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COLLECTIVE INTELLIGENCE OR GROUPTHINK? GROUP DECISION MAKING UNDER THE JAPANESE COMPANIES ACT

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Abstract

Japanese corporate law (the Companies Act) requires that boards have three or more directors, and thus makes group decision making obligatory within firms. But according to some observers, boards of directors are often a mere formality in Japan, especially for non-public and small-to-medium-sized firms. The literature of behavioural science shows that group decision making does not necessarily produce better outcomes than individual decisions. In fact, a model of a group decision making shows that it can cause underinvestment at firms. The three-or-more requirement was formed with path dependency dating back to the late 19th century when Japan transplanted legal systems from overseas, but it was by no means the standard. Giving managers flexibility in organizational design is desirable in that it can accommodate firms' internal characteristics and tendencies and facilitate the establishment of start-ups, new subsidiaries and joint ventures.

Keywords: Corporate Law, Corporate Governance, Decision Making, Cognitive Science, Behavioural Finance

1. INTRODUCTION

The organizational form of a corporation is an innovation of the modern era. Dating back to the Dutch East India Company in 1602, it enables funding from a diverse source of external investors supported by limited liability, achieving a form of continuous business execution not possible with organizations created for each oceanic journey. Japanese corporate law – the "Companies Act" in its formal name – has been researched from multiple viewpoints, but the economic analysis of Japanese corporate law, spearheaded by Miwa, Kanda and Yanagawa (Eds.) (1998), has been particularly extensive.

This paper's goal is to explore the behavioural aspects of corporate law by drawing on recent developments in the field, and so to deepen our understanding of the corporate organization. As discussed in the next section in more detail, there is a gap in the existing literature on the behavioural foundations of decision making and the legal foundations of corporate governance. While corporate decisions are made by individuals or groups, with associated behavioural aspects, existing research on the design of Japanese corporate law is scarce from this perspective and will profit from further exploration. By combining the two foundations, we should be able to gain greater insight into the design of corporate governance. In particular, this paper analyses a clause in the Companies Act which deals with group decision making. Japanese society has many institutions and organizations in which group decision making is ingrained. The Japanese Cabinet and Diet, for example, consist of multiple ministers and policymakers. Cases in Japan's courts of law, especially important ones, are deliberated by groups of judges. In the Japanese Supreme Court, cases must be deliberated by groups of five or fifteen judges, and in the High Court by groups of three, without exception. Such group decisions seem to fit the Japanese corporate culture of *nemawashi*, the internal consensus-building which takes place before formal decision making. However, Koike (2009) argues that group decision making, while thought of as a Japanese tradition, was in fact not a national tradition at all. As evidence, he cites cases from as far back as the Japanese government's imperial poetry anthology (the "New Collection of Poems

Ancient and Modern") compiled in the early 13th century.

Corporate decision making is governed by the Companies Act, within which exists an interesting clause which obliges companies to make decisions as a group. The corporate law stipulates that "a Company with a Board of Directors shall have three or more directors" (§ 331 (5)). However, this clause has not met with wide acceptance. Egashira (2017), referring to the clause, states that "it is not carried out as expected by the law…there are many cases where a board of directors is a nominal existence to meet the required number of people or…just a formality", especially for small and medium-sized firms.

Group decision making is not required for all firms, but only for those having a board of directors. A board of directors is mandatory for firms which issue one or more shares tradable without the approval of its issuer. Typically this is a listed firm, namely "any Stock Company the articles of incorporation of which do not require, as a feature of all or part of its shares, the approval of the Stock Company for the acquisition of such shares by transfer" (§ 2 (5)). Unlisted, family-owned, small and medium-sized firms which issue shares with restrictions on their trade are not required to have a board of directors. But there are many firms which have chosen to do so ever since the era of the older corporate law, despite the assertion by Egashira that boards tend to be an empty formality. This reflects the social perception, stability, and thus the popularity of the format.

Legal institutions, once formulated, evolve under path dependency. The history of the clause requiring three or more directors dates back to the late 19th century, when, in 1882, a draft commercial code was written by the German legal scholar Hermann Roesler. Roesler had been invited by the Japanese government to introduce European corporate laws, the most advanced institutions at that time, to a Japan which was attempting to modernize before the enactment of the first formal corporate law, the Commercial Code, in 1899. The Roesler draft stipulated that a "shareholders meeting shall elect three or more directors from shareholders one month before the commencement of business" (Draft § 219). While the corporate law in France and Germany required only one or more directors, the draft set the minimum requirement at three, borrowing a concept from English law which used a multiple of three (Takada, 2016, 2014). The draft was adopted in the Japanese Commercial Code in 1899 as "A Company shall have three or more directors", and the rule remains in modern corporate law, the Companies Act. The Companies Act itself was rewritten in 2006 as a separate entity from the Commercial Code, which today governs only general rules of commerce.

Historically, while the Commercial Code required a board of directors for all firms established under its terms, there was another law, aimed mainly at small, unlisted, family-owned firms, which offered an alternative organizational form with limited liability (the "Limited Liability Company Law"). In 2006, however, the alternative law was subsumed under the new corporate law – the Companies Act – the enactment of which resulted in its abolishment and the prohibition of establishing new firms under the prior format. Thus, while the "boardless" corporation continues to exist as a format, its use is limited because of differences in the allocation of powers, and also because it is not well perceived. Essentially then, only the board of directors format remains popular.

A corporation with a board of directors must make key managerial decisions through its board. The corporate law stipulates "deciding the execution of the operations" (§ 362 (2) (i)) as a power and obligation of the board of directors; this includes the investment and financing resolutions which are major financial decisions under corporate finance theory. For example, the board of directors must decide on such investment issues as the "disposal of and acceptance of assignment of important assets" (§ 362 (4) (i)); on debt financing issues such as "borrowing in a significant amount" (*ibid*, (ii)) and "important matters regarding the solicitation of persons who subscribe for bonds" (*ibid*, (v)); and on equity financing matters such as the issuance of new shares and determination of "subscription requirements" (§ 201-202). Even though the shareholders meeting is the highest decision-making body of a corporation, it cannot make resolutions on issues for which decisive power is allocated to the board of directors (§ 295 (2)). The shareholders meeting is empowered to make indirect decisions though the appointment of directors at shareholders meetings (§ 341), thereby giving substantial decision-making power to the board of directors.

Egashira (2017) states that corporations without a board of directors require shareholders-meeting approval for more issues than companies with a board. Included in such issues are approval of the transfer of shares with restriction thereof (§ 139 (1)), determination of price and timing of share repurchase (§ 157 (1), § 168 (1)), determination of share split (§ 183 (2)), and approval of competition and conflicted transactions by a board member (§ 356 (1)). More fundamentally, unlike in corporations with a board of directors, the power of shareholders meetings is not limited to issues stipulated in laws and articles of incorporation, but extends to every corporate issue from the organizational and managerial to the administrative (§ 295 (1)). Therefore, the power obtained by a board of directors through its place in a corporation is extensive, and the allocation of powers is different in firms with and without a board. It is intriguing to find that the Companies Act requires a minimum of three persons on a board of directors, rather than leaving the decision to the shareholders.

Why is group decision making required over and beyond decisions made by individuals? As the old saying goes, two heads are better than one. The Japanese say that three people make wisdom, meaning that the quality of decision making is improved by the diversity of those taking part in it. By contrast, we also hear that too many cooks spoil the broth, and that (in Japanese) too many captains steer the ship up a mountain; both of these sayings imply that a variety of views is not necessarily best for corporate decision making. In a board setting, therefore, the "group" can become a mere formality, a selection of relatives and friends brought together to satisfy legal requirements. There is a very fine line between leadership and dictatorship, creativity and conceit, and vision and illusion, but in family

firms, the decisions of founders and owners tend to matter. This paper explores the rationale of group decision making by drawing on the findings of behavioural science. Section 2 reviews the literature in existing laws and stipulations as well as analyses of corporate boards. Section 3 describes the research methodology by which this paper analyses the issue of Japanese corporate law. Section 4 shows the results of this analysis. Section 5 discusses the results and examines the effectiveness of group and individual decision making. Section 6 concludes the paper.

2. LITERATURE REVIEW

The previous section raised the question of why Japanese corporate law obliges firms to make decisions collectively even though "two heads are better than one" and "too many cooks spoil the broth". In the context of corporate decisions made by a board of directors, it asks if there is any difference between decision making by plural directors and those by an individual director, all other conditions being equal. Correspondingly, from the viewpoint of governance, the section identified two alternative means: governance by shareholders' voting, where the number of board directors can be one, or less than the minimum requirement of three, and by the appointment of a three-or-more-person board of directors. The existence of two different governance formats means that corporate law treats decisions by individuals and groups differently, and the existence of a clause for mandatory group decisions seems to imply that group decision making is better than that by individuals, and to give more discretion to boards having three or more people. This is not always the case, however, and even the opposite can be true. To consider the point further, this section reviews existing corporate laws in more detail along with relevant discussions on corporate governance.

2.1. Corporate laws on managerial decisions and monitoring

2.1.1. Japanese corporate law

First, it is necessary to make the distinction between managerial decisions and monitoring as functions of the board of directors. For a firm in which ownership is separate from management, monitoring is required because of the existence of informational asymmetry between principal and agent, a mechanism which is governed by corporate law. Assuming that the CEO is a board member, it is reasonable for the board to have plural directors for the purpose of monitoring given the conflict of interest existing between principal and agent; a separate person or organization is desirable as a monitor in order to resolve such conflicts. However, Japanese corporate law does not seem to require plural directors for monitoring alone. The Companies Act lists the roles of the board of directors, starting with "deciding the execution of the operations" (§ 362 (2) (i)) and followed by "supervising the execution of the duties by directors" (*ibid*, (ii)). In the case of plural directors, it is understood that directors are obliged to monitor each other (Kanda, 2017). The argument for more independent directors on the board puts the emphasis on checks and balances, the need to monitor management from an outside perspective and protect shareholders from runaway management.

Obviously, the term "corporate governance" implies an element of monitoring in order to secure proper business execution while protecting shareholders. Firms having a board of directors make various choices along with a spectrum of a board's functions, from the management model to the monitoring model, and they seem to be struggling as to how to strike a fine balance between the two boards' of directors models or at least to make the two compatible. Increasing the number of independent directors is consistent with transitioning from the management model to the monitoring model, but for the purpose of monitoring, the Companies Act also offers the options of a Company with Auditors and a Company with Board of Auditors (§ 327 (2)). These systems have auditors monitor management, or "audit the execution of duties by directors" (§ 381 (1)), by separating the roles of directors and auditors. Since Japanese corporate law offers two formats – a Company with Auditors, with at least one auditor, and a Company with Board of Auditors, with a board of auditors with at least three auditors and at least half of whom must be independent – the minimum number per institution is one. Further, it is possible for firms with restrictions on the trade of shares not to have auditors, in which case direct monitoring by shareholders is prescribed (Kanda, 2017; for instance, § 357 (1) for the obligation to report to shareholders; § 360 (1)-(3) for the shareholders' rights to suspend action by directors). To address limits on the power of auditors and duplication of the monitoring roles of independent directors and auditors, the Act also offers the option of a Company with Audit and Supervisory Committee (Tanaka, 2017). Under this latter format, introduced in 2015, an Audit and Supervisory Committee requiring three or more directors, more than half of whom must be independent directors, may replace the traditional Board of Auditors and thus enable firms to do without an auditor. This format compares to that of a Company with Nominating Committee etc., where a nominating committee and a compensation committee are also formed by a majority of independent directors: this is the most monitoring-enhancing model of a board of directors among those available.

These mechanisms tend to focus on monitoring rather than managerial decisions. This paper, by contrast, focuses on an aspect of business judgment – managerial decisions – rather than monitoring. Corporate law includes managerial decisions within the scope of a board of directors' powers. By having a board of directors, a firm moves the authority to make many important managerial decisions, such as borrowing and asset disposition, from shareholders to the board of directors.

Historically, the article covering firms without a board of directors originated in the Limited Liability Companies Act, a law governing small and medium-sized firms which was merged into the Companies Act in 2006. The managerial authority of firms without a board of directors, including those with only one director, is narrower than that of firms which have a board. Thus firms with only one

director have a different allocation of powers than those with a full board of directors. In addition to differences in the allocation of powers between shareholders and the board of directors, there is greater social recognition and credibility with the corporate format, and greater predictability and stability with the accumulation of judicial precedents, than under the limited liability company format. For small, family-owned firms, such as small factories and mom-and-pop stores with owner-managers – the kind the law seems to have in mind as typical of the limited liability company – few problems will arise, even though the allocation of powers may differ. But for start-ups and venture firms, which may rely on outside capital and have separate ownership and management, allocation of powers does become an issue and one which contemporary corporate law does not appear to address. Even a new subsidiary or joint venture formed by large firms is run with greater consistency if kept under the same format as its shareholders' rather than taking the format of a traditional mom-and-pop store – especially since the directors of a parent firm can be liable for the losses of their wholly-owned subsidiaries under the amendment made to the Companies Act in 2014 (§ 362 (4)(vi)). In sum, Japanese corporate law puts the burden on firms to have a board of directors with a minimum of three directors if they wish to enjoy the benefits and stability of the modern corporate format.

In addition to corporate law, it is important to understand the rules of the stock exchange in general. The listing requirements of the Tokyo Stock Exchange focus on monitoring functions rather than management, and call for either a board of auditors with three or more auditors, at least half of whom are independent, or a committee consisting of a majority of independent directors which includes the Company with Audit and Supervisory Committee format (in which case the board of auditors is replaced by an audit and supervisory committee) and a Company with Nominating Committee etc., which adds a nominating committee and a compensation committee, also consisting of a majority of independent directors. In the Corporate Governance Code of 2015, the Tokyo Stock Exchange (2017, 2015) crystallized the argument for strengthening the monitoring function of the board of directors by including more independent directors, even for firms having a board of auditors. This introduced the "comply-or-explain" principle, under which firms are required to explain their reasons for not having independent directors. From the perspective of this paper, this raises such points as the effectiveness of self-monitoring when compared with third-party monitoring, as well as the relative effectiveness of monitoring by one person and by a number of people. In any case, corporate scandals are commonly observed in firms with large boards of directors and auditors. Miyajima and Ogawa (2012) point out that having three independent directors was hardly effective in the accounting fraud case involving Olympus, a major camera and endoscope manufacturer. Listing rules are in fact calling for a larger monitoring role for boards of directors and the inclusion of more independent directors on boards.

For the purpose of monitoring, it would seem effective to separate managers from monitors, but this will depend on how managers and monitors are incentivized and how knowledgeable and informed monitors are about the behaviour of managers. For instance, some trade groups, such as financial brokers, govern themselves in addition to undergoing monitoring by authorities because of the complex nature of their business. However, assuming that it is more effective to separate managers and monitors, which is intuitive, whether having multiple monitors is more effective is another issue. The point is in line with this paper's point of view, namely, whether managerial decisions can be made more effectively by plural people rather than one, if the task of monitoring is viewed similarly to managerial decision making.

2.1.2. U.S. corporate law

In the U.S., Delaware corporate law stipulates the minimum size of a board of directors as "one" (§141); this is also the case in New York State (§702). However, this cannot be taken as direct evidence supporting smaller boards, as boards of directors have different roles in Japan and the U.S. Above all, the U.S. puts greater emphasis on monitoring and on having a majority of independent directors. Execution of business is delegated to executive officers, except in instances of reorganization, such as by a merger and acquisition, or the disposition of substantial parts of assets. On a U.S. board one is unlikely to find a majority of insiders who have been promoted internally, the CEO positioned at the top of a corporate pyramid backed by a lifetime employment system and empowered to make business decisions. Also, in regard to the relationship between corporate law and exchange rules, the NYSE and NASDAQ both require firms to have an independent-director majority on their boards of directors, as well as an audit committee with three or more directors, all of whom must be independent. As a consequence, there must be three or more directors on the board, which exceeds the one-person minimum prescribed in corporate law. This shares a perspective with the Japanese Board of Auditors format, which requires at least half of auditors to be independent. In both cases, apart from monitoring, we do not find any clause which obliges firms to make group decisions on the execution of business.

Other means of governance that enable individual decisions include a multiple voting class of shares. Shareholders with this class of share have more than one vote per share, giving founders, for instance, major decision rights. Japanese corporate law has no provision dealing directly with shares of this type, but different classes of shares may be created by differentiating the number of issued shares necessary per vote (§ 188 (3)). At Google, for instance, founders are given ten votes per share. Firms such as these give preferred decision rights to certain individuals, not at the corporate design level but at the level of share design. If a certain shareholder is allowed to control decisions at a shareholders meeting, the highest decision-making body of a firm, this means that the firm is organized so as to allow, and indeed to expect, decisions to be made by an individual or individuals.

2.2. Review of empirical research

Empirical research on corporate governance generally finds a negative relationship between the size of the board of directors and firm value. For instance, both Yermack (1996) in the United States and Guest (2008) in the United Kingdom find significant negative correlations between board size and Tobin's q. In Japan, Suzuki and Peng (2000) report a significant negative correlation between board size and excess stock return.

Recent Japanese research includes Nakano and Nguyen (2012) and Nakano (2017). The latter shows a negative correlation between board size and firm performance or value. They argue that a larger decision-making body leads to the free rider problem, higher coordination costs, and risk aversion, pointing out "flaws in group decision making" in large decision-making bodies unwilling and unable to take risks. Nakano (2017) additionally finds a negative correlation between the average age of the board and firm performance.

However, firms listed on the Tokyo Stock Exchange have an average board size of eight persons, and firms with sales of less than 10 billion yen (about 90 million dollars) have boards of about six persons, so it cannot be argued that the Companies Act puts onerous restrictions on large listed firms in regard to the minimum size of boards. The research mentioned above generally uses samples of an average of seven to eleven directors per board, which far exceeds the minimum of three. Obviously, there is no empirical research on firms with boards having one director because such firms cannot be listed. The research into correlations with board size does not deal with the process of decision making, which suggests a need to draw on empirical research in behavioural science, as in the next section; it does, however, hint at the effectiveness of smaller decision-making bodies as a general pattern.

3. RESEARCH METHODOLOGY

The previous section showed that there is generally a negative relationship between board size and firm value as a result of the free rider problem and coordination costs. However, the process by which value decreases is unclear. To discover why, we need to further our analysis of boards of directors by drawing on the behavioural foundations of the group and individual decisions. This approach allows us to examine whether there is any reasonable foundation in Japanese corporate law which requires a minimum size for boards and distinguishes between groups and individuals in allocating discretion over decision making. More specifically, we discuss the processes of group decision making based on empirical behavioural science. As behavioural science research directly compares individual decisions with group decisions and examines the processes by which group decision making takes place, its outcomes are very useful.

First, we look empirically at a positive aspect of group decisions, as represented by the concept of collective intelligence: a process by which group performance exceeds that of individuals, and which is embodied in the Japanese adage "three people make wisdom". We then contrast this finding with a negative aspect as represented by the concept of groupthink, under which the opposite occurs. This, too, has an apposite saying in Japanese: "Too many captains steer the ship up a mountain". Significantly, bias and other behavioural tendencies are extracted in a general form by comparing individuals and groups, although these experiments are not conducted in business environments.

The benefits of group decision making are said to derive from the synthesis of diverse skills and expertise, the result of which should be better decisions. It is arguable that combining expertise in this way is effective in dealing with complex issues, and that group decisions can be appropriate in such situations. Large firms need a diversity of knowledge on products and services, while in the medical field, doctors and technicians often work as teams to provide the range of expertise and skills required for complex cases. People need the expertise and information of others because there is a limit on how much knowledge, experience, and memory can be held by a single individual. People thus behave under bounded rationality (Simon, 1957). People are also limited in their cognition and have a tendency to forget, which makes it valuable to have other people around to notice the unnoticed and look at the overlooked.

Further, when something new is created by combining existing things (Schumpeter, 1912), blending the knowledge and experience of multiple individuals is a source of innovation, bringing in new perspectives and expertise and promoting creativity. In innovative organizations, Hill and Brandeau (2014) emphasize the importance of leadership in creating the collaborative environment needed to produce diverse ideas and to learn by discovery through trial and error. Group decision making can also encourage the proactive involvement of participants, thus facilitating the execution of whatever is decided.

By contrast, groupthink is a process by which the quality of group decision making declines owing to strong pressure within the group to conform or to an insufficiency of the information required to make sound decisions. Related to groupthink are other biases, such as diffusion of responsibility, polarization, and overconfidence. These negative aspects provide behavioural foundations for the free rider problem and the higher coordination costs suggested in the empirical studies of board size and corporate value.

Finally, to complement the analysis based on empirical studies of behavioural science, we further construct a theoretical model of decision making so as to analyse the consequences of the group and individual decisions. This additional approach allows us to look at the problem in a different light, and to extract different findings from those gained from empirical research on decision making; we can now examine the corporate governance model from multiple perspectives. This is possible because behavioural finance models can be described similarly to more traditional agency models and asymmetric information models (Baker & Wurgler, 2013).

Findings obtained from both the empirical studies and the theoretical model enable us to deepen our understanding of the processes, both positive and negative, within which a negative relationship between board size and corporate value is generally observed, and to discuss the implications on Japanese corporate law and its stipulations on governance structure.

4. RESULTS

This section shows the results of the empirical studies on positive and negative aspects of group and individual decision making and offers a theoretical model of the group and individual decisions. First, we show findings for collective intelligence, then those for groupthink. Finally, we construct a decision model.

4.1. Research on positive effects of group decisions

The positive side of group decisions is called collective intelligence, as described in the previous section, and there is some evidence to suggest it exists. Laughlin et al. (2006) show that in the task of solving equations using alphabets, groups of three to five perform better than individuals or groups of two, indicating that groups of at least three are the most effective. Tetlock and Gardner (2015) compare individual and group performance in political and economic forecasting based on information gathering. They randomly divided expert forecasters into groups and individuals to compare the positive effect of exchanging information and views within a group on the accuracy of forecasts, along with the negative effects of groupthink and intellectual negligence. They instructed the groups beforehand about the possible drawbacks of working as a group. They report that group performance exceeded individual performance by 23 per cent. To test for the existence of collective intelligence, they compared the performance of all participants with that of groups and found that the latter exceeded the former by 10 per cent. Performance of groups comprised only of high-performing individuals ("super-teams") exceeded that of individuals by 50 per cent.

Group decision making alleviates the limits on time and information which people face under bounded rationality. Tetlock and Gardner (2015) cite the existence of a shared culture as an observed condition for high-performing groups, whose members may take care to ask each other if there are any points which have been overlooked when forecasting through online communications alone. Group participants who were uninterested in other people performed poorly, while groups of people who were confident while willing to listen to others performed higher than the sum of the individuals.

As an important experiment examining conditions within groups, Wooley et al. (2010) show that the performance of groups of two to five people exceeded that of individuals with no significant correlation of abilities between groups and the individuals within them, a result which suggests the existence of collective intelligence. They cite, as conditions contributing to improved performance, the high social sensitivity of group members, an environment in which participants speak equally without particular people dominating discussions, and a higher ratio of female participants.

The above empirical research suggests that groups can perform better than individuals under certain conditions. In the following, we shall see the possible negative effects of group decisions.

4.2. Research on negative effects of group decisions

4.2.1. Groupthink

In a seminal experiment by Asch (1951), participants were assigned to groups whose other members were researchers pretending to be participants. When the actual participant was given false answers to questions by the pretenders, the actual participant would tend to conform to the majority, believing even obviously false answers to be true and that he or she had not been influenced by the other participants. Janis (1972) argues that people are vulnerable to pressure to conform, that a strong voice creates an atmosphere in which it is difficult to offer opposing opinions, and that conformity to the opinion leader is the result. The Japanese expression "reading the atmosphere" points to a consensus-oriented culture amenable to groupthink situations where people refrain from any real debate or argument. Koriat (2012) shows that groups perform more poorly than individuals when one subjectively confident individual in the group dominates discussions and makes the decisions.

4.2.2. Diffusion of responsibility

Nisbett and Borgida (1975) report an experiment in which fifteen participants were made to hear the agonized cries of a researcher pretending to be overcome with pain. Out of the fifteen, only four approached the researcher at once. Five more stood up too late to be of any help, while the other six remained seated throughout. Kahneman (2011) points out the difficulty of educating people about such human tendencies due to the reluctance of people to accept unwelcome empirical evidence. They tend to believe that they, unlike the majority of participants, would step up and help. Kurokawa (2016) states that, from his experience as chairman of the Fukushima Nuclear Accident Independent Investigation Commission of the National Diet of Japan, people in Japanese organizations have "low morale, no sense of responsibility, and always talk about their problems as if they were other people's'". All of these phenomena derive from a diffusion of responsibility.

Ogura (1999) reports that when Yamato Transport, the leading Japanese household delivery firm of which he is the founder, proposed switching from its traditional business as a wholesale deliverer for a major department store to a retail household delivery company, the idea was opposed by every one of the board's directors. The first support and catalyst for the transformation came from a leader of the firm's labour union, who was "seriously worried about a crisis in management". Ogura, similarly to Kurokawa (2017), states that "salaried senior managers tend to avoid taking on responsibility and follow and conform to others in their thoughts and behaviour. They have a strong tendency to postpone facing problems, thinking that things will work out at some stage anyway".

In addition to diffusing responsibility, participating in a group leads to the phenomenon of free riding. In a situation where participants are not fully rewarded for their contribution, they have an incentive to take a free ride. They decrease their efforts and contribute less to the group, leading to

an output for the group that is smaller than the sum of its individual participants. Similarly, in the context of a group of shareholders, minority shareholders tend to have less incentive to monitor investee companies because the rewards of their efforts are not enjoyed by themselves alone, but by other shareholders benefiting from a free ride (Edmans & Holderness, 2017).

The series of scandals involving accounting fraud and falsified data by major Japanese firms such as Olympus can be seen not only as dysfunctional monitoring by firms with large boards of directors including independent directors, but also as failures of group decision making: Groupthink and a diffusion of responsibility caused unjustifiable decisions resulting in frauds, data fabrication, and cover-ups. Where diffusion of responsibility is concerned, it is often argued that the CEO and independent directors were not knowledgeable of pertinent facts. As the structure of firms becomes more complicated, it is inevitable that only a limited percentage of issues deliberated on will be reported to management. The more abstract become the fields of which each director is in charge, the more likely it is that information and opinion will be uneven and insufficient, leading to diffuse responsibility and improper decisions.

4.2.3. Polarization

It is also well known that opinions tend to be polarized in group decision making (Lord et al., 1979; Myers & Lamm, 1976). In a two-stage investment experiment, Staw (1981) shows that when an investment goes bad, escalation of commitment is more likely when the investor was involved in the initial decision than when that was not the case. Further, Whyte (1993) shows that such tendencies are amplified in groups rather than individuals. In an experiment in which groups and individuals were asked to judge whether to continue or abandon a poorly performing project, 29 per cent of individuals and 26 per cent of groups chose to continue when the existence of sunk cost was not shown, while 69 per cent of individuals and 86 per cent of groups chose to continue when sunk cost was shown. This indicates that while sunk cost – in this case, initial loss from an earlier project – should be ignored in making decisions, bias in decision making causes people to do so, and thus to take greater risks to recover losses already incurred. More importantly, this bias is amplified in groups compared to individuals, and these tendencies are more evident if the results of failure are visible to others. To summarize, groups do not serve to balance individual biases and errors, but to amplify them, leading to polarization through an escalation of commitment.

4.2.4. Overconfidence

People, more or less, tend to be overconfident. It is known that the sum of self-reported contributions to a group exceeds 100 per cent (Ross & Sicoly, 1979; Savitsky et al., 2005) and that 93 per cent of drivers say that their driving skills are above average (Svenson, 1981). In comparing group and individual performance, Puncochar and Fox (2004) show that groups tend to be more confident about wrong answers and less so about the correct ones. Combined with the pressure to conform and the polarization discussed above, overconfidence is amplified in groups, rather than being checked and bringing balance as might be expected.

Levi et al. (2013), in looking at M&A, indicate that a larger number of female directors lowers the frequency of participation in bidding and premiums paid, suggesting that female participation mitigates overconfidence in boards of directors. This is consistent with the findings of Wooley et al. (2010) mentioned above.

These findings of behavioural science show that group decision making does not have benefits per se, but can actually lower performance. The quality of a group's decision-making performance depends on the situation in which the group is placed and the nature of the problems it addresses, as well as the group's composition and processes, including the social sensitivity of its members (do they pay attention to other members, for example). And while possibilities have been suggested to improve the quality of decision making, no obvious general rule exists for the creation of such effective measures. As in corporate governance, there is no one-size-fits-all answer. To summarize, this section shows that there are two sides to group decision making: one which produces outcomes exceeding those of individuals by integrating diverse expertise and insights, as represented by collective intelligence; and another which amplifies individual biases to produce lower performance, as represented by groupthink.

4.3. A theoretical model

Here, we show that the agency model developed by Yanagawa (2006) can be extended to a group and individual decision model.

Suppose that shareholders invest capital I with an opportunity cost of capital r, form a board of directors and delegate management decisions to the board. Some measures are necessary in order for group decision making to be effective lest it risk falling into negative practices such as groupthink. Let E be private costs deemed necessary by the board of directors, such as expenses to prevent groupthink by, for instance, gathering enough unbiased information to make objective decisions and spending sufficient time listening to all members of the board; P_c be the probability of success when a state c with a high quality of decision making is achieved as a result of such efforts; and P_g ($P_c > P_g$) be the probability of success when a state g with a low quality of decision making is brought about as a result of groupthink. If the board is successful, the shareholders gain outcome Q out of which the board is rewarded with W. If it is unsuccessful, neither the shareholders nor the board gains anything. Assuming group decision making, the state c to bring about a higher probability of success is desirable for shareholders, where the board produces collective intelligence and achieves success. Since the cost E is necessary to realize the state c, the condition for the board to have a high-quality decision making is:

$$P_c W - E \geq P_g W \qquad (1)$$

The left hand of the equation expresses the outcome gained with collective intelligence, and the right-hand expresses the outcome gained with the harmful effects of groupthink. If the shareholders prefer a lower reward W for the board, then:

$$(P_c - P_g)W \geq E \tag{2}$$

From this, the optimal reward W^* is:

$$W^* = \frac{E}{P_c - P_g} \tag{3}$$

The distribution of the outcome ($P_c Q - E$) to the shareholders after paying the cost E is:

$$P_c(Q - W^*) = P_c(Q - \frac{E}{P_c - P_g}) \tag{4}$$

And the distribution to the board is:

$$P_c W^* - E = \frac{P_g}{P_c - P_g} E \tag{5}$$

The condition for the shareholders to invest is:

$$P_c(Q - \frac{E}{P_c - P_g}) \geq (1 + r)I \tag{6}$$

However, if there is no possibility that group decision making will produce harmful effects, it is efficient to invest as long as:

$$P_c Q - E \geq (1 + r)I \tag{7}$$

If we compare (6) and (7) by noting that $P_c > P_g$, we see that the threshold for investment is limited by the existence of groupthink. This occurs because shareholders' return on investment decreases due to the need to distribute to the board of directors more than E, the cost of preventing groupthink, as seen in (5), a result of the case g, under which the probability of success is lower ($P_c > P_g$). This situation resembles underinvestment problems in an agency model where the principal needs to increase distribution to the agent so as to encourage the agent to maintain its efforts, thereby foregoing socially efficient investment. By combining (6) and (7), we obtain:

$$P_c Q - E \geq (1 + r)I > P_c(Q - \frac{E}{P_c - P_g}) \tag{8}$$

If we add the constraint of (6) in particular, we see a shelving of socially efficient investment. As with an agency model in which shareholders will not invest if unable to recover sufficient investment due to inadequate efforts by an agent, this can be interpreted as shareholders being unwilling to supply capital if unable to recover sufficient investment due to the existence of groupthink. Here it is shown that other things being equal, group decision making causes underinvestment problems owing to the potential for harm due to groupthink and other behavioural problems.

Additionally, if a board were to have only one director, as opposed to the minimum of three actually required, we can assume, by denoting the possibility of success through decision making by an individual with P_s:

$$P_c \geq P_s > P_g \tag{9}$$

In this case, the condition to invest is:

$$P_s Q \geq (1 + r)I \tag{10}$$

If we compare (7) and (10), it is always true when $P_c = P_s$ that a decision by an individual will result in a more desirable investment than that by a group. Otherwise it will depend on the relative size of P_c and P_s and the size of E: namely, the difference in desirability between the group and individual decision making and the cost of bringing collective intelligence to group decision making. That group decisions are not always desirable is also shown, therefore, by behavioural modelling.

The phenomenon of a board of directors becoming a formality can be interpreted as E being too large to produce the intended collective intelligence, thus turning the board into an entity which merely confirms decisions already made rather than incurring such costs.

5. DISCUSSION

The previous section showed that there are two sides to group decision making; that certain conditions are needed for collective intelligence to emerge; and that a group is subject to the pitfalls of groupthink and other biases. The theoretical model showed that underinvestment can occur in conjunction with groupthink. We derive from these findings that group decision making is not always appropriate.

Empirical evidence suggests that, while group decision making can have its benefits, there are harmful effects as well, and that mandating firms to make group decisions obliges them to focus on one sort of effect on the assumption that the benefits exceed the costs in all firms, regardless of their behavioural characteristics and tendencies. There is no evidence, however, that this assumption is valid, as shown by the empirical studies and the model. Some firms derive benefits from group decision making; others, however, achieve better governance by reducing the number of their directors when the negative effects of groupthink, and other negative biases of mandated group decisions, are more serious than the presumed effects of collective intelligence are beneficial. Further, these negative factors can cause firms to underinvest, even when such investment is socially desirable.

If Japanese firms were given freedom of choice in composing their boards of directors, as is the case under Delaware corporate law, the effect on decision making would be neutral in the sense that firms with a greater likelihood of realizing collective intelligence would choose group decisions, while those more likely to confront groupthink would choose individual decisions. In competing with each other, each firm would choose an optimal decision model for itself based on its own behavioural characteristics and tendencies. As we have already

seen, large listed firms already have boards of more than three people on average; some are gradually increasing the number of independent directors on the board with a view toward transitioning to the monitoring model of a board under the Corporate Governance Code. Therefore, the typical firm this paper deals with is one with a director or two making substantial decisions, and which desires the legal and non-legal benefits of a favourable allocation of legal authority to the board of directors along with the legal stability and social recognition of a corporation with a board of directors. Given that a small board will not work for monitoring purposes, the company will have an auditor or board of auditors dedicated to that task. Examples of such companies include newly established subsidiaries and joint ventures of large firms, unlisted small and medium-sized firms and start-ups, and firms taking the form of a special limited liability company (a former limited liability company under the old Limited Liability Company Act allowed to retain that format through grandfathering under the Act on Arrangement of Relevant Acts Incidental to Enforcement of the Companies Act even after the enactment of the Companies Act which succeeded and absorbed the old format as corporation).

Such added flexibility in governance could fit with a coincidental change in business and technology. Yanagawa (2015) points out that business in large firms is actually carried out by units of small teams, and that relation-specific investment is made at the level of such teams and not of the whole organization. If this is true, then a large firm's networks and value are created on the small-team level. An economy with a value network whose sources lie in the knowledge, experience and creativity of small organizations and individuals is coherent with a corporate institution which offers a high degree of flexibility to individuals and the managers of small organizations. If smaller organizations make more sense, mandating group decision making with a minimum size will not fill such needs, and may even become a formality offering no beneficial effects.

In addition, the development of technology affects how people view organizations, and new organizational forms support technology as an institutional infrastructure. Recent developments in information technology allow work which has required the extensive knowledge and experience of individuals to be supported by machines. Machine-aided decisions by human beings can have the same functions as decisions supported by other humans with different expertise and experience, as the machines will complement the limited information-processing abilities available to individuals making decisions. In cases like these, there is less of a need for firms to have plural directors who are natural persons on their board of directors (§ 331 (1) prescribes that directors be natural persons). Even aside from small firms where a board of directors can be a formality, it is important for institutions to adapt coherently to technological changes which can complement the decisions of natural persons. As technology and markets continue on a path of rapid change, drawing on the knowledge and experience of in-house directors may not be enough for firms seeking to make the right decisions. It may also become harder to find the best human capital to make all decisions at all times. In an environment of ongoing change, networked knowledge and experience are as important to decision making as that which is accumulated internally. Technological change affects the enhancement of individual decision making and the formation of organizations. If such a complementary factor in decision making exists from a technological viewpoint as well, the presumed benefits of mandatory group decision making lessen as well, further necessitating a flexible structure for governance.

6. CONCLUSION

This paper has taken a clause of the Japanese Companies Act as a point of departure for a discussion of group decision making. The findings of behavioural science show that group decision making does not necessarily produce a superior performance to that by individuals, and rather has the potential to cause underinvestment. This implies that there is no need to mandate group decision making for firms. The paper also discussed the possibility that relaxing this rule could lead to the creation of new subsidiaries and joint ventures by large firms and of new firms by entrepreneurs.

Institutions evolve with a certain path dependency. Under the existing rule, some firms might be enjoying the fruits of group decisions in the form of greater diversity, for instance, while others might be underperforming within a hollowed-out organizational design. This paper argues that it is important to revisit clause § 331 (5) mandating group decision making, and give it greater flexibility, in light of the diversity of situations and conditions that firms face while making decisions. Specifically, it is recommended that the clause be amended to "a Company with a Board of Directors shall have *one* or more directors". This will give firms more flexibility in composing their boards of directors, thereby providing them with options in addressing the behavioural issues discussed in this paper based on individual firms' behavioural characteristics and tendencies, and resolving the hollowing-out issue by substantiating the function of the board in line with changes in business activity and technology.

Japanese corporate law is intended to govern corporate activities, and there is much of interest left to study – not only from the traditional microeconomic perspective but from the behavioural point of view as well. This would include the issue of effective monitoring to prevent corporate misconduct, an important issue for many at a time when the interests of individuals are closely interwoven with those of groups. It is suggested, for example, that female participation in the workplace can be an effective condition for achieving collective intelligence, but the behavioural processes for this outcome are still unclear. Also, because most behavioural experiments occur outside of the corporate office environment, there is a need to review how knowledge develops inside firms and how decisions are made in such surroundings. These points also comprise the limitations of this research, indicating the need for more empirical evidence

close to the corporate environment. There could be other biases, for instance – including gender bias – which are particularly observed in the corporate environment as opposed to the general problem-solving environment found in laboratories. This could lead us to find added conditions under which collective intelligence or groupthink may emerge. In addition, many corporate decisions, whether by groups or individuals, are made gradually, by furthering ideas and thoughts while collecting information and accumulating knowledge with the passage of time. Much management knowledge is accumulative, evolving bit by bit through the addition of new information which must be complemented by studies of the internal workings of individual firms. Thus, more empirical evidence on the aspects of decisions made within a certain time span to allow a gradual development of knowledge, as opposed to decisions made instantly, would provide us with more insights into decisions in the corporate environment.

The effect of listing rules is also significant in relation to corporate law. This paper mainly looks at relatively small firms that require small boards where the minimum requirement for the board can be an issue. Listing rules essentially require larger boards, or larger groups, than unlisted ones by putting greater emphasis on their monitoring role in protecting general investors. Thus, more analysis in light of the behavioural perspectives on differences between the requirements of listing rules and the corporate law could offer us a deeper understanding of the roles of boards of different sizes, as well as the contrast between groups and individuals discussed in this paper. Such research would address the issues faced by a wider range of firms. These are among the rich fields left to future research on corporate boards from a new, behavioural perspective.

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