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Analyzing the determinants of non-financial information disclosure in the integrated report from the viewpoint of content elements: Evidence from Japan

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Analyzing the determinants of non-financial information disclosure in the integrated report from the viewpoint of content elements: Evidence from Japan

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Abstract This paper investigates the relationship between the disclosure rate of non-financial measures and the four determinants that influence management decision to disclose such measures: (1) managerial significance, (2) the importance of measurement, (3) measurement difficulties and (4) the impact on financial figures. This study explores whether critical non-financial measures for medium- to long-term value creation are fully, or to what extent, disclosed in the integrated report (IR). Though published articles surrounding this topic are already in circulation, many researchers present normative arguments for the IR whilst there is little research examining the practice of IR itself (e.g. Dumay et al., 2016; KPMG, 2018). Thus, this paper examines current IR practice in Japan and explores which elements hinder companies' attempts to disclose such measures and how to enhance disclosure practices of those measures, based on questionnaire data analysis. The author finds that many companies connect existing reports, such as the annual report and CSR report, into an integrated report, therefore more effective representation of business dynamics in a value creation context is needed. Further, the result suggests that companies refrain from addressing specific technology-related information when it has a high managerial significance, as it includes confidential matters advantageous to them. Besides, the result confirms that creating KPIs on a content element, such as the organizational overview element, leads to the enhancement of the integrated report.

Keywords: *Integrated report, Non-financial information, Value Creation, Corporate Social Responsibility (CSR), Sustainability, Accountability*

1. Introduction

The disclosure of non-financial information plays a key role in improving the informational efficiency, alongside all stakeholders' resource-allocation decisions. In fact, there has been a decrease of value relevance of financial information after the mid-1980s and an arising of short-termism in the equity market (Kay, 2012). The explanatory power of earning and book value for the levels model — that is, the amount of accounting information incorporated in the stock price — plunged sharply; an R_2 of around 80% in the mid-1980s had descended into an R_2 of around 50% in the late 1990s (Gu, 2007). Another good example is that the mean duration of equity holding shortened significantly; in the U.K., the holding period stood at approximately 3 years in 1980 and has reduced to around 7 months in 2010. Additionally, there is a growing concern that short-termism deters companies from medium to long-term innovative investment and risk-taking behavior (Latham and Braun, 2010). Lev and Gu (2016) demonstrate the crucial need for non-financial information which focuses on strategic, value-enhancing resources for stakeholders' decisions, while showing comprehensive evidence that financial information has lost much of its usefulness.

However, many argue that information in areas such as technological innovation, competitive environment, human resources, and coexistence of society and environment are not fully disclosed in current corporate reporting (e.g. Eccles and Saltzman, 2011; IIRC, 2011; IIRC, 2013; Lev and Gu, 2016). Further, non-financial reporting practices have evolved in separate, disconnected strands,[1] so a coherent and integrated overview of organizational capabilities, competition, strategy, and performance open to contemplation (e.g. IIRC, 2011; IIRC, 2013). A framework of the integrated report (IR), provided by International Integrated Reporting Council (IIRC), concluded that companies should disclose the ability of an organization to create short, medium and long term value, emphasizing strategic focus (2013b, p. 2). In fact, corporate managers presumably disclose non-financial information voluntarily, expecting stakeholders interpret those pieces of information as a reliable signal of organizational capabilities, competitive advantage, and strategy. The IR framework involves several perspectives: fundamental concepts, principles, and content elements. The focus of this research is on the content elements, which govern the overall content of an IR, and explain value creation processes of the corporations over a short, medium and long term time frame.

The information asymmetry between the firm and stakeholders encourages corporate managers to transfer the information of the organizational off-balance resources and competence of the management, in order to obtain the appropriate evaluation from stakeholders. Devaluation gives managers the incentive to signal their propriety information to the external stakeholders through multiple reporting sources, as well as other media sources (e.g. Ross, 1977). As the delivery of non-mandatory information is undertaken voluntarily and provided in a complicated and diverse manner, this study is interested in seeking to understand the significance of corporate managers' practice on IR disclosure, as a signal regarding future

[1] The Prince's Accounting for Sustainability Project and the Global Reporting Initiative have initiated and promoted those practices since early 2000.

financial performance. Since the disclosure of the IR is an optional procedure, both with regards to its timing and the content elements to which it may be disclosed, many infer that it will be used by management as a positive signal and will generally be avoided if it were likely to be interpreted by the external stakeholders as unfavorable (e.g. Standish and Ung, 1982). However, now that corporate managers signal their proprietary information, the signal necessitates itself establishing the reliability of information lest stakeholders sway from the intrinsic values of the firm. In fact, companies have inducement to send credible information; if they sent wrong signals, they would be penalised by the external stakeholders (Giner, 1997; Morris, 1987). Furthermore, corporate managers may exercise a certain degree of discretion when choosing timing and extent of information disclosure, taking into account that no information may be interpreted as ‘bad news’ (Giner, 1997). Thus, there is the possibility that corporate managers disclose the information in advance, even if it includes unfavorable contents, in order to avoid postponing the disclosure of 'bad news’. Therefore, eschewing the prospect of worsening the punishment from the stakeholders. In this case, voluntary disclosure is used as a shock-absorbing mechanism as part of the risk management.

The purpose of this study is to address whether critical non-financial measures for medium- to long-term value creation are fully, or to what extent, disclosed in the IR. It is perhaps not surprising that non-financial information in not abundant for each stakeholder, given that a significant portion of the disclosure of those pieces of information is not compulsory. However, *a priori*, it is unclear which content elements are not fully disclosed and which determinants deter companies from disclosing such measures. Thus, a goal of the study is to determine whether, and to what extent, corporate managers refrain from addressing specific non-financial information in the IR. The author believes that a better understanding of the IR practice, specifically on the determining factor for the disclosure of the content elements, is useful for at least two reasons. First, it can help stakeholders distinguish the gap between the internal significance of managers' practice and external disclosure of each content element. Second, it can identify the specific elements in which the metrics are crucially needed in order to enhance the IR practice.

This paper is organized as follows. Section 2 overviews previous research on the non-financial information, specifically focusing on the IR. Section 3 introduces a framework of the determinants of the disclosure of the contents elements, which are illustrated in the framework of the IR (IIRC, 2013). Section 3 introduces a framework illustrating the determinants of the disclosure rates of each content element, which are reflected in the framework of the IR (IIRC, 2013). Section 4 outlines research methodology, comprised by the questionnaire survey procedure and statistical testing procedure. The experimental design in this section is to investigate how corporate managers emphasize and measure content elements in the management from the aforementioned four determinants. Section 5 examines the influence of the four determinants on the disclosure rates for each content element with the use of partial correlation analysis. Lastly, section 6 concludes the paper and provides suggestions for future IR research and practice.

2. Overview of the previous research on the integrated report in Japan

The previous research on integrated reporting practices is mainly categorized into the following four groups. The first is to investigate the characteristics of the firms who voluntarily disclose the integrated report. The second is to examine whether the integrated report is based on annual report or sustainability (CSR) report. The third is to investigate the reporting practices of the companies who issued the integrated report from the viewpoints of the guiding principles and/or content elements.

Nishitani and Kokubu [2016] investigated the characteristics of firms which issued the integrated report (according to the Corporate Value Reporting Lab [see footnote 2]) with the focus on the period before which they first publicly published this report by the proportional hazard model. It used a sample of the listed companies on the first section of the Tokyo Stock Exchange (TSE) in 2015–2016. The results demonstrated that the bigger the size of the sample of the firms, or the higher their percentage of shareholding by foreign investors, the more the investment increases. Such tendency will be more prominent after the IIRC issued the discussion paper in 2011. It pointed that, the more the firms attract positive attention from the society, or the more significant influence the shareholders, the institutional investors, in particular, have on them, the more positively they issue this report.

Kozuma [2012] examined in which part of the companies' website their integrated reports are classified, using a sample of 28 firms who issued this report as of January 2012 (according to the ESG Communication Forum [see footnote 2]), except three companies those reality are CSR reports. 26 firms disclosed this report in the IR section, 21in the CSR section, and 19 in both sections. Among 19 firms who disclosed the integrated news in both sections, 18 firms have been disclosed both the annual report and CSR report before they issued this report, and it clarified that these companies provided this report by combining the annual report and CSR report. However, it also indicated that there were few associative disclosures, mapping financial information to non-financial information. Many of them were the connection of a portion of the financial report and CSR report (pp. 20-21).

Jindo, Matsuyama, and Yosano [2014] investigated the connectivity of information and conciseness of guiding principles in the integrated reporting framework from the following three viewpoints: pages, the number of the disclosure media, and attributes of information, and classification. It used a sample of 95 companies who issued the integrated report as of May 2014, according to the ESG Communication Forum. Concerning an average number of pages, 103.7 pages in a prior publication became more concise with 99.6 pages, it increased to 102.5 pages one year later though, among 53 firms who were comparable before and after the publication. As regards an average number of reported media source, 1.7 volumes in a prior publication became more simplified with 1.3 volumes, and it is maintained at 1.3 volumes one year later, among same 53 firms. These two findings indicate that the conciseness is still a work in progress. However, it is notable that there were as many as 18 firms who reduced both pages and the number of the disclosure media. Besides, it confirmed that the companies who were decreasing pages promoted conciseness through the decrease of financial information content, with the focus on the attributes of information such as financial, CSR and governance. Last, it focused on the type of the report as the disclosure media. It found that 73 firms combined the several reports into one integrated report, which was higher than 70% of the sample when they first disclosed the integrated report.

Jindo [2016] classified the disclosure media on which the integrated report is based, using a sample of 91 companies who responded the survey conducted by the Research Institute for Capital Formation at DBJ. In this survey, questionnaires were mailed to 142 companies who issued the integrated report as of December 2014, according to the ESG Communication Forum. Inquiries are entirely same as the one this study used. It further described what is the impetus for issuing the integrated report and which stakeholder is significantly essential. It classified that 40 companies' report was based on the annual report and 23 were in the CSR report (p. 18). This proportion is similar after three years Kozuma (2012) conducted the same investigation. Further, it found that the most significant impetus to issue this report came from the classification and organization of the duplicated record. This motivator was in most 45 firms. It suggested that these companies explored the connectivity of information and conciseness (p. 19). It also reported that the most important stakeholders for the sample of firms were investors. It folded for as many as 66 companies (pp. 20-21). It is consistent with Nishitani and Kokubu (2016)'s findings. This study also indicated that the sample of firms also emphasizes other stakeholders such as business partners, customers, employees, and job applicants (p. 21). Last, it clarified that companies regard it as challenging to present the process of the value creation, to decide which components have a materiality, and to connect multiple information sources.

The IIRC has constructed the database which contains examples of the annual report and the integrated report which explain the guiding principles and the content elements since October 2012. Wild and Staden (2013) investigated the firms' characteristics, pages, the presence or absence of the third-party assurance, using a sample of 58 firms included in this database as of February 2013. It reported that 54 firms, 93.1%, were listed companies and the average size is large. It also reported that the majority of the 12 firms, 58.67%, operate in the financial services sector, followed by 11 firms in the primary materials sector and consumer goods sector, 19.0%. Surprisingly, a half of the reports independently assured on non-financial information. The number of pages of 32 firms, being exceeded the majority (55.2%), climbed to more than 150 pages (pp. 17-18, 35). It further examined whether or not the sample of firms explained the guiding principles, content elements, and capitals in their report. Turning the focus on the content elements which is an object of the investigation of this paper, it reported that 44.83% of companies addressed the strategic objectives, 43.1% disclosed the organizational overview and business model, 32.76% operating context, including risks and opportunities, and 20.7% performance. It also reported only 5% addressed the other two elements (pp. 21-22, 37).

Fu (2016) conducted the same analysis with Wild and Staden (2013), using a sample of 142 companies who issued the integrated report as of December 2014, according to the ESG Communication Forum. This sample is entirely same as those to whom our survey mailed questionnaire. It reported that 95.1% of the sample of the firms were listed and the average size is large. It also stated that the majority of the 12 firms, 18.2%, operating in the pharmaceutical sector in the manufacturing industry. Three firms in the insurance sector, 25.0%, and four firms in the other financing business, 11.8%, are comparably high in the non-manufacturing industry. This study indicated that the vast globalized companies tend to disclose this report due to their influential power on social and environmental surroundings. It also suggests that the financial institutions positively publish this report because of their awareness of risk management after the financial crisis in 2008. The number of pages of 114 firms, 81.5%, was less than 100 pages, which is more concise compared to the sample of Wild and Staden (2013) (pp. 128-133). Last, concerning the content elements, it reported that 57 firms explained risks and opportunities and the strategy and the resource allocation, 55 firms performance, and 53 firms the organizational overview and external environment and governance, in the report at above 35% level. It also reported that comparatively low 12 firms, 8.5%, addressed the business model (p. 136).

The Integrated Reporting Advisory Group KPMG in Japan has investigated the integrated reporting practices since 2014, using the sample of firms according to the ESG Communication Forum (renamed

Corporate Value Reporting Lab in September 2015). It examines firm characteristics as well as content analysis from the standpoints of the guiding principles and content elements. Primarily focusing on KPMG (2015), whose sample is completely same as those to whom our survey sent inquiries, over a half of the sample of 142 firms reduced page size to less than 60 pages and emphasized on the conciseness (p. 11). It also denoted that 75% of the sample firms suspended the publication of the CSR report and a lot of firms unified their reporting media into the integrated report on the occasion of the first issuance of this report (p. 5). As regards content elements, 59 firms, 42%, explained their business model, but quite a few 24 companies illustrated how their business model related to the capitals (p. 16). It also confirmed that 70 firms, 49%, provided risk information in a separate section and 67 out of 131 firms, 67%, had four pages or less with a comparably concise disclosure. Last, it exemplified top rank disclosed Key Performance Indicator (KPI) (p. 26). In the strategy and the resource allocation, the first is R&D expenses (37%), the second the ratio of R&D expenses (11%), and the third the number of patents (4%). In the external environment, the first is emissions of CO_2 (33%), the second the amount of total wastes (14%), the third is energy consumption/input (13%), and the fourth social contributions (4%).

3. A framework of the determinants of their corresponding content elements of the IR and the sample

3.1 A framework of the determinants of their corresponding content elements of the IR

This paper provides a framework for evaluating the voluntary disclosure practice in the IR from the four determinants. The information content and impact of voluntary disclosures are mainly determined by the significance of the information and the degree of its verifiability. In general, the more significant and verifiable the disclosure, the stronger will be its impact (Lev, 1992). The empirical study of this study is based on the questionnaire survey conducted to the companies which disclose the IR, therefore the author identifies the four sources of potential influential factors on the disclosure: (1) the managerial significance - whether and to what degree corporate managers emphasize each content element in the management - which is positively associated with the significance of the information; (2) the importance of measurement - whether and to what degree corporate managers endeavour to quantify each content element - which is positively associated with the verifiability of the information; (3) measurement difficulties - whether and what to degree corporate managers face difficulties in measuring the each content element - which is negatively associated with the verifiability of the information; and (4) the impact on financial figures - whether and what to degree corporate managers perceive the impact of the each content element on financial figures - which is positively associated with the strength of the impact of the information and expresses the consequence of the balance of the information between the significance and verifiability.

3.2 A survey conducted by the Unified Reform Project on Economics, Business and Accounting through Integrated Thinking

The Research Institute of Capital Formation at Development Bank of Japan (DBJ) set up the Unified Reform Project on Economics, Business and Accounting through Integrated Thinking in June 2012. This project aims to research corporate management and disclosure seeking for welfare optimization under economic globalization. This project surveyed 142 Japanese companies who issued the integrated report in 2014[2] with regards to disclosure practices and management status of non-financial information. Before sending questionnaires to the companies, we carried out a detailed interview survey of four firms to prepare questionnaires for analysis. Questionnaires were mailed to 142 companies, and 91 responses were received, with a response rate of 64.08%. To improve a response rate, we made a follow-up call to all companies that did not respond, as the deadline approached. One respondent answered they had not introduced this kind of report and another replied they are planning to launch it in 2017 in their narrative responses; therefore this study constructed a sample with 89 companies, eliminating these two companies.

3.3 Sample company profile

In our sample with 89 companies, 82 firms are listed companies, and the remaining 7 are non-listed companies. Three descriptive statistics are shown in table 3. Table 3 involves 82 listed companies at Tokyo Stock Exchange in Japan plus three non-listed companies whose financial data is available in the Bloomberg database, grouped by ten divisions under Japan Standard Industrial Classification. It also includes all listed companies (except financial sector) in FY2014. Table 1 reveals that more than half of the

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[2] The number of companies which issued an integrated report in 2014 is cited from the "List of Corporations in Japan Engaged in the Publication of Self-Declared Integrated Reports (2014)" published by ESG Communication Forum. ESG Communication Forum (renamed Corporate Value Reporting Lab in September 2015) issues a list of the companies which disclose an integrated report. It regards enterprises which (1) declare that their report is an integrated report; (2) express that their report is an integration of disclosures of financial and non-financial information in their editorial policies, and the like as issuing an integrated report. The number of companies which disclose integrated report has dramatically increased after IIRC published the discussion paper (IIRC 2011) and the framework (2013); the number of Japanese companies which have issued this kind of report has risen, from 26 in December 2011 to 142 in December 2014.

sample firms (49 or 57.6%) falls into the manufacturing sector and the construction, trade, and finance and insurance sectors follow at eight firms. The transportation, information and communication sector ranks 5th at six companies. Six sectors involve more than 3 sample firms. Three descriptive statistics include total annual sales, total assets and net income of the fiscal year when the sample firm issued the integrated report. It suggests that almost all of the sample firms are listed, larger size on average, and concentrated in the manufacturing sector, as indicated by a number more than one-half of the total.

(Insert Table 1 about here)

3.4 Content elements in the integrated report

An integrated report is defined in the framework as a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, lead to the creation of value over the short, medium- and long-term (IIRC[2013], par1.1). It indicates that an integrated report includes the following eight content elements:

A Organizational overview and external environment B Governance C Business model
D Risks and opportunities E Strategy and resource allocation F Performance G Outlook H Basis of preparation and presentation.

3.5 Non-financial components in the analysis

The questionnaire is centred around 21 different non-financial components; it is comprised of yes or no questions and four-point Likert scale questions. Yes or no questions are asked on each non-financial component. The representative of the company answers "yes" if the company disclose that component, and accordingly answer "no" when the company doesn't disclose it. He/she also provide ratings scales on 19 out of 21 non-financial components for four determinants of disclosure. Ratings scales range from 1 (very little) to 4 (completely) and four determinants of disclosure are managerial significance, the importance of measurement, measurement difficulties, and impact on financial figures (see the 5th column of table 2).[3]

[3] The survey's 21 non-financial components involve corporate philosophy/code of conduct and business model, but multiple questions on the four determinants were not asked on these two components because these might be inherently unweighted or measurable. Therefore, this study excludes these two components in the analysis.

3.6 Disclosure rates of the content elements and non-financial components in the integrated report

Carry out a questionnaire survey wherein a content element is made up of several non-financial components. For example, the first out of the six content elements, organizational overview, is comprised of: market share of product or service, competitors in its business, management succession policies, etc. (see Table 2). Six content elements consist of various non-financial components. In order to create the average disclosure rate and average scores of the four disclosure determinants of each content element (see table 2 and 3), the mean value of each non-financial component's disclosure rate, and Likert scale scores of four disclosure determinants, were first computed. Subsequently, the mean value of various non-financial components for each component element, with respect to disclosure rate and the four determinants, was also computed (arithmetic mean).

(Insert Table 2 about here)

As for the disclosure rate of the content elements, governance is exceptionally high at 96.43%, and the following business model and external environment are comparably high at 89.88% and 82.93%, respectively. In Japan, all listed companies shall report an outline of the corporate governance in the financial statement previously in place in the Financial Instruments and Exchange Act. Besides, they shall assess and report the state of the internal controls to ensure the credibility of financial reporting under the internal control reporting system based on the Financial Instruments and Exchange Act, beginning in April 2008. Consequently, the extremely high level of an average disclosure rate is further convincing result. It is understandable that the disclosure rate of the business portfolio (segment information), which constitutes the business model of the content elements, is quite high at 90.48%, as the segment information is prescribed in "Accounting Standards concerning Disclosures of Segment Information, etc." However, it is worth noting that the disclosure rate of the employee competency development (such as employee training) is remarkably high at 89.29%. This implies that almost all respondents voluntarily convey this information as a explicit signal for the stakeholder, to show that they have been enthusiastically working on human resource development. At around 90% for the business model, which is a crucial element for the value creation of the corporation, the high disclosure rate is value relevant for the stakeholder to comprehend corporate growth opportunities. Further, a high disclosure rate of the external environment reflects that Japanese companies have implemented corporate environmental activities and social responsibility activities, and have been voluntarily reporting such an active performance in either in the environment report or in the CSR report.

Table 2 also indicates that the disclosure rates of the strategy and resource allocation and risks and opportunities hover at mid-range, a 65.05% and 60.16% respectively. The disclosure rate of business strategies and plans, which partly constitutes the strategy and resource allocation of the content elements, is extremely high at 97.72%. This reflects that voluntary disclosure of the company's projections of sales and profits, set forth in the financial summary report, has been established in Japan. On the other hand, the disclosure rate of the detailed patent information, which constitutes the strategy and resource allocation of the content elements, is considerably low at 24.39%. It clearly specifies that confidential matters, such as business secrets and know-how, in the patent information hinder corporate managers from disclosing such information, in order to maintain the secrecy and keep their competitive advantage in the market.

The disclosure rates of risk management in the business environment and information security, both of which comprise risks and opportunities classify as high range, at 86.90% and 78.57% respectively. In Japan, the Financial Instruments and Exchange Act requires the disclosure of an outline of qualitative information on the business and other risks in the financial statement. In accordance with this arrangement, Japanese companies positively disclose how to manage business and security risks surrounding the company. Moreover, another component of risks and opportunities falls at a low percentage. The disclosure rate of the information security policies, including those of patent strategies, is ranked second to the lowest at 24.39%. It is due to protecting proprietary technical matters.

Lastly, the disclosure rate of the organizational overview is low at 32.25%. This suggests that companies refrain from addressing specific information on the competitive environment of a business, such as market share, competitors and trading partners, ranging from the supplier's supplier to the customer's customer, in order to maintain their competitive advantage in the market. The disclosure rate of the management succession planning is also considerably low at 21.43%. This figure contrasts with the high disclosure rate of the employee competency development, as both components are major pillars of the human resource management.

3.7 Mean value of the four determinants for each content element in the integrated report

The survey asked multiple questions used the 4-item Likert scale, with a 1 rating designated as "very little" and a 4 rating as "completely," on 19 components. The average score of the non-financial components for each content element is assigned to be a statistical construct. Table 3 represents descriptive statistics and the Cronbach's alpha of six content elements for four determinants: managerial significance, the importance of measurement, measurement difficulties and impact on financial figures. The descriptive statistics involves average scale score and standard deviation. The Cronbach's alpha reliability for six content elements are adequate for this sample, although coefficients of reliability in the business model are not so high.[4] Therefore, as for the business model, this study additionally conducts the multiple comparison test and partial correlation analysis for each non-financial component which constructs the business model.

(Insert Table 3 about here)

4. Results of the multiple comparison test

4.1 Analysis results regarding the managerial significance of each element

Panel A in table 4 illustrates a line chart which displays an average score of each element from the viewpoint of the managerial significance. The average scores of elements such as the governance and business model, 3.895 and 3.813, respectively, are a comparably high level of more than 3.8. Thus, it is confirmed that almost all companies place great emphasis on the governance and business model in their management, and disclose these pieces of information to their stakeholders as a signal that highlights the managerial significance of those contents. In Japan, corporate governance is a hot issue since the early 2010s amongst financial regulatory authorities as represented by Japan's Corporate Governance Code introduced by the Tokyo Stock Exchange in March 2015. It does require a company to comply with the provisions of the code or explain why it has not done so. Consequently, almost all companies place great management emphasis on the corporate governance issues.

Analysis of variance (ANOVA) was employed to test equality of means of managerial significance for all content elements. It confirmed statistical differences between mean values of the elements at 1% significance level (data not shown). Hence, each pair of the mean values were analyzed with the Steel–Dwass nonparametric multiple comparison test following ANOVA, to clarify which pair is unequal, and

[4] There are no clear criteria for the Cronbach's alpha reliability. However, if alpha is 0.50 or more, it is acceptable to judge that a set of scales has internal consistency (e.g., Oshio[2011], p. 154). In table 6, although alpha of the management significance in risks and opportunities is less than 0.50 (0.408), alpha of other items is greater than 0.50 except for the business model.

by how much. The results indicated that mean values of corporate governance and business model are significantly higher than those of the remaining four elements at 1% significance level. On the other hand, the mean value of the organizational overview is extraordinarily low at 3.284 in the managerial significance, especially when compared to the mean values of the remaining three elements, which are higher than 3.5. Taking the significantly low disclosure rate of the organizational overview (32.25%, see table 2) into consideration, the low managerial perception towards this element may affect the voluntary disclosure.

4.2 Analysis results regarding the importance of measurement for each element

The second graph in table 4 illustrates a line chart which displays an average score of each element from the viewpoint of the importance of measurement. The mean values of elements such as business model and strategy and resource allocation, 3.352 and 3.277, respectively, are a high level of more than 3.2. A Test for the equality of means of the importance of measurement for all content elements showed statistical differences between mean values of the elements at 1% significance level. Thus the Steel–Dwass multiple comparison test was conducted to compare differences between each pair of the mean value of the content elements. The mean values of business model and strategy and resource allocation are significantly higher than those of the remaining four elements. The mean value of the remaining four elements is low, at less than 3, and average 2.663 of external environment is at lowest level. As for organizational overview, external environment, governance, and risk and opportunities, companies are supposed to not place a particular emphasis on quantifying those elements, e.g., creating Key Performance Indicators (KPIs).

4.3 Analysis results regarding the measurement difficulties for each element

The third graph in table 4 presents a line chart which displays the mean value of each element from the viewpoint of the measurement difficulties. The mean values of elements like the organizational overview, external environment, business model and strategy and resource allocation represent more than 3.3. A Test for the equality of means of the measurement difficulties for all content elements exhibited statistical differences between mean values of the elements at 1% significance level. The following Steel–Dwass multiple comparison test showed the statistical differences between the high-value group of four elements and the low-value group of two elements. Besides, A line chart of the importance of measurement, alongside that of measurement difficulties, exhibit an asymmetrical shape. The more importance a company places emphasis on quantifying the element, the less difficulties the company faces in measurement. With regards to the elements such as the business model and strategy and resource allocation, the importance of measurement may encourage the firm to quantify, measure, and develop KPIs of these elements, and thus the company may not find difficulty in measuring them. Lastly, the development of the metrics focused on industry-specific environmental performance indicators is outstanding, therefore the low managerial attention to measuring the external environmental element is a seemingly counterintuitive result.

4.4 Analysis results regarding the influence on financial figures for each element

The last graph in table 4 displays the mean value of each element from the viewpoint of the influence on financial figures. The scores of elements such as the business model and strategy and resource allocation are 3.369 and 3.222, respectively, representing high mean value scores. A test for the equality of means of the influence on financial figures for all content elements illustrated statistical differences between mean values at 1% significance level. Therefore this study conducted the Steel–Dwass multiple comparison test likewise, to clarify whether two high-value elements are statistically different from others. The result of the Steel–Dwass multiple comparison showed that two elements fell considerably high, making them high-value in comparison to the other four elements. According to table 2, the disclosure rate of the business model represents a considerably high level at 89.88%. Therefore, the result suggests that companies disclose their business model as a signal that it has a meaningful effect on the financial figures. On the other hand, table 2 clearly depicts that the disclosure rate of the strategy and resource allocation hovers at mid-range. As for the strategy and resource allocation, the result suggests that this element includes confidential matters which include pivotal business secrets and know-how to succeed against tough market competition. Companies refrain from addressing specific confidential information to maintain and improve those market positions. The impact of external environment on financial figures records the lowest score of 2.520, the external environment and other five elements being statistically different at 5% significance level. A high disclosure rate of the external environment suggests that Japanese companies, which disclose the IR, engage in the disclosure practice of the environmental and sustainability activities more degree than the managerial significance, considering the least influential factor on financial outcomes simultaneously. The voluntary disclosure practices either of the environment report or of the CSR report have been deeply rooted in the Japanese corporate societies surrounding the listed companies.

(Insert Table 4 about here)

5. Discovery of meaningful associations in content elements data using partial correlation coefficients

This paper primarily focuses on the determinants of voluntary disclosure of the content elements in an integrated report that are assumed to relate management status and challenge, as well as performance measurement. Therefore, this section primarily examines and compares the influences of the following four viewpoints on the disclosure rates for each content element: the managerial significance, the importance of measurement, the measurement difficulties, and the impact on financial figures.

Table 5 provides evidence on the determinants of disclosure, as well as managerial significance. This table reports descriptive statistics on the correlations between each sample firm's disclosure rate and the four measures of determinants for each content element. The score of the determinant is calculated by averaging the Likert scales across all components for each element. The correlations are split into two main parts: (a) the Pearson correlation coefficients for disclosure rate plus four elements – on the top right; and (b) the results from the partial correlation for disclosure rate plus four elements – on the bottom left. In the partial correlation, the Pearson correlation coefficient between two variables of interest has been adjusted; thus a confounder, a variable that related to both two variables of interest, has been statistically controlled. Partial correlation enables us to test whether the relationships among the variables of interest still exist by removing an influence of a confounder.

(Insert Table 5 about here)

Furthermore, table 6 displays box-and-whisker plots, with a specific focus on the disclosure rate of each disclosure determinant for each element. Sample firms were divided into two groups: one is a high determinant score group and the other is a low determinant score group. A high determinant score group is characterized as having high scores of each determinant above the median (for each component). A low determinant score group is labeled as having low scores of each determinant at or below the median (for each component). The right side presents the distribution of disclosure rates of a high determinant score group. The left side presents that of a low determinant score group. Box plot characterizes a sample using 25th, 50th, and 75th percentiles. Upper hinge denotes the 75th percentile, and lower represents 25th percentile. A horizontal line in the box is 25th percentile, e.g., median.

(Insert Table 6 about here)

Top right of the correlation matrix of table 5 represents firm-specific correlations of disclosure rates and four determinants for each component element: managerial significance, the importance of measurement, measurement difficulties and impact on financial figures. The results of the organizational overview indicate that all four determinants have significant correlations with disclosure rate. Disclosure of the organizational overview is high-rate, when (i) top management regard it more important, (ii) managers place greater emphasis on measurement and quantification of this element, and (iii) it becomes more influential on the financial figures. On the other hand, disclosure rate of the organizational disclosure is relatively low, when managers face challenges in measuring this element. Furthermore, from the standpoint of managerial significance, both importance in measurement and the impact on financial figures are highly correlated with managerial significance in the organizational overview. Last, the relationship between importance in measurement and impact on financial figures has a comparably strong positive correlation whose magnitude is 0.705.

The partial correlation helps us build a logical-argument approach as it is especially appropriate for eliminating third-factor explanations. table 5 provides the partial correlation matrix on the bottom left. First, this study focuses on the disclosure rate. With regards to the organizational overview, a negative correlation coefficient between the disclosure rate and measurement difficulties at -0.265 is represented in Panel A of Table 5. A disclosure rate of high score group in measurement difficulties is an average of 27.14% that scores less than that of low score group; they average 42.31%, as shown in table 6. The result confirms that companies refrain from addressing specific information on the internal and external organizational structures when it poses measurement challenges. Concerning governance and business model, the disclosure rate is significantly positively correlated with the managerial significance. Meanwhile, this study especially performed a partial correlation analysis on the respective components of the business model. The results showed that the relationship between the disclosure rate and the managerial significance has a significantly positive correlation in both business portfolios and employee competency development. Regarding governance, the mean disclosure rate of a high score group in managerial significance is quite high, at 92.22%, in comparison to 79.19% in a low score group (table 2). Governance is comprised of non-financial components, some of which companies are strongly advised to disclose as it adheres to requirements set by the corporate governance, stewardship code or the provisions of the internal control audit, based on the Financial Instruments and Exchange Act. Therefore, the disclosure rate of governance is considerably high. In spite of the companies' high level of disclosure performance, the more emphasis the companies place on this content element in their management, the more positively they disclose this content element. Concerning the business model, an average disclosure rate of 93.27% of high determinant score group in managerial significance is higher than that of 82.61% of low determinant score group. Notwithstanding the remarkably high disclosure rate of the business model, companies would be more willing to disclose this content element when greater emphasis is placed on it in the management.

On the other hand, as for the strategy and resource allocation, the disclosure rate is significantly negative in correlation to the managerial significance (-0.271) and significantly positive in correlation to the impact on financial figures (0.507). Table 6 shows that the mean disclosure rate of the high score group in managerial significance is 61.90%, which scores less than that of a low scoring group; they average 64.67%. In contrast, the mean disclosure rate of the high score group in the impact on the financial figures is 72.81%, which exceeds the average disclosure rate of 53.03% of the low scoring group. The disclosure rate of the strategy and resource allocation is hovering mid-level, as it involves a significant amount of innovation, intellectual resource development, and related technologies, a vast amount of which may be related to trade secrets. We could expect some companies - those who regard the strategy and resource allocation as influential on financial figures - to be inclined to convey some pieces of information as a signal; they dare to disclose trade-secret-related information in the light of financial significance, to the extent permitted by any commercial confidentiality. However, due to the aforementioned correlations, it is equivocal that companies refrain from disclosing this element, as it involves know-how, trade secrets, and related confidential business information. Besides, as for external environment and risks and opportunities, those disclosure rates do not have any significant associations with four specified determinants.

In addition, focusing particularly on a managerial significance perspective, the degree of the managerial significance is notably correlated with the importance of measurement in three elements such as organizational overview, governance and risks and opportunities. In these elements, the initial intuitive impression can be confirmed by statistical tests that show high managerial significance. It becomes apparent, from analysing the correlation between tests and manager behaviour, that tests which show high managerial significance urge managers to create specific metrics of these elements, as they are mainly comprised of non-financial components that have measurement difficulties. Further, in both the external environment and strategy and resource allocation, the degree of the managerial importance is significantly correlated with the measurement difficulties. Particularly with respect to the strategy and resource allocation, the partial correlation between the managerial significance and the measurement difficulties is quite high (0.641). As a consequence, the result of the partial correlation analysis suggests that more development of the metrics of these two elements is required, in that KPIs has not kept up with the need for management. Measurement enhances efficient and effective managerial activities which gather organizational resources together to accomplish desired goals and objectives. Lastly, in the five content elements such as the organizational overview, external environment, business model, risk and opportunities, and strategy and resource allocation, the degree of the managerial importance is significantly correlated with the impact on the financial figures. Further, the authors focus on the respective components of the business model, the analysis provided the same results. These results are plausible as, the more impact on financial figures these elements have, the more emphasis placed on them within management.

Moreover, the importance of measurement is significantly and positively correlated with the impact on financial figures in five elements, such as, the organizational overview (partial correlation of 0.510), external environment (0.559), governance (0.283) business model (0.543), and strategy and resource allocation (0.739). In addition, analysis of each two components of the business model provided the same results. Furthermore, the correlation coefficients of four elements exceed 0.5. The correlation coefficient of strategy and resource allocation presents a comparably high level of 0.739. The result confirmed that the more impact on financial figures these elements have, the more thoroughly managed it can be through the utilization of metrics. In regard to the business portfolio, a component of the business model, subsequent analysis have confirmed a significant and positive partial correlation between the measurement difficulties and the impact on financial figures. The high degree of influence of the business portfolio on financial figures encourages companies to control them utilizing performance measures such as KPIs, although this component is regarded to be difficult to quantify and measure.

6. Concluding remarks

This paper primarily conducted the partial correlation analysis to investigate whether and to what extent the four determinants, those being managerial significance, the importance of measurement, measurement difficulties and the impact on financial figures, have an influence on disclosure rate. As for the governance and business model, although the disclosure rates of these elements are enormously high, the more emphasized they are in the managerial significance, the higher those disclosure rates become. On the other hand, companies that place high managerial significance on the strategy and resource allocation result in having a low rate of the component's disclosure rate. The disclosure of content elements, such as the governance and business model, play a role in signaling the significance in the management of these elements towards their stakeholders. In contrast, as for the strategy and resource allocation, which includes confidential matters such as know-how and trade secrets, companies tend to refrain from disclosing when they emphasize considerable significance on the management of this element, due to related confidential business information. At the same time, the more impact this element has on financial figures, the more companies endeavor to ensure appropriate disclosure of related information in order to assure the transparency of corporate managements. Therefore, with regards to the strategy and resource allocation, the disclosure of this element reflects consequences of the trade-off between managerial significance and the impact on financial figures. Furthermore, in regard to the organizational overview, the initial intuitive impression that companies which face measurement challenges tend to hold off disclosing this element can be confirmed by the analysis outlined in this study.

In addition, focusing primarily on a managerial significance perspective, the evidence presented indicates that the influence of financial figures is positively associated with the managerial significance in five out of six elements: the organizational overview, external environment, business model, risks and opportunities, and strategy and resource allocation. To focus further on the average value of both the managerial significance and impact on financial figures, the former is by 0.309 points higher in the organizational overview, by 0.444 in the business model, and 0.344 in the strategy and resource allocation, in comparison to the latter. Accordingly, the managerial significance is prominently higher by 1.034 points in the external environment, and comparably higher by 0.9333 in the governance, in contrast to the impact on financial figures. These figures have confirmed that Japanese companies which disclose the integrated report place a particular emphasis on the environment (E), society (S) and governance (G) in their management, in comparison with those impacts on the financial figures. The disclosure rates of the external environment and governance are comparably high, marked at 82.93% and 96.43%, respectively. Therefore, these results suggest that Japanese companies, which disclose the integrated report, have been involved in CSR initiatives; seek to place CSR issues at the heart of the management; and disclose these elements voluntarily and positively. This result reflects that steady progress has been made in the development of the voluntary disclosure of CSR information in Japan. Such information has been disclosed through the environment report, the CSR report, and the sustainability report. This result also reflects that stakeholders take companies' commitment to CSR initiatives into account when evaluating them. On the other hand, as for the strategy and resource allocation, which expresses a critical decision factor for medium- to long-term value creation, the disclosure rate is hovering at mid-level. Viewed collectively, this study suggests that current Japanese integrated reporting practices are at the initial stage of displaying value creation processes.

Many companies connect existing reports, such as the annual report and CSR report, into an integrated report. Effective representation of business dynamics in a value creation context is a challenging matter. The circumstances surrounding technology issues hinder representation; the results suggest that companies refrain from addressing specific technology-related information when it has high managerial significance, as it includes confidential matters, specifically business secrets and know-how, which enable firms to maintain and improve their competitive advantage in the market. The vital challenge companies currently face is how to provide information featuring marketing and technical how-how, while maintaining and preserving confidentiality, including proprietary specifications. Besides, the disclosure rate of the organizational overview is extraordinarily low, especially when companies find difficulties in its measurement. Creating KPIs on this element - such as, competitive business climate, bargaining power in the value chain, and management succession planning - lead to the enhancement of the integrated report.

(Aug. 30, 2018)

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Table 1
Sample company profile

(unit: million yen)

Name of the sector[a]	Total annual sales	Total assets	Net income	*n*
Construction	717,518	730,117	12,272	8
Manufacturing	1,110,118	1,175,506	18,931	49
Electric power and gas	2,391,306	4,925,512	-33,082	3
Transportation, information and communication	1,448,064	1,686,979	113,291	6
Trade	4,046,766	7,089,526	134,594	8
Finance and insurance	2,041,938	22,400,000	90,119	8
Others	468,831	1,945,619	33,832	3
Subtotal: companies whose financial data is available on the Bloomberg database (listed companies are 82)	1,483,698	3,884,807	41,241	85
Non-listed companies whose financial data is unavailable[b]	-	-	-	4
Total	1,483,698	3,884,807	41,241	89
All listed companies (except financial sector)[c]	676,706	816,045	24,492	3,052

[a] The sample firms are grouped by 10 divisions under Japan Standard Industrial Classification.
[b] Non-listed companies involve eg, audit firms, manufacturer, etc.
[c] Source: Japan Exchange Group, fiscal year 2014.

Table 2

Disclosure rates of the content elements and non-financial components in the integrated report.

Content element	Disclosure rate[a]	Standard deviation	*n*	Non-financial component	Disclosure rate	Standard deviation	*n*
Organizational overview	32.25%	0.261	80	Market share of product or service	36.90%	0.485	84
				Competitors in its business	13.25%	0.341	83
				Management succession planning necessary for achieving its business	21.43%	0.413	84
				Establishment of supply chains for product or service	62.20%	0.488	82
				Establishment of sales channels for product or service	25.30%	0.437	83
External environment	82.93%	0.225	82	Coexistence with local communities	95.24%	0.214	84
				Coexistence with the global community	70.73%	0.458	82
				Efforts in human rights	72.62%	0.449	84
				Nature- or environment-related activities	92.86%	0.259	84
Governance	96.43%	0.151	84	Internal control	94.05%	0.238	84
				Corporate governance	98.81%	0.109	84
Business model	89.88%	0.202	84	Business portfolio (segment information)	90.48%	0.295	84
				Employee competency development (such as employee training) necessary for achieving its business	89.29%	0.311	84
Risks and opportunities	60.16%	0.237	82	Managing business environmental risk	86.90%	0.339	84
				Information security policies with the requirements dictated by its patent strategies	15.85%	0.367	82
				Information security risk management	78.57%	0.413	84
Strategy and resource allocation	65.04%	0.251	82	Business strategies and plans	97.62%	0.153	84
				R&D necessary for achieving its business	73.17%	0.446	82
				Detailed patent information necessary for achieving its business	24.39%	0.432	82

[a] Disclosure rate of the content element is calculated as follows: The organizational overview has five non-financial components. Companies who respond all yes or no questions on five components are 80. If a company who reply "yes" on two components, this company's disclosure rate on this element is 40%. Therefore, when calculating an average of 80 companies' disclosure rates, it will be 32.25%.

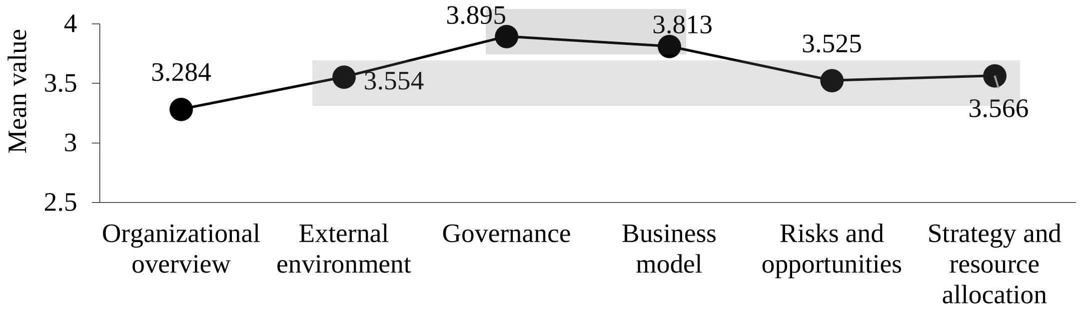
Table 3
Average scores, standard deviations, and the Cronbach's alpha of the four content elements for each determinant.

	Managerial significance				Importance of measurement				Measurement difficulties				Impact on financial figures			
Content element	Average score[a]	Standard deviation	Cronbach's α	n	Average score[a]	Standard deviation	Cronbach's α	n	Average score[a]	Standard deviation	Cronbach's α	n	Average score[a]	Standard deviation	Cronbach's α	n
Organizational overview	3.284	0.540	0.752	64	2.759	0.665	0.823	54	3.327	0.484	0.671	55	2.975	0.658	0.788	55
External environment	3.554	0.485	0.837	69	2.663	0.767	0.882	60	3.480	0.548	0.839	61	2.520	0.722	0.923	62
Governance	3.895	0.262	0.653	76	2.820	0.870	0.904	64	3.453	0.589	0.774	64	2.962	0.772	0.871	65
Business model	3.813	0.316	0.190	75	3.352	0.568	0.493	64	3.023	0.645	0.274	64	3.369	0.561	0.286	65
Risks and opportunities	3.525	0.462	0.408	68	2.865	0.729	0.795	57	3.444	0.505	0.565	57	2.931	0.660	0.692	58
Strategy and resource allocation	3.566	0.309	0.612	66	3.277	0.632	0.665	59	2.881	0.631	0.519	59	3.222	0.578	0.589	60

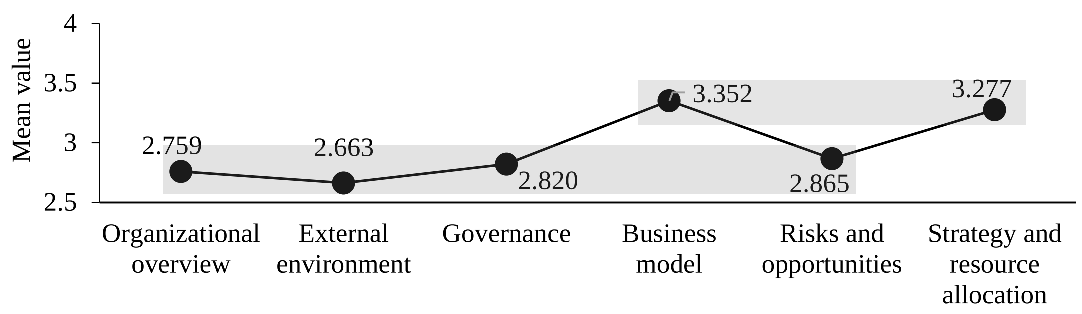
[a] An average score of the content element for each determinant is calculated as follows: The organizational overview has five non-financial components. Companies who respond all multiple questions on five components in the organizational overview are 64. When calculating an average of 64 companies' mean value of five components in the organizational overview, it will be 3.284.

Table 4
Steel–Dwass multiple comparison test results for each content element.

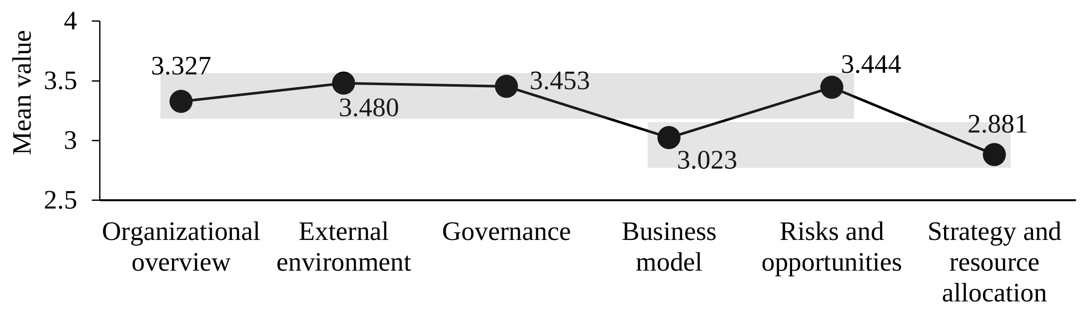
Panel A: Managerial significance



Panel B: Importance of measurement



Panel C: Measurement difficulties



Panel D: Impact on financial figures

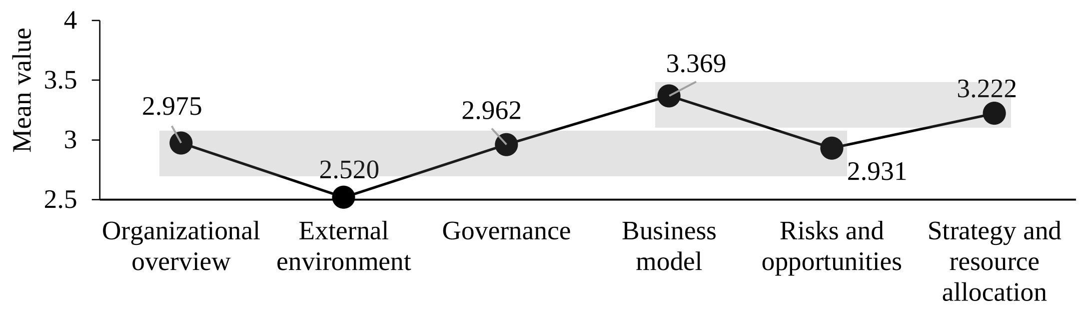


Table 5
Summary statistics from the correlations between disclosure rate and the four measures of determinants.[a, b, c]

	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel A: Organizational overview					
Disclosure rate	-	0.404 *** (0.001)	0.349 ** (0.010)	-0.280 ** (0.041)	0.347 ** (0.010)
Managerial significance	0.168 (0.245)	-	0.634 *** (0.000)	-0.109 (0.435)	0.613 *** (0.000)
Importance of measurement	0.098 (0.498)	0.345 ** (0.014)	-	-0.121 (0.385)	0.705 *** (0.000)
Measurement difficulties	-0.265 * (0.063)	0.034 (0.813)	0.047 (0.744)	-	-0.189 (0.170)
Impact on financial figures	0.064 (0.659)	0.268 * (0.060)	0.510 *** (0.000)	-0.119 (0.410)	-

	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel B: External environment					
Disclosure rate	-	0.065 (0.594)	0.016 (0.905)	0.061 (0.643)	0.155 (0.229)
Managerial significance	-0.070 (0.605)	-	0.400 *** (0.002)	0.159 (0.225)	0.517 *** (0.000)
Importance of measurement	-0.074 (0.582)	0.108 (0.423)	-	-0.114 (0.384)	0.659 *** (0.000)
Measurement difficulties	0.116 (0.390)	0.278 ** (0.036)	-0.053 (0.695)	-	-0.146 (0.260)
Impact on financial figures	0.170 (0.207)	0.389 *** (0.003)	0.559 *** (0.000)	-0.193 (0.150)	-

	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel C: Governance					
Disclosure rate	-	0.460 *** (0.000)	-0.057 (0.653)	0.135 (0.288)	0.075 (0.551)
Managerial significance	0.463 *** (0.000)	-	0.215 * (0.089)	0.036 (0.778)	0.195 (0.120)
Importance of measurement	-0.171 (0.189)	0.229 * (0.076)	-	-0.125 (0.325)	0.324 *** (0.009)
Measurement difficulties	0.119 (0.361)	0.019 (0.884)	-0.065 (0.618)	-	-0.173 (0.173)
Impact on financial figures	0.056 (0.668)	0.097 (0.456)	0.283 ** (0.027)	-0.156 (0.230)	-

[a] Pearson's partial correlations are represented on bottom left, and Pearson correlations are provided on top right.
[b] *P* values are shown in brackets.
[c] *** denotes significance at 1% level, ** at 5% and * at 10%.

Table 5 *(Continued)*
Summary statistics from the correlations between disclosure rate and the four measures of determinants. [a, b, c]

	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel D: Business model					
Disclosure rate	-	0.234 ** (0.044)	0.297 ** (0.017)	-0.128 (0.313)	0.280 ** (0.024)
Managerial significance	0.290 ** (0.023)	-	0.254 ** (0.043)	-0.069 (0.587)	0.483 *** (0.000)
Importance of measurement	0.178 (0.171)	-0.106 (0.416)	-	-0.012 (0.925)	0.582 *** (0.000)
Measurement difficulties	-0.116 (0.374)	-0.134 (0.303)	-0.118 (0.367)	-	0.163 (0.198)
Impact on financial figures	0.020 (0.879)	0.420 *** (0.001)	0.543 *** (0.000)	0.263 ** (0.040)	-

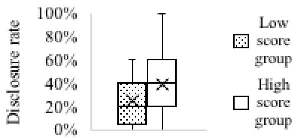
	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel E: Risks and opportunities					
Disclosure rate	-	0.244 ** (0.045)	0.050 (0.715)	0.220 (0.101)	0.173 (0.194)
Managerial significance	0.160 (0.247)	-	0.591 *** (0.000)	0.146 (0.278)	0.486 *** (0.000)
Importance of measurement	-0.084 (0.546)	0.506 *** (0.000)	-	-0.002 (0.989)	0.410 *** (0.002)
Measurement difficulties	0.191 (0.166)	0.157 (0.256)	-0.078 (0.574)	-	-0.006 (0.964)
Impact on financial figures	0.066 (0.633)	0.304 ** (0.025)	0.181 (0.191)	-0.079 (0.572)	-

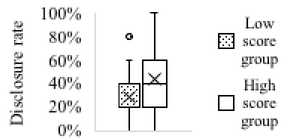
	Disclosure rate	Managerial significance	Importance of measurement	Measurement difficulties	Impact on financial figures
Panel F: Strategy and resource allocation					
Disclosure rate	-	-0.034 (0.790)	0.368 *** (0.004)	-0.001 (0.995)	0.576 *** (0.000)
Managerial significance	-0.271 ** (0.043)	-	0.066 (0.620)	0.625 *** (0.000)	0.127 (0.336)
Importance of measurement	-0.152 (0.265)	-0.087 (0.526)	-	-0.008 (0.955)	0.779 *** (0.000)
Measurement difficulties	0.165 (0.225)	0.641 *** (0.000)	0.034 (0.801)	-	0.012 (0.931)
Impact on financial figures	0.507 *** (0.000)	0.249 * (0.065)	0.739 *** (0.000)	-0.137 (0.314)	-

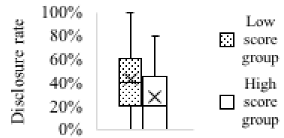
[a] Pearson's partial correlations are represented on bottom left, and Pearson correlations are provided on top right.
[b] *P* values are shown in brackets.
[c] *** denotes significance at 1% level, ** at 5% and * at 10%.

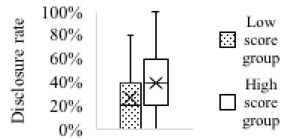
Table 6
Box-and-whisker plot (Turkey style) for the disclosure rate in low vs. high score groups in each determinant.

Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD[c]	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel A: Organizational overview																							
24.67%	0.201	30	38.75%	0.287	32	28.48%	0.229	33	43.00%	0.306	20	42.31%	0.273	26	27.14%	0.245	28	26.67%	0.241	24	40.00%	0.273	30

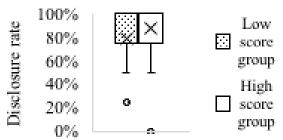


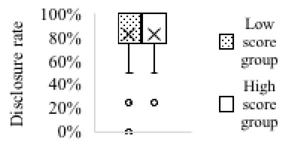


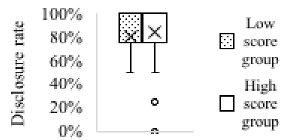


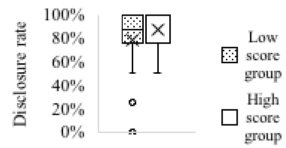


Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel B: External environment																							
79.55%	0.221	33	87.50%	0.228	36	82.76%	0.251	29	83.06%	0.218	31	80.43%	0.199	23	83.55%	0.255	38	78.33%	0.276	30	86.72%	0.179	32







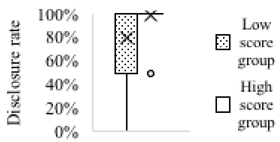


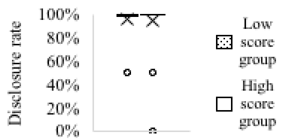
[a] Low score group = firms with less than the median managerial significance score.
[b] High score group = firms with equal to or more than the median managerial significance score.
[c] c = standard deviation.

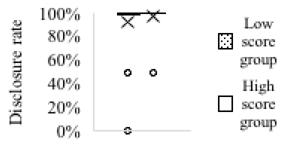
Table 6 *(Continued)*

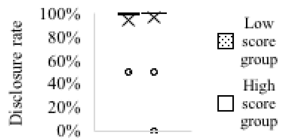
Box-and-whisker plot (Turkey style) for the disclosure rate in low vs. high score groups in each determinant.

Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD[c]	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel C: Governance																							
79.17%	0.334	12	99.22%	0.063	64	96.15%	0.136	26	94.74%	0.194	38	92.00%	0.236	25	97.44%	0.112	39	93.48%	0.172	23	96.43%	0.171	42

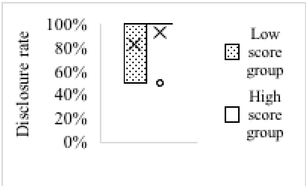


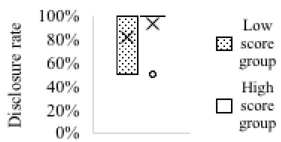


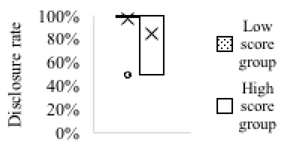


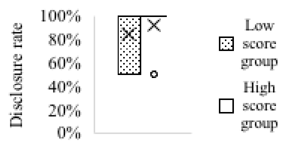


Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel D: Business model																							
82.61%	0.243	23	93.27%	0.172	52	82.00%	0.245	25	93.59%	0.169	39	97.62%	0.109	21	84.88%	0.232	43	84.00%	0.238	25	92.50%	0.181	40









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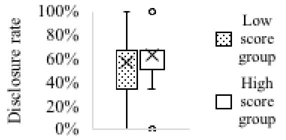
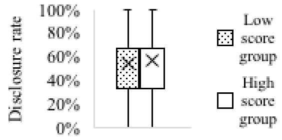
[c] c = standard deviation.

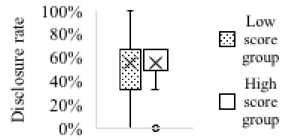
Table 6 *(Continued)*

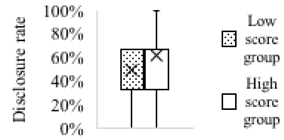
Box-and-whisker plot (Turkey style) for the disclosure rate in low vs. high score groups in each determinant.

Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD[c]	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel E: Risks and opportunities																							
56.30%	0.223	45	62.32%	0.290	23	54.32%	0.229	27	56.67%	0.250	30	55.26%	0.260	38	56.14%	0.194	19	49.33%	0.238	25	61.62%	0.237	33

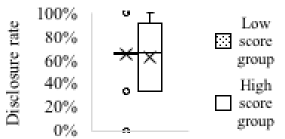


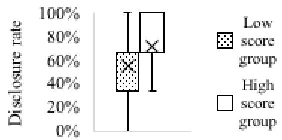


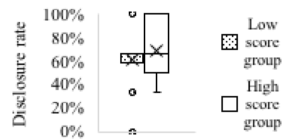


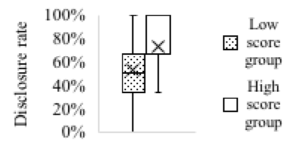


Managerial significance						Importance of measurement						Measurement difficulties						Impact on financial figures					
Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]			Low score group[a]			High score group[b]		
mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*	mean	SD	*n*
Panel F: Strategy and resource allocation																							
64.67%	0.237	50	61.90%	0.288	14	54.55%	0.263	22	71.17%	0.210	37	61.46%	0.226	32	69.14%	0.260	27	53.03%	0.265	22	72.81%	0.203	38









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