

## Article

# Do CSR Activities Increase Firm Value? Evidence from the Korean Market

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**Abstract:** Corporate social responsibility has recently become a new metric of corporate performance. Some argue that corporate social responsibility should be used not only for corporate image improvement, but also as a major competitive strategy. Given this perspective, this study considers the effect of corporate social responsibility on firm value using data from all firms listed on the Korea Exchange from 2005 to 2015 that provide corporate social responsibility information. Specifically, we use the Korea Economic Justice Institution Index, which is an important metric for corporate social responsibility in Korea, to empirically analyze the relation between corporate social responsibility and firm value. Further, given the growing attention to the Korean manufacturing environment and the significant influence of the global manufacturing environment, we aim to determine the differential characteristics of manufacturing corporations using the relation between corporate social responsibility and firm value. The results strongly support a positive relation between corporate social responsibility and firm value. Furthermore, our detailed analysis of the manufacturing industry indicates some differential characteristics with respect to this relation. Overall, we find that every corporation should adopt corporate social responsibility as an active competitive strategy, taking the corporate condition into account.

**Keywords:** corporate social responsibility; firm value; manufacturing industry

## 1. Introduction

*Fortune*, the major business management magazine, announces its global Fortune 500 ranking of companies annually. In 2007, Walmart was ranked highest, with sales of 320 trillion Korean won, and Samsung Electronics was ranked 46th, with sales of 80 trillion Korean won. Although it is difficult to simply compare countries and companies, Walmart's sales are similar to Indonesia's gross domestic product (GDP), which is the 21st largest in the world, and Samsung's sales are similar to Peru's GDP, which is the 53rd largest in the world. In other words, the revenues of certain corporations are now larger than some countries' economies. This increase in the scale of corporations implies that the impact of corporations has also increased, and, as corporations become more powerful, people's expectations of corporate behavior increase. Thus, corporate social responsibility has become one of the top priorities of both global and Korean companies, the latter being the focus of this study.

Companies' social contributions can take various forms, including financial donations, such as support for cultural performances; donations for the disabled or religious groups, and donations to colleges; social volunteering activities, such as building homes; employing foreigners, the disabled, and women to ensure social justice; protecting the environment; and so on. However, when Korean companies first recognized the importance of corporate social responsibility, they agreed with the idea, but were passive about making actual investments. They did not experience financial benefits

from corporate social responsibility activities and, thus, mostly regarded it as a cost rather than as an investment.

Traditionally, corporations are evaluated based on their financial performance. In other words, corporations that earn as much profit as possible and then use those profits to invest in allocations to stakeholders, facility development, and R&D, are evaluated positively. However, as consumer awareness has increased due to the development of capitalism and various stakeholders have emerged, corporations' social requirements have evolved. Specifically, corporations now bear more responsibility for social problems, such as environmental contamination, income bipolarization, and human alienation, than they did in the past. Thus, corporations are now evaluated according to their performance on corporate social responsibility, in addition to their financial performance. An increasing number of corporations are considering corporate social responsibility as a desirable business model and are enhancing their corporate social responsibility activities. Moreover, employees experience greater pride working in these companies and report increased business efficiency. Corporate social responsibility has become a standard in society, and companies face serious criticism, and even threats to their existence, if they do not take it seriously.

However, even in the United States, the emphasis on corporate social responsibility is only a recent phenomenon, starting with the trial of the AP Smith Company in 1953. The company was litigated by a stockholder for making a donation to Princeton University. The stockholder claimed that the donation resulted in a loss for stockholders. However, the court ruled that even though the donation was not directly related to the company's profit, it had to be accepted as the company's social responsibility. This decision shook the foundation of the U.S. business value that corporations should always prioritize stockholders' returns on investment.

Following this decision, U.S. society began to discuss corporate social responsibility in earnest. Even though stakeholder theory emphasizes that firms that satisfy their various stakeholders can attain strategic competitive advantages [1,2], the prevailing trend was that corporate social responsibility also involves ethical duties. In other words, the pursuit of corporate profit should not work in opposition to social values but, instead, should be accountable to public interest. Therefore, corporate social responsibility is not only mandatory for the survival of corporations, but is also a duty that corporations must follow.

When corporations run their business activities sustainably, both environmental problems and gaps between the rich and poor arise. Moreover, with the growth in information technology and the effects of consumers and non-government organizations, business management roles are becoming varied and complicated. To adjust to these changes, corporations focus more and more on corporate social responsibility and take actions to fulfill those requirements. As corporate social responsibility activities become major considerations for sustainable growth and increasing firm value, many global corporations are realizing that corporate social responsibility activities are more important than they were previously.

This study focuses specifically on Korean companies; these companies also realize the importance of corporate social responsibility and engage in corporate social responsibility activities. In fact, Korea has established several requirements for protecting human rights and the environment, and higher-quality employment and transparent business structures are increasing as well. Since 2000, the number of major Korean corporations with substantial expenditures on corporate social responsibility has gradually increased. Specifically, these expenditures increased by more than 70 billion won from 2004 to 2007. According to the Federation of Korean Industries, the 2008 social contribution expenditures of major Korean companies are 0.28% of sales and 2.5% of ordinary income, which are higher than those of American or Japanese companies. However, a survey by the Korea Chamber of Commerce and Industry in early 2010 shows that only 4.9% of the top 100 corporations with regard to sales believe that they are ready for ISO 26000 [3]. The International Organization for Standardization (ISO) announced ISO 26000, an international standard for corporate social responsibility, in 2010. ISO 26000 has seven core values (organizational governance, human rights,

labor practice, environment, process operation, consumer issues, and community participation in economic development) that encourage building a decision-making system that can be implemented and applied to social responsibility [4].

According to research by the Korea Economic Justice Institution (KEJI) on 350 major corporations, the ratio of corporations adopting economic ethics in 2007 is 93.5%, which is a substantial increase from 62% in 2005. Expenditures on social contributions are also increasing, from 1200 billion in 2004 to 1400 billion in 2005. In addition, according to the “2012 Paper of Corporate Social Contribution,” total social contribution costs of more than 3000 billion Korean won are incurred by 222 domestic corporations in 2011. This amount is about 8.7% higher than spending in 2010, which is around 2870 billion won. Even in 2009, spending on social contributions is 2651 billion won. Thus, social contribution spending in 2011 is about 17.8% higher than that in 2009. The average social contribution spending of a single company in 2011 is more than 14 billion Korean won, which is 7.7% higher than that of 2010, which is around 13 billion. As these numbers demonstrate, the importance of corporate social responsibility is increasing gradually, and its effect seems to be increasing accordingly. Therefore, as the domestic importance of corporate social responsibility increases, more and more studies on its impact are being conducted.

The most important question regarding corporate social responsibility activities is whether they are sustainable. To sustain these activities, corporations must receive some benefits to offset the costs of the activities. According to some perspectives, although global corporate social responsibility expenditures are growing, the effects of these activities are very small. In Korea, social contribution costs take up a higher portion of profits than they do in the United States, but consumers’ impressions of corporations are getting worse. According to the 2007 Korean Chamber of Commerce and Industry, consumers’ favorable impression of domestic corporate social responsibility activities was only 37.4 points out of a total of 100.

Indeed, in terms of the readjustment of corporate social responsibility, the social requirement that corporations should protect human rights and the environment, is increasing. At the same time, society requires the creation of good jobs and the improvement and maintenance of labor criteria as a part of the social structure. Recently, in Korea, a fatal humidifier germicide accident was caused by Oxy, a Korean living goods company. As a result of a toxic substance in the humidifier germicide, many customers died of acute lung disease, but no specific law existed to cover this scenario. This example serves as a reminder that the law and the system cannot control everything, and that spontaneous corporate social responsibility is very important. Although some people question whether it is reasonable to force social responsibility upon companies that are fundamentally in pursuit of profit, a social consensus that corporations are also socioecological beings that participate in society is being formed. In fact, corporate social responsibility has two meanings. First, it can be thought of as an aspect of business strategy with an aim of eventual profits through donations, volunteering, and so on. Second, it can be thought of as an ideology formed from interactions between corporations and the social environment.

In both cases, therefore, it is an extremely significant paradigm to maintain business ethics to ensure long-term business performance and continuity. In this situation, the dominant consideration is the effect of a corporation’s effort to adhere to social responsibility on its value. In other words, an important outstanding question is whether companies with direct or indirect spending on social responsibility have differential economic advantages over companies that do not consider their social responsibility. Answering this question requires a multi-dimensional consideration of sustainable corporate social responsibility activities and whether they are compatible with corporations that exist to earn profits. If corporate social responsibility activities are not linked to the profitability of firms and are only one-time activities, it is clear that corporate social responsibility cannot be sustainable, and this negatively impacts both society and corporations.

Therefore, the main purpose of this study is to improve the economy, more broadly, by focusing on an emerging issue. This study expands upon existing corporate social responsibility research

by studying the relation between a corporate social responsibility index and firm value variables. Specifically, to study this relation in a practical and systematic way, we use the KEJI Index to represent corporate social responsibility and Tobin's Q to represent firm value. In particular, the KEJI index is proprietary, and was developed by the Citizens' Coalition for Economic Justice and KEJI, which makes it unique and useful as a proxy for firms' corporate social responsibility activities in the Korean market.

A few studies have found that corporate social responsibility activities improve firms' market valuations, and that their corporate social responsibility investments are evaluated by market participants in Asian countries [5]. However, relatively few studies on the Korean market provide meaningful implications for corporate social responsibility researchers and investors in the Asian region. In particular, the success of Korean firms and the country's rapid economic growth has been disproportionately credited to market participants. As a result, stakeholders are increasingly demanding that firms protect their rights and meet social responsibilities [6]. In response to these demands, corporate investment in corporate social responsibility activities is growing in Korea [7], and managers are becoming more aware of their social duties [8]. In particular, since the 1997 Asian financial crisis, government authorities and investors have placed greater pressure on Korean firms to engage in corporate social responsibility activities by, for example, forcing firms to invest in corporate social responsibility-related projects [9]. In addition, Choi, Lee, and Park [10] document that firms voluntarily focus on corporate social responsibility activities to enhance their social reputations.

In addition, the Korean market is an especially interesting setting in which to study corporate social responsibility because it is dominated by *chaebols*. *Chaebols* are typically controlled by family members, who have significant power over business operations and, thus, are prone to self-interested and short-term-oriented behavior at the expense of outside shareholders and other stakeholders. This unique market environment enables us to fill an important gap in the literature on corporate social responsibility and firm value.

This study focuses specifically on the manufacturing industry. Korea is quite renowned for its rapid rise from being one of the poorest countries in the world to becoming a developed, high-income country. Commonly known as the Miracle of Han River, this rapid growth helped Korea reach the ranks of elite countries, like those in the Organization for Economic Cooperation and Development (OECD). At that time, *chaebols*, which are huge, family-owned conglomerates, were the major contributors to this growth. Importantly, most of these conglomerates are fundamentally manufacturing-based companies. Furthermore, South Korea has almost no natural resources and always suffers from overpopulation in its small land area, which deters continued population growth and the development of a large international consumer market. Therefore, it needs to adopt an export-oriented economic strategy to fuel its economy. Basically, Korea imports raw materials from abroad, manufactures them into high-quality products, and then sells these products. Through this mechanism, Korea is able to overcome its territorial and population disadvantages. Thus, the manufacturing industry is Korea's core industry, and most of Korea's GDP comes from the manufacturing industry, followed by the service sector. Given these economic conditions, we investigate whether the Korean manufacturing industry has any unique features relative to other industries.

This study is the first to use corporate social responsibility to identify the differential features of the manufacturing industry. Therefore, this approach and analysis may be unique, even if the approach is vague. Specifically, this study makes the following differential contributions to the literature relative to prior research. First, we again confirm the positive relation between corporate social responsibility and firm value through empirical analysis. In addition, when we consider how corporations can improve firm value by adopting corporate social responsibility activities as active competitive strategies, we find that soundness, fairness, and environment-related activities meaningfully affect the value of firms in the manufacturing industry. These impacts are greater in the manufacturing industry than in other industries.

The remainder of this paper is organized as follows. In Section 2, we provide theoretical background and discuss the previous literature. In Section 3, we lay out the research hypotheses

and models and explain the samples and variables used in this study. In Section 4, we describe the descriptive statistical analysis and the results of the empirical analysis. Finally, we organize the results in Section 5.

## 2. Theoretical Background and Research Hypotheses

### 2.1. Corporate Social Responsibility and Firm Value

Corporations are not separate from society but, rather, are linked with various stakeholders and form sustainable economic and social relationships. They function with the support of society. Furthermore, as time passes, the social requirements of corporations become increasingly varied and complicated. From this perspective, Carroll [11] suggests the role of corporations as required by society. He categorizes corporate responsibility into economic responsibility, legal responsibility, ethical responsibility, and voluntary responsibility. First, economic responsibility—earning corporate profits by creating and providing necessary services and products to society—is the fundamental reason why a corporation exists. Next, legal responsibility is important because corporations are part of a society that is governed by law. Nations set rules and regulations to maintain national order and control, and, as corporations are part of these nations, they must follow the rules and operate within legal boundaries. Third, ethical responsibility refers to activities that corporations are not forced to perform, but that they should perform from the perspective of general social values. Finally, voluntary responsibility includes activities such as helping the socially disadvantaged. Carroll [11] shows that those responsibilities are not equal in importance but can be met in stages; for instance, legal responsibility can be pursued after economic responsibility.

Corporate social responsibility is defined in several ways. The Commission of the European Communities defines corporate social responsibility as the voluntary integration of socioeconomic problems, corporate activities, and stakeholder interactions. The United Nations Conference on Trade and Development defines it as corporations' methods for meeting and affecting social requirements. The International Labor Organization defines it as various economic, social, and environmental initiatives of corporations that are beyond the scope of the law. The International Organization of Employers defines it as voluntary and positive activities of corporations in various economic, societal, and environmental fields. The World Business Council for Sustainable Development defines it as the will of a corporation to accomplish sustainable development and to improve the quality of life through cooperation with employees, families, communities, and the whole society.

Since the definition of corporate social responsibility varies depending on the researcher, it has no single conceptual definition [12,13]. In fact, the term “corporate social responsibility” is sometimes used in conjunction with the term “social contribution”. Maignan and Ferrell [14] report that corporate social responsibility is a major theme of economic study, and is conceptualized as social duty, duty toward stakeholders, a responsibility based on ethics, and a management process. Many other studies also conceptualize corporate social responsibility as a duty related to society and stakeholders [15,16], and understand it as the voluntary activities of corporations for the improvement of the social environment [17]. However, Friedman [18] limits the definition of corporate social responsibility activity to a very narrow range, arguing that it involves respecting stakeholders' opinions and managing corporations. In other words, corporate social responsibility can be seen as earning as much benefit as possible, given legal and ethical regulations. By contrast, McWilliams and Siegel [19] define corporate social responsibility activity much more broadly, arguing that it involves expanding the social good beyond corporate benefits or legal requirements.

Furthermore, few studies have been conducted regarding financial corporate social responsibility activity, especially in Korea, although some relevant studies exist. For example, Navarro [20] finds that the key factors in corporate donations are profit maximization and managerial discretion. Brown et al. [21] investigate the relation between corporate charity and agency cost, and Barnea and Rubin [22] investigate the relation between the degree of corporate social responsibility and capital



structure, pointing out the probability of losing firm value due to corporate social responsibility activity. Harjoto and Jo [23] show that a corporation's probability of caring about corporate social responsibility is positively related to its features, such as its size, debt ratio, profitability, R&D, and level of diversification, as well as to aspects of its management structure, such as the leadership and independence of the board of directors and stakes of institutional investors.

In an earlier study, McGuire [24] argues that corporations have responsibilities in many fields of society, and their most important responsibility is social volunteering. Fredrick [25] considers the origin of corporate social responsibility in connection with corporate volunteering in the late nineteenth century and the emergence of the welfare concept in the 1920s. Carroll [26] claims that, as a member of society, a corporation must be responsible to society. Furthermore, from a long-term perspective, a corporation that disregards social requirements will eventually face higher expenditures due to an increase in social costs. He also classifies social responsibility into four stages in order of importance: philanthropic (discretionary) responsibilities, ethical responsibilities, legal responsibilities, and economic responsibilities. Philanthropic responsibilities include care for humanity, cultural support, charity, and so on. Ethical responsibilities include social support activities, the observance of public order, and so on. Legal responsibilities include the observance of the law, the improvement of members' morality, and transparency to stakeholders. Economic responsibilities include respect for stakeholders' profit and the survival of the firm.

Some studies find a negative relation between corporate social responsibility and firm value, as socially responsible companies face financial losses and further lose competitiveness because of their direct expenditures toward both social and environmental issues [27,28]. Using an event study, Wright and Ferris [29] report a negative relation between abnormal profitability and corporate social responsibility. Bartlett and Preston [30] argue that social responsibility and firm value have a negative relation because the costs of social responsibility can cause financial hardship. In addition, Barnea and Rubin [22] try to explain corporate social responsibility expenditure from the perspective of agency theory. They claim that if a corporate manager spends more than the optimal level on social responsibility for private purposes, firm value decreases because of the agency conflict between stockholders and managers.

However, substantially more studies indicate a positive relation between corporate social responsibility and firm value. Cochran et al. [31] find a positive relation between corporate social responsibility and corporate outcomes. Freeman [32] claims that corporate social responsibility can be an optimal solution that minimizes transaction costs and potential conflicts among stakeholders. Waddock and Graves [33] argue that corporations that meet their social responsibilities gain better financial outcomes in terms of profitability, short-term repayment capability, and the leverage ratio. Posnikoff [34] reports a positive relation between corporate social responsibility and short-term corporate income. Two meta-analyses [35,36] show a generally positive relation between corporate social responsibility expenditure and financial accomplishment. Specifically, Roman et al. [35] analyze the relation between corporate social performance and financial performance, and find that 33 out of 52 studies show a positive relation, five show a negative relation, and 14 cannot find any statistical relation. Karmer [37] argues that corporate social responsibility expenditure eventually improves corporate image and further enhances competitiveness, increasing firm value. David et al. [38] find that corporate social responsibility expenditure improves consumers' evaluations of corporate image and increase consumers' purchase intentions, leading to firm value improvement [39].

Furthermore, the related research specific to Korea tends to find a positive relation between corporate social responsibility and firm value. For example, Park and Lee [40] divide corporate social responsibility expenditure into donations and spending on environmental protection, and find that it improves financial performance. Furthermore, Park et al. [41] research the effect of environmental performance on financial outcomes and show that corporations with better environmental performance have better financial results as well. Another study [42] claims that even though corporate social responsibility spending is a short-term cost, it becomes a positive factor and can eventually reduce

cost in the long run by enhancing corporate reputation and sales. Choi et al. [43] report that donation expenditures, which are a type of social contribution, have a positive effect on firm value. Additionally, Jang and Choi [44] show a positive relation between corporate social responsibility and firm value (Tobin's Q). Finally, Kook and Yang [13] argue that corporations can sustainably perform corporate social responsibility activities only if corporate social responsibility positively affects firm value.

Although there are many prior studies and different opinions, most research supports the notion that corporate social responsibility has a positive relation with firm value [45]. Therefore, the basic premise of this study is the existence of a positive relation between corporate social responsibility and firm value.

## 2.2. Research Hypotheses

Corporate social responsibility has been emphasized by both academic researchers and practitioners, because, in addition to having a positive effect on firms' performance and sustainability, it may also benefit the wealth and rights of stakeholders. For example, El Ghoul et al. [46] find that the costs of equity tend to be lower for firms with greater corporate social responsibility engagement, whereas Wu and Lin [47] show a positive effect of corporate social responsibility activities on firms' financial capabilities. Janney and Gove [48] suggest that firms can benefit from corporate social responsibility because corporate social responsibility activities help to protect their reputations even in the event of major crises or scandals. Moreover, Freeman [49] argues that firms that satisfy their stakeholders can attain strategic competitive advantages. Turban and Greening [50] document that corporate social responsibility can add a strategic advantage to a firm by attracting and retaining talented employees. In a recent study, Kim, Park, and Ryu [51] associate corporate environmental responsibility, a subset of corporate social responsibility, with long-term firm performance and stakeholders' rights. One purpose of this study is to confirm the correlation between corporate social responsibility and firm value. In other words, this study aims to find empirical evidence for the effect of direct and indirect corporate social responsibility efforts, as measured by the KEJI Index, on firm value, as measured by Tobin's Q. In general, prior research reports that when the KEJI Index is high, arbitrary earnings management is low and, simultaneously, financial accomplishment is high [52–54]. Thus, we expect that if a corporation has a high KEJI Index, its firm value and, therefore, Tobin's Q should be relatively higher. Therefore, we set the first research hypothesis as follows.

**Hypothesis 1.** *Corporate social responsibility activities have a positive relation with firm value.*

Another purpose of this study is to check whether manufacturing industry companies differ from other companies. Many previous studies show that corporate social responsibility activities have a positive effect on firm value, but few prior studies focus on specific industries. Therefore, this study focuses on the manufacturing industry, which is industry code C in the Korean standard industrial classification (KSIC). Most corporations listed on the KRX have an industry code, and a dominant number of corporations are categorized as belong to the manufacturing industry. Specifically, 11,311 of 17,638 firm-year data points in the period from 2005 to 2015 correspond to companies in the manufacturing industry, which is more than 60 percent of the total, whereas the total number of companies in other industries is 6327. Moreover, because of the fast-changing global manufacturing environment, a seminar was held in Korea regarding recent manufacturing industry trends related to globalization in 2016. Given the increasing attention to this industry, we apply the corporate social responsibility index to the manufacturing industry to determine the characteristics that are unique to the manufacturing industry. Since many studies claim that strategic management companies can improve their financial performance and value by adopting appropriate corporate social responsibility activities, identifying specific characteristics of the manufacturing industry by analyzing the corporate social responsibility index could be helpful for the manufacturing industry to develop proper strategies and further improve its value. Thus, in this study, we set the second hypothesis as follows.

**Hypothesis 2.** *The manufacturing industry and other industries differ in terms of the relation between corporate social responsibility and firm value.*

### 3. Research Methodology

#### 3.1. Research Model

In this study, we use multiple regression analysis to determine the difference between the manufacturing industry and other industries regarding the influence of the corporate social responsibility index on firm value. Specifically, since the evaluation items changed in 2012, we subdivide the full period into the period from 2005 to 2011 and the period from 2012 to 2015. Furthermore, starting from 2012, the KEJI corporate social responsibility evaluation model does not evaluate the finance industry's environmental management activity. Therefore, for the period from 2012 to 2015, we exclude finance companies from the list to set up a proper comparison with the manufacturing industry. Formula (1) is a general formula that is typically used to study the relation between Tobin's Q (firm value) and corporate social responsibility. This formula can support this study's assumptions regarding the positive relation between corporate social responsibility and firm value.

$$Q_{i,t} = \beta_0 + \beta_1 KEJI_{i,t} + \beta_2 Size_{i,t} + \beta_3 Lev_{i,t} + \beta_4 Age_{i,t} + \beta_5 ID_{i,t} + \beta_6 YD_{i,t} + \varepsilon_{i,t} \quad (1)$$

Based on this baseline formula, the research model to analyze the data from 2005 to 2011 is given by Formula (2).

$$Q_{i,t} = \beta_0 + \beta_1 Soundness_{i,t} + \beta_2 Fairness_{i,t} + \beta_3 Social_{i,t} + \beta_4 Consumer_{i,t} + \beta_5 Environment_{i,t} + \beta_6 Employee_{i,t} + \beta_7 Development_{i,t} + \beta_8 Size_{i,t} + \beta_9 Lev_{i,t} + \beta_{10} Age_{i,t} + \beta_{11} ID_{i,t} + \beta_{12} YD_{i,t} + \varepsilon_{i,t} \quad (2)$$

Formula (3) is used to analyze data from 2012 to 2015. The difference between this formula and Formula (2) is that this formula does not include a development-related evaluation item because of the revision of evaluation items.

$$Q_{i,t} = \beta_0 + \beta_1 Soundness_{i,t} + \beta_2 Fairness_{i,t} + \beta_3 Social_{i,t} + \beta_4 Consumer_{i,t} + \beta_5 Environment_{i,t} + \beta_6 Employee_{i,t} + \beta_7 Size_{i,t} + \beta_8 Lev_{i,t} + \beta_9 Age_{i,t} + \beta_{10} ID_{i,t} + \beta_{11} YD_{i,t} + \varepsilon_{i,t} \quad (3)$$

In this study, Tobin's Q, which is used as a proxy for firm value, is the dependent variable in Formulas (1) and (2). Regarding Tobin's Q, we use the model of Kaplan and Zingales [55] to measure firm value. Tobin's Q is not only very useful for understanding a corporation's growth potential, but also relatively easy to apply because of its simple process. The general equation for Tobin's Q is as follows.

$$\text{Tobin's Q} = \{(\text{Common stock price} \times \text{Number of common stock}) + (\text{Preference share price} \times \text{Number of preference share}) + \text{Book value of total debt}\} / \text{Book value of total asset}$$

In addition, Table 1 presents the definition of variables used in the research models.



**Table 1.** Definitions of variables.

Variables	Definitions
Q	Tobin's Q
KEJI	Log value of the sum of all KEJI Index values
Soundness	Log value of soundness index
Fairness	Log value of fairness index
Social	Log value of social service index
Consumer	Log value of consumer satisfaction index
Environment	Log value of environmental satisfaction index
Employee	Log value of employee satisfaction index
Development	Log value of economic development index
SIZE	Log value of firm's total assets
LEV	Total debt/total assets
AGE	Log value of foundation year subtracted from measurement year
ID	Industry dummy
YD	Year dummy
$\epsilon$	Residual

### 3.2. Sample Data

To create the sample dataset, we first collected all firms listed on the KRX for the period from 2005 to 2015. We obtained their information from the Data Guide Pro provided by FnGuide, the representative financial data ase in Korea. Technically, the financial information given for firms on the KRX is the same as that given by Compustat data in the United States.

We use the KSIC as a standard to classify the sample data. According to the international standard industrial classification of the UN Statistics Division, as of 1963, the Korean government is using the KSIC, which is suitable for Korean industrial characteristics. The KSIC is a generalized classification that is equally available for all institutions, especially for domestic economic research or comparative analysis with foreign countries, based on the domestic industrial structure and the conditions in which each production unit performs its industrial activity. The main purpose of the classification is to provide a classification of industrial activities that can be used for statistical data. This classification is even used as a standard for tax law, except in the case of special regulations. In this study, we use the ninth revision of the classification, which is implemented starting in 2008. The classification includes 21 industry codes from A to U. A is agriculture, forestry, and fishery. B is the mining industry. C is the manufacturing industry. D is the electricity, gas, and tap water industry. E is the waste management and environment restoration industry. F is the construction industry. G is wholesale and retail sales. H is the transportation industry. I is the lodging and eatery industry. J is publication and information. K is finance and insurance. L is real estate and leasing service. M is expert science technology. N is business facility and support. O is administration and the national defense industry. P is education service. Q is health care and social welfare. R is the art, sports, and leisure industry. S is association, repair, and private. T is self-consumption producing activity. U is international and foreign institutions. Table 2 shows the composition of the firm-year observations of this research.

The number of observations for industrial code C in the firm-year sample is 1201, with the remaining 417 observations belonging to other industries. Indeed, 74.2% of the 1618 total observations are from the manufacturing industry. The number of observations in the firm-year sample with industrial code M, the expert science technology industry, is 89, comprising 5.5% of the data. The number of observations in the firm-year sample with industrial codes G and F, wholesale/retail sales and the construction industry, respectively, are 85 and 79. The respective proportions in the full data set are 5.3% and 4.9%.

**Table 2.** Firm-year observations by industry code.

Industrial Code	Observations	Proportion (%)	Proportion Rank
A	3	0.2	
C	1201	74.2	1
D	30	1.9	
F	79	4.9	4
G	85	5.3	3
H	32	1.9	
I	2	0.1	
J	46	2.8	
K	28	1.7	
L	2	0.1	
M	89	5.5	2
N	8	0.5	
P	4	0.3	
R	6	0.4	
S	3	0.2	
(Total)-C	417	25.8	
Total	1618	100	

#### 4. Empirical Analysis

##### 4.1. Descriptive Statistics of the Variables

Table 3 shows the descriptive statistics of the variables used in the empirical analysis.

**Table 3.** Descriptive statistics.

Variables	Observations	Min	Max	Mean	SD
Q	1618	0.01910000	7.08650000	0.68194730	0.64543670
KEJI	1618	1.76495000	1.88196200	1.80579900	0.01885915
Soundness	1618	1.03011000	1.46423500	1.21298200	0.05774058
Fairness	1618	0.73639650	1.23426400	1.03966500	0.13891350
Social	1618	0.24303800	1.06865000	0.67979930	0.16503760
Consumer	1618	0.35218250	1.13672100	0.72225540	0.23737080
Environment	1590	0.61278390	0.92941890	0.75306460	0.06719071
Employee	1618	0.42180130	1.06709700	0.83510870	0.13530530
Development	926	0.45564110	0.89695480	0.69451220	0.07144381
Size	1618	17.0455000	26.2129000	20.2664900	1.62867800
Lev	1618	0.05925000	0.92970000	0.43108960	0.18656990
Age	1618	0.00000000	2.07188200	1.50778500	0.29205190

The descriptive statistics are based on the 1618 firm-year observations. When it comes to the major variables, Tobin's Q has a minimum of 0.01910000, a maximum of 7.08650000, a mean of 0.68194730, and a standard deviation of 0.64543670. KEJI, the log value of the sum of all KEJI Index values, has a minimum of 1.76495000 and a maximum of 1.88196200. Its mean is 1.80579900, and its standard deviation is 0.01885915. Soundness, the log value of the soundness index both before and after 2012, has a minimum of 1.03011000, a maximum of 1.46423500, a mean of 1.21298200, and a standard deviation of 0.05774058. Fairness, the log value of the fairness index both before and after 2012, has a minimum of 0.73639650 and a maximum of 1.23426400. Its mean is 1.03966500, and its standard deviation is 0.13891350. Social, which reflects the social service contribution level from 2005 to 2011 and social contribution points from 2012 to 2015, has a minimum of 0.24303800, a maximum of 1.06865000, a mean of 0.67979930, and a standard deviation of 0.16503760. Consumer reflects the consumer protection satisfaction level from 2005 to 2011, and consumer protection from 2012 to 2015. It has a minimum of 0.35218250, a maximum of 1.13672100, a mean of 0.72225540, and a standard deviation of

0.23737080. Environment has only 1590 observations because 28 finance companies are not evaluated using this index. This variable reflects the environmental protection satisfaction level from 2005 to 2011, and environmental management from 2012 to 2015. It has a minimum of 0.61278390 and a maximum of 0.92941890. The mean of Environment is 0.75306460, and its standard deviation is 0.06719071. Employee includes the employee satisfaction level from 2005 to 2011, and employee satisfaction from 2012 to 2015, and has a minimum of 0.42180130 and a maximum of 1.06709700. Its mean is 0.83510870, and its standard deviation is 0.13530530. Development only has 926 observations because the evaluation item is eliminated after 2012. Development, the log value of the economic development contribution level, has a minimum of 0.45564110, a maximum of 0.89695480, a mean of 0.69451220, and a standard deviation of 0.07144381. Size has a minimum of 17.0455000 and a maximum of 26.2129000. Its mean is 20.2664900, and its standard deviation is 1.62867800. Lev has a minimum and maximum of 0.05925000 and 0.92970000, respectively. Its mean is 0.43108960, and its standard deviation is 0.18656990. Finally, Age has a minimum of 0.00000000, a maximum of 2.07188200, a mean of 1.50778500, and a standard deviation of 0.29205190.

#### 4.2. Pearson Correlation Coefficients of Variables

Table 4 shows the Pearson correlation coefficients of the variables.

**Table 4.** Pearson correlation coefficients.

	Q	KEJI	Snd	Fair	Soci	Cons	Envir	Empl	Dev	Size	Lev	Age
Q	1											
KEJI	0.256 ***	1										
Snd	0.141 ***	0.450 ***	1									
Fair	0.051 **	0.267 ***	0.585 ***	1								
Soci	0.049 **	0.425 ***	0.413 ***	0.683 ***	1							
Cons	0.024	0.241 ***	0.642 ***	0.945 ***	0.689 ***	1						
Envir	−0.02	0.196 ***	−0.224 ***	−0.344 ***	−0.224 ***	−0.291 ***	1					
Empl	0.117 ***	0.348 ***	0.424 ***	0.746 ***	0.548 ***	0.748 ***	−0.363 ***	1				
Dev	0.320 ***	0.444 ***	0.043	−0.028	0.744 **	0.246 ***	0.153 ***	−0.008	1			
Size	−0.012	0.285 ***	0.153 ***	−0.039	0.124 ***	0.006	0.452 ***	−0.106 ***	0.226 ***	1		
Lev	−0.277 ***	−0.094 ***	−0.115 ***	−0.039	−0.0003	−0.020	0.179 ***	−0.054 **	−0.069 **	0.441 ***	1	
Age	−0.202 ***	−0.061 **	0.043 *	−0.019	−0.037	−0.008	−0.016	−0.02	−0.025	−0.03	−0.04 **	1

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

First, because of the fundamental requirement for Pearson correlation analysis that each variable have the same number of observations, we use the smaller numbers of observations shown in Table 3 to analyze Environment and Development. Tobin's Q and KEJI have a correlation of 0.256, which indicates a significant positive relation, so we can conclude that if the KEJI Index, which reflects corporate social responsibility, is high, the firm value is high as well. Looking at the specific components, Tobin's Q and Soundness have a correlation of 0.141, which implies a significant positive relation, so, again, if Soundness is high, firm value is high. Similarly, we find significant positive relations between Tobin's Q and Fairness, Social, Employee, and Development of 0.051, 0.049, 0.117, and 0.320, respectively, which implies that when any of these indexes is high, firm value is also high. On the other hand, Lev and KEJI have a correlation of −0.094, which implies a significant negative relation. This result can be interpreted to mean that companies with high debt ratios are reluctant to invest in corporate social responsibility activities, probably because of management shortage risk.

#### 4.3. Multiple Regression Analysis Results

Table 5 shows the results of multiple regression analysis based on Formula (1). As described above, the dependent variable is Tobin's Q, and the major explanatory variable is KEJI, which is the total of all scores based on the KEJI evaluation format. The sample used in this analysis is all manufacturing industry corporations.

According to Table 5, Tobin's Q and KEJI have a significant positive relation of 7.807. In other words, if a corporation has a higher total KEJI score, which implies more corporate social responsibility, the firm value is also higher. Lev and Tobin's Q have a significantly negative relation of −0.862.

This result could stem from the reluctance of corporations that face management shortages to invest in corporate social responsibility. Age and Tobin's Q also have a significant negative relation of  $-0.402$ . Thus, we can conclude that, as a corporation becomes mature, it might be more reluctant to invest in corporate social responsibility. We also note that the  $F$ -value is 25.78 and significant. The  $R^2$  value is 0.220, and the adjusted  $R^2$  value is 0.212. Overall, we find that Hypothesis 1, that corporate social responsibility positively affects firm value, is validated by the results of research model 1 in the case of manufacturing firms.

**Table 5.** Multiple regression analysis based on Formula (1) (manufacturing firms).

Variable (C)		Dependent Variable, Tobin's Q
		Model (1)
Intercept	coefficient	$-12.607^{***}$
	$t$ -value	$-8.051$
KEJI	coefficient	$7.807^{***}$
	$t$ -value	$8.739$
Size	coefficient	$0.015$
	$t$ -value	$0.188$
Lev	coefficient	$-0.862^{***}$
	$t$ -value	$-9.064$
Age	coefficient	$-0.402^{***}$
	$t$ -value	$-7.74$
$\sum ID$		Included
$\sum YD$		Included
$F$ -value		$25.78^{***}$
$R^2$		$0.220$
Adj $R^2$		$0.212$

\*\*\* indicates statistical significance at the 1% levels.

Table 6 again shows the results of multiple regression analysis based on Formula (1), but, in this case, we consider the sample of non-manufacturing corporations. As before, the dependent variable is Tobin's Q, and the major explanatory variable is KEJI.

**Table 6.** Multiple regression analysis based on Formula (1) (non-manufacturing firms).

Variable (C)		Dependent Variable, Tobin's Q
		Model (1)
Intercept	coefficient	$-12.830^{***}$
	$t$ -value	$-3.196$
KEJI	coefficient	$8.234^{***}$
	$t$ -value	$3.561$
Size	coefficient	$0.012$
	$t$ -value	$0.402$
Lev	coefficient	$-1.448^{***}$
	$t$ -value	$-6.422$
Age	coefficient	$-0.409^{**}$
	$t$ -value	$-3.204$
$\sum ID$		Included
$\sum YD$		Included
$F$ -value		$7.507^{***}$
$R^2$		$0.195$
Adj $R^2$		$0.169$

\*\* and \*\*\* indicate statistical significance at the 5%, and 1% levels, respectively.

We find that Tobin's Q and KEJI have a significant positive relation of 8.234. Again, we can conclude that if a corporation has a higher total KEJI score, its firm value is also higher. As in the case of manufacturing firms, we find significant negative relations between Tobin's Q and Lev and between Tobin's Q and Age, and we can draw similar conclusions. The *F*-value is 7.507 and significant. The  $R^2$  value is 0.195, and the adjusted  $R^2$  value is 0.169. We can conclude that Hypothesis 1, that corporate social responsibility affects firm value positively, corroborates research model 1 in the case of non-manufacturing firms as well.

Table 7 shows the results of multiple regression analysis based on Formula (2). Again, the dependent variable is Tobin's Q. Unlike in the previous analysis, this analysis uses the seven evaluation items that make up the KEJI Index—Soundness, Fairness, Social, Consumer, Environment, Employee, and Development—as the explanatory variables. The results in Table 7 reflect the sample of manufacturing industry corporations from 2005 to 2011.

**Table 7.** Multiple regression analysis based on Formula (2) (manufacturing firms, 2005–2011).

Variable (C)		Dependent Variable, Tobin's Q
		Model (2)
Intercept	coefficient	−4.532 ***
	<i>t</i> -value	−5.817
Soundness	coefficient	1.838 ***
	<i>t</i> -value	4.046
Fairness	coefficient	0.983 *
	<i>t</i> -value	2.477
Social	coefficient	0.002
	<i>t</i> -value	0.009
Consumer	coefficient	−0.556
	<i>t</i> -value	−1.769
Environment	coefficient	0.990 **
	<i>t</i> -value	3.185
Employee	coefficient	1.015 ***
	<i>t</i> -value	5.931
Development	coefficient	2.066 ***
	<i>t</i> -value	6.983
Size	coefficient	0.013
	<i>t</i> -value	0.941
Lev	coefficient	−0.759 ***
	<i>t</i> -value	−6.450
Age	coefficient	−0.415 ***
	<i>t</i> -value	−6.796
$\Sigma$ ID		Included
$\Sigma$ YD		Included
<i>F</i> -value		22.45 ***
$R^2$		0.335
Adj $R^2$		0.320

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

We find that Soundness and Tobin's Q have a significantly positive relation of 1.838. Thus, if a corporation has a high Soundness score, its firm value is higher as well. Similarly, we find significantly positive relations between Tobin's Q and Fairness, Environment, Employee, and Development of 0.983, 0.990, 1.015, and 2.066, respectively. These results imply that if a corporation has a high score on any of these dimensions, it has a higher firm value as well. As before, we find significant negative relations



between Lev and Tobin's Q, and Age and Tobin's Q, of  $-0.579$  and  $-0.415$ , respectively, which we can again interpret as described above. Finally, the  $F$ -value is 22.45 and is significant, the  $R^2$  value is 0.335, and the adjusted  $R^2$  value is 0.320.

Table 8 shows the results of the same multiple regression analysis based on Formula (2) for the sample of non-manufacturing industry corporations from 2005 to 2011.

**Table 8.** Multiple regression analysis based on Formula (2) (non-manufacturing firms, 2005–2011).

Variable (O)		Dependent Variable, Tobin's Q
		Model (2)
Intercept	coefficient	$-4.522^*$
	$t$ -value	$-2.319$
Soundness	coefficient	1.413
	$t$ -value	1.258
Fairness	coefficient	1.382
	$t$ -value	1.540
Social	coefficient	$-1.008$
	$t$ -value	$-3.044$
Consumer	coefficient	$-0.120$
	$t$ -value	$-0.210$
Environment	coefficient	$-0.404$
	$t$ -value	$-0.517$
Employee	coefficient	1.135 *
	$t$ -value	0.024
Development	coefficient	3.248 ***
	$t$ -value	6.388
Size	coefficient	0.055
	$t$ -value	1.559
Lev	coefficient	$-1.464$
	$t$ -value	$-4.670$
Age	coefficient	$-0.283^*$
	$t$ -value	$-2.061$
$\sum ID$		Included
$\sum YD$		Included
$F$ -value		8.828 ***
$R^2$		0.370
Adj $R^2$		0.328

\* and \*\*\* indicate statistical significance at the 10% and 1% levels, respectively.

In this case, we find a significant positive relation between Employee and Tobin's Q of 1.135; a high score on this dimension implies a higher firm value. We also find a significant positive relation between Development and Tobin's Q of 3.248; again, a high score on this dimension also implies a higher firm value. As in the previous analyses, we find a significant negative relation between Age and Tobin's Q of  $-0.283$ , which can be interpreted as described above. The  $F$ -value is 8.828 and significant, the  $R^2$  value is 0.370, and the adjusted  $R^2$  value is 0.328.

Comparing the results in Tables 7 and 8, we observe some differences in the relation between the dimensions of corporate social responsibility and firm value. In the case of manufacturing industry corporations, as shown in Table 7, Soundness, Fairness, Consumer, Environment, Employee, and Development are all significantly related to Tobin's Q, and only Social has no significant effect. In contrast, in the case of non-manufacturing industries, as shown in Table 8, Social, Employee, and Development are significantly related to Tobin's Q, whereas Soundness, Fairness, Consumer,

and Environment have no significant effect. Therefore, Hypothesis 2, which states that the relation between corporate social responsibility and firm value should differ between the manufacturing industry and other industries, is strongly supported by the results of the analysis based on Formula (2). Note that, in Tables 6 and 7, we find that firm size is not significantly related to firm value, whereas Dang, Li, and Yang [56] argue that firm size is one of the key variables in empirical corporate finance. We attribute this result to the fact that our sample is based only on the manufacturing industry, and, thus, the variation in firm size within the sample is not significant compared to that based on all industries in the Korean market.

Table 9 shows the results of multiple regression analysis based on Formula (3). As before, the dependent variable is Tobin's Q, and the explanatory variables are Soundness, Fairness, Social, Consumer, Environment, and Employee, the components of the KEJI Index from 2012 to 2015. The sample used in this analysis is manufacturing industry corporations from 2012 to 2015.

**Table 9.** Multiple regression analysis based on Formula (3) (manufacturing firms, 2012–2015).

Variable		Dependent Variable, Tobin's Q Model (3)
Intercept	coefficient	−2.027
	t-value	−0.722
Soundness	coefficient	5.170 ***
	t-value	5.822
Fairness	coefficient	−0.475
	t-value	−0.435
Social	coefficient	1.284 ***
	t-value	3.605
Consumer	coefficient	−3.923 **
	t-value	−0.3139
Environment	coefficient	0.901
	t-value	1.596
Employee	coefficient	1.345 *
	t-value	2.166
Size	coefficient	0.059 *
	t-value	2.331
Lev	coefficient	−0.750 ***
	t-value	−4.489
Age	coefficient	−0.410 ***
	t-value	−4.905
$\sum ID$		Included
$\sum YD$		Included
F-value		12.9 ***
$R^2$		0.235
Adj $R^2$		0.217

\*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

In this analysis, we find significant effects of Soundness, Social, and Employee on Tobin's Q of 5.170, 1.284, and 1.345, respectively. Thus, if a corporation has a high score on any of these corporate social responsibility dimensions, its firm value should be higher as well. However, Consumer and Tobin's Q have a significant negative relation of −3.923. This result can mean that many manufacturing corporations have corporate social responsibility expenditure strategies that are not efficient in terms of financial outcomes. These firms may spend too much on corporate social responsibility without improving their corporate images or outcomes. We also find a significant positive relation between

Size and Tobin's Q of 0.059. This result corresponds with the preceding theory of economies of scale that says that the greater the size of the corporation, the greater its value. We again find significant negative relations between Lev and Tobin's Q, and between Age and Tobin's Q of  $-0.750$  and  $-0.410$ , respectively, and these results have the same interpretation as in the previous analyses. Finally, the  $F$ -value is 12.9 and significant, the  $R^2$  value is 0.235, and the adjusted  $R^2$  value is 0.217.

Table 10 shows the results of the same multiple regression analysis based on Formula (3) described above for the sample of non-manufacturing industry corporations from 2012 to 2015.

**Table 10.** Multiple regression analysis based on Formula (3) (non-manufacturing firms, 2012–2015).

Variable		Dependent Variable, Tobin's Q
		Model (3)
Intercept	coefficient	0.39315
	$t$ -value	0.060
Soundness	coefficient	2.96
	$t$ -value	1.280
Fairness	coefficient	2.036
	$t$ -value	0.762
Social	coefficient	2.320 *
	$t$ -value	2.373
Consumer	coefficient	$-3.878$
	$t$ -value	$-1.976$
Environment	coefficient	1.786
	$t$ -value	1.276
Employee	coefficient	$-1.549$
	$t$ -value	$-0.901$
Size	coefficient	0.127 *
	$t$ -value	2.044
Lev	coefficient	$-0.758$
	$t$ -value	$-1.762$
Age	coefficient	$-0.346$
	$t$ -value	$-1.294$
$\sum ID$		Included
$\sum YD$		Included
$F$ -value		3.121 ***
$R^2$		0.219
Adj $R^2$		0.149

\* and \*\*\* indicate statistical significance at the 10% and 1% levels, respectively.

Social and Tobin's Q have a significant positive relation of 2.320, implying that if a corporation has a high score on Social, its firm value should be higher as well. As in the previous analysis, Size and Tobin's Q have a significant positive relation of 0.127, again supporting the notion of economies of scale. The  $F$ -value is 3.121 and significant, the  $R^2$  value is 0.219, and the adjusted  $R^2$  value is 0.149. We find few significant results in this analysis. The sample includes only 147 observations, which is an insufficient number for finding any tendencies in the distribution.

Comparing the results of the analyses shown in Tables 9 and 10, we observe some differences. The results for manufacturing industry corporations, as shown in Table 9, indicate that Soundness, Social, Consumer, and Employee are significant explanatory variables for Tobin's Q, whereas Fairness and Environment have no significant effects. In contrast, the results for non-manufacturing industry corporations, as shown in Table 10, indicate that Social is the only explanatory variable significantly related to Tobin's Q. Soundness, Fairness, Consumer, Environment, and Employee have no significant

effects. This comparison should be made with caution, however, because we may find few significant results in Table 10 because of the low sample size. Therefore, Hypothesis 2, which states that the relation between corporate social responsibility and firm value should differ between the manufacturing industry and other industries, is slightly supported by the results of Formula (3).

## 5. Conclusions

With the adoption and revision of the voluntary international standard ISO 26000, corporate social responsibility activity will become increasingly important in the future, and will become a new global trade barrier as a criterion for evaluating firm value. Therefore, rather than simply responding to these changes, companies can use corporate social responsibility as an opportunity to achieve sustainable development with various stakeholders.

In general, firms in emerging markets do not engage extensively in corporate social responsibility activities, although firms in the Korean market tend to be exceptions to this rule [57,58]. Relevant studies document a substantial increase in corporate social responsibility activities in the Korean market, and this growth has been led by large firms. However, firms' corporate social responsibility motives seem to differ between developed markets and emerging markets, possibly owing to local issues and the institutional context [58–60]. In particular, the distinctive features of corporate social responsibility in the Korean market may be attributed to domestic and international regulatory pressure on Korean firms, especially since the Asian financial crisis. Choi and Aguilera [9] and Kim et al. [59] posit that the key factor fostering corporate social responsibility activities is the role of government authorities in pressuring firms to adopt such activities. For example, after the Asian Financial Crisis in 1997, Korea's government initiated dramatic changes in its economic policies and regulations. The new policies and regulations were aimed particularly at large *chaebols*, which the government considered to be partly responsible for the crisis, owing to their short-term decision making and poor governance. Certainly, Choi and Aguilera [9] adopt the view that the government's forcing of *chaebols* to engage in corporate social responsibility could be a means of addressing this belief, and they demonstrate that *chaebol* firms have become actively involved in corporate social responsibility since the crisis, to improve their damaged reputations and ethical perspectives.

This study uses firm-year data for firms listed on the KRX that have corporate social responsibility index data for the years 2005 to 2015. The data is taken from the Data Guide Pro provided by FnGuide, the representative financial database in Korea. Given this data, this study first analyzed the impact of corporate social responsibility on firm value. Specifically, we used the KEJI Index, which provides an important standard corporate social responsibility evaluation score for Korean firms, to represent corporate social responsibility. We represented firm value using Tobin's Q, which is generally used in many preceding studies because of its effectiveness and simplicity. Thus, we performed multiple regression analysis with Tobin's Q and the KEJI Index to empirically analyze the relation between corporate social responsibility and firm value. Many previous studies find various results regarding this relation; the results of this analysis indicate a positive relation in this context, which supports the results of the majority of prior studies. Specifically, using Formula (1) and the sample of corporations in the manufacturing industry, we find a significant positive relation between Tobin's Q and the KEJI Index of 7.807, as shown in Table 5. A possible interpretation of this result is that if a corporation has a higher total KEJI score, its firm value should be higher as well. Similarly, in Table 6, we observe a significant positive relation between Tobin's Q and the KEJI Index of 8.234 in the case of non-manufacturing firms; we can interpret this result similarly. These results both strongly support Hypothesis 1; corporate social responsibility activities positively affect the value of a corporation.

Furthermore, given this empirical analysis, we can say that setting an appropriate competitive strategy with regards to corporate social responsibility is desirable. In addition, from the perspective of Jones and Murrell [61], corporate social responsibility can trigger a preference effect that can attract investors. In other words, if a corporation cares about corporate social responsibility, investors might think that the corporation has relatively sound financial management. Furthermore, the positive image

constructed by corporate social responsibility activities may drive consumers to give the corporation an additional chance.

These research results provide some implications to corporations. First, it is meaningful that we find empirical evidence that corporate social responsibility has an impact on firm value. Second, the results demonstrate the beneficial impact of corporate social responsibility. This impact implies that corporate social responsibility activity is fundamentally required for a firm to be positively evaluated by the market. Third, the results imply that corporations must adopt corporate social responsibility as an active competitive strategy, taking their own conditions into account. Moreover, to drive voluntary corporate social responsibility activities, all participants in capital markets should pay attention to these activities. Overall, our results can help top managers or CEOs of corporations who are considering investing in corporate social responsibility.

Hypothesis 2 states that the effect of corporate social responsibility on firm value differs between the manufacturing industry and other industries. Comparing the results of Tables 7 and 8, which cover the years from 2005 to 2011, we do observe some differences. The analysis results for manufacturing industry corporations shown in Table 7 indicate that Soundness, Fairness, Consumer, Environment, Employee, and Development are all significant explanatory variables with respect to Tobin's Q. However, Social has no significant effect. In contrast, the results for corporations in other industries, shown in Table 8, imply that only Social, Employee, and Development have significant relations with Tobin's Q, and that Soundness, Fairness, Consumer, and Environment have no significant effects. Therefore, these results strongly support Hypothesis 2.

The results of the analyses for 2012 to 2015, shown in Tables 9 and 10, indicate some differences as well. Table 9 shows the results for manufacturing industry corporations, which imply that Soundness, Social, Consumer, and Employee are significant explanatory variables with respect to Tobin's Q. Fairness and Environment are not significant in this analysis. In contrast, the results for corporations in other industries, as shown in Table 10, imply that only Social has a significant relation with Tobin's Q, whereas Soundness, Fairness, Social, Consumer, Environment, and Employee have no significant effects. In this comparison, however, Table 10 may have few significant results because of the small sample size. Nevertheless, there do seem to be some differences. Therefore, we can conclude that these results at least slightly support Hypothesis 2.

Given all of these results regarding Hypothesis 2, we can conclude that the effect of corporate social responsibility on firm value differs between manufacturing industry and non-manufacturing industry corporations. The variables Soundness, Fairness, and Environment have significant effects on firm value in the case of manufacturing industry corporations, but not in the case of corporations in other industries. The results imply that when corporations try to improve their firm values by adopting corporate social responsibility activities as active competitive strategies, activities related to soundness, fairness, and the environment significantly affect the values of manufacturing industry corporations, and this effect is greater than that on corporations in other industries.

Thus, understanding the evaluation items underlying the soundness, fairness, and environment metrics may be helpful for managers of corporations in the manufacturing industry. A first evaluation item underlying Soundness is the soundness of the stockholder structure, which includes such items as the internal equity ratio, the level of professional managers, and management succession conditions. Thus, corporations in the manufacturing industry should consider the soundness of the stockholder structure as a significant factor in firm value. A second evaluation item underlying Soundness is the consumptive expenditure rate, which is calculated as sum of reception expenses and secret service funds divided by personnel expenses. These expenses should be monitored, as they could negatively affect firm value. Finally, Soundness also reflects the soundness of the fund supply, which is related to its riskiness. Therefore, corporations in the manufacturing industry should build safe fund supply routes to strengthen firm value. In the case of Fairness, one evaluation item is related to fair trade regulations. Thus, corporations in the manufacturing industry should follow fair trade regulations carefully to keep firm value high. Fairness also encompasses a transparency



evaluation item, and, thus, corporations in the manufacturing industry should make business reports available to the public to maintain firm value. Finally, the underlying components of Environment include environmental accounting announcements, energy efficiency, and environmental investments, as well as environment-related prizes and contamination records. Therefore, corporations in the manufacturing industry should make efforts toward environmental improvements to increase firm value.

From this perspective, we should consider why the soundness, fairness, and environmental factors of corporate social responsibility have a greater impact on the manufacturing industry. Essentially, we can assume that these factors are important to the manufacturing industry. First, the environmental factor may be important to the manufacturing industry since this industry may generate various forms of pollution during the production process. The soundness and fairness factors may also be important to the manufacturing industry since these companies are mostly large and influential companies in the Korean economy. Thus, companies categorized in this industry are more likely to be sensitive to these factors.

In particular, this study adds to the recent literature examining corporate social responsibility activities and firm performance. Loh et al. [62] document that sustainability reporting is positively associated with firm value based on an analysis of Singapore-listed companies. In addition, Singh, Sethuraman, and Lam [63] show that the positive relationship between sound corporate social responsibility practices and firm value holds in Hong Kong and China as well. Recently, Hategan and Curea-Pitorac [64] also corroborate the positive influence of corporate social responsibility activities on firm value. Importantly, Kim, Park, and Lee [65] show that the corporate social responsibility–firm value nexus is largely influenced by a firm’s ownership structure based on the Korean market.

However, one possible limitation of this study may be a form of endogeneity. As the sample data used in this study show, the manufacturing industry is the dominant industry in Korea. In addition, most large companies are categorized as belonging to the manufacturing industry. In other words, most manufacturing companies are larger than companies in other industries. Thus, an endogeneity problem may arise, and further analysis is necessary to demonstrate a true causal relation between corporate social responsibility and firm value. In this research, we observe a positive relation between corporate social responsibility and firm value, but we do not observe a clear causal relation. By employing instrumental variables or another methodology [66], future studies may be able to understand the deeper relation between corporate social responsibility and firm value. Nevertheless, by using a simple multiple regression model with the variables of the KEJI Index, this study has tried a unique approach and has found some interesting differences between the manufacturing industry and other industries.

Another limitation of this study includes a selection bias problem since the sample is limited to the corporations evaluated by the KEJI Index. Thus, there are some limits to generalizing the results. In addition, this analysis uses only Tobin’s Q as a proxy for firm value and business performance. Therefore, it may be more accurate and useful for future research to use additional proxy variables other than Tobin’s Q. Furthermore, the results of this study cannot accurately explain why corporate social responsibility affects firm value, which is a standard limitation of regression analysis. Therefore, focusing on the cause-and-effect relation between corporate social responsibility and firm value and the mechanism behind this effect will lead to more objective and accurate analysis. For example, Orlitzky and Benjamin [67] document that corporate social responsibility activities reduce firm risk, and Porter and Kramer [68] show that corporate social responsibility is incorporated into material firm strategies. In addition, Lin et al. [69] argue that corporate social responsibility activities create social capital and enhance firm value. Recently, Buchanan, Cao, and Chen [70] report that the positive corporate social responsibility–firm value relationship is affected by the role of institutional investors. Moreover, even though the KEJI Index is the most reliable standard metric of Korean corporate social responsibility activity, some of its aspects may still need to be revised, as the evaluation items did change in 2012. In addition, to accurately understand the specific features of the manufacturing

industry, analysis of only the corporate social responsibility index is not sufficient. Thus, future research should adopt different variables or choose different research models to study this issue more deeply. Finally, the data used in this research cover the period from 2005 to 2015, so the analysis does not reflect very recent information.

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