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Can International Standards Discriminate the Corporate Social Responsibility/Irresponsibility? Empirical Evidence from Taiwan

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Abstract Existing studies have provided numerous guidelines for the implementation of corporate social responsibility (CSR). However, business leaders have been either confused or reluctant to take action largely due to the complicated process of applying CSR. To alleviate this problem, this study examined whether international standards can be considered a benchmark tool to implement CSR. Based on a literature review, four key dimensions that construct CSR were accountability, competitiveness, transparency, and responsibility, while the four main characteristics of international standards were auditing effectiveness, reputation establishment, information symmetry, and consumer awareness. The hypothesized model depicted that certification systems of International Standard (IS) sufficiently reflected the four dimensions of CSR. The results obtained from a discriminant analysis showed that international standards helped stakeholders distinguish between companies with and without CSR goals; in turn, these standards could be regarded as a feasible and optimal tool for companies to demonstrate their commitment to CSR.

Keywords: *corporate social responsibility, irresponsibility, international standards, discriminant analysis*

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1. Introduction

Given that how corporate social responsibility (CSR) contributes to society has become increasingly significant, the literature has long focused on providing a definition for CSR [1] and overall guidelines for companies [2]. Companies develop CSR strategies to gain a positive reputation [3], to comply with regulations [2], to improve their competitive advantage [4], and to respond to pressure from stakeholders [5,6]. Reference [7] has developed an analytical model for appraising and measuring CSR. Nevertheless, the vagueness of CSR performance captures corporations' dilemma regarding which principles they should consider among hundreds of guidelines and how they should practically implement them. Paradoxically, as more guidelines and frameworks appear, business leaders become less motivated to practice CSR largely due to the complexity and inconvenience of doing so.

Moreover, based on the KPMG Survey[1] of Corporate Responsibility Reporting 2015, it highlighted that more companies report on CSR in Asia Pacific than in any other region. The greatest increases of CSR reporting rates in Asian countries have been seen in India, South Korea and Taiwan since 2013. A compelling reason for this study to select Taiwan as the targeted country is that Taiwan is considered an advanced economy by the International Monetary Fund and has the highest Global Entrepreneurship Index in Asia.

A concept is usually abstract or vague and may practically be assessed by using more than one dimension. At a practical level, it is indeed more interested in dimensions than in concepts. For example, the conceptualization of "social status" could generally reflect the interplay among three dimensions, including wealth, prestige, and power [8]. In an effort to analyze the metaphysical concept, this study adopts four dimensions to assess the concept of CSR, including Accountability, Competitiveness, Transparency, and Responsibility.

As in Taiwan, the Ministry of Economic Affairs [2] pointed out that, in 2016, the number of SMEs in Taiwan was 1,408,313, accounting for 97.73% of the total enterprises, an increase of 1.76% compared with 2015; the number of employed persons in SMEs reached 8.81

[1]The file is available at:
https://home.kpmg.com/content/dam/kpmg/pdf/2015/12/KPMG-survey-of-CR-reporting-2015.pdf.

[2] Refer to Taiwan Ministry of Economic Affairs (2017) SME White Paper. Page 2. Available at:
https://book.moeasmea.gov.tw/book/doc_detail.jsp?pub_SerialNo=2017A01295&click=2017A01295#.

million, accounting for 78.19% of the national employment, an increase of 0.57% compared with 2015. Sales of SMEs totaled 11.7 billion of NT dollars, accounting for 30.71% of the total enterprises. Of which domestic sales amounted to 103.34 billion of NT dollars, accounting for 35.85% of all enterprises, an increase of 0.15% over 2015. At a time when the economy is slowing down, the Small and Medium Enterprise Administration believes that the functions of SMEs to absorb employment and stabilize the economy are more obvious. On the other hand, the function to release economic dynamism and job creation in SMEs is more evident when economic development returns to the warmer.

The remainder of this study is constructed as follows: The literature review and theoretical background is in the second part. We try to construct the dimensions of CSR and to demonstrate our hypotheses in the third section. The fourth part is methodology and empirical results analysis. Final is the conclusion section.

2. Literature Review

Meanwhile, business leaders have long struggled to measure their CSR performance. They need a vital and easy-to-check tool to demonstrate their CSR commitment to stakeholders who have little patience and limited means to distinguish between CSR and non-CSR companies. In this regard, a feasible and optimal tool is to apply for the certification systems of International Standard (IS) [3], which embody the interaction among four attributes, including Auditing Effectiveness, Reputation Establishment, Information Symmetry, and Consumer Awareness [10,11]. This study suggested that certified management systems of IS be considered as effective governance mechanisms for the self-regulation of CSR [12,13,14]. This decision is constrained not only by the operating environment, but also by the parsimonious principle. In fact, from an econometric point of view, this decision helps to avoid the over-parameterization that causes a multi-collinearity problem because most macroeconomic variables tend to correlate over time.

Although the above-mentioned variables have been empirically established to be significant in explaining CSR, not all of them can be applied to emerging markets. This is because the financial system of emerging markets or small open economies are somehow operating under a different set of rules and constraints [15,16,17]. Using Taiwan as an example, first, not all of the financial data are readily available for empirical analysis. Second, the government often interferes in financial markets by setting price limits on stocks. Occasionally, the government steps into the market to prevent the excessive downside movement of prices by setting up stabilization funds. (e.g. [18,19,20,21]) Third, the bond markets in the small open economies (or frontier markets[4]) are relatively thin. Since the financing mechanism for a business firm is mainly through borrowing from a local bank, not from issuing bonds, as a result, the business relationship with local banks rather than the market force of interest rates, which plays a more crucial role in dictating loanable funds. It also stands for the cost of capital raising from banks will be higher than that raising from bond markets [18, 20].

Fourth, the monetary policy in small open economy is more impotent. It is generally recognized that for a small open economy, the local market interest rate cannot be maintained below the world level; otherwise, the economy will suffer from a substantial amount of capital outflow [22,23]. Finally, an emerging market usually lacks coherent legal and financial systems that provide sufficient information to accommodate investors. In light of these barriers, in this study, some key macroeconomic/financial variables are used to describe opaqueness of firm's operation.

However, as described in [24], there are many studies work on CSR for the large companies or multinational enterprises (e.g. [25,26,27,28,29]). It is only in recent years that CSR has become more relevant to small and medium businesses and the developing countries (e.g. [30,31,32,33]). Reference [24] summarized three reasons that the lack of interest among academic scholars and non-academic reporters in CSR applying to SMEs: (1) Misunderstanding CSR; (2) Perception of SMEs in academia; and (3) Contrasting small firm CSR vs. large firm CSR.

This article contributes to the field of CSR in three ways. Firstly, the concept of CSR can be logically divided into four dimensions, which comparatively easier for further researches to develop measurable indicators or practical guidelines. As in [34], we can construct a factor model for CSR implementation. Secondly, ISs can be regarded as a practical tool for business owners to implement CSR, mitigating the gap of the long reluctant behaviors of business owners to proceeding CSR commitment. Finally, ISs help customers distinguish CSR companies from non-CSR ones, improving the brand name and reputation of the CSR companies.

Here, we proposed that four attributes of IS correspondingly reflect four dimensions of CSR, respectively, and therefore ISs can be regarded as proper proxies to signal a firm's commitment to CSR. According to [10], Figure 1 shows the conceptual framework.

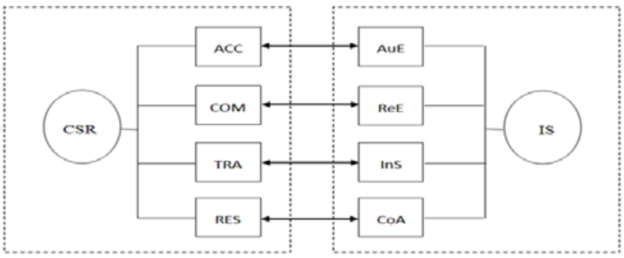

Figure 1. The Hypothesized Model for CSR and IS

3. Definition of Variables

3.1. Dimensions of CSR

As the concept of sustainability is gradually evolving, simply concentrating on traditional conventions regarding

3 This study used the term "International Standard" to include standards, certifications, technical regulations, and conformity assessment procedures (e.g. GRI, ISO, HACCP, and OHSAS) unless otherwise noted ([9]).

4 As described in [18], the younger least developed countries are called frontier markets, defined by the Morgan Stanley Capital International (MSCI). For instance, Croatia, Argentina, Jordan, Kenya, and Vietnam, etc. are in the category of frontier markets. (https://www.msci.com/market-classification)

organizational development is not a feasible or optimal approach. A sounder way to ensure a positive future is to implement CSR, an abstract concept that can properly be reflected by four characteristics: accountability, competitiveness, transparency, and responsibility.

3.1.1. Accountability

Some explore accountability as an important feature in the context of CSR performance [5,35]. Companies demonstrate accountability in two aspects. First, openness is a virtue of accountability, as firms must proactively communicate with stakeholders about their vision, values and effectiveness [36]. Moreover, firms with accountability are better able to explain their decisions, actions or commitments [37]. Standards such as the International Organization for Standardization (ISO) series and the Global Reporting Initiative (GRI) can be used to ensure accountability since they require firms to comply with set guidelines [10,38].

3.1.2. Competitiveness

Competitiveness is a core attribute that leads to business sustainability, and it can be established by investing in CSR management [39]. Empirical studies have suggested that companies engaged in CSR activities can enhance their competitiveness [11,40,41,42] and increase their support from stakeholders, thereby developing and maintaining positive reputations [43]. Reference [44] extended research of strategic CSR to signaling theory and competitive advantage by using intellectual capital (IC) as a proxy for competitive advantage. Moreover, because companies mainly gain their reputations through the dimension of collective responsiveness and recognition, it takes a long time for stakeholders to observe and accumulate perceptions of a firm. In this regard, adopting ISs may result in a positive increase in the firm's reputation, and thus help reduce uncertainty and signal its competence [41,45]. Once their reputations are enhanced, firms may experience improved competitiveness and, in turn, profitability.

3.1.3. Transparency

Transparency can help increase a firm's credibility and lead to better strategic outcomes. It enables stakeholders to understand and analyze firm-specific information [10,46,47]. A firm's management addresses the tension between responding to the need for CSR information and maintaining its legitimacy within the community. While different companies choose varying degrees of transparency depending on the main stakeholder groups involved [48], voluntary disclosure can enhance the quality of information to help analysts better forecast and influence how stakeholders perceive a firm's legitimacy [49]. This enhanced legitimacy reduces problems related to both asymmetric information and agency, which are characterized by a strong commitment to CSR [50].

3.1.4. Responsibility

Confronted with social demands and externally imposed expectations, firms must use a more proactive approach to address public issues and thereby communicate their responsibility to various stakeholders. Reference [51] analyzed three dominant pressures (i.e., primary stakeholders, secondary stakeholders, and institutional forces) that push companies toward CSR. Among these pressures, stakeholders are the main players who companies need to satisfy and with whom they actually build long-term relationships of mutual interaction. With increasing pressure from stakeholders, firms can use mechanisms to reinforce their strategies so that a clear signal is sent about their commitment to responsibility, and the CSR agenda is clearly a strategic decision to satisfy various stakeholders [10,11,42,52]. A firm's investment in CSR may fulfill various corporate goals to help improve its triple bottom-line performance and signal its responsibility to stakeholders [53].

In response to various pressures, companies internally establish corporate standards and codes of conduct to ensure that these standards are implemented; externally, they at least adhere to globally accepted norms or standards of practice [54]. Eventually, companies may find that externally verifiable measurements with credible certification processes are a more common and significant way of signaling responsibility. For instance, [51] proposed a total responsibility measurement (TRM) approach to help companies think through the pressures of public expectations regarding corporate responsibility. In this respect, standard certifications such as ISs are likely to affect a firm's demonstration of CSR due to their indisputable influence on global business. Such certifications may also serve as credible signs of the quality control process [55].

3.2. Attributes of International Standards

A firm's performance can be strategically enhanced by maintaining ISs based on four considerations. Firstly, international standards (IS) are scrutinized with rigorous and effective audit processes and are thus favorably recognized. Secondly, as increasing stakeholder awareness of CSR puts more pressure on firms, ISs provide all observers with symmetric information that may reduce the chance of market failure. Thirdly, a firm's ability to maintain competition in the marketplace can only be realized through its engagement with stakeholders. The minimum but most significant step in creating such engagement is to maintain ISs, thereby revealing certain levels of transparency. Finally, to develop a strong reputation, firms need to apply ISs to demonstrate their commitment to all stakeholders.

3.2.1. Auditing Effectiveness

Adopting ISs shows effective governance mechanisms for the self-regulation of CSR [9,10,12,14]. To obtain ISs, a firm must conduct a series of processes to meet the requirements and help the firm prepare for the registration audit. Through effective auditing procedures, firms that maintain ISs provide assurance that their CSR practices are managed in accordance with specific sustainable principles. By integrating all relevant procedures and guidelines to structure management systems, companies with ISs essentially save time and resources and reduce administrative costs [9]. Therefore, the adoption of ISs sends a message about firms' accountability to their stakeholders.

3.2.2. Reputation Establishment

A good reputation will lead a firm to a positive relationship with stakeholders and eventually improve its image, reinforce its competitiveness, and strengthen its brand [9, 39, 47, 56]. IS systems aim to establish a trustworthy reputation and cooperative relationship with stakeholders [10, 11, 43, 53]. Regarded as a CSR strategy, IS application is a mechanism that seeks to realize continual improvement over time [57], reduce reputational risks in the marketplace [58], and, therefore communicate a sustainable commitment to CSR. Many studies have proved that corporate reputation is a valuable strategic resource that contributes to a firm's sustainable competitive advantage [43, 56]. Therefore, a firm can actually enhance its competitiveness by establishing its reputation by maintaining ISs.

3.2.3. Information Symmetry

A lack of available information potentially hinders market efficiency. Theoretically, problems related to imperfect price discrimination and quality information in markets may lead to market failure [59]. Practically, due to costs, stakeholders will likely be unable to obtain comprehensive information [60]. Without readily available access to references and guidelines, stakeholders must incur higher costs to collect and verify information. To remedy this problem, setting minimum safety standards for observable characteristics may be a feasible and optimal way to fill this gap [61, 62]. Since no generalizable theory is available to set minimum standards, firms can simply apply for recognized third-party certifications such as ISs [9, 14], which may help them acquire additional external legitimacy through their commitment to transparency [53].

A natural linkage exists between low transparency and information asymmetry. Typically, low transparency does not mean that nobody knows anything; instead, it means that less information is made publicly available, implying that the gap between the informed and uninformed is larger. To narrow this gap, ISs can play a role in mitigating information asymmetry [55]. Therefore, ISs can help stakeholders respond to information symmetry to promote transparency to their stakeholders.

3.2.4. Consumer Awareness

Growing consumer awareness has created new demand for more and better information on the content of the goods and services that consumers buy based on robust underlying methods. In addition, pressure from customers is identified as a key external driver of obtaining standard certifications [2, 10, 14]. Shoppers are more likely to buy products if firms provide evidence that action has been taken to reduce environmental damage [63] or that the products have been made by certified firms [60]. Consequently, an effective way for a firm to align itself with this eco-friendly strategy is to obtain a recognized quality assurance standard. To fulfill public expectations about corporate responsibility, ISs may serve as a credible sign of the quality control process [55] and, in turn, become a desirable and feasible tool for communicating a firm's responsibility. Therefore, if a company's responds to consumers' demands by attaining ISs, it conveys a clear message of strong responsibility.

3.3. Hypothesis Development

Although critics have raised debates about the effectiveness of ISs [62], more studies that are empirical propose that ISs demonstrate effective governance mechanisms for firms' CSR self-regulation [9, 13, 14]. In addition, a company's commitment to quality and environmental and social accountability might help improve its competitiveness and positive image [9]. ISs that cover these areas can be regarded as an indication of accountability, competitiveness, transparency, and responsibility. Based on this context, this study aimed to exam the following hypothesis for the Taiwanese companies:

Hypothesis 1: *International standards are highly associated with CSR Investment.*

Moreover, as mentioned above, we can construct a factor model that describe the degree of firm involving as follows:

$$CSR = f\left(ACC,\ TRA,\ COM,\ RES,\ X\right), \qquad (1)$$

where, *ACC*, *RES*, *TRA*, and *COM* are international standard variables; and *X* are some control variables, such as, industry, firm size, firm age, location[5], etc. Therefore, this study tries to validate the following hypothesis:

Hypothesis 2: *Discriminant value higher correlates to CSR involving.*

4. Methodology and Empirical Results

4.1. Variables and Measurement

Given the extensive variety of meanings for CSR, this study selected four variables that responded to the comprehensive concept: Accountability (*ACC*), Responsibility (*RES*), Transparency (*TRA*), and Competitiveness (*COM*). In addition, despite the numerous contextual elements of IS, this study focused mainly on four distinctive attributes: Audit Effectiveness (*AuE*), Customer Awareness (*CuA*), Information Symmetry (*InS*), and Reputation Establishment (*ReE*). The hypothesized model, as shown in Figure 1, linked the four variables of CSR to the four traits of IS: the concept of *ACC* was reflected by *AuE*; *COM* by ReE; *TRA* by *InS*; and *RES* by *CoA*. The questionnaire items consistent with these conceptualizations were adapted based on the conceptual domains.

The measurement of accountability referred to the theory of organizational structure, in which external conditions were critical factors in the choice of effective structural forms [65]. The questions were designed using openness and answerability to assess accountability [37].

5 As discussed in [64], the location advantages should be considered as a strategy.

The measurement of competitiveness focused on reputation because a firm with a good reputation could achieve sustainable competitiveness through customers' perceptions of confidence, trust, and identification [11, 43]. The questions were developed based on two aspects: whether a firm (1) ensured its commitment and (2) maintained high-quality communication using reliable methods [45].

The measurement of transparency involved analyzing both financial reports and corporate governance [46]. The questions were adapted from the Code of Good Practices on Transparency, which mainly recommend that a company focus on transparency principles, including the clarity of its responsibilities and objectives, processes for formulating and reporting policy decisions, the public availability of information on policies, and accountability and assurance of integrity [66]. The measurement of responsibility adopted a total responsibility measurement (TRM) approach to help firms manage external pressure due to public expectations [51]. The questions were drawn from a hierarchy-of-effects model to gauge the relationship between responsibility and stakeholders [67]. In the context of the model, the concept of prosociality was introduced to generally describe firms that sought the well-being and satisfaction of stakeholders without the immediate prospect of financial gain.

In summary, this model was examined by employing the approaches of [37] and [65] to measure accountability, [46] and [66] to measure transparency, [43] and [45] to measure competitiveness, and [51] and [67] to measure responsibility.

4.2. Data Collection

Table 1. Data Summary of Variables

Company Characteristics	No (Code I)	Yes (Code II)	χ^2	*p*-value
Category			65.52	0.000***
Manufacturing	16(22.6%)	110(86.6%)		
Banking	10(17.2%)	4(3.1%)		
Services	24(41.4%)	12(9.4%)		
Others	8(13.8%)	1(0.8%)		
Location			1.46	0.481
North	21(36.2%)	56(44.1%)		
Middle	26(44.8%)	54(42.5%)		
South	11(19.0%)	17(13.4%)		
Years in Business			22.76	0.000***
Less than 5	12(20.7%)	4(3.1%)		
5 to 10	7(12.1%)	4(3.1%)		
Above 10	39(67.2%)	119(93.7%)		
Size†			40.6	0.000***
Large	12(22.4%)	92(72.4%)		
Small/Medium	45(77.6%)	35(27.6%)		

†: The threshold of company size is the median of capitalization of company listed in Taiwan Stock Market. And, *** stands for $p<0.001$.

The questionnaire included 26 questions, 6 of which were demographic data and whether or not the targeted company with/without IS. The rest of 20 questions were the indicators of each variable of CSR, which denoted as ACC1, ACC2 and ACC3 for Accountability; COM1, COM2 and COM3 for Competitiveness; TRA1, TRA2, TRA3, and TRA4 for Transparency; and RES1, RES2, and RES3 for Responsibility. Each item was measured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Respondents were selected from the Commonwealth Magazine database[6] from the year 2014. To estimate models adequately, sample size could be as small as 100-150 [68]. The questionnaires were administered during face-to-face interviews with managers of selected companies; ultimately, 185 respondents were available for analysis. The basic statistical information is tabulated in Table 1.

4.3. Analytic Procedure

The data were analyzed using the statistical software AMOS. The first step verified both validity and reliability to evaluate whether the measured items were truly representative of the indicators in the model. For validity, both the modification index (MI) and expected parameter change (EPC) provided information on whether the estimation of the targeted parameters was substantively meaningful [69]. Meanwhile, the validity of the hypothesized model needed to be examined with key indices, including chi-square/d.f., the root-mean-square residual (RMSR), the goodness-of-fit index (GFI), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) [68, 70].

Reference [68] proposed that effective indices of reliability include item reliability, composite reliability, and average variance extracted (AVE). Item reliability determines whether measurement items that are posited to assess a variable differ from those that are not intended to assess the variable. Depending on the researcher, the generally accepted values are 0.3 or above [70]. In this study, any item value below 0.5 did not load properly and was therefore removed. Composite reliability (CR) was used to estimate internal consistency, and the generally accepted value was greater than 0.7 [71] and was calculated as follows:

$$CR \equiv \frac{\left(\sum \text{Standardized Loading}\right)^2}{\left[\begin{array}{l}\left(\sum \text{Standardized Loading}\right)^2 \\ +\left(\sum \text{Measurement Error}\right)^2\end{array}\right]}. \tag{2}$$

AVE was used to assess "the amount of [variance] that a latent construct component capture[d] from its indicators relative to the amount due to measurement error" ([72], p.321). Any item value above 0.5 was taken into account [71]. The AVE was calculated as follows:

$$AVE \equiv \frac{\sum\left(\text{Standardized Loading}^2\right)}{\left[\begin{array}{l}\sum\left(\text{Standardized Loading}^2\right) \\ +\sum\left(\text{Measurement Error}^2\right)\end{array}\right]}. \tag{3}$$

The next step employed discriminant analysis (DA) to test the hypotheses. The technique used several metric independent variables to predict a single nonmetric dependent variable, which could have two or more

[6] The data were extracted from 104 Labor Bank Website: http://www.104.com.tw/ground/index.cfm.

categories. The independent variables were the four CSR variables, while the dependent variable was coded as follows: 1 = companies without ISs and 2 = companies with ISs. In the discriminant analysis, a discriminant score (designated as *D*) was empirically determined using a linear equation. This score was computed from a weighted combination of the independent variables and was used to predict the group to which a survey respondent belonged. The *D* score was calculated for each respondent using the following equation:

$$D \equiv b_0 + b_1 \cdot X_1 + b_2 \cdot X_2 + \cdots + b_n \cdot X_n, \qquad (4)$$

where
D = the discriminant score for each respondent.
b_k = the discriminant weight for the k^{th} variable.
X_k = the respondent's value for the k^{th} independent variable.

In this equation, discriminant weights were estimates of the predictive power of each independent variable. Each independent variable had its own weight; the strong predictors were assigned more weight, while the weak ones were assigned less weight [68].

A natural linkage exists between low transparency and information asymmetry. Typically, low transparency does not mean that nobody knows anything; instead, it means that less information is made publicly available, implying that the gap between the informed and uninformed is larger. To narrow this gap, ISs can play a role in mitigating information asymmetry [55]. Therefore, ISs can help stakeholders respond to information symmetry to promote transparency to their stakeholders.

4.4. Empirical Results

Based on the MI outcomes, which are not shown here due to page length concerns, three measured items (i.e., one from *ACC*, one from *COM*, and one from *RES*) appeared to be cross-loaded items that represented substantial misspecifications of the hypothesized factor loadings. Therefore, these three indicators needed to be removed from the model. The remaining 18 measured items formed a specified model, which needed to be reexamined to determine which model had a better fit with the observed data. Table 2 shows a comparison of the fit indices of the two models.

Table 2. Summary of Model Fit Indices for Model Comparison.

Model	χ^2(*d.f.*)	RMSR	GFI	CFI	RMSEA
Original	210.32(65)	0.06	0.85	0.86	0.11
Respecified	131.23(68)	0.05	0.91	0.94	0.07
Accepted Value†	Smaller, Better	<0.05	>0.9	>0.95	<0.10

†: Calculated by [70].

The original model was a poor fit (χ^2 = 210.32; RMSR = 0.06; GFI = 0.85; CFI = 0.86; RMSEA = 0.11), while the respecified model was a much better fit (χ^2 = 131.2; RMSR = 0.49; GFI = 0.91; CFI = 0.94; RMSEA = 0.071). Therefore, the finalized model contained one dependent variable, four independent variables, 13 indicators, and 14 errors.

Table 3 shows the item reliability of all observed variables ranging from 0.48 to 0.88. All the items except RES3 loaded significantly onto their corresponding variables, indicating that convergent validity was obtained. Additionally, CR ranged from 0.72 to 0.88, indicating high reliability for all the variables. All AVE values exceeded the 0.5 threshold (ranging from 0.60 to 0.88), indicating that the indicators were truly representative of the selected variables.

Table 3. Model Measurement Results

Variables Measured Items	Item Reliability	Composite Reliability	Average Variance Extracted
Accountability (ACC)		0.88	0.86
ACC1	0.63		
ACC2	0.88		
ACC3	0.83		
Transparency (TRA)		0.79	0.71
TRA1	0.67		
TRA2	0.70		
TRA3	0.69		
TRA4	0.69		
Competitiveness (COM)		0.82	0.76
COM1	0.68		
COM2	0.73		
COM3	0.56		
Responsibility (RES)		0.72	0.60
RES1	0.65		
RES2	0.68		
RES3	0.48		
Suggested Value†	>0.5	>0.7	>0.5

†: Refer to [70] and [71].

After four variables were confirmed to be the key predictors of CSR, a discriminant function could be determined. As shown in Table 4, all the variables were statistically significant (*p* <0.001) on a univariate basis and were likely to be good predictors.

Table 4. Discriminant Analysis of CSR Components

Predictors	Canonical Discriminant Function Coefficient†	Wilks's Lambda	*F*	*Sig.*
Accountability	0.51	0.933	13.02	0.000
Transparency	0.246	0.831	37.10	0.000
Competitiveness	0.281	0.841	34.39	0.000
Responsibility	−0.200	0.917	16.42	0.000

†: These are unstandardized coefficient.

The following was found to be the best discriminant function:

$$\begin{aligned} D &\equiv -4.83 + .051 \times ACC + .246 \times TRA \\ &\quad + .281 \times COM - .200 \times RES. \end{aligned} \qquad (5)$$

Given the discriminant equation, the centroid was the mean of all the D scores of respondents in a particular group, which could be used to examine group differences [68]. A score D was calculated for each respondent, and a two-group discriminant analysis had two centroids. Meanwhile, the weights in the discriminant function were derived using the maximum likelihood method, which assigned a case to a group using a specific discriminant cutoff score ([68]) that was calculated from the weighted means when the group sizes were unequal.

Figure 2 showed that the group centroids (i.e., discriminant scores) were –0.72 for Code 1 (i.e., companies without ISs) and 0.33 for Code 2 (i.e., companies with ISs). Because the mean centroid of Code 1 was –0.72 and that of Code 2 was 0.33, the cutoff score was close to –0.2 $\left((-0.72+0.33)/2\right)$. Therefore, a score greater than –0.2 could be correctly predicted as the group of companies with IS, while a score equal to or less than –0.2 corresponded to companies without IS.

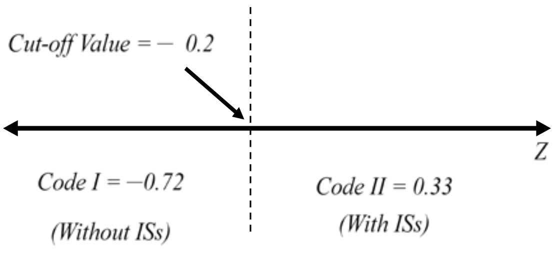

Figure 2. Discriminant Function

For example, for a company with questionnaire results of total *ACC* = 15, total *TRA* = 16, total *COM* = 14, and total *RES* = 17, the value of the function was

$$\begin{aligned} D &\equiv -4.83+.051\times 15+.246\times 12 \\ &+.281\times 14-.200\times 17=-.56. \end{aligned} \tag{6}$$

The value –0.56 was less than –0.2 and therefore belonged to Code 1. This result indicated that this company very likely had no ISs, as shown in the dataset. Based on a set of CSR variables, this discriminant function was able to predict whether a company had adopted ISs. This outcome showed that ISs were highly associated with CSR. Therefore, Hypothesis 1 was supported.

The second hypothesis addressed whether the adoption of ISs was able to distinguish CSR companies from non-CSR companies. The answer was dependent on the strength of the proposed model. The goodness-of-fit of the *DA* model was measured using eigenvalues, canonical correlation, and Wilks's lambda. The eigenvalues described the discriminatory power of the model. The canonical correlation and Wilks's lambda are two useful statistical indicators for determining whether the eigenvalues are significant. The canonical correlation examined the correlation between the discriminant scores and the levels of the dependent variable, while Wilks's lambda tested the significance of the eigenvalue for each discriminant function. The value of the canonical correlation was approximately 0.5, which indicated a strong relationship [70].

Table 5 shows that the eigenvalue of the discriminant function was 0.244, indicating the proportion of variance explained. The canonical correlation was 0.443, showing a modest correlation between the discriminant scores and the levels of the dependent variable. The Wilks's lambda (0.804), along with a significant value (*Sig.* = 0.000), indicated that the differences in the mean *D* scores of the two groups were greater than could be attributed to sampling error. In other words, the proposed model was able to discriminate between these two groups.

Table 5. Outcomes of the Discriminant Function.

	Eigenvalue	Canonical Correlation	Wilks's Lambda	χ^2	Sig.
Discriminant Model	0.244	0.443	0.804	39.3	0.000

Source: This Study.

In addition, the classification outcome showed that the discriminant model correctly predicted 73% of companies with ISs and 67.2% of those without. More specifically, companies with ISs were accurately predicted 73% of the time, while IS companies were predicted to be non-IS companies the remaining 27% of the time. Similarly, the discriminant function accurately predicted non-IS companies 67.2% of the time, while it made incorrect predictions the remaining 32.8% of the time. Since the weighted average was the proportional relevance of each group, the overall calculation was given as follows:

$$73\%\times\frac{127}{(127+58)}+67.2\%\times\frac{58}{(127+58)}\approx 71.2\%. \tag{7}$$

In other words, 71.2% of the overall sample was classified correctly in this study.

Generally, based on chance alone, the prediction of case membership in one of the two groups would be no better than 50%. In this study, 127 had ISs, and 58 companies did not. Assuming that all the respondents were predicted to be companies with ISs, then the prediction was 68.6% (127/185) accurate. Given that, the overall correct prediction rate of 71.2% was higher than 68.6%; this assumption showed that the discriminant model more accurately distinguished CSR companies from non-CSR companies according to their adoption of ISs. Therefore, Hypothesis 2 was supported.

A lack of available information potentially hinders market efficiency. Theoretically, problems related to imperfect price discrimination and quality information in markets may lead to market failure [59]. Practically, due to costs, stakeholders will likely be unable to obtain comprehensive information [60]. Without readily available access to references and guidelines, stakeholders must incur higher costs to collect and verify information. To remedy this problem, setting minimum safety standards for observable characteristics may be a feasible and optimal way to fill this gap [61,62]. Since no generalizable theory is available to set minimum standards, firms can simply apply for recognized third-party certifications such as ISs [14], which may help them acquire additional external legitimacy through their commitment to transparency [53].

5. Conclusions

Through a conceptual exploration, this paper developed an integrative model that links ISs and CSR and tested this model on Taiwanese firms. Overall, three contributions emerged. Firstly, this article contributed to the development of an integrative model for CSR by theoretically classifying it into four main aspects that concern company owners in practice. Likewise, the characteristics of ISs were to be proper proxies to signal a firm's commitment to CSR. The results showed that firms might particularly benefit from the adoption of ISs.

Furthermore, based on the canonical discriminant function coefficients shown in Table 4, the competitiveness variable had the most significant loading, followed by transparency, responsibility, and accountability. Among these variables, competitiveness was the most important for distinguishing between the two company groups, while transparency was the second most important. In other words, this outcome indicated that companies with ISs demonstrated more competitiveness and transparency than those without ISs. By adopting ISs, a company could develop a strategic plan to improve its competitiveness and transparency.

Secondly, the proliferation of both guidelines and frameworks has long made it challenging business leaders to know which of them to choose to effectively communicate their CSR commitment to stakeholders. Due to firms' confusion about the range of different options available to them, this article proposed that companies adopt ISs. To support this statement, the empirical analysis provided evidence that distinguished between firms that subscribed to well-recognized ISs and those that did not. The outcome fit the framing of important managerial issues.

Finally, the dataset shed some light on other factors to consider prior to the decision to adopt ISs. The results showed that a firm's size, category, and number of years in business played significant roles in the adoption of ISs. Each of these factors had interactive influences on one another. For example, in the case of a firm's years in business, even if the owners want to implement CSR through the adoption of ISs, they may not be able to do so largely because of the lack of money available during the firm's embryonic stages. This circumstance implies that, in Taiwan, companies in their initial stages are unlikely to consider implementing CSR until they grow stronger and larger. Apparently, if companies survive after a period and become larger, then they will begin considering CSR implementation, which, in turn, makes the adoption of ISs feasible and optimal. When considering how to help companies practice CSR, a firm's characteristics also had a prior and crucial effect on the adoption of ISs. This article contributed to filling this knowledge gap.

However, this study is subject to potential limitations. Firstly, the analysis that integrated different components could have led to different results due to the various interactions among them. Next, a larger data set could have yielded interesting outcomes. Finally, the outcomes of this research may only be applicable to Taiwan due to other countries' different national systems of business-society relations.

Appendix: Questions of Questionnaire

Part I. Basic Information

1. Company's industry:
☐ Manufacturing ☐ Banking ☐ Services ☐ Other.
2. Company's location in Taiwan:
☐ North ☐ Middle ☐ South.
3. How long has the company established? __________year(s).
4. Company's employees approximately? ________.
5. Applying for international standards currently?
☐ Yes ☐ No.
6. Have CSR sections/departments in company?
☐ Yes ☐ No.

Part II. Accountability Part

1. My company is to the extent of openness regarding social effects of the activities of the organization, especially with regard to investment decisions.
2. My company provides stakeholders with safe ways to address grievances against it.
3. My company has chosen nonprofit or other CSR relevant organization to partner.
4. My company has high levels of specialized expertise quality standards, such as ISO.
5. My company confirms to any one of standardized quality standards, such as ISO.

Part III. Responsibility Part

1. My company complies with Taiwan Stock Exchange mandates without any records.
2. My company discloses internal governance procedures necessary to ensure the integrity of operations (e.g. internal audit arrangements).
3. My company uses donations or philanthropy as an expression of social responsibility rather than as a marketing strategy.
4. My company generally participates in social or environmental programs without considering financial gain.
5. My company responds to underlying constituent dissatisfaction by taking voluntary measures, rather than by using corporate advertising or public relations to minimize damage to the company's image.

Part IV. Transparency Part

1. My company provides access to information about the financial disclosure, quality control, and management control systems.
2. My company allows external observes to verify whether the distribution of some resources and their applications reflect social preferences and comply with the criteria of quality and justice.
3. The presentations and disclosures of my company data overall meet the criteria that are consist with International Standards (e.g. ISO, IMF).
4. The procedures for any general criteria for removal of the governing body of my company are specific in legislation.
5. My company publicly discloses and explains the procedures and practices with regard to governing, social, and environmental policies instruments and operations.

Part V. Competitiveness Part

1. My company regards quality as the first priority and therefore adopts International Standards to reduce uncertainty about quality of products or services.

2. My company regards the implementation of International Standards (e.g. ISO) as a strategy choice to distinguish from competitors.
3. The framework, instruments, and any targets that are used to pursue the objectives of my company is publicly disclosed and explained.
4. My company has established and maintained public information services.
5. My company usually keeps good relationships with stakeholders by way of high quality communications such as personal contacts, prior interaction e-mail.

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