Does corporate governance impact on sustainability performance? -Evidence from Japan-

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Does corporate governance impact on sustainability performance?

-Evidence from Japan-

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Contents

1. Introduction

2015 is regarded as the year when corporate governance reform was introduced in Japan. By implementing the *Stewardship Code* and *Corporate Governance Code*, the Japanese government proposed corporate governance reform as a sustainable corporate growth strategy. Principle 2.3[1] of Japan's *Corporate Governance Code* advocates that companies should take appropriate measures to address sustainability issues, including social and environmental matters. The supplementary principle supposes that as sustainability issues are the essential elements of risk management, the board should take appropriate actions to address these matters positively and proactively. G20/*OECD Principles of Corporate Governance* also suggests that the corporate governance framework should encourage active co-operation between corporations and their stakeholders in creating wealth and jobs, and ensuring the sustainability of financially sound enterprises (OECD, 2015).

In the *Corporate Governance Code*, transparent and fair decision-making, sustainable growth, and mid- to long-term corporate value are clearly stated as goals. However, their implementation presents a challenge. Originally, economic growth was seen as a result of efforts to sustain life. However, when the economy began to be perceived as an end rather than a means to survival, growth caused began to have negative impacts (Kokubu, 2017). For example, global environmental destruction and financial crisis are challenges for us. Thus, we need to identify practices that improve sustainability. Furthermore, as companies belong to society, their social responsibility cannot be ignored; their transparency and accountability should be encouraged. Under such circumstances, multinational corporations must recognize the existence of diverse stakeholders and assume social responsibility while pursuing profits. Terms such as "long-term" and "sustainability" are becoming more relevant, globally. Recent years have seen an increase in the importance of and awareness about corporate governance, which aims to protect stakeholders' interests, while balancing companies' economic efficiency with sustainability (Aras and Crowther, 2008). Corporate governance can be considered a mechanism to encourage ethics, fairness, responsibility, transparency, and

[1] The second general principle stated in the Code is as follows "Companies should fully recognize that their sustainable growth and the creation of mid- to long-term corporate value are brought as a result of the provision of resources and contributions made by a range of stakeholders, including employees, customers, business partners, creditors, and local communities. As such, companies should endeavour to appropriately cooperate with these stakeholders. The board and the management should exercise their leadership in establishing a corporate culture where the rights and positions of stakeholders are respected and sound business ethics are ensured".

accountability in the operations of businesses (Sarim et al., 2017). Companies need to implement corporate governance to monitor and supervise top managers and ensure sustainable behavior. Sustainability performance could be regarded as a result of the top managers' commitment to sustainability management. This paper attempts to clarify the interrelations between corporate governance and sustainability performance. To improve sustainability performance, what style of corporate governance should the firms implement? How can companies manage the issues and address the dimensions of corporate governance and sustainability? Does corporate governance impact sustainability performance?

Around the 1990s, corporate governance began to be debated on a regular basis. At that time, corporate governance was shareholder-oriented. Companies all over the world gradually began to regard shareholder-oriented corporate governance as an ideal mechanism. When the global financial crisis broke out in 2008, the collapse of Lehman Brothers in the United States hit the real economy and resulted in a global recession. This crisis has been attributed to issues in corporate governance (Sakuma and Mizuo, 2010). While one school of thought attributed it to a defect in risk management, another blamed managers' profit-maximization incentives and short-term orientation. The Lehman shock has strongly emphasized the influence of modern companies on society and enterprise regulation. It raised the need for administrators and academics to rethink their traditional responsibility concepts. This financial crisis reinforced how corporate governance failures can ruin corporations and disrupt whole economies (Claessens and Yurtoglu, 2013). As the economy has been in the doldrums after the crisis, the discussion about corporate governance system promoting corporate growth from long-term orientation, particularly in the European Union (EU) countries, has been progressing (Sakuma and Mizuo, 2010).

Subsequent to the Lehman shock, various organizations such as the Organization for Economic Co-operation and Development (OECD), UN Global Compact[2], and IFC (World Bank Group)[3] have emerged to heighten the importance of governance

[2] Global UN Compact proposes "companies can engage with them on three critical governance topics: anti-corruption, peace, and rule of law. Companies can enhance good governance by integrating corporate sustainability principles into their own operations and relationships, allowing for greater transparency accountability and inclusiveness". (see Global UN Compact HP).

[3] International Finance Corporation (IFC) and the World Bank are building on their successful track record with "the aim of delivering targeted corporate governance support to more clients and stakeholders for even better results by assessing a firm's corporate governance practices and providing advice on how to improve them; providing specialized advisory services on board effectiveness, the control environment, and family business governance; building capacity of local partners, institutes of directors, media, and educational institutions on corporate governance services,

structures to accommodate social objectives as part of regular corporate life (Walls et al., 2012). More specifically, OECD (2012) analyzed the relationship between corporate governance and corporate growth as a central issue. The updated *G20/OECD Principles of Corporate Governance* (the Principles) provides a very timely and tangible contribution to the G20 priority in 2015 to support investment as a dominant driver of growth (OECD, 2015). The supposed main principles in OECD (2015) are ensuring the basis for an effective corporate governance framework; the rights and equitable treatment of shareholders and key ownership functions; institutional investors, stock markets, and other intermediaries; the role of stakeholders in corporate governance; disclosure and transparency; and the responsibilities of the board. Further, *Kay Review*[4] argues that the problem of corporate governance in the United Kingdom (the UK) was caused by short sightedness and the need to reform for enhancing long-term performance. In response to the financial crisis, there has been an international discussion, centered in the U.S. and UK, that focused on overcoming the short-termism of both companies and investors, strengthening corporate governance, enhancing dialogue and engagement between companies and investors, and improving corporate disclosure and reporting (METI, 2014). For example, the discussion on disclosure goes beyond purely financial metrics, such as earnings, and extends to management strategies and other non-financial matters that are critical to mid- and long-term corporate value creation (METI, 2014). "Integrated Reporting" is one example of the recent developments mentioned above.

In Japan, the Abe administration[5] has also positioned the reform of corporate governance as one of the growth strategies of Japan and implemented a series of policies. The Ministry of Economy, Trade and Industry (METI) launched the Project, which was named as "Competitiveness and Incentives for Sustainable Growth: Building Favourable Relationships between Companies and Investors." This project gathered managements, long-term investors, and market participants to discuss key issues, such

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training and reporting; working with regulatory institutions and governments to improve corporate governance laws, regulations, codes, and listing requirements; raising awareness of corporate governance through conferences, workshops, and publication". (see International Finance Corporation World Bank Group HP).

[4] In 2012, *Kay Review* analyzed and made recommendations with respect to "the roles of capital markets and investors with the aim of enhancing the long-term performance of British companies, which has since influenced a broader discussion within the EU".

[5] In early 2013, "after two decades of economic stagnation, Prime Minister Shinzo Abe unveiled a comprehensive economic policy package to sustainably revive the Japanese economy, while maintaining fiscal discipline. This program came to be known as Abenomics. The centerpieces of Abenomics have been the three 'policy arrows,' aggressive monetary policy, flexible fiscal policy, and growth strategy including structural reform". (The Government of Japan, HP).

as the globally-debated subject of capital market and corporate short-termism, dialogue and engagement between companies and investors, and information disclosure and reporting practices within a Japanese context (METI, 2014). Furthermore, the Japan Revitalization Strategy,[6] as revised in 2015, states to prevail and promote the adoption of *Japan's Stewardship Code*, established and released in 2014, and *Corporate Governance Code*, which entered into force in 2015, as two wheels of a cart such that the sustainable growth of companies are promoted by both, investors and companies, while cooperating with stakeholders is mainly supposed. The detailed description of this principle fully embodies the concern of sustainable thinking as well. In Clarke (2004), corporate governance is still supposed to safeguard the interests of shareholders. With the passage of time, the coverage of governance is extended to stakeholders (Ingley, 2008).

Sustainability is the other keyword derived from the above trend. Subsequent to the Lehman shock, companies have started recognizing the importance of corporate sustainability, which can support them to create new social values. For corporations, the corporate philosophy that governs the overall corporate behavior provides guidelines for long-term corporate behavior, and many emphasize coexistence with society. In this manner, sustainability and the movement of coexistence with society have significant influence on corporate behavior as well. For example, Sustainable Development Goals (SDGs) adopted 17 targets to be addressed by countries including Japan at the United Nations Summit in September 2015 and the Paris Agreement (COP21) agreed on global environmental issues in December 2015.

In such circumstances, sustainability activities extend the boundary of corporate governance and demand business organizations to achieve a balance among economic, social, and environmental goals, in addition to generating value for shareholders and protecting the interests of stakeholders (Sarim et al., 2017). In Japan, as symbolised by the fact that carbon dioxide (CO_2) emitted from corporate activities increases global warming, stakeholders related to corporate behaviors include the current as well as the next generation. Such a governance mechanism that seeks sociality and public interest in corporate behavior is defined as "social governance" (Kokubu, 2017). In order to

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[6] The Japan Revitalization Strategy provides "three plans: the Industry Revitalization Plan, the Strategic Market Creation Plan, and the Strategy of Global Outreach, and establishes key performance indicators (KPI) for each policy measure to check the progress through the plan-do-check-act (PDCA) cycle. In this revised strategy, three key policy measures are set up: enhancing corporate governance; reforming investment of public and quasi-public funds; accelerating industrial restructuring and venture businesses, promoting provision of funds for growth". (Prime Minister of Japan and His Cabinet, HP).

ensure its effectiveness, it is essential to design an appropriate institutional infrastructure according to each task. While discussions of corporate governance have shifted progressively toward environmental and social issues, and voluntary initiatives such as OECD Principles, Corporate Governance Code, and the UN Global Compact encourage firms to integrate environmental and social aspects in their governance agenda, the progress has shown that a company's environmental, social, and governance responsibilities might be integral to its performance and long-term sustainability. It was not until recently that the academic community began to study the corporate governance—sustainability dynamic (Walls et al., 2012). As we have not yet found a dominant paradigm and theoretical foundation existing in the previous research, the first question we need to reexamine is whether there is a direct link between corporate governance and sustainability performance.

On the one hand, with the development of global businesses, some companies have adopted a management style where subsidiaries have sufficient discretion to make decisions. Considering this reason, corporate governance is indispensable because it can support all companies to share information, grasp the management situation, and ensure that global strategies are adopted. On the other hand, as management control systems (MCSs) shape actors' practices and support strategy, they can push organizations in the direction of sustainability. MCSs are central to strategy-making as they shape the process of strategy emergence and support the implementation of deliberate strategies (Gond et al., 2012). Thus, from this viewpoint, MCSs and corporate governance have the consistency that they all can support the implementation of strategies. In Merchant and Van der Stede (2012), it is also emphasized that corporate governance mechanisms and practices have direct and immediate effects on MCS practices and their effectiveness. As corporate governance adds to management control, both the concern for controlling the behaviors of top management, and monitoring the roles of company's board of directors are apparent. Thus, this paper deals with the second research question to clarify the role of a management control system in the relationship between corporate governance and sustainability performance.

The remainder of the study is organized as follows. A review of the literature is presented in Chapter 2, which is retracted in a systematic manner, used to diffuse an understanding of corporate governance and then helped to understand the original analytic view of monitoring intensity. Chapter 3 presents the entire analytical framework and research method to investigate the interrelationship of corporate governance–sustainability performance, and corporate governance–environmental management control–environmental performance. To investigate the direct impact of

distinct governance mechanisms of monitoring and advising, Chapter 4 employs a linear regression model to examine the latest 4 years' data of Japanese companies from a long-term point of view. In Chapter 5, we adopt the research method of structural equation modeling (SEM) to clarify the mediating role of environmental management control on the relationship between corporate governance and environmental performance. Finally, the last chapter presents this study's conclusions, contributions, and implications for practice.

2. Literature review on corporate governance and sustainability performance

2.1 Corporate governance mechanisms and sustainability performance

In this study, literature review is conducted based on the steps of systematic review[7] introduced in Tranfield et al. (2003). One objective of the literature review is to provide a portrait of existing research on a given subject. Systematic reviews explore the body of literature using correct filtering techniques to screen, search, and evaluate each related study in a critical and justified manner (Vazquez-Carrasco and Lopez-Perez, 2013). The fundamental criterion is to provide valid, applicable evidence for use in future research. Hence, such reviews should be methodical, precise, and reproducible in order to boost the knowledge base to facilitate appropriate decision-making. A systematic literature review can be considered as a fundamental scientific activity with an underlying logic rooted in various premises (Tranfield et al., 2003).

The research subject of the literature review is an article included in the English database *Web of Science*[8] and Japanese database *CiNii*[9], which provide data, books, journals, and patents, among others. In this paper, we only focus on academic papers. The first search string is set as "sustainability management" and "corporate governance." To find articles and papers in a wide range of journals, we include the synonyms for sustainability management established with the help of the primary literature and reviews, and include "sustainability," and "corporate social responsibility." Articles are selected by title, keywords, empirical or interview, and abstract search from 2001 to 2015.

Overall, 38 articles take the sustainability aspect into consideration, including qualitative researches. Moreover, 13 articles are published in the *Journal of Business*

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[7] According to Tranfield et al. (2003), systematic literature review consists of "five methodological steps, including: (1) identification of keywords and creation of search strings based on the identified keywords; (2) selection of studies through relevant research databases; (3) analysis of identified papers based on inclusion and exclusion criteria; (4) data extraction into a reference management database; and (5) data synthesis and reporting".

[8] The database "Web of Science" was established by Thomson Reuters and provided through a library service.

[9] CiNii is "a database service which can be searched with academic information of articles, books, journals, and dissertations. In particular, 'CiNii Articles' is a database service which can search for information on academic articles published in academic society journals, university research bulletins, or articles included in the National Diet Library's Japanese Periodicals Index Database and other databases".

Ethics, and three articles are published in *Corporate Governance: An International Review*, *Management Decision* and *Corporate Social Responsibility and Environmental Management*. The rest of them are in *Business Strategy and the Environment*; *Business and Society*, *Quality and Quantity*; *Socio-Economic Review*; *Accounting and Business Research*; *Systems Research and Behavioral Science*; and *Corporate Governance*. A majority of the identified publications can be found in business ethics and corporate governance journals, whereas the topic is less discussed in both general management and accounting journals. It was observed that the relationship between corporate governance and sustainability management has garnered low interest in accounting research.

A few studies have explored the influence of corporate governance mechanisms on firms' performance (Ntim and Soobaroyen, 2013; Kiel and Nicholson, 2003). These studies have focused on how corporate governance mechanisms affect financial performance, but several include environmental and social dimensions. Most previous studies have paid attention to how corporate governance resolve the divergence of interests between firm owners (principal) and managers (agent), concerning financial performance. Additionally, an important question that has never been addressed is whether corporate governance mechanisms only affect the explicit contract between managers and shareholders or the implicit contractual relationship between managers and other stakeholders as well (Kock et al., 2012).

To answer the first research question, which is supposed to observe the effect of corporate governance mechanisms on sustainability performance, we finally analyzed 28 empirical papers (see Appendix). In what follows, to identify the predictive variables of corporate governance associated with sustainability performance, we undertake the analysis of the review based on the classification of Aguilera et al. (2015), and distinguish mechanisms internally (designed by firm owners) and externally (Kock et al., 2012). Some scholars suggest that external corporate governance mechanisms, such as the market for corporate control, institutional, and regulatory environments, enable to determine the growth of firms' performance (Miroshnychenko et al., 2018). The other stream of corporate governance literature emphasizes the internal corporate governance mechanisms, which significantly shape firms' financial performance. In this research, as we emphasize "how to monitor and control the management to ensure sustainable growth of firms," internal, organizationally based mechanisms of corporate control and external, market-based control mechanisms can be employed to help align the diverse interests of stakeholders. Based on this definition, we first conduct a comprehensive review to identify if these mechanisms are effective on sustainability performance.

The typology of internal and external corporate governance was initially referred by Walsh and Seward (1990). This distinction draws on whether the locus of action of a given governance mechanism emanates from within the firm or from outside the boundaries of a firm (Aguilera et al., 2015). According to Aguilera et al. (2015), the primary internal governance mechanisms are summarized in the board of directors, ownership, and managerial incentives. The vital external mechanisms focus on the legal system, the market for control, external auditors, stakeholder activists, rating organizations, and the media. We also identify that managerial control and CEO duality have been extensively considered in mainstream governance research. In the following, we discuss the literature related to each of these mechanisms and their implications on sustainability performance.

The internal governance mechanisms in selected researches (e.g., Jo and Harjoto, 2011; Walls et al., 2012) mainly focus on board (e.g., independent directors), ownership concentration (e.g., institutional ownership), and management. Furthermore, management includes three dimensions: managerial control, managerial incentives, and CEO duality. The board here indicates a specific board committee; in particular, it indicates the presence of a corporate social responsibility (CSR) committee as it defines its internal organization and division of activities, and affects the directors' involvement in shaping the mission and strategy of the company. A CSR committee is responsible for reviewing policies and conducts concerning the company's principles and commitment on sustainability issues, and it is involved in the reporting process of social and environmental information (Michelon and Parbonetti, 2012). Moreover, many studies on corporate governance and CSR consider the other characteristics of the board, such as independence, orientation, diversity, and size. Haniffa and Cooke (2005) note that increasing the presence of independent directors on the board helps in ensuring board independence from management. They can be regarded as accountability mechanisms as their role is to help to ensure that companies are pursuing shareholders' interests, but also those of stakeholders. Though there is a positive association between board independence and CSR outcomes, there are also mixed results (e.g., de Villers et al., 2011; Galbreath, 2011; Walls and Hoffman, 2013).

Previous studies on corporate governance and CSR, as mentioned in the Appendix, consider institutional ownership as another majority variable of these studies. Jain and Jamali (2016) find that the types of investors, such as pension funds with a longer-term investment horizon, support CSR investments, while banking and mutual funds with short-term investment interests, may find the cost of engaging in CSR unjustified. Aguilera et al. (2006) suggest that a firm's exposure to investors with a

long-term horizon is positively associated with CSR.

The third mechanism of internal governance is focused on management, which considers CEO duality, managerial control, and managerial incentives. CEO duality refers to when the CEO is also the chairperson of the board. It is a common governance structure studied in the context of CSR, but findings in this area have been mixed (Walls et al., 2012). Berrone and Gomez-Mejia (2009) suggest that separating CEO and chair position may play an essential role in helping a CEO to grasp new ideas and new behaviors related to environmental issues. However, some studies have argued in favor of the combined roles, such as the conflict between two positions due to division of the leadership duties (Jain and Jamali, 2016).

Managerial control is an aspect of management that is often researched in CSR (Walls et al., 2012). It is indicated as the percentage of shares held by inside directors. Managerial control, mainly managerial ownership, may stimulate insiders to yield short-term profits in favor of long-term value creation. Considering managerial entrenchment and arguments, managerial ownership will increase managerial discretion in decision-making (Jain and Jamali, 2016). The third aspect of management is managerial incentives, particularly executive compensation. Kock et al. (2012) argue that in the context of environmental management, the effects of equity-based incentives will also help to improve managers' propensity to engage in pro-environmental initiatives because of the aligning of managers' interests closer to those of stakeholders and providing a greater ability to stakeholders to enforce their environmental preferences. Thus, when managerial incentives are more, the greater is a firm's level of environmental performance.

On the other hand, the dominant mechanisms of external governance are positioned as the legal system, control from the stock market, external monitoring, the rating agency, and media under the context of financial performance in Aguilera et al. (2015). In the context of sustainability and CSR, we find that the legal and regulatory system and the market for corporate control are claimed to be the fundamental mechanisms that facilitate environmental management. First, Kock et al. (2012) claim that managers' exposure to market can help to mitigate the problems resulting from the divergence of interests between managers and stakeholders concerning corporate environmental management because a greater exposure to the market for corporate control can increase stakeholders' ability to enforce their environmental claims. Second, the political and legal system is the other source of alignment of managerial and stakeholder interests (Hill and Jones, 1992). Hill and Hitt (1999) suggest a well-documented global trend among legislators and regulators to coerce firms toward

better environmental performance. The institutional environment can be observed from the viewpoint of formal institutions, such as political, legal, and financial systems, and informal institutions, such as socially valued beliefs and norms. Matten and Moon (2008) argue that in formal institutional mechanisms, the essence of the legal and political system at a country-level anticipates that regulations in place could promote a narrow pattern of shareholder protection versus stakeholder orientation. Previous studies suggest that non-U.S. countries display better compliance and ratings on CSR in comparison to the U.S. According to Mackenzie et al. (2013), this difference could be explained by the market economy, either a coordinated market economy or a liberal market economy.

To investigate the situation of Japanese companies, we conduct a literature review considering the same method. CiNii is chosen as the journal database, and all the same keywords are used. Yamada et al. (2016) remark that relevance of CSR to corporate governance has not been adequately clarified in literature or practice. The study describes and compares the social responsibility standard (ISO26000) with the corporate governance code in Japan to understand their relationship. It suggests integrating corporate governance and sustainability management not only in academic research, but in practice as well. There are some other articles concerning the association between corporate governance and sustainability issues. For example, Tanimoto (2014) suggests incorporating CSR into corporate governance; Miyajima (2017) stands the viewpoint of stakeholder theory to approach sustainability issues and corporate governance; and Imai (2013) adopts the seven principles of ISO26000 in the decision-making of the board and its implementation. Tanimoto (2014) indicates that based on prior overseas research, CSR and corporate governance have been understood separately, but in recent years, these two have been related to each other and are regarded as overlapping concepts. It also denotes that for companies to make profits and create shareholder value, it is necessary to respond to the needs of stakeholders. Hence, CSR is rooted in organizations by having strong internal corporate governance, and corporate governance can become active by sustainable CSR activities. In summary, in regards to the discussion between sustainability and corporate governance in Japan, it can be stated that the relationships and importance of both the sides were not wholly conscious. The discussion about the more specific relationships and roles of both sides is still inadequate. Therefore, with the social background in Japan, we consider the central theme of the relationship between sustainability and corporate governance, which is not clarified at this stage.

Through the literature review, we summarize the knowledge of the association

between corporate governance and sustainability management into the following points. First, when dominant paradigms exist, it was observed that various theoretical frameworks have been applied to the assumptions. For example, agency theory is regarded as the dominant paradigm in corporate governance research. However, it falls short in explaining why and how sustainability targets should be included in corporate strategic goals. Second, research makes no distinction between the types of sustainability managements, even though we consider a multidimensional definition, including environmental and social into the study. However, in practice, companies treat them differently. Third, we observe many equivocalities of the findings, which need to be reexamined from a multilevel with organizations' multidimensional activities. Thus, to shed more light on the precise relationship between the two, we need a more empirical test to enhance our understanding of the linkages between corporate governance sustainability management.

2.2 Environmental management control system and sustainability performance

In general, MCS has two roles in exerting control over the attainment of organizational goals and enabling employees to search for opportunities and solve problems (Ahrens and Chapman, 2005; Mundy, 2010; Simons, 1995). MCS is the systems and processes in place to monitor and bond employee behavior to organizational objectives (Malmi and Brown, 2008). Gond et al. (2012) claim that MCS enables the integration of environmental issues with organizational practices. Guenther et al. (2016) argue that the integration of sustainability in general and environmental aspects in particular into MCS are now being addressed in MCS research. It also claims that the concept of environmental management control systems (EMCS) provides a promising approach for integrating the currently fragmented lines of internal drivers and managerial processes that may foster firms' environmental performance and push organizations in the direction of sustainability. In their research, they position MCS as a starting point for EMCS.

MCS appearing in academic research until now can be summed up to the MCS system of Anthony (1965), Levers of Control (LoC) framework of Simons (1995), the object of control framework of Merchant and Van der Stede (2012), and MCS package of Malmi and Brown (2008). The LoC framework consists of four levers of control, beliefs system, boundary system, diagnostic control, and interactive use. While the beliefs system emphasizes the core values and norms of the organization, the boundary system refers to the risks that organizations should avoid. The diagnostic system

monitors the critical performance variables, while interactive use facilitates the communication and discussion of strategic uncertainty. The object of control by Merchant and Van der Stede (2012) consists of four control differences with Simons' (1995): result control, action control, personnel control, and cultural control. Result control focuses on the outcomes of employee behavior, action control monitors activities and process, personnel control decides employees' recruiting and training, and cultural control considers corporate culture and incentive system (Guenther et al., 2016). In particular, the framework of Malmi and Brown (2008) conveys that the understanding of MCS should be regarded as a package. In this package, MCS differentiates cultural controls (clans, values, and symbols), planning (e.g., action planning), cybernetic controls, rewards and compensation, and administrative controls (governance structure, organizational structure, and policies and procedures).

Langfield-Smith (2008) argues that in previous researches, to implement a strategy, management control practices constituted a valuable tool that was used to translate intentions into practices. In several streams of management control research, LoC, that was proposed by Simons (1995), has become an influential framework to examine the link between strategy and management control practices operating as a system (e.g., Henri, 2006; Journeault et al., 2016; Mundy, 2010; Tessier and Otley, 2012; Widener, 2007). The development of ideas for sustainability management, such as integration of environmental aspects into management controls to translate strategic environmental intents into eco-practices, can be found in Arjalies and Mundy (2013), Gond et al. (2012), and Pondeville et al. (2013). Scholars have begun to link existing frameworks of MCS to a wide range of topics on environmental issues and sustainability. This development is driven by speculation that MCS and its role in strategic coordination and organizational learning can be adapted to environmental problems. Therefore, EMCS promotes effective integration of environmental issues in the process of strategy development and strategy implementation; aligns corporate decision-making, employee actions, and actions with environmental targets; and identifies new threats and opportunities (Gond et al., 2016; Guenther et al., 2016; Lisi, 2015).

On the other hand, Guenther et al. (2016) indicate that "several factors may simultaneously drive both environmental strategies employed, commonly classified along a continuum from reactive to proactive approaches, and another line of inquiry that focuses on issues related to corporate governance. Though research on the consequences of corporate governance mechanisms has a long tradition, scholars have recently begun to specifically explore the relationship between corporate governance

and environmental performance".

The MCS package of Malmi and Brown (2008) includes corporate governance of MCS as one of the administrative controls because governance includes the formal lines of authority of accountability as well as the systems which are in place to ensure that representatives of the various functions and organizational units meet to coordinate their activities both vertically and horizontally (Malmi and Brown, 2008, p.295). As a governance structure can be designed in many ways in any given organization, researchers should not group them, but instead study how they are linked to each other and other controls.

Considering the literature review, the study on sustainability performance is one of the areas regarding the measurement of sustainability management. Scholars highlight the growing significance of sustainability due to a global sense of improvement of corporate governance. However, in the same vein, as the empirical research of the impact of corporate governance on sustainability performance has not been examined in Japanese companies, to grasp the situation, the findings of the review recognize the necessity to reexamine the interplay among governance management and sustainability performance. The complete empirical research design is explained in the next chapter.

3. Analytical framework and research method

3.1 Analytical framework of corporate governance, management control, and sustainability performance

"Sustainability performance" could reflect the outcome of a firm's strategic activities toward sustainable thinking. Managing sustainability is challenging and requires an appropriate management framework that integrates environmental and social performance with economic business performance (Schaltegger and Wagner, 2006). Thus, sustainability performance includes several factors based on economic, environmental, and social issues (Epstein, 2008; Schaltegger and Wagner, 2006) in this study.

The literature review puts forward several reasons to show that corporate governance plays a role in sustainability performance. For instance, Walls et al. (2012) indicate that since environmental initiatives require investment and have long-term strategic implications, they can be risky and have an impact on the capital structure of the firm and its viability. Moreover, addressing sustainability activities extends the influence of a firm across stakeholders. The main role of corporate governance is to monitor or discipline top managers' behavior for shareholders, while exploring the corporate governance–sustainability performance link, how do corporate governance mechanisms foster sustainability performance? As reviewed in Chapter 2, we can investigate this research purpose in the following four aspects: (1) What is the relationship between ownership and sustainability performance? (2) How do directors affect sustainability performance? (3) What is the role of managerial incentives in sustainability performance? (4) What is the role of EMCS in the relationship between corporate governance and environmental sustainability performance?

We employ statistical methods to test the empirical data to yield insights on the nature of the phenomenon. This study aims to conduct an appraisal of how corporate governance correlates with environmental and social performance.

3.1.1 Impact of corporate governance on sustainability performance

Figure 1 shows the complete preconceived analytical framework. Despite the understanding that corporate governance may influence environmental and social issues, we also notice that there is no dominant paradigm to explain the tension between the board and top managers, and there is no appreciate theory building and advancing this phenomenon. In Japan, the most important observation is that the study of the corporate

governance–sustainability dynamic has begun recently, but lacks empirical estimation. Therefore, in this framework, in the relationship between corporate governance and sustainability performance, Path I is designed to examine the direct effect of each independent corporate governance mechanism on sustainability performance, mainly centering on answering the following questions mentioned above: (1) What is the relationship between ownership and sustainability performance? (2) How do directors affect sustainability performance? (3) What is the role of managerial incentives in sustainability performance?, as these three aspects reflect the essential mechanisms to balance the power of monitoring and advising in a governance context.

When considering the effect of corporate governance, prior literature review provides us one distinction which divides corporate governance from the subject of monitoring function into two domains: "external governance" that can discipline top managers outside the company. As we discuss that corporate governance extends to stakeholder-oriented, the power of monitoring can not only be from the stock market, media, and auditing companies, but also the government, non-government organizations, communities, buyers, and suppliers. The second is "internal governance" that can control the top management from the company insiders, such as the board of directors, ownership and management with managerial control, managerial incentives, and CEO duality. Internal governance is defined as the discipline of corporate managers through intra-organizational mechanisms, which is built by company insiders (board members, employees, etc.) involved in the decision-making and operations. With this division of internal problems and external matters, we have to clarify more points of argument.

As described previously, corporate governance disciplines top managers' behavior from the aspects of ownership, directors, and managerial incentives. The following explains how these mechanisms can influence sustainability performance.

Ownership. In European and Asian countries, whether the ratio of outsider shareholders, particularly foreign institutional investors has a significant effect on performance has become the focal point. A number of previous studies provided clarity on the fact that the proportion of foreign shareholders has a positive effect on performance. For example, Miyajima and Nitta (2011), and Miyajima and Yasuda (2015) show that the rise in ownership ratio of foreign institutional investors has a positive influence on performance, such as Tobin'q and return on assets (ROA). However, the above discussion is exclusively concerned with financial performance. When the argument is from the point of view of sustainability approach, several articles (e.g., Neubaum and Zahra, 2006; Harjoto and Jo, 2011; Jo and Harjoto, 2011; Oh et al., 2011) have provided evidence that institutional ownership with a longer-term

investment horizon support CSR investment, and few studies investigate the impact on environmental sustainability performance in Japan. The presence of stakeholder activists and their motivation for improving CSR as well as the response to their pressures have also been found. The existence of some results is neutral, and adverse effect is also observed. Thus, this is the other reason why we reexamine the mechanism of foreign institutional ownership in this study.

Board of directors. Several studies argue that board independences determine the CSR engagement of a firm. Thus, a higher ratio of independent directors means that the board has a more effective advisory function forming sustainability alliance with external stakeholders (Post et al., 2015). Walls et al. (2012) also show that board independence is positively correlated with environmental concerns. There is a significant agreement on the fact that there is no ideal composition, which is reasonable for all companies in the board of directors, and it has been empirically examined that the appointment of independent directors will produce a positive performance. On the other hand, though a positive association between board independence and sustainability performance was found in some articles, some evidence and the literature review show mixed results. Consequently, the investigation of Japanese companies is necessary.

Management. Management here means the management of the board. Thus, a study on management and sustainability performance has a look at CEO duality. CEO duality denotes that the CEO is also the chairperson of the board. From a stewardship perspective, CEO duality leads to concentration of managerial power, enabling managers to embed sustainability activities positively, if considered to be a benefit to organizations (Godos-Diez et al., 2011).

Code and norms. In the previous literature review, the actual effects of external corporate governance mechanisms were concluded to a law system, the market for corporate control, external auditing, rating organizations, stakeholder activism, and media. Considering that the findings are equivocal and sustainability is a multidimensional construct, in practice, companies treat social and environmental issues differently (Strike et al., 2006). In the same sense, treating environmental issues and economic growth is different in practice. Though we mention that internal governance mechanisms are not specially designed for environmental strategy, the difference in treating environmental issues can be reflected by external governance mechanisms, typically for example, the codes and norms. With regard to environmental issues, a number of environmental preservation activities are conducted voluntarily in comparison to the legal system (e.g., Kim et al., 2015). Norms, and the code of conducts,

such as GRI[10] Standards and ISO14001[11], seem to be more important to influence the philosophical policy of companies. Consequently, instead of the legal system, the adoption of GRI guidelines is regarded as an external governance mechanism to influence environmental sustainability performance.

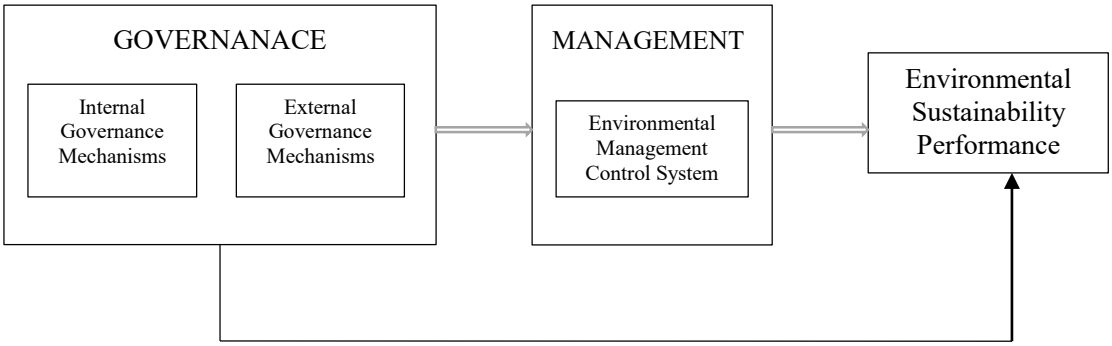

Fig. 1 Research framework used in this study

Note: → Path I Direct impact of CG on sustainability performance
Method: Regression fixed effected model
⟹ Path II Impact of CG on environmental sustainability performance through the mediator effect of EMCS
Method: Structural equation modeling

3.1.2 Mediating effect of MCSs

Several reasons can be summed up through the literature review from the perspective of methodological and theoretical issues. These reasons reflect different aspects: (1) the lack of a theoretical foundation; (2) a definite relation of causality; (3) the lack of consideration of mediating effects. In addition, Russo and Minto (2012) mention that we have not done enough to study the mediating influences that stand between larger concepts. Hence, we cannot neglect the influence of mediating in this study.

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[10] GRI helps businesses and governments globally to understand and communicate their impact on critical sustainability issues, such as climate change, human rights, governance, and social well-being. The GRI Sustainability Reporting Standards (GRI Standards) are developed with true multi-stakeholder contributions and rooted in public interest (https://www.globalreporting.org/information/about-gri/Pages/default.aspx).

[11] The ISO 14000 standards provide practical tools for all types of companies and organizations looking to manage their environment responsibilities. ISO14001 was revised in 2015. It sets out the criteria for an environmental management system and can be certified to. It maps out a framework that a company or organization can follow to set up an effective environmental management system. It can be used by any organization, regardless of its activity and sector (https://www.iso.org/iso-14001-environmental-management.html).

The publication of the Corporate Governance Code reflected the growing awareness of corporate sustainability. Within companies, the internal control system has been pushed to strengthen under the pressure of globalization and stakeholders (Takehana, 2005). For example, in 2018, the Committee of Sponsoring Organizations of the Treadway Commission's (COSO's)[12] updated framework highlights the importance of considering risk in both the strategy-setting process and in driving performance to enhance the role of internal control to achieve value creation. To involve various stakeholders and build sustainable corporate governance, it is essential to embed the elements of management control by further profoundly connecting the concept of governance. In Wang and Sarkis (2017), CSR governance is defined as control mechanisms in which companies engage and prove to have an important role in influencing companies' CSR outcomes. This result hints the mediating influence of EMCSs between two larger concepts, corporate governance mechanisms and environmental outcomes.

Moreover, beyond the legal and social influences, corporate governance practices in any country are influenced by what is considered to be the best practice. However, knowledge of what constitutes best practice, either in general or in any specific setting, is incomplete and uncertain (Merchant and Van der Stede, 2012). Thus, Merchant and Van der Stede state that though firms face a dynamic environment, corporate governance systems and MCSs are inseparably linked. MCS focuses on the top management to help with the most appropriate decisions and requires what can be done to ensure appropriate behaviors of managers and employees in an organization, while the purpose of corporate governance is controlling the behaviors of the top management and those of all the other employees in the firm. Therefore, Merchant and Van der Stede conclude that corporate governance has a prominent link with MCS. Changes in corporate governance mechanisms and practices will generally have direct and immediate effects on MCS practices and their effectiveness (Merchant and Van der Stede, 2012, p.553). Merchant and Van der Stede's conclusion strengthens our suggestion for the mediating effect of MCSs in the analytical framework.

General MCS is used to measure progress toward achieving organization ends (Chenhall, 2003). EMCS is a particular type of MCS, which is integrated into

[12] COSO is a joint initiative of the five private sector organizations listed on the American Accounting Association, American Institute of Certified Public Accountants, Financial Executives International, The Association of Accountants and Financial Professionals in Business, and The Institute of Internal Auditors. In 2004, COSO revised the framework to add the elements of enterprise risk management (ERM). Further, it included a 2017 update to the Enterprise Risk Management–Integrated Framework (COSO and WBCSD, 2018).

environmental aspects (Journeault et al., 2016). Through the literature review in Chapter 2, we understand that the conceptualizations of EMCS are possible to be integrated into the general MCS concept of Merchant and Van der Stede (2012). Therefore, Path II in Figure 1 presents the above thought, focusing on the relationship among corporate governance, EMCS, and environmental sustainability performance. Considering the reason that this study focuses on sustainability, all the hypotheses adopt a general management system that integrates sustainability concept, such as EMCS. On the other hand, as corporate governance is not so conscious of a company, it is primarily regarded as a constraint factor of the management. The disciplinary factors relating to corporate governance are presented with the internal control system and morals of managers (Miyajima, 2017). When there are alternative variations at the time of introducing the system of corporate governance, managers may subjectively make a selection. Whether the corporate governance system introduced is operated as expected by the designer or not depends on the manager's decision. Considering corporate reputation and legitimacy in the long-term, a positive correlation has sufficient reason to be fostered by top managers. In addition, managers' morals and regulations based on the law prevent corporate scandals, while the discipline of external corporate governance is not significantly emphasized (Miyajima, 2017). Ultimately, corporate governance as a constraint factor is concerned with management discretion and monitoring intensity, which are both necessary for balance.

3.2 Research method

In this study, as we aim to investigate how corporate governance correlates to environmental performance, more specifically, explore how corporate governance discipline top managers' behavior, we test the direct effects of codes or norms, foreigner ownership, independent directors, and management governance variables against environmental performance and social performance. Moreover, we begin this direct test as the first step to develop a theoretical background. The first research question deals with investigating a set of independent external and internal governance mechanisms on sustainability performance. Path I in Figure 1 tests and verifies the analytical framework by conducting multiple regression analysis. The study's variables are tested in several ways. As sustainability performance is multidimensional, we pick two aspects, environmental performance and social performance as dependent variables from Toyo

Keizai CSR[13]. The Toyo Keizai CSR database evaluates the score for every category and provides different scores, including financial score, environmental score, social score, and governance score. In order to eliminate the endogenous effect, environmental score and social score are adopted as dependent variables. On the other hand, we select independent variables relevant to corporate governance aspects relying on prior work in this area. They are presented by the impact of GRI Standards, foreign ownership, independent directors, and CEO duality. These variables are collected from the databases of Bloomberg ESG, Toyo Keizai CSR, and Nikkei Corporate Governance Evaluation System. To ensure that this investigation is conducted considering a middle- and long-term perspective, 4-year panel dataset is finally used in the regression model.

Nevertheless, it is not sufficient to respond to the research question "what type of management controls are the top managers using to make sustainability practice more effective?" by only depending on investigating the effects of independent governance mechanisms. Figure 1 Path II shows the mediating effect of EMCS. We adopt SEM to examine the relationship among governance variables, EMCS, and environmental performance because SEM is the most appreciated method to investigate the statistical model, including the mediating effect, and can simultaneously analyze the causal relation and the correlation between each variable. With respect to governance mechanisms, we employ the same variables as Path I to maintain consistency in the study. Further, to observe the sustainable behavior aspect supposed as EMCS in the analytical model, the concrete environmental management activities and environmental performance are investigated through a questionnaire survey. Each item of the questionnaire is constructed by referring to the previous research. After pretesting, we sent the questionnaires to 1,697 companies listed on the Tokyo Stock Exchange, the first section in February 2015. Finally, we selected environmental performance representing sustainability performance as the dependent variable for this examination because in comparison to social performance, environmental practices tend to differ from other social practices as they are technical, require specific firm capabilities and significant capital investment, are guided by regulation, and have their own reporting criteria (Walls et al., 2012).

[13] The Toyo Keizai CSR database is the most prominent database for CSR information in Japan. The data are collected from a comprehensive survey of all listed and major unlisted companies, and provide effective results of approximately 1400 companies. Three categories in four files, workforce 1, workforce 2, CSR overall, and environment are covered.

4. Direct impact of corporate governance on sustainability performance

As previous empirical studies have not yielded significant progress for establishing the clear theoretical background for corporate governance and sustainability performance, we believe that clearer and more compelling findings should be provided. Hence, depending on the analytical framework supposed in Figure 1 Path I, we explore the direct effect of corporate governance mechanisms on sustainability performance through fact-based examination. This examination tries to employ a coherent approach that examines four key aspects of governance structures, which cover both external mechanisms and internal mechanisms: GRI standards, foreigner ownership, independent directors, and CEO duality.

4.1 Hypotheses development

Corporate governance strategies that are associated with respectful environmental behaviors include a high number of independent directors on the board and the separation of the CEO and board chair positions (Ortiz-de-Mandojana et al., 2016). We analyze the adoption of GRI standards, proportion of foreigner ownership, number of independent directors, and CEO duality as corporate governance mechanisms because these four structures have been identified for their potential to foster better social and environmental performance (e.g., Walls et al., 2012). However, we also find mixed results in empirical studies (e.g., Berrone and Gomez-Mejia, 2009). Thus, little is known about the effectiveness of these structures on fostering firms' environmental and social sustainability performance. This shows the need for reexamination.

GRI standards. In comparison to the research on internal corporate governance, external governance mechanisms have not been the focus until now. Aguilera et al. (2015) emphasize that internal mechanisms can lead to active monitoring of executives. However, external mechanisms are typically activated when internal mechanisms for controlling managerial opportunism have failed. Thus, the role of internal governance mechanisms is not isolated. Meanwhile, external factors play a role of directly and indirectly determining the effectiveness of a firm's governance. Ortiz-de-Mandojana et al. (2016) provide evidence that "corporate environmental management has stressed on the importance of external legitimization and its relationship to opportunities for organizations to access resources that contribute to their long-term viability. Firms need to comply with institutional pressures to maintain their competitive positions in their

operating environments". These pressures arise from external factors, such as government, regulators, markets, and society. These external factors impose regulatory, normative, and cognitive pressures on managers. Therefore, explicit codes and norms are significant drivers of sustainability performance.

Nowadays, companies are faced with different stakeholder demands, continually shifting priorities, and a multitude of alternatives to address their sustainability challenges (Searcy, 2012). Thus, with the development and widespread voluntary uptake, international standards and frameworks for corporate responsibility, such as the United Nations Global Compact and the Global Reporting Initiative (GRI), provide broad principles and reporting frameworks. GRI standards reflecting the knowledge and practice of sustainability or CSR have gained global significance (Klettner et al., 2014). It also indicates that GRI standards can combine the strengths of the central international CSR and sustainability initiatives, and make frameworks more compatible and coherent. Considering the result of our literature review, there are only a few studies focusing on the link between external corporate governance mechanisms and sustainability performance. For example, Kock et al. (2012) argue that top managers who have greater exposure to legal and regulatory systems have more incentives to act in the stakeholders' interests and to follow their environmental demands. Gainet (2010) and Jo and Harjoto (2011) provide evidence on the link between legal system, code of conduct, and corporate environmental performance. In turn, we hypothesize the following:

Hypothesis 1: *A company that implements GRI standards is ranked higher in terms of sustainability performance.*

Independent directors. Previous studies have linked independent directors to improvements in firms' social and environmental behaviors. Slawinski (2010) argues that a board with a higher percentage of independent directors will tend to adopt long-term horizons and be more willing to develop sustainable behaviors. Independent directors are aware of the needs and expectations of various stakeholders, so it is more likely that they will recognize that their responsibilities are higher than the shareholders. Furthermore, Walls et al. (2012) find that an independent board is positively correlated to environmental performance. There are also scholars who argue that the board of directors who have previous environmental experience have more advisory role on facilitating sustainability performance (Walls and Hoffman, 2013). Considering either the role of monitoring or advising independent directors, we suppose the following:

Hypothesis 2: A higher proportion of independent directors represented in corporate boards positively impacts environmental performance.

Foreign ownership. Previous studies have suggested that the percentage of foreign ownership has a positive effect on fostering environmental and social practices. This issue is important given the recent introduction of foreign owners into listed companies. Cheung et al. (2015) report that CSR performance in listed companies is increasing their degree of globalization. The underlying premise is that international counter-parties, particularly those from developed markets, possess longer-standing and more-ingrained attitudes toward sustainability. Cheung et al. (2015) argue that foreign parties demand suppliers' compliance with CSR norms. In terms of the geographical sourcing of revenues, they report stronger "internationalization" effects in non-state ownership enterprises. The empirical evidence offers only limited guidance in respect of foreign ownership. For example, Oh et al. (2011) and Soliman et al. (2012) examine higher CSR rankings in firms with greater foreign and institutional holdings. In contrast, in Barnea and Rubin (2010), the result provides evidence of weak foreign institutional holding effects in the U.S. Dam and Scholtens (2012) also provide limited association for the European market. However, Wang et al. (2016) find a positive relationship in Chinese-listed firms. In the process of improving sustainability performance, firms surely feel the pressure from this type of stakeholders. Thus, we hypothesize as follows:

Hypothesis 3: A higher proportion of foreign ownership positively impacts environmental performance.

CEO duality. Finally, studies on the management of corporate governance and sustainability performance also consider CEO duality (Walls et al., 2012). CEO duality indicates that a CEO is also the chairperson of the board. It is a common governance mechanism to discuss the power of controlling. A chair who is not a CEO may be less pressured to produce positive short-term outcomes and is better positioned to argue that non-compliance with environmental law produces undesirable long-term social and financial liabilities (Ortiz-de-Mandojana et al., 2016). However, Berrone and Gomez-Mejia (2009) find no correlation between CEO duality and environmental performance. O'Connor et al. (2006) report that CEO duality has a weak and positive role of a moderator. Thus, we suppose our hypothesis standing on the viewpoint of the stewardship theory as follows:

Hypothesis 4: A separate CEO positively impacts environmental performance.

4.2 Research method

4.2.1 Sample selection

To investigate the above hypotheses, the research strategy consists of searching archival data by quantitative analyses. In terms of the limitation of the archival databases, Toyo Keizai CSR database, Nikkei NEEDS Corporate Governance evaluation systems (Cges), and Bloomberg database are used in this research.

Toyo Keizai CSR database is the most prominent database of CSR information in Japan. The agent conducts a comprehensive survey of all listed and major unlisted companies, and provides effective results of approximately 1,300 companies. For instance, version 2015 provides information of 1,305 companies (1,259 listed and 56 unlisted).

Nikkei NEEDS Cges is a database with detailed data and well-defined criteria that enables one to evaluate the corporate governance of listed Japanese companies. It covers approximately 3,600 companies. The data categories include capital efficiency, equity market evaluation, shareholders, board structure, board performance, return to shareholders, and disclosures of approximately 110 items.

Bloomberg is a financial services system that provides financial and economic information on all market sectors globally and includes environmental, social, and governance performance indicators from its CSR, annual reports, and Bloomberg Sustainability survey. In addition, Bloomberg includes responses to CDP questionnaires as part of its environmental, social, and corporate governance (ESG) data (Ortiz-de-Mandojana et al., 2016).

For inclusion in this study, sample firms have to meet the following criteria:

(1) Companies should be included in the Toyo Keizai, Nikkei Cges, and Bloomberg from 2012 to 2015.
(2) Companies should be listed on the first section of the Tokyo Stock Exchange.

CSR ranking from Toyo Keizai CSR database is adopted to represent sustainability performance. In addition, Toyo Keizai CSR database also rated environmental and social scores. Thus, in the following investigation, sustainability performance is represented by CSR ranking, environmental score, and social score. After excluding observations with missing values, the final sample is 875 for both

environmental score and social scores.

4.2.2 Measurement of variables

A fixed effects model is used to determine the impact of governance mechanisms on sustainability performance (environmental score and social score) controlling firm economic characteristics, size, and years. Four variables are chosen to represent corporate governance mechanisms on the basis of theoretical and multi-level framework discussed in the preceding section.

$$\text{Env\_score} = \beta_0+\beta_1 GRI+\beta_2 FRGN+\beta_3 IDRTO+\beta_4 CEODUA+\beta_5 ROA +\beta_6 ln\_Sales +\alpha_t+e \quad (1)$$

$$\text{Social\_score} = \beta_0+\beta_1 GRI+\beta_2 FRGN+\beta_3 IDRTO+\beta_4 CEODUA+\beta_5 ROA +\beta_6 ln\_Sales +\alpha_t+e \quad (2)$$

where α_t denotes fixed effects of year t and e is an error term.

Dependent variables

The sustainability performance assessments are constructed by using Toyo Keizai CSR database. Toyo Keizai Inc. conducts a comprehensive survey of all listed and major unlisted companies, and provides effective results. This database is one of the most authoritative and certified dataset concerning CSR information in Japan. This product has been available since version 2006. However, some items are not included in the old version and remedy the questionnaire every year. Thus, in this study, since the same indicators for sustainability performance have to be employed, the period from 2012 to 2015 has been fixed. These 4 years have the same question format for environment category. This database creates three categories, Workforce 1 and 2, CSR overall, and environment across four fields: human resource utilization, environment, corporate governance, and sociality. The evaluation items are basically based on a questionnaire survey. But for those companies, which are not providing their answers to the questionnaire, public information is used for evaluation. The evaluation method is the all-item point addition, and it will not be deducted by answering negative data. From the viewpoint of information disclosure, it adds to the fact if there was an effective response. As there is a span of the survey period and release time, resent incidents or scandals are not included in the evaluation. Considering that the evaluation of CSR ranking includes governance aspects, to avoid the endogeneity problem, we employ the environmental and social scores represented as sustainability performance.

Independent variables

In this section, four independent variables are chosen to investigate corporate governance mechanisms from institutional pressure and external stakeholders' pressure. These four variables are employed based on Toyo Keizai CSR, Nikkei NEEDS Cges, and Bloomberg databases. *GRI* denotes the external institutional dimension that companies have established business ethical guidelines and/or compliance policy in the conduct of company business, whether the company is in compliance with GRI criteria or not. *FRGN* and *IDRTO* can be analyzed as external stakeholders. *FRGN* denotes the fraction of shareholders who are foreigners. In Mallin et al. (2013), *FRGN* is examined to have positive impacts on monitoring companies to improve corporate responsibility. *IDRTO* represents the percentage of independent directors on the board, which is also tested in Kock et al. (2012) and clarified by a positive relationship with environmental performance.

Control variables

Financial performance. Profitability is related to the attention that a firm gives to sustainability issues. We use the measure of ROA as it is frequently cited in the literature as an indicator of a company's financial performance (Ortiz-de-Mandojana et al., 2016).

Firm size. Economies of scale are one the structural determinants of fostering sustainability practice. We control for firm size using the natural logarithm of total sales and the number of employees in order to prevent bias. Table 1 shows the definition of all the variables.

Table 1 Definitions of the Variables

Variable	Description	Database	Time period
Dependent Variables			
Enviro_score	the score is provided by Toyo Keizai CSR database	Toyo Keizai CSR	2013 - 2016
Social _score	the score is provided by Toyo Keizai CSR database	Toyo Keizai CSR	2013 - 2016
Independent Variables			
GRI	Indicates whether the company's application level was checked by the Global Reporting Initiative (GRI)	Bloomberg	2012 - 2015
CEODUA	Indicates whether the company's Chief Executive Officer is also Chairman of the Board, as reported by the company. "0" indicates the two roles are separate.	Bloomberg	2012 - 2015
IDRTO	the proportion of independent directors on board	Nikkei NEEDS Cges	2012 - 2015
FRGN	the proportion of foreigner ownership	Nikkei NEEDS Cges	2012 - 2015
Control Variables			
ROA	return on assets	Nikkei NEEDS Cges	2012 - 2015
ln_Sales	natural logrithm of net sales	Nikkei NEEDS FQ	2012 - 2015

4.3 Results

We ran the models testing the direct effects of corporate governance variables on environmental performance and social performance separately. Stata software is used to estimate the regression model illustrated by equations (1) and (2). Since the dataset in this study is unbalanced panel data, we examined pooling regression model, fixed effects model, and random effects model. Built on the result of Hausman test and F test, fixed effects model is examined as an explicit result. The sample comprises of 875 for both environmental score and social score. Table 2 reports the means and standard deviations, and Table 3 reports the correlations of all the variables used in this study.

Table 2 Descriptive Statistics

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Dependent Variables					
Environmental Score	915	79.885	13.495	35.200	100.000
Social Score	915	79.546	13.363	37.000	100.000
Independent Variables					
GRI	921	0.570	0.495	0	1
FRGN	960	22.802	12.591	0.420	74.230
IDRTO	960	18.981	15.599	0.000	85.714
CEODUA	954	0.636	0.481	0	1
Control Variables					
ROA	956	6.024	3.792	-10.391	21.805
ln_Sales	960	12.734	1.370	9.323	17.162

Table 3 Correlation Matrix

	Environmental Score	Social Score	IDRTO	GRI	CEODUA	FRGN	ROA	ln_Sales
Environmental Score	1							
Social Score	0.683	1						
IDRTO	0.173	0.313	1					
GRI	0.331	0.499	0.193	1				
CEODUA	-0.201	-0.246	-0.156	-0.130	1			
FRGN	0.306	0.407	0.382	0.250	-0.104	1		
ROA	-0.054	0.032	0.044	0.020	0.020	0.303	1	
ln_Sales	0.549	0.619	0.227	0.441	-0.296	0.538	-0.042	1

Table 4 Fixed Effects Regression Result

VARIABLES	(1) Environmental Score		(2) Social Score	
	Coef.	S.E.	Coef.	S.E.
IDRTO	0.065	0.027**	0.079	0.027***
GRI	-0.331	0.758	0.957	0.769
CEODUA	0.025	0.489	-0.003	0.497
FRGN	0.032	0.046	0.053	0.047
ROA	0.041	0.063	-0.007	0.064
ln_Sales	0.917	1.586	6.835	1.610***
Constant	66.992	19.861***	-10.800	20.167
Firm fixed effects	Yes		Yes	
Observations	869		869	
Year	2012-2015		2012-2015	
R-squared	0.024		0.095	

Notes: Models (1) and (2) show the results of fixed effects regression model, significant at *** 1%, ** 5%, and *10% levels.

The results of the regression analyses are listed in Table 4. Regression for the environmental score (Model 1) shows a positive association with the proportion of independent directors. In the social score model (Model 2), the regression result is the same as the environmental score. Hypothesis 1 suggests that with the implementation of GRI standards, companies have better sustainability performance. Models 1 and 2 show that normative pressures do not significantly influence sustainability performance (environmental score and social score). Thus, Hypothesis 1 is not supported by our sample.

Hypothesis 2 suggests that a higher percentage of independent directors can improve sustainability performance. Model 1 shows that a higher proportion of independent directors fosters firms' sustainability performance, environmental performance (0.065, $p<0.05$), and social performance (0.079, $p<0.01$). Therefore, Hypothesis 2 is accepted.

Hypothesis 3 suggests that a higher proportion of foreign ownership can enhance sustainability performance. Models 1 and 2 show that a higher percentage of foreign

shareholders does not influence sustainability performance. Thus, Hypothesis 3 is not supported by our data.

Finally, Hypothesis 4 suggests that a separate CEO can improve environmental and social performance. Models 1 and 2 show that a separate chair does not affect environmental and social performance. Thus, Hypothesis 4 is not supported for our data.

4.4 Discussion

In this chapter, we address the first research question by examining the direct impact of corporate governance mechanisms on sustainability performance. With respect to the method, the fixed effect model is adopted for examination. We specifically analyzed whether domains of governance mechanisms, GRI standards, independent directors, foreigner ownership, and CEO duality have an influence on environmental and social performance. The result provides us evidence of the key role of independent directors, who have positive influence on environmental and social performance.

Ortiz-de-Mandojana et al. (2014) find that there are two thoughts to explain the role of independent directors. The first was mentioned previously; if independent directors have the realization of long-term horizons and the knowledge of developing sustainable behaviors, a board with a larger number of independent directors would have a positive relation with environmental and social performance. The second is if the independent directors lack insiders' expertise and experience, the board would lose its ability to monitor environmental and social performance, and deteriorate performance results. The potential explanation for our finding is consistent with the former thought that independent directors who are more conscious of the implementation of CSR or sustainability strategy in companies are able to support top managers to enforce new ideas and new behaviors related to environmental and social issues. Furthermore, our finding implies that independent directors perhaps realize the needs and expectations of various stakeholders (Ortiz-de-Mandojana et al., 2014), and their responsibilities are not only to monitor firms' behavior, but also to undertake the role of advisory. Therefore, they have sufficient power to influence top managers' motivation on firms' decisions to gain legitimacy and ensure the long-term survival of the firm.

Contrary to our expectations, we did not find any evidence to support the notion of the effectiveness of GRI standards, the proportion of foreign ownership, and separate CEO in encouraging environmental and social sustainability. GRI standards have been adopted by companies globally as a means of integrated reporting. The format of GRI

standards provides a detailed framework for reporting: the aim is to offer a methodology for measuring and disclosing information so that it can then be meaningfully compared and benchmarked across different companies (Klettner et al., 2014). However, Patten (2002) provides suggestion according to the legitimacy-based arguments, that if companies have poorer environmental performance, which do increase the threat to the firms' social legitimacy, there is a trend among companies to provide greater environmental disclosure. Therefore, though GRI standards can be regarded as an external governance mechanism for normative pressure, it is originally adopted for disclosure and we should not neglect that it has a role toward legitimacy as well. This explanation is potentially related to our finding of GRI standards. With regard to CEO duality, there are two different thoughts in previous studies. One is that a separate CEO has less pressure to consider short-term interests and a capacity to argue compliance with environmental and social issues. The other is what Tricker (2009) argues that dividing leadership duties can lead to the conflict of decision-making. This maybe the reason why we cannot find a positive relation between separate CEO and sustainability performance. Previous studies point that foreign corporate investors, who possess less information than domestic counterparts, may show a greater preference for corporate social and environmental performance corporations willing to consider the non-financial elements for investees' businesses to avoid risk from a long-term perspective. Therefore, foreign investors who engage in value-enhancing or value-seeking strategies may demonstrate a stronger preference for firms that perform well in terms of their non-financial outcomes than domestic counterparts. Though there is no significant effect of foreign investors on environmental and social scores, the result implies the positive relation between foreign ownership and sustainability performance.

We focus on four corporate governance mechanisms because previous studies have identified their potential to contribute to better social and environmental decisions. The management literature has shown mixed results in relation to these structures and sustainability issues, which represent a need for further analysis. Thus, we undertake an investigation and our results contribute to the sustainability management literature by showing the influence of corporate governance mechanisms in encouraging sustainability performance. From the regression results, we identify some crucial implications for managers and policymakers. From a managerial point of view, even our regression result shows that an independent director is significant; however, on a practical level, we do not know how it can affect sustainability performance. Thus, only testing the direct effect of corporate governance mechanisms on sustainability performance is not sufficient. When CEOs or top managers are pressured by corporate

governance, what type of effective management process (behavior approach) for sustainability will they employ is still a black box for us as they have the discretionary power to decide the management tools to be adopted into sustainability management and exercise these activities. This is the second research question we should answer. Merchant and Van der Stede (2012) provide a clue of the management tool that could be MCSs, which is inextricably linked with corporate governance because MCSs' focus takes the perspective of top management and asks what can be done to ensure proper behaviors of managers and employees in the organization. Meanwhile, the role of corporate governance is controlling the behaviors of the top management (the executives) and those of all the other employees in the firm. Thus, Merchant and Van der Stede (2012) suggest that corporate governance adds to management control of both, the concern for controlling the behaviors of top management and the internal governance control of the company's board of directors. Considering corporate governance as an influencing factor from the internal point of view, what type of MCS mediates corporate governance and corporate sustainability performance? In the next chapter, we try to identify the naturalized model to answer the second research question.

5. Mediating effect of EMCS between corporate governance and environmental sustainability performance

In Chapter 4, we adopted the fixed effect model to examine the direct effect of corporate governance mechanisms on sustainability performance. Though the results reveal the significant role of independent directors, we cannot obtain vigorous evidence to prove the role of the other three mechanisms, as predicted. In the literature review, the reason for the unstable results is indicated to possibly be due to neglecting the mediator between corporate governance and sustainability performance. As explained previously, as there is no avouchment that top managers are willing to positively work on environmental and social sustainability activities, corporate governance mechanisms have the function to control and motivate top managers' behaviors. The boards can monitor and evaluate top mangers' actions using sustainability performance. This would be the motivation for top managers to improve sustainability performance. Therefore, the boards encourage top managers to develop proactive and comprehensive sustainability strategies to achieve superior environmental and social performance (Dubey et al., 2017). For top managers, EMCS are effective instruments to translate their behaviors evolving environmental management and achieve organizational goals. Hence, we suggest that EMCS has a mediating effect between corporate governance and sustainability performance. This chapter aims to explore the mediating effect of EMCS and examine our suggestion.

5.1 Corporate governance and EMCS

With respect to the relationship between corporate governance and EMCS, we find three studies that describe them and suggest that they are associated with each other. Guenther et al. (2016) indicate that several factors may simultaneously drive both environmental strategy employed, commonly classified along a continuum from reactive to proactive approaches, and another line of inquiry focuses on issues related to corporate governance. Though research on the consequences of corporate governance mechanisms has a long tradition, scholars have recently begun to specifically explore the relationship between corporate governance and environmental performance. Malmi and Brown (2008) include corporate governance into MCSs as one of the administrative controls because governance includes the formal lines of authority, accountability, as well as the systems which are in place to ensure that representatives of the various functions and organizational units meet to coordinate their activities both vertically and

horizontally (Malmi and Brown, 2008, p.295). As a governance structure can be designed in many ways in any given organization, researchers should not group them together, but instead study how they are linked with each other and other controls.

Though we did not find any empirical studies to verify the direct relationship between corporate governance and MCSs, as described above, efforts to address specific sustainability issues strongly depend on CEOs' strategic decision-making. As corporate governance enables to discipline CEOs' behaviors, in order to encourage CEOs to tackle sustainability issues actively, corporate governance needs to consider how can CEOs' behaviors be controlled. For instance, as specified in 3-1 in "The Guidelines for Investor and Company Engagement"[14], CEO qualifications are required to make decisions decisively to generate sustainable growth and increase corporate value over the mid- to long-term. Moreover, 3-4 in the same guideline suggests the objective, timely, and transparent procedures to appoint or dismiss CEOs via an appropriate evaluation of the company's business results, that the CEO is not adequately fulfilling the CEO's responsibilities. Consequently, along with the influence of corporate governance mechanisms, CEOs are thought to have sufficient motivation to improve sustainability performance. In addition, to respond to the request of governance and to improve sustainability performance that might lead to CEOs' own evaluation, the use of EMCS can be an effective means for CEOs. If so, corporate governance can facilitate CEOs to adopt EMCS. EMCS has the mediating effect to make corporate governance mechanisms to improve sustainability performance. Figure 2 shows our conceptual model to reflect our suggestion.

The development of ideas for sustainability management, such as the integration of environmental aspects into management controls to translate environmental strategic intents into eco-practices, can be found in Arjalies and Mundy (2013), Gond et al. (2012), and Pondeville et al. (2013). Scholars have begun to link existing frameworks of MCS to a wide range of topics on environmental issues and sustainability. This development is driven by speculation that is based on MCS and its role on strategic

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[14] The Council of Experts Concerning the Follow-up of Japan's Stewardship Code and Japan's Corporate Governance Code published the proposal "Revision of the Corporate Governance Code and Establishment of Guidelines for Investor and Company Engagement" in March, 2018. The Council proposed to revise the Corporate Governance Code and establish the Guidelines for Investor and Company Engagement that provide agenda items for engagement. In accordance with the proposal stating that the Tokyo Stock Exchange would promptly revise the Corporate Governance Code and the Financial Services Agency (FSA) would issue the Engagement Guidelines, the FSA called for public comments on the Engagement Guidelines. Finally, based on the received comments, the FSA finalized the Engagement Guidelines(Financial Services Agency, HP. https://www.fsa.go.jp/en/news/2018/follow-up/20180601.html, 2018-07-13).

coordination, where organizational learning can be adapted to environmental problems. Therefore, EMCS promotes effective integration of environmental issues in the process of strategy development and strategy implementation; aligns corporate decision-making, employee actions, and actions with environmental targets; and identifies new threats and opportunities (Gond et al., 2016; Guenther et al., 2016; Lisi, 2015). Gond et al. (2012) claim that MCSs enable to integrate environmental issues with organizational practices. Guenther et al. (2016) argue that the integration of sustainability in general and environmental aspects in particular into MCSs are now being addressed in MCSs research. They also claim that the concept of EMCS provides a promising approach for integrating the presently fragmented lines of internal drivers and managerial processes that may foster firms' environmental performance and push organizations in the direction of sustainability. In their research, they position MCSs as a starting point for EMCS.

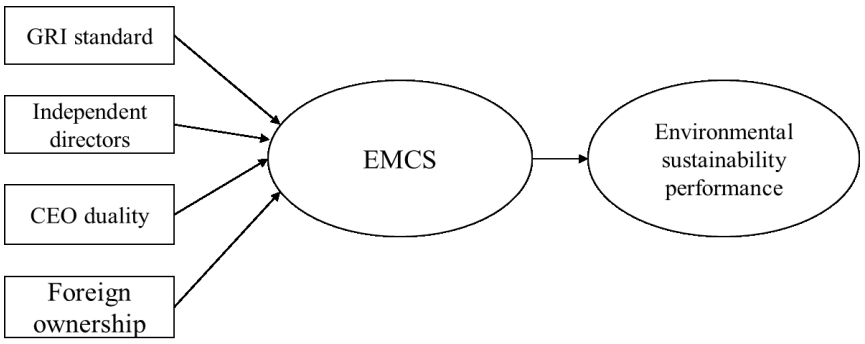

Fig. 2 Analytic Model

5.2 Corporate governance, EMCS, and environmental performance

The broadened perspective of MCSs implies that appropriate control can be achieved by two distinct control strategies (Ouchi, 1979). Goebel and Weissenberger (2017) also emphasize this standpoint and summarize that the two control strategies are formal control, such as performance evaluation processes, extensive budgetary controls, detailed rules, and standard operating procedures; and informal control. Organizations can influence their employees' behaviors through informal control, such as through the selection and training approaches or the design of an integrative corporate culture that builds on shared values and beliefs, which are considered as important MCS components that affect employees' perceptions and actions (Goebel and Weissenberger, 2017, p.189). The informal control mechanisms can promote an understanding of the

organizational objectives. Meanwhile, Goebel and Weissenberger (2017) indicate that formal and informal control mechanisms do not exist in isolation and it is generally acknowledged that companies rely on both means of controls in any setting. According to the definition of formal and informal control strategies described by Ouchi (1979), the object-of-control (OoC) framework can divide management controls into formal (results and action controls) and more informal mechanisms (personnel and cultural controls).

This study builds EMCS on Merchant and Van der Stede's (2012) framework because Simon's (1995) LoC framework exclusively focuses on formal controls (Tessier and Otley, 2012), and Malmi and Brown's (2008) framework includes too many formal and informal control elements, which have the possibility of overlapping categories and need to be further developed. Thus, in comparison to other management control frameworks, the OoC framework is theoretically well-grounded in a long line of empirical research that builds on Ouchi's (1979) formal and informal classifications (Merchant and Otley, 2007). Our first set of hypotheses relates to the effect of EMCS employing action control, result control, personnel control, and cultural control.

In line with the propositions of the relationship among corporate governance mechanisms, EMCS, and environmental sustainability performance, we develop our hypotheses as follows. As organizations need to ensure that their EMCS contain the information required to accomplish the sustainability mission and be an important part of their accountability, GRI standards offer a methodology for measuring and disclosing information. On the other hand, as GRI standards, including environmental and social indicators, are linked to processes and targets, they can periodically monitor MCS (Garcia et al., 2016). Furthermore, the finding of Garcia et al. (2016) also suggests the potential for GRI standards to support MCS. Thus, we suppose the following:

Hypothesis 5: The adoption of GRI standards leads to the effectiveness of EMCS.

Independent directors may be more responsive than insiders to stakeholder pressures concerning sustainability (Post et al., 2015). It can be owing to two reasons. First, as Post et al. (2015) indicated, by effectively serving stakeholders' interests, independent directors can enhance their own reputation and support the firm taking strategic action that varies from action supported by the CEO because they are not employed by the focal firm and have less pressure on financial performance. Their role is not only monitoring, but advising as well if independent directors are knowledgeable and have diverse backgrounds and experiences. Therefore, independent board members

have more incentive to align stakeholders' interests and encourage the firm to pursue sustainability-themed strategies, such as EMCS. Second, with the publication of Japan's Corporate Governance Code, principles 4.7 [15] and 4.8 [16] specify the role and responsibilities of independent directors to monitor the management through important decision-making by the board. Thus, these principles provide sufficient motivation for independent directors to monitor or advice managers to adopt EMCS.

Hypothesis 6: A higher proportion of independent directors leads to the effectiveness of EMCS.

In a manner similar to the role of independent directors, the separation of CEO and chair positions may make the board chair play an important role in monitoring and advising CEOs to grasp new ideas and new behaviors related to environmental issues (Ortiz-de-Mandojana et al., 2014). This viewpoint is consistent with the proposal of the Corporate Governance Code. Principle 4.3 of the Corporate Governance Code supposes that the board should view the oversight of management from an independent standpoint. This makes us propose the following hypothesis:

Hypothesis 7: A separate CEO leads to effective EMCS.

In previous studies, ownership is selected as one important variable to corporate performance. A majority of these studies focus on the role of foreign ownership. Neubaum and Zahra (2006) consider institutions' investment, including foreigners' investment horizon in relation to corporate social performance. Thus, the results suggest that if a firm is exposed to investors with a long-term horizon, they will be concerned about sustainability issues. Therefore, though EMCS has no direct association with foreign ownership, if foreign ownership pursues long-term benefits, it has the power to put pressure on the CEOs to implement EMCS. As such, we propose the following hypothesis:

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[15] Principle 4.7 of the Corporate Governance Code emphasizes that "companies should make effective use of independent directors, taking into consideration the expectations listed below with respect to their roles and responsibilities. In particular, it proposed the provision of advice on business policies and business improvement based on their knowledge and experience with the aim to promote sustainable corporate growth and increase corporate value over the mid- to long-term". (Japan's Corporate Governance Code, 2018)

[16] The supplementary of Principle 4.8 states that independent directors should endeavor to exchange information and develop a shared awareness among themselves from an independent and objective standpoint to contribute to discussions by the board.

Hypothesis 8: A higher proportion of foreign ownership leads to effective EMCS.

EMCS can be regarded as a specific application of management control (Henri and Journeault, 2010). This paper follows the framework of Merchan and Van der Stede's OoC including four dimensions: action, result, cultural, and personnel. In Henri and Journeault (2010), EMCS is indicated to foster environmental performance by providing feedback, information for decision-making, organizational attention, and data for external reporting. Thus, we suppose the following:

Hypothesis 9: The effectiveness of EMCS leads to better environmental sustainability performance.

Based on the conceptual model, to ensure the validity and reliability of the factors for the dependent variables EMCS and environmental sustainability performance in the model, we first conduct exploratory factor analysis (EFA) and then a secondary factor analysis.

5.3 Research method

5.3.1 Data and sampling

Data for this study was collected from a survey administrated in 2015 on listed companies in Tokyo Stock Exchange as part of a joint research project with Dresden Technische Universitaet[17]. We use NIKKEI Needs database to generate our target sample. We focus on the listed companies on the first section in Tokyo Stock Exchange and exclude financial industry because environmental issues are more likely to represent a major concern for them. Finally, we manage our target sample of 1,698 firms. The survey was designed by a structured 12-page questionnaire. The questionnaire was sent to the head of environmental or sustainability management. The questionnaire was extensively pretested and discussed with several academics and practitioners in order to check the clarity, understandability, and content validity of the questions in the survey interview. Moreover, the questionnaire was translated to English, German, and Japanese

[17] This was part of a survey research project, which was conducted by Kobe University and Dresden Technische University in Germany. In this project, we sent two questionnaires to each sample company (one to the manager of sustainability/CSR department, and the other to financial managers/CFOs) in Japan and Germany.

languages. Upon revision, we sent a cover letter in January 2015, along with the survey. The mailing process was completed in January 2016, resulting in a response rate of 15.25% (252 responses). Table 5 presents the description of the respondents.

Concerning non-response bias, different analyses are performed to confirm the validity of the data. The comparison between the respondents and non-respondents regarding return on sales and ROA reveal no significant differences. In addition, non-response bias is also tested by early response and late response. There is no significant difference between late and early respondents. Overall, it appears that we do not need to be concerned about the non-response bias.

Table 5 Sample description

Panel A: Size

	Sales in thousands JPY (n=242)	Number of employees (n=242)
Mean	720,007.05	16,489.69
Min	4,571.00	114.00
Max	13,925,339.00	271,789.00
Standard deviation	1,493,348.02	36,333.64

Panel B: Industries

Industry Description	**% of sample**
Agriculture, forestry, and fishing	0.40%
Construction	7.90%
Manufacturing	73.60%
Transportation and public utilities	4.10%
Wholesale trade	5.80%
Retail trade	3.30%
Real estate activities	0.80%
Accommodation and food service activities	4.10%
Total	100.00%

5.3.2 Measurement of constructs

In order to test the conceptual model as presented in Figure 3 concerning the assessment of EMCS and environmental sustainability performance, we use the constructs and items described in the previous EMCS studies. All the items are collected as part of reflective constructs on a 7-point Likert scale. Prior to conducting EFA, we eliminate all the items, which are checked for the ceiling effect[18]. Table 6 presents the

[18] The term ceiling effect is a measurement limitation that occurs when the highest possible score or

EFA results and the survey items employed in this paper. Table 7 presents the confirmatory factor analysis (CFA) result of survey items used to measure the main constructs. We adopt the same four variables to represent governance as Chapter 4.

Environmental management control system (EMCS). Four different validated categories are used to measure EMCS. For the measurement of EMCS, we integrate the general MCS conceptual framework of Merchant and Van der Stede (2012), which consists of action, result, cultural, and personnel controls. Additionally, we transfer scales used in previous studies to measure the OoC framework on general MCS to the specific context of EMCS by adjusting the wording.

Environmental sustainability performance. Environmental performance is measured by perceptual items because a valid and reliable performance assessment that does not require objective or subjective measures (Journeault, 2016). Furthermore, because the survey data summarize total direct and indirect energy consumption, total water withdrawal, total CO_2 and CO_2 equivalents emission, total amount of waste produced, and total amount of hazardous waste produce as environmental sustainability performance, this evaluation is more comprehensive. In existing archival databases, as some companies lack in environmental performance, using the data from questionnaires can avoid this problem.

Company size measured by the logarithm of sales is used to control for economies of scale in the adoption of sustainable management tools. ROA is used to control the scale of revenue. To ensure reliability and validity of all items, EFA and CFA are conducted. The variables EMCS and environmental performance consist of the items from the questionnaire, which are first filtered by EFA. In Table 6, we use principal components with promax rotation to extract all factors with an eigenvalue >1.0, MSA >0.5, communality >0.5 (Fabrigar et al., 2009), and factor loading >0.5.

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close to the highest score on a test or measurement instrument is reached. A ceiling effect can occur with questionnaires, standardized tests, or other measurements used in research studies. Therefore, whether a large percentage of individuals reach the ceiling on an instrument or whether an individual scores very high on an instrument, the researcher has to consider that what has been measured may be more of a reflection of parameters of what the instrument is able to measure than how the individuals may be functioning (Taylor, 2010, p.133).

Table 6 Results of EFA

Items		Action control	Result control	Personnel control	Cultural control	Environmental Performance
eco_o1	Superiors monitor necessary steps regarding their subordinates' achievement of environmental performance goals.	.961				
eco_o2	Superiors evaluate the way in which subordinates accomplish assigned environment-related tasks.	.960				
eco_o7	If targeted environmental performance goals are not achieved, subordinates discuss the next relevant steps with their superiors.	.951				
eco_o6	Subordinates discuss the necessary work steps for achieving their environmental performance goals with their superiors.	.937				
eco_o3	Superiors define the most important work steps for environment-related routine tasks.	.933				
eco_o4	Superiors provide subordinates with information on the most important steps regarding the achievement of environmental performance goals.	.851				
eco_o5	Policies and procedures manuals define the fundamental course of environmental activities.	.714				
eco_p1	Specific environmental performance goals are established for subordinates.		.945			
eco_p2	Subordinates' achievement of environmental performance goals is controlled by their respective superiors.		.715			
eco_p4	Subordinates receive feedback from their superiors concerning the extent to which they achieved their environmental performance goals.		.636			
eco_p3	Potential deviations from environmental performance goals have to be explained by the responsible subordinates.		.557			
eco_n2	Much effort has been put into establishing the best-suited recruiting process for an environmental job position.			.913		
eco_n3	Emphasis is placed on hiring the best-suited applicants for an environmental job position.			.868		
eco_n1	Our workforce is carefully selected whether it fits to our firm's environmental values and norms.			.781		
eco_n6	The environmental goal achievement of our superiors is carefully regarded when they are promoted.			.752		
eco_g6	Our workforce perceives the environment-related values codified in our mission statement to motivate environmental initiatives.				.954	
eco_g7	Our firm relies on a code of business conduct (e.g., compliance guidelines) for environmental management to define appropriate behavior for our workforce.				.833	
eco_g5	Our workforce is aware of the firm's environment-related values.				.829	
eco_g9	Our firm has a system that communicates to our workforce environ-mental risks that should be avoided.				.651	
eco_l3	Total CO_2 and CO_2 equivalents emissions					.915
eco_l1	Total direct and indirect energy consumption					.908
eco_l4	Total amount of waste produced					.870
eco_l2	Total water withdrawal					.857
eco_l5	Total amount of hazardous waste produced					.836

Table 7 Results of CFA

Item	Theoretical range	Mean	Standard deviation	Standardized regression weight (λ)	Individual item reliability	Composite reliability	Average variance extracted	Cronbach's alpha
Second-order construct: Environmental Management Control System						**0.888**	**0.670**	**0.967**
First-order construct: Action control				0.955***	0.912	0.969	0.838	0.971
O_1	1-7	5.11	1.66	0.918***	0.843			
O_2	1-7	5.13	1.62	0.909[a]	0.827			
O_3	1-7	5.08	1.61	0.911***	0.829			
O_4	1-7	5.03	1.61	0.933***	0.871			
O_6	1-7	5.38	1.51	0.894***	0.799			
O_7	1-7	5.41	1.53	0.928***	0.862			
First-order construct: Result control				0.881[a]	0.777	0.917	0.736	0.925
P_1	1-7	4.28	1.87	0.744[a]	0.553			
P_2	1-7	4.72	1.89	0.889***	0.79			
P_3	1-7	4.99	1.82	0.899***	0.808			
P_4	1-7	4.82	1.83	0.891***	0.794			
First-order construct: Cultural control				0.740***	0.547	0.907	0.712	0.889
G_5	1-7	5.46	1.23	0.950[a]	0.902			
G_6	1-7	5.38	1.26	0.891***	0.794			
G_7	1-7	5.68	1.36	0.745***	0.555			
G_9	1-7	5.49	1.52	0.772***	0.596			
First-order construct: Personnel control				0.665***	0.442	0.903	0.702	0.894
N_1	1-7	3.81	1.53	0.803[a]	0.646			
N_2	1-7	3.51	1.57	0.873***	0.762			
N_3	1-7	3.55	1.69	0.940***	0.884			
N_6	1-7	3.45	1.52	0.719***	0.517			

Fit indicies:

χ^2=205.773; df=122; P=0.000; RMSEA=0.054; CFI=0.982; NFI=0.956

Note: "a" denotes reference indicators. *p<0.10, **p<0.05, ***p<0.01

The detailed contents of the items are presented in Table 7. "a" denotes reference indicators. All the factor loadings are significant (p<0.001) and the standardized factor loadings are above 0.60. Cronbach's alpha exceeds the common threshold of 0.70 (Nunnally and Bernstein, 2006). Individual item reliability exceeds the common threshold of 0.400 (Bagozzi and Baumgartner, 1994). Composite reliability measures above the common threshold of 0.60 (Bagozzi and Yi, 1988). The average variance extracted exceeds the threshold of 0.50 for latent constructs.

5.3.3 Data analysis

We examine the model by SEM, which can estimate multiple dependent variables, the entire model, and offers (Kline, 2016). We use the AMOS 23.0 software program with maximum likelihood estimation to analyze the data.

Furthermore, we use the frequently reported goodness-of-fit indices comparative fit index (CFI), the root mean square error of approximation (RMSEA), the standardized root mean square (SRMR) as well as the Chi-square divided by the models degrees of freedom (CMINDF) to assess the model fit (e.g., Hu and Bentler, 1999; Heinicke et al., 2016).

5.4 Results

Figure 3 and Table 8 present the results of the conceptual model in terms of path coefficients, standard errors, and goodness-of-fit indices. The recommended thresholds are explained previously.

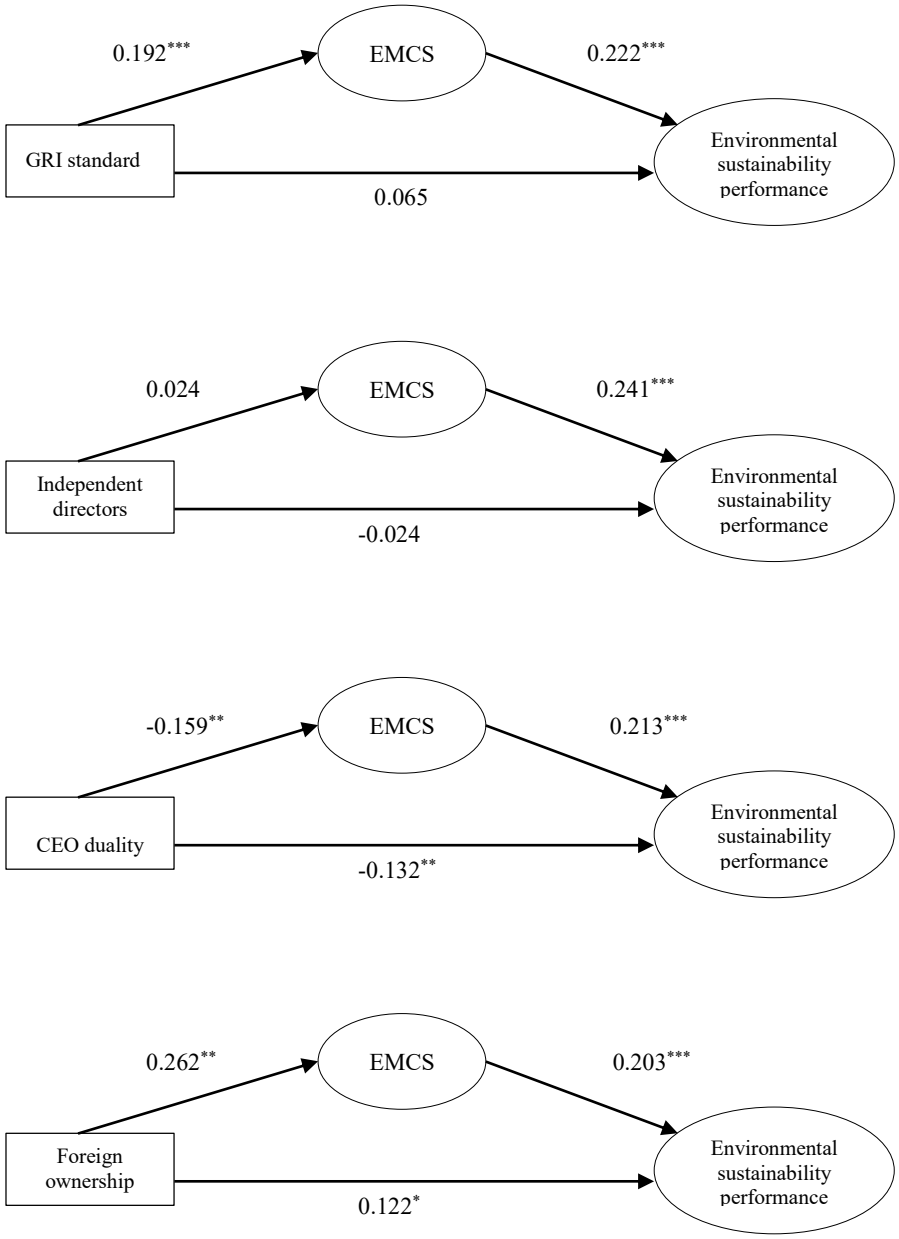

Fig. 3 Results for the structural equation model

Table 8 Results for the structural equation model

Hypothesis	Descriptions of paths			Estimate	S.E.		Model-fit indicies
H5	GRI standard	→	EMCS	0.192 **	0.201	Accepted	CFI: 0.979
H9	EMCS	→	Env. Perf.	0.222 ***	0.057	Accepted	RMSEA: 0.047
	GRI standard	→	Env. Perf.	0.065	0.161		Chi-square = 352.247
H6	Independent directors	→	EMCS	0.024	0.101	Rejected	CFI: 0.983
H9	EMCS	→	Env. Perf.	0.241 ***	0.057	Accepted	RMSEA: 0.042
	Independent directors	→	Env. Perf.	-0.024	0.080		Chi-square = 330.283
H7	CEO duality	→	EMCS	-0.159 **	0.214	Accepted	CFI: 0.981
H9	EMCS	→	Env. Perf.	0.213 ***	0.056	Accepted	RMSEA: 0.045
	CEO duality	→	Env. Perf.	-0.132 ***	0.168		Chi-square = 341.526
H8	Foreign ownership	→	EMCS	0.262 **	0.073	Accepted	CFI: 0.978
H9	EMCS	→	Env. Perf.	0.203 ***	0.057	Accepted	RMSEA: 0.048
	Foreign ownership	→	Env. Perf.	0.122 **	0.060		Chi-square = 358.530

Note: ***Significant at p-value < 0.01 (two-tailed), **Significant at p-value < 0.05 (two-tailed), and *Significant at p-value < 0.1 (two-tailed)

5.4.1 Results of the measurement model

To ensure reliability and validity, EFA is first conducted. CFA is performed for each construct of EMCS. In order to test the framework for EMCS, a second-order CFA is also conducted. CFA yields standardized loadings greater than 0.50, Cronbach's alpha is from 0.889 to 0.971, composite reliability (CR) is from 0.903 to 0.969, and the average variance extracted for each variable is above 0.50. All these indicators show that each construct in this model exhibits satisfactory reliability and validity.

5.4.2 Results of the structural model

In Figure 3 and Table 8, the model shows the results of the relationship between four corporate governance mechanisms and environmental sustainability performance mediating EMCS. First, a positive and significant relationship is found between GRI standards and EMCS (0.192, $p<0.01$), supporting H5. This finding suggests that GRI standards may foster the effective use of EMCS by providing KPI information, focusing attention, and supporting decision-making. This further suggests that the explicit norms or codes play a critical role in supporting the implementation of EMCS within a firm.

Second, a positive and significant relationship is also found between separate CEOs and EMCS (-0.159; $p<0.05$). Thus, H7 is supported. The findings suggest that the separation of CEOs and chair positions may play a function on monitoring and advisory. The board chair may have the power to manage CEOs to embed sustainable behavior into firms.

Third, we find a positive and significant relationship between foreign ownership and EMCS. Thus, H8 is supported (0.262; $p<0.05$). Though in previous studies the suggestion is emphasized that foreign ownership with long-term orientation may support CEOs to employ EMCS in firms, our findings present a new trend in the current age. More foreign ownership reflects pursuing long-term benefits and their pressure push CEOs to focus more on sustainability issues. In addition, their pressure makes CEOs adjust their strategies to facilitate EMCS.

Contrary to the expectations, there is no significant relationship between independent directors and EMCS, which fails to support H6. Finally, no matter what are the GRI standards, independent directors, CEO duality, or foreign ownership, EMCS has shown its invariance relationship with environmental performance in the four models. Therefore, H9 is completely supported by this study.

These findings support our assumption by showing how EMCS acts as a mediator variable between corporate governance mechanisms and environmental performance.

5.5 Discussion

This chapter examines the ability of EMCS as a process to support corporate governance strategies by translating strategic intentions into sustainability practices. It contributes to investigating the role of corporate governance mechanisms to promote firms to implement EMCS and improve firms' environmental performance indirectly by opening the black box of the relationship among corporate governance, EMCS, and performance. In spite of the fact that we cannot identify the role of independent directors, the other three corporate governance mechanisms are all illustrated to be able to impel CEOs to implement EMCS. The GRI standards represent global best practice in sustainability reporting. Thus, it can provide sufficient information to companies. Meanwhile, it is also a trusted reference for policy makers and regulators globally. Therefore, adopting GRI standards can be regarded as a governance mechanism for sustainability activities. If the board can advise CEOs to absorb more information from GRI standards, CEOs will be eager to implement EMCS to improve sustainability performance because EMCS is an efficient tool in sustainability practice.

The investigation in this chapter also provides evidence to a current call to examine the impact of corporate governance mechanisms on sustainability issues. This study demonstrates that it is necessary to respond to the suggestion of Japan's Corporate Governance Code. Principle 4 of the Corporate Governance Code emphasizes the roles and responsibilities of the board. Our findings, such as a separate CEO, support the

point that the board should view the effective oversight of the management and directors from an independent and objective standpoint, which is indicated in the Corporate Governance Code. As the board can evaluate a company's performance and reflect on the evaluation in its assessment of the top management, this also leads to CEOs' motivation to implement EMCS to improve environmental performance.

Though the Corporate Governance Code and Guidelines for Investor and Company Engagement emphasize the importance of independent directors, our result does not support our hypothesis. Concerning the role of independent directors, there are also mixed results revealed in the literature review. The reason that our result is not supported may be owing to the fact that when we observe the role of independent directors, we neglect an assumption for the independent directors with the relevant working experience or related knowledge. In addition to the role of monitoring, independent directors have the responsibility to provide advice. Furthermore, as independent directors have no relation with the company, they can independently and objectively judge. However, if they have some connection with the company, such as family ties or being a representative of a dominant shareholder, such connections raise questions and these issues will be explored more elaborately (Tricker, 2009). This could be another reason why we cannot obtain any result from the testing model.

Our results also identify the role of foreign ownership. This result may possibly show us the current trend that after the Lehman shock, if more investors are changing to consider the long-term horizon, their requirement may be the coexistence of economic and environment. Considering this situation, the proportion of foreign ownership may put pressure on CEOs to improve sustainability performance. CEOs are willing to effectively adopt EMCS.

Furthermore, by integrating the four categories of MCS supposed by Merchant and Van der Stede (2012), this chapter also contributes to highlight the effectiveness of EMCS to improve environmental performance. This is an essential implication for management practices as it illustrates the potential of EMCS to bridge the gap between a board and top managers. As the board has the responsibility to push forward CEOs to embed sustainability issues, in order to monitor CEOs' behaviors, the board may assess CEOs' behaviors by sustainability performance. Thus, our results strongly urge CEOs to adopt practices such as EMCS. Overall, based on the results of the analysis, the mechanisms of foreign ownership, it is clarified that separate CEO and GRI standards can improve sustainability performance through EMCS.

In previous studies so far, there is no research attempting to adopt the package of MCS as a mediating factor. This is considered to be the reason why the verification

results may cause instability. Even if corporate governance mechanisms have been completed, it became clear that it is possible to demonstrate the function of governance more by using EMCS. Owing to the fact that EMCS as a regular control system can make environmental activities run, the board ensures that it is being well run and run in the right direction. As Tricker (2009) mentioned, boards can ensure that the necessary monitoring and control processes are in place. How can top managers' activities be monitored? What is the appropriate control process? According to our results, the introduction of EMCS may be one of the choices. Therefore, it was clarified that corporate governance and EMCS have a close alliance relationship.

6. Conclusion

Starting with the formulation of the Corporate Governance Code, governance reform in Japan is progressing for listed companies. In the Code, transparent and fair decision-making from the stakeholders' point of view, and clarity concerning sustainable growth and mid- to long-term corporate value are stated. However, how to practice sustainably is an issue. Economic growth is one perspective that is originally the result of efforts by humans to maintain their lives. However, pursuing economic growth has caused some other problems, such as environmental destruction. To solve these problems, we have to rethink the particular activities of companies, since their economic activities may be the cause of environmental problems. There is the possibility that top managers prefer to pursue short-term profits and weaken an oversight on environmental and social sustainability issues. Therefore, the role of governance is important to monitor, advice, and promote the top managers' behaviors to embed environmental sustainability practices into companies' activities. The purpose of this study is to research the interrelationship between corporate governance and sustainability performance. To illuminate the impact of corporate governance on sustainability performance and investigate the control of sustainability management to clarify the practical effect of corporate governance on sustainability performance, this paper set two research questions. One is the actual direct effect of corporate governance mechanisms on sustainability performance, and the other is to explore the possibility that top managers choose EMCS as an efficient tool to promote environmental sustainability performance in response to the pressure from corporate governance mechanisms.

To respond to the above research questions, Chapter 2 conducted a literature review to observe the impact of corporate governance mechanisms on external and internal levels on sustainability performance. By reviewing the articles from 2001 to 2015, we organized the most relevant mechanisms and their influence on environmental and social performance. Aguilera et al. (2015) indicate that corporate governance research has primarily focused on internal governance mechanisms. However, much of this work ignores the role that external corporate governance mechanisms play in preventing managers from engaging in activities detrimental to the firm as a whole. When the internal mechanisms fail to play their roles to monitor top managers' behaviors, the external mechanisms are significant to motivate managers to behave appropriately. Thus, the external mechanism should also be considered. As described in the first chapter of this paper, Financial Services Agency in Japan issued the

Stewardship Code in 2014, where companies were called for the development of sustainable growth to create value. Considering this background, with the amendment of the Corporate Law and Financial Transactions Law, and publishing of the code, the role of external mechanisms is emphasized more. Therefore, the review helped to map the theoretical model of the whole paper explained in Chapter 3 as well.

In Chapter 3, to answer the research questions, we first organized the relationship among corporate governance, management control, and sustainability performance as a research framework and explained the appropriate research method for each research question. Since the influence of corporate governance mechanisms on sustainability objectives has not started to be discussed in the academic area until recent years, we do not have sufficient evidence to identify the real picture of Japanese companies. To fill the gap in this study, we first employed Bloomberg ESG database, Nikkei Needs Cges, and Toyo Keizai CSR database, which are archival databases used to conduct the fixed effect model. Considering the second research question, a questionnaire survey was conducted to perceive the real situation of environmental sustainability management in companies.

Chapter 4 examined the possibility of an actual direct effect of corporate governance mechanisms on environmental and social performance. In this examination, we used panel data from 2012 to 2015 based on Bloomberg ESG database, Nikkei Needs Cges, and Toyo Keizai CSR database, and supposed that the codes or norms related to measuring sustainability performance, monitoring from independent directors, separate CEO, and foreign ownership have a positive relationship with environmental and social performance.

Chapter 5 supposed and investigated the other possibility of adopting EMCS to discipline top managers' behaviors to correspond to the pressure of corporate governance. We adopted a part of the results from the survey and merged the archival data from Bloomberg ESG database. The results vigorously support our conceptual model to provide us with evidence that EMCS has a mediating effect on corporate governance and sustainability performance.

This study explores the effects of corporate governance mechanisms on sustainability performance, and the integration of sustainability management within an organization's strategy. Examination of the relationship between corporate governance mechanisms and sustainability performance present a weak direct link between governance mechanisms and environmental and social sustainability performance. We also suggest the mediating effect of EMCS that may make the function of governance more or less stable to improve sustainability performance. In doing so, our analyses

deliver a twofold contribution.

First, our results contribute to corporate governance literature. Walls et al. (2012) indicated that in understanding how corporate governance mechanisms may influence sustainability performance, fragmented and contradictory empirical evidence make the findings equivocal. We conducted the empirical analysis to examine the direct relationship between corporate governance mechanisms and sustainability performance. The results we obtained from the analysis is relatively weak and similar to previous studies. Further, we identify the mediating effect of EMCS between corporate governance and sustainability performance. The results hint at one possible reason why other empirical studies' results are contradictory and equivocal because we neglect the role of mediating effects of management control. In formulating a strategy, the board works with the top management. The board needs to monitor and supervise the activities of the executive management, looking inwards at the current managerial situation and recent performance (Tricker, 2009, p.46). The board motivates CEOs to introduce environmental management control into organizations—not environmental performance directly. Moreover, the Cadbury Report (1992) also provides a comment that the responsibilities of the board are to set the strategy aims, provide leadership to put them in effect, supervise the management, and report to the shareholders on their stewardship. This comment could also be applied to the sustainability context. Hence, based on our empirical evidence, the elements of governance that should be taken into account to deliver the sustainability strategy and the effectiveness of corporate governance in the implementation of environmental management control have been identified.

Second, our results contribute to the EMCS literature. The results of the second research question suggest that EMCS may be a useful control process to maximize the effective function of corporate governance and discipline environmental sustainability management autonomously. Thus far, several articles state that MCS is linked to corporate governance. However, all the discussions are limited to the conceptual level. The conceptual model in our study first provides the empirical evidence to show that EMCS influences the effectiveness of corporate governance mechanisms in enhancing environmental performance. Furthermore, our investigation could be consolidated in future works by identifying more contingency factors to use and integrate EMCS.

Finally, our conceptual model to examine the mediating effect of EMCS has strong managerial and theoretical implications. First, our analysis reveals that in uncovering the form of EMCS integration, the function of corporate governance mechanisms may not be sufficient to deploy sustainability performance. It suggests that even though companies complete their corporate governance mechanisms if, without the

implementation of EMCS, without governance mechanisms, it is challenging to maximize their function on sustainability performance. Essentially, the duty of corporate governance is to primarily monitor CEOs and supervise the activities of the executive management, but not directly to improve performance. We highlight that corporate governance can enable improving sustainability performance through the use of EMCS.

Second, our analysis suggests that only depending on top managers to mobilize the strategy of EMCS may not be powerful enough. Our test model stresses that corporate governance is the antecedent condition to enhance sustainability strategy and it considers a useful approach for top managers who are willing to enhance the level of sustainable organizational development by the regular control system, such as EMCS. Although our analysis did not consider all the possible organizational contingencies, our approach suggests that the implementation of EMCS can support corporate governance to play a two-tier role, including monitoring responsible for performance and supervisory responsibilities for conformance.

Third, in addition to managerial implications, our study also implies the possibility of a new direction of theoretical approach. The dominant paradigms in corporate governance research, such as agency theory, have shown their shortcoming in explaining why sustainability targets should be included in corporate strategic goals (Walls et al., 2012). Though we did not discuss theory building in the study, the examination of the conceptual model indicates that the CEOs' behavioral orientation plays a critical role in embedding sustainability issues. Therefore, the behavioral process theory of social psychology, such as stewardship theory and network analysis, may be needed to supplement and investigate studies of corporate governance and environmental performance link in future research.

From an empirical viewpoint, our study is also subject to several limitations that call for several developments. First, we rely on the data from employees in CSR or sustainability department and information regarding the EMCS is not publicly available. Hence, our results may be associated with commonly mentioned shortcomings of questionnaire-based survey studies such as Goebel and Weissenberger (2017). More specifically, concerning environmental performance, as we employ the evaluation of environmental performance from individual respondents' cognition, the assessment of environmental performance may include subjectivity and social desirability. Thus, perfecting the objective of the data represents an area for future research.

Another limitation relates to our findings regarding the EMCS. In this study, we address the overall control style based on the organizational level and use secondary factor analysis to constitute the assessment of EMCS. Further research can investigate

the role of different aspects of the OoC framework, including action, result, cultural, and personnel controls that have not been investigated, but should be a matter for further analysis. In addition, the control measures for environmental management could also be divided into formal and informal controls in specific contingencies (Goebel and Weissenberger, 2017). Therefore, analyzing the effects of alternative control mechanisms may be an additional insight. Despite these potential limitations, we believe that our findings provide significant insight for the academic world and practice, and respond to the calls for an effective management system to communicate corporate governance related to sustainability issues and improve sustainability performance.

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Appendix: Summary of empirical studies on corporate governance in CSR contexts

Journal	Author	Data	Focus of study	Key findings
Business Strategy and the Environment	Amran et al. (2014)	113 companies from 12 countries in the Asia-Pacific region	The influence of corporate structure and strategic CSR toward sustainability reporting quality	Sustainability reporting quality (SRQ) in the region leaves much room for improvement. The institutionalization of the concept of CSR in an organization provides a sound foundation for enhancing SRQ.
Business and Society	Ayuso et al. (2014)	2004 annual review for the Dow Jones Sustainability Indexes (DJSI) by SAM Group, 946 firms from 31 countries and 18 different market sectors	Stakeholder approach to corporate governance	The traditional distinction between shareholder-centered and stakeholder-centered corporate governance systems also has importance in CSR strategy.
Journal of Business Ethics	Chan et al. (2014)	222 annual reports of companies traded on the ASX in 2004	Corporate governance quality and CSR disclosures	The findings of this research support a link between corporate governance quality and CSR disclosure in company annual reports, and regulators who focus on corporate governance quality as a way of increasing CSR disclosures may be better served.
Corporate Governance: An International Review	Choi et al. (2013)	Seven-year data from 2002 to 2008 of 2055 non-financial firms	The relationship between financial transparency and CSR activities is affected by ownership structure or not	The relationship is weaker for chaebol firms and firms with highly concentrated ownership. The adverse use of CSR is discouraged if the fraction of shares owned by institutional investors is high. However, no evidence is found for a similar moderating effect for foreign investors.

Corporate Governance: An International Review	Dam and Scholtens (2012)	600 European firms from 16 countries and 35 industries in 2005	How different types of owners affect CSR	Ownership by employees, individuals, and firms is associated with relatively poor corporate social policies of the firms they invest in. In contrast, the holdings by banks and institutional investors as well as those by the state appear to be neutral in this respect.
Journal of Business Ethics	Fabrizi et al. (2014)	597 US firms over the period 2005–2009	CEO's personal incentives in driving CSR	Both monetary and non-monetary incentives have an effect on CSR decisions. More specifically, monetary incentives designed to align CEOs' and shareholders' interests have a negative effect on CSR and non-monetary incentives have a positive effect on CSR.
Management Decision	García-Benau et al. (2013)	127 listed companies in Spain for 6 years, financial information data from the DataStream database	The financial crisis has had an impact on CSR reports and the assurance of these reports	The number of CSR reports increased significantly post-crisis. No significant impact was found regarding the changes in assurance strategy.
Journal of Business Ethics	Jizi et al. (2014)	Large US commercial banks for the period 2009-2011	The role of board directors influence the quality of CSR disclosure in US commercial banks' annual reports.	With regard to CSR disclosure, more independent boards and larger boards promote both shareholders' and other stakeholders' interests. CEO duality also positively impacts CSR disclosure.

Journal of Business Ethics	Jo and Harjoto (2012)	Kinder, Lydenberg, and Domini's (KLD's) Stats database includes more than 3000 companies containing various CSR characteristics	The effect of corporate governance on corporate responsibility	While the lag of CSR does not affect corporate governance variables, the lag of CG variables positively affects firms' CSR engagement after controlling for various firm characteristics. CSR engagement positively influences corporate financial performance, supporting the conflict-resolution hypothesis based on stakeholder theory. Firms' CSR engagement with the community, environment, diversity, and employees plays a significantly positive role in enhancing corporate financial performance.
Journal of Business Ethics	Khan et al. (2013)	135 manufacturing companies listed on the Dhaka Stock Exchange in Bangladesh from 2005–2009	The relationship between corporate governance and the extent of CSR disclosure in annual reports of Bangladeshi companies	Although CSR disclosures generally have a negative association with managerial ownership, such a relationship becomes significant and positive for export-oriented industries. Public ownership, foreign ownership, board independence, and the presence of an audit committee have positive significant impacts on CSR disclosure. Overall, corporate governance attributes play a vital role in ensuring organizational legitimacy through CSR disclosures.
Management Decision	Kuo and Chen (2013)	208 firms listed on the Japan Nikkei Stock Index 500	The relationship between the level of environmental disclosure and establishment of a legitimacy image of	Firms from environmentally-sensitive industries can significantly improve their perceived legitimacy by releasing CSR reports; firms with better prior environmental legitimacy will be more active in

			operation among Japanese firms after the implementation of the Kyoto Protocol	environmental disclosure and establish better environmental legitimacy in the next period; firms with better carbon reduction performance tend to have higher levels of environmental disclosure.
Corporate Governance: An International Review	Ntim and Soobaroyen (2013)	291 non-financial firms listed on the Johannesburg Stock Exchange over the period 2002–2009 from five main industries	The relationship between corporate governance and CSR	Better-governed corporations tend to pursue a more socially responsible agenda through increased CSR practices. Furthermore, a combination of CSR and corporate governance practices has a strong positive effect on corporate financial performance than CSR alone.
Quality and Quantity	Sharif and Rashid (2014)	Annual reports of 22 commercial banks listed on the KSE 100 index from 2005–2010	To explore Pakistani listed commercial banks, CSR reporting information along with the probable effects of different corporate governance elements on CSR disclosures	Even though reporting of CSR is voluntary in Pakistan, the participation of Pakistani commercial banks in different CSR activities is not low. The level of CSR activities performed by the banks is impressive. Non-executive directors have a positive impact on the CSR reporting supporting stewardship theory in commercial banks of Pakistan.
Journal of Business Ethics	Zhang et al. (2013)	500 of the largest companies listed on the U.S. stock exchanges spanning 64 different industries	The effects of board composition on CSR performance	Greater presence of outside and women directors is linked to better CSR performance considering a firm's industry.

Management Decision	Cormier et al. (2011)	137 firms that undertook web disclosure in 2005. Sample firms represent more than 80% of the Toronto Stock Exchange's capitalization for non-financial firms and 46% of the total capitalization	Social disclosure and environmental disclosure have a substituting or complementing effect in reducing information asymmetry between managers and stock market participants	A firm's governance influences the extent of its CSR disclosure and affects information asymmetry between a firm's managers and other stakeholders.
Journal of Business Ethics	Godos-Díez et al. (2011)	149 completed questionnaires to the CEOs of 2,987 companies in 2008 in Spain	A relationship between manager profile and CSR practices, and that this relation is mediated by the perceived role of ethics and social responsibility	Those closer to the steward model are more inclined to attaché great importance to ethics and social response, and to implement CSR practices in their companies.
Journal of Business Ethics	Harjoto and Jo (2011)	12,527 firm-year (2,952 firms) observations from 1993 to 2004	The relationship among CSR, governance, and firm performance	Consistent with the conflict-resolution hypothesis, CSR choice is positively associated with governance characteristics, including board independence and institutional ownership. CSR engagement positively influences operating performance and firm value, and a weak support of the product-signaling hypothesis is a major motive for CSR engagement.

Journal of Business Ethics	Jo and Harjoto (2011)	12,527 firm-year (2,952 firms), including both CSR and non-CSR firms during 1993–2004.	The effects of internal and external corporate governance and monitoring mechanisms on the choice of CSR engagement and the value of firms engaging in CSR activities	CSR choice is positively associated with internal and external corporate governance and monitoring mechanisms. The impact of analysts following firms that engage in CSR on firm value is strongly positive, while board leadership, board independence, and institutional ownership play a relatively weaker role in enhancing firm value.
Corporate Social Responsibility and Environmental Management	Kolk and Pinkse (2010)	CSR reporting of Fortune Global 250 companies	To what extent has corporate governance become integrated in multinational enterprises' (MNEs') disclosure practices on CSR	More than half of the samples have a separate corporate governance section in their CSR report. MNEs that disclose information on a wider variety of social and environmental issues, and frame CSR with a focus on internal issues are more inclined to integrate corporate governance into their CSR reporting.
Accounting and Business Research	Mallin and Michelon (2011)	Business Ethics 100 Best Corporate Citizens over the period 2005–2007. Data collected from the KLD's SOCRATES database.	The relationship between board reputation and corporate social performance	The proportions of independent, community influential, and female directors are positively associated with corporate social performance, while the presence of a CSR committee is positively associated with community performance. However, CEO duality and community influential directors with multiple directorships have a negative effect on corporate social performance.

Corporate Social Responsibility and Environmental Management	Prado-Lorenzo et al. (2009)	116 non-financial Spanish firms quoted on the Spanish continuous market	The effect that shareholder power and dispersed ownership structure have on the decision to disclose CSR information in the Spanish context	The increasing value that society is placing on the socially responsible behavior of organizations in economic, social, and environmental terms, and the legal requirements for this type of behavior and its reporting to the society have become essential factors leading firms to begin to disclose information on CSR that has been verified and can be compared internationally.
Corporate Social Responsibility and Environmental Management	Sánchez et al. (2011)	125 companies listed on the Spanish Continuous Stock Market	The relationship between corporate governance and corporate social behavior	A firm's social sensibility of corporate governance can be measured through the independence and pluralism of boards and ownership power. There is a direct relationship between a firm's social sensibility of corporate governance and its social behavior.