A dummy variable *TSE listing* takes the value of 1 if the firm is listed on the First Section of Tokyo Stock Exchange, 0 otherwise. This dummy captures firm size, but also the adoption of good corporate governance practices (JPX, 2017).

Entrenchment. Firms run by a board that is entrenched in the firm are likely to take greater risks than those led by salaried top managers. We deploy a variable *entrenchment*, which calculates the proportion of total shares owned by members of the board. A high share indicates the likely presence of a founder-CEO.

Institutional and foreign investors. We calculate a variable *Institutional shareholding ratio* as the proportion of the firm's total shared held by institutional investors, and a variable *Foreign shareholding ratio* as the proportion of the firm's total shares owned by foreign shareholders. Foreign and institutional shareholders are associated with more rigorous corporate governance standards, including the appointment of outside directors (Ferreira & Matos, 2008; Miyajima & Hoda, 2015).

Sector median volatility. Our last control variable is a measure of stock return volatility when the dependent variable is other than *Stock return volatility*. We calculate a *variable Sector median volatility* as the median value of *Stock return volatility*, for each of the 33 sectors identified by Tokyo Stock Exchange.

Instrumental Variables

As we explain below in the section on Econometric Specifications, we consider four variables as instrumental variables. *Litigationpf* is the sector mean of the number of intellectual property litigation cases per firm in 2013, using the annual Intellectual Property Activity Survey by the Japan Patent Office. We chose the 2013 (rather than a more recent) survey as it contains data on IP litigation cases. *Rightspf*, from the same survey, is the sector mean of the number of intellectual property rights (including patents, utility model patents, design rights, copyrights and trademarks) per firm. Firms are classified into 18 sectors in the Intellectual Property Activity Survey while our sector code consists of 33 sectors (see Appendix 1). We match each sector in the Intellectual

Property Activity Survey to the most appropriate of the 33 sectors[3]. We also employ two further instruments, namely *Randd_ratio2*, the proportion of research and development cost to sales, and *adv_ratio2*, the ratio of advertisement cost to sales. Both variables are calculated using DBJ data[4].

Tables 1 presents the variable descriptions and Table 2 the descriptive statistics. Table 3 presents the correlations matrix.

Insert Tables 1, 2 and 3 about here

Econometric Specifications

Hypotheses H1, H2, and H3 are concerned with the impact of the presence of professionals on corporate boards on firm performance. Given that our dependent variables are continuous variables, the choice of Ordinary Least Squares (OLS) with robust standard errors clustered at the firm level is appropriate.

Our study, however, has a number of characteristics that render alternative estimation methods desirable. In particular, our hypotheses involve the possibility of two types of endogeneity, namely omitted variables and simultaneity bias, which necessitates addressing alternative hypotheses about which we should be concerned (Roberts & Whited, 2012). Specifically, the decision to appoint professionals on boards may be

[3] For example, firms in 'Textiles and Apparels' sector and those in 'Textiles and Apparels' are classified in the same sector code in the Intellectual Property Activity Survey while they are classified into two different sector codes in our sample. Therefore, we use sector mean value for 'Textile, Apparels, Pulp and Paper' sector for firms in 'Textiles and Apparels' and 'Textiles and Apparels' sectors.

[4] There are two conditions that instrumental variables must satisfy. Firstly, an instrumental variable needs to be correlated with the endogenous variable, or to be relevant. In addition, instrumental variables are required to be uncorrelated with the error term of the second stage regression. We have not checked whether these conditions are met. If our instrumental variables do not satisfy these conditions, we will explore using other instrumental variables following previous studies (Adams and Ferreira, 2009).

correlated with other firm characteristics that also influence corporate performance; for example, firms with highly capable management may appoint more professionals on boards and also perform better. This omitted variable problem may, in part, be addressed using a fixed-effect model to account for unobservable firm-specific characteristics that are stable over time. Moreover, simultaneity bias may be present because of two-way causation. That is, while the presence of professional-directors may affect corporate performance, the appointment of professionals may be determined in part by firm performance. For example, firms may turn to professionals when corporate performance deteriorates suddenly or over time.

In order to address this endogeneity issue, we employ two approaches, the use of Instrumental Variables and the Difference-in-Differences approach (Roberts & Whited, 2012). First, we employ an Instrumental Variables procedure to estimate the presence or absence of professionals using two instruments, *litigationpf* and *rightspf*, and then use the estimated values for the main regressions. These instruments are considered to affect the presence of professional-directors positively, but do not necessarily affect our dependent variables in our main regressions.

Second, we adopt a Difference-in-Differences approach (Roberts and Whited 2011). In this approach, we focus, not on the presence of professionals, but on the first introduction of professional-directors. The outcome of interest is the difference in performance changes due to the introduction of professional-directors. We first estimate the difference in performance before and after the introduction. We then calculate the difference in differences, i.e. by comparing performance changes at firms with the introduction and performance changes at those without, one year after the introduction and in subsequent years.

Following conventional notation, we compare the potential outcomes of the treatment group and the control group, in order to derive the Average Treatment Effect (ATE), i.e. $E(y| d = 1) - E(y| d = 0)$. Treatment of interest here is the introduction of a professional-director so $d = 1$ across firms with a professional-director and $d = 0$ for those without. The outcome variable y is a corporate performance measure such as ROA, Tobin's q and stock return volatility. If $y(1)$ is a firm's stock return volatility in a state that has a professional-director, then $y(0)$ is that same firm's stock return volatility in the same state had it not appointed a professional-director. The treatment effect is the difference between the two potential outcomes, $y(1) - y(0)$. ATE is the expected treatment effect of a firm randomly drawn from the population.

One of the problems in estimating the effect of the introduction of professional-directors is that there are differences in various firm characteristics between firms that introduce professionals on board and those without, because the introduction is not random. The performance improvement after the introduction of professional-directors may be caused by the difference in firm characteristics between introduction and non-introduction firms. Therefore, we chose matching firms which have similar firm characteristics with each introduction firms using the propensity score matching method.

Propensity is the probability that firm receive a treatment, or the predicted probability that the firm has professionals on its board. For each introduction firms, we choose non-introduction firms that have a close propensity score. The score is calculated by probit model in which the dependent variable is the dummy variable which takes the value of one for the introduction of professionals. By this matching, each matched pair has similar firm characteristics. Therefore, the difference in the pair can be attributed to the introduction of professional-directors. As for the determinants of introduction, we use firm size, foreign ownership, proportion of outside directors, a dummy variable for firms

in manufacturing sector, a dummy variable for firms that are listed in Tokyo Stock Exchange, stock market volatility, the sector mean of the number of intellectual property litigation cases per firm, the sector mean of the number of intellectual property rights per firm, the proportion of research and development cost to sales, the proportion of advertisement cost to sales, and return on asset. Each firm that introduces professional directors is matched to a single firm which has the closest propensity score, without a specific caliper width.

ANALYSIS AND RESULTS

Professionals and corporate performance

Table 4 presents the results of our analysis for the impact of professionals on corporate performance for the whole sample. Looking at models (1) and (3), the impacts of professionals on ROA and Tobin's Q are both positive and significant, supporting Hypothesis 1A. In order to address the two-way causation problem, we also run Instrumental Variable regressions. In models (2) and (4), the impacts of professionals on both measures of corporate performance remain positive and significant, and their magnitude increases.

Insert Table 4 about here

Looking at the control variables we find effects broadly consistent with our expectations. In particular, listing in the First Section of Tokyo Stock Exchange is associated with higher ROA and Tobin's Q, as is the presence of institutional investors in the firm's share ownership. This is hardly surprising given that these two features are associated with better corporate governance. Board size is associated with positive corporate performance, but total asset as an indicator of firm size is negatively associated with corporate performance. One interesting result is the variable on entrenchment: the

higher the extent of shares owned by board directors, the higher the corporate performance.

Next, Table 5 presents the Difference-in-Difference analysis results, focused on the first introduction of professionals on company boards. As shown, appointing a professional on boards leads to a premium on ROA from the first year after the appointment [0,1]. The premium on ROA is increasing and becomes significant from the third year after the appointment [0,3]. This provides support for our hypothesis H1B. It takes time for the appointment of professional-directors to have a real effect on corporate performance. The effects on Tobin's Q, however, were not significant.

Insert Table 5 about here

Professionals in regulated vs less regulated industries

Table 6 presents our regression results for testing Hypotheses 2 and 3. Focusing on instrumental variable regression results, we compare models (5) and (6). They demonstrate that the impact of professional-directors on stock return volatility is positive and significant for firms in regulated industries, in support of H2; in other words, professional-directors add value by acting as 'entrepreneurs' in regulated industries where all other directors and professionals tend to act as 'cops'. The impact is negative and but significant in less regulated industries in support of H3; that is, professional-directors add value by acting as 'cops' in these industries where all other directors tend to act as 'entrepreneurs'. Among the control variables, perhaps the most interesting result is that entrenchment (high percent of shares held by directors) significantly increases volatility, an indicator of entrenched managers' willingness to take greater risks.

Table 7 examines the impact of the first introduction of professionals on stock return volatility using the difference-in-difference approach. The introduction of a professional on boards leads to a higher premium on volatility increases, but it is significant only in

regulated sectors and not in less regulated sectors, consistent with H2 and H3. Unlike in the DID results for ROA, the impact of introducing a professional-director on stock return volatility in regulated sectors is immediate. This is likely to be due to the signaling effect of appointing professional-directors (ELABORATE).

Insert Tables 6 and 7 about here

Additional Analyses

We perform additional analyses in order to discuss extensions of our results and to consider alternative explanations. In particular, we discuss here whether professional-directors as 'insiders' (i.e. executive directors) or as 'outsiders' (i.e. non-executive directors) make a difference to performance outcomes. We find that the performance impact as measured by Tobin's Q is positive and significant for inside professional-directors but not for outside professional-directors (the results are inconsistent across different estimations for the impact on ROA) (see Appendix 2).

This result is consistent with the explanation that outside directors provide independent voice and thus improve the quality of top management decisions, but there is a trade-off, as they tend to be less knowledgeable about the company and its environment than inside directors. By contrast, inside directors are steeped in company-specific knowledge but lack independence. Our results suggest that inside professional-directors can combine the best of both worlds. Professional-directors who are insiders are independent by virtue of having a professional license to practice, which makes them able to challenge the CEO's decisions without being beholden to the company for jobs. They are also knowledgeable about the company by virtue of being insiders. Thus, the voice exercised by *independent insiders* may be more effective than that by non-executive outside directors *per se.*

DISCUSSION

This study explored the contingent effects of licensed professionals on company boards by focusing on accountants and lawyers. Our data on quoted companies in Japan provided an ideal context for testing the impact of the introduction, as well as the presence, of professional-directors on corporate performance.

We find robust evidence that the presence of licensed professionals on boards matters for company performance in two distinct ways. First, the presence of professional-directors enhances profitability and corporate value, which we interpret as evidence of their role as 'wise counsel'. Second, distinct from this first performance effect, the presence of professional-directors leads to higher stock return volatility in regulated industries, evidence of their role as 'entrepreneurs'. By contrast, the presence of professional-directors lowers stock return volatility in less regulated industries, which is evidence of their role as 'cops'.

Theoretical Implications

Our study provides theoretical insights on a key issue in strategic management, namely the role of board directors in influencing corporate performance. We make a contribution to the corporate governance literature by focusing on licensed professional-directors as a specific type of resource in explaining performance heterogeneity of firms. Specifically, the typology of professional-director roles we develop positions the three ideal-typical roles of 'cop, counsel and entrepreneur' (Nelson & Nielsen, 2000) not along a single spectrum but along two dimensions. Unpacking the two dimensions enables us to identify the 'wise counsel' role along the *professional-capital* dimension, and the 'cop' and 'entrepreneur' roles along the *risk-taking* dimension. We then developed a theory on the contingent impact of these professional roles on corporate performance, with predictions which are contrary to the resource dependence theory (Pfeffer & Salancik, 1978) because

we take account of the risk-taking role of professionals whereas the resource dependence theory does not. Conceptualizing the impact of licensed professional-directors on corporate performance as occurring through these dimensions also provides the basis for a more generalizable argument that may apply equally to other types of board directors.

Professional capital, the first dimension in our typology, consists of human capital (Becker, 1964) and relational capital (Moran, 2005). For professional-directors, the relevant human capital is distinctively different from the human capital of non-professional directors, as it consists of expertise certified by a professional license and the code of ethics that they internalize as a result of professional training. Relational capital is the relational component of social capital (Adler & Kwon, 2002), referring to networks of people in industry, government, and the professions on which one can rely to take action. Again, professional-directors have relational capital that is distinctive from the relational capital of non-professional directors. Thus, when professional-directors adopt the 'wise counsel' role, they combine their distinctive human and relational capital, though this dimension may be used to explore similar but different resources that non-professional directors bring to the board.

Risk-taking, the second dimension, is about the professional-directors' own risk-taking behavior. By focusing on professional-directors with voting rights on the board, our typology treats them not as mere advisors of financial or legal risks, but as participants in decisions about taking business risks. Professionals at large, such as accountants and lawyers, are conceptualized as 'gatekeepers' and 'trusted advisors' (Coffee, 2006). As gatekeepers, professionals are concerned with compliance, and risk management typically implies controlling downside risks – avoiding negative legal or financial events (Kurer, 2015) – rather than endorsing taking upside risks. As 'trusted advisors', external attorneys and auditors give advice on risk-taking, but are not party to corporate decisions

on risk-taking. What is novel about our typology is the idea of risk-taking by professional-directors themselves. Our typology therefore incorporates situations in which the board takes greater risk because professional-directors take actions to endorse such risk-taking, and affect the decision-making of other directors including the CEO.

Moving onto the impact of professional-directors on corporate performance, prior studies tended to use a non-contingent framework, in which their presence improves competitive advantage under all circumstances (Bagley, 2008; Litov et al., 2014). Consistent with prior studies, we find that the presence of professional-directors, acting as 'wise counsel', improves corporate performance. However, and distinct from this overall performance effect, we also develop a theory of the contingent impact of professional-directors on corporate performance, with the extent of government regulation as the key contingency. Scholars using resource dependence theory take account of such contingency, by emphasizing the importance of linking firms to their external environment that creates uncertainty and interdependence (Pfeffer & Salancik, 1978). But resource dependence studies rarely examine the performance effects of board-environment alignment. An exception is Hillman (2005) who finds that ex-politicians are more likely to be found on corporate boards in heavily regulated than less regulated industries, and that the impact of politician-directors on corporate performance (as measured by market capitalization and Tobin's Q) is greater in heavily regulated than in less regulated industries.

Our study leads to a theory that is contrary to resource dependence theory, and therefore appears counter-intuitive at first glance. Resource dependence theory would lead us to predict that professional-directors, just like politicians, are more prevalent in heavily regulated than in less regulated industries, because their *professional capital* is useful in controlling external uncertainty and interdependence. Resource dependence

theory would also predict that professional-directors act as 'cops' more in regulated than in less regulated industries. This is because there are simply more gates to be kept in regulated industries, and ensuring compliance with all rules and regulations reduces uncertainty for the firm. However, our theory predicts the opposite because it takes account of the *risk-taking* role of professional-directors, whereas resource dependence theory does not. Our theory predicts an entrepreneurial role for professional-directors in regulated industries in which other directors and managers are already acting as gatekeepers. By contrast, our theory predicts that professional-directors can add more value by behaving as 'cops' in less regulated industries where other directors and managers are all prone to be entrepreneurial.

The two-dimensional framework of professional-director roles may be viewed from the perspective of the board as a whole (see Figure 4). When the board's key aim is to enhance efficiency in stable industries, it may benefit from having a wise counsel who is also a cop (quadrant 1). When the board aims to invest in innovation (quadrant 2), it would benefit from having a wise counsel who is also an entrepreneur. In quadrant 3, it suffices for a compliance-oriented board to have a cop without being wise counsel. Last and not least, experimentation-oriented boards, typified by startup and young companies, may hire entrepreneurial professional-directors. Interesting questions arise as to how boards move from one quadrant to another as the company grows and matures, or shifts its strategic direction.

To date, studies about the role of corporate directors and their impact on corporate performance tended to focus on individuals' functional background and incentives. For instance, personal disposition to take risk may be influenced by functional training and career trajectory. In relation to incentives, performance-related compensation, including stock options, may lead directors, including professional-directors, to take greater risks.

However, our theory is predicated on the assumption that mediating factors, such as the extent of government regulation, determine when specific personal disposition or incentives are reflected in action.

Implications for Corporate Governance Practices

In the context of debates about corporate governance in Japan and elsewhere, our study provides a number of insights for corporations and professionals. We discuss three topics below in light of our econometric findings supplemented by interviews[5] and media coverage: the independence of directors, the material impact of professional-directors, and deregulation as a context for firms' reliance on professionals.

As discussed earlier, the independence of board directors is a key issue in policy and practice in Japan. Not so long time ago, major corporations had large boards composed entirely of inside directors who were promoted from within. Today, nearly all (95.8% in 2016) of the firms listed in the first section of Tokyo Stock Exchange have at least one outside director (JPX, 2017), and the proportion is not much smaller (88.6% in 2016) in our sample of all quoted companies in Japan. In this context, it is important to clarify in what ways professional-directors might contribute to board independence.

Conventional account clarifies who is putting pressure on Japanese companies to appoint outside directors. Institutional investors and foreign investors loom large in this discussion. These investors expect independent voice by outside directors to challenge insider-dominated top management, with a view to improving the quality of strategic decisions. But our study demonstrates that independence may be grounded in more than one source. One well-recognized source of independence lies in the non-executive status

[5] In July 2017 and April 2018, we conducted a total of 10 one-hour face-to-face interviews, of which 6 were with lawyer-directors and 4 with accountant-directors.

of directors, that is, outside directors are not beholden to the company for livelihood due to the availability of alternative sources of compensation.

Further, an important basis for the independence for professional-directors is their ethics and the professional license. Through our interviews of professional-directors, we note a strong sense among them of having cultivated distinctive cognitions, values and perceptions as accountants or lawyers, which in turn affect their strategic orientation (Carpenter et al., 2004). Professional training as lawyer, for example, is not just about acquiring legal knowledge and expertise, but also about learning how to think like a lawyer (with emphasis on objectivity and integrity) and act like a lawyer. Moreover, some interviewees considered the possession of a professional license as accountant or lawyer as a passport to alternative employment, which gives them the freedom to challenge the board without fearing adverse effects on their livelihood. Moreover, as noted earlier (in the Additional Analyses section), inside professional-directors, though they are few in number, can remain independent by virtue of having a professional license to practice.[6] These *independent insiders*, armed with better access to company information, may well be more effective than non-executive outside directors *per se*, in accelerating corporate restructuring or changes in the company's strategic direction.[7] These accounts demonstrate that the effectiveness of board directors is not just about the structural aspects (outsider vs insider) of boards.

Second, there exists considerable skepticism that many companies appoint lawyers and accountants (and academics!) as outside directors merely to comply with the

[6] *Nikkei Business* (19 March 2012 issue, pp.38-43) reports the case of Nissen Holdings which turned around its performance by appointing 4 outside directors including a lawyer. The company ensured that 'the lawyer-director would not limit his opinion to matters directly related to compliance', by giving a briefing on board meeting agenda items prior to the meeting.

[7] *Nikkei Business* (6 February 2012, pp.56-60) reports the case of Kokuyo, which has a lawyer as an executive director, contributing to proactive corporate reorganization.

Corporate Governance Code and guidelines in form but not in spirit. Naturally, this skepticism extends therefore to the material impact of professional-directors on board effectiveness and corporate performance. Skepticism about professionals who failed to be effective gatekeepers in the wake of Enron and WorldCom is well-taken (Coffee, 2006). Given this background, risk-taking by professionals tends to be regarded as somewhat 'unprofessional', when they become agents of self-interested top managers rather than shareholders as principal.

Japan is no exception to the dangers of weak gatekeeping due to client capture in professional services. In auditing, for example, audit firms tended to follow the lead of main banks, whose corporate clients might choose an audit firm that they think their main bank would prefer (Matsubara & Endo, 2018; Pong & Kita, 2006). By the 2000s, shifts in government policy led to the Financial Services Agency to insist on stricter audit services (as seen by its unprecedented action to suspend ChuoAoyama and to criminally indict its partners for their role in the Kanebo accounting fraud in 2006 (Skinner & Srinivasan, 2012). But the more recent fraudulent accounting scandals notably at Toshiba in 2015 reveal that auditing standards at some major corporations remain weak. The role of accountant-directors must be interpreted with this recent context in mind. Accountants are not considered independent directors unless they had left employment at an audit firm at least ten years ago, according to the Tokyo Stock Exchange listing guidelines. Our interviews also suggest that the effectiveness of professional-directors depends much on their own effort to access proper audit and financial information from the internal audit team as well as the external audit firm.

Such skepticism not withstanding, our study demonstrates that professional-directors are not mere window-dressing but have had material impacts on risk-taking and corporate performance under certain circumstances. Although specific cases of attributing direct

impact of professional-directors are hard to come by, the case of a real estate rental company Apaman Shop is illustrative.[8] In this case, a major investor sued the company directors for neglecting their obligation to pay good attention before arriving at the decision to merge a subsidiary into another subsidiary. The court cited the company's record that it sought advice from a lawyer, as evidence to support its ruling that the directors did not neglect their obligation when they decided on this merger plan.

Third, the differential roles professionals adopt in various sectors should be interpreted in an era of liberalization in Japan as elsewhere. For example, deregulation implies greater managerial discretion, and top management must explain, with the help of professionals, why they chose a particular course of action. In financial services, deregulation took a specific form, in which the Japanese Ministry of Finance (MOF)'s tight administrative guidance (*gyosei shido*) gave way by the early 2000s to more hands-off regulation by the Financial Services Agency. Whenever banks and securities firms encountered grey areas in law, the company man in charge of MOF (so-called *MOF-tan*) used to ask the MOF for guidance. In the new regulatory regime, the FSA issued no such guidance, and companies had to turn increasingly to their lawyers for interpretation on what lay within the bounds of law to enable new transactions and M&A deals (p.390) (Nagashima, 2011). In our terminology, professional-directors acting as 'entrepreneurs' released from the grip of MOF are given greater discretion to come up with company-specific solutions.

Limitations & Future Research

Our study has a number of limitations we wish to highlight. First, by arbitrarily dividing industrial sectors into regulated and less regulated industries, we have skirted

[8] Supreme Court judgment No.183 on 15 July 2010.

over the exact nature of regulations and their enforcement. Further investigations into regulatory changes over time would enable us to analyze their impact on the appointment of professionals and company performance.

Second, our study suffers from lack of data preventing us from obtaining direct measures for some of our variables. In particular, in relation to the two dimensions in our typology of professional-director roles, *professional-capital* may be ideally measured by indicators of human and relational capital such as the career history of individual professionals (Wiersema et al., 2018), but no matching data for such career histories of accountants and lawyers in our sample exist in Japan. Moreover, *risk-taking* may be proxied by the ratio of the number of years professionals have spent inside business corporations to the number of years they spent outside. We might also identify more proximate performance indicators such as the number and size of M&A deals, supplemented by interviews to capture professional-directors' cognitive processes more directly.

Third, our sample includes all listed companies, but some are newer, listed on the MOTHERS and JASDAQ sections of Tokyo Stock Exchange. TSE First Section listing was a dummy variable in our regressions, but deserves further investigation. In particular, the role of professional-directors is different for newer firms, with the board role evolving over time at different stages in the firm's lifecycle (Lynall, Golden, & Hillman, 2003) (see also Hillman, Withers, and Collins (2009) pp.1409 for a review). It is worth studying how the 'counsel, cop, entrepreneur' roles apply to professional-directors in entrepreneurial firms prior to Initial Public Offering (IPO) and after IPO as firms mature with greater formalization and institutionalization.

CONCLUSION

Firms differ in their need to have professionals on their board. This study draws attention to an important factor that explains heterogeneity in corporate performance, namely the role of professional-directors as 'wise counsel' improving the overall corporate performance, and as 'cop' vs 'entrepreneur' affecting the board's risk appetite. Professional-directors bring with them their human capital, relational capital, and risk-taking disposition, and recognizing all these elements leads to a better understanding of strategy formulation and corporate governance.

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Figure 1: Proportion (%) of professionals among directors in Japanese companies

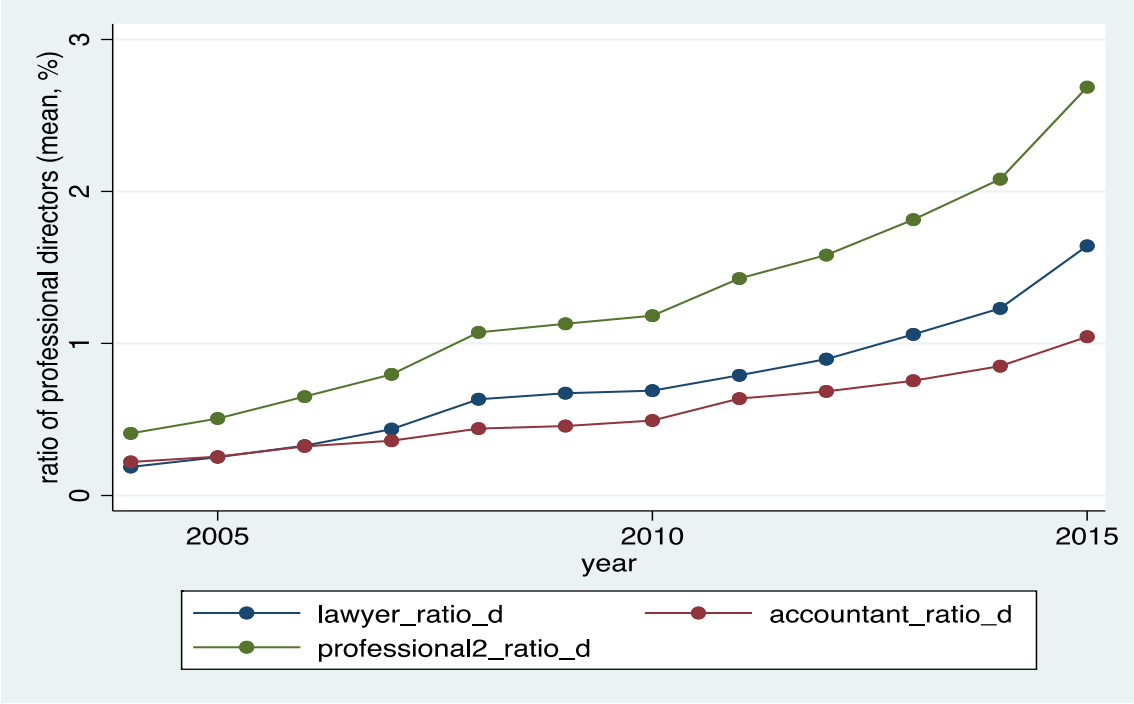

Figure 2: Proportion (%) of companies with professionals on boards in Japan

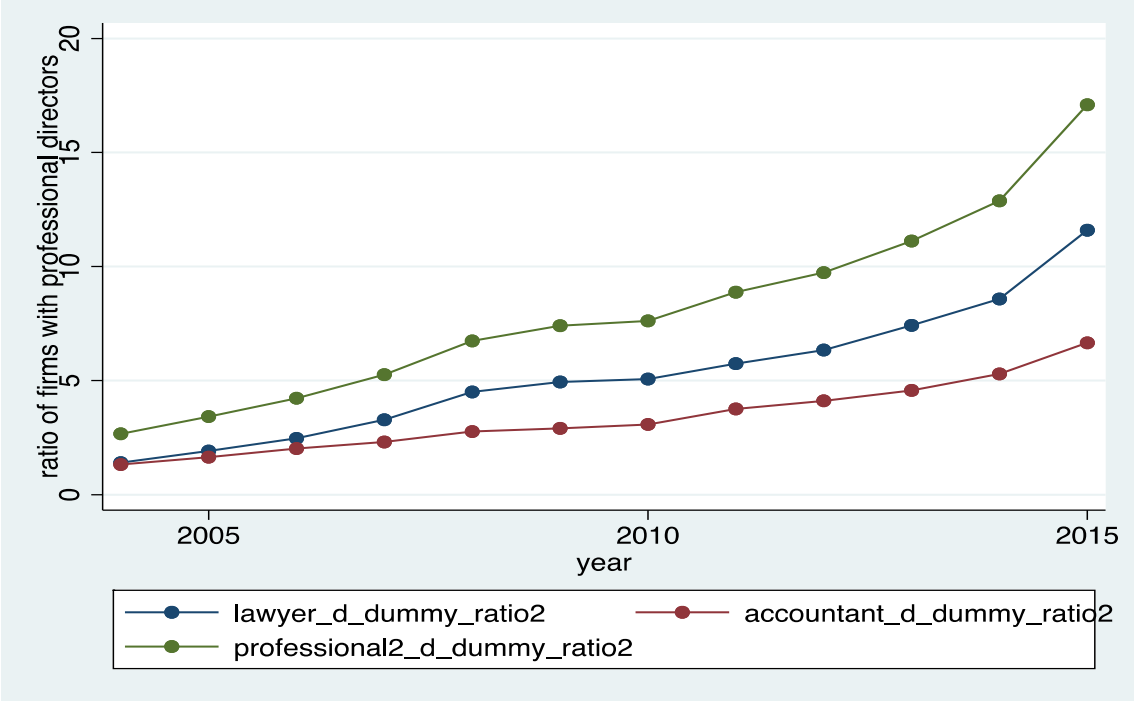

Figure 3: Proportion (%) of professionals among directors by sector in Japan

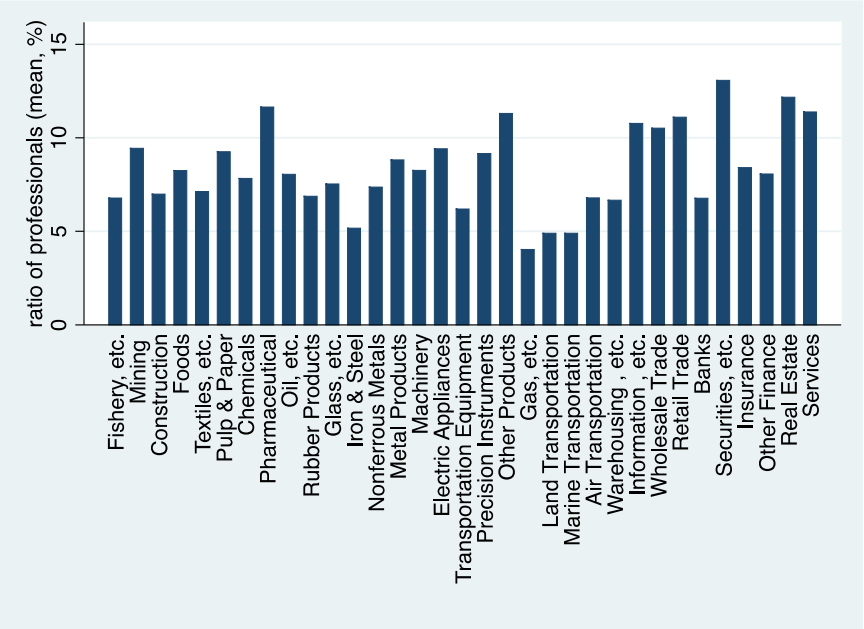

Figure 4: Board typology

Professional-capital

Risk-taking

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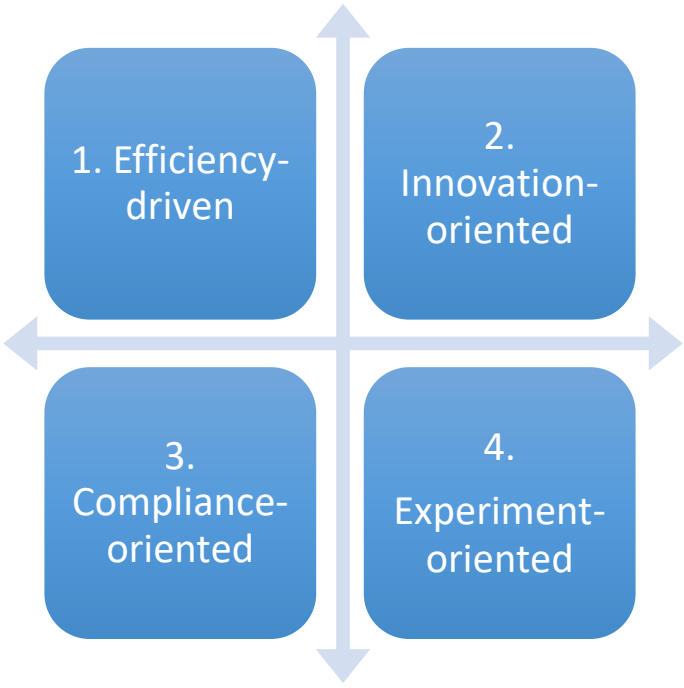

Table 1 Variable names, descriptions, and sources

Variable name	Description	Source
roa_0	Return on asset for firm *i in year t*	Nikkei Needs CGES
aveq_0	Tobin's Q calculated by dividing firm value plus liability by total asset for firm *i* in year t	Nikkei Needs CGES
vol3_0	Volatility of daily stock returns over three years (i.e. t-3 to t) for firm i in year t	Nikkei Needs CGES
ratio_lawyer_d	Proportion (%) of lawyer directors to total number of directors at the firm	directory of directors (*yakuin shikiho*)
ratio_accountant_d	Proportion (%) of accountant directors to total number of directors at the firm	directory of directors (*yakuin shikiho*)
ratio_professional2_d	Proportion (%) of professional (lawyer or accountant) directors to total number of directors at the firm	directory of directors (*yakuin shikiho*)
ratio_lawyer_d_in	Proportion (%) of inside lawyer directors to total number of directors and auditors at the firm	directory of directors (*yakuin shikiho*)
ratio_lawyer_d_out	Proportion (%) of outside lawyer director to total number of directors and auditors at the firm	directory of directors (*yakuin shikiho*)
ratio_accountant_d_in	Proportion (%) of inside accountant director to total number of directors and auditors at the firm	directory of directors (*yakuin shikiho*)
ratio_accountant_d_out	Proportion (%) of outside accountant director to total number of directors and auditors at the firm	directory of directors (*yakuin shikiho*)
ratio_professional2_d_in	Proportion (%) of inside professional director to total number of directors and auditors at the firm	directory of directors (*yakuin shikiho*)
ratio_professional2_d_out	Proportion (%) of outside professional director to total directors at the firm	directory of directors (yakuin shikiho)
Control variables		
lnass1	Natural log of the total asset of the firm	DBJ data
brd_num	Total number of directors at the firm	Nikkei Needs CGES
l_tky_p	A dummy variable taking the value of 1 if the firm is listed on the first section of Tokyo Stock Exchange, 0 otherwise.	Nikkei Needs CGES
ent	Entrenchement, measured as proportion (%) of the firm's total shares owned by directors	Nikkei Needs CGES
frgn	Proportion (%) of the firm's shares held by foreign shareholders	Nikkei Needs CGES
sector_vol_median	Median value of stock return volatility, vol3_0, by sector, using the 33 sectors identified by Tokyo Stock Exchange	Nikkei Needs CGES

Table 2: Descriptive statistics

	N	Mean	Standard deviation	Median
roa_0	43980	5.448	11.236	4.375
aveq_0	43705	1.255	1.366	0.991
vol3_0	40061	2.756	1.258	2.476
ratio_lawyer_d	44560	0.726	3.356	0
ratio_accountant_d	44560	0.537	3.184	0
ratio_professional2_d	44560	1.263	4.761	0
ratio_lawyer_d_in	44560	0.041	0.844	0
ratio_lawyer_d_out	44560	0.684	3.244	0
ratio_accountant_d_in	44560	0.232	2.208	0
ratio_accountant_d_out	44560	0.306	2.233	0
ratio_professional2_d_in	44560	0.273	2.364	0
ratio_professional2_d_out	44560	0.990	4.104	0
lnass1	43981	10.429	1.879	10.214
brd_num	44329	7.874	3.330	7
l_tky_p	46086	0.446	0.497	0
ent	43632	8.969	15.893	1.958
inst	43430	13.638	15.112	7.985
frgn	44231	8.530	11.623	3.640
sector_vol_median	44329	2.519	0.475	2.538

Table 3: Correlation matrix

	roa_0	aveq_0	vol3_0	ratio_lawyer_d	ratio_accountant_d	ratio_profexional2_d	ratio_lawyer_d_in
roa_0	1						
aveq_0	0.2732*	1					
vol3_0	-0.1983*	0.2130*	1				
ratio_lawyer_d	0.0230*	0.0243*	0.0044	1			
ratio_accountant_d	0.0371*	0.0517*	0.0610*	0.0693*	1		
ratio_profexional2_d	0.0411*	0.0517*	0.0433*	0.7532*	0.7084*	1	
ratio_lawyer_d_in	0.0199*	0.0183*	0.0034	0.2644*	0.003	0.1890*	1
ratio_lawyer_d_out	0.0190*	0.0207*	0.0038	0.9660*	0.0711*	0.7303*	0.0062
ratio_accountant_d_in	0.0398*	0.0583*	0.0532*	-0.0028	0.6899*	0.4529*	0.0048
ratio_accountant_d_out	0.0135*	0.0159*	0.0350*	0.0984*	0.7421*	0.5589*	-0.0003
ratio_profexional2_d_in	0.0441*	0.0611*	0.0512*	0.0983*	0.6376*	0.4899*	0.3859*
ratio_profexional2_d_out	0.0223*	0.0250*	0.0219*	0.8099*	0.4621*	0.8777*	0.0047
lnasx1	-0.0565*	-0.1913*	-0.3657*	0.0645*	-0.0735*	-0.004	0.0059
brd_num	-0.0018	-0.0866*	-0.2845*	-0.0158*	-0.0681*	-0.0568*	0.0016
l_shy_p	0.0411*	-0.0428*	-0.2656*	0.0413*	-0.0263*	0.0119*	-0.0057
ent	0.1516*	0.1398*	0.1450*	-0.0002	0.0765*	0.0512*	0.0084
lnat	0.1596*	0.0551*	-0.1616*	0.0989*	-0.005	0.0662*	0.0128*
fhgn	0.1066*	0.0765*	-0.0906*	0.1115*	0.008	0.0836*	0.0149*
sector_vol_median	0.0334*	0.0704*	0.3902*	-0.0167*	0.0359*	0.0124*	0.0202*

	ratio_lawyer_d_out	ratio_accountant_d_in	ratio_accountant_d_out	ratio_profexional2_d_in	ratio_profexional2_d_out	lnasx1	brd_num
ratio_lawyer_d_out	1						
ratio_accountant_d_in	-0.0042	1					
ratio_accountant_d_out	0.1021*	0.0267*	1				
ratio_profexional2_d_in	-0.0015	0.9244*	0.0245*	1			
ratio_profexional2_d_out	0.8385*	0.0113*	0.6276*	0.0123*	1		
lnasx1	0.0650*	-0.0833*	-0.0224*	-0.0767*	0.0393*	1	
brd_num	-0.0167*	-0.0614*	-0.0364*	-0.0575*	-0.0330*	0.5567*	1
l_shy_p	0.0443*	-0.0350*	-0.0038	-0.0345*	0.0326*	0.6426*	0.3721*
ent	-0.0022	0.0877*	0.0221*	0.0856*	0.0103*	-0.3575*	-0.2303*
lnat	0.0988*	-0.0280*	0.0209*	-0.0223*	0.0896*	0.6103*	0.3321*
fhgn	0.1113*	-0.0182*	0.0295*	-0.0123*	0.1040*	0.4845*	0.2464*
sector_vol_median	-0.0220*	0.0560*	-0.0044	0.0595*	-0.0198*	-0.1786*	-0.1241*

	l_shy_p	ent	lnat	fhgn	sector_vol_median
l_shy_p	1				
ent	-0.2760*	1			
lnat	0.5731*	-0.1893*	1		
fhgn	0.3999*	-0.1599*	0.8113*	1	
sector_vol_median	-0.0913*	0.0945*	-0.0139*	-0.0084	1

Table 4: Regression of effect of professionals on corporate performance, 2004-2015

	(1)	(2)	(3)	(4)
Dependent variable	ROA	ROA	Tobin's Q	Tobin's Q
Estimation method	OLS	IV	OLS	IV
ratio_professional2_d	0.0381	1.0929	0.0038	0.319
	[0.0203]*	[0.2569]***	[0.0023]*	[0.0371]***
Control variables				
lnass1	-0.4332	-0.8883	-0.2358	-0.2047
	[0.1720]**	[0.0799]***	[0.0163]***	[0.0103]***
brd_num	0.0638	0.2471	0.0091	0.0442
	[0.0247]***	[0.0281]***	[0.0034]***	[0.0045]***
l_tky_p	1.2337	1.2298	0.2299	0.1258
	[0.2342]***	[0.1673]***	[0.0304]***	[0.0254]***
ent	0.0799	0.0707	0.0033	0.0002
	[0.0245]***	[0.0231]***	[0.0013]***	[0.0009]
inst	0.1329	0.1337	0.01	0.0072
	[0.0162]***	[0.0079]***	[0.0025]***	[0.0017]***
frgn	0.0113	-0.0129	0.0137	0.003
	[0.0205]	[0.0134]	[0.0031]***	[0.0025]
sector_vol_median	-0.9627	-0.3749	0.2481	0.0216
	[0.3422]***	[0.1109]***	[0.0486]***	[0.0202]
R^2	0.1	.	0.16	.
N	42,602	42,602	42,532	42,532

* p<0.1; ** p<0.05; *** p<0.01

We use OLS with robust standard errors clustered at the firm level.

We use the four instruments together in our IV regressions.

Table 5: The effect of the introduction of professionals on ROA and Tobins' q: Propensity score matching

	ROA		Tobin's q	
	First introduction		First introduction	
	DID	Robust Std. Err.	DID	Robust Std. Err.
[-1,1]	-0.2676	[1.8462]	0.2058	[0.1391]
[0, 1]	0.6391	[1.3097]	-0.0409	[0.0770]
[0, 2]	1.2876	[1.2745]	-0.0965	[0.0979]
[0, 3]	2.2907	[0.9122]**	0.2387	[0.2322]
[0, 4]	1.3885	[0.7969]*	0.139	[0.0999]

* p<0.1; ** p<0.05; *** p<0.01

The difference-in-difference (DID) analysis looks at the difference in performance change between firms that introduced a professional and those that did not.

In the first column [-1, 1], -1 refers to t-1 from the time that a professional was first introduced, and 1 to t+1, Year 0 refers to the year when a professional was first introduced.

Table 6 The effect of professionasl on stock return volatility

	(1) OLS Whole sample	(2) IV Whole sample	(3) OLS Regulated	(4) OLS Less regulated	(5) IV Regulated	(6) IV Less regulated
ratio_professional2_d	0.0081	-0.163	0.0038	0.0104	0.4235	-1.5554
	[0.0033]**	[0.0313]***	[0.0045]	[0.0043]**	[0.0380]***	[0.3871]***
Control variables						
lnass1	-0.2814	-0.2331	-0.2475	-0.297	-0.177	-0.5878
	[0.0187]***	[0.0075]***	[0.0242]***	[0.0253]***	[0.0163]***	[0.0813]***
brd_num	-0.0303	-0.0594	-0.0396	-0.0263	-0.0001	-0.1213
	[0.0036]***	[0.0038]***	[0.0069]***	[0.0042]***	[0.0088]	[0.0268]***
l_tky_p	-0.1612	-0.1816	-0.3432	-0.0884	-0.6715	0.1816
	[0.0352]***	[0.0205]***	[0.0668]***	[0.0413]**	[0.0645]***	[0.1212]
ent	-0.0016	0.003	0.0009	-0.0027	0.0006	0.0273
	[0.0013]	[0.0011]***	[0.0023]	[0.0016]*	[0.0025]	[0.0101]***
inst	0.0038	0.0064	0.0086	0.0017	0.0072	0.0317
	[0.0017]**	[0.0010]***	[0.0027]***	[0.0021]	[0.0032]**	[0.0099]***
frgn	0.0115	0.0152	0.0079	0.0132	-0.0027	0.0679
	[0.0023]***	[0.0016]***	[0.0033]**	[0.0029]***	[0.0040]	[0.0164]***
R^2	0.28	.	0.39	0.23	.	.
N	39,858	39,858	11,364	28,494	11,364	28,494

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table 7: The effect effect of the introduction of professionals on volatility: propensity score matching

	Whole sample		Regulated sectors		Less regulated sectors	
	DID	Robust Std. Err.	DID	Robust Std. Err.	DID	Robust Std. Err.
[-1,1]	0.1516	[0.0761]**	0.3684	[0.0553]***	0.0619	[0.0777]
[0, 1]	0.0829	[0.0354]**	0.1241	[0.0409]***	0.0612	[0.0403]
[0, 2]	0.0446	[0.1115]	0.1726	[0.1886]	0.028	[0.0968]
[0, 3]	-0.1348	[0.1583]	0.0705	[0.1126]	0.0683	[0.1532]
[0, 4]	-0.21	[0.1072]**	0.0612	[0.1228]	-0.2708	[0.1432]*

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

The difference-in-difference (DID) analysis looks at the difference in performance change between firms that introduced a professional and those that did not.
In the first column [-1, 1], -1 refers to t-1 from the time that a professional was first introduced, and 1 to t+1, Year 0 refers to the year when a professional was first introduced.

Appendix 1: Industry classification into regulated and less regulated

Sub classification	Sector code	Regulated
Fishery, Agriculture & Forestry	50	0
Mining	1050	0
Construction	2050	0
Foods	3050	1
Textiles & Apparels	3100	0
Pulp & Paper	3150	0
Chemicals	3200	1
Pharmaceutical	3250	1
Oil & Coal Products	3300	1
Rubber Products	3350	0
Glass & Ceramics Products	3400	0
Iron & Steel	3450	0
Nonferrous Metals	3500	0
Metal Products	3550	0
Machinery	3600	0
Electric Appliances	3650	0
Transportation Equipment	3700	0
Precision Instruments	3750	0
Other Products	3800	0
Electric Power & Gas	4050	1
Land Transportation	5050	0
Marine Transportation	5100	0
Air Transportation	5150	0
Warehousing & Harbor Transportation Services	5200	0
Information & Communication	5250	1
Wholesale Trade	6050	0
Retail Trade	6100	0
Banks	7050	1
Securities & Commodity Futures	7100	1
Insurance	7150	1
Other Financing Business	7200	1
Real Estate	8050	1
Services	9050	0

Source: Tokyo Stock Exchange.

Appendix 2: The effect inside and outside professional-directors

	(1)	(2)	(3)	(4)
Dep. Vars.	ROA	ROA	Tobin's Q	Tobin's Q
Estimation	OLS	IV	OLS	IV
ratio_professional2_d_in	0.0978	0.6009	0.0116	0.6875
	[0.0457]**	[0.8610]	[0.0055]**	[0.1096]***
ratio_professional2_d_out	0.0176	1.4118	0.0012	0.0784
	[0.0218]	[0.5640]**	[0.0023]	[0.0640]
Control variables				
lnass1	-0.4303	-0.931	-0.2354	-0.1727
	[0.1719]**	[0.0948]***	[0.0163]***	[0.0111]***
brd_num	0.0633	0.2712	0.009	0.0261
	[0.0247]**	[0.0469]***	[0.0034]***	[0.0058]***
l_tky_p	1.2374	1.1547	0.2304	0.1818
	[0.2340]***	[0.2045]***	[0.0304]***	[0.0296]***
ent	0.0795	0.0732	0.0033	-0.0017
	[0.0244]***	[0.0247]***	[0.0013]***	[0.0012]
inst	0.1328	0.1333	0.01	0.0076
	[0.0162]***	[0.0084]***	[0.0025]***	[0.0016]***
frgn	0.0118	-0.0218	0.0137	0.0097
	[0.0205]	[0.0203]	[0.0032]***	[0.0029]***
sector_vol_median	-0.9544		0.2492	
	[0.3421]***		[0.0486]***	
R^2	0.1	.	0.16	.
N	42,602	42,602	42,532	42,532

* $p<0.1$; ** $p<0.05$; *** $p<0.01$