Does Corporate Social Responsibility Raise Investors' Assessment of a Firm and Its Value in Japan?

-Comparisons with the United States and Europe-

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Acknowledgment

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Abstract

Although increasing numbers of Japanese firms have started to implement corporate social responsibility (CSR), and numerous studies on CSR have been conducted, there is no consensus on the raison d'etre of CSR and its effects. Among opposing views, the situation is less clear in the Asian context. This thesis aims to investigate whether CSR benefits firms in Japan and how this differs from the United States and Europe, by providing empirical evidence for both short-term and long-term shareholder value implications, with three analyses using different methods. The first analysis, employing the event study method using a unique CSR dataset collected from newspapers, found that overall investors responded positively to positive news and vice versa, which supported the ''information certification hypothesis" and the "self-fulfilling prophecy" theory. The study also found a difference between individuals and institutions as investors, as well as different effects among events, a time-lag for charitable activities to increase firms' value, and investors' behavior change around the Great East Japan Earthquake. The second analysis, using an event study with inclusion and deletion announcement to/from Dow Jones Sustainability Indices, which allowed this analysis to be comparative, demonstrated that Japanese institutions do not anticipate changes in the sustainability index like U.S. or European investors and react negatively around even positive events. From the comparative analysis, it also found a large difference between the three markets especially in the context of timing and values. The third analysis examined the impact of CSR performance on Tobin's q in the long term in Japan by ordinary least squares with a cross-sectional dataset. The analysis showed the nature of the news and CSR performance have a positive impact on a firm's value in the long term, whereas charitable activity has no or negative impact on a firm's value, which contradicts the idea of a signal effect of CSR. By comparing these three analyses, the following three additional points were found: (1) Investors' responses differ depending on the source of information. (2) Investors' responses differ depending on their characteristics (individual, institutional, or foreign investors). (3) Though the impact on stock price is temporary in the short term, CSR-related behaviors keep pushing up a firm's quality, or Tobin's q.

CHAPTER 1.   Introduction

1.1. Background and Significance of the Study

Over the past decade, the concept of corporate social responsibility (CSR) has grown rapidly around the world. CSR is a business model that integrates social, environmental, and ethical considerations into a firm's decision making. Unlike conventional types of corporate strategies, firms employing CSR operate based on the idea that they are accountable to society, and they engage stakeholders such as employees, consumers, and the community toward the aims of social accountability.

CSR has been attracting interest from both business and government during the past 10 years in Japan, and the private sector has the initiative on the implementation of CSR. In 2017, the Japan Business Federation (KEIDANREN), the largest comprehensive economic organization, revised "The Charter of Corporate Behavior" to incorporate the idea of the Sustainable Development Goals (SDGs) for the first time in 7 years. In March 2018, the organization also signed a Memorandum of Understanding with the United Nations that aimed to establish a framework for cooperation to accelerate the Japanese private sector's engagement in achieving the SDGs. Growing attention to CSR from businesses can be observed from "the Survey of Management Awareness of Corporate Social Responsibility 2014" conducted by the Japan Association of Corporate Executives (KEIZAI DOYUKAI). According to the survey, from 2010 to 2014, there was a more than twofold increase in the number of firms engaged in CSR activities, as well as budgets and the number of the projects (see Figure 1.1 エラー! 参照元が見つかりません。), and 71% of business managers responded that CSR was a core management function instead of a cost (see Figure 1.2). As for the government, The Ministry of Economy, Trade and Industry of Japan (METI) established a research group for CSR in 2004 and has been initiating policies to advance CSR. In February 2017, METI announced "Japan's CSR Policy." According to METI (2012), not only METI but also the Cabinet Office presented the "Report by the Study Group on Social Responsibility for a Safe and Comfortable, Sustainable Future" in May 2008, and both the Ministry of the Environment and the Ministry of Health, Labor and Welfare set their own guidelines on optional disclosure. As a result of proactive

approaches from both business and government, Japan has now become one of the leading countries with regard to CSR reporting, according to Blasco and King (2017; see Figure 1.3 and Figure 1.4).

Figure 1.1: Firms Increased their Corporate Social Responsibility Activities (% of all samples)
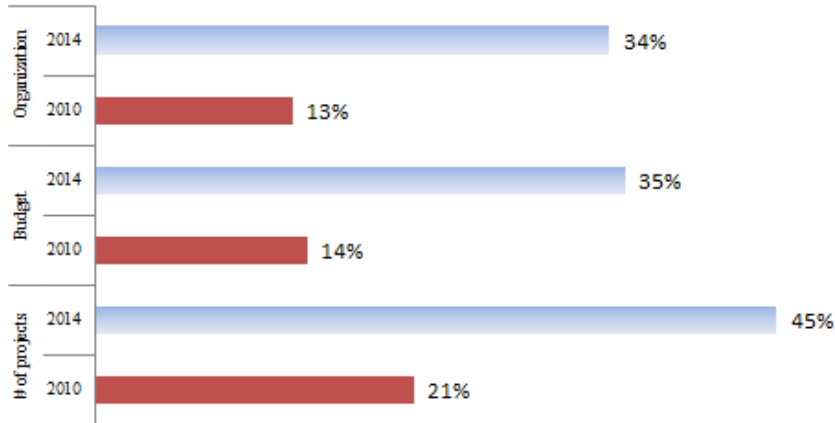
Source: Adapted from the Japan Association of Corporate Executives, "Survey of Management Awareness of Corporate Social Responsibility 2014."

Figure 1.2: Business Managers' Responses (% of all samples)
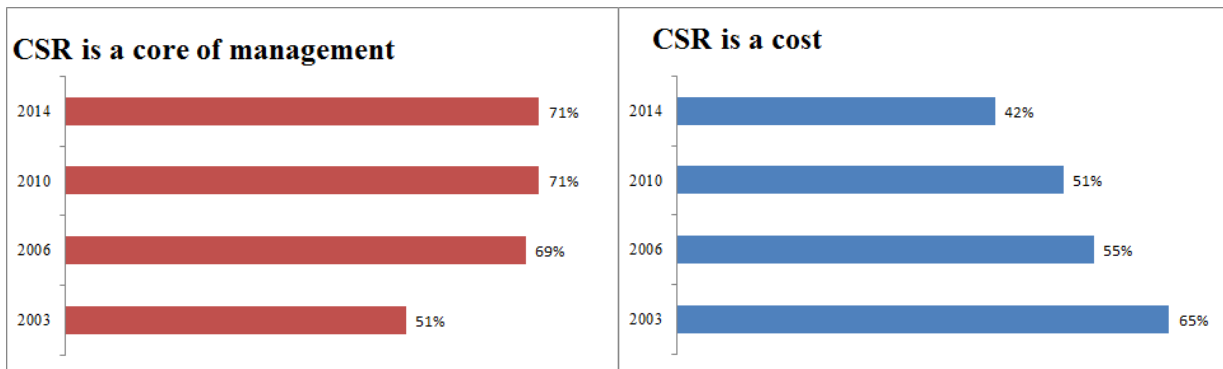
Source: Adapted from the Japan Association of Corporate Executives, "Survey of Management Awareness of Corporate Social Responsibility 2014."

Figure 1.3: National Rates of "Corporate Responsibility" Reporting, 2015 to 2017 (of the top 100 companies by revenue in each country)
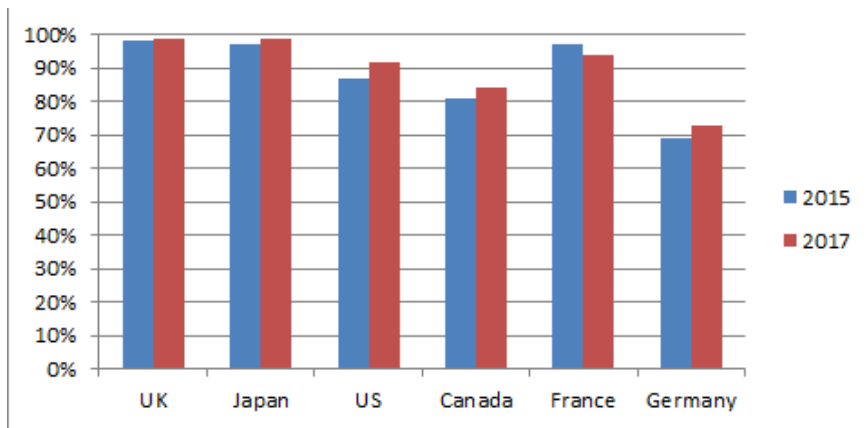
Source: Adapted from Blasco and King (2017).

Note: Rates of a worldwide sample of 4,900 companies comprising the top 100 companies by revenue in each of the 49 countries researched in this study. These statistics provide a broad-based snapshot of corporate responsibility reporting among both large and mid-cap firms around the world.

Figure 1.4: Actual Number of "Integrated" Reports in the Top 100 Companies by Revenue in Each Country: Top Ten Countries
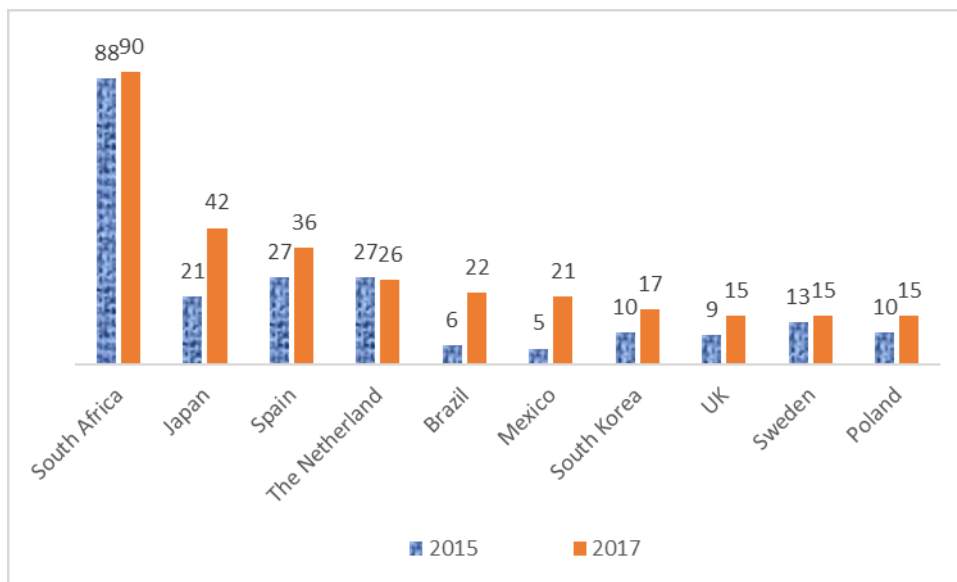
Source: Blasco and King (2017).

Note: Based on the number of companies that specifically label their reports as "Integrated." From a worldwide sample of 4,900 companies comprising the top 100 companies by revenue in each of the 49 countries researched in this study. These statistics provide a broad-based snapshot of corporate responsibility reporting among both large and mid-cap firms around the world.

CSR has also become one of the big interests in the market. The Japanese Government Pension Investment Fund (GPIF), the world's largest fund, signed the Principles for Responsible Investment (PRI) which requires more reliable information on environment, social, and governance (ESG) factors, according to Blasco and King (2017), and this has brought pressure to bear on firms. The Japan Sustainable Investment Forum (2017) reported that the total amount of socially responsible investment[1] in Japan doubled to JPY 136.6 trillion in 2017 from the previous year, which was more than that of Canada in 2016. In 2018, 414 firms issued integrated reports, compared to 24 in 2011, according to the Corporate Value Reporting Lab (2018; see Figure 1.5, Figure 1.6 and エラー! 参照元が見つかりません。)

Figure 1.5: Sustainable Investment Assets in Japan (trillion JPY, %)
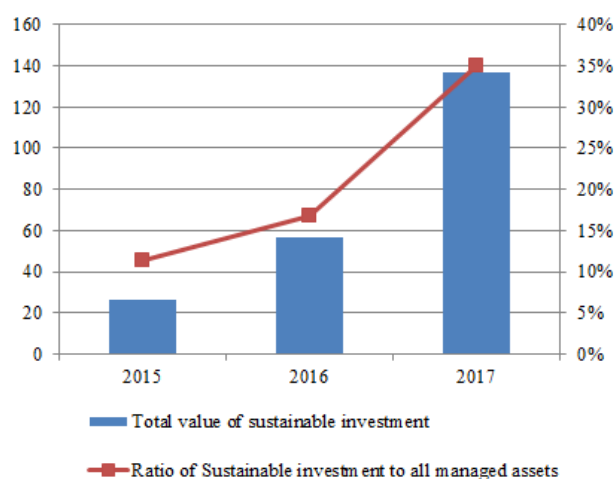
Source: Adapted from Japan Sustainable Investment Forum, "White Paper on Sustainable Investment in Japan 2017."

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[1] The practice of investing in companies whose business is not harmful to society or the environment. (Definition from Cambridge Business English Dictionary.)

Table 1.1: Sustainable Investment Assets by Country

	2012	2016
Europe	1,054	1,449
United States	450	1,050
Canada	71	131
Australia and New Zealand	16	62
Asia (excluding Japan)	5	6
Japan	0	57
Total	1,596	2,755

Source: Japan Sustainable Investment Forum, "White Paper on Sustainable Investment in Japan 2017."

Note: Conversion rate = $1 to ¥120.37.

Figure 1.6: Trend in the Number of Corporations in Japan Engaged in the Publication of Self-Declared Integrated Reports
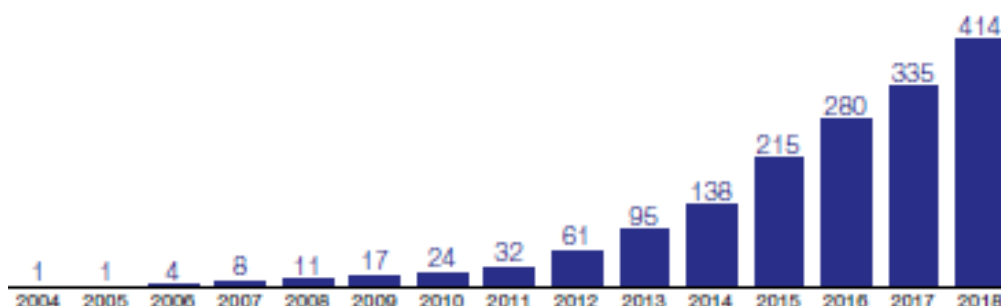
Source: Corporate Value Reporting Lab (2018), "Trends in Integrated Reporting that Support Sustainable Growth in Japan 2018."

The roots of CSR extend before World War II, according to Carroll and Shabana (2010) who provide deep historical insights in their paper. CSR took shape and became widely accepted during the 1960s because of social movements such as civil rights, women's rights, consumers' rights, and the environmental movement, especially in the United States. The 1960s and early 1970s was a period of changing social consciousness and recognition of overall responsibility regarding community affairs, urban decay, racial discrimination, and pollution, which led firms to give charitable donations in support of these causes. In the 1980s, empirical research, including the link between CSR and corporate financial performance, expanded and this trend continued to the 1990s (Carroll & Shabana, 2010; Frederick, 2008; Murphy, 1978). In the 1990s and

2000s, the concept of CSR started to be accepted globally, and the business community seriously focused on sustainability, which became an essential part of all CSR discussions (Carroll & Shabana, 2010). At present, there is a worldwide movement among international organizations, including the Organisation for Economic Co-operation and Development's "Guidelines for Multinational Enterprises," the United Nations' "Global Compact" and "Principles for Responsible Investment," the International Organization for Standardization's "ISO26000," and the "Global Reporting Initiative" by the United Nations Environment Programme. More than 8,000 companies from 150 countries, including 200 Japanese companies, signed the United Nations' Global Compact, according to METI (2015). Adachi (2011) points out that sustainability initiatives have now come to stay in Asian countries.

Although increasing numbers of Japanese firms have started to implement CSR, and numerous studies on CSR have been conducted, there is no consensus on the raison d'etre of CSR and its impacts. Krüger (2015) illustrated controversial views on CSR from several dimensions. First, he pointed out opposing ideas between theories and practice. Although economists like Friedman (1970) advocated that the social responsibility of business is to increase profits, companies continued to allocate significant resources to improve their relations with key stakeholders. Krüger (2015) also mentioned different conclusions in previous studies regarding the relationship between CSR and profits. Finally, he noted the role of CSR from different points of view. Some researchers, like Bénabou and Tirole (2010), see CSR is simply the manifestation of agency problem inside the firms whereas others like Edmans (2011) identify it as where companies engage with stakeholders for value-enhancing purposes called "doing well by doing good." Among these opposing views, the situation is less clear in the Asian context. As Cheung and Roca (2013) highlighted, although the most dynamic and successful companies are located in the Asia-Pacific region, it is not clear how sustainability is taken into account by investors in the region. He added that no study of this type had been conducted yet, particularly in the Asia-Pacific region, and there was a need to study how investors in Asia react to sustainability issues. In this thesis, I will focus on Japanese firms and investigate the relationship between CSR performance and firms' value in Japan, and how this differs from the United States and Europe, by providing empirical evidence for short-term shareholder value implications.

The second contribution of this thesis is to implement the analysis using a large and original CSR dataset collected by the author. The data were carefully selected by the author from well-known Japanese financial newspapers based on criteria by Kinder, Lydenberg, and Domini Research and Analytics (KLD, now part of MSCI), a data provider whose measures are widely used in the relevant literature (e.g., Ambec & Lanoie, 2008; Deng, Kang, & Low, 2013; Servaes & Tamayo, 2013).

Finally, this study is innovative in its analytical method. The event study technique explicitly addresses the endogeneity problem, namely (i) measurement error and (ii) simultaneity, which are of wide concern in CSR-related research. Furthermore, though few papers have pursued the causes of CSR's impacts in detail, especially in the Asian context, the present thesis seeks to deepen understanding through analysis by main shareholder, event feature, year, industrial category, and firm size.

This study consists of three analyses. Analysis 1 investigates investors' short-term response to the announcement of CSR-related news in Japan by event study using originally collected data. The data enabled me to conduct deeper analysis by categorizing events by main shareholder, event feature, year, industrial category, and firm size. Analysis 2 provides comparable analysis by using a widely accepted index, the Dow Jones Sustainability Indices (DJSI), in the event study methodology. In Analysis 3, I implement the long-term analysis of firms' CSR performance and their values for offering comprehensive and foundational insight into the relationship.

The thesis is organized as follows. The remainder of this chapter provides a definition of CSR. Chapter 2 provides the theoretical background and literature review. Chapters 3, 4, and 5 present the variables and methodology, empirical results and conclusions for each of analyses 1, 2, and 3, respectively. Chapter 6 discusses the results of the whole study and concludes.

1.2. Definition of Corporate Social Responsibility

Though the term CSR is widely known and used by the international business and academic communities, the definition of CSR varies. Dahlsrud (2008) identified 37 definitions of CSR, and Carroll and Shabana (2010) argued that this number is an

underestimate because many academically derived definitions were not included. Dahlsrud (2008) conducted the frequency counts of each definition from Google and found the top three definitions were constructed by the Commission of the European Communities in 2001, and the World Business Council for Sustainable Development in 1999 and 2000, in that order. The Commission of the European Communities (2001) defined CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis." The World Business Council for Sustainable Development (1999) defined CSR as "the commitment of business to contribute to sustainable economic development working with employees, their families, local community and society at large to improve their quality of life." The World Business Council for Sustainable Development (2000) also stated "corporate social responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large."

International organizations such as the Organisation for Economic Co-operation and Development (OECD), the United Nations, and the International Organization for Standardization (ISO) have also offered definitions of CSR. The OECD Guidelines for Multinational Enterprises views CSR as "the basis of mutual confidence between enterprises and the societies." According to the UN, "the UN Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labor standards, the environment and anti-corruption." The ISO defined CSR as the "responsibility of an organization for the impacts of its decisions and activities on society and the environment, through transparent and ethical behavior that 1) contributes to sustainable development, including health and the welfare of society, 2) takes into account the expectations of stakeholders, 3) is in compliance with applicable law and consistent with international norms of behavior and 4) is integrated throughout the organization and practiced in its relationships in "ISO 26000 Guidance on social responsibility".

To clarify the nature of CSR which make impacts on the firm's value, I define CSR as follows.

A firm's activity to have a positive impact and to mitigate negative impacts on the society and stakeholders, such as the community, employees, and consumers, beyond its shareholders.

As for specific contents of CSR, I follow the criteria in "How to Use KLD STATS & ESG Ratings Definitions" published by Kinder, Lydenberg, and Domini Research and Analytics (KLD), now part of MSCI, a data provider whose measures are widely used in the financial economics literature (for detail, see appendix).

CHAPTER 2. Theoretical Background and Hypothesis

2.1. Theories on the Role of Firms

In 1970, Friedman stated, "the only one responsibility of business towards society is the maximization of profit" (Friedman 1970, p1), which is known as the theory of the firm, and this idea was widely accepted for a long time in business management and economics. However, people started to expect firms to adopt enlarged responsibilities in their multinational business environments (Scherer & Palazzo, 2011). Firms begun to engage in areas that were once considered the responsibility of governments, such as public health, education, social security, human rights, social ills, malnutrition, and illiteracy (Jensen, 2002; Kinley & Tadaki, 2004; Levitt, 1960; Margolis, Elfenbein, & Walsh, 2003; Matten & Crane, 2005; Scherer & Palazzo, 2011; Sundaram & Inkpen, 2004). Firms, especially multinational enterprises, came to be regarded as key actors to fill global gaps in both legal regulation and moral orientation and to facilitate social peace and stability (Fort & Schipani, 2004; Scherer & Palazzo, 2011; Scherer & Smid, 2000). Scherer and Palazzo (2011) explained the change of corporate responsibilities in the global environment by five transitions: (1) from national to global governance—new forms of global governance have been developed to deal with social risks caused by a lack of regulatory impact of national governments on multinational corporations (MNCs); (2) from hard law to soft law—firms start to rely on a different form of regulation, the so-called soft law that operates without a governmental power; (3) from liability to social connectedness—MNCs are asked to take responsibility for social and environmental externalities in the community to which they are connected; (4) from cognitive and pragmatic legitimacy to moral legitimacy—in addition to following the nationally defined rules, global firms have to find new ways of keeping their licenses to operate (Suchman, 1995); and (5) from liberal democracy to deliberative democracy—governments who are democratically elected have less power, while private firms, which have no democratic mandate, start to get engaged in the social aspects. In this situation, where the strict division of labor between private business and government no longer exists, Scherer and Palazzo (2011) suggest the need to acknowledge a new political role of business that goes beyond compliance with legal standards and

conformity with moral rules, and introduced the concept of "political CSR." According to Scherer and Palazzo (2011), "political CSR" suggests "an extended model of governance with business firms contributing to global regulation and providing public goods. It goes beyond the instrumental view on politics in order to develop a new understanding of global politics where private actors such as corporations and civil society organizations play an active role in the democratic regulation and control of market transactions" (p. 901).

The change in firms' behavior can also be explained by pressures not only from stakeholders but also from media and shareholders. The first and obvious actors who put pressure on firms are stakeholders. As Basu and Palazzo (2008) discussed, firms were exposed to pressure from the specific demands of largely external stakeholders, such as governments, nongovernmental organizations (NGOs), and consumer lobby groups, with regard to a firm's operations, or with regard to generalized social concerns. In addition to stakeholders, according to Flammer (2013), firms' behavior toward the environment has been increasingly examined by the media. She counted the number of unique newspaper articles that referenced the terms "environment" and "corporate social responsibility" from five of the most widely read newspapers (*New York Times, Washington Post, USA Today, Wall Street Journal,* and *Financial Times*), and found a substantial increase over the years in the number of articles that mentioned both the environment and CSR, which was about six times higher in the 2000s than it was in the 1980s (see Figure 2.1). Even shareholders show a strong interest in firms' behavior. As a direct proxy, Flammer (2013) looked at the number of shareholder proposals related to the environment and found that the number of proposals related to the environment, as a percentage of all proposals related to governance and social responsibility, has increased substantially by roughly four times from 1997 to 2009.

Figure 2.1: Evolution of Media Attention and Shareholder Proposals to Environmental Corporate Social Responsibility
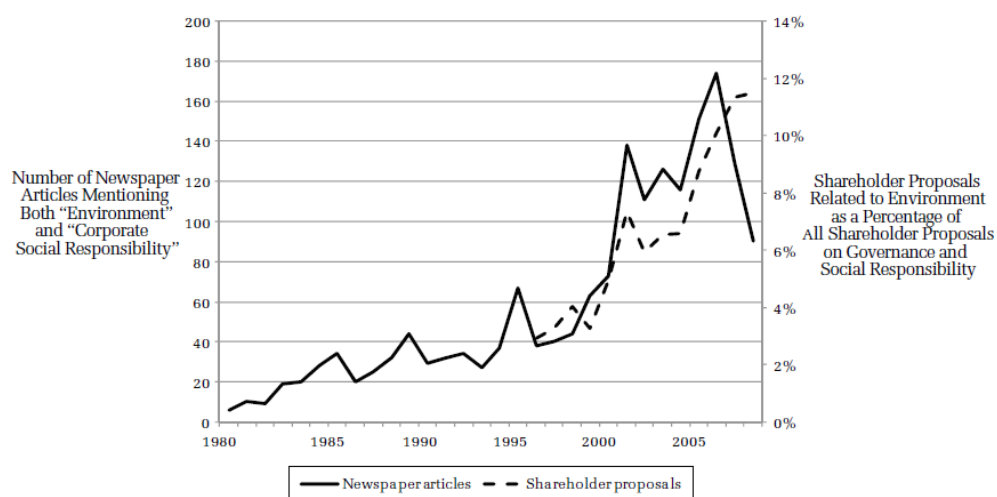
Source: Flammer (2013).

Firms' behavioral changes under pressure are consistent with different theories, among them institutional theory, stakeholder theory, and attribution theory. Flammer (2013) and others argue that institutional theory, that is, that companies do what is most legitimized in their field, may explain why companies are led to engage in environmental CSR in response to institutional conditions (Bansal, 2005; Bansal & Roth, 2000; Campbell, 2007; Chatterji & Toffel, 2010; Delmas & Toffel, 2004; Devereaux Jennings, & Zandbergen, 1995; Doh, Howton, Howton, and Segal, 2010; Hoffman 1999, 2001; Matten & Moon, 2008).

Freeman (1984) collected various ideas on the stakeholder-related approach and developed an organized theory of management, known as stakeholder theory. Stakeholder theory posits that the survival of a corporation is affected not only by its shareholders, but also by various other stakeholders, such as employees, governments, and customers. According to Lee (2008), a unique feature of stakeholder theory is that it envisions a corporation's purpose in a wholly different way.

Lange and Washburn (2012) employed the attribution theory to describe the relationship between firms and stakeholders. Attribution theory, which was developed in the field of social psychology and extended to organization studies, explains how people interpret events and how their interpretation affects their thinking and behaviors

(Heider 1958, Jones & Nisbet 1972; Martinko, 2004; Weiner, 1974). Lange and Washburn (2012) found that attributions of irresponsibility might generate stronger external reactions than perceptions of responsibility and have a much greater impact on the firm's relationship with its environment.

2.2. How Corporate Social Responsibility Affects a Firm's Value: Long-Term Impact

Friedman's (1970) theory of firms and Freeman's (1984) stakeholder theory have coexisted in parallel for a while. Jensen (2001) noted that because stakeholder theory was not clear on how to make the necessary trade-offs among competing interests, it made it impossible for managers to make purposeful decisions and left them unaccountable for their actions. From this concern, he introduced enlightened stakeholder theory, which clarified the proper relation between value maximization and stakeholder theory. The theory sets long-term value maximization or value seeking as the firm's objective and therefore solves the problems that arise from the multiple objectives in traditional stakeholder theory. Carroll and Shabana (2010) insisted that "CSR activities that are not rewarded by the market are those activities that individuals do not value and are therefore unwilling to support. The merit of CSR activities, thus, should be determined by the free market mechanism" (p. 91).

So, how does CSR affect a firm's value in the long term? Though the theoretical literature on the mechanism by which CSR creates value for a firm is still developing, substantial research has been done. Researchers offer systematic analyses on the channels of potential revenue increase or cost reduction from four dimensions: (1) the employee side, (2) the consumer side, (3) the technical side, and (4) corporate governance. For a deeper understanding, I added the perspectives of the country (Western countries in general or Japan) and the type of announcement (news or index change) to this framework. Figure 2.2 shows the impact of CSR on the value of Western firms generally, and Figure 2.3 shows the same for Japanese firms.

One view is that CSR can attract higher quality employees, which leads to both cost reduction and revenue increase (Greening and Turban, 2000) which could push up firm

value. Moreover, CSR can encourage employee morale and hence their output (Abe, Diamond, and Ito, 2017; Fisman, Heal, and Nair, 2006; Flammer & Luo 2017; Freeman 1984, 2010; Waddock & Graves, 1997). Edmans (2011, 2012) insisted that firms with high employee satisfaction tend to outperform the market. As people are basically looking for a better environment and a firm with a good reputation to work for, regardless of country, this mechanism works in both Western countries and Japan. As for announcement type, both news announcements and index change announcements can be a signal of a "good" company. News announcements, however, are more accessible among workers.

Another view, according to Bénabou & Tirole (2010), is that socially responsible firms can be a channel for expressing personal values on behalf of their stakeholders, in other words, a delegated philanthropy. In addition, more socially conscious consumers tend to have greater loyalty (Albuquerque, Durnev, & Koskinen, 2013; Ambec & Lanoie, 2008; Besley & Ghatak, 2007; Dimson, Karakas, & Li, 2015), which could affect a firm's value positively. Schuler and Cording (2006) investigated whether information and moral values are important elements in this process for consumers and expected consumer moral values to have a main effect on purchase intentions, as well as to interact with information intensity in predicting purchase intentions. In addition to the effect stated above, CSR may promote access to previously closed markets like nonprofit organizations (Abe, Diamond, & Ito, 2017; Fisman, Heal, & Nair, et al. 2006; Freeman, 2010; Kanter, 1999; Waddock and Graves, 1997). With regard to this consumer-side analysis, especially for loyal customers, the impact is questionable in Japan because Japanese consumers do not seem to care about the social consciousness of products and firms as much as Western consumers such as in European countries. This point will be discussed later with regard to charitable action. On announcement type, both news announcements and index change can be a signal; however, news announcements are a more common source for consumers.

The third dimension is from the technical side. Jones (1995) forwarded the view that CSR may lead to the development of more efficient technologies that allow firms to reduce costs. CSR can also increase product differentiation, which allows premium pricing (Albuquerque, Durnev, & Koskinen 2013; Besley & Lanoie, 2008; Besley &

Ghatak, 2007; Derwall, Guenster, Bauer, & Koedijk, 2005; Guenster, Bauer, Derwall, & Koedijk).

Finally, how does CSR benefit firms from a corporate governance side? Bénabou and Tirole (2010) argued that CSR practices allow management to have a long-term perspective and maximize intertemporal profits, which are in line with the interests of universal owners. Tirole (2001) also demonstrated that the implementation of the stakeholder society could mitigate "dearth of pledgeable income," "deadlocks in decision-making," and "lack of clear mission for management" by using an economic analysis of the concept of shareholder value. Magill & Quinzii (2013) conducted analysis by economic models of competitive equilibria and Pareto optimal, and found that if managers maximize total value, such as consumer and employee surpluses, efficiency can sometimes be increased. Ramchander, Schwebach, & Staking (2012) employed the resource-based view (RBV) theory to explain CSR's impact on firm value. RBV theory asserts that resources and organizational capabilities of the firm lead to better financial performance only if these resources are valuable, rare, imperfectly imitable, and nonsubstitutable (Barney, 1991; Hart, 1995; Litz, 1996; Wernerfelt, 1984). In the CSR context, Ramchander et al. (2012) stated that managing relationships with primary stakeholders involves an element of knowledge or learning competency that is unique to the firm and therefore not easily replicable by its competitors (Branco and Rodrigues, 2006; Hart, 1995; Litz, 1996; McWilliams, Van Fleet, and Cory, 2002). Being a socially responsible firm can also cut costs by reducing opportunism in the firm, risks in management and relations with external stakeholders, and facilitating finance such as borrowing from banks (Ambec & Lanoie, 2008; Barnett & Salomon, 2012; Cheng, Ioannou, & Serafeim, 2014; Dhaliwal, Li, Tsang, & Yang, 2011; El Ghoul et al., 2011; Geoffrey, 2005; Hong et al., 2012; Jones, 1995; Bauer & Hann 2010). For corporate governance, like technology, announcements themselves do not make impact beforehand, but is a result of the firm's effort. News announcements hold more direct information while index changes show the firm's profile.

Figure 2.2: The Impact of Corporate Social Responsibility on Western Firms Generally
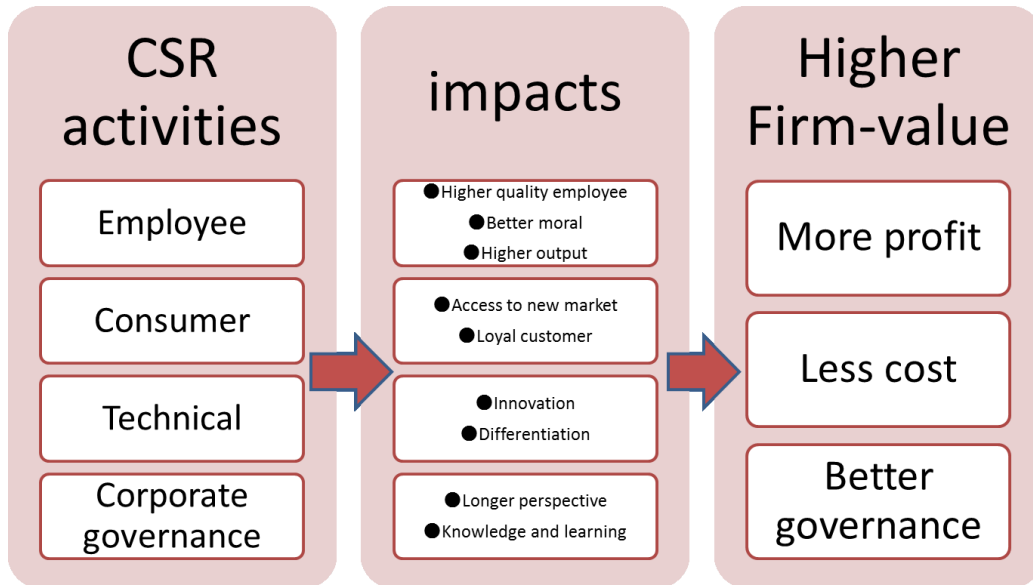
Source: Illustrated by the author

Figure 2.3: The Impact of Corporate Social Responsibility on Japanese Firms
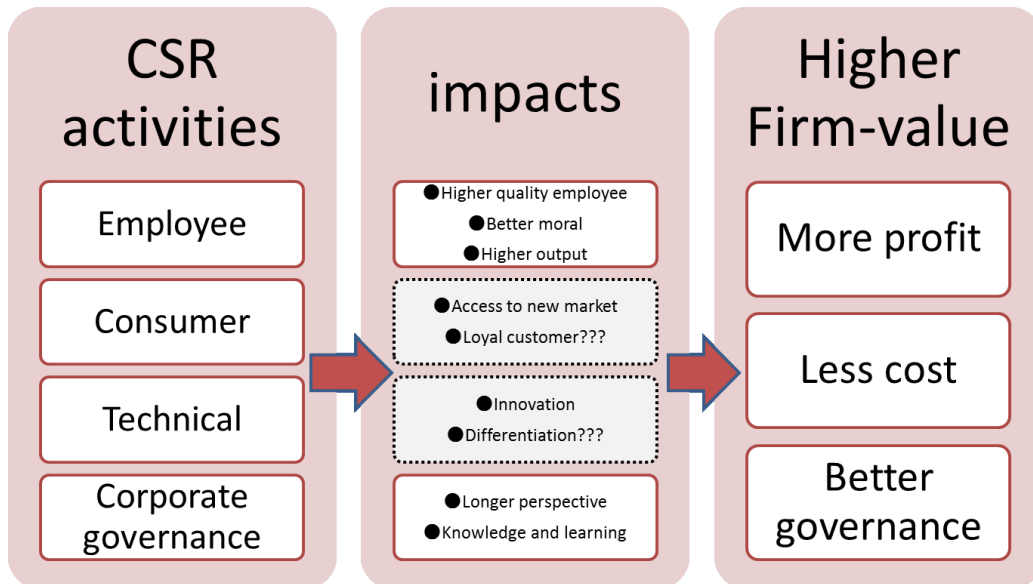
Source: Illustrated by the author

It has been argued that CSR activities provide benefits to firms through their effects on employees, consumers, technology, and corporate governance. Consequently, CSR activities could raise firm value, and thus events such as news announcements related to CSR or changes in a sustainable index will provide, in both the short term and the long

term, meaningful information to investors and have an impact on stock price. Therefore, based on the reasons above, I propose the following hypotheses.

<Hypothesis 1>
CSR-related activities provide positive impacts on firm value.

In addition, according to the theories outlined above, stakeholders, especially employees and consumers, seem responsive to a firm's good behavior. Qualified employees tend to choose firms with a better image in which to work, and loyal consumers also prefer to buy goods from socially responsible companies because of "a delegated philanthropy." In this regard, actions with a more altruistic image could draw more attention from employees and consumers, and it would affect the firm's value positively. In Japan, charities and involvements in developing countries have a more altruistic image than others because these do not directly connect to people's own lives and people tend to feel that they do something for complete strangers. The magnitude of impacts on consumers, however, may be smaller in Japan than that has based on data from Western firms. Toyota (2009), using the "Survey on Lifestyle 2008" conducted by The Research Institute for Culture, Energy and Life, belonging to Osaka Gas, found that Japanese consumers' high interest in social issues is not related to their purchasing behavior. This can be explained by the theory of reasoned action (Ajzen & Fishbein 2005), the two-phase model for environmentally conscious behavior (Hirose, 1994) and the dual-process model of reactive and intentional decision making (Ohtomo & Hirose, 2007). Ohtomo (2008) also pointed out the mismatch between consumers' norms and their behavior in environmental concerns. As a cross-country comparison, Cone Communications implemented a survey of global attitudes, perceptions, and behaviors around CSR of 9,709 consumers in nine of the largest countries in the world by gross domestic product (GDP), including the United States, Canada, Brazil, the United Kingdom, Germany, France, China, India, and Japan. The survey revealed that the Japanese market is the least likely market to switch products to one associated with a cause (72% vs. 90% global average) and also the least likely to proactively seek out responsible products every time they shop (68% vs. 84% global average), as well as the least likely to have purchased a responsible product in the past 12 months (43% vs. 63%

global average) though Japanese consumers (85% vs. 91% global average) expect companies to do more than make a profit. It also reported fewer residents of Japan (18%) feel their purchases add up to a significant impact on issues, compared with the citizens of Brazil (55%) and India (56%). After taking into account all relevant ideas stated above, the impact of charities or actions in developing countries on firms' value in Japan is ambiguous. Therefore, I propose hypotheses in parallel as follows.

<Hypothesis 2-1>
Firms' actions with a more altruistic image have positive impacts on firm value.

<Hypothesis 2-2>
Firms' actions with a more altruistic image do not have impact on firm value.

Regarding the announcement type, as described above, news announcements could offer more direct, prompt, and accessible information for employees and consumers than the sustainable index change. News announcements also could convey more direct, prompt, and accessible information to investors related to the effects of a firm's activity on consumers, employees, technology, and corporate governance than the index change. I will discuss this point in the following section.

2.3. Theories on the Short-Term Impact of Corporate Social Responsibility-Related Events on Stock Prices

In this section, I will review hypotheses that explain how events affect firms' stock prices in the short term. At least six theories have been introduced to explain the significant price impacts.

The price pressure hypothesis (Harris & Gurel, 1986) assumes that, when events do not provide new information, they do not have an impact on stock price but cause shifts in demand. According to Lackmann et al. (2012), stock price changes are caused by changes in demand or trade volume arising from non-information-based portfolio

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allocation, and therefore the hypothesis predicts an immediate increase in the stock price and trading volume after events as well as a subsequent reversal of the price.

The distribution effect hypothesis (also called the imperfect substitutes hypothesis or the downward sloping demand curve hypothesis) assumes that, though events do not hold new information, equilibrium prices change as a result of shifts in the demand curve to eliminate excess demand after a positive event (Beneish & Whaley, 1996; Blume & Edelen, 2002; Chakrabarti et al., 2005; Cheung & Roca, 2013; Kaul, Mehrotra, & Morck, 2000; Lackmann et al., 2012; Lynch & Mendenhall, 1997; Shleifer, 1986; Wurgler & Zhuravskaya, 2002). Compared with the price pressure hypothesis, according to Lackmann et al. (2012) and Cheung and Roca (2013), the distribution effect hypothesis does not assume price reversals after the event or, in other words, demand, price, and volume are permanent because a new equilibrium distribution of shareholders is reflected in the new stock price.

The information certification hypothesis (also called the signaling hypothesis) (Cai, 2007; Cheung & Roca 2013; Denis, Mcconnell, Ovtchinnikov, & Yu, 2003; Dhillon & Johnson, 1991; Jain, 1987; Kappou, Brooks, & Ward, 2008; Lackmann et al., 2012) posits that events, index additions, for example, contain information because the index issuers can select promising equities even if they do not mention it.

The investor awareness hypothesis (or the information cost hypothesis—Chen, Noronha, & Singal, 2004; Cheung & Roca, 2013; Lackmann et al., 2012; Merton 1987) describes how events, additions to the index, for example, can increase investor awareness and decrease the cost of searching for information because the events provide more information to investors and reduce information asymmetry problems. In this situation, Lackmann et al. (2012) explained that positive news, such as an addition to an index, would lead to an increase in a stock's price but not necessarily in trading volume. In contrast, the stock price of companies deleted from the index might not decline.

A "self-fulfilling prophecy" (Merton, 1948; Fernandez, Aguirreamalloa, & Liechtenstein, 2009) could also be the reason for stock price changes, Lackmann et al. (2012) added. Stock prices increase with an increase in demand because investors expect a stock's price to increase as a result of positive events.

According to Cheung and Roca (2013), the liquidity hypothesis (Beneish & Whaley, 2002; Erwin & Miller, 1998; Hegde & McDermott, 2003) supposes that

positive news, in their case index addition, reduces stock volatility by raising the liquidity of the market. In other words, changes in liquidity risk and discount rates cause significant price impacts. Cheung and Roca (2013) added that the hypothesis does not respond in the context of changes to a sustainability index.

After reviewing the relevant theories, Cheung and Roca (2013) developed two new hypotheses: the sustainability taste hypothesis and the sustainability redundancy hypothesis. The sustainability taste hypothesis specifies that investors who have a preference for sustainability enjoy utility above which they get from the monetary returns. The sustainability redundancy hypothesis assumes that "stock selection based on corporate sustainability is equivalent to imposing 'additional or redundant' constraint on portfolio optimization, other than risk minimization and return maximization, resulting in suboptimal portfolios" (Cheung & Roca 2013, p. 52).

Lackmann et al. (2012) also proposed a new theory, the increase in information reliability hypothesis, based on the investor awareness hypothesis. The new theory assumes the nature of forward-looking, a long-term perspective, and thus lack of reliability in the sustainability concepts. Under this situation, the theory insists that external and independent information fulfill the criteria of relevance and reliability for investors to make a decision.

As presented above, a series of theories regarding the impact of CSR-related events on stock prices have been introduced by many researchers. Among them, focusing on the response of stock price to the events and its continuity of the price level, I support the information certification hypothesis and the self-fulfilling prophecy. This is because I believe investors know that events such as news announcements or changes in the sustainability index do contain information about firms' behaviors. With this new information provided, investors expect a stock's price to increase in response to positive news and buy the target stock, which leads to an increase in demand (and vice versa for negative announcements). In addition, news announcements could provide more direct, prompt, and accessible information to investors than index changes. According to "the survey of senior perception of CSR" conducted by Japan Social Responsibility Network (2015), 47.4% of senior population obtain information about CSR through advertisements on TV or Newspapers, and 28.9% gather its information through articles

in Newspapers rather than the internet (3%). Thinking of most individual investors are senior in Japan, it would be difficult for them to reach information about the index change which is rarely announced through advertisements or news articles. Based on the logic above, the third and fourth hypotheses are as follows.

< Hypothesis 3>
Based on the ''information certification hypothesis'' and the "self-fulfilling prophecy", Japanese investors react positively to a firm's positive CSR announcements, resulting in a boost to its equity price (and vice versa for negative announcements).

< Hypothesis 4>
Japanese investor's reaction to CSR announcements is greater for news announcements than that for the index change.

Previous studies tried to differentiate the impact of CSR-related events by issues. Godfrey, Merrill, and Hansen (2009) categorized the news based on stakeholder groups, an approach introduced by Mitchell, Agle, and Wood (1997) and Freeman et al. (2008). Godfrey et al. (2009) categorized stakeholders into two groups, primary stakeholders and secondary stakeholders. Primary stakeholders are those who are essential to the operation of the business and have both urgency and power to enforce those requests represented by employees and consumers. Secondary stakeholders are those who can influence the firm's primary stakeholders but do not have urgency and power to enforce those claims represented by community groups and NGOs. CSR activities targeting primary stakeholders are less likely to produce moral capital because these actions can be seen as a firm's profit-making interest and self-serving. In contrast, CSR activities toward secondary stakeholders will be viewed as voluntary acts of social beneficence and thus provide evidence of an "other-regarding" orientation. Mattingly and Berman (2006) and Godfrey et al. (2009) categorized events into two groups: technical CSR activities that target the firm's primary stakeholders, such as governance, employee relations, and products; and institutional CSR activities that target the firm's secondary stakeholders. They assign community and diversity issues to institutional CSR. Based on the logic and evidence above, the fifth hypothesis is as follows.

<Hypothesis 5>

Investors in the Japanese market react greater to the events related to Institutional CSR including community and diversity issues than the events related to Technical CSR including employee relations and products.

Another approach to investigate investors' responses is chronological change. Vayanos (2004), Brunnermeier and Pedersen (2009), Lang and Maffett (2011), and Lackmann et al. (2012) insisted that the negative effects of economic uncertainty can be mitigated by firms' transparency and the dissemination of high-quality information. In other words, in serious economic downturns, investors may choose firms with an elaborate long-term strategy and a sustainable business model. Pfarrer, Pollock, and Rindova (2010) also pointed out that, in the event of an economic shock such as a disaster, investors engage in active sense-making and reevaluate a firm. Muller & Kräussl (2011) provided evidence for this theory. From these theories, I propose the following hypothesis.

<Hypothesis 6>

Japanese investors' response to CSR-related events will change by economic shock like Great East Japan earthquake.

2.4. Individuals, Financial Institutions, and Foreign Investors

Shareholders in Japan are roughly divided into five types: individuals, financial institutions (such as banks, insurance companies, funds, and security companies), foreigners (foreign institutions and individuals), business corporations, and government. As shown in Table 2.1 and Figure 2.4 below, the ratio of shareholders is changing with time. According to Miyajima & Nitta (2011), before 1990, cross-shareholdings called *Mochiai* in Japanese were dominant based on long-term stable relationships, and this resulted in a large proportion of business corporations and main banks as shareholders. From 1990, however, the share of foreign investors gradually increased because of

vitalization of international diversified investment. After 1997, the situation dramatically changed because of the financial crisis. To avoid holding bad debts, companies started to sell banks' stocks, while Japanese financial institutions excluding banks and foreign investors increased their presence in the Japanese market. As a result, in 2017, financial institutions, especially trust banks and foreigners, became the main shareholders in the market (see Table 2.1).

Table 2.1: Transition in Shareholding Ratio by Shareholder Type (on a share number basis)

Survey Year	Govt. & Local Govt.	a+b+c+d+e Financial Institutions	a. City & Regional Banks	b. Trust Banks	Out of a+b Investment Trusts	Annuity Trusts	c. Life Insurance Cos.	d. Non-life Insurance Cos.	e. Other Financial Inst.	Securities Companies	Business Corporations	Foreigners	Individuals
1980	0.2	38.8	19.2	–	1.5	0.4	12.5	4.9	2.2	1.7	26.0	4.0	29.2
1990	0.6	45.2	16.4	9.8	3.6	0.9	13.2	4.1	1.8	1.7	25.2	4.2	23.1
2000	0.4	37.0	11.5	14.3	2.2	4.3	7.6	2.8	0.8	0.8	22.3	13.2	26.3
2010	0.2	22.5	2.8	14.6	3.3	2.7	3.1	1.3	0.7	1.8	24.3	22.2	29.1
2017	0.2	26.2	3.1	18.4	6.0	1.1	3.0	1.0	0.7	2.3	23.7	26.6	21.0

Source: Adapted from Tokyo Stock Exchange (2017), Survey on Stock Distribution 2017.

Figure 2.4: Transition in Shareholding Ratio by Shareholder Type (on a share number basis)
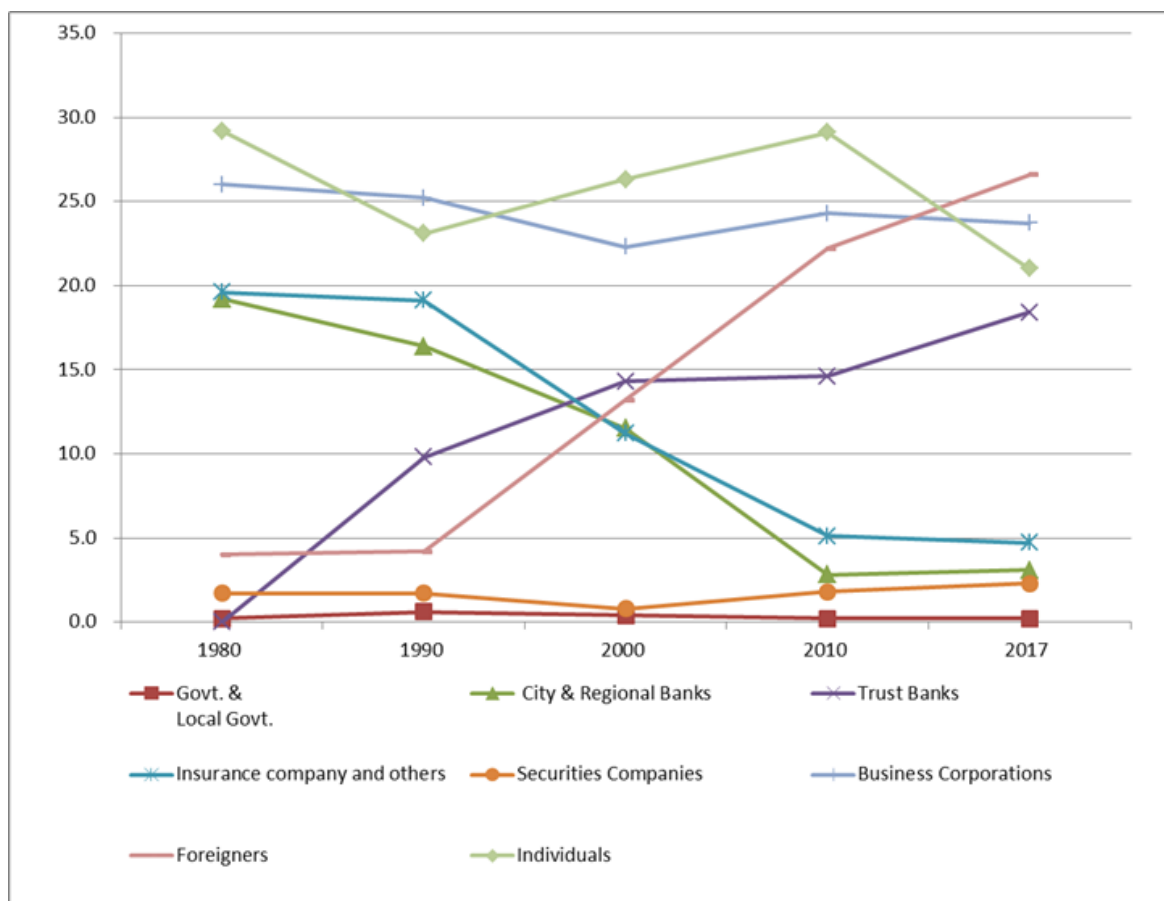
As Miyajima and Hoda (2015) note, investors' responses to events, especially to CSR-related news, vary depending on their purpose for holding shares. The Global Social Impact Investment Steering Group (GSSG) conducted a survey of both institutional and individual investors' perceptions of socially responsible investment. According to their February 2018 report, "Current State of Social Impact Investment in Japan 2017" both institutional and individual investors show their interest and willingness to invest in socially responsible firms in the future. The Ministry of Environment in Japan (2003) and GSSG (2018), however, pointed out the need to enhance relevant information, especially for individual investors, because individual investors cited a lack of relevant information in the survey. Based on these survey results, the seventh hypothesis is as follows.

< Hypothesis 7>

Both individual and institutional investors in Japan react positively to a firm's positive CSR announcements (and vice versa for negative announcements). Their responding timing and magnitude, however, are different from each other.

Foreign investors may have different attitudes to CSR-related news compared with Japanese investors. According to the Tokyo Stock Exchange's list of investments by nonresidential investors, approximately 78% of foreign investors are from Europe, followed by Asia (11.4%), and North America (10.2%—see Figure 2.5). In addition, the ratio of foreign individual investors to total shareholders is negligibly small. From these facts, foreign investors in the Japanese market can be assumed to be European institutions. This can be helpful to investigate the difference in investors' responses between the United States, Europe, and Japan, which I will discuss in the next section.

Figure 2.5: Proportion of Foreign investors in the Japanese Stock Market by Region (Shares, %)
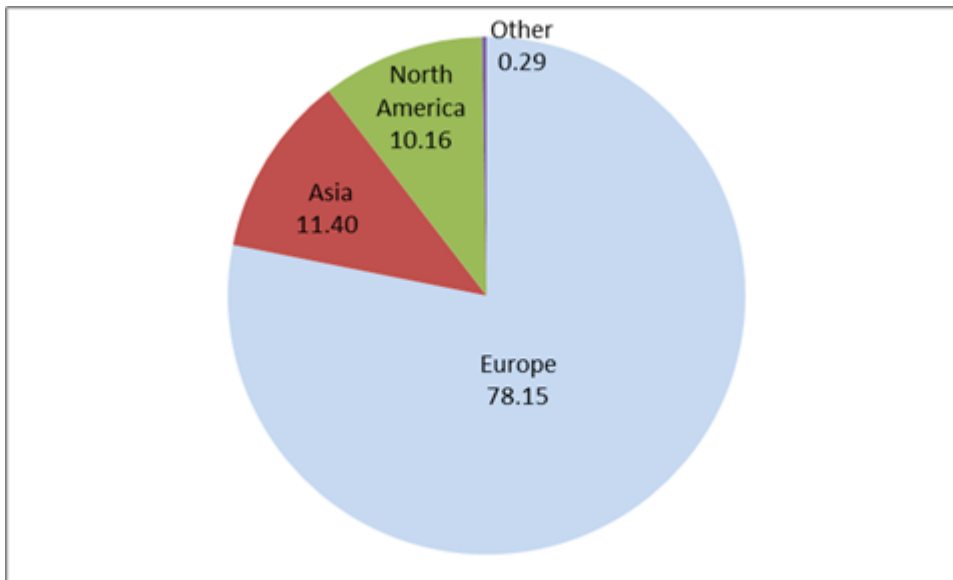
Source: Adapted from Tokyo Stock Exchange, Investments in Listed Stocks by Nonresidential Investors (by region) as of December 2018.

2.5. Theories and Views on Differences between the United States, Europe, and Japan Regarding Corporate Social Responsibility and Investors

In this section, I will introduce several theories and views to clarify how CSR and investors differ between the United States, Europe, and Japan. The first three theories are related to CSR itself and the fourth explains the view from investors.

Matten & Moon (2004) were the first researchers to theorize the differences in CSR in an international context. Matten and Moon (2008) provided the implicit-explicit CSR framework to explain the differences in CSR among countries and their historical change. As shown in Table 2.2 and Figure 2.6, explicit CSR refers to "corporate policies that assume and articulate responsibility for some societal interests," and implicit CSR refers to "corporations' role within the wider formal and informal institutions for society's interests and concerns" (Matten & Moon 2008, p. 409). By employing a national business systems approach (Whitley 1999) identified four key features of institutional development in a nation: the political system, the financial system, the education and labor system, and the cultural system. Whitley points out that U.S.-style CSR is based on more incentive and opportunity for corporations to take comparatively explicit responsibility, whereas European CSR is founded on wider organizational responsibility, which provides fewer incentives and opportunities for corporations to take explicit responsibility. However, there has been a shift from implicit to more explicit CSR among European corporations, especially MNCs, because of globalization. Considering other countries, Matten and Moon (2008) and Whitley (1999) considered that business systems in Japan, Korea, and Taiwan are similar to European ones, characterized by high bank and public ownership, patriarchal and long-term employment, and coordination and control systems based on long-term partnerships rather than markets. However, according to Fukukawa and Moon (2004) and Matten and Moon (2008), similar to European corporations, explicit CSR has been developed in the last decade especially among Japanese MNCs because of increased exposure to global capital markets, the adoption of American business techniques and education models, and challenges to their national governance capabilities.

Table 2.2: Explicit and Implicit CSR Compared by Matten and Moon (2008)

	Explicit CSR	Implicit CSR
Describes…	Corporate activities that assume responsibility for the interests of society	Corporations' role within the wider formal and informal institutions for society's interests and concerns
Consists of…	Voluntary corporate policies, programs, and strategies	Values, norms, and rules that result in (often codified and mandatory) requirements for corporations
Motivated by…	The perceived expectations of different stakeholders of the corporation	The societal consensus on the legitimate expectations of the roles and contributions of all major groups in society, including corporations.

Source: Matten and Moon (2008). Summarized by the author.

Figure 2.6: Implicit and Explicit CSR by Matten and Moon (2008)
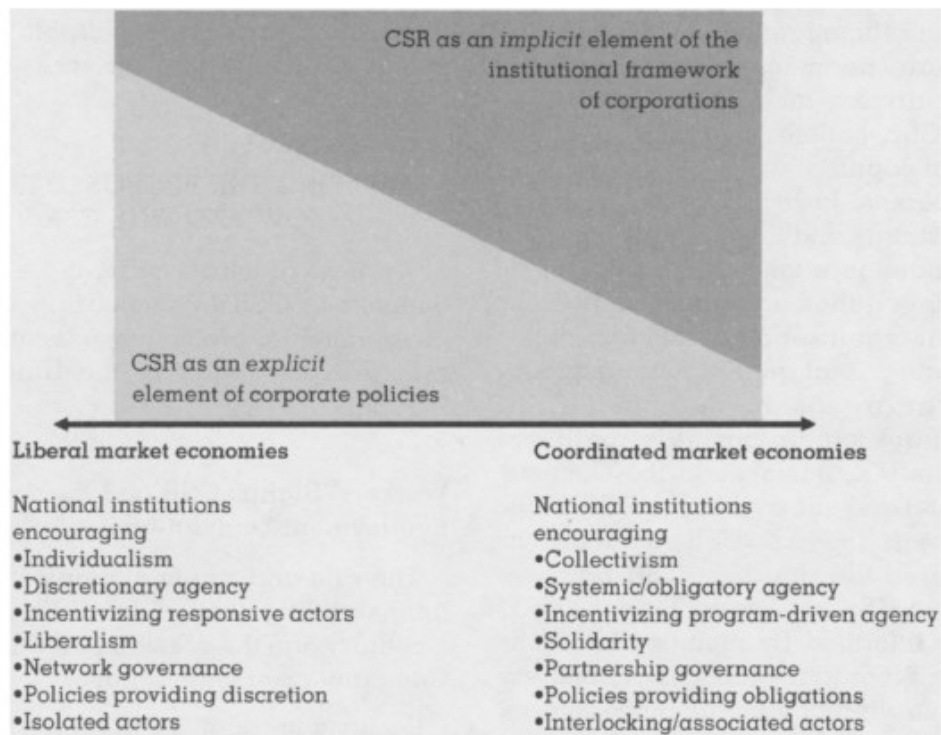
Source: Matten and Moon (2008).

Doh & Guay (2006) showed the impacts of differences in the institutional environments of Europe and the United States on expectations about corporate responsibilities to society by applying the extended neo-institutional and stakeholder theory. Focusing on government policy, corporate strategy, and NGO activism related to CSR, they concluded that institutional structures and political legacies are important factors for explaining the differences in these players. More specifically, they reported

that institutional differences between Europe and North America could be explained by "different perceptions of the relevance, validity, and acceptance of stakeholders into the policy-making process and development of attitudes towards and implementation of CSR" (Doh & Guay 2006, p. 57). As shown in Table 2.3, they also clarified the difference in perspective and decisions regarding CSR-related cases between the United States and Europe.

Table 2.3: Institutional Difference, CSR, NGO Activism, and Positions on Three Cases by Doh and Guay (2006)

	European perspectives and decisions	US perspectives and decisions
Dispute over trade in genetically-modified organisms	• 'Precautionary' principle • EU banned new products in 1998 after members states took actions; subsequently initiated labelling proposal • Recent industry (Monsanto) decision to cease GMO production in response to market pressure in Europe	• Principle of 'substantial equivalence' and faith in scientific solutions to food production • No legal limits on use of GMOs • Resistance to labelling proposals
Relaxation of IPR for HIV/AIDS medications	• Initially opposed by pharma companies (GSK and others) but subsequently changed position in light of NGO/government views • NGO pressure and popular sentiment shifted institutions in support of a change	• Pharma companies opposed individually and via *Phrma* trade association; US government backed position until bitter end • NGOs supported change, but were not able to influence US position
The Kyoto Agreement on Climate Change	• Strong support throughout negotiations; considerable NGO/civil society support • Emphasis on concrete targets for emissions reductions and firm dates to achieve them • Attempted to bridge differences between USA and developing countries	• Lukewarm support throughout negotiations; considerable industry opposition • Emphasis on 'market based' solutions (e.g. tradable rights) as opposed to firm targets • Little support for position of developing countries

Source: Doh and Guay (2006).

Gjølberg (2009) compared both CSR practice and performance between 20 countries by developing two original indexes. The indexes reflect "the degree to which companies of certain nationalities are over- or under-represented in major, global CSR initiatives and rankings, relative to the size of their national economies" (p. 10). As

shown in Figure 2.7 and Figure 2.8, in both practice and performance, Scandinavian countries lead, followed by European countries, and the United States having the lowest score. Japan appeared to be located in the middle of European countries.

Figure 2.7: Index of National CSR Practices, Total Scores per Nation
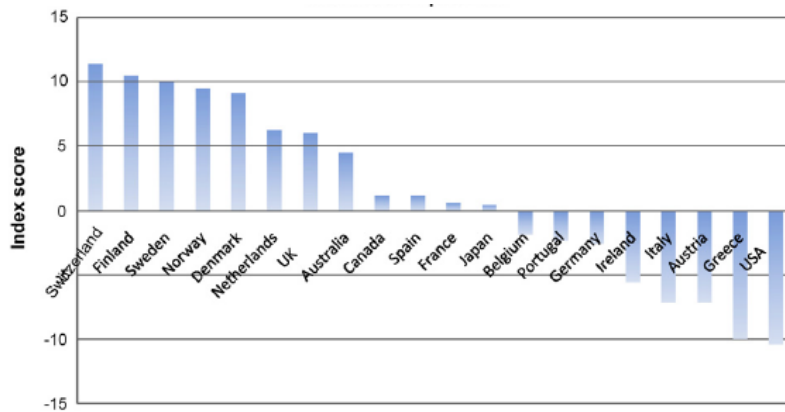
Source: Gjølberg (2009).

Figure 2.8: Index of CSR Performance (Revised, Performance-Based CSR Index)
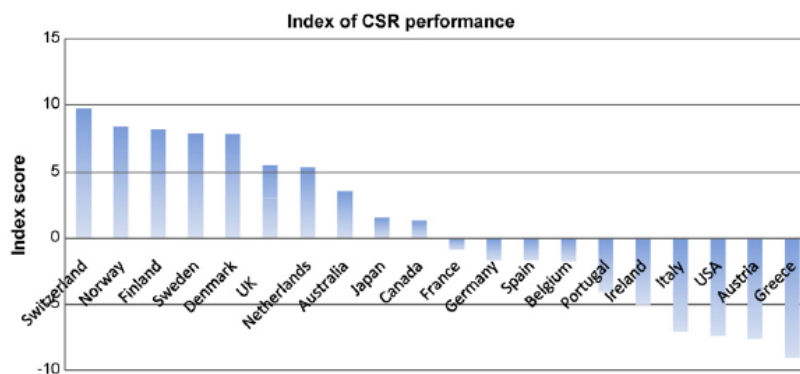
Chart 4   Revised, performance-based CSR index.

Source: Gjølberg (2009).

Aguilera, Williams, Conley, and Rupp (2006) investigated differences between institutional investors in the United Kingdom and the United States regarding CSR. Using a model of instrumental, relational, and moral motives, they claimed that the feature of the institutional investor could be accounted for by a difference between corporate governance arrangements in the United Kingdom and the United States. In the United Kingdom, pension funds and insurance companies have substantial share among

the institutional investors and they usually focus on the long term. In the United States, by contrast, mutual funds are the dominant institutions, and they basically have a shorter-term vision. Aguilera et al. (2006) found that investors with a longer-term perspective tended to take a firm's social and environmental behavior into account in their investment decisions. Additionally, institutional investors' preferences regarding a firm's CSR activities in the United Kingdom are encouraged by the British government, which sponsored "best practices" institutional investors. For example, the Myners Committee Report (Myners, 2001) urged investors to intervene in the companies when they could expect firm-value increase.

Though Fukukawa and Moon (2004) and Matten and Moon (2008) pointed out that Japanese MNCs had been employing explicit CSR or U.S.-style CSR during the past decade, Japanese and European firms still seem to share similar characteristics such as high bank ownership, long-term employment, coordination and control systems based on long-term partnerships, and, therefore, may have similar approaches to stakeholders or CSR policies. Gjølberg (2009) provided evidence for this claim. As in the United Kingdom, pension funds and insurance companies that focus on long-term investment policy are also the main players among institutional investors in Japan. From the logic presented above, I propose my eighth hypothesis as follows.

<Hypothesis 8>
Investors' responses to CSR-related announcements in Japan are similar to those of Europe, based on their business system and institutional investors' policy.

From the standpoint of the consumer, as explained in Section 2.2, the magnitude of impact may be smaller in Japan than found in studies of Western-based firms because the responses from consumers for, or against CSR-related products or activities are questionable.

2.6. Related Literature

This thesis contributes to several strands of research. First, it is related to the literature studying the impacts of CSR on firms' value. Whereas some researchers

presented negative or neutral relationships between CSR and firms' value (e.g., Berman, Wicks, Kotha, & Jones, 1999; Cheng, Hong, & Shue, 2013; Fisher-Vanden & Thorburn, 2011; Hamilton, Jo, & Statman, 1993; López, Garcia, & Rodriguez, 2007; McWilliams & Siegel, 2000, 2001; Schröder, 2007; Surroca, Tribó, & Waddock, 2010; Zhao & Murrell, 2016), a positive relationship was found in many other studies. Waddock and Graves (1997), Orlitzky, Schmidt, and Rynes (2003), Allouche and Laroche (2005), and Margolis et al. (2009) conducted a meta-analysis of studies examining the relationship between CSR and financial performance, and found a positive link between them. Cochran and Wood (1984) investigated the relationship between CSR and financial performance using a large dataset, logit model, and industry-specific control groups. They concluded that the average age of corporate assets was found to be highly correlated with social responsibility ranking. Russo and Fouts (1997) obtained similar results which indicated that "it pays to be green" and this relationship strengthened with industry growth with an ordinary least squares (OLS) analysis of 243 firms over two years, using independently developed environmental ratings. Konar and Cohen (2001), Kacperczyk (2009), Pfarrer et al. (2010), Barnett and Salomon (2012), Henisz, Dorobantu, and Nartey (2014), Flammer (2015a, 2015b, 2018), Flammer and Kacperczyk (2016), Flammer and Luo (2017), and Flammer and Bansal (2017) also support this idea.

Analyses 1 and 2 in this thesis have an advantage over those mentioned above because it succeeds in mitigating the endogeneity problem. By using an event study, high-frequency point-in-time CSR observations enable me to precisely measure both the dates and information content of the events, and reduce both the measurement error and reverse causality problem. This research is not the first to employ the event study methodology in the CSR-related literature. A substantial number of studies using the event study adopted addition and exclusion from indexes as the event data. Some employed the Dow Jones Sustainability Index (Cheung, 2011; Cheung & Roca, 2013; Consolandi, Jaiswal-Dale, Poggiani & Vercelli, 2009; Hawn et al., 2018; Lackmann et al., 2012; Ramchander et al., 2012; Robinson, Kleffner & Bertels, 2011), and others chose the FTSE4Good Index (Clacher & Hagendorff, 2012; Curran & Moran, 2007). Edmans (2011, 2012) showed the portfolio of the "100 Best Companies to Work For in

America" enjoyed significantly more positive earnings surprises and announcement returns.

These studies addressed endogeneity problems accompanied by the empirical analysis of CSR by using the event study methodology and this study benefited from their contributions. They, however, still suffered from a limited number of observations. Also, they failed to break down the impacts by main shareholder, event category, year, industrial category and firm size which I will do in this thesis in analysis 1. Krüger's (2015) study was particularly influential on this study. He examined the shareholder value implications of positive and negative CSR events in the short term by using an original dataset collected from KLD newsletters. Godfrey et al. (2009) and Flammer (2013) also used unique event datasets extracted from the *Wall Street Journal*. Other than news announcements, mergers and acquisitions announcements (Aktas, Bodt, & Cousin, 2011; Deng et al., 2013) and Community Benefits Agreements (Dorobantu & Odziemkowska, 2017) are also used as event data.

This thesis improves on the above-mentioned studies in two ways. First, the larger dataset allows me to obtain statistically accurate results. I used 6,295 observations in my first analysis, whereas Krüger (2015), Godfrey et al. (2009), and Flammer (2013) used 2,116, 178, and 273 samples, respectively. Second, this thesis focuses on Asian countries represented by Japanese firms and compares the results with the United States and Europe. As Cheung and Roca (2013) noted, few empirical studies have investigated the Asia-Pacific region. They examine the impact on returns, risk, and liquidity of stocks in the Asia-Pacific markets when included in and deleted from the Dow Jones Sustainability World Index using an event study. This thesis will provide some insight into their findings.

Though it is not discussed in this thesis, another strand of research concerns the "insurance-like" function of CSR activities. Godfrey et al. (2009) studied whether CSR activity offers insurance-like protection and found that institutional CSR activities aiming at a firm's secondary stakeholders or society at large provided an "insurance-like" benefit, while technical CSRs targeting a firm's trading partners, yield no such benefits. Abe et al. (2017) used firm-level CSR activity and product recall data in the Japanese automobile manufacturing industry to reported that firms engaging in CSR activity enjoyed a 2.5% to 3% abnormal return on their stock price when recalls are

announced, suggesting that CSR functions as insurance for a firm's reputation. Flammer (2013) and Shiu and Yang (2017) also investigated similar issues.

CHAPTER 3.   Short-Term Analysis of the Relationship between CSR-Related Announcements and Investors' Reaction in Japan (Analysis 1)

Analysis 1, the main analysis of this thesis, aims to delineate the relationship between investors' response and the announcement of Japanese firms' CSR-related news, using the short-term event study method. Uniquely collected news data by the author allow this analysis to take a deeper approach to studying the nature of the effects. This analysis provides some evidence for hypotheses 2, 3, 5, 6, and 7, which refer to the relationship between CSR-related announcements and investors' reaction, and relevant issues.

3.1.   Data and Variables

This analysis investigates investors' response to the announcement of CSR-related news in Japan. For this purpose, I employed Nikkei Telecom, one of the largest and most reliable business databases in Japan, to search the Nihon Keizai Shimbun (the Nikkei) for relevant news coverage, and obtained the stock market and the market index data (TOPIX) from Thomson Reuters DataStream. The sample period was from January 1, 2001 to December 31, 2016 (16 years). I chose this period to cover major events like the Great East Japan earthquake, as well as to include the periods other studies adopted, for comparison. To identify the Nikkei articles about CSR-related issues and to categorize them by feature, I searched Nikkei Telecom using the keywords shown in Table 3.1. For the issue area, its criteria and clarification of "positive" and "negative" news, I followed "How to Use KLD STATS & ESG Ratings Definitions" published by Kinder, Lydenberg, and Domini Research and Analytics (KLD) (for details, see appendix). In this thesis, however, I excluded the corporate governance issue to focus on firms' activities for non-shareholding stakeholders (see Krüger 2015). I then checked each article to examine if it was actually about CSR-related announcements and classified it as "positive news" or "negative news." To obtain the final dataset, I excluded articles in the following categories (see Flammer, 2013; Krüger, 2015): (1) reporting both positive and negative news at the same time or in the same day, (2) the

firm was not publicly traded on a Japanese stock market, (3) no stock market information was available during the estimation and the event period, (4) ambiguous timestamps, (5) reporting previous events, (6) confounding contents (not clear if it is positive or negative), (7) reporting with financial news, (8) duplicating with other news in the target window. A possible concern related to this analysis is that the keywords might be too narrow. As Flammer (2013) explained, however, this could only reduce the power of tests due to the omission of potentially relevant articles and would not lead to any statistical bias in the analysis. These criteria left me with a sample of 6,295 events: 4,169 positive and 2,126 negative events from 879 Japanese firms. Table 3.2 shows the distribution of events by issue area and Table 3.3 reports summary statistics and correlations.

Table 3.1: Keywords for CSR-Relevant News

Issue area	Positive Keywords	Negative Keywords
Community	Community(地域)、Charity(寄付、基金)、Support（支援、貢献）、Volunteer(ボランティア)	Tax dispute (脱税、粉飾決算)、law suit (訴訟)・demonstration (デモ)・controversy (反発) in relation with community issue
Diversity	Diversity（ダイバーシティー）、woman(女性)、Disabled（障がい者）、Work/life benefit(ワークライフ　バランス)、Childcare(子育て)、Elder care(介護)、Gay&Lesbian(ゲイ、レズビアン)、Gender identity disorder(性同一性障害)	Fine or civil penalties（罰金)・Law suit (訴訟)・Demonstration (デモ)・Controversy (反発) in relation with diversity issue
Employee relations	Employee relations（労働環境、労働条件)、Union (組合)、No-Layoff Policy（無解雇方針)、Employee Involvement(従業員の参画)、Retirement Benefit(退職手当)、Health and Safety（従業員の健康・安全管理)	Poor Employee relations（労働環境、労働条件)、Poor Union (組合)、Poor Retirement Benefit(退職手当)、Poor Health and Safety（従業員の健康・安全管理)
Environment	Beneficial Products and Services(環境を考慮した商品・サービス)、Pollution Prevention（公害・環境汚染防止)、Recycling(リサイクル)、Clean Energy(クリーンエネルギー)、Communications(報告システム)、Property,Plant and Equipment(工場、プラント、施設の環境対策)、Management System（環境管理システム)	Fine or civil penalties（罰金)・Law suit (訴訟)・Demonstration (デモ)・Controversy (反発) in relation with Environmental issue such as Hazardous Waste(汚染廃棄物) and Regulatory Problem（環境基準違反)、Ozone Depleting Chemicals(オゾン層破壊物質)、Substantial Emissions(有害化学物質の排出)、Agricultural Chemicals（農薬の生産)、Climate Change（気候変動)、sale of oil or coal and its deliertive fuel products (石炭・石油・石油関連商品の販売又は使用)
Human rights	Positive record in South Africa（南アでの社会貢献)、Indigenous People（原住民)、Labour Right（労働者の権利)	Business or investment in Burma（ミャンマーでの営業・投資)、Concerns in Mexico (till 2002)（メキシコでの諸問題)、Indigenous People（原住民)
Product	Quality(質)、R&D/Innovation（開発研究新)、Benefits to Economically Disadvantaged(貧困層への貢献)	Fine or civil penalties（罰金)・Law suit (訴訟)・Demonstration (デモ)・Controversy (反発) for Product Safety（商品の安全性)、Marketing/Contracting(販売手法,契約)、Antitrust(独占禁止法)

Source: Adapted from Kinder, Lydenberg, and Domini Research and Analytics (KLD), "How to Use KLD STATS & ESG Ratings Definitions."

Table 3.2: The Distribution of Events by Issue

Event category	Positive news	Negative news
Community	208	147
Diversity	857	6
Employee relations	340	540
Environment	1,468	37
Human rights	2	452
Product	1,294	944
Total	4,169	2,126

Table 3.3: Summary Statistics and Correlations of Variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. CAR[-5, 0]	1											
2. CAR[-1, 0]	0.626	1										
3. CAR[-1, 1]	0.5208	0.8437	1									
4. CAR[0, 1]	0.3774	0.5936	0.847	1								
5. CAR[0, 5]	0.2414	0.3658	0.536	0.6255	1							
6. CAR[-5, 5]	0.7275	0.4634	0.5598	0.483	0.7839	1						
7. CSRposi	0.0532	0.0679	0.07	0.0537	0.0186	0.035	1					
8. CSRnega	-0.0532	-0.0679	-0.07	-0.0537	-0.0186	-0.035	-1	1				
9. lsize	-0.0113	-0.0015	0.0022	0.0037	0.0049	-0.0042	0.042	-0.042	1			
10. ROA	0.008	0.0109	0.0105	0.0045	0.0006	0.005	0.0545	-0.0545	-0.014	1		
11. MB	-0.0281	-0.0227	-0.0154	-0.0084	-0.0197	-0.0296	0.0151	-0.0151	-0.051	0.1071	1	
12. year	-0.0004	0.0001	-0.0096	-0.0075	0.0159	0.0102	-0.0795	0.0795	0.0814	0.0804	-0.0366	1
Mean	-0.003	-0.016	-0.073	-0.057	-0.045	-0.049	0.673	0.327	21.369	2.045	1.352	2,009
Std. Dev.	2.837	1.789	2.182	1.878	3.043	3.990	0.469	0.469	1.822	4.983	3.400	4.482
Min	-25.124	-26.973	-37.341	-26.360	-64.518	-68.335	0.000	0.000	14.207	-83.790	-74.450	2,001
Max	44.689	22.765	20.994	30.696	45.499	60.042	1.000	1.000	26.421	65.870	137.350	2,016

Note: "CAR" is Cumulative Abnormal Return

As I mentioned in the previous section, reactions of individual, institutional, and foreign investors may be different in timing and magnitude. To clarify the differences in the responses between these three shareholders, I use "Shareholding Ratio by Shareholder Type (on a share number basis)" from an annual securities report of each firm issued in 2017–2018 collected through the eol[1], a comprehensive database on corporate information mainly for Japanese-listed companies. I categorize firms into "individual investors main," "institutional investors main," and "foreign investors main" firm by identifying which type of shareholder has the most of their stocks. To be precise, firms whose stocks are mostly owned by "Individuals and others" are

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[1] The database provided by PRONEXUS INC. It delivers comprehensive data on corporate information, mainly for Japanese-listed companies with both financial and non-financial information. Further information is available at: https://www.pronexus.co.jp/solution/database/eol_eng.html (as of January 7, 2020)

categorized into "individual investors main" firms, firms whose stocks are held by "Financial Institutions" and "Securities Companies" the most are identified as "institutional investors main" firms, and when foreigners hold most of the firms' stocks, the firms are called "foreign investors main" firms. For institutional investors, some researchers like Miyajima and Hoda (2015) point out that the purpose of holding the stocks, and thus the behaviors toward investment between "banks, insurance companies" and "trusts", which are included in "Financial Institutions," are different. In this study, however, I will not distinguish among them because firms do not disclose a breakdown in their annual securities reports. Moreover, as I explained in the previous section, the ratio of banks and insurance companies to whole shareholders and "Financial Institutions" is getting smaller, to 7.1% and 27.1% in 2017, respectively. On the other hand, the ratio of trusts to whole shareholders and "Financial Institutions" is increasing, to 18.5% and 70.2% in 2017, respectively. As for foreign investors, though the category consists of individuals and institutions, it can be taken as "foreign institutional investors" because the ratio of foreign individuals is negligibly small.

3.2. Methodology

3.2.1. Endogeneity Problems in CSR

According to Wooldridge (2013), endogeneity is defined as "the presence of an explanatory variable in a multiple regression model that is correlated with the error term, either because of an omitted variable, measurement error, or simultaneity." If endogeneity exists or the zero conditional mean does not hold, the OLS estimators will be biased from the population parameters. Studies on CSR could be affected by this. As Krüger (2015) noted, the measurement error might arise because of (1) the difficulty in accurately quantifying CSR given the qualitative nature of many CSR-related issues, (2) the fact that no legally binding standards exist, and (3) the difficulty in observing firms' choices regarding CSR for outsiders. Many researchers, including Deng et al. (2013), Krüger (2015), and Di Giuli & Kostovetsky (2014), are concerned about the existence of simultaneity, especially reverse causality. Krüger (2015) reported that more

responsible firms tend to be more profitable but at the same time, more profitable firms may invest more resources in CSR.

3.2.2. The Event Study

To overcome measurement error and the reverse causality problem, researchers, including Krüger (2015), Godfrey et al. (2009), and Flammer (2013), focused on outcomes of corporate behavior in the form of publicly observable events by implementing a short-term event study methodology. Whereas prior research mainly relied on largely time-invariant CSR ratings, high-frequency point-in-time CSR measures enable us to precisely measure both the date and information content of the events, and credibly address the measurement error problem. Moreover, the short-term event study methodology also mitigates the reverse causality issue because the stock market reaction in the short term provides a direct observation of the stock returns associated with an event, and the precise knowledge of the timing as well as the information contained in an event could exclude alternative explanations for changes in the stock returns (see Krüger 2015).

For this reason, I implement the event study, which was first introduced by Dolley (1933a) and applied to economic issues by Mackinlay (1997) to mitigate statistical issues such as reverse causality. The event study is an analytical tool to assess the impact of an event on the value of a firm. It analyzes the difference between the returns that would have been expected if the analyzed event did not take place and the returns that were caused by the respective event.

To explain the technicalities of the event study, I refer to Mackinlay (1997) and Krüger (2015). Appraisal of the event's impact starts from identifying the period that the stock prices are affected by the event. This period is called the event window. As illustrated in Figure 3.1, 0 is the day that the event occurs. The pre-event/estimation window, from $t = T_0$ to $t = T_1$ is a certain period, with reference to a trading day, not a calendar day, before the event and this is used to estimate firms' normal returns. The event window, from $t = T_1 + 1$ to $t = T_2$, including the date of the event, is the period affected by the events and the cumulative abnormal return (CAR) of this period usually

becomes a target of interest. Following McKinlay (1997) and others, I include the periods prior to the event to observe investors' anticipation mainly caused by information leakage. The post-event window from $t = T_2 + 1$ to $t = T_3$ is the period after the event and the CAR of this period may also be of interest. In my study, I use 250 trading days ending 50 days before the event date as the pre-event window and analyze the statistical properties of the 2-day[−1, 0], 3-day[−1, 1], and 2-day[0, 1] CARs around the event date. Though Aktas et al. (2011), Cheung (2011), Lackmann et al. (2012), Flammer (2013), Krüger (2015), and Hawn, Chatterji, and Mitchell (2018) tried wider windows, I kept the windows short because, as McWilliams, Siegel, and Teoh (1999) mentioned, expansion of the event windows resulted in raising the amount of "noise" relative to information, or in other words, increasing confounding concurrent events reduces the power of the test statistic.

Though the event study is one of the effective methods to mitigate endogeneity problems with precise measurement of firm performance, there are several challenges to overcome. Based on the analysis of inconsistencies in the result in the South African divestment studies using the event study, McWilliams et al. (1999) demonstrated the critical research design and methodological issues in any event study: (1) defining the event and constructing an appropriate sample, (2) the length of the window used to compute abnormal returns, (3) accounting for the leakage of information, (4) sample size, and (5) controlling for industry effects. In my study, defining the event and constructing an appropriate sample (1), the length of the window used to compute abnormal returns (2) and sample size (4) are explained in Section 5. Controlling for industry effects (5) does not apply in this study because the industrial category of samples is not biased. As for "accounting for the leakage of information" including shareholder meetings, public forums, press releases, and news articles indicating that discussions are underway, McWilliams et al. (1999) pointed out that, with information leakage, researchers would find it difficult to identify the date on which investors were able to react to the new information and to determine what prior information investors might have had. To mitigate this problem, they suggested a researcher identify relevant prior events and control for their effects. More precisely, they proposed building short windows and testing for abnormal returns around these leakage events, which could be added to the CAR. In this study, therefore, I added three windows, 6-day [−5, 0], 6-day

[0, 5], and 11-day [–5, 5] to capture the investors who obtained and responded to information earlier and later.

Figure 3.1: Event Window
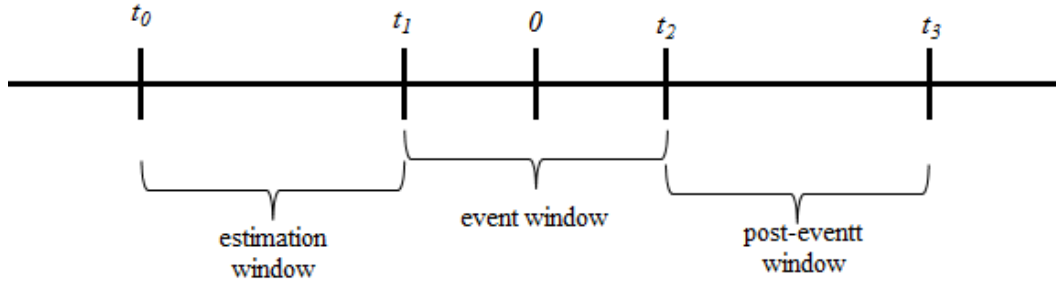
The event study requires the rate of return of the stock price and the index, calculated as follows:

$$R_{it} = \frac{P_{it}-P_{it-1}}{P_{it-1}}, \quad R_{mt} = \frac{T_t-T_{t-1}}{T_{t-1}} \cdots (3.1)$$

where P_{it} represents the stock price of the ith firm at time t, R_{it} is its rate of return, T_t refers to TOPIX at time t, and R_{mt} is its rate of return.

To investigate the effect of an event, we must evaluate the abnormal returns of a firm. Abnormal returns are the difference between the real rate of return and the normal return (the expected return if an event does not occur). To calculate the normal return, I employ the following market model consistent with Mackinlay (1997), Krüger (2015), and other relevant studies:

$$r_{i,t} = \alpha_i + \beta_i t_{m,t} + v_{i,t}, \cdots (3.2)$$

where $E[v_{i,t}] = 0$ and $Var[v_{i,t}] = \sigma_{vi}^2$. α_i and β_i are unknown parameters to be estimated by OLS and used to calculate the normal return. The abnormal returns ($AR_{i,t}$) are calculated by deducting the estimated returns from the real returns.

$$AR_{i,t} = r_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i r_{m,t}) \cdots (3.3)$$

After summing the abnormal returns of firm i in period t, the cumulative abnormal returns are calculated as follows:

$$CAR_i(t_i, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \cdots (3.4)$$

To test the null hypothesis that the event does not affect the stock returns and to examine the significance of the results, I adopt Boehmer, Masumeci, and Poulsen's (1991) t-test (hereafter referred to as the BMP-test), which is adjusted to allow event-induced variance. The BMP-test is widely accepted in relevant studies, such as Cheung (2011), Cheung and Roca (2013), and Krüger (2015) as a more robust test.

3.3. Results

3.3.1. Overall Events

To examine if CSR is in the best interest of investors, I examine the impact of the CSR-related news announcements. As I explained in the previous section, I employ the 2-day [−1, 0], 3-day [−1, 1], and 2-day [0, 1] windows to capture the impact of the announcement precisely. Other than those windows, I also add three windows, 6-day [−5, 0], 6-day [0, 5], and 11-day [−5, 5] to be robust to both information leakage and delay of information.

Table 3.4: Results of the Event Study (Overall Events)

windows	Positive news			Negative news		
	mean	t_{BMP}	observations	mean	t_{BMP}	observations
[-5, 0]	0.0904**	(2.176)	4,010	-0.196***	(-2.692)	1,949
[-1, 0]	0.0576**	(2.324)	4,169	-0.187***	(-4.037)	2,126
[-1, 1]	0.0227	(0.771)	4,169	-0.302***	(-5.199)	2,126
[0, 1]	0.00965	(0.397)	4,169	-0.213***	(-4.170)	2,126
[0, 5]	-0.0116	(-0.273)	4,010	-0.113	(-1.367)	1,949
[-5, 5]	0.0338	(0.601)	4,010	-0.219**	(-2.028)	1,949

Note: Asterisks (*) show the statistical significance of the means of CARs by *t*-test where *p<0.10, **p<0.05, ***p<0.01.

エラー! 参照元が見つかりません。 displays the results of the event study from 2001 to 2016. It reports the CAR means and their BMP t-statistics for overall events. For positive news, the result shows that the impacts are positive and significant before the announcement, namely the [–5, 0] and [–1, 0] windows. Afterward, however, the impact becomes not significant. The results show that CARs of listed firms are larger than the market index (TOPIX) for the [–5, 0] and [–1, 0] windows by 0.0904% and 0.0576%, respectively. As for negative announcements, the impacts are negative and significant for all windows excluding [0, 5], which demonstrates that CARs of listed firms are less than the market index for those windows. These results indicate that investors respond positively before positive news announcements, and negatively before and after negative news announcements. This analysis also shows significant results for the [–5, 0] windows for both positive and negative news, which illustrate that investors react almost a week before the announcement, demonstrating the existence of information leakage.

3.3.2. Results by Type of Shareholder

To examine if individuals, institutions, and foreign investors respond differently, I categorized firms into "Japanese individuals main," "Japanese institutions main," and "foreign investors main" based on the type of main shareholder and conducted the event study for each group. The results are shown in Table 3.5.

Table 3.5: Results of the Event Study (by Shareholder Type)

	windows	Positive news mean	Positive news t_{BMP}	Positive news observations	Negative news mean	Negative news t_{BMP}	Negative news observations
Individual	[-5, 0]	0.310**	(2.144)	422	0.0614	(0.204)	249
	[-1, 0]	0.159**	(2.359)	433	-0.109	(-0.724)	260
	[-1, 1]	0.167*	(1.889)	433	-0.275	(-1.404)	260
	[0, 1]	0.107	(1.359)	433	-0.211	(-1.027)	260
	[0, 5]	-0.0541	(-0.411)	422	-0.0544	(-0.186)	249
	[-5, 5]	0.149	(0.783)	422	0.0552	(0.121)	249
Institutions	[-5, 0]	0.0548	(0.905)	1,766	-0.195**	(-2.023)	837
	[-1, 0]	0.0594	(1.574)	1,834	-0.180***	(-3.003)	926
	[-1, 1]	0.0380	(0.847)	1,834	-0.263***	(-3.626)	926
	[0, 1]	0.0322	(0.851)	1,834	-0.145**	(-2.305)	926
	[0, 5]	0.0292	(0.469)	1,766	-0.109	(-0.904)	837
	[-5, 5]	0.0291	(0.359)	1,766	-0.254*	(-1.728)	837
Foreign	[-5, 0]	0.0711	(0.889)	1,159	-0.319**	(-2.584)	445
	[-1, 0]	0.0168	(0.371)	1,217	-0.201**	(-2.501)	481
	[-1, 1]	-0.0175	(-0.338)	1,217	-0.210**	(-2.269)	481
	[0, 1]	-0.0256	(-0.618)	1,217	-0.108	(-1.383)	481
	[0, 5]	-0.0332	(-0.410)	1,159	0.142	(1.006)	445
	[-5, 5]	0.0279	(0.259)	1,159	-0.0986	(-0.574)	445

Note: Asterisks (*) show statistical significances of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

As Table 3.5 shows, "Japanese individuals main" firms earn positive and significant CARs in [–5, 0], [–1, 0] and [–1, 1] windows for positive news, and no significant result for negative news. These results demonstrate that Japanese individual investors respond positively before and after CSR-related positive news but do not react to negative news. "Japanese institutions main" firms generate no significant result for positive news, and negative and significant CARs for all windows, excluding [0, 5] for negative news. "Foreign investors main" firms also obtain no significant result for positive news, and negative and significant CARs in [–5, 0], [–1, 0] and [–1, 1] windows for negative news. These results illustrate that Japanese institutional investors and foreign investors, mainly European institutions, are not responsive to positive news but do react negatively before and after negative news. In addition, this reaction is stronger for Japanese institutions than for foreign investors. Another finding from these results is that the significant findings for the [–5, 0] windows for both positive news for "Japanese individuals main"

firms and negative news for "Japanese institutions main" and "foreign investors main" firms indicate that investors obtain information earlier than its announcement; in other words, the existence of information leakage.

3.3.3. Results by Event Category and Cross-Category Features

To investigate if investors are interested in any particular event category, I sorted events by issues: (1) community, (2) diversity, (3) employee relations, (4) environment, (5) human rights, and (6) product, based on KLD or Krüger's (2015) classification. I also categorized the news into two cross-category features: charity-based and developing-country-related. The results are shown in Table 3.6 for both positive and negative news. Shaded areas represent results with an insufficient number of observations.

Table 3.6: Results of the Event Study (by News Category and Cross-Category Features)

	windows	Positive news mean	Positive news t_{BMP}	Positive news observations	Negative news mean	Negative news t_{BMP}	Negative news observations
Event category							
Community	[-5, 0]	0.102	(0.543)	199	-0.298	(-1.201)	143
	[-1, 0]	0.0391	(0.349)	208	-0.345***	(-2.700)	147
	[-1, 1]	-0.0282	(-0.235)	208	-0.385**	(-2.255)	147
	[0, 1]	-0.101	(-1.227)	208	-0.258**	(-2.128)	147
	[0, 5]	0.0704	(0.431)	199	-0.0370	(-0.174)	143
	[-5, 5]	0.214	(0.847)	199	-0.133	(-0.353)	143
Diversity	[-5, 0]	0.0726	(0.806)	831	0.354	(0.491)	5
	[-1, 0]	0.0434	(0.845)	857	-0.258	(-0.796)	6
	[-1, 1]	0.0184	(0.315)	857	-0.490	(-0.816)	6
	[0, 1]	-0.0277	(-0.606)	857	-0.129	(-0.201)	6
	[0, 5]	-0.0289	(-0.323)	831	-0.197	(-0.131)	5
	[-5, 5]	0.0365	(0.317)	831	0.193	(0.163)	5
Employee relations	[-5, 0]	0.195	(1.217)	324	0.223	(1.262)	509
	[-1, 0]	0.134*	(1.782)	340	0.0777	(0.697)	540
	[-1, 1]	0.133	(1.218)	340	-0.0512	(-0.388)	540
	[0, 1]	0.113	(1.215)	340	-0.139	(-1.080)	540
	[0, 5]	0.0804	(0.549)	324	-0.0124	(-0.0696)	509
	[-5, 5]	0.156	(0.772)	324	0.217	(0.890)	509
Environment	[-5, 0]	-0.0324	(-0.477)	1,425	-0.0299	(-0.0727)	34
	[-1, 0]	0.0158	(0.367)	1,468	-0.243	(-1.209)	37
	[-1, 1]	-0.0588	(-1.133)	1,468	-0.146	(-0.493)	37
	[0, 1]	-0.0719*	(-1.668)	1,468	0.232	(0.999)	37
	[0, 5]	-0.0660	(-0.868)	1,425	0.208	(0.414)	34
	[-5, 5]	-0.101	(-1.042)	1,425	0.0593	(0.0993)	34
Human rights	[-5, 0]	1.173	(1.197)	2	-0.130	(-1.152)	436
	[-1, 0]	1.230	(4.013)	2	-0.102	(-1.457)	452
	[-1, 1]	2.002	(4.631)	2	-0.198**	(-2.206)	452
	[0, 1]	2.666	(4.113)	2	-0.0473	(-0.643)	452
	[0, 5]	4.671	(1.099)	2	0.0998	(0.760)	436
	[-5, 5]	3.950	(1.041)	2	-0.0932	(-0.544)	436
Product	[-5, 0]	0.214***	(2.813)	1,229	-0.482***	(-4.437)	822
	[-1, 0]	0.0955**	(2.081)	1,294	-0.352***	(-4.899)	944
	[-1, 1]	0.0942*	(1.767)	1,294	-0.487***	(-5.238)	944
	[0, 1]	0.113**	(2.515)	1,294	-0.346***	(-4.424)	944
	[0, 5]	0.0180	(0.240)	1,229	-0.315**	(-2.246)	822
	[-5, 5]	0.121	(1.191)	1,229	-0.583***	(-3.415)	822
Cross-category features							
Charity-based	[-5, 0]	-0.000205	(-0.000949)	158			0
	[-1, 0]	-0.0419	(-0.297)	163			0
	[-1, 1]	-0.106	(-0.645)	163			0
	[0, 1]	-0.0472	(-0.372)	163			0
	[0, 5]	0.129	(0.642)	158			0
	[-5, 5]	0.111	(0.380)	158			0
Developing country -related	[-5, 0]	-0.169	(-0.997)	178	-0.0985	(-0.378)	61
	[-1, 0]	-0.140	(-1.509)	187	-0.180	(-1.235)	69
	[-1, 1]	-0.107	(-0.927)	187	-0.398**	(-2.145)	69
	[0, 1]	-0.0971	(-1.038)	187	-0.215	(-1.654)	69
	[0, 5]	0.144	(0.841)	178	-0.207	(-0.842)	61
	[-5, 5]	0.0973	(0.394)	178	-0.340	(-0.859)	61

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01. Shaded areas represent an insufficient number of observations.

As shown in Table 3.6, "Products" and "Employee relations" generate positive and significant CARs before and after positive news, whereas "Environment" shows a negative and significant impact only in the [0, 1] window. These results demonstrate that investors respond positively to positive news regarding products and employee-related news before and after the announcement, and react negatively after positive environment-related news announcements. For negative news, "Products" and "Community" present negative and significant results before and after the announcement. "Human rights" also earns negative and significant impact only in the [–1, 1] window. These results illustrate that investors react negatively both before and after negative news announcements on products, community, and human rights issues. This analysis also shows that significant results for the [–5, 0] windows for both positive and negative product-related news means information leakage exists.

As for the cross-category features, charity-based news earns no significant results for either positive or negative news. Developing-country-related news generates no significant result for positive news, and negative and significant impact in the [–1, 1] window for negative news. From these results, investors seem to react only to negative news related to developing countries.

3.3.4.　Changes in Investors Behavior by Year

Though the market trend was excluded through computing abnormal returns in this analysis, investors may change their investment policy because of a big value-changing shock such as the tragic Great East Japan Earthquake. To investigate this issue, I divided events into two parts by year, 2009 to 2012, and analyze the change of CARs.

Table 3.7: Results of the Event Study (by Year)

	windows	Positive news			Negative news		
		mean	t_{BMP}	observations	mean	t_{BMP}	observations
Before 2009 (Year≦2009)	[-5, 0]	0.0648	(1.155)	2,182	-0.0670	(-0.554)	902
	[-1, 0]	0.0580*	(1.742)	2,259	-0.245***	(-3.367)	969
	[-1, 1]	0.0516	(1.302)	2,259	-0.367***	(-3.980)	969
	[0, 1]	0.0408	(1.264)	2,259	-0.270***	(-3.081)	969
	[0, 5]	-0.0348	(-0.635)	2,182	-0.120	(-0.873)	902
	[-5, 5]	-0.0195	(-0.258)	2,182	-0.0461	(-0.260)	902
After 2009 (Year≧2010)	[-5, 0]	0.121*	(1.955)	1,828	-0.307***	(-3.556)	1,047
	[-1, 0]	0.0571	(1.539)	1,910	-0.139**	(-2.331)	1,157
	[-1, 1]	-0.0114	(-0.259)	1,910	-0.248***	(-3.360)	1,157
	[0, 1]	-0.0271	(-0.734)	1,910	-0.165***	(-2.824)	1,157
	[0, 5]	0.0161	(0.242)	1,828	-0.107	(-1.087)	1,047
	[-5, 5]	0.0973	(1.158)	1,828	-0.367***	(-2.829)	1,047
Before 2010	[-5, 0]	0.0484	(0.964)	2,534	-0.111	(-0.993)	994
	[-1, 0]	0.0518*	(1.742)	2,631	-0.251***	(-3.811)	1,083
	[-1, 1]	0.0413	(1.160)	2,631	-0.369***	(-4.422)	1,083
	[0, 1]	0.0342	(1.171)	2,631	-0.272***	(-3.438)	1,083
	[0, 5]	-0.00990	(-0.199)	2,534	-0.152	(-1.210)	994
	[-5, 5]	-0.00765	(-0.113)	2,534	-0.118	(-0.720)	994
After 2010	[-5, 0]	0.163**	(2.229)	1,476	-0.284***	(-3.075)	955
	[-1, 0]	0.0675	(1.538)	1,538	-0.120*	(-1.849)	1,043
	[-1, 1]	-0.00911	(-0.177)	1,538	-0.232***	(-2.879)	1,043
	[0, 1]	-0.0324	(-0.753)	1,538	-0.151**	(-2.372)	1,043
	[0, 5]	-0.0145	(-0.186)	1,476	-0.0724	(-0.679)	955
	[-5, 5]	0.105	(1.067)	1,476	-0.324**	(-2.317)	955
Before 2011	[-5, 0]	0.0605	(1.270)	2,794	-0.131	(-1.211)	1,066
	[-1, 0]	0.0596**	(2.106)	2,897	-0.231***	(-3.625)	1,158
	[-1, 1]	0.0360	(1.061)	2,897	-0.346***	(-4.278)	1,158
	[0, 1]	0.0240	(0.860)	2,897	-0.245***	(-3.245)	1,158
	[0, 5]	-0.0461	(-0.959)	2,794	-0.133	(-1.098)	1,066
	[-5, 5]	-0.0354	(-0.544)	2,794	-0.145	(-0.901)	1,066
After 2011	[-5, 0]	0.159*	(1.929)	1,216	-0.274***	(-2.948)	883
	[-1, 0]	0.0530	(1.072)	1,272	-0.135**	(-1.997)	968
	[-1, 1]	-0.00751	(-0.130)	1,272	-0.249***	(-2.998)	968
	[0, 1]	-0.0229	(-0.473)	1,272	-0.175***	(-2.626)	968
	[0, 5]	0.0676	(0.778)	1,216	-0.0893	(-0.813)	883
	[-5, 5]	0.193*	(1.766)	1,216	-0.308**	(-2.226)	883
Before 2012	[-5, 0]	0.0508	(1.111)	3,023	-0.155	(-1.608)	1,261
	[-1, 0]	0.0501*	(1.810)	3,136	-0.209***	(-3.627)	1,365
	[-1, 1]	0.0160	(0.486)	3,136	-0.328***	(-4.574)	1,365
	[0, 1]	0.00448	(0.165)	3,136	-0.254***	(-3.834)	1,365
	[0, 5]	-0.0639	(-1.369)	3,023	-0.123	(-1.161)	1,261
	[-5, 5]	-0.0527	(-0.843)	3,023	-0.153	(-1.088)	1,261
After 2012	[-5, 0]	0.212**	(2.242)	987	-0.271**	(-2.538)	688
	[-1, 0]	0.0802	(1.480)	1,033	-0.148*	(-1.895)	761
	[-1, 1]	0.0432	(0.670)	1,033	-0.255**	(-2.580)	761
	[0, 1]	0.0254	(0.472)	1,033	-0.139*	(-1.764)	761
	[0, 5]	0.149	(1.528)	987	-0.0957	(-0.723)	688
	[-5, 5]	0.299**	(2.423)	987	-0.338**	(-2.077)	688

Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

As Table 3.7 shows, for 2009 and 2010, CARs are positive and significant in the [–1, 0] window before the target year, and in the [–5, 0] window after the target year for positive news. This means investors responded positively only before announcements around the years 2009 and 2010. On the other hand, around years 2011 and 2012 for positive news, the results show positive and significant effects in the [–1, 0] window before the target year, and positive and significant response in the [–5, 0] and [–5, 5] windows after the target year. These results indicate that investors began responding positively not only before announcements but also after announcements around 2011 and 2012. For negative news, a critical difference cannot be found between years. As seen in Table 3.7, results are negative and significant in windows [–1, 0], [–1, 1], and [0, 1] before the target year, and all windows excluding [0, 5] after the target year.

3.3.5.   Ancillary Analysis by Industry Category and Firm Size

As each industrial sector has specific investor groups and behavior, investors' responses may be different between industrial categories. In addition, news announcement may have more of an effect in some industrial categories than others because of the nature of their businesses. To investigate if investor responses differ depending on industrial category, I sorted events by firm's industrial category based on the Tokyo Stock Exchange's categorization: (1) food, (2) energy resources, (3) construction and materials, (4) raw materials and chemicals, (5) pharmaceuticals, (6) automobiles and transportation equipment, (7) steel and nonferrous metals, (8) machinery, (9) electric appliances precision instruments, (10) information technology (IT) and services, other, (11) electric power and gas, (12) transportation and logistics, (13) commercial and wholesale trade, (14) retail trade, (15) banks, (16) financials (excluding banks), (17) real estate. The results are shown in Table 3.8 for both positive and negative news.

Table 3.8: Results of the Event Study (by Industrial Category)

	windows	Positive news			Negative news		
		mean	t_{BMP}	observations	mean	t_{BMP}	observations
Food	[-5, 0]	-0.237	(-1.361)	131	-0.574	(-1.553)	89
	[-1, 0]	-0.0863	(-0.651)	132	-0.689**	(-2.559)	93
	[-1, 1]	-0.188	(-1.221)	132	-0.945**	(-2.442)	93
	[0, 1]	-0.0682	(-0.598)	132	-0.656*	(-1.887)	93
	[0, 5]	-0.167	(-0.855)	131	-0.771**	(-1.992)	89
	[-5, 5]	-0.432*	(-1.873)	131	-0.943**	(-2.074)	89
Energy resources	[-5, 0]	-0.240	(-0.888)	45	0.858	(0.828)	9
	[-1, 0]	0.0519	(0.272)	45	0.589	(0.783)	10
	[-1, 1]	-0.102	(-0.504)	45	-0.0999	(-0.133)	10
	[0, 1]	-0.234	(-1.077)	45	-0.0726	(-0.132)	10
	[0, 5]	-0.197	(-0.496)	45	0.738	(0.920)	9
	[-5, 5]	-0.357	(-0.836)	45	0.777	(0.707)	9
Construction & materials	[-5, 0]	0.430***	(2.816)	298	-0.375	(-0.916)	72
	[-1, 0]	0.210**	(2.082)	301	-0.441	(-1.417)	74
	[-1, 1]	0.0978	(0.834)	301	-0.640	(-1.357)	74
	[0, 1]	0.0748	(0.826)	301	-0.633	(-1.358)	74
	[0, 5]	0.150	(1.008)	298	-1.111	(-1.152)	72
	[-5, 5]	0.389*	(1.927)	298	-1.021	(-0.969)	72
Raw materials & chemicals	[-5, 0]	0.0920	(0.481)	269	-0.273	(-0.820)	111
	[-1, 0]	0.173	(1.301)	274	-0.127	(-0.514)	118
	[-1, 1]	0.169	(1.120)	274	-0.196	(-0.694)	118
	[0, 1]	0.0901	(0.668)	274	-0.157	(-0.695)	118
	[0, 5]	-0.0805	(-0.465)	269	0.160	(0.515)	111
	[-5, 5]	-0.0864	(-0.383)	269	-0.0110	(-0.0257)	111
Pharmaceutical	[-5, 0]	-0.717	(-1.585)	42	-1.073	(-1.737)	12
	[-1, 0]	0.0202	(0.0861)	42	-0.958	(-1.781)	12
	[-1, 1]	0.541	(0.980)	42	-1.143	(-1.549)	12
	[0, 1]	0.286	(0.562)	42	-0.504	(-0.870)	12
	[0, 5]	0.145	(0.230)	42	-0.567	(-0.756)	12
	[-5, 5]	-0.337	(-0.490)	42	-1.320	(-1.320)	12
Automobiles & transportation equipment	[-5, 0]	0.181	(1.501)	503	-0.286**	(-2.418)	605
	[-1, 0]	0.0846	(1.266)	560	-0.197**	(-2.388)	704
	[-1, 1]	0.0322	(0.397)	560	-0.340***	(-3.390)	704
	[0, 1]	0.0239	(0.362)	560	-0.216***	(-2.784)	704
	[0, 5]	0.0925	(0.731)	503	-0.226	(-1.618)	605
	[-5, 5]	0.184	(1.103)	503	-0.451***	(-2.629)	605
Steel & nonferrous metals	[-5, 0]	0.00155	(0.00592)	116	0.0526	(0.139)	54
	[-1, 0]	-0.104	(-0.620)	118	0.00888	(0.0400)	57
	[-1, 1]	-0.213	(-1.118)	118	-0.166	(-0.605)	57
	[0, 1]	-0.0202	(-0.149)	118	-0.00302	(-0.0125)	57
	[0, 5]	0.263	(1.229)	116	-0.320	(-0.976)	54
	[-5, 5]	0.188	(0.533)	116	-0.481	(-1.021)	54
Machinery	[-5, 0]	0.216	(1.203)	150	0.996	(1.261)	69
	[-1, 0]	0.0711	(0.700)	152	0.145	(0.451)	71
	[-1, 1]	0.00211	(0.0182)	152	0.0565	(0.164)	71
	[0, 1]	-0.0832	(-0.821)	152	-0.0979	(-0.191)	71
	[0, 5]	0.381*	(1.800)	150	0.795	(1.099)	69
	[-5, 5]	0.613**	(2.345)	150	1.797	(1.540)	69

(continued)

	windows	Positive news			Negative news		
		mean	t_{BMP}	observations	mean	t_{BMP}	observations
Electric appliances & precision instruments	[-5, 0]	-0.0113	(-0.132)	941	-0.0490	(-0.312)	282
	[-1, 0]	-0.0311	(-0.647)	1,003	-0.0163	(-0.145)	307
	[-1, 1]	-0.0775	(-1.386)	1,003	-0.123	(-0.981)	307
	[0, 1]	-0.0218	(-0.472)	1,003	-0.173	(-1.583)	307
	[0, 5]	-0.215**	(-2.341)	941	0.0793	(0.448)	282
	[-5, 5]	-0.254**	(-2.088)	941	0.0719	(0.334)	282
IT & services, others	[-5, 0]	0.252**	(2.174)	367	-0.132	(-0.363)	106
	[-1, 0]	0.103	(1.375)	374	-0.0321	(-0.155)	108
	[-1, 1]	0.153	(1.635)	374	0.181	(0.668)	108
	[0, 1]	0.136*	(1.709)	374	0.336	(1.370)	108
	[0, 5]	0.144	(1.092)	367	0.326	(1.028)	106
	[-5, 5]	0.319*	(1.894)	367	0.0863	(0.190)	106
Electric power & gas	[-5, 0]	0.225	(1.116)	166	-0.405	(-1.154)	83
	[-1, 0]	0.241**	(2.154)	172	-0.360**	(-1.990)	89
	[-1, 1]	0.138	(0.905)	172	-0.487	(-1.631)	89
	[0, 1]	-0.0186	(-0.136)	172	-0.326	(-1.504)	89
	[0, 5]	-0.0505	(-0.246)	166	-0.107	(-0.278)	83
	[-5, 5]	0.0925	(0.341)	166	-0.309	(-0.471)	83
Transportation & logistics	[-5, 0]	0.00804	(0.0413)	131	-0.341	(-1.462)	94
	[-1, 0]	0.0913	(0.809)	132	-0.301*	(-1.808)	103
	[-1, 1]	0.00866	(0.0649)	132	-0.368*	(-1.678)	103
	[0, 1]	-0.0913	(-0.792)	132	-0.180	(-0.976)	103
	[0, 5]	-0.0321	(-0.122)	131	-0.166	(-0.568)	94
	[-5, 5]	-0.0129	(-0.0423)	131	-0.383	(-1.144)	94
Commercial & wholesale trade	[-5, 0]	0.0164	(0.0836)	203	0.138	(0.515)	119
	[-1, 0]	-0.0497	(-0.459)	208	-0.411**	(-2.306)	127
	[-1, 1]	-0.0929	(-0.702)	208	-0.357	(-1.378)	127
	[0, 1]	-0.0994	(-0.917)	208	-0.225	(-0.904)	127
	[0, 5]	-0.141	(-0.766)	203	0.133	(0.373)	119
	[-5, 5]	-0.0530	(-0.215)	203	0.520	(1.248)	119
Retail trade	[-5, 0]	0.185	(0.940)	243	-0.338	(-1.560)	135
	[-1, 0]	0.170*	(1.772)	247	-0.176	(-1.350)	142
	[-1, 1]	0.165	(1.468)	247	-0.385**	(-2.517)	142
	[0, 1]	0.103	(1.091)	247	-0.332**	(-2.319)	142
	[0, 5]	-0.225	(-1.342)	243	-0.134	(-0.645)	135
	[-5, 5]	-0.148	(-0.595)	243	-0.350	(-1.224)	135
Banks	[-5, 0]	0.170	(0.995)	196	-0.480	(-0.907)	51
	[-1, 0]	0.0933	(0.978)	198	-0.138	(-0.465)	52
	[-1, 1]	0.115	(1.065)	198	-0.142	(-0.519)	52
	[0, 1]	0.0577	(0.663)	198	-0.149	(-0.653)	52
	[0, 5]	0.0830	(0.504)	196	-0.0663	(-0.206)	51
	[-5, 5]	0.217	(0.976)	196	-0.401	(-0.722)	51
Financials (excluding banks)	[-5, 0]	-0.344	(-1.572)	171	0.0526	(0.101)	36
	[-1, 0]	-0.167	(-1.144)	173	0.308	(0.919)	36
	[-1, 1]	-0.143	(-0.945)	173	-0.176	(-0.389)	36
	[0, 1]	-0.170	(-1.587)	173	-0.0996	(-0.321)	36
	[0, 5]	0.272	(1.369)	171	0.114	(0.262)	36
	[-5, 5]	0.119	(0.458)	171	-0.217	(-0.350)	36
Realestate	[-5, 0]	0.392	(0.973)	38	-0.965	(-1.082)	22
	[-1, 0]	0.261	(0.807)	38	-0.336	(-0.977)	23
	[-1, 1]	0.222	(0.686)	38	-0.469	(-1.159)	23
	[0, 1]	0.0437	(0.255)	38	-0.383	(-1.454)	23
	[0, 5]	0.0915	(0.212)	38	-0.984	(-1.371)	22
	[-5, 5]	0.401	(0.836)	38	-1.716	(-1.241)	22

Asterisks (*) show statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

Table 3.8 illustrates that the categories "construction and materials," "machinery," and "IT & services, other" generate positive and significant CARs before and after positive news, whereas "electric power and gas" and "retail trade" generate positive and significant CARs before the announcements. On the other hand, "food" and "electric appliances and precision instruments" show negative and significant responses for positive news. These results demonstrate that investors respond positively to news related to firms in the categories "construction and materials," "machinery," "IT and services, other," "electric power and gas," and "retail trade" and negatively to news in "food" and "electric appliances and precision instruments". As for negative news, "food," "automobiles and transportation equipment," "transportation and logistics," and "retail trade" show negative and significant results both before and after the announcements. "Electric power and gas" and "commercial & wholesale trade" also earn negative and significant impacts before the announcements. These results illustrate that investors react negatively to news in the "food," "automobiles and transportation equipment," "transportation and logistics," "retail trade," "electric power and gas," and "commercial and wholesale trade" categories. The results may be affected by closeness to consumers, but this needs further investigation.

Investors' responses to news announcements may also be different between firm sizes. To examine if the effects of news announcements on stock price vary because of firm size, I classified events by firm size, from largest to smallest based on the Tokyo Stock Exchange's categorization, as follows: (1) TOPIX Core30, (2) TOPIX Large70, (3) TOPIX Mid400, (4) TOPIX Small 1, and (5) TOPIX Small 2. The results are shown in Table 3.9 for both positive and negative news.

Table 3.9: Results of the Event Study (by Firm Size)

	windows	Positive news mean	Positive news t_{BMP}	Positive news observations	Negative news mean	Negative news t_{BMP}	Negative news observations
TOPIX Core30	[-5, 0]	0.0437	(0.544)	999	-0.111	(-1.002)	509
	[-1, 0]	0.0117	(0.262)	1,098	-0.0298	(-0.477)	597
	[-1, 1]	-0.00613	(-0.115)	1,098	-0.111	(-1.482)	597
	[0, 1]	0.0168	(0.371)	1,098	-0.0493	(-0.814)	597
	[0, 5]	-0.0716	(-0.812)	999	0.00947	(0.0868)	509
	[-5, 5]	-0.0650	(-0.581)	999	-0.164	(-1.159)	509
TOPIX Large70	[-5, 0]	-0.0163	(-0.189)	1,023	-0.123	(-0.997)	450
	[-1, 0]	0.0152	(0.309)	1,055	-0.133*	(-1.890)	480
	[-1, 1]	0.00897	(0.151)	1,055	-0.202**	(-2.248)	480
	[0, 1]	-0.0106	(-0.214)	1,055	-0.0867	(-1.191)	480
	[0, 5]	0.00504	(0.0580)	1,023	-0.0288	(-0.235)	450
	[-5, 5]	-0.00197	(-0.0171)	1,023	-0.156	(-0.933)	450
TOPIX Mid400	[-5, 0]	0.219***	(3.003)	1,258	-0.206*	(-1.650)	552
	[-1, 0]	0.101**	(2.104)	1,282	-0.287***	(-2.968)	586
	[-1, 1]	0.0191	(0.341)	1,282	-0.387***	(-3.089)	586
	[0, 1]	-0.0137	(-0.299)	1,282	-0.251**	(-2.513)	586
	[0, 5]	-0.0382	(-0.511)	1,258	-0.0405	(-0.253)	552
	[-5, 5]	0.111	(1.146)	1,258	-0.0983	(-0.480)	552
TOPIX Small 1	[-5, 0]	0.215	(1.331)	235	-0.700**	(-2.511)	190
	[-1, 0]	0.0903	(1.004)	236	-0.425**	(-2.280)	208
	[-1, 1]	0.0114	(0.110)	236	-0.618***	(-2.768)	208
	[0, 1]	0.00855	(0.0965)	236	-0.592***	(-2.914)	208
	[0, 5]	-0.130	(-0.765)	235	-0.728*	(-1.710)	190
	[-5, 5]	-0.00144	(-0.00637)	235	-0.988**	(-2.004)	190
TOPIX Small 2	[-5, 0]	0.303	(1.069)	118	-0.695	(-1.165)	54
	[-1, 0]	0.309**	(2.239)	118	-0.612	(-1.546)	56
	[-1, 1]	0.427**	(2.283)	118	-0.396	(-0.748)	56
	[0, 1]	0.277*	(1.732)	118	-0.250	(-0.479)	56
	[0, 5]	0.287	(1.150)	118	0.132	(0.230)	54
	[-5, 5]	0.431	(1.054)	118	-0.109	(-0.143)	54

Asterisks (*) show the statistical significance of the means of CARs by t-test where *$p<0.10$, **$p<0.05$, ***$p<0.01$.

As Table 3.9 shows, the smallest group, "TOPIX Small 2," generated positive and significant CARs before and after positive news. Mid-sized firms, "TOPIX Mid400," also show positive and significant impact before the announcements. This result indicates that investors respond positively to positive news for the smallest firms before and after the announcements, while for mid-sized firms they react only before the news announcements. For negative news, "TOPIX Large70," "TOPIX Mid400," and "TOPIX Small 1" show negative and significant impact before and after the announcements.

These results mean that investors react negatively both before and after negative news announcements, except for the largest and smallest firms.

3.3.6. Comparison to the United States and Europe

Another research question asks how investors' reaction to CSR in Japan differs from that in the United States and Europe. To examine the difference, I examined other researchers' findings and compared them with the results of this study. Because of the limited availability of studies using news announcements as the event data, however, deeper analysis will be discussed in Section 4.

Several studies use the event study method to examine whether CSR-related events have an impact on stock prices in the U.S. market. Krüger (2015) studied how stock markets react to CSR-related news collected uniquely for his study from KLD news. As shown in エラー! 参照元が見つかりません。, he found weakly negative CAR in window [–10, +10] for positive events and strongly negative CARs in windows [–5, +5] and [–10, +10] for negative events. He interpreted this result as showing that shareholders in the United States took the implementation of CSR as a cost and they strongly cared about corporate social "irresponsibility" because it might incur economically meaningful losses. He added that negative CARs around the positive news were consistent with the view that investing in CSR was not beneficial for shareholder value, which suggests that (1) implementing CSR policies was costly and (2) the expected benefits from implementing these policies fall short of the costs. He also mentioned that negative news contained substantive negative cash-flow news, which is crucially important for the discounted value of the firm's future cash flows. For deeper insights, he sorted news by issue and categorized them into (1) community, (2) diversity, (3) employee relations, (4) environment, (5) human rights, and (6) product, based on KLD's classification. As shown in エラー! 参照元が見つかりません。, for positive news, he observed negative and significant results for "community" and "environment" whereas results for "product" were positive and significant. Krüger interpreted the negative reaction for "community" as indicating that stock markets perceived firms' actions to increase the welfare of communities as wasteful wealth

transfers from shareholders to communities. He added that this reaction could be because of at least two reasons: first, increasing the welfare of communities might reflect agency problems in that managers seek to build strong ties with their surrounding communities at the expense of shareholders. Second, as community-related events are often concerned with charitable giving, shareholders could perceive news about initiatives that increase community welfare as negative cash-flow shocks. For negative response to positive news related to "environment," he stated that this is also because there were agency problems, or the positive environmental events are related to substantial current cash outlays, and therefore have negative short-term cash-flow implications. Finally, for positive reaction to positive "product" news, he argued that this was because of high product quality or being an industry leader in terms of research and development and supply of innovative products. As Table 14 illustrates, Krüger observed negative and significant results for all categories except "human rights," which indicated investors were sensitive to perceived irresponsibility of firms with regard to "community," "diversity," "employee relations," "environment," and "product."

Table 3.10: Cumulative Abnormal Returns by Krüger (2015)

	Positive news			Negative news		
Window	Mean (%)	t_{bmp}	N	Mean (%)	t_{bmp}	N
Panel A: All Events						
[-5, 5]	-0.88***	-4.95	1,542	-0.16	-0.77	574
[-10, 10]	-1.31***	-6.57	1,542	-0.47*	-1.82	574
Panel B: Community						
[-5, 5]	-2.14***	-2.80	83	-1.25*	-1.75	94
[-10, 10]	-3.33***	-3.17	83	-1.61**	-2.35	94
Panel C: Diversity						
[-5, 5]	-0.45	-1.08	179	-0.10	-0.61	155
[-10, 10]	-0.84*	-1.93	179	-0.56	-0.80	155
Panel D: Employee Relations						
[-5, 5]	-0.88*	-1.76	361	-0.42	-0.41	108
[-10, 10]	-0.94**	-2.33	361	0.59	0.69	108
Panel E: Environment						
[-5, 5]	-1.54*	-1.77	121	0.07	-0.05	91
[-10, 10]	-3.03**	-2.43	121	-1.37*	-1.85	91
Panel F: Human Rights						
[-5, 5]	1.07	1.34	61	-0.45	-0.74	54
[-10, 10]	0.17	-0.09	61	0.02	-0.1	54
Panel G: Product						
[-5, 5]	-0.89***	-3.98	737	1.41*	1.75	72
[-10, 10]	-1.22***	-4.71	737	0.41	-0.25	72

Sources: Krüger (2015). Summarized by the author.

Note: ∗ p < 0.10, ∗∗ p < 0.05, ∗∗∗ p < 0.01

Flammer (2013) examined whether shareholders were sensitive to corporations' environmental attitudes by conducting an event study using the announcement of corporate news related to the environment for U.S. companies from 1980 to 2009. From the statistical analysis shown in Table 3.11, she found that eco-friendly companies experienced a significant stock price increase and eco-harmful companies faced a significant decrease at least before the announcement. Though she did not clearly distinguish before and after the announcement, the impact after the announcement is ambiguous because the significant results are only seen in alternative windows in a robustness check.

Table 3.11: CARs around the Announcement of Eco-Friendly and -Harmful Corporation Behavior and the result of robustness check by Flammer (2013)

Event Time	Eco-Friendly Events		Eco-Harmful Events	
	Mean (%)	z-stat	Mean (%)	z-stat
(-40, -21)	0.17	0.12	-0.88	-0.92
(-20, -11)	0.32	0.62	0.75	0.39
(-10, -6)	-0.45	-1.18	0.05	0.12
(-5, -2)	-0.2	-0.77	-0.12	-0.86
(-1, 0)	0.84**	3.57	-0.65**	-3.49
(1, 5)	0.16	0.38	-0.15	-0.47
(6, 20)	-0.49	-1.21	-0.04	-0.26
Robustness				
Alternative event window: (-1, 1)	0.83**	2.88	-0.76**	-3.83
Alternative event window: (-1, 2)	0.67*	2.13	-0.78**	-3.17
Alternative event window: (-1, 3)	0.66†	1.93	-0.62*	-2.48

Source: Flammer (2013). Summarized by the author.

Note: CAR is not standardized. † $p < .10$, * $p < .05$, ** $p < .01$ Two-tailed tests.

Studies investigating European investors' responses to CSR-related events using the event study methodology are also available, but only a limited number are news-based studies. Cellier and Chollet (2016) examined the effects of Vigeo social ratings[2] announcements on firms' shareholder value by using an event study with a large sample

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2 Vigeo has been one of the leading European suppliers of extra-financial analysis since 2002. It is an independent company, held by more than 50 shareholders of three types (firms, financial institutions, and nonprofit organizations, according to Cellier and Chollet, 2016).

of European firms. As shown in Table 3.12, they found positive and significant results for all windows, [–2, –1], [0, 2], [–2, 2], [–5, –1], [0, 5], [–5, 5], or both before and after the announcements. Though they did not distinguish between a good rate and a bad rate, the results suggested, according to Cellier and Chollet (2016), that (1), ratings provided additional information to the market, which satisfied expectations of investors looking for nonfinancial information about firms; (2) the disclosure of such CSR information was viewed as good news; and (3) markets cared about CSR in Europe.

Table 3.12: CAR by Cellier and Chollet (2016)

CAR	Mean (%)	t_{bmp}
CAR (-2, -1)	0.35***	6.23
CAR (0, 2)	0.83***	15.09
CAR (-2, 2)	0.85***	15.2
CAR (-5, -1)	0.18***	3.9
CAR (0, 5)	0.54***	9.05
CAR (-5, 5)	0.51***	9.3

Source: Cellier and Chollet (2016). Summarized by the author.

Note: In Cellier and Chollet (2016), CAR is stated as SCAR (Standardized Cumulative Abnormal Return) which is calculated to conduct Boehmer, Musumeci & Poulsen's t-test. As CARs are all standardized in this thesis, I just stated as CSR in this table to avoid confusion.

*10% significance, **5% significance, ***1% significance.

My results for Analysis 1 and the relevant studies stated above are summarized in Table 3.13 below. For the U.S. market, there is no clear feature for investors' response to positive news. The results of Krüger (2015) and Flammer (2013) are controversial even focusing on environmental issues. Krüger (2015) concluded that CSR was a cost for firms, whereas Flammer (2013) pointed out that eco-friendly firms enjoyed increases in stock price. For negative events, however, the studies agreed that investors show negative reactions to the news, which indicated investors' sensitivity to the firm's' irresponsibility.

In contrast, as shown in Cellier & Chollet (2016), European markets demonstrate positive reaction to disclosure of CSR-related information itself, whatever the evaluation was, which indicated that (1) ratings themselves satisfied expectations of investors looking for nonfinancial information about firms, (2) investors took the

disclosure of CSR information as good news, and (3) markets paid attention to CSR in Europe.

As other researchers did not distinguish between types of investors, I also looked at the type of investor, including individuals, institutions, and foreigners, in the Japanese market, and found that they respond positively only before positive news, and negatively before and after negative news. Though it is difficult to compare the results because of limited numbers of studies using news announcements, at least, it seems negative reactions to negative news are common to both U.S. and Japanese markets, which indicates investors do care if firms are irresponsible. Comparing the magnitude of the effects in the United States and Japan, which are about –0.9% on average (–0.88% and –1.31% for Krüger, 2015 and –0.65% for Flammer, 2013) in the United States and about 0.2% on average for Japan, the responses of investors are stronger in the U.S. market than those in the Japanese market. Again, though it is not clear enough, investors in the Japanese market seem to pay attention to CSR-related positive news before the announcement, with a coefficient of 0.07% on average. It, however, is not as strong as those in the European market, with a coefficient of 1.9% on average (0.86%, 1.95%, 2.82%, 0.83%, 2.10%, and 2.92% for Cellier & Chollet, 2016). Another finding from this comparison is that, referencing my results sorted by investors, inconsistent results among previous studies may be because of a lack of segmentation of investors.

Table 3.13: Results of Related Studies and this Analysis

Country	Author(s)	Event	Timing	Statistical Results (t-test if not mentioned) Positive news	Negative news
The US	Kruger (2015)	CSR-related news from KLD news 【All events】	-	weakly negative	strongly negative
		CSR-related news from KLD news 【Environment】	-	weakly negative	strongly negative
	Flammer (2013)	Environment-related news from Wall Street Journal (WSJ)	Before	positive	negative
			After	not significant (positive in robustness check for [-1,1], [-1,2] and [-1,3])	not significant (negative in robustness check for [-1,1], [-1,2] and [-1,3])
Europe	Cellier & Chollet (2016)	Vigeo social rating	Before	positive (whatever rating is)	
			After	positive (whatever rating is)	
Japan	Analysis 1 in this study	CSR-related news from the Nikkei 【All investors】	Before	Positve	Negative
			After	Not significant	Negative
		CSR-related news from the Nikkei 【Individuals】	Before	Positve	Not significant
			After	Positve	Not significant
		CSR-related news from the Nikkei 【Institutes】	Before	Not significant	Negative
			After	Not significant	Negative

Sources: Krüger (2015), Flammer (2013), and Cellier and Chollet (2016). Summarized by the author.

3.4. Robustness Check

To address potential concerns, I conducted several robustness checks by referencing Flammer (2013), Clacher and Hagendorff (2012), Cheung (2011), and Cheung and Roca (2013). I briefly discuss each of these concerns in turn.

(Confounding Events)

As McWilliams & Siegel (1997), Flammer (2013), and Shiu and Yang (2017) reported, confounding events may cause difficulty in statistical inference in the event study. In this analysis, this concern is mitigated, for three reasons. First, when I select the CSR-related news, I excluded articles with contents that were not clearly either positive or negative. Second, I also excluded news reported with financial news to avoid the effects of financial issues instead of CSR-related issues. Third, in addition to employing short event windows, I deleted news duplicated within the target window.

(Alternative Event Windows)

In this study, I rely on 2-day [–1, 0], 3-day [–1, 1] and 2-day [0, 1] event windows. As I explained in the previous section, I kept the windows short because expansion of the event windows may increase confounding concurrent events, which reduces the power of the test statistic, according to Siegel and Teoh (1999). I, however, add 6-day [–5, 0], 6-day [0, 5] and 11-day [–5, 5] windows to show that the results are robust, as well as to capture the responses of investors who obtain and respond to information earlier and later.

(Alternative Normal Return Models)

In this analysis, I employ the market model to estimate normal returns, following Mackinlay (1997), Krüger (2015), and many other studies. However, other market-related factors may affect the estimated normal returns. To address this concern, I recalculated normal returns and CARs with the three-factor model developed by Fama and French (1993). The Fama-French three-factor model estimates stock returns by (1) market risk, (2) the outperformance of small versus big companies, and (3) the outperformance of high book/market versus small book/market companies as described below.

$$r_{i,t}\text{-}R_f = \beta_i^{MKT}(R_{m,t}\text{-}R_{f,t}) + \beta_i^{SMB}SMB_t + \beta_i^{HML}HML_t$$

where r is the portfolio's expected rate of return for firm i at time t, R_f is the risk-free return rate, and R_m is the return of the market portfolio. *SMB* means "small minus big" based on a company's market capitalization and HML means "high minus low," based on book-to-market ratios[3]. As shown in Table 3.14, the results are close to my main results.

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3 The risk-free return rate(Rf) is the monthly uncollateralized overnight call rate, the return of the market portfolio (Rm) is the rate of return of TOPIX, SMB and HML of Japan are obtained from the website: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Developed (as of March 27, 2019).

Table 3.14: Results of the Event Study Using the Fama-French Three-Factor Model

windows	Positive news mean	t_{BMP}	observations	Negative news mean	t_{BMP}	observations
[-5, 0]	0.0939	(1.340)	4,010	-0.541***	(-4.038)	1,949
[-1, 0]	0.0617**	(1.977)	4,169	-0.310***	(-5.309)	2,126
[-1, 1]	0.0250	(0.610)	4,169	-0.494***	(-6.315)	2,126
[0, 1]	0.0144	(0.465)	4,169	-0.347***	(-5.596)	2,126
[0, 5]	-0.00862	(-0.115)	4,010	-0.528***	(-3.570)	1,949
[-5, 5]	0.0347	(0.285)	4,010	-0.915***	(-3.806)	1,949

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

(Regression Analysis)

I also conducted a regression analysis to exclude alternative explanations. The regression model (Flammer, 2013, Hawn et al., 2018; Shiu & Yang. 2017) includes CARs, a CSR index, a time trend, and controls as follows.

$$CAR_{it}= \beta_1 \textbf{CSRposi}_{it}+\beta_2 year_{it}+\beta_3 lsize_{it} +\beta_4 ROA_{it} +\beta_4 MB_{i,t}+\varepsilon_{it}$$
$$CAR_{it}= \beta_1 \textbf{CSRnega}_{it}+\beta_2 year_{it}+\beta_3 lsize_{it} +\beta_4 ROA_{it} +\beta_4 MB_{it}+\varepsilon_{it}$$

where *CSRposi* is a dummy variable for positive news, *CSRnega* is a dummy variable for negative news. *year* is a time trend from 1999 to 2016, *lsize* is a logarithm of total asset value, ROA is return on asset, and *MB* stands for market-to-book ratio. A shown in エラー! 参照元が見つかりません。, the results resemble my main analysis for both positive news and negative news though the regression analysis presents stronger effects.

Table 3.15: Regression Analysis of Cumulative Abnormal Returns

Dependent variables	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]
CSRposi	0.318***	0.259***	0.321***	0.208***	0.128	0.300***						
	(4.148)	(5.241)	(5.316)	(4.084)	(1.539)	(2.795)						
CSRnega							-0.318***	-0.259***	-0.321***	-0.208***	-0.128	-0.300***
							(-4.148)	(-5.241)	(-5.316)	(-4.084)	(-1.539)	(-2.795)
year	0.00212	0.00171	-0.00261	-0.00162	0.0111	0.0105	0.00212	0.00171	-0.00261	-0.00162	0.0111	0.0105
	(0.263)	(0.329)	(-0.410)	(-0.301)	(1.264)	(0.930)	(0.263)	(0.329)	(-0.410)	(-0.301)	(1.264)	(0.930)
lsize	-0.0232	-0.00568	-0.00129	0.00135	0.00281	-0.0173	-0.0232	-0.00568	-0.00129	0.00135	0.00281	-0.0173
	(-1.176)	(-0.447)	(-0.0832)	(0.103)	(0.131)	(-0.628)	(-1.176)	(-0.447)	(-0.0832)	(0.103)	(0.131)	(-0.628)
ROA	0.00431	0.00333	0.00393	0.00110	0.000172	0.00398	0.00431	0.00333	0.00393	0.00110	0.000172	0.00398
	(0.595)	(0.716)	(0.690)	(0.228)	(0.0219)	(0.393)	(0.595)	(0.716)	(0.690)	(0.228)	(0.0219)	(0.393)
MB	-0.0247**	-0.0130*	-0.0113	-0.00515	-0.0170	-0.0348**	-0.0247**	-0.0130*	-0.0113	-0.00515	-0.0170	-0.0348**
	(-2.327)	(-1.906)	(-1.349)	(-0.730)	(-1.479)	(-2.344)	(-2.327)	(-1.906)	(-1.349)	(-0.730)	(-1.479)	(-2.344)
Constant	-3.971	-3.498	4.976	3.024	-22.43	-20.95	-3.653	-3.239	5.297	3.233	-22.30	-20.65
	(-0.245)	(-0.336)	(0.390)	(0.281)	(-1.276)	(-0.925)	(-0.226)	(-0.311)	(0.416)	(0.300)	(-1.269)	(-0.912)
Observations	5,921	5,921	5,921	5,921	5,921	5,921	5,921	5,921	5,921	5,921	5,921	5,921
R-squared	0.004	0.005	0.005	0.003	0.001	0.002	0.004	0.005	0.005	0.003	0.001	0.002

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

3.5. Discussion and Conclusion for Analysis 1

In Analysis 1, I studied the investor value implications of CSR-related announcements in Japan and the difference from the United States and Europe by examining CARs around the announcements, using the event study method. I employed the event study method to mitigate issues arising from endogeneity, especially the reverse causality problem.

I examined the impact of the CSR announcements by analyzing the statistical properties of CARs around the event date for overall categories. From the analysis from 2001 to 2016, I found that for positive news, investors respond positively before the news announcement but not significantly after the announcement, and for negative announcements, investors react negatively before and after the negative news announcement. These findings are generally consistent with my hypothesis 3: Based on the information certification hypothesis and the self-fulfilling prophecy, Japanese investors react positively to a firm's positive CSR announcements, resulting in a boost to its equity price (and vice versa for negative announcements).

Among the theories regarding the effects of CSR-related events on stock price, the price pressure hypothesis (Harris & Gurel, 1986) and the investor awareness hypothesis (the information cost hypothesis; Chen et al., 2004; Cheung & Roca, 2013; Lackmann et al., 2012) are rejected because the results did not present a subsequent reversal of the

price after the events and did demonstrate the declining of stock price after the negative news, which contradicted the theories' predictions. Though neither the distribution effect hypothesis (the imperfect substitutes hypothesis or the downward sloping demand curve hypothesis) nor the information certification hypothesis presumes the reversal effects after the event, my result would support the information certification hypothesis because, different from changes in the index, investment based on news announcements cannot be done automatically, and it is rational to think the events do carry information to investors. For the same reason, the results of my analysis also provide evidence for the self-fulfilling prophecy theory. The analysis also indicated the existence of information leakage.

For deeper insights, I divided firms into "Japanese individuals main," "Japanese institutions main," and "foreign investors main" based on the main shareholder and conducted the event study for each group. As a result, I found that Japanese individual investors positively respond before and after the CSR-related positive news but do not react to negative news, whereas both Japanese institutional investors and foreign investors, mainly institutions, are not responsive to positive news but do react negatively before and after negative news, which is stronger for Japanese institutions than foreign investors. These results are partially consistent with my seventh hypothesis: Both individual and institutional investors in Japan react positively to a firm's positive CSR announcements (and vice versa for negative announcements). Their response time and magnitude, however, are different from each other. However, the hypothesis needs some amendments. The results indicated that there was a difference in interests between individuals and institutions. Individuals seem to focus on the positive news while institutions are more concerned with the negative news. This situation is reasonable considering that individuals are looking for investment opportunities in the environment where the information asymmetry exists, while institutions who have sufficient information only respond to sudden negative shocks. It is not clear why individuals do not respond to negative news but it may support the investor awareness hypothesis (the information cost hypothesis; Chen et al., 2004; Cheung & Roca, 2013; Lackmann et al., 2012) which assumes that events can increase investor awareness and decrease the cost of searching for information because the events provide more information to investors and reduce information asymmetry problems, which do not predict the declining of

stock price for negative events. It was also found that the attitude of foreign investors, mainly European institutions, is similar to that of Japanese institutions. Another finding from these results is that all shareholders, including individuals, institutions, and foreign investors obtain information earlier than its announcement in the news, which means the existence of information leakage.

I also conducted the analysis by issue: (1) community, (2) diversity, (3) employee relations, (4) environment, (5) human rights, and (6) product, as well as two cross-category features: charity-based and developing-country-related. The results showed that investors respond positively for positive news on products and employee relations before and after the announcement, and react negatively after positive environment-related news announcements. For negative news, investors react negatively both before and after negative news on products, community, and human rights. These results do not fully support my hypothesis 5: Japanese investors react more to events related to institutional CSR, including community and diversity issues than to events related to technical CSR, including employee relations and products. I found different effects among event issues but not between institutional CSR and technical CSR. Actually, community issues, which belong to institutional CSR, and product issues, which belong to technical CSR, both showed strong results and could not be differentiated. As for the cross-category features, investors seem to react only to negative news announcements related to developing countries but not for charity-based news and positives news related to developing countries. Though this analysis only tells investors responses, not consumers or employees, the result is basically consistent with hypothesis 2-2: Firms' actions with a more altruistic image do not have impacts on firm value. The result indicates that firms' actions with a more altruistic image do not have an impact on stock price in Japan in the short-term which reveals that, at least, Japanese investors do not take them as boosters of the firm's value. However, negative reactions to negative behavior in developing countries could be a reverse signal of a firm's altruistic behavior. In this regard, I would say investors do care about a firm's altruistic behavior only in negative cases.

Investors' behavior changes in response to an economic shock such as the tragic Great East Japan Earthquake was also examined by dividing events into two groups for each year from 2009 to 2012. As a result, I found that investors' attitude to positive

news has changed before and after 2011. Investors respond positively only before the announcement around the years 2009 and 2010, whereas they respond positively both before and after the announcement around the years 2011 and 2012. This evidence does match my fifth hypothesis: Japanese investors' response to CSR-related events will be changed by economic shocks such as the Great East Japan Earthquake. Though there is a limitation to seek a clear causal connection between the behavior change and the Great East Japan Earthquake, the results showed positive news pulled more investors' attention after 2011 than before. Ancillary analyses by industrial category and firm size also gave some insight into the root cause of impacts.

Finally, I compared investors' reaction to CSR in Japan to those in the United States and Europe, and made two observations. First, negative reactions to negative news are observed in both the U.S. and Japanese markets, which can be interpreted to mean that investors pay attention to firms' irresponsible behavior. Second, investors in the Japanese market seem to be interested in CSR-related positive news before the announcement but not as strong as those in the European market. Similarity between the Japanese market and both the U.S. and European markets were found. Consistency of these results with my hypothesis 7—Investors' responses to CSR-related announcements in Japan are similar to those of Europe, based on their business systems and institutional investors' policy—is ambiguous. As I mentioned, because of the limited number of studies using news announcements, it was difficult to compare the results in this analysis. I, therefore, will conduct further analysis in Analysis 2.

CHAPTER 4. Comparative Analysis of the Relationship between CSR-Related Index Change and Investors' Reaction between Japan, the United States, and Europe (Analysis 2)

In Analysis 2, I will again conduct the event study to examine investors' response to the announcement of Japanese firms' CSR-related events, represented by inclusion in or deletion from the Dow Jones Sustainability Index (DJSI)[1]. This analysis provides comparable results by using a widely accepted index, the DJSI, whereas the previous analysis, Analysis 1, uses originally collected data, which are not perfectly comparable because of their uniqueness. Categorizing firms by main shareholder makes this analysis original because it enables me to specify the response of Japanese investors, mainly institutional investors. Analysis 2 also has a strong link to hypotheses 3, 6, and 7, which imply a relationship between CSR-related announcements and investors' reactions as well as differences investors' responses between main shareholders and between the U.S., European, and Japanese markets.

4.1. Data and Variables

This analysis aims to investigate investors' response to the announcement of Japanese firms' CSR-related events. For this purpose, I employ DJSI, following previous studies, such as Consolandi et al. (2009), Robinson et al. (2011), Cheung (2011), Cheung et al. (2013), Lackmann et al. (2012), Wang et al. (2017), and Hawn et al. (2018). Stock market and market index data (TOPIX), were obtained from Thomson Reuters DataStream. I use TOPIX, not the New York Stock Exchange (NYSE), as the market index because the target of interest of this thesis is investors' attitude in the Japanese market, not in the U.S. market. Though using the NYSE as the market index could allow direct comparison of market responses between the United States and Japan, it is difficult because few Japanese companies are listed at present[2].

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1 https://www.robecosam.com/csa/indices/djsi-index-family.html (as of June 17, 2019).
2 Eleven Japanese companies (Canon Inc., Honda Motor Co., Ltd., Mitsubishi UFJ Financial Group, Inc., LINE Corp., Mizuho Financial Group, Inc., Nomura Holdings, Inc., Orix Corporation, Sony Corporation, Sumitomo Mitsui Financial Group Inc., Takeda Pharmaceutical Company, and Toyota Motor Corporation) are listed as of March 31,

The DJSI was launched in 1999 as the first global sustainability benchmark, created jointly by S&P Dow Jones Indices and RobecoSAM with the expertise of a specialist in Sustainability Investing to select the most sustainable companies from among 10,000 companies. The index applies a transparent, rules-based component selection process based on the company's total sustainability scores resulting from the annual RobecoSAM Corporate Sustainability Assessment (CSA) (see Figure 4.1). Because only the top 10% of companies within each industry are selected for inclusion in the DJSI, the index is well received by investors who integrate sustainability considerations into their portfolios. The composition of the DJSI is reviewed each year in September based on the total sustainability scores resulting from the annual RobecoSAM CSA and is rebalanced quarterly.

Figure 4.1: Methodology of DJSI Assessment
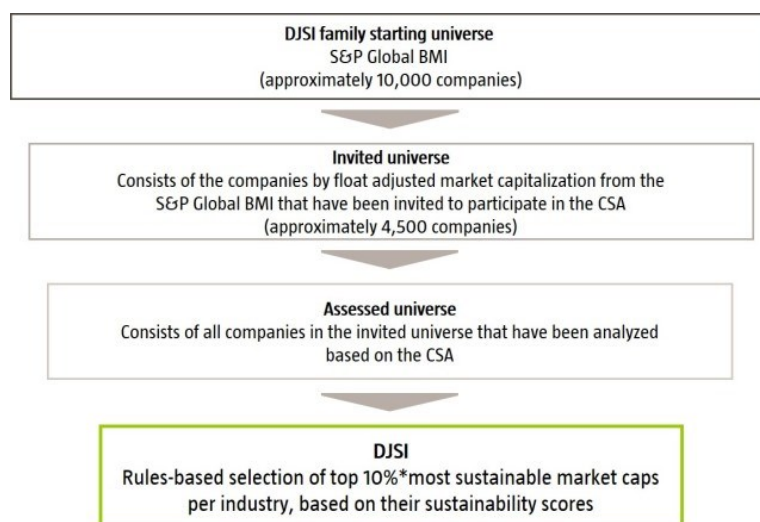
Source: S&P Dow Jones and RobecoSAM web page:

https://www.sustainability-indices.com/in dex-family-overview/djsi-index-family.html (as of March 13, 2019).

Following Hawn et al. (2018) and other researchers, I focused on the DJSI for four reasons. First, the DJSI is publicly visible and transparent. Since its launch in 1999, S&P Dow Jones and RobecoSAM have announced the list of additions, deletions, and

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2019, according to the NYSE. https://www.nyse.com/publicdocs/nyse/data/CurListofallStocks.pdf (as of May 22, 2019).

continuations publicly. In contrast, the KLD index, for example, is open only to its paid members and does not disclose changes to the index publicly. Second, the DJSI covers a longer period than the FTSE4Good Index, which was first introduced in 2001. This allowed me to obtain a sufficient dataset for analysis. Third, the DJSI has been known as the most rigorous and the most credible of indices, especially in terms of the number of questions and depth of information requested (Hawn et al., 2018; SustainAbility, 2012; UNEPFI, 2008). Finally, a substantial number of fund managers follow the index. According to Hawn et al. (2018), in 2010, DJSI licensees included 88 global institutions in 16 countries with more than \$8 billion total investment in the financial products in the index; in the same year, KLD's list included only 11 licensees. For these reasons, DJSI was assumed to be one of the best signals of CSR to the market.

In this analysis, the sample period is from 1999 to 2017 for only Japan-based firms[3]. I obtain data for the following from the DJSI website[4]: (1) the announcement day of index inclusion and index exclusion, (2) the effective day of index exclusion and index inclusion, and (3) the names of the companies added or deleted from the index. In the period 1999 to 2017, the DJSI added Japanese firms about 131 times and deleted them about 91 times. Due to limited data on announcement dates in the early stages, my final dataset for the event study includes 91 addition events that listed 71 companies (some companies were added twice or more in nonconsecutive years), 78 deletion events that delisted 61 companies by announcement date, and 131 addition events that listed 100 companies (some companies were added twice or more in nonconsecutive years), 91 deletion events that delisted 74 companies by effective date. Table 4.1 shows the distribution of index additions and deletions and Table 4.2 reports summary statistics and correlations.

Table 4.1: Distribution of Index Additions and Deletions

	Inclusion	Proportion	Deletion	Proportion	Total
Announcement day	91	53.8%	78	46.2%	169
Effective day	131	59.0%	91	41.0%	222

Source: Collected by the author from DJSI website

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[3] Firms headquartered in Japan.
[4] https://www.robecosam.com/csa/csa-resources/djsi-csa-annual-review.html (as of November 29, 2018)

Table 4.2: Summary Statistics and Correlations of Variables

Announcement date

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. CAR[-5, 0]	1.000																	
2. CAR[-1, 0]	0.548	1.000																
3. CAR[-1, 1]	0.467	0.857	1.000															
4. CAR[0, 1]	0.327	0.515	0.796	1.000														
5. CAR[0, 5]	0.218	0.324	0.486	0.577	1.000													
6. CAR[-5, 5]	0.760	0.391	0.480	0.400	0.730	1.000												
7. CSRposi	0.012	0.073	0.100	0.145	0.054	0.002	1.000											
8. CSRnega	-0.012	-0.073	-0.100	-0.145	-0.054	-0.002	-1.000	1.000										
9. CSRposi_indivi	0.072	-0.001	0.013	0.014	-0.015	0.047	0.146	-0.146	1.000									
10. CSRposi_insti	0.042	0.034	0.015	0.106	0.047	0.005	0.619	-0.619	-0.105	1.000								
11. CSRposi_foreign	0.040	0.102	0.139	0.073	0.000	0.027	0.373	-0.373	-0.063	-0.267	1.000							
12. CSRnega_indivi	-0.008	0.095	0.100	0.066	-0.017	-0.040	-0.146	0.146	-0.021	-0.090	-0.054	1.000						
13. CSRnega_insti	-0.096	-0.113	-0.122	-0.130	-0.082	-0.084	-0.656	0.656	-0.096	-0.406	-0.245	-0.083	1.000					
14. CSRnega_foreign	0.109	0.023	0.003	0.004	0.023	0.088	-0.409	0.409	-0.060	-0.253	-0.153	-0.052	-0.232	1.000				
15. lsize	-0.030	-0.006	-0.003	0.099	0.006	-0.066	-0.006	0.006	0.084	0.083	-0.110	0.137	0.062	-0.075	1.000			
16. ROA	0.071	0.077	0.131	0.106	0.026	0.063	0.060	-0.060	-0.029	-0.025	0.190	-0.037	-0.035	0.014	-0.353	1.000		
17. MB	0.150	0.083	0.074	0.019	0.068	0.156	0.081	-0.081	-0.029	-0.136	0.312	-0.045	-0.186	0.169	-0.449	0.592	1.000	
18. year	0.053	-0.097	-0.064	-0.030	0.051	0.105	-0.077	0.077	0.125	0.002	-0.067	0.026	0.078	0.054	0.188	0.131	-0.130	1.000
Mean	-0.051	0.051	0.035	-0.007	0.036	-0.024	0.538	0.462	0.024	0.302	0.136	0.018	0.266	0.124	21.478	2.752	1.610	2009
Std. Dev.	2.118	1.515	1.725	1.310	1.930	2.725	0.500	0.500	0.152	0.460	0.344	0.132	0.443	0.331	1.304	3.522	1.474	5.126
Min	-5.503	-4.287	-6.988	-4.714	-4.670	-7.901	0	0	0	0	0	0	0	0	15.812	-12.740	0.370	2002
Max	6.385	4.803	5.286	5.171	5.567	9.111	1	1	1	1	1	1	1	1	24.455	17.270	10.840	2017

Effective date

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. CAR[-5, 0]	1.000																	
2. CAR[-1, 0]	0.611	1.000																
3. CAR[-1, 1]	0.473	0.775	1.000															
4. CAR[0, 1]	0.194	0.483	0.815	1.000														
5. CAR[0, 5]	-0.055	0.277	0.424	0.559	1.000													
6. CAR[-5, 5]	0.621	0.454	0.537	0.363	0.672	1.000												
7. CSRposi	-0.023	-0.092	-0.082	-0.056	-0.025	-0.015	1.000											
8. CSRnega	0.023	0.092	0.082	0.056	0.025	0.015	-1.000	1.000										
9. CSRposi_indivi	0.062	0.076	0.015	-0.003	-0.068	-0.039	0.142	-0.142	1.000									
10. CSRposi_insti	-0.086	-0.150	-0.108	-0.064	-0.036	-0.057	0.572	-0.572	-0.115	1.000								
11. CSRposi_foreign	0.011	-0.052	-0.021	-0.008	-0.049	-0.020	0.364	-0.364	-0.073	-0.295	1.000							
12. CSRnega_indivi	-0.077	-0.023	-0.004	0.018	0.128	0.054	-0.142	0.142	-0.020	-0.081	-0.052	1.000						
13. CSRnega_insti	-0.075	-0.077	-0.071	-0.074	-0.121	-0.134	-0.655	0.655	-0.093	-0.374	-0.239	-0.066	1.000					
14. CSRnega_foreign	0.122	0.158	0.155	0.139	0.175	0.195	-0.432	0.432	-0.062	-0.247	-0.157	-0.043	-0.200	1.000				
15. lsize	-0.110	-0.163	-0.124	-0.098	-0.103	-0.122	0.021	-0.021	0.122	0.057	-0.077	0.130	0.028	-0.065	1.000			
16. ROA	-0.037	-0.048	-0.050	0.000	-0.052	-0.083	0.050	-0.050	0.020	-0.058	0.156	-0.023	-0.016	-0.027	-0.249	1.000		
17. MB	0.035	-0.028	0.025	0.033	0.062	0.094	0.135	-0.135	-0.020	-0.134	0.327	-0.050	-0.218	0.112	-0.311	0.523	1.000	
18. year	0.052	-0.006	-0.026	-0.024	-0.084	-0.034	-0.195	0.195	0.053	-0.033	-0.120	0.061	0.172	0.088	0.224	0.192	-0.190	1.000
Mean	-0.172	-0.177	-0.253	-0.061	-0.088	-0.275	0.590	0.410	0.027	0.311	0.153	0.014	0.225	0.113	21.366	2.484	1.720	2007
Std. Dev.	2.445	1.501	1.933	1.745	2.812	3.149	0.493	0.493	0.163	0.464	0.361	0.116	0.419	0.317	1.293	3.367	1.425	5.937
Min	-10.255	-6.432	-8.928	-7.746	-9.858	-10.694	0	0	0	0	0	0	0	0	15.812	-12.740	0.370	1999
Max	6.177	5.580	6.269	6.666	8.323	8.537	1	1	1	1	1	1	1	1	24.587	17.270	10.840	2018

I again investigate how individual, institutional, and foreign investors react to the events differently in Analysis 2. As with Analysis 1, to clarify the difference in the responses between these three types of shareholder, I employed "Shareholding Ratio by Shareholder Type (on a share number basis)" from an annual securities report of each

firm issued in 2017–2018, collected through the eol[5], a comprehensive database on corporate information mainly for Japanese-listed companies. I categorized firms into "individual investors main," "institutional investors main," and "foreign investors main," based on the ratio of shareholding. As I mentioned in Analysis 1, for institutional investors, the purpose of holding the stocks and the behaviors toward investment between "banks, insurance companies" and "trusts" are different. However, I will not distinguish between them in this analysis, for three reasons: (1) firms do not disclose this breakdown in their annual securities reports; (2) the ratios of banks and insurance companies to whole shareholders and to "Financial Institutions" are getting smaller, 7.1% and 27.1%, respectively, in 2017; (3) the ratios of trusts to whole shareholders and to "Financial Institutions" are increasing, 18.5% and 70.2%, respectively, in 2017. As for foreign investors, I take it as "foreign institutional investors" because the ratio of foreign individuals is negligibly small.

4.2. Methodology

As I explained in Analysis 1, like other empirical analyses, the CSR-related study also is exposed to a risk of endogeneity, especially measurement error and simultaneity (or reverse causality) which may cause biased OLS estimators.

To mitigate this problem, I again implemented a short-run event study methodology focusing on outcomes of corporate behavior in the form of publicly observable events. High-frequency point-in-time CSR measures enable me to precisely measure both the date and information content of the events, and credibly address the measurement error problem. Moreover, the short-run event study methodology also mitigates the reverse causality issue because the short-run stock market reaction provides a direct observation of the stock returns associated with an event, and the precise knowledge of the timing as well as the information contained in an event could exclude alternative explanations for changes in the stock returns (see Krüger 2015).

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[5] The database provided by PRONEXUS INC. It delivers comprehensive data on corporate information, mainly for Japanese-listed companies with both financial and non-financial information. Further information is available at: https://www.pronexus.co.jp/solution/database/eol_eng.html (as of January 7, 2020)

For this reason, I implement the event study, which was first introduced by Dolley (1933) and applied to economic issues by Mackinlay (1997) to mitigate statistical issues such as reverse causality. The event study is an analytical tool to assess the impact of an event on the value of a firm. It analyzes the difference between the returns that would have been expected if the analyzed event did not take place and the returns that were caused by the respective event.

I follow Mackinlay (1997) and Krüger (2015) to explain the calculation of the event study. The calculation starts with identifying the period during which the stock prices are affected by the event. This period is called the event window. As illustrated below, 0 is the day that the event occurs. The Pre-event/Estimation Window, from $t=T_0$ to $t=T_1$ is a certain period, using trading day, before the event and this is used to estimate a firm's normal return. The Event Window, from $t=T_1+1$ to $t=T_2$ including the date of the event is the period affected by the events and the cumulative abnormal return (CAR) of this period usually becomes a target of interest. Following McKinlay (1997) and others, I include the periods prior to the event to observe investors' anticipation mainly caused by information leakage. The Post Event Window from $t=T_2+1$ $t=T_3$ is the period after the event and the CAR of this period may also be of interest. In my study, I use 250 trading days ending 50 days before the event date as the Pre-Event Window and analyze the statistical properties of the 2-day[-1,0], 3-day[-1,1] and 2-day[0, 1] CARs around the event date. Though Aktas et al. (2011), Cheung (2011), Lackmann Ernstberger & Stich (2012), Flammer (2013), Krüger (2015) and Hawn et al. (2018) tried wider windows, I keep it short because, as McWilliams, Siegel & Teoh (1999) mentioned, expansion of the event windows resulted in raising the amount of "noise" relative to information, or in other words, increasing confounding concurrent events reduces the power of the test statistic.

Though the event study is one of the effective methods to mitigate endogeneity problems with precise measurement of firm performance, there are challenges, including accounting for the leakage of information, as I noted for Analysis 1. To mitigate this problem, I again built short windows and tested for abnormal returns around these leakage events, which could be added to the CAR. In this analysis, therefore, I added three windows, 6-day [–5, 0], 6-day [0, 5], and 11-day [–5,5], to capture investors who obtained and responded to the information earlier and later. The

event study requires the rate of return of the stock price and the index, calculated as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}}, \quad R_{mt} = \frac{T_t - T_{t-1}}{T_{t-1}} \cdots (1)$$

where P_{it} represents the stock price of the ith firm at time t, R_{it} is its rate of return, T_t refers to TOPIX at time t, and R_{mt} is its rate of return.

To investigate the effect of an event, we must evaluate the abnormal returns of a firm. Abnormal returns are the difference between the real rate of return and the normal return (the expected return if an event does not occur). To calculate the normal return, I employ the following market model consistent with Mackinlay (1997), Krüger (2015) and other relevant studies:

$$r_{i,t} = \alpha_i + \beta_i t_{m,t} + v_{i,t}, \cdots (2)$$

where $E[v_{i,t}]=0$ and $Var[v_{i,t}]=\sigma_{vi}^2$. α_i and β_i are unknown parameters to be estimated by OLS and used to calculate the normal return. The abnormal returns ($AR_{i,t}$) are calculated by deducting the estimated returns from the real returns.

$$AR_{i,t} = r_{i,t} - (\hat{\alpha}_\iota + \hat{\beta}_\iota r_{m,t}) \cdots (3)$$

After summing the abnormal returns of firm i in period t, the cumulative abnormal returns are calculated as follows:

$$CAR_i(t_i, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t} \cdots (4)$$

To test the null hypothesis that the event does not affect the stock returns and to examine the significance of the results, I adopt Boehmer, Musumeci & Poulsen's (1991) t-test (hereafter referred to as BMP-test), which is adjusted to allow event-induced variance. The BMP-test is widely accepted in relevant studies like Cheung (2011), Cheung and Roca (2013) and Krüger (2015) as a more robust test.

4.3. Results

4.3.1. Overall Events

To examine investors' response to the announcement of Japanese firms' CSR-related events, I analyzed the impact of DJSI inclusion and deletion on firms' stock prices using a short-run event study method. I analyzed the statistical properties of CARs in six windows; 6-day[–5, 0], 2-day[–1, 0], 3-day[–1, 1], 2-day[0, 1], 6-day[0, 5], and 11-day[–5, 5] for both an announcement day and an effective day.

Table 4.3 shows the results of the analysis for the events from 1999 to 2017. It reports the CAR means and their BMP *t*-statistics for the announcement day and the effective day. For index inclusion, the result demonstrates no significant impact around the announcement day, and negative and significant impacts for the [–1, 0] and [–1, 1] windows around the effective day. The result indicates that investors in the Japanese market do not react to index inclusion for the announcement day. The result also demonstrates that CARs around the effective day for firms added are less than TOPIX for the [–1, 0] and [–1, 1] windows by 0.264% and 0.343%, respectively, which can be interpreted that investors' negative responses to index inclusion around the effective day. There is no significant result for index deletion for either the announcement day or the effective day, which suggests investors in the Japanese market are not responsive to index deletion.

Different from my hypothesis 3 and the results from the first analysis, this analysis reveals investors in the Japanese market are indifferent about the index change except for negative reaction to index inclusion, which is expected to be taken as a positive event, around the effective day. These counterintuitive results may be because a substantial ratio of investors for DJSI-listed firms is foreign investors and the results do not perfectly reflect the Japanese investors' attitudes. I, therefore, classify firms by main shareholders in the following section for further analysis.

Table 4.3: Results of the Event Study

Announcement day	Inclusion			Deletion		
windows	mean	t_{BMP}	observations	mean	t_{BMP}	observations
[-5, 0]	-0.0325	(-0.155)	91	-0.0718	(-0.280)	78
[-1, 0]	0.154	(0.972)	91	-0.0698	(-0.407)	78
[-1, 1]	0.195	(1.130)	91	-0.150	(-0.734)	78
[0, 1]	0.163	(1.287)	91	-0.205	(-1.289)	78
[0, 5]	0.155	(0.788)	91	-0.104	(-0.461)	78
[-5, 5]	0.000238	(0.000865)	91	-0.0515	(-0.159)	78

Effective day	Inclusion			Deletion		
windows	mean	t_{BMP}	observations	mean	t_{BMP}	observations
[-5, 0]	-0.203	(-0.935)	131	-0.127	(-0.505)	91
[-1, 0]	-0.275**	(-2.158)	131	-0.0354	(-0.217)	91
[-1, 1]	-0.354**	(-2.040)	131	-0.107	(-0.552)	91
[0, 1]	-0.116	(-0.742)	131	0.0183	(0.103)	91
[0, 5]	-0.0979	(-0.411)	131	-0.0732	(-0.237)	91
[-5, 5]	-0.264	(-1.018)	131	-0.290	(-0.814)	91

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

4.3.2. Results by Shareholder Type

To investigate if interests of individuals, institutions, and foreign investors may vary, I categorized firms into "Japanese investors (individuals and institutions) main," "Japanese institutional investors main," and "foreign investors main," based on the main shareholder and conducted the event study for each group. I do not generate an "individuals" group independently because the sample size is too small for the statistical analysis. Instead, I merged individuals into "Japanese investors (individuals and institutions) main" to see a difference between whole Japanese investors and the sole "institutions" group. The results are shown in Table 4.4 which reports the CAR means and their BMP *t*-statistics for both the announcement day and the effective day.

As seen in Table 4.4, around the announcement day, no group showed a significant result for either inclusion or deletion, which indicates that all categories of investors are indifferent about the index change around the announcement day. Around the effective day, "Japanese investors (individuals and institutions) main" generates negative and significant CARs in the [–1, 0] and [–1, 1] windows for inclusion, and negative and significant CARs in the [0, 5] and [–5, 5] windows for deletion. These results illustrate

that Japanese investors, including individuals and institutions, negatively respond to both index inclusion and deletion around the effective day. "Japanese institutional investors main" also shows negative and significant CARs in the [–5, 0], [–1, 0], and [–1, 1] windows for inclusion, and negative and significant CARs in the [–1, 1], [0, 5], and [–5, 5] windows for deletion which indicates that Japanese institutional investors also negatively respond to both index inclusion and deletion around the effective day. By comparing the results between whole Japanese investors and sole institutional investors, I cannot see a clear difference but weaker reaction for deletion in short term [–1, 0] and [–1, 1] for whole Japanese investors than sole institutional ones. This finding shows no difference in reaction to the index change between whole Japanese investors and institutional investors. The participation of individual investors, however, may weaken the instant negative reaction to index deletion.

On the other hand, "foreign investors main" firms show no significant result for inclusion, but positive and significant CARs in the [–5, 0], [0, 5], and [–5, 5] windows for deletion. These results indicate foreign investors respond positively to index deletion around the effective day, which is different from Japanese investors and from my hypothesis 3. Positive reaction to index deletion could be explained by a feature of European investors who value disclosures of firms whatever the issue is. This point will be further discussed in the following chapter.

Another finding from this analysis is that less significant results in the overall analysis in the previous section may be caused by contradictory responses between Japanese and foreign investors. There may be existence of confounding concurrent events which normalize the impacts. Though I could only recognize that a few percent of events might be affected by the announcement of CSR-related news, there is still room for further investigation, such as for offset by non-CSR-related news.

Table 4.4: Results of the Event Study by Main Shareholders

Announcement day		Inclusion			Deletion		
	windows	mean	t$_{BMP}$	observations	mean	t$_{BMP}$	observations
Japanese investors (Individual & Institutions)	[-5, 0]	-0.115	(-0.517)	68	-0.320	(-1.072)	57
	[-1, 0]	0.0553	(0.311)	68	-0.150	(-0.752)	57
	[-1, 1]	0.0500	(0.301)	68	-0.219	(-0.960)	57
	[0, 1]	0.145	(1.135)	68	-0.277	(-1.588)	57
	[0, 5]	0.199	(0.949)	68	-0.195	(-0.790)	57
	[-5, 5]	-0.0670	(-0.232)	68	-0.305	(-0.802)	57
Japanese institutions	[-5, 0]	0.135	(0.528)	51	-0.325	(-0.964)	45
	[-1, 0]	0.136	(0.645)	51	-0.224	(-0.954)	45
	[-1, 1]	0.0608	(0.310)	51	-0.324	(-1.215)	45
	[0, 1]	0.187	(1.227)	51	-0.299	(-1.469)	45
	[0, 5]	0.163	(0.637)	51	-0.232	(-0.830)	45
	[-5, 5]	0.0355	(0.0983)	51	-0.358	(-0.884)	45
Foreign investors	[-5, 0]	0.212	(0.417)	23	0.601	(1.250)	21
	[-1, 0]	0.447	(1.296)	23	0.149	(0.439)	21
	[-1, 1]	0.622	(1.326)	23	0.0346	(0.0765)	21
	[0, 1]	0.215	(0.644)	23	-0.00788	(-0.0222)	21
	[0, 5]	0.0270	(0.0561)	23	0.143	(0.280)	21
	[-5, 5]	0.199	(0.289)	23	0.637	(1.066)	21

Effective day		Inclusion			Deletion		
	windows	mean	t$_{BMP}$	observations	mean	t$_{BMP}$	observations
Japanese investors (Individual & Institutions)	[-5, 0]	-0.242	(-1.019)	97	-0.426	(-1.375)	66
	[-1, 0]	-0.255*	(-1.851)	97	-0.235	(-1.223)	66
	[-1, 1]	-0.359*	(-1.916)	97	-0.362	(-1.579)	66
	[0, 1]	-0.121	(-0.705)	97	-0.201	(-0.972)	66
	[0, 5]	0.0142	(0.0486)	97	-0.577	(-1.645)	66
	[-5, 5]	-0.211	(-0.665)	97	-0.929**	(-2.191)	66
Japanese institutions	[-5, 0]	-0.530*	(-1.841)	69	-0.487	(-1.256)	50
	[-1, 0]	-0.527***	(-3.104)	69	-0.365	(-1.661)	50
	[-1, 1]	-0.584**	(-2.581)	69	-0.493**	(-2.049)	50
	[0, 1]	-0.225	(-1.095)	69	-0.301	(-1.322)	50
	[0, 5]	-0.224	(-0.645)	69	-0.717**	(-2.087)	50
	[-5, 5]	-0.586	(-1.554)	69	-1.030**	(-2.162)	50
Foreign investors	[-5, 0]	-0.0918	(-0.185)	34	0.664*	(1.787)	25
	[-1, 0]	-0.333	(-1.115)	34	0.492	(1.703)	25
	[-1, 1]	-0.340	(-0.835)	34	0.564	(1.662)	25
	[0, 1]	-0.101	(-0.285)	34	0.597*	(1.822)	25
	[0, 5]	-0.418	(-1.096)	34	1.257**	(2.215)	25
	[-5, 5]	-0.415	(-0.973)	34	1.395**	(2.593)	25

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

4.4. Comparison to the United States and Europe

In this section, I provide deeper insights regarding the difference in investors' reaction between the United States, Europe, and Japan. To investigate the difference, first I reviewed other studies on investors' reaction in the United States and Europe, and then compared the results to mine.

As I mentioned in Analysis 1, several studies employ the event study using a dataset of U.S. firms. In addition to Krüger (2015) and Flammer (2013) introduced in Analysis 1, Cheung (2011) and Wang and Chen (2017) explored the impact of CSR-related events on stock prices. These three studies and mine are relatively easy to compare because of the common data source, the DSJI.

Cheung (2011) examined the impact of index on firm value by analyzing 177 samples of U.S. stocks that were added to or deleted from the DJSI from 2002 to 2008. He employed two sets of event days, the announcement day (AD) and the day of change (CD), which is the same as the effective day in my study. Table 4.5 shows the mean CARs and their statistical test results. Cheung found no significant result for the t-test but significant positive abnormal returns in the window [AD–2, AD+2] for the sign-test, which indicated an anticipation effect two days before the announcement day. On the day of change (CD), however, the impact became negative and significant. He concluded that the effects were largely temporary and could not last long for index inclusion. For index exclusions, CARs are negative and significant in the run-up period [AD+1, CD–1] for the t-test and periods around CD, that is, [CD–1, CD+1] and [CD–3, CD+3] for the sign-test, suggesting that the selling pressure is high in this period. After the change, however, the impact is statistically insignificant. Temporary effects for both inclusions and exclusions are shown in Figure 4.2.

Table 4.5: Cumulative Abnormal Return in Smaller Event Window by Cheung (2011)

Event window	Event days	Index inclusions			Index exclusions		
		Mean (%)	Sign-test	t-stat	Mean (%)	Sign-test	t-stat
Pre-AD	AD-10, AD-1	0.835	1.118	0.983	0.025	-1.320	0.040
AD	AD	-0.132	-1.118	-0.630	-0.134	0.209	-0.750
	AD-1, AD+1	-0.196	1.342	-0.571	-0.004	-0.305	-0.014
	AD-2, AD+2	0.289	2.236**	0.618	0.087	-0.305	0.222
	AD-3, AD+3	0.566	1.565	1.048	-0.153	-1.117	-0.344
		0.834	1.342	1.408	-0.111	-0.711	-0.229
Run-up	AD+1, CD-1	-0.540	-0.671	-0.813	-0.939	-1.877*	-1.274
CD	CD	-0.194	-1.789*	-1.221	0.081	-0.209	0.381
	CD-1, CD+1	0.094	0.000	0.290	-0.89	-0.711	-2.091**
	CD-2, CD+2	-0.133	-0.224	-0.307	-0.887	-0.508	-1.641
	CD-3, CD+3	0.124	1.118	0.279	-1.291	-1.523	-1.917*
Release	CD, CD+4	0.332	1.342	0.879	-0.406	0.209	-0.934
Post-release	CD+5, CD+5	0.050	0.447	0.269	-0.13	-0.626	-0.633
	CD+5, CD+10	-0.890	-0.671	-1.272	-0.907	-1.251	-1.257
Temporary price	AD, CD+10	-1.215	0.671	-0.978	-2.035	-1.251	-1.582
	AD-15, CD+10	-0.641	-0.671	-0.386	-1.844	-1.117	-1.341
Permanent Price	AD, CD+30	-1.311	0.224	-0.727	-2.083	-0.626	-1.123
	AD-15, CD+60	0.497	0.671	0.265	-1.133	-0.102	-0.522

Sources: Cheung (2011). Summarized by the author.

Note: AD (Announcement Day) is the actual day on which the actual announcement and CD (Changed Day) is the actual day on which effective change takes place. "t-stat" is the cross-sectional t statistics.
$* p < 0.10, ** p < 0.05, *** p < 0.01$

Figure 4.2: Cumulative Abnormal Returns (CARs) by Cheung (2011)
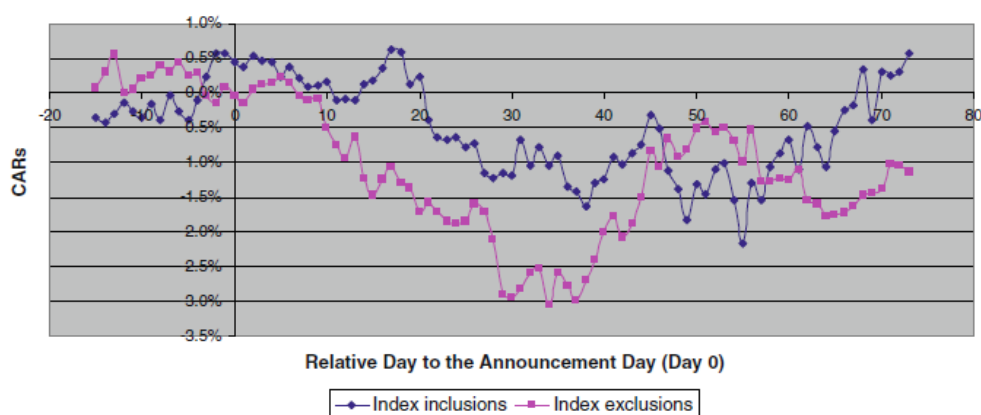
Source: Cheung (2011)

Wang and Chen (2017) also examined how the U.S. capital market perceived CSR by using the constituent companies of the DJSI in an event study. Though they examined index inclusion for only one year, 2012, the results showed that the U.S. capital market responded positively before the nomination or announcement, suggesting a higher degree of speculation from investors, but not significant impact after the nomination (see Table 4.6). Wang and Chen (2017) explained that this was because investors cared about such information and prepared before the announcements, and as a result, Abnormal Returns lessened gradually after the announcement. They also pointed out that investors had greater expectations for the nominations than for the awards before announcements.

Table 4.6: Tests on CARs of DJSI Constituents by Wang and Chen (2017)

Event window	Nominated period	Selected period	Selected period (exclude awarded)	Awarded period
	Mean(%)	Mean(%)	Mean(%)	Mean(%)
(-10,-1)	0.0138***	0.0126	0.0232**	0.0004
(0,1)	−0.0014	0.0009	0.0006	0.0014
(0,5)	−0.0024	0.0013	0.0013	0.0015*
(0,10)	−0.0048	0.0016	−0.0005	0.0047

Sources: Wang and Chen (2017). Summarized by the author.

Note: Wang and Chen (2017) employed the standard cross-sectional test.

∗ $p < 0.10$, ∗∗ $p < 0.05$, ∗∗∗ $p < 0.01$

Studies investigating European or U.K. investors with the event study method were also found. In addition to Cellier & Chollet (2016) mentioned in Analysis 1, Consolandi et al. (2009), Lackmann et al. (2012), and Clacher and Hagendorff (2012) also investigate how CSR-related events affect firms' value. My analysis and these three studies are comparable because we all use index inclusion and deletion as event data.

Consolandi et al. (2009) performed an event study on 208 European corporations with the highest CSR scores among those included in the Dow Jones Sustainability Stoxx 600 Index (DJSSI) to analyze whether the stock market evaluation reacted to the inclusion (deletion) in the DJSSI during 2002 to 2006. They employed the DJSI

STOXX[6] instead of DJSI because it focuses on European companies and more appropriate to measure CSR performance of European firms. Though they used different index from my analysis, it does not affect the comparableness largely because both DJSI and DJSSI adopt the same criteria on sustainable management for constituents of both indexes. They took into account both the announcement date (AD) and the date on which the index was effectively changed (ED) as the event dates. Table 4.7 shows the average CARs and their statistical test results. In the case of inclusion, the authors found positive and significant CARs before the announcement (window [AD–10, AD–1]) and around the day of the effective inclusion (window [AD+1, ED–1]). In the case of deletion, the CARs started to decrease shortly after the announcement until the actual inclusion (window [AD+1, ED–1]) and continued to decrease until 10 days after the effective deletion day (window [ED+1, ED+10]). As illustrated in Figure 19, CARs after the inclusion seem to be higher than before the event though the results are not significantly positive.

Table 4.7: Cumulative Average Abnormal Return for Companies Included and Deleted from the DJSI Stoxx during 2002–2006 (single event windows)

Event window	Add		Del	
	CAR (%)	t-test	CAR (%)	t-test
AD - 10:AD - 1	0.04	4.35**	0.01	0.84
AD	-0.006	-0.89	0.001	0.13
AD + 1:ED - 1	0.03	2.59**	-0.050	-3.83**
ED	-0.008	-0.94	-0.003	-0.28
ED + 1:ED + 10	0.001	0.16	-0.030	-4.48**

Source: Consolandi et al. (2009). Summarized by the author.

Note: Stars for deleted companies were added by the author because they were missing in the original paper. Consolandi et al. (2009) employed the student`s t-test.

$* p < 0.10, ** p < 0.05, *** p < 0.01$

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[6] The DJSI STOXX was renamed to the ''Dow Jones Sustainability Europe Index'' (DJSI Europe) in 2010.

Figure 4.3: Cumulative Average Abnormal Return
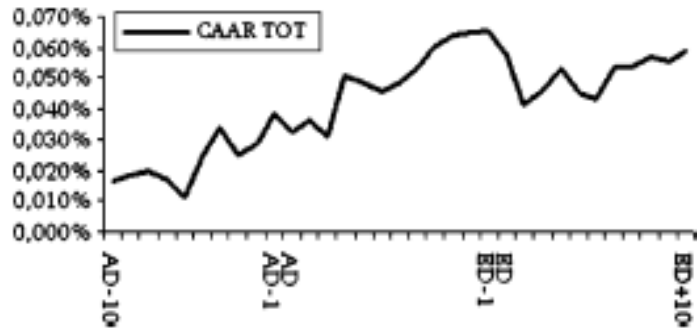
Figure 1. Cumulative average abnormal return for the included companies sub-sample.
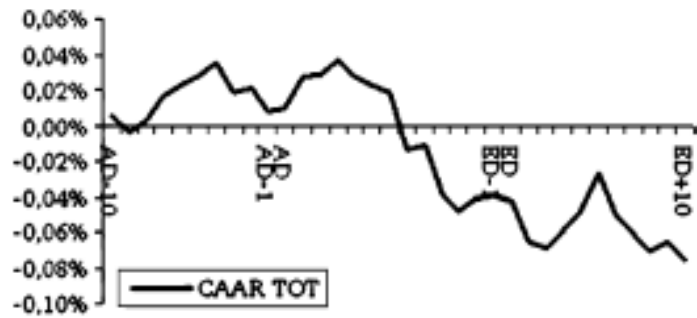
Figure 2. Cumulative average abnormal return for the deleted companies sub-sample.

Source: Consolandi et al. (2009).

Lackmann et al. (2012) also investigated market reactions to sustainable behaviors of European firms by event study with the composition of the DJSSI. Again, they used the DJSI STOXX which indicates the best performed European companies which fulfill the sustainability criteria. Their analysis and this study are comparable because both indexes require the same criteria on sustainability. They calculated CAR over the three event windows, [–2, 2], [–5, 5], and [–10,10], around the day of the announcement of the index inclusion, and found a significant positive market reaction, as shown in Table 4.8. Based on the results, they claimed that the criteria of the index are well defined, and thus an increase in the reliability of sustainability information constitutes important information for investors.

Table 4.8: Investor Reactions to an Addition to the DJSI STOXX

Event window	Mean	t-stat	z-stat	Statistic foll. Brown and Warner (1985)	Statistic foll. Corrado (1989)	observations
(-2, 2)	1.233	(4.24)***	(3.52)***	(1.95)**	(2.05)**	344
(-5, 5)	1.950	(4.38)***	(4.06)***	(2.16)**	(2.64)***	344
(-10, 10)	4.707	(5.92)***	(5.59)***	(3.63)***	(2.78)***	344

Source: Lackmann et al. (2012). Summarized by the author.

Note:***, ** Indicate one-tailed significance at the 0.01 and 0.05 levels, respectively.

Clacher and Hagendorff (2012) studied the stock market reaction to announcements that firms traded on the London Stock Exchange (LSE) are included in the FTSE4Good index from 2001 to 2008 by using the event study method. The results showed a positive and statistically significant market reaction on the announcement day of firm inclusion in the FTSE4Good for the entire market index, FTSE 100, FTSE 350, and FTSE all share (see Table 4.9). From these results, Clacher and Hagendorff (2012) concluded that shareholders did not see socially responsible as actions as value-destroying, but they did not find strong evidence to support this.

Table 4.9: CAR Linked to FTSE4Good Inclusion

event window	CAR (%)	t_{BMP}	z-stat	N
Market index: FTSE 100				
0	0.587	(4.43)***	(2.49)**	356
(t-1, t-1)	0.017	(0.21)	(0.96)	356
(t-2, t-2)	-0.129	(-0.91)	(-2.72)	356
(t-5, t-5)	-0.272	(-0.76)	(-5.91)	356
(t-10, t-1)	-0.267	(-0.60)	(-5.81)	356
(t-20, t-1)	-0.211	(-0.51)	(-6.23)	356
Market index: FTSE 350				
0	0.561	(4.25)***	(2.24)**	356
(t-1, t-1)	0.018	(0.23)	(0.91)	356
(t-2, t-2)	-0.123	(0.82)	(0.62)	356
(t-5, t-5)	-0.261	(0.54)	(0.71)	356
(t-10, t-1)	-0.256	(0.80)	(0.59)	356
(t-20, t-1)	-0.196	(0.13)	(0.87)	356
Market index: FTSE all share				
0	0.557	(4.23)***	(2.19)**	356
(t-1, t-1)	0.024	(0.30)	(0.81)	356
(t-2, t-2)	-0.116	(-0.73)	(-0.50)	356
(t-5, t-5)	-0.254	(-0.42)	(-0.58)	356
(t-10, t-1)	-0.248	(-0.64)	(-0.40)	356
(t-20, t-1)	-0.188	(-0.93)	(-0.68)	356

Source: Clacher and Hagendorff (2012).

Note: ** $p < 0.05$, *** $p < 0.01$

My results for Analysis 2 and the studies described above are summarized in Table 4.10. A clear feature of the U.S. market is a positive response to a positive event before the announcement, which indicates the anticipation effect among investors. Though the statistical results after the effective day for positive events are ambiguous, both Cheung (2011) and Wang and Chen (2017) pointed out the speculative attitude of investors which resulted in the temporal impacts on the stock market. For negative events, the studies showed a negative impact both before and after the events. Cheung (2011), however, mentioned it is also a short-term effect. In contrast, the European market demonstrates a positive reaction before and after the positive event announcement, and before the effective day. At least, adverse effects after the event as in the U.S. market cannot be found. Moreover, both Consolandi et al. (2009) and Lackmann et al. (2012) presented positive views on the relationship between CSR-related events and investors' responses from their results, whereas Clacher and Hagendorff (2012) simply stated "shareholders did not see socially responsible as value-destroying." Though only

Consolandi et al. (2009) examined negative events, their results showed a negative impact after the announcement, and before and after the effective day. It seems the response of the Japanese market is largely different from those of the U.S. and European markets. First Japanese investors, mainly institutions, are more responsive to the effective day than the announcement day, which indicates Japanese investors do not pay attention to the sustainable index change as other market investors. They only respond to actual index change, which may be because of automatic portfolio reconstruction. Second, Japanese investors react negatively to a positive event before and after the positive event. This may be because they value the CSR-related events negatively or just fix profit at the peak of the stock price. In response to a negative event, Japanese investors show a negative attitude only after the effective day, which also suggests automatic portfolio reconstruction based on the actual index change.

Table 4.10: Results of Related Studies and this Analysis

Country	Author(s)	Event	Timing	Statistical Results (t-test if not mentioned)			
				Announcement day		Effective day	
				Positive news	Negative news	Positive news	Negative news
USA	Cheung (2011)	DJSI	Before	Not significant (t-test) positive (Sign test)	Not significant	Not significant	negative (t-test & Sign test)
			After	Not significant (t-test) positive (Sign test)	Not significant (t-test) negative (Sign test)	Not significant (t-test) negative (Sign test)	negative (t-test & Sign test)
	Wang (2017)	DJSI	Before	positive		Not significant	
			After	Not significant		positive	
	Kruger (2015)	CSR-related news from KLD news	-	weakly negative	strongly negative		
	Flammer (2013)	Environment-related news from Wall Street Journal (WSJ)	Before	positive	negative		
			After	not significant (positive in robustness check for [-1,1], [-1,2] and [-1,3])	not significant (negative in robustness check for [-1,1], [-1,2] and [-1,3])		
Europe	Consolandi (2009)	DJSSI	Before	positive	Not significant	positive	negative
			After	positive	negative	Not significant	negative
	Lackmann (2012)	DJSSI	Before	positive			
			After	positive			
	Cellier & Chollet (2016)	Vigeo social rating	Before	positive (whatever rating is)			
			After	positive (whatever rating is)			
UK	Clacher (2012)	FTSE4Good	Before	Not significant			
			After	positive (only on (0,0))			
Japan	This study	DJSI (All investors)	Before	Not significant	Not significant	negative	Not significant
			After	Not significant	Not significant	negative	Not significant
		DJSI (Japanese investors)	Before	Not significant	Not significant	negative	Not significant
			After	Not significant	Not significant	negative	negative

Source: Summarized by the author.

4.5. Robustness Check

To address potential concerns, I performed several robustness checks, after Flammer (2013)**,** Clacher and Hagendorff (2012), Cheung (2011), and Cheung and Roca (2013). I briefly discuss each of these concerns in this section.

(Alternative Event Windows)

In this analysis, I again employ 2-day[–1, 0], 3-day[–1, 1] and 2-day [0, 1] event windows. I selected short windows because expansion of the event windows may increase confounding concurrent events, which reduces the power of the test statistic, following Siegel and Teoh (1999). For the reasons described in Section 3.4, I added 6-day[–5, 0], 6-day[0, 5], and 11-day[–5, 5] windows.

(Alternative Normal Return Models)

To estimate normal returns, I use the market model in this analysis consistent with Mackinlay (1997), Krüger (2015) and many other studies. The estimated normal returns, however, may reflect other factors. To address this concern, I re-estimate normal returns and compute CARs with the three-factor model of Fama and French (1993). The Fama-French three-factor model is a model to estimate stock returns by (1) market risk, (2) the outperformance of small versus big companies, and (3) the outperformance of high book/market versus small book/market companies as described below.

$$r_{i,t} - R_f = \beta_i^{MKT}(R_{m,t} - R_{f,t}) + \beta_i^{SMB} SMB_t + \beta_i^{HML} HML_t$$

where *r* is the portfolio's expected rate of return or firm *i* at time *t*, R_f is the risk-free return rate, and R_m is the return of the market portfolio. *SMB* means "Small Minus Big" based on a company's market capitalization and HML for "High Minus Low" based on book-to-market ratios (3). Using the Fama-French model, I obtained very similar results, as shown in Table 4.11

Table 4.11: Results of the Event Study Using The Fama-French Three-Factor Model

Announcement day	Inclusion			Deletion		
windows	mean	t_{BMP}	observations	mean	t_{BMP}	observations
[-5, 0]	0.297	(0.452)	91	-0.433	(-0.922)	78
[-1, 0]	0.245	(0.893)	91	-0.190	(-0.827)	78
[-1, 1]	0.355	(0.959)	91	-0.287	(-0.926)	78
[0, 1]	0.293	(1.158)	91	-0.303	(-1.273)	78
[0, 5]	0.579	(0.928)	91	-0.449	(-0.948)	78
[-5, 5]	0.693	(0.616)	91	-0.676	(-0.874)	78

Effective day	Inclusion			Deletion		
windows	mean	t_{BMP}	observations	mean	t_{BMP}	observations
[-5, 0]	-0.131	(-0.545)	131	-0.243	(-0.843)	91
[-1, 0]	-0.274**	(-2.070)	131	-0.112	(-0.677)	91
[-1, 1]	-0.331*	(-1.880)	131	-0.198	(-1.027)	91
[0, 1]	-0.118	(-0.753)	131	-0.0248	(-0.147)	91
[0, 5]	-0.0419	(-0.158)	131	-0.170	(-0.498)	91
[-5, 5]	-0.113	(-0.362)	131	-0.474	(-1.110)	91

(Regression Analysis)

To rule out alternative explanations of the results, I regress CARs on a CSR index, a time trend and controls as follows. The model is widely used by researchers such as Flammer (2013a), Shiu & Yang (2017) and Hawn, et al. (2018).

$$CAR_{i,t}= \beta_1 \textbf{\textit{CSRposi}}_{i,t}+\beta_2 year_{i,t}+\beta_3 lsize_{i,t} +\beta_4 ROA_{i,t} +\beta_4 MB_{i,t}+\varepsilon_{it}$$

$$CAR_{i,t}= \beta_1 \textbf{\textit{CSRnega}}_{i,t}+\beta_2 year_{i,t}+\beta_3 lsize_{i,t} +\beta_4 ROA_{i,t} +\beta_4 MB_{i,t}+\varepsilon_{it}$$

where *CSRposi* is a dummy variable for index addition, *CSRnega* is a dummy variable for index addition. *year* is a time trend from 1999 to 2017, *lsize* is a logarithm of total asset value, ROA is return on asset and *MB* stands for Market-to-Book ratio. For further understanding, I divide *CSRposi* and *CSRnega* into individual-main-firms (*CSRposi_indivi, CSRnega_indivi*), institution-main-firms (*CSRposi_insti, CSRnega_insti*) and foreign-main-firms (*CSRposi_foreign, CSRnega_foreign*) based on main shareholders of the target firms. The results are presented in Table 4.12 and Table 4.13 for the announcement day and effective day, respectively. As for the announcement day shown in Table 4.12, the results resemble my main analysis when

breaking down the CSR index by main shareholders. For the effective day described in Table 4.13, the results are also similar to my main results. Both the regression analysis and the main result show a negative and significant impact for index addition. For index deletion, both results show the same signs, except that the results of the regression model for institution-main firms are not significant.

Table 4.12: Regression Analysis of Cumulative Abnormal Returns (Announcement Day)

Announcement

Dependent variable	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]
CSRposi	0.0223	0.171	0.294	0.345*	0.205	0.00525						
	(0.0676)	(0.712)	(1.081)	(1.699)	(0.670)	(0.0124)						
CSRposi_indivi							1.023	0.233	0.426	0.293	-0.234	0.689
							(0.943)	(0.293)	(0.475)	(0.435)	(-0.231)	(0.492)
CSRposi_insti							0.363	0.208	0.181	0.344	0.235	0.227
							(0.977)	(0.764)	(0.587)	(1.493)	(0.676)	(0.473)
CSRposi_foreign							0.116	0.424	0.684	0.368	-0.0503	-0.0424
							(0.226)	(1.127)	(1.608)	(1.154)	(-0.104)	(-0.0639)
year	0.0332	-0.0333	-0.0324	-0.0209	0.0263	0.0812*	0.0309	-0.0337	-0.0340	-0.0225	0.0262	0.0794*
	(0.968)	(-1.332)	(-1.145)	(-0.987)	(0.824)	(1.844)	(0.895)	(-1.336)	(-1.193)	(-1.055)	(0.814)	(1.785)
lsize	0.0469	0.0798	0.0961	0.173*	0.0432	-0.0669	0.0315	0.0728	0.0875	0.168*	0.0465	-0.0756
	(0.308)	(0.719)	(0.765)	(1.848)	(0.305)	(-0.343)	(0.207)	(0.652)	(0.694)	(1.779)	(0.326)	(-0.384)
ROA	-0.0291	0.0377	0.0849*	0.0716*	-0.0226	-0.0760	-0.0321	0.0355	0.0837*	0.0690*	-0.0247	-0.0776
	(-0.481)	(0.854)	(1.699)	(1.918)	(-0.401)	(-0.978)	(-0.528)	(0.797)	(1.666)	(1.832)	(-0.434)	(-0.989)
MB	0.286*	0.0424	-0.0196	-0.0386	0.143	0.406**	0.294*	0.0260	-0.0548	-0.0396	0.166	0.419**
	(1.930)	(0.392)	(-0.160)	(-0.423)	(1.039)	(2.132)	(1.920)	(0.232)	(-0.433)	(-0.417)	(1.161)	(2.121)
Constant	-68.02	64.99	62.67	37.82	-53.96	-162.1*	-63.21	65.91	66.09	41.34	-53.94	-158.3*
	(-0.996)	(1.303)	(1.111)	(0.898)	(-0.849)	(-1.847)	(-0.920)	(1.311)	(1.164)	(0.970)	(-0.839)	(-1.785)
Observations	166	166	166	166	166	166	166	166	166	166	166	166
R-squared	0.030	0.025	0.036	0.057	0.013	0.046	0.040	0.031	0.045	0.057	0.014	0.049

Dependent variable	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]
CSRnega	-0.0223	-0.171	-0.294	-0.345*	-0.205	-0.00525						
	(-0.0676)	(-0.712)	(-1.081)	(-1.699)	(-0.670)	(-0.0124)						
CSRnega_indivi							-0.144	1.007	1.167	0.383	-0.394	-0.761
							(-0.116)	(1.112)	(1.139)	(0.497)	(-0.340)	(-0.475)
CSRnega_insti							-0.275	-0.311	-0.440	-0.398*	-0.336	-0.342
							(-0.714)	(-1.109)	(-1.385)	(-1.669)	(-0.933)	(-0.688)
CSRnega_foreign							0.408	0.0551	-0.0274	-9.08e-05	-0.0786	0.247
							(0.792)	(0.147)	(-0.0646)	(-0.000285)	(-0.163)	(0.372)
year	0.0332	-0.0333	-0.0324	-0.0209	0.0263	0.0812*	0.0306	-0.0342	-0.0333	-0.0225	0.0262	0.0803*
	(0.968)	(-1.332)	(-1.145)	(-0.987)	(0.824)	(1.844)	(0.889)	(-1.363)	(-1.173)	(-1.056)	(0.813)	(1.808)
lsize	0.0469	0.0798	0.0961	0.173*	0.0432	-0.0669	0.0516	0.0659	0.0806	0.172*	0.0509	-0.0549
	(0.308)	(0.719)	(0.765)	(1.848)	(0.305)	(-0.343)	(0.336)	(0.590)	(0.638)	(1.814)	(0.355)	(-0.278)
ROA	-0.0291	0.0377	0.0849*	0.0716*	-0.0226	-0.0760	-0.0186	0.0438	0.0922*	0.0793**	-0.0179	-0.0673
	(-0.481)	(0.854)	(1.699)	(1.918)	(-0.401)	(-0.978)	(-0.303)	(0.982)	(1.829)	(2.093)	(-0.313)	(-0.854)
MB	0.286*	0.0424	-0.0196	-0.0386	0.143	0.406**	0.240	0.0173	-0.0470	-0.0621	0.128	0.366*
	(1.930)	(0.392)	(-0.160)	(-0.423)	(1.039)	(2.132)	(1.571)	(0.155)	(-0.373)	(-0.656)	(0.893)	(1.857)
Constant	-68.00	65.16	62.96	38.17	-53.75	-162.1*	-62.98	67.30	65.11	41.54	-53.72	-160.4*
	(-0.996)	(1.307)	(1.117)	(0.907)	(-0.846)	(-1.848)	(-0.916)	(1.345)	(1.150)	(0.977)	(-0.837)	(-1.813)
Observations	166	166	166	166	166	166	166	166	166	166	166	166
R-squared	0.030	0.025	0.036	0.057	0.013	0.046	0.039	0.039	0.050	0.060	0.016	0.052

Table 4.13: Regression Analysis of Cumulative Abnormal Returns (Effective Day)

Effective

Dependent variable	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]
CSRposi	0.00239	-0.219	-0.294	-0.198	-0.198	-0.0728						
	(0.00687)	(-1.038)	(-1.084)	(-0.790)	(-0.494)	(-0.166)						
CSRposi_indivi							1.050	0.691	0.189	-0.00935	-1.118	-0.561
							(1.020)	(1.118)	(0.235)	(-0.0125)	(-0.940)	(-0.430)
CSRposi_insti							-0.331	-0.517**	-0.466	-0.257	-0.367	-0.390
							(-0.873)	(-2.268)	(-1.572)	(-0.936)	(-0.836)	(-0.810)
CSRposi_foreign							-0.0198	-0.329	-0.312	-0.182	-0.782	-0.603
							(-0.0392)	(-1.088)	(-0.792)	(-0.497)	(-1.342)	(-0.942)
year	0.0544*	0.00912	0.00743	-0.000135	-0.0138	0.0391	0.0517	0.00795	0.00823	0.000961	-0.0157	0.0353
	(1.685)	(0.466)	(0.295)	(-0.00579)	(-0.371)	(0.956)	(1.621)	(0.416)	(0.331)	(0.0416)	(-0.426)	(0.874)
lsize	-0.290**	-0.240***	-0.212*	-0.136	-0.219	-0.345*	-0.303**	-0.250***	-0.219*	-0.139	-0.194	-0.326*
	(-1.979)	(-2.698)	(-1.859)	(-1.291)	(-1.293)	(-1.863)	(-2.060)	(-2.836)	(-1.904)	(-1.308)	(-1.139)	(-1.747)
ROA	-0.106*	-0.0381	-0.0649	-0.0192	-0.0982	-0.211***	-0.106*	-0.0378	-0.0645	-0.0190	-0.0936	-0.207**
	(-1.678)	(-0.999)	(-1.324)	(-0.422)	(-1.351)	(-2.658)	(-1.678)	(-1.000)	(-1.313)	(-0.417)	(-1.287)	(-2.595)
MB	0.155	-0.0294	0.0761	0.0360	0.183	0.408**	0.139	-0.0372	0.0670	0.0305	0.221	0.433**
	(1.047)	(-0.328)	(0.660)	(0.338)	(1.075)	(2.182)	(0.908)	(-0.406)	(0.561)	(0.276)	(1.251)	(2.237)
Constant	-103.2	-13.07	-10.42	3.220	32.39	-71.40	-97.33	-10.41	-11.85	1.090	35.68	-64.19
	(-1.607)	(-0.336)	(-0.208)	(0.0695)	(0.437)	(-0.879)	(-1.535)	(-0.274)	(-0.240)	(0.0237)	(0.487)	(-0.799)
Observations	215	215	215	215	215	215	215	215	215	215	215	215
R-squared	0.032	0.044	0.030	0.014	0.025	0.051	0.041	0.073	0.038	0.015	0.036	0.057

Dependent variable	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]	CAR[-5, 0]	CAR[-1, 0]	CAR[-1, 1]	CAR[0, 1]	CAR[0, 5]	CAR[-5, 5]
CSRnega	-0.00239	0.219	0.294	0.198	0.198	0.0728						
	(-0.00687)	(1.038)	(1.084)	(0.790)	(0.494)	(0.166)						
CSRnega_indivi							-1.422	-0.0373	0.228	0.486	3.539**	1.896
							(-0.995)	(-0.0432)	(0.205)	(0.472)	(2.184)	(1.061)
CSRnega_insti							-0.420	-0.245	-0.192	-0.189	-0.406	-0.583
							(-1.009)	(-0.974)	(-0.590)	(-0.631)	(-0.861)	(-1.121)
CSRnega_foreign							0.569	0.630*	0.787*	0.687*	1.399**	1.439**
							(1.052)	(1.926)	(1.865)	(1.761)	(2.280)	(2.125)
year	0.0544*	0.00912	0.00743	-0.000135	-0.0138	0.0391	0.0531	0.00876	0.00617	-0.00229	-0.0234	0.0294
	(1.685)	(0.466)	(0.295)	(-0.00579)	(-0.371)	(0.956)	(1.636)	(0.446)	(0.244)	(-0.0978)	(-0.635)	(0.725)
lsize	-0.290**	-0.240***	-0.212*	-0.136	-0.219	-0.345*	-0.269*	-0.240***	-0.214*	-0.139	-0.245	-0.349*
	(-1.979)	(-2.698)	(-1.859)	(-1.291)	(-1.293)	(-1.863)	(-1.832)	(-2.703)	(-1.874)	(-1.317)	(-1.473)	(-1.903)
ROA	-0.106*	-0.0381	-0.0649	-0.0192	-0.0982	-0.211***	-0.0900	-0.0257	-0.0509	-0.00612	-0.0698	-0.179**
	(-1.678)	(-0.999)	(-1.324)	(-0.422)	(-1.351)	(-2.658)	(-1.419)	(-0.670)	(-1.028)	(-0.134)	(-0.970)	(-2.253)
MB	0.155	-0.0294	0.0761	0.0360	0.183	0.408**	0.0928	-0.0872	0.0120	-0.0195	0.0773	0.289
	(1.047)	(-0.328)	(0.660)	(0.338)	(1.075)	(2.182)	(0.612)	(-0.952)	(0.102)	(-0.178)	(0.450)	(1.524)
Constant	-103.2	-13.29	-10.71	3.022	32.19	-71.47	-100.8	-12.40	-7.981	7.504	51.95	-51.92
	(-1.609)	(-0.342)	(-0.214)	(0.0653)	(0.434)	(-0.881)	(-1.565)	(-0.318)	(-0.159)	(0.162)	(0.711)	(-0.645)
Observations	215	215	215	215	215	215	215	215	215	215	215	215
R-squared	0.032	0.044	0.030	0.014	0.025	0.051	0.048	0.064	0.045	0.031	0.076	0.087

4.6. Discussion and Conclusion for Analysis 2

In Analysis 2, I used the event study methodology to examine investors' response to CSR-related events, DJSI inclusion and deletion, which allowed this analysis to be comparable to other studies. This analysis is unique because I categorized firms by the main shareholder, which allows me to specify the response of Japanese investors, mainly institutions, for this analysis.

Analysis of overall events demonstrates no significant impact around the announcement day, and negative and significant impacts for [–1, 0] and [–1, 1] windows around the effective day for index inclusion. This result shows that investors do not respond around the announcement day but sell stocks shortly before and after the index change for positive events. For index deletion, there is no significant result. The results are counterintuitive overall.

As investors for DJSI-listed firms include foreign investors, however, this result does not perfectly reflect the Japanese investors' attitudes. I, therefore, classified firms into "Japanese investors (individual and institutions) main," "Japanese institutional investors main," and "foreign investor main," based on the main shareholders. In this analysis by shareholder type, no group demonstrated a significant result for either inclusion or deletion around the announcement day. "Japanese investors (individuals and institutions) main" showed negative and significant impacts in the [–1, 0] and [–1, 1] windows for inclusion, and negative and significant impacts in the [0, 5] and [–5, 5] windows for deletion. These results again show that Japanese investors sell stocks shortly before and after the index change, not the announcement day for positive events, which indicates that (1) Japanese investors do not anticipate the sustainable index change like U.S. or European market investors. They may respond to the index change because of automatic portfolio rearrangement. (2) Japanese investors react negatively around the positive event because they value the CSR-related events negatively or just fix profit at the peak of the stock price raised by foreign investors. The analysis also reveals that, using DJSI as the event data, the results are not consistent with hypothesis 3: Based on the "information certification hypothesis" and the "self-fulfilling prophecy," Japanese investors react positively to a firm's positive CSR announcements, resulting in a boost to its equity price (and vice versa for negative announcements), or

hypothesis 6: Both individual and institutional investors in Japan react positively to a firm's positive CSR announcements (and vice versa for negative announcements). Their response time and magnitude, however, are different from each other. Finally, this analysis finds opposite responses for index deletion between Japanese and foreign investor which may cause no significant results in the overall analysis.

I also compare investors' reactions between the U.S., European, and Japanese markets to investigate the differences among them. By comparing the results of Analysis 2 to those of other related studies for the U.S. and European markets, I found large differences between these markets, which is not consistent with my seventh hypothesis: Investors' responses to CSR-related announcements in Japan are similar to those of Europe, based on their business systems and institutional investors' policy. Though there is no perfect consensus in the statistical results, the comparison demonstrates speculative or temporal attitudes in the U.S. market and positive valuation in the European market, whereas less attention and negative response to inclusion in the sustainable index was found for the Japanese market, especially for Japanese institutional investors. As I mentioned in the previous section, both the Japanese market and the government recently initiated action to promote CSR. Especially for institutional investors, the announcement of investment policy of GPIF in 2017 was a crucial key event for them to pay attention to firms' social responsibility. The difference between Japanese investors and others would be because the sustainable index has a shorter history in the Japanese market, thus the investors are not familiar with it. Japanese investors' reaction only to the effective day also suggests their automatic portfolio reconstruction based on the actual index change.

CHAPTER 5.   Long-Term Analysis of the Relationship between Firms' CSR Performance and their Values (Analysis 3)

In Analysis 3, I will conduct the long-term analysis of firms' CSR performance and their values. It provides comprehensive and foundational insight into the relationship between firms' CSR activities and firm value, whereas previous analyses, Analyses 1 and 2, showed short-term, instant pressure of CSR-related announcement on investors' behavior. Analysis 3 also has a strong link to hypotheses 1 and 2 which imply a fundamental relationship between firms' CSR performance and their values.

5.1.   Data and Variables

This section aims to examine the long-term relationship between the firm's value and the firm's CSR performance in Japan. For this purpose, I construct my sample using information from two databases. To measure CSR activities, I employ Nikkei Telecom, one of the largest and most reliable business databases in Japan, which I use in Analysis 1, to search the Nihon Keizai Shimbun (the Nikkei) for relevant news coverage. The sample period was from January 1, 2001 to December 31, 2016 (16 years). I chose this period to cover major events like the Great East Japan earthquake, as well as to include the periods other studies adopted, for comparison. To identify the Nikkei articles about CSR-related issues and to categorize them by feature, I searched Nikkei Telecom using the keywords shown in Table 3.1. For the issue area, its criteria and clarification of "positive" and "negative" news, I followed "How to Use KLD STATS & ESG Ratings Definitions" published by Kinder, Lydenberg, and Domini Research and Analytics (KLD), now part of MSCI, a data provider whose measures are widely used in the financial economics literature (for details, see the appendix). In this analysis, however, I excluded the issue of corporate governance to focus on firms' activities for non-shareholding stakeholders (see Krüger 2015). I then checked each article to examine if it was actually about CSR-related announcements and classified it as "positive news" or "negative news." To obtain the final dataset, I excluded articles in the following categories (see Flammer, 2013; Krüger, 2015): (1) reporting both positive and negative news at the same time or in the same day, (2) firm not publicly traded on a Japanese

stock market, (3) no stock market information was available during the estimation and the event period, (4) ambiguous timestamps, (5) reporting previous events, (6) confounding contents (not clear if it is positive or negative), (7) reporting with financial news, (8) duplicating with other news in the target window. A possible concern related to this analysis is that the keywords might be too narrow. As Flammer (2013) explained, however, this could only reduce the power of tests due to the omission of potentially relevant articles and would not lead to any statistical bias in the analysis. These criteria left me with 6,295 events: 4,169 positive and 2,126 negative events from 879 Japanese firms. Table 3.2 in the analysis 1 shows the distribution of events by issue area.

In addition, I collected stock price data and accounting data from Thomson Reuters DataStream, the historical financial database which contains both I/B/E/S and WorldScope database offered by Thomson Reuters. After considering the one-year lag in my key independent variables (the announcements of CSR-related news), my final sample included 5,106 observations for 879 unique firms during the period 2001 to 2016 in Japan.

5.1.1.   Dependent Variable

Tobin's q, which measures how much value the firm produces with its asset base, is my dependent variable. I obtain Tobin's q of the target firms in each year from Thomson Reuters DataStream, which is calculated as follows.

Tobin's q_{it} = (Market capitalization at fiscal year-end date$_{it}$ + Preferred stock$_{it}$ + Minority interest$_{it}$ + Total debt minus Cash$_{it}$)/Total asset$_{it}$

Tobin's q has been used widely in economics and finance studies as a performance measure (see, for example, Hawn & Ioannou, 2016; Servaes & Tamayo, 2013; Waddock & Graves, 1997). According to Servaes and Tamayo (2013), the advantage of using Tobin's q over profitability is that profitability is a short-term measure, whereas Tobin's q is a long-term measure because it is based on the market value of the firm. In a robustness test, however, I also implement regressions using profitability indicators

such as return on asset, return on equity, return on sales, and sales growth as dependent variables.

5.1.2. Independent Variables

As presented previously, the key independent variable of this thesis is the firm's CSR performance, which is proxied by the feature of CSR-related news, *Posi* for the positive news and *Nega* for the negative news from which I collected in Chapter 3. In addition, in this long-term analysis, I also adopted a CSR-related variable measuring the impact of the annual or overall CSR performance of each firm on its financial performance. Many researchers employ CSR-related scores or ratings by financial service companies such as KLD, now a part of MSCI, ASSET4 by Thomson Reuters, and the Dow Jones Sustainability Index as CSR performance measurements in their regressions (for example, Flammer & Kacperczyk, 2016; Hawn & Ioannou, 2016; McWilliams & Siegel, 2000; Servaes & Tamayo, 2013; Shiu et al., 2017). As Cheng et al. (2013) and many other researchers have pointed out, however, these scores and ratings produced by commercial firms may contain a black-box aspect in their evaluations. And much more, they provide limited publicly available information, especially regarding Japanese firms in the long term.

I, therefore, used a unique dataset obtained in chapter 3 and created a new index (*CSR*). Following Gillan et al. (2010), Servaes & Tamayo (2013), Cheng et al. (2013), Hubbard et al. (2017), and other papers, constructing a firm's CSR score by aggregating the total number of CSR strengths and subtracting the total number of CSR concerns across dimensions[1], I deducted the number of negative news (*Num_Negative*) from the number of positive news (*Num_Positive*) by year for each firm to capture the whole CSR-related performance of each firm (i) in each year (t). The calculation is shown in the equation below.

CSR_{it} =*Num_Positive*$_{it}$ - *Num_Negative*$_{it}$

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1 The papers mainly employ the number of CSR strengths and concerns from KLD's evaluation.

In addition, I included dummies to indicate if the announced firm's activity is related to charity (*Charity*), positive and negative news related to developing countries (*DevelopmentPosi* and *DevelopmentNega*), and compensation for previous negative action (*Compensation*) to see if these features had an impact on a firm's value. In this study, charity is defined as activity different from the main operation and which does not itself generate profit, such as donations and tree planting. The news related to developing countries referred to operations or deal in, with, or for developing countries (defined as upper-middle-income, lower-middle-income, and low-income economies in the World Bank's income classification).

5.1.3.   Control Variables

The model included some control variables that may affect firms' performance. Consistent with the literature (see Hawn & Ioannou, 2016; McWilliams & Siegel, 2000; Serves & Tamayo, 2013), I also included control variables: research and development (R&D) intensity, advertising intensity, capital intensity, size, sales, leverage, event category, and firm category. As McWilliams and Siegel (2000) point out, I include R&D intensity and advertising intensity[2] to control for intangibles other than CSR-related issues that may affect firm value and the CSP (Corporate Social Performance) – CFP (Corporate Financial Performance) link. I calculate R&D intensity and advertising intensity as R&D expenditure and advertising expenditure divided by sales, respectively. Second, like King & Lenox (2001), Servaes and Tamayo (2013), and Hawn (2016), I also added measures frequently used in financial performance analysis as control variables, which included the firm's size (*Size*) calculated as the log of the total assets, the capital intensity of a firm (*CapInt*) calculated by dividing capital expenditures by sales, the firm's annual sales (*Sales*) calculated as the log of sales, and the degree to which the firm is leveraged (*Leverage*) calculated as the ratio of its debt to assets with and without a dummy (*year*) to consider the year-specific market environment. Furthermore, in addition to the measures employed in the previous works,

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2 Selling, general and administrative expenditure, which can only be obtained from Thomson Reuters DataStream, as a proxy of advertising expenditure.

I adopted an event category (*EventCategory*) and a firm's industrial category (*IndCategory*) to control event-category-oriented and industrial-group-oriented issues. For the event category, I sorted events by their features: (1) community, (2) diversity, (3) employee relations, (4) environment, (5) human rights, and (6) product, using KLD and Krüger's (2015) classification. Firms were assigned to industrial categories, following the classification of the Tokyo Stock Exchange: 1) foods, 2) energy resources, 3) construction & materials, 4) raw materials & chemicals, 5) pharmaceutical, 6) automobiles & transportation equipment, 7) steel & nonferrous metals, 8) machinery, 9) electric appliances & precision instruments, 10) IT & services, others, 11) electric power & gas, 12) transportation & logistics, 13) commercial & wholesale trade, 14) retail trade, 15) banks, 16) financials (excluding banks), 17) real estate.

5.2. Methodology

To test if CSR activities have an impact on firms' value, I mainly follow Hawn and Ioannou's (2016) model. They use the market-value equation, which was introduced by Griliches (1981) and developed by Griliches (1984), Belenzon (2012), and Ceccagnoli (2009). In the equation, the market value of a firm i at time t (V_{it}) stands for the sum of the value of common stock, preferred stock, and total debt net of current assets, and it is a function of the firm's tangible and intangible assets as shown below.

$$V_{it} = q \, (A_{it} + Int_{it})^\sigma \, ... \, (5.1)$$

where V_{it} denotes the market value of a firm i at time t, A_{it} denotes tangible assets, and Int_{it} denotes intangible assets. Following previous studies on intangibles in the market-value equation (see Lenox et al.2010), Hawn and Ioannou (2016) used research and development (RD) and advertising (ADV) expenditures as indexes for intangible assets (Int_{it}) in addition to CSR activities (CSR_{it}).

$$Int_{it} = \beta_{RD}RD_{it} + \beta_{ADV}ADV_{it} + \beta_{CSR}CSR_{it} \, ...(5.2)$$

The parameter σ in equation 5.1 allows for non-constant scale effects in the market value function. As all variables are in nominal terms, they took logarithms and obtain equation (5.3) as follows.

$$V_{it} = q \ (A_{it} + Int_{it})^{\sigma} \ ...(5.1)$$
$$V_{it} = q \ A^{\sigma}((A_{it} + Int_{it})^{\sigma}/A_{it}^{\sigma})$$
$$V_{it} = q \ A^{\sigma}(1 + \gamma(Int_{it}/A_{it}))^{\sigma}$$
$$log \ V_{it} = log \ q_t + \sigma \ log \ A_{it} + \sigma \ log \ (1 + \gamma \ (Int_{it}/A_{it})) \ ...(5.3)$$

where $log \ V_{it}$, $log \ A_{it}$, are logarithms of the market value of the firm and tangible assets, respectively, and $log \ q_t$ denotes constant variable or intercept. As log1=0, $log \ (1 + \gamma$ (Intit/Ait)) to be approximated to $\gamma(Int_{it}/A_{it})$ which is an intangible asset divided by a tangible asset or an intensity of each intangible asset. Hawn and Ioannou (2016) explained that, in this specification, γ captured the shadow value of intangible resources relative to the tangible assets of the firm, and σγ meant their absolute value. If the value function shows constant returns to scale, or σ = 1, log A can be moved to the left side of the equation, and the left-hand-side formula (V_{it}/A_{it}) can be computed with Tobin's q as the dependent variable. The equation, therefore, becomes

$$log \ Q_{it} = log \ V_{it}/A_{it} = log \ q_t + log \ (\gamma \ (Int_{it}/A_{it})) + \varepsilon_{it} \ ...(5.4)$$

where Q_{it} denotes Tobin's q. For Int_{it}/A_{it} which denotes the intensity of each intangible asset, I created proxies R&D intensity (*RDIntensity)* and Advertising Intensity (*ADVIntensity*) by dividing expenditure by sales. For CSR, as I presented in the previous section, in addition to the feature of each CSR-related news, positive and negative, I create a new index (*CSR*) by deducting the number of negative news from the number of positive news by year for each firm to capture the whole CSR-related performance of the target firm of each news (*i*) in each year (*t*). To clarify the direction of causality, or to avoid reverse causality, I took 1-year ($t-1$) and 2-year ($t-2$) lags for all independent variables, and finally, my cross-sectional estimating equations became as follows.

$$\log Q_{it} = \log q_t + \theta 1 Posi_{it-1} + \theta 2 RDIntensity_{it-1} + \theta 3 ADVIntensity_{it-1} + \theta 4 Charity_{it-1}$$
$$+ \theta 5 Development_{it-1} + \theta 6 Compensation_{it-1} + \boldsymbol{\theta 7 X_{it-1}} + \varepsilon_{it}...(5.5)$$

$$\log Q_{it} \ \log q_t + \theta 1 Posi_{it-1} + \theta 2 CSR_{it-1} + \theta 3 RDIntensity_{it-1}$$
$$+ \theta 4 ADVIntensity_{it} + \theta 5 Charity_{it} + \theta 6 Development_{it} + \theta 7 Compensation_{it} + \boldsymbol{\theta 8 X_{it}}$$
$$+ \varepsilon_{it}...(5.6)$$

$$\log Q_{it} = \log q_t + \theta 1 Posi_{it-2} + \theta 2 RDIntensity_{it-2} + \theta 3 ADVIntensity_{it-2}$$
$$+ \theta 4 Charity_{it-2} + \theta 5 Development_{it-2} + \theta 6 Compensation_{it-2} + \theta 7_{it-2} + \varepsilon_{it}...(5.7)$$

$$\log Q_{it} = \log q_t + \theta 1 Posi_{it-2} + \theta 2 CSR_{it-2} + \theta 3 RDIntensity_{it-2}$$
$$+ \theta 4 ADVIntensity_{it-2} + \theta 5 Charity_{it-2} + \theta 6 Development_{it-2}$$
$$+ \theta 7 Compensation_{it-2} + \theta 8 X_{it-2} + \varepsilon_{it}... (5.8)$$

where i indexes news, t indexes time. $Posi_{it}$ is a dummy variable which is 1 if the feature of each news item is positive and 0 if negative. *Charity*, *Development,* and *Compensation* denote news related to charity, developing countries, and compensation for previous negative action, respectively. $\boldsymbol{X_{it}}$ stands for other control variables which may affect a firm's value. Using this cross-sectional model, I ran robust OLS regressions to investigate the long-term effects of CSR activity on a firm's value.

5.1. Results

Table 5.1 reports descriptive statistics and correlations for all the variables used in the model. None of the reported correlations seem to have any concerns for the analysis. Table 5.2 demonstrates the regression results with standard errors robust to heteroscedasticity. Model (1) in Table 5.2 represents the one-year-lagged equation for the target firm's performance without the total of all CSR-related news (CSR). It appears that the coefficient of *Posi* is positive and significant ($\beta = 0.05487$, $p < 0.01$). This means the positive news announcement of a firm has a positive relation with Tobin's q of the firm after 1 year, which supports the idea that CSR-related activities

have positive impacts on firm value described in my hypothesis 1. On the other hand, regarding firms' activities with a more altruistic image, the result indicates no significant result for charity and negative news related to developing countries but negative and significant impact on a firm's value for positive news related to developing countries, which are consistent with my hypothesis 2-2. Model (2), with the *CSR* index, also shows that both positive CSR news (*Posi*) and the annual sum of CSR-related news (*CSR*) have a positive and significant impact on Tobin's q after 1 year ($\beta = 0.0307$, $p < 0.05$ and $\beta = 0.00524$, $p < 0.01$, respectively). The result indicates that the more positive CSR news firm announces, the firm will enjoy higher Tobin's q or firm's value after one year. In addition, a positive news announcement (*Posi*) also has a positive effect on a firm's value after one year. As for activities with a more altruistic image, the result shows a negative and significant impact on a firm's value for positive news related to developing countries and no significant result for charity and negative news related to developing countries, which supports my hypothesis 2-2. Models (3) and (4) estimate the equation for the dependent variable with and without the total CSR index (*CSR*) after two years. Model (3) shows the two-year-lagged news feature (*Posi)* has a positive and significant impact on Tobin's q ($\beta = 0.0317$, $p<0.01$), which means the positive news announcement of a firm affects Tobin's q of the firm positively after 2 years. The result, again, is consistent with my hypothesis 1. Firms' charitable activities and news related to developing countries have no significant result, which supports my hypothesis 2-2. Model (4) demonstrates that the two-year-lagged positive news (*Posi)* has no significant but only CSR index has positive significant relationship with Tobin's q ($\beta = 0.00459$, $p<0.01$) which indicates, in the longer term, not the sole positive news but the annual performance of each firm affects the firm's value. Though the impact of the two-year-lagged positive news disappears, the annual CSR performance has a positive impact and the result still is consistent with my hypothesis 1. Activities related to the firm's charity and developing countries do not present any significant impacts on a firm's value. The result, again, is consistent with my hypothesis 2-2.

Another perspective is related to intangible assets other than CSR related variables, namely, advertising intensity (*ADVIntensity*) and R&D intensity (*RDIntensity*). According to the market-value equation model, intangible assets have positive impacts on firm value. From the regression results in this study, advertising intensity

(*ADVIntensity*) shows positive and significant results in all models, Model (1) to (4), which is consistent with the idea of the market-value equation. R&D intensity (*RDIntensity*), however, demonstrates negative and significant impacts on one-year-lagged firm value (Tobin's *q*) and no significant impact on a two-year-lagged firm value, which contradicts the market-value equation's concept. This result can be explained in two ways. Firstly, according to the finding of Jose et al. (1986), extreme investments in R&D, above or below the industry benchmark, has a negative impact on firm value. Jose et al. (1986) interpreted this result that too much R&D intensity may be a signal of product obsolescence. Firms which has higher CSR performance tend to put more emphasis on R&D than industry average, and this may become a signal of deterioration of products which causes the reduction of the firms' value. Another explanation is that the mixture of firm size in the samples. According to Chauvin & Hirschey (1993), the effectiveness of R&D intensity on firm value differs across firm size. They pointed out that R&D relatively brought more profit to larger firms because of size advantages. Another explanation is the difference between countries.

Table 5.1: Descriptive Statistics and Correlations of Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.log Q(t+1)	1															
2.log Q(t+2)	0.8379	1														
3.Posi	0.0577	0.0359	1													
4.Charity	0.0229	0.0289	0.1103	1												
5.DevelopmentPosi	-0.0203	-0.0029	0.127	0.2642	1											
6.DevelopmentNega	-0.0128	-0.0017	-0.1349	-0.0149	-0.0171	1										
7.Compensation	0.014	0.0163	0.0673	-0.0139	0.022	-0.0091	1									
8.RD Intensity	0.0118	0.0326	0.0034	-0.0336	-0.0377	0.0246	-0.0184	1								
9.ADVIntensity	0.1509	0.1692	0.0906	0.0274	-0.0213	-0.0122	0.0028	0.3937	1							
10.Sales	-0.0103	-0.0251	0.0077	-0.0188	0.01	0.06	-0.0133	0.2396	-0.195	1						
11.CapInt	0.2164	0.1906	-0.0453	0.0113	-0.0228	0.0115	-0.001	0.038	-0.1276	0.1857	1					
12.leverage	0.1585	0.1465	-0.1017	-0.0029	0.0153	0.0036	0.0144	-0.2124	-0.2524	0.1798	0.2466	1				
13.IndCategory	0.0067	0.0172	0.0732	0.0216	0.008	0.0059	0.0054	0.0029	0.002	0.0492	0.228	0.0703	1			
14.Size	0.0255	0.0065	0.0046	-0.0154	0.011	0.0604	-0.0034	0.2302	-0.1812	0.9714	0.2909	0.2378	0.1004	1		
15.EventCategory	-0.1024	-0.097	-0.1639	-0.2306	-0.1061	-0.0516	0.0199	-0.0024	-0.1418	0.1187	0.0139	0.0459	-0.0883	0.1017	1	
16.year	-0.0889	-0.0542	-0.0803	-0.0098	0.0045	0.055	0.0266	-0.0273	-0.0333	0.0643	0.0018	-0.1443	-0.0114	0.0717	0.0352	1
Obs	6,359	6,351	6,435	6,435	6,435	6,435	6,435	5,249	6,217	6,398	6,398	6,431	6,435	6,399	6,435	6,435
Mean	-0.5692454	-0.5664322	0.6543901	0.0254856	0.0292152	0.0114996	0.0083916	0.0334162	0.1980055	21.17401	0.061433	27.8243	8.580886	21.45215	4.216783	2009.098
Std. Dev.	0.74798	0.7583303	0.4756037	0.157607	0.1684224	0.1066262	0.0912276	0.0296632	0.1300154	1.617041	0.071194	17.47079	3.858885	1.825111	1.630958	4.477824
Min	-6.907755	-6.907755	0	0	0	0	0	0	0	14.03754	0	0	1	14.20688	1	2001
Max	3.513722	3.468139	1	1	1	1	1	0.3167319	1.065706	24.06977	2.031213	134.39	17	26.42095	6	2016

Table 5.2: Regression Results of Cross-Sectional Analysis

	(1)	(2)	(3)	(4)
Dependent Variable	$log\ Q_{t+1}$	$log\ Q_{t+1}$	$log\ Q_{t+2}$	$log\ Q_{t+2}$
Posi	0.0548***	0.0307**	0.0317**	0.0106
	(0.0145)	(0.0156)	(0.0148)	(0.0161)
CSR		0.00524***		0.00459***
		(0.00133)		(0.00154)
Charity	-0.0103	-0.00543	0.0113	0.0155
	(0.0496)	(0.0497)	(0.0450)	(0.0452)
DevelopmentPosi	-0.0813**	-0.0840**	-0.0240	-0.0264
	(0.0368)	(0.0369)	(0.0353)	(0.0353)
DevelopmentNega	-0.0261	-0.0258	0.0123	0.0126
	(0.0499)	(0.0514)	(0.0482)	(0.0490)
Compensation	0.0537	0.0729	0.0708	0.0877
	(0.0727)	(0.0727)	(0.0629)	(0.0633)
RD Intensity	-0.883**	-0.889**	-0.352	-0.357
	(0.355)	(0.354)	(0.348)	(0.348)
ADVIntensity	0.903***	0.884***	0.959***	0.943***
	(0.0855)	(0.0854)	(0.0841)	(0.0838)
Sales	-0.0121	-0.0183	-0.00205	-0.00748
	(0.0327)	(0.0328)	(0.0314)	(0.0317)
CapInt	1.837***	1.850***	1.692***	1.704***
	(0.517)	(0.524)	(0.464)	(0.470)
leverage	0.00469***	0.00479***	0.00519***	0.00528***
	(0.000525)	(0.000526)	(0.000537)	(0.000538)
IndCategory	-0.0108***	-0.0120***	-0.00793***	-0.00896***
	(0.00250)	(0.00259)	(0.00256)	(0.00265)
Size	0.0106	0.0137	-0.00684	-0.00411
	(0.0344)	(0.0346)	(0.0326)	(0.0328)
EventCategory	-0.0239***	-0.0224***	-0.0212***	-0.0199***
	(0.00430)	(0.00431)	(0.00463)	(0.00461)
year	-0.00582***	-0.00504***	-0.00193	-0.00125
	(0.00152)	(0.00150)	(0.00159)	(0.00157)
Constant	11.04***	9.556***	3.331	2.027
	(3.036)	(3.011)	(3.178)	(3.138)
Observations	5,106	5,106	5,106	5,106
Adjusted R-squared	0.121	0.123	0.106	0.108
f	25.42	24.23	23.7	22.22

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

5.2. Robustness Check

To mitigate potential concerns, I check the robustness of my main findings by referencing Servaes and Tamayo (2013). I describe each of these concerns in this section.

(Longer Time Lag)

According to Servaes and Tamayo (2013), a potential concern of long-term analysis is that the model does not allow for a longer time lag between CSR performance and firm value. To address this issue, I conducted a regression analysis using my model with a two-year-lagged CSR measure instead of one year. The result, which is reported as model (1) in Table 5.2, is close to my base case, which indicates my model accepts a longer lag between firms' CSR performance and their values.

(CSR Performance and Profitability)

Though Tobin's q is considered to be the best proxy to measure firms' long-term value, previous research has also investigated the relationship between profitability represented by return on asset (*ROA*), return on equity (*ROE*), return on sales (*ROS*), sales growth (*salesgrow*), and CSR performance. Although profitability measures a firm's performance in the short term, the additional regression could confirm if my analysis results are similar in terms of profitability. I employed four profitability measures, ROA, ROE, ROS, and sales growth, as dependent variables. Return on sales is calculated by dividing operating income by assets and sales. I used the following model which includes the feature of each CSR-related new (Posi), the whole CSR-related performance of the target firm of each news, R&D intensity (*RD Intensity)*, advertising intensity (*ADVIntensity*), *Charity*, *Development* and *Compensation* with control variables (*X),* to examine the effects. I ran robust OLS regressions for each model.

Profitability $= \theta_0 + \theta_1 Posi_{it-1} + \theta_2 CSR_{it-1} + \theta_3 RD\ Intensity_{it-1}$
$+ \theta_4 ADVIntensity_{it-1} + \theta_5 Charity_{it-1} + \theta_6 Development_{it-1} + \theta_7 Compensation_{it-1} + \theta_8 X_{it-1} + \varepsilon_{it}$

where the control variables (*X)* include the firm's capital intensity (*CapInt*), calculated by dividing capital expenditures by sales; the firm's annual sales (*Sales*), calculated as the log of sales; the degree to which the firm is leveraged (*Leverage*), calculated as the ratio of its debt to assets; news event category (*EventCategory*); and the firm's industrial category (*IndCategory*) with and without a year dummy (*year*).

The results, presented in models (1) to (4) in Table 5.3, are that the CSR performance of the firm, and the feature of the news have positive and significant effects on some profitability indexes, ROA and ROS, respectively. The similarity of results tells my analysis is robust to profitability as well.

Table 5.3: Robustness

Dependent Variable	(1) ROA_{t+1}	(2) ROE_{t+1}	(3) $salesgrow_{t+1}$	(4) ROS_{t+1}
Posi	0.159	6.837	-0.000500	0.00312*
	(0.189)	(5.819)	(0.0120)	(0.00167)
CSR	0.119***	0.0912	-0.000686	-2.02e-06
	(0.0215)	(0.250)	(0.00101)	(0.000120)
Charity	-0.0247	-1.323	-0.0385**	-0.000316
	(0.404)	(4.257)	(0.0157)	(0.00427)
DevelopmentPosi	-0.163	-1.079	0.00801	-0.00491*
	(0.334)	(3.586)	(0.0133)	(0.00286)
DevelopmenNega	0.845	7.160*	0.0185	-0.00166
	(0.650)	(4.094)	(0.0168)	(0.00411)
Compensation	0.361	1.174	-0.0429*	0.00245
	(0.796)	(3.909)	(0.0260)	(0.0134)
RD Intensity	-26.59***	-137.7**	-0.294	-0.163***
	(4.200)	(59.04)	(0.268)	(0.0497)
ADVIntensity	1.519	3.655	0.0654	0.0200*
	(1.095)	(20.88)	(0.125)	(0.0113)
Sales	-2.118***	0.467	-0.216***	-0.0485***
	(0.300)	(10.26)	(0.0682)	(0.00334)
CapInt	4.383**	51.55	-0.108	0.204***
	(1.950)	(31.47)	(0.151)	(0.0227)
leverage	-0.0650***	-0.334	-0.00116***	-0.000891***
	(0.0102)	(0.209)	(0.000339)	(6.91e-05)
IndCategory	-0.145***	-2.110**	-0.00213	-6.65e-05
	(0.0258)	(1.024)	(0.00288)	(0.000238)
Size	2.177***	1.306	0.202***	0.0459***
	(0.284)	(10.76)	(0.0601)	(0.00310)
EventCategory	-0.0881**	0.245	0.00102	-0.000868**
	(0.0435)	(0.811)	(0.00220)	(0.000438)
year	0.0479***	0.179	-0.00213**	0.000530***
	(0.0166)	(0.449)	(0.000909)	(0.000154)
Constant	-92.26***	-375.0	4.617**	-0.943***
	(33.12)	(859.6)	(1.912)	(0.311)
Observations	5,112	5,112	5,112	5,096
Adjusted R-squared	0.075	-0.000	0.074	0.238
f	14.58	7.43	7.67	50.08
Robust standard errors in parentheses	*** p<0.01, ** p<0.05, * p<0.1			

Note: Asterisks (*) show the statistical significance of the means of CARs by t-test where *p<0.10, **p<0.05, ***p<0.01.

5.3. Discussion and Conclusion for Analysis 3

In Analysis 3, I examined whether CSR performance has an impact on a firm's value in the long term in Japan, using OLS. Different from other studies, I created original proxies for CSR performance from the news dataset I collected from the Nikkei Telecom. I also took a lag for the CSR performance variable to mitigate issues arising from endogeneity, especially the simultaneity problem.

This analysis makes two points. First, the annual CSR performance has a positive impact on a firm's value, proxied by a log of Tobin's q, after 1 and 2 years. In addition, the positive news affect a firm's value positively after a year but not 2 years. Second, a firm's positive CSR activity with a more altruistic image does not show any impact on the firms' value. Moreover, news related to developing countries has a negative and significant impact on a firm's value.

On my first finding, the disappearance of the significant result of the positive news after 2 years tells that the impact of each positive news gets weaker over time. The significant result of the annual CSR performance, however, suggests a firm's overall CSR activities keep pushing up the firm's value for 2 years. This result also can be interpreted that the harder a firm works for CSR, the more value it creates. In this regard, my first finding is consistent with hypothesis 1: *CSR-related activities provide positive impacts on firm value*, as well as Jensen's (2001) enlightened stakeholder theory, which suggests a positive link between stakeholder management and long-term value maximization of firms. This result also indicates the potential revenue increase or cost reduction effect of CSR-related activities through four channels: employee, consumer, technology, and corporate governance, which were explained by western-focused studies, can be applied to Japanese firms.

The second finding supports my hypothesis 2-2: Firms' actions with more altruistic image do not have impacts on firm value, not hypothesis 2-1. As I hypothesized that the impact of activities with a more altruistic image has no impact in Japan, the analysis showed no or negative impact on Tobin's q. The result indicates that the impact of a firm's altruistic behavior has no impact and does not lead to a firm value increase in Japan, so far. This would be because of unawareness of the firm's good activities in Japanese consumer attitudes. As I explained in the previous section, though Japanese

consumers' have a high interest in social issues, it is not reflected in their purchasing behavior. This situation is worth further empirical investigations in future studies.

In addition, I found that one of the intangible assets, R&D intensity (*RD Intensity*), affects firm value negatively after 1 year and has no impact after 2 years, which do not support the market-value equation model. This result can be explained by too many investments in R&D which recalls quality deterioration (Jose et al., 1986) and the mixture of firm size, which is supposed to have different impacts between large and small firms, in the samples.

CHAPTER 6.   Conclusion and Future Work

In this study, I investigated the relationship between CSR performance and the firm's value focusing on Japan by providing empirical evidence for both short-run and long-run shareholder value implications. I also analyzed the difference in the investors' response from the U.S. and European markets.

Analysis 1 examined the investor value implications of CSR-related news from varied dimensions in Japan through the short-term event study method and the difference from the United States and Europe. From the analysis, I found that for positive news, investors responded positively before the news announcement but not significantly after the announcement, and for negative announcements, investors reacted negatively before and after the negative news announcement. The results were generally consistent with my hypothesis 3 and supported the information certification hypothesis and the self-fulfilling prophecy theory, as well as the existence of information leakage.

To gain deeper insights, by categorizing firms by main shareholders, I found the difference in interests between individuals and institutions. Individuals seemed to focus on the positive news, while institutions, including Japanese and foreign, were more concerned with negative news. The analysis by news issues and the cross-category features showed the different impacts among event issues but not between institutional CSR and technical CSR. As for the cross-category features, investors seem to react negatively around developing country-related news announcements but not for more altruistic image news, which indicates that investors consider that the altruistic image activities do not increase a firm's value. Negative reactions to negative behavior in developing countries, however, could be a signal of investors' interests in a firm's altruistic behaviors. Investors' behavior changes in response to an economic shock like the tragic Great East Japan Earthquake was also examined. As a result, I found that investors' attitude to positive news has changed before and after 2011, which showed positive news pulled more investors' attention after the Great East Japan Earthquake. Ancillary analyses by industrial category and firm size also gave some insights into the root cause of these effects. Finally, by comparing investors' reactions to CSR in Japan with those in the United States and Europe, two observations were made. First, investors

pay attention to the irresponsibility of firms in both the U.S. and the Japanese markets. Second, investors in the Japanese market seem to be interested in CSR-related positive news before the announcement but this effect is not as strong as in the European market.

In Analysis 2, I examined investors' responses to CSR-related events, DJSI inclusion and deletion which allowed this analysis to be comparable, using the event study method. By categorizing firms by the main shareholder, I could specify the response of Japanese investors in this analysis. Analysis of overall events showed that investors sold stocks shortly before and after the index change, not on the announcement day for positive events. For index deletion, there is no significant result. The results of analysis by shareholder indicated that (1) Japanese investors, especially institutions, do not anticipate sustainable index change as U.S. or European investors do. Japanese investors may respond to the index change because of automatic portfolio rearrangement. (2) Japanese investors, especially institutions, react negatively around the positive event because they value the CSR-related events negatively or just fix profit at the peak of the stock price. By comparing the results to those of other related studies for the U.S. and European markets, I found a large difference between the three markets. The comparison demonstrates speculative or temporal attitudes in the U.S. market and positive valuation in the European market, whereas there was less attention and negative response to inclusion in the sustainable index in the Japanese market, especially for Japanese institutional investors. The difference between Japanese investors and others would be because of the shorter history and less acknowledgment of the sustainable index in the Japanese market. Japanese investors' reaction only to the effective day also suggests their automatic portfolio reconstruction based on the actual index change.

Analysis 3 examined if CSR performance has an impact on a firm's value in the long term in Japan, using OLS. In this analysis, I used originally created proxies for CSR performance from the news dataset. I collected from the Nikkei Telecom as well as the feature of each event. The results from this thesis indicate two points. First, the results suggested the feature of the news and the CSR performance have a positive impact on a firm's value in the long term, which indicated the potential revenue increase or cost reduction effect of CSR-related actions through employee, consumer, technology, and corporate governance issues. Second, this thesis finds no significant

impact of news with a more altruistic image on the firm's value but the negative link between the positive news related to developing countries and the firm's value. This result contradicts the idea that altruistic actions of firms can be a signal of a socially responsible firm, which attracts qualified employees and loyal consumers, which results in higher firm value (Bénabou & Tirole, 2010; Greening & Turban, 2000), at least proxied by charities and involvements in developing countries in Japan.

A comparison of the three sets of analyses in this thesis led to some additional findings. First, investors' responses differ depending on the source of information. In analysis 1 using news announcements as event data, the results were generally consistent with my expectation, positive reactions to the positive event and vice versa. Analysis 2 using DJSI inclusion and deletion, however, revealed negative reactions to even positive events. This result is consistent with hypothesis 4: Japanese investors' reaction to CSR announcements is greater for news announcements than for index change. As described, this may be because news announcements provide more direct, prompt, and accessible information for investors. Another reason would be a difference in the main user of that information. As shown in samples by the main shareholder in both analyses, individual investors have much more presence in news-based than DJSI-base which reflected the overall results.

The second finding is different responses by firms' main shareholders. From the analysis in Chapter 3, individuals show positive responses to positive events and vice versa, which is consistent with my expectation, whereas, from the analyses in Chapters 3 and 4, institutions showed no or negative response for positive events and strong negative reactions to negative events. The results are partially consistent with hypothesis 7: Both individual and institutional investors in Japan react positively to a firm's positive CSR announcements (and vice versa for negative announcements). Their response time and magnitude, however, are different from each other. This may be because individuals have more interest in investment opportunities in the information asymmetry environment, while institutions, having sufficient information, respond mainly to sudden negative shocks. The investor awareness hypothesis (or the information cost hypothesis) (Chen et al., 2004; Cheung & Roca, 2013; Lackmann et al., 2012), which does not predict the declining of stock price in response to negative events, could explain why individuals do not respond to negative news. The theory

assumes that news events can increase investor awareness and decrease the cost of searching for information because the events provide more information to investors and reduce information asymmetry. For foreign investors in the Japanese market, the responses were contradictory between information sources. These different results among main shareholders may explain why some previous studies could not obtain clear findings from their analyses.

Finally, the impact of CSR-related events on stock price and Tobin's q in the short term and long term was examined. The short-term analysis showed temporal impacts of the announcement on stock price (analysis 1), whereas long-term analysis resulted in a positive relationship between CSR index and the firm's long-term value (analysis 3). This result indicates that, though the impacts on the stock price are temporary in the short term, CSR-related behaviors keep pushing up the firm's quality, or Tobin's q, gradually through employee, consumer, technology, and corporate governance aspects and result in higher firm value. In other words, though the response of investors who believe a firm's value increases because of CSR-related activity is temporal, what they believe has evidence to support it.

Though this study tried to investigate the nature of the effects by categorizing the events in several ways, there is still room for future investigation to analyze the system behind the relationship between CSR and financial performance. The news data were collected carefully by the author; however, double-checking by a third party would make the results more robust. Moreover, in addition to arguing a consumer-side mechanism, one could conduct quantitative analysis to deepen the discussion. Finally, comparisons with markets other than the United States and Europe are also open for future study.

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Appendix: ESG Ratings Definitions

COMMUNITY	
STRENGTHS	
Charitable Giving	The company has consistently given over 1.5% of trailing three-year net earnings before taxes (NEBT) to charity, or has otherwise been notably generous in its giving. In 2002, KLD renamed the Generous Giving Strength as Charitable Giving.
Innovative Giving	The company has a notably innovative giving program that supports nonprofit organizations, particularly those promoting self-sufficiency among the economically disadvantaged. Companies that permit nontraditional federated charitable giving drives in the workplace are often noted in this section as well.
Non-US Charitable Giving	The company has made a substantial effort to make charitable contributions abroad, as well as in the U.S. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the U.S.
Support for Housing	The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, e.g., the National Equity Fund or the Enterprise Foundation.
Support for Education	The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth. In 1994, KLD added the Support for Education Strength.
Indigenous Peoples Relations	The company has established relations with indigenous peoples in the areas of its proposed or current operations that respect the sovereignty, land, culture, human rights, and intellectual property of the indigenous peoples. KLD began assigning this strength in 2000. In 2002 KLD moved this strength rating into the Human Rights area.
Volunteer Programs	The company has an exceptionally strong volunteer program. In 2005, KLD added the Volunteer Programs Strength.
Other Strength	The company has either an exceptionally strong in-kind giving program or engages in other notably positive community activities.
CONCERNS	
Investment Controversies	The company is a financial institution whose lending or investment practices have led to controversies, particularly ones related to the Community Reinvestment Act.

Negative Economic Impact	The company's actions have resulted in major controversies concerning its economic impact on the community. These controversies can include issues related to environmental contamination, water rights disputes, plant closings, "put-or-pay" contracts with trash incinerators, or other company actions that adversely affect the quality of life, tax base, or property values in the community.
Indigenous Peoples Relations	The company has been involved in serious controversies with indigenous peoples that indicate the company has not respected the sovereignty, land, culture, human rights, and intellectual property of indigenous peoples. KLD began assigning this concern in 2000. In 2002 KLD moved this strength rating into the Human Rights area.
Tax Disputes	The company has recently been involved in major tax disputes involving Federal, state, local or non-U.S. government authorities, or is involved in controversies over its tax obligations to the community. In 2005, KLD moved Tax Disputes from Corporate Governance to Community.
Other Concern	The company is involved with a controversy that has mobilized community opposition, or is engaged in other noteworthy community controversies.

CORPORATE GOVERNANCE

STRENGTHS	
Limited Compensation	The company has recently awarded notably low levels of compensation to its top management or its board members. The limit for a rating is total compensation of less than $500,000 per year for a CEO or $30,000 per year for outside directors.
Ownership Strength	The company owns between 20% and 50% of another company KLD has cited as having an area of social strength, or is more than 20% owned by a firm that KLD has rated as having social strengths. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first.
Transparency Strength	The company is particularly effective in reporting on a wide range of social and environmental performance measures, or is exceptional in reporting on one particular measure. In 2006, KLD added the Transparency Strength, which incorporates information from the former Environment: Communications Strength as part of its content.
Political Accountability Strength	The company has shown markedly responsible leadership on public policy issues and/or has an exceptional record of transparency and accountability concerning its political involvement in state or federal- level U.S. politics, or in non-U.S. politics. In 2006, KLD added the Political Accountability Strength.
Other Strength	The company has a unique and positive corporate culture, or has undertaken a noteworthy initiative not covered by KLD's other corporate governance ratings.
CONCERNS	

High Compensation	The company has recently awarded notably high levels of compensation to its top management or its board members. The limit for a rating is total compensation of more than $10 million per year for a CEO or $100,000 per year for outside directors.
Ownership Concern	The company owns between 20% and 50% of a company KLD has cited as having an area of social concern, or is more than 20% owned by a firm KLD has rated as having areas of concern. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first.
Accounting Concern	The company is involved in significant accounting-related controversies. In 2006, KLD added the Accounting Concern.
Transparency Concern	The company is distinctly weak in reporting on a wide range of social and environmental performance measures. In 2006, KLD added the Transparency Concern.
Political Accountability Concern	The company has been involved in noteworthy controversies on public policy issues and/or has a very poor record of transparency and accountability concerning its political involvement in state or federal-level U.S. politics, or in non-U.S. politics. In 2006, KLD added the Political Accountability Concern.
Other Concern	The company is involved with a controversy not covered by KLD's other corporate governance ratings.

DIVERSITY

STRENGTHS	
CEO	The company's chief executive officer is a woman or a member of a minority group.
Promotion	The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation.
Board of Directors	Women, minorities, and/or the disabled hold four seats or more (with no double counting) on the board of directors, or one-third or more of the board seats if the board numbers less than 12.
Work/Life Benefits	The company has outstanding employee benefits or other programs addressing work/life concerns, e.g., childcare, elder care, or flextime. In 2005, KLD renamed this strength from Family Benefits Strength.
Women & Minority Contracting	The company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women- and/or minority-owned businesses.
Employment of the Disabled	The company has implemented innovative hiring programs; other innovative human resource programs for the disabled, or otherwise has a superior reputation as an employer of the disabled.

	The company has implemented notably progressive policies toward its gay and lesbian employees. In particular, it provides benefits to the domestic partners of its employees. In 1995, KLD added the Gay & Lesbian Policies Strength, which was originally titled the Progressive Gay/Lesbian Policies strength.
Gay & Lesbian Policies	
Other Strength	The company has made a notable commitment to diversity that is not covered by other KLD ratings.
CONCERNS	
Controversies	The company has either paid substantial fines or civil penalties as a result of affirmative action controversies, or has otherwise been involved in major controversies related to affirmative action issues.
Non-Representation	The company has no women on its board of directors or among its senior line managers.
Other Concern	The company is involved in diversity controversies not covered by other KLD ratings.

EMPLOYEE RELATIONS

STRENGTHS	
Union Relations	The company has taken exceptional steps to treat its unionized workforce fairly. KLD renamed this strength from Strong Union Relations.
No-Layoff Policy	The company has maintained a consistent no-layoff policy. KLD has not assigned strengths for this issue since 1994.
Cash Profit Sharing	The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce.
Employee Involvement	The company strongly encourages worker involvement and/or ownership through stock options available to a majority of its employees; gain sharing, stock ownership, sharing of financial information, or participation in management decision-making.
Retirement Benefits Strength	The company has a notably strong retirement benefits program. KLD renamed this strength from Strong Retirement Benefits.
Health and Safety Strength	The company has strong health and safety programs.
Other Strength	The company has strong employee relations initiatives not covered by other KLD ratings.
CONCERNS	
Union Relations	The company has a history of notably poor union relations. KLD renamed this concern from Poor Union Relations.
Health and Safety Concern	The company recently has either paid substantial fines or civil penalties for willful violations of employee health and safety standards, or has been otherwise involved in major health and safety controversies.

Workforce Reductions	The company has made significant reductions in its workforce in recent years.
Retirement Benefits Concern	The company has either a substantially under funded defined benefit pension plan, or an inadequate retirement benefits program. In 2004, KLD renamed this concern from Pension/Benefits Concern.
Other Concern	The company is involved in an employee relations controversy that is not covered by other KLD ratings.

ENVIRONMENT

STRENGTHS	
Beneficial Products and Services	The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy, or it has developed innovative products with environmental benefits. (The term "environmental service" does not include services with questionable environmental effects, such as landfills, incinerators, waste-to-energy plants, and deep injection wells.)
Pollution Prevention	The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs.
Recycling	The company either is a substantial user of recycled materials as raw materials in its manufacturing processes, or a major factor in the recycling industry.
Clean Energy	The company has taken significant measures to reduce its impact on climate change and air pollution through use of renewable energy and clean fuels or through energy efficiency. The company has demonstrated a commitment to promoting climate-friendly policies and practices outside its own operations. KLD renamed the Alternative Fuels strength as Clean Energy Strength.
Communications	The company is a signatory to the CERES Principles, publishes a notably substantive environmental report, or has notably effective internal communications systems in place for environmental best practices. KLD began assigning strengths for this issue in 1996, and then incorporated the issue with the Corporate Governance: Transparency rating (CGOV-str-D), which was added in 2005. In files prior to 2005, this column does not appear. In all spreadsheets it is incorporated into the Transparency rating.
Property, Plant, and Equipment	The company maintains its property, plant, and equipment with above average environmental performance for its industry. KLD has not assigned strengths for this issue since 1995.
Management Systems	The company has demonstrated a superior commitment to management systems through ISO 14001 certification and other voluntary programs. This strength was first awarded in 2006.

Other Strength	The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.
CONCERNS	
Hazardous Waste	The company's liabilities for hazardous waste sites exceed $50 million, or the company has recently paid substantial fines or civil penalties for waste management violations.
Regulatory Problems	The company has recently paid substantial fines or civil penalties for violations of air, water, or other environmental regulations, or it has a pattern of regulatory controversies under the Clean Air Act, Clean Water Act or other major environmental regulations.
Ozone Depleting Chemicals	The company is among the top manufacturers of ozone depleting chemicals such as HCFCs, methyl chloroform, methylene chloride, or bromines.
Substantial Emissions	The company's legal emissions of toxic chemicals (as defined by and reported to the EPA) from individual plants into the air and water are among the highest of the companies followed by KLD.
Agricultural Chemicals	The company is a substantial producer of agricultural chemicals, i.e., pesticides or chemical fertilizers.
Climate Change	The company derives substantial revenues from the sale of coal or oil and its derivative fuel products, or the company derives substantial revenues indirectly from the combustion of coal or oil and its derivative fuel products. Such companies include electric utilities, transportation companies with fleets of vehicles, auto and truck manufacturers, and other transportation equipment companies. In 1999, KLD added the Climate Change Concern.
Other Concern	The company has been involved in an environmental controversy that is not covered by other KLD ratings.

HUMAN RIGHTS

STRENGTHS	
Positive Record in South Africa	The company's social record in South Africa is noteworthy. KLD assigned strengths in this category in 1994 and 1995.
Indigenous Peoples Relations Strength	The company has established relations with indigenous peoples near its proposed or current operations (either in or outside the U.S.) that respect the sovereignty, land, culture, human rights, and intellectual property of indigenous peoples. In 2000, KLD added the Indigenous Peoples Relations Strength. In 2004, KLD moved the Indigenous Peoples Relations Strength from Community to Human Rights.
Labor Rights Strength	The company has outstanding transparency on overseas sourcing disclosure and monitoring, or has particularly good union relations outside the U.S., or has undertaken labor rights-related initiatives that KLD considers outstanding or innovative. In 2002, the Labor Rights Strength was added.

	The company has undertaken exceptional human rights initiatives, including outstanding
Other Strength	transparency or disclosure on human rights issues, or has otherwise shown industry
	leadership on human rights issues not covered by other KLD human rights ratings.
CONCERNS	
South Africa	The company faced controversies over its operations in South Africa. KLD assigned concerns for this issue from 1991 to 1994.
Northern Ireland	The company has operations in Northern Ireland. KLD assigned concerns for this issue from 1991 to 1994.
Burma Concern	The company has operations or direct investment in, or sourcing from, Burma. KLD started assigning concerns for this issue in 1995.
Mexico	The company's operations in Mexico have had major recent controversies, especially those related to the treatment of employees or degradation of the environment. KLD assigned concerns for this issue from 1995 to 2002.
Indigenous Peoples Relations Concern	The company has been involved in serious controversies with indigenous peoples (either in or outside the U.S.) that indicate the company has not respected the sovereignty, land, culture, human rights, and intellectual property of indigenous peoples. KLD started assigning concerns for this issue in 2000.
Other Concern	The company's operations have been the subject of major recent human rights controversies not covered by other KLD ratings.

PRODUCT

STRENGTHS	
Quality	The company has a long-term, well-developed, company-wide quality program, or it has a quality program recognized as exceptional in U.S. industry.
R&D/Innovation	The company is a leader in its industry for research and development (R&D), particularly by bringing notably innovative products to market.
Benefits to Economically Disadvantaged	The company has as part of its basic mission the provision of products or services for the economically disadvantaged.
Other Strength	The company's products have notable social benefits that are highly unusual or unique for its industry.
CONCERNS	
Product Safety	The company has recently paid substantial fines or civil penalties, or is involved in major recent controversies or regulatory actions, relating to the safety of its products and services.
Marketing/Contracting Concern	The company has recently been involved in major marketing or contracting controversies, or has paid substantial fines or civil penalties relating to advertising practices, consumer fraud, or government contracting. (Formerly: Marketing/Contracting Controversy)

Antitrust	The company has recently paid substantial fines or civil penalties for antitrust violations such as price fixing, collusion, or predatory pricing, or is involved in recent major controversies or regulatory actions relating to antitrust allegations.
Other Concern	The company has major controversies with its franchises, is an electric utility with nuclear safety problems, defective product issues, or is involved in other product-related controversies not covered by other KLD ratings.