臺大管理論叢 2018/4
第 28 卷 第 1 期 87-140
DOI:10.6226/NTUMR.201804_28(1).0003

媒體聲譽對企業社會責任得獎企業其股市表現與財務績效之影響

The Impact of Media Reputation on Stock Market and Financial Performance of Corporate Social Responsibility Winner

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Received, 2014/9, Final revision received 2015/8

摘 要

本研究以天下及遠見雜誌評選之企業社會責任得獎公司為研究樣本，剖析企業社會責任獎項公告期間，媒體聲譽對公司股市表現與財務績效之影響。本研究應用內容分析法捕捉財經新聞報導隱含之資訊，實證結果發現媒體報導可向利害關係人傳遞企業之聲譽評價，未獲獎企業有動機在得獎公告前提升其媒體曝光程度與報導之淨樂觀程度，避免與獲獎企業之形象差距過大，但平均而言獲獎企業的媒體聲譽仍顯著高於未獲獎企業。此外，本研究發現事件公告後約四至五個月，獲獎企業之市場真實報酬顯著優於未獲獎企業。投資人於獎項公告期間進行投資決策時，可考量媒體聲譽優良之獲獎企業作為標的選擇。

【關鍵字】企業社會責任、媒體聲譽、股市表現、財務績效、內容分析

Abstract

We investigate the ways in which the reputation of a firm created by the media can affect its stock market and financial performance during 'corporate social responsibility' (CSR) award announcement periods in Taiwan. The CSR 'winners' in this study are selected from the Global Views and CommonWealth Magazines, with content analysis being used to capture the information implied in the media reports. Our empirical results show that since media coverage can provide stakeholders with a superior image of CSR firms, non-CSR firms are provided with sufficient motivation to try to manipulate the media coverage and the overall level of news sentiment degree in the firm, in order to close the gap between their image and that of the CSR winners. Our results also indicate that media reputation relating to CSR winners is found to be higher than that for non-CSR firms and that the stock returns of CSR winners are likely to be significantly higher than those of non-CSR firms for a period of four to five months after CSR announcements. We argue that when investors are making investment decisions during periods of CSR awards announcements, they can be guided by the signals of CSR awards and media reputation.

【Keywords】corporate social responsibility, media reputation, stock market performance, financial performance, content analysis

1. Introduction

The issue of 'corporate social responsibility' (CSR) has become increasingly important over recent years from both theoretical and practical perspectives. Indeed, there has been an exponential increase in research focusing on the relationship between corporate social performance and financial performance. Consequently, many firms are now electing to disclose their CSR performance activities within their annual reports and websites in an obvious attempt to enhance their reputation and their corporate image.

There are, however, wide definitions of CSR, a factor which ultimately led to the collation by Dahlsrud (2006) of no less than 37 different definitions of what CSR actually refers to. Using content analysis to analyze these varied definitions, Dahlsrud was able to show that they could be distinguished under five specific dimensions of 'environment', 'social', 'economic', 'stakeholder' and 'voluntariness'; these definitions are, to a large extent, congruent.

As noted by Dahlsrud, within one of these definitions – provided by the World Business Council for Sustainable Development (WBCSD)[1] – it is argued that "corporate social responsibility is the continuing commitment by business to contribute to economic development while improving the quality of life of the workforce and their families, as well as that of the community and society at large". This definition essentially implies that firms should be responsible not only for shareholders, but also for all other stakeholders within their business.

Margolis and Walsh (2003) analyzed CSR measurement in a total of 127 studies, within which the measures were based upon the KLD database, the Council on Economic Priorities (CEP) database, and the Fortune Reputation Rating, amongst others.[2] Although no representative database for CSR exists in Taiwan, CSR competition in Taiwan is categorized by the Global Views and CommonWealth Magazines, both of which refer to

1 The WBCSD is a CEO-led organization of forward-thinking firms that galvanizes the global business community to create a sustainable future for business, society and the environment. Together with its members, the council applies its respected thought leadership and effective advocacy to generate constructive solutions and adopt shared actions (http://www.wbcsd.org/about.aspx).

2 The relevant details are available from: (i) the KLD database (http://www.whartonwrds.com/archive-pages/our-datasets/kld/); (ii) the CEP database (http://web.net/~robrien/papers/sri/players/cep.html); (iii) Fortune Reputation Rating (http://fortune.com/worlds-most-admired-companies/).

the 'Guidelines for Multinational Enterprises'[3] published by the Organization for Economic Cooperation and Development (OECD).[4]

The annual competition results identify the most representative CSR winners in Taiwan, and the Global Views and CommonWealth Magazines duly announce the award recipients. Those firms in receipt of a CSR award are defined as 'CSR winners' and are assumed to have superior performance in CSR activities than other firms which have not received such awards.

The question arises, however, as to whether CSR really benefits firms, and indeed, whilst some of the related studies have found that CSR is positively related to financial performance,[5] other studies, such as Aupperle, Carroll, and Hatfield (1985) provide support for the 'trade-off' hypothesis, describing a situation in which engagement in social responsibility activities can result in the siphoning off of capital and the downgrading of the financial profit status of a firm.

A number of studies have set out to investigate why such firms wish to engage in CSR and disclose related valuable information to the public; for example, Eberl and Schwaiger (2005) found evidence of corporate reputation having a positive effect on the future performance of the firm, whilst Lai, Chiu, Yang, and Pai (2010) concluded that CSR and corporate reputation could have positive effects on industrial brand equity and brand performance. Thus, through positive CSR activities, firms can seek to establish a good image and further enhance their corporate performance. Furthermore, in addition to disclosing CSR information in their annual reports or websites, firms can also deliver such information to stakeholders through the media.

The corporate reputation of a firm can, however, be affected by both good and bad news (Wry, Deephouse, and McNamara, 2006); indeed, Chen and Liu (2005) suggested that firms can manipulate their reputation in three ways: firstly through the 'reputation effect' since higher reputation can promote investment; secondly, by strengthening the

3 The guidelines consider subjects under the headings of: (i) Concepts and principles; (ii) General policies; (iii) Disclosure; (iv) Employment and industrial relations; (v) Environment; (vi) Combating bribery; (vii) Consumer interests; (viii) Science and technology; (ix) Competition; and (x) Taxation.

4 The OECD provides a forum for governments to work together to share their experiences and seek solutions to common problems. (http://www.oecd.org/about/).

5 Examples include Preston and O'Bannon (1997), Simpson and Kohers (2002), Luo and Bhattacharya (2006), Wu and Shen (2013), and Chih, Miao, and Chuang (2014).

'reputation effect' because firms with a good reputation are regarded as being 'better' firms; and thirdly, through the 'signaling effect' since a low evaluation of a firm's reputation provides useful information to potential investors.

Thus, firms appear to be provided with strong motivation to manage their relationship with the media, or indeed, to carefully select the timing of the release of either good or bad news (Kothari, Shu, and Wysocki, 2009; Lu, Su, and Huang, 2011). We therefore set out in this study to examine whether firms are more strongly motivated to use the 'reputation effect', that is, whether they will choose to release only positive news during CSR award announcement periods.

Our research objectives are to determine: (i) whether CSR winners have better financial performance and stock market performance than their non-CSR counterparts; (ii) whether firms actively attempt to manipulate their media reputation around CSR award announcement periods; and (iii) whether media coverage can actually create a superior reputation for CSR winners around periods of CSR award announcements, thereby directly impacting their financial and stock market performance.

The remainder of this paper is organized as follows. A review of the related literature and the development of our hypotheses are presented in Section 2, followed in Section 3 by a summary of our methodology, including descriptions of the data, variable construction, the proxies used for media reputation, stock market performance and the regression models adopted for our analyses. Section 4 presents and discusses the empirical results. Finally, the conclusions drawn from this study are presented in Section 5.

2. Literature Review

It is argued in some studies that the performance of firms in CSR activities may promote the reputation of such firms leading to increased profitability; thus, from a strategic management standpoint, the focus on corporate reputation is increased, since it may be seen as an intangible asset leading to enhanced competitive advantage.[6]

Based upon the analysis of the 'social impact' hypothesis with additional consideration of 'stakeholder' theory, Preston and O'Bannon (1997) found that corporate social performance was favorable to financial performance. They noted that by focusing

6 Examples include Dierickx and Cool (1989), Barney (1991), Brammer and Pavelin (2004), and Dowling (2006).

on stakeholders, firms may be able to enhance their reputation, which would ultimately have a positive impact on their financial performance.

In a more recent study, Wu and Shen (2013) investigated the relationship between the CSR index and financial performance in the banking industry. Their results provided evidence consistent with the findings of Simpson and Kohers (2002) that the reputation of a financial intermediary may help to promote a firm's financial performance.

Using advertising expenditure as a proxy for customer awareness, Servaes and Tamayo (2013) argued that in those firms with lower customer awareness, a negative or insignificant relationship would be found to exist between CSR and financial performance, whereas if both advertising expenditure and customer awareness were sufficiently high, CSR activities could help to improve firm value. Their findings provided support for the examination of the 'social impact' hypothesis previously carried out by Preston and O'Bannon (1997).

Conversely, however, some studies show support for the trade-off hypothesis, in which it is proposed that whilst CSR activities involve a certain level of cost, the benefits remain uncertain, such that the relationship between CSR and financial performance could be negative, insignificant or mixed.[7] For example, applying Granger causality to examine the relationship, Makni, Francoeur, and Bellavance (2009) found that corporate social performance was unaffected by financial performance.

In addition to focusing on financial performance, some studies have also examined the relationship between CSR and 'cumulative abnormal returns' (CARs); for example, Gao, Faff, and Navissi (2012) analyzed announcements of corporate donations made by boards in response to the Wenchuan earthquake in China on 12th of May 2008, along with the subsequent stock market impact, and found that abnormal returns were higher for those firms which had made such donations.

Kong (2012) examined the relationship between CSR activities and stock market performance in the food industry in China, and revealed that CSR was found to have a positive effect on abnormal returns over the longer term, with a higher level of involvement in CSR significantly mitigating negative stock market responses when such firms were faced with any major shocks. In addition, Chen, Shiu, and Chang (2015) and

7 See Aupperle et al. (1985), McWilliams and Siegel (2001), McWilliams, Siegel, and Wright (2006), Shen and Chang (2008), and Chih, Chih, and Chen (2010).

Lins, Servaes, and Tamayo (2017) similarly examined CSR activities could mitigating the impact of shareholder when the corporations suffers a negative shock.

It is generally believed that such positive outcomes are due to the marketing effect of a firm's CSR activities, which ultimately enhances both the awareness of the firm and its brand image; however, diverse opinions are evident within the related literature. For instance, the inclusion or deletion of a stock from the CSR index is measured in some of the related studies as the means of capturing the level of corporate social performance, where, on the one hand, Curran and Moran (2007) argued that no significant relationship existed between the CSR proxy and CARs, whilst on the other hand, Becchetti, Ciciretti, Hasan, and Kobeissi (2012) concluded that a significantly negative effect was readily discernible on CARs as a result of announcements of stock deletions from the CSR index.

Clearly, despite the in-depth examinations of CSR, financial performance and stock market performance in numerous prior studies, no general consensus has yet been reached. Thus, in the present study, we investigate whether those firms in receipt of CSR awards are found to have superior financial or stock market performance, particularly around periods of award announcements, as compared to paired-sample firms. Thus, we set the first of our hypotheses as follows:

Hypothesis 1: The stock returns and cumulative abnormal returns of CSR winners will be higher than those of non-CSR firms.

Hypothesis 2: The financial performance of CSR winners will be superior to that of non-CSR firms.

As noted in several of the related studies, a good corporate reputation can reduce the agency problem and enhance a firm's brand equity, ultimately improving firm value;[8] it is, however, extremely difficult to effectively measure corporate reputation, as compared to, say, tangible assets, and indeed, as noted earlier, both good and bad news can affect corporate reputation (Wry et al., 2006).

Applying 'media reputation' as a proxy for firm reputation, Deephouse (2000) found that it was indeed an intangible asset capable of boosting the firm's competitive advantage, ultimately leading to enhanced financial performance. Other studies have

8 See Gomes (2000), Brammer and Pavelin (2004), Eberl and Schwaiger (2005), Dowling (2006), and Lai et al. (2010).

analyzed the information content of media reports using linguistic analysis and found that the information content of such reports can affect the stock market through the sentiment and behavior of investors. Within these studies, it is generally argued that sentiment relating to news reports can be adopted by investors as a factor leading to expectations of abnormal returns.[9]

Furthermore as demonstrated by Tetlock (2007) and Tetlock, Saar-Tsechansky, and Macskassy (2008), the number of words relating to investor sentiment in firm-specific news reports may provide an effective forecast of the earnings of a firm, which suggests that media reports are capable of capturing firm fundamentals under different aspects that are not easily quantified, or indeed, that may contribute to stock price efficiency. Jang, Yang, and Chen (2014) also found that media coverage and tenor could promote a good image for firms which would be of direct benefit to their future performance.

Nevertheless, the potential does exist for media coverage to be manipulated; for example, Kothari et al. (2009) noted that firms could manipulate the timing of news release, whilst Solomon (2012) pointed out that firms could spin their news, effectively generating more (less) media coverage of positive (negative) press release. Since corporate reputation is an intangible asset which cannot be measured with any great certainty, we apply content analysis to construct the measures of media coverage and the sentiment ratio as proxies for 'media reputation'.

Zyglidopoulos, Georgiadis, Carroll, and Siegel (2012) argued that firms may enhance their CSR level to gain higher media coverage; we similarly propose that firms engaging in CSR may have a higher media reputation, whilst also focusing on the variations in media reputation between CSR winners and non-CSR firms during CSR award announcement periods in order to observe whether firms tend to manipulate their media reputation. This leads to the formulation of Hypothesis 3:

Hypothesis 3: The media reputation of CSR winners will be higher than that of non-CSR firms during periods of CSR awards announcements.

It has been shown that media reports can have direct impacts on the stock market trading behavior of investors. Some of the more recent studies suggest that media reports can reduce information asymmetry for stakeholders and establish the reputation of the

9 See Tetlock (2007), Tetlock et al. (2008), and Lu and Wei (2013, 2014).

related firms, with their empirical results showing that media attention can be considered as an important driver of CSR, and that firms may respond to such media attention by improving their CSR performance.[10]

We therefore investigate the ways in which reputation, as reflected in media reports, can affect the financial or stock market performance of CSR winners in Taiwan, setting Hypotheses 4 and 5 as follows:

Hypothesis 4: Media reputation can improve the stock returns and cumulative abnormal returns of CSR winners.

Hypothesis 5: Media reputation can improve the financial performance of CSR winners.

The difference between the present study and the prior related studies is that media reputation is constructed here by means of content analysis. Since both positive and negative meanings can be implied from news reports, focusing simply on media coverage is not sufficiently objective; we therefore construct two proxies for media reputation in the present study, including 'media coverage' and the 'sentiment ratio'. The measures of these two proxies are discussed in Section 3.

Although the prior studies have tended to consider the media effects on CSR firms,[11] in the present study, our focus is essentially placed on the differences between the media reputation of CSR firms and paired firms which have not received any CSR awards. We also focus on media reputation around the CSR awards event. Overall, we find that the performance of firms with a better media reputation is superior to that of other (non-CSR) firms. We also identify an interesting phenomenon, which is that non-CSR firms may be provided with strong motivation to manipulate the media in order to improve their media reputation, particularly the average level of news sentiment, prior to CSR award announcements.

10 See, for example, Chang, Shen, and Wang (2010), Zyglidopoulos et al. (2012), and Byun and Oh (2017).

11 Examples include Chang et al. (2010), Zyglidopoulos et al. (2012), and Byun and Oh (2017).

3. Empirical Methodology

3.1 Data Description and Variable Construction

Our study sample comprises of all firms listed on the Taiwan Stock Exchange (TWSE) and GreTai Securities Market (GTSM) which had, at some time between 2009 and 2012, received a corporate social responsibility award which was duly announced in the Global Views or CommonWealth Magazines. Those firms that were in receipt of CSR awards are defined in this study as 'CSR winners'. We refer to Lee, Liu, and Yang (2011) for our selection of the paired samples (non-CSR firms) since candidates for CSR awards are not made public, and as such, we do not have access to lists of the firms that failed to receive such awards.

In an attempt to reduce the potential error caused by the over-sampling of CSR winners, robust firms were matched from the full sample of listed firms and the number of matching samples was increased to 1:3, with the following criteria being applied:[12] (i) firms in receipt of CSR awards must have had positive net margins over the past three years; (ii) matching firms must be located in the same industry as the CSR winners; and (iii) matching firms must have had total assets as close as possible to those of the CSR winners in the one-year period prior to the CSR award announcements, with the difference in assets being within 50%.

Any listed firms located in the financial sector were excluded from the sample since the measures of financial performance in the financial sector differ from those of other firms. The data descriptions are represented in Table 1, which shows the CSR award announcement dates announced by the Global Views and CommonWealth Magazines from 2009 to 2012. The exclusion process resulted in final samples of 157 CSR winners and 498 non-CSR firms.

12 Another selection of the paired samples (with the incorporation of the industry, profit, size of assets and P/B ratio) is examined in this study; the results were then compared as a robustness test. The results using the new criteria (with the incorporation of the P/B ratio) are consistent with those using our original criteria. We only present the results applying the original sample selection criterion due to space consideration. The other results from the authors are available upon request.

Table 1 Data Sources and Descriptive Statistics

Data Sources	2009	2010	2011	2012	Totals
CommonWealth Magazine					
CSR Announcement Date	24 Feb	27 Jul	10 Aug	8 Aug	–
No. of CSR Firms	31	33	33	30	127
Global Views					
CSR Announcement Date	4 Mar	4 Mar	10 May	2 May	–
No. of CSR Firms	8	11	4	7	30
Total No. of CSR Firms	39	44	37	37	157
Total No. of non-CSR Firms	102	130	134	132	498

The sources of the financial data used in this study are: (i) the quarterly financial statements of the listed firms in the Taiwan Economic Journal (TEJ) database and the TEJ 'event study' which calculates the 'cumulative abnormal returns' (*CAR*); (ii) the news-corpus information collected from the daily news reports of the InfoTimes database, which includes the Commercial Times and the China Times; and (iii) the United Daily News (UDN) database which includes the Economic Daily News and United Evening News. Both the InfoTimes and the UDN are widely-used media organizations in Taiwan. A total of 280,531 reports were collected for analysis.

The definitions of CSR and all of the variables used in this study are provided in Table 2. The financial performance variables include 'return on assets' (*ROA*), 'return on equity' (*ROE*), 'gross profit margin' (*GPM*), and 'earnings per share' (*EPS*). The control variables include 'total asset turnover' (*TAT*), 'total assets' (*TA*), 'debt ratio' (*DR*), 'turnover' (*TURN*), 'market value' (*MV*), and 'price to book ratio' (*P/B*). The media proxies include 'media coverage' (*MEDIA*), the 'sentiment ratio' (*SRso*, which is obtained by semantic orientation), and 'media reputation' (*MR*).

Table 2 Variable Definitions

Variables	Definitions
CSR	CSR dummy which is equal to 1 if the firm wins CSR awards; equal to 0 for non-CSR firms (pair-samples).
Performance Variables	
ROA	Return on Assets (%): EBIT/Average Asset × 100
ROE	Return on Equity (%): Net Income/Average Equity × 100
GPM	Gross Profit Margin (%): Gross Profit/Net Sales × 100
EPS	Net Income/Outstanding Shares
RET	Stock returns of ex-rights and ex-dividends in the Taiwan stock market.
CAR	Cumulative Abnormal Returns: Calculated by event study method.
Control Variables	
TAT	Total Asset Turnover: Revenue/Average Assets
TA	Total Assets: ln(Current Assets + Long-term Investment + Fixed Assets + Other Assets)
DR	Debt Ratio (%): Total Debt/Total Asset × 100
TURN	Turnover: Volume/Outstanding Shares
MV	Market Value: ln(Outstanding Shares × Stock Price)
P/B	Price to Book Ratio: Market value per share/Book value per share
Media Proxies	
MEDIA	Media Coverage: The average media coverage for individual firms (firms mentioned in news reports).
SRso	Sentiment Ratio: The average sentiment ratio for individual firms by semantic orientation (firms mentioned in news reports).
MR	Media Reputation: *MEDIA* × *SRso*

Our examination in this study focuses on different periods in the relationships between financial performance, equity market returns, and CSR performance.

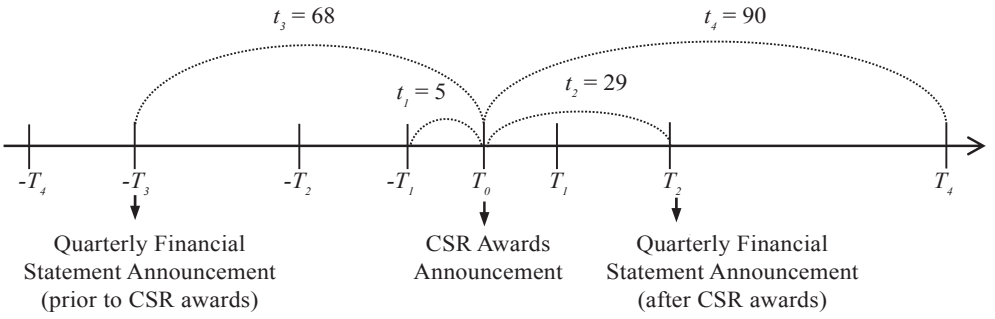

Figure 1 CSR Announcement Timeline

Note: T_0 refers to the CSR award announcement in the current year; $-T_1$ and T_1 refer to the pre- and post-CSR award short-term periods, which are about five trading days (t_1); T_2 refers to the quarterly financial statement announcement period following the CSR announcement, which is an average of about 29 trading days (t_2); $-T_3$ refers to the quarterly financial statement announcement period prior to the CSR announcement, which is an average of about 68 trading days (t_3); and $-T_4$ and T_4 refer to the long-term period, which is about 90 trading days (t_4).

3.2 Stock Return and Cumulative Abnormal Return Measures

In addition to financial performance, we also examine the relationships between CSR and stock market performance. The stock returns are calculated by Equation (1):

$$RET_{i,[T_n,T_m]} = \frac{1}{P_{i,T_n}}(P_{i,T_m} - P_{i,T_n}) \tag{1}$$

where $P_{i,Tn}$ and $P_{i,Tm}$ are the stock price of the i^{th} firm on day T_n and T_m adjusted for the problems of ex-rights and ex-dividends;[13] and RET_i are the stock returns of the i^{th} firm around the CSR announcement date period [T_n, T_m].

Abnormal returns (AR) are constructed based upon the ordinary least-squares risk-adjusted returns model (Shen and Lee, 2000) with the event date being the CSR award announcement date.[14] Following the ordinary least-squares risk-adjusted returns model, the expected returns of firm *i* are the market returns on day *t*.

13 Refer to the TEJ database: (http://www.tej.com.tw/webtej/tej_doc/a_tejmain/g_wprcd4.htm#_top) for the detailed calculation of the stock returns adjusted for ex-rights and ex-dividends.

14 The abnormal returns and cumulative abnormal returns are calculated based upon the TEJ event study (http://www.tej.com.tw/twsite/Default.aspx?TabId=358)

$$E\left(R_{i,t}\right)=\hat{\alpha}_{i}+\hat{\beta}_{i}R_{mt} \tag{2}$$

Thus, the ARs and CARs are estimated as follows:

$$AR_{i,t}=R_{i,t}-E(R_{i,t}) \tag{3}$$

$$CAR_{i,[T_n,T_m]}=\sum_{t=T_n}^{T_m}AR_{i,t} \tag{4}$$

where $AR_{i,t}$ are the abnormal returns of the i^{th} firm on day t; and $CAR_{i,[Tn,\ Tm]}$ are the cumulative abnormal returns of the i^{th} firm around the CSR announcement date period [T_n, T_m].

3.3 News and Media Measures

Media coverage (*MEDIA*) is defined in this study as the number of days that a particular firm is mentioned within the media by referring to Vega (2006). *MEDIA*, which is used in this study as a proxy for 'media reputation', represents the extent to which the firm is included in media reports.

$$MEDIA_{i,t}=\sum_{n=1}^{N}NEWS_{i,t,n} \tag{5}$$

where $NEW_{i,t,n}$ is a dummy variable which is equal to 1 if firm i is mentioned in the headline or leading paragraph of a news article on day t; N is the total number of articles in which firm i is mentioned in the headline or leading paragraph; $MEDIA_{i,t}$ refers to the media exposure of firm i on day t (for example, *MEDIA* is equal to 3 if there are 3 news on firm i that the name of the firm is mentioned in the headline or leading paragraph; if there is no news on firm i, then *MEDIA* is equal to 0). We also provide the measurement of average media around the CSR announcement date.

$$\mathrm{A}veMEDIAP_{i,[-T_m,T_0]}=\frac{1}{m+1}\sum_{t=0}^{m}MEDIA_{i,T_0-t} \tag{6}$$

$$\mathrm{A}veMEDIAA_{i,[T_0,T_m]}=\frac{1}{m+1}\sum_{t=0}^{m}MEDIA_{i,T_0+t} \tag{7}$$

where *AveMEDIAP* is the average media exposure of firm *i* during the period from T_m days prior to the CSR announcement date to the announcement date (T_0). *AveMEDIAA* is the average media exposure of firm *i* during the period from the CSR announcement date (T_0) to T_m days after the announcement date, with *m* ranging from 0 to 150 trading days.

3.4 Sentiment Ratio Measure Using Semantic Orientation

The concept of 'semantic orientation', as proposed by Hatzivassiloglou and McKeown (1997), indicates that an article not only transmits objective facts, but also expresses subjective sentiment and opinion; however, there is no representative system capable of revealing or constructing information sentiment for Chinese documents. We therefore collect Chinese financial news reports and carry out a process of information quantification, as illustrated in Figure 2, by referring to Lu and Wei (2014) and Lu, Chen, Ker, and Wei (2015).

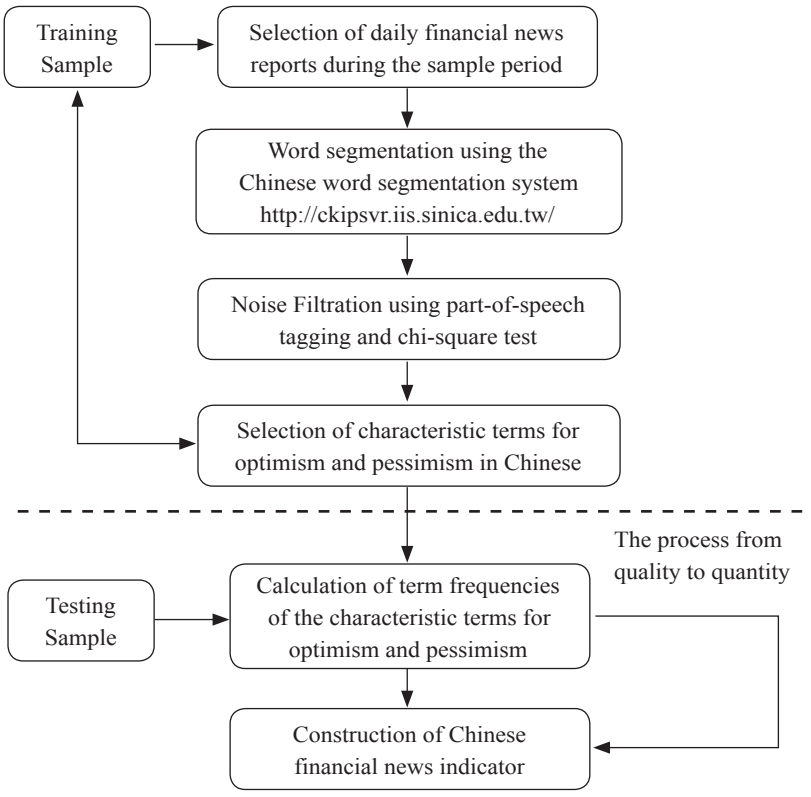

Figure 2 Information Quantification Process

Source: The information quantification process illustrated in this figure was obtained from Lu and Wei (2014) and Lu et al. (2015).

Based upon the 'diction' formula, optimism is defined as "language endorsing some person, group, concept or event or highlighting their positive entailments", whilst the diction formula for net optimism, which is the difference between 'optimism' and 'pessimism' (Demers and Vega, 2014). Taking into consideration the fact that there are no specific words for 'optimism' and 'pessimism' in Chinese documents, we translate the classification of sentiment and collect the related sentiment words.[15]

Semantic orientation is one method used in the field of linguistic analysis. Table 3, which presents the rules for the identification of semantic orientation, shows that S_0 indicates an optimistic state, S_1 indicates a pessimistic state and S_2 indicates a neutral state. The news content can be dissected into individual words using the segmentation system, with each word then being compared with the optimistic, pessimistic and negative adjective terms and accordingly assigned symbols of '+', '–', or '~'. Words that are not included within the optimism, pessimism and negative terms may be classified as neutral words and assigned the '?' symbol. For example, where a sentence from a news report includes the terms ' 因此 (?)', ' 不 (~)', ' 受 (?)', ' 缺工 (–)', and 影響 (?)', the state is defined as 'neutral', 'negative adjective', 'neutral', 'pessimistic', and 'neutral'. We then denote the final state of the sentence using the rules on semantic orientation shown in Table 3.

Table 3 Semantic Orientation Rules

State	Inputs			
	+	–	~	?
S_0	S_0	S_1	S_1	S_0
S_1	S_1	S_0	S_0	S_1
S_2	S_0	S_1	S_1	S_2

Note: S_0 refers to a state of optimism, S_1 refers to a state of pessimism, and S_2 refers to a neutral state. '+' indicates optimistic vocabulary, '–' indicates pessimistic vocabulary, '~' indicates negative adjective vocabulary, and '?' indicates neutral vocabulary.

15 The related sentiment words include 1,675 optimism characteristic terms, 1,770 pessimism characteristic terms, and 15 negative adjective terms. For example, " 優勢 (advantage)", " 成功 (success)", and " 獲利 (profit)" are optimism characteristic terms; " 破產 (bankruptcy)", " 危機 (crisis)", " 衰退 (decline)", and are pessimism characteristic terms; " 未必 (unlikely)", " 不 (not)", and " 勿 (don't)" are negative adjective terms. A complete list of special terms in each group is available from the authors upon request or via the invention patent (Taiwan Patent No. I477987, 2015).

Semantic orientation begins at the neutral state, S_2; if the next word is a negative adjective term (~), then the state shifts from S_2 to S_1; if the next word is a neutral term (?), then the state remains in S_1; and if the next word is a pessimistic term (–), then the state shifts from S_1 to S_0. Therefore, the final state of the quoted sentence is optimism (S_0). Table 4 presents an example of calculating the process from state to weight. The process of identifying states is carried out for each sentence and paragraph, with the numbers of optimistic, pessimistic and neutral states then being summarized to calculate the sentiment ratio, as shown in Panel A of Table 4.

Table 4 Example Process from State to Weight

State	Paragraph					Totals
	1	2	3	4	5	
Panel A: No. of Sentences in each State and Paragraph						
+	1	2	0	0	3	6
–	0	2	0	0	0	2
?	0	5	2	5	2	14
Panel B: Weight of the States in each Paragraph						
+	1.00	0.22	0.00	0.00	0.60	1.82
–	0.00	0.22	0.00	0.00	0.00	0.25
?	0.00	0.56	1.00	1.00	0.40	2.96
Panel C: Normalization of the Weight in each State						
+	0.55	0.12	0.00	0.00	0.33	1.00
–	0.00	1.00	0.00	0.00	0.00	1.00
?	0.00	0.19	0.34	0.34	0.14	1.00

Note: Panel A provides the basic numbers and totals of sentences in each states and paragraph. Panel B provides the weight of the states in each paragraph, along with the totals of the weights in each of the three states. Panel C presents the normalization of the weight in each state, where the summation of the weight in each state is equal to 1.

Panel B of Table 4 subsequently provides the weight of the three states in each paragraph; for example, there are two optimistic sentences from a total of nine sentences in paragraph 2, therefore, the weight of the optimistic state in paragraph 2 is 0.22 (2/9). Panel C of Table 4 goes on to show the normalization of the weight in each state; for example, the weight of the optimistic state in paragraph 2 is 0.22 whilst the sum for this news item of the optimistic state is 1.82, therefore, the normalization of the weight of the optimistic state in paragraph 2 is 0.12 (0.22/1.82). The degree of optimism and pessimism

in the news item and the sentiment ratio are then calculated using entropy, as expressed in Equations (8) and (9), with the results being reported in Table 5.

$$e_j = -k\sum_{i=1}^{s} P_{ij} \ln P_{ij},\ k = 1/\ln s \tag{8}$$

$$SRso_{i,t,n} = eo_{i,t,n} - ep_{i,t,n} \tag{9}$$

where e_j is the entropy of the j^{th} sentiment state; P_{ij} is the weight of the i^{th} paragraph in the j^{th} sentiment state; and s refers to the number of paragraphs in the news item. $SRso_{i,t,n}$ is the sentiment ratio of the i^{th} firm for the n^{th} news on day t; $eo_{i,t,n}$ is the optimism entropy of the i^{th} firm for the n^{th} news on day t; and $ep_{i,t,n}$ is the pessimism entropy of the i^{th} firm for the n^{th} news on day t.

Table 5 Degree of Optimism and Pessimism in Media Reports Using Entropy

Paragraph	State	
	Optimism	Pessimism
1	–0.3290	0.0000
2	–0.2554	–0.1125
3	0.0000	0.0000
4	0.0000	0.0000
5	–0.3658	0.0000
Totals	–0.9502	–0.1125
$-k$	–0.6213	–0.6213
e_j	0.5904	0.0699

Note: e_j is the entropy of different states, including 'optimism' and 'pessimism' and k is equal to 1/ ln(s), where s is the number of paragraphs in the news.

By referring to the process from Tables 3 to 5 and Equations (8) and (9), the example shows that optimism entropy is equal to 0.5904 and the pessimism entropy is equal to 0.0699. The sentiment ratio calculated by the semantic orientation method is equal to 0.5205; using Equations (10) and (11), the ratio is standardized for all stocks in the market in order to exclude the impact of the market sentiment cycle:

$$SRso'_{i,t} = \frac{1}{N}\sum_{n=1}^{N} SRso_{i,t,n} \tag{10}$$

$$SRso_{i,t} = \frac{1}{\sigma_t}\left(SRso'_{i,t} - \frac{1}{I}\sum_{i=1}^{I} SRso'_{i,t} \right) \tag{11}$$

We then use Equations (12) and (13) to calculate the average sentiment ratio for different periods, prior to and after the CSR award announcement dates:

$$\mathrm{A}veSRsoP_{i,[-T_m,T_0]} = \frac{1}{m+1}\sum_{t=0}^{m} SRso_{i,T_0-t} \tag{12}$$

$$\mathrm{A}veSRsoA_{i,[T_0,T_m]} = \frac{1}{m+1}\sum_{t=0}^{m} SRso_{i,T_0+t} \tag{13}$$

where $SRso'_{i,t}$ is the average score based upon the use of the semantic orientation method for the i^{th} firm on day t; N is the number of news items on the i^{th} firm on day t; the estimated $SRso_{i,t}$ in equation (11) to (13) is the standardized sentiment ratio for the i^{th} firm on day t; I refers to the total number of firm in the stock market on day t. σ_t is the standard deviation of $SRso'_{i,t}$ for total samples in the stock market on day t. *AveSRsoP* is the average standardized sentiment ratio for firm i from T_m days prior to the CSR announcement date to the CSR announcement date (T_0). *AveSRsoA* is the average standardized sentiment ratio of firm i during the period from the CSR announcement date (T_0) to T_m days after the CSR announcement date. For both calculations, m ranges from 0 to 150 trading days.

SRso, which is a proxy for media reputation and which indicates the degree of net optimism, ranges from –1 to 1; a higher *SRso* indicates that the news sentiment is more optimistic. If firms are not mentioned in any news reports on a particular day, then *SRso* is considered to be equal to 0 (a neutral report).

3.5 Regression Analysis

It is argued in some of the prior studies that CSR activities can establish corporate reputation, and that CSR performance can affect the CARs of a firm, since a higher corporate reputation can lead to higher CARs (Gao et al., 2012; Kong, 2012); the rationale for this is that investors prefer to invest in firms with good CSR practices. Conversely, other studies present contradictory conclusions of no significant relationship between CSR and CARs. The primary contribution of the present study is our reexamination of the relationship between CSR and stock market performance with the incorporation of media

coverage, since the information content of news reports may affect the trading behavior of investors through the media channel (Hypothesis 4); the alternative models are examined below.

Model 1 (M1) examines whether CSR winners can promote stock market performance, whilst Model 2 (M2) similarly examines whether media reputation around CSR award announcement periods can promote stock market performance, with Model 3 (M3) subsequently further examining whether the media reputation of CSR winners can promote stock market performance.

$$RET_{i,[T_0,T_4]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 RET_{i,[-T_4,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_4,T_0]} + \varepsilon_i \tag{14}$$

$$RET_{i,[T_0,T_4]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 RET_{i,[-T_4,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_4,T_0]} + \sum_{l=1}^{L} \gamma_l MP_{i,l,[-T_1,T_0]} + \varepsilon_i \tag{15}$$

$$RET_{i,[T_0,T_4]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 RET_{i,[-T_4,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_4,T_0]} + \sum_{l=1}^{L} \theta_l INT_{i,l,[-T_1,T_0]} + \varepsilon_i \tag{16}$$

where RET_i are the stock returns and CARs of the i^{th} firm during the period from the CSR announcement date (T_0) to T_4 days afterwards; $CSR_{i,T0}$ is the CSR dummy for the i^{th} firm in the current year; the CSR dummy is equal to 1 if the firm is a CSR award recipient; otherwise 0; $X_{i,k}$ are control variables for the i^{th} firm, including *TURN, MV* and *P/B*, during the period from T_4 days prior to the CSR announcement date to the CSR announcement date (T_0), where K is the total number of control variables. $MP_{i,l}$ are the l^{th} media proxies for the i^{th} firm during the CSR award announcement period, which include *MEDIA, SRso* and *MR* during the period from T_1 days prior to the CSR announcement date to the CSR announcement date (T_0) and we also incorporate $MP_{i,l,[T0,T1]}$ from T_0 to T_1 days afterwards; l equals 1 to L, L is the total number of media proxies.

$INT_{i,l}$ is the interaction term which includes three variables, with $CSR_{i,T0}$ interacting with $MP_{i,l}$ during the period from T_1 days prior to the CSR announcement date to the CSR announcement date (T_0) and we also incorporate $INT_{i,l,[T0,T1]}$ from T_0 to T_1 days afterwards. Time T_0 refers to CSR award announcements in the current year; time $-T_1$ refers to the

5-day trading period prior to CSR award announcements; time $-T_4$ refers to the 90-day trading period prior to CSR award announcements; T_1 refers to the 5-day trading period after CSR award announcements; and T_4 refers to the 90-day trading period after CSR award announcements.

Preston and O'Bannon (1997) hypothesized that CSR performance positively affects financial performance, whilst Deephouse (2000) argued that the higher the reputation, the greater the likelihood of improved financial performance. Hence, we investigate the relationship between CSR and financial performance from the viewpoint of media reputation (Hypothesis 5) based upon the following regression models.

Model 4 (M4) examines whether CSR winners promote financial performance, whilst Model 5 (M5) examines whether media reputation around a CSR award announcement period similarly promotes financial performance, with Model 6 (M6) including the interaction term between media reputation and the CSR dummy to examine whether media reputation strength is enhanced, particularly for CSR winners.

$$FR_{i,[T_0,T_2]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 FR_{i,[-T_3,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_3,T_0]} + \varepsilon_i \tag{17}$$

$$FR_{i,[T_0,T_2]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 FR_{i,[-T_3,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_3,T_0]} + \sum_{l=1}^{L} \gamma_l MP_{i,l,[-T_3,T_0]} + \varepsilon_i \tag{18}$$

$$FR_{i,[T_0,T_2]} = \alpha_0 + \alpha_1 CSR_{i,T_0} + \alpha_2 FR_{i,[-T_3,T_0]} + \sum_{k=1}^{K} \beta_k \chi_{i,k,[-T_3,T_0]} + \sum_{l=1}^{L} \theta_l INT_{i,l,[-T_3,T_0]} + \varepsilon_i \tag{19}$$

where FR_i refers to the financial performance variables of the i^{th} firm (comprising of *ROA, ROE, GPM* and *EPS*) during the period from the CSR announcement date (T_0) to T_2 days after the CSR announcement date. $CSR_{i,T0}$ denotes the CSR dummy for the i^{th} firm in the current year; this dummy is equal to 1 if the firm is a CSR award recipient, otherwise 0.

$X_{i,k}$ is a control variable for the i^{th} firm which includes *TAT, TA* and *DR* during the period from T_3 days prior to the CSR announcement date to the CSR announcement date (T_0). K refers to the number of control variables. $MP_{i,l}$ are the l_{th} media proxies for the i^{th} firm, which include *MEDIA, SRso* and *MR* during the period from T_3 days prior to the

CSR announcement date to the CSR announcement date (T_0) and we also incorporate $MP_{i,l,[T0,T2]}$ from T_0 to T_2 days afterwards; l equals 1 to L, L is the number of media proxies.

$INT_{i,l}$ is the interaction term which includes three variables, with $CSR_{i,T0}$ interacting with $MP_{i,l}$ during the period from T_3 days prior to the CSR announcement date to the CSR announcement date (T_0) and we also incorporate $INT_{i,l,[T0,T2]}$ from T_0 to T_2 days afterwards. Time T_0 refers to those CSR award announcements made in the current year; time T_2 refers to the quarterly financial statement announcements after the CSR award announcements; and time $-T_3$ refers to the quarterly financial statement announcements prior to the CSR award announcements.

4. Empirical Results

4.1 The Relationship between CSR and Non-CSR Firms

We now provide analysis of the trend in media coverage, the sentiment ratio, stock returns and CARs around the CSR awards announcement periods. The results are illustrated in Figures 3 and 4, which respectively illustrate the stock returns and CARs for both CSR winners and non-CSR firms. As we can see from Figure 3, the patterns of the stock returns of CSR winners being found to be significantly higher than those of non-CSR firms around 70-90 days after CSR award announcements.

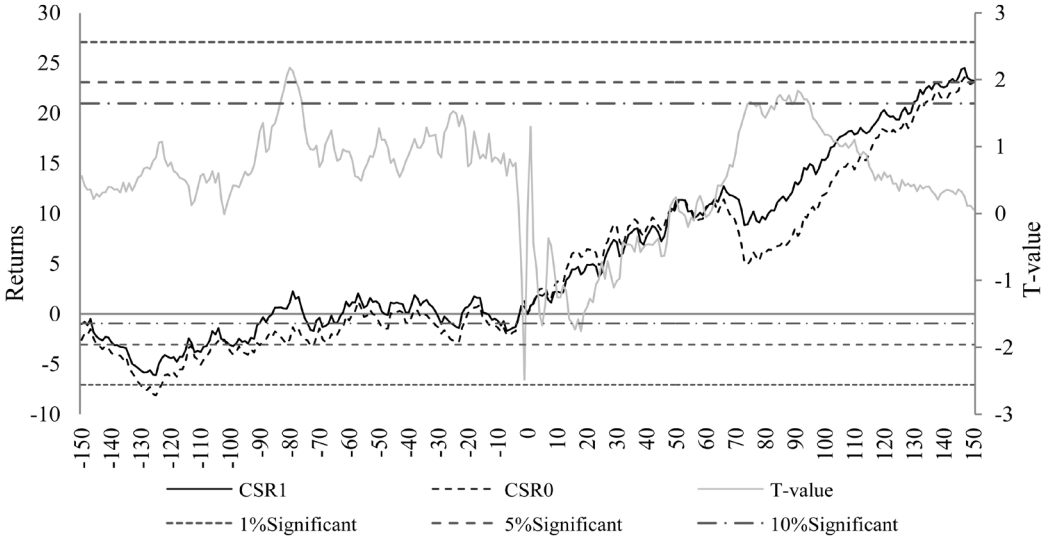

Figure 3 Evolution and t Test of Stock Returns

Note: This figure illustrates the stock returns for 150 trading days prior to and after the announcement of CSR awards. CSR1 refers to the stock returns of CSR winners; and CSR0 refers to the stock returns of non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

Figure 4 reveals no significant difference between the two sample groups; however, the CARs of CSR winners tend to be higher than those of non-CSR firms from the CSR award announcement date to three months afterwards, a finding which is consistent with that for stock returns. We argue that investors can follow CSR award signals to hold on to the stocks of such firms for longer periods.

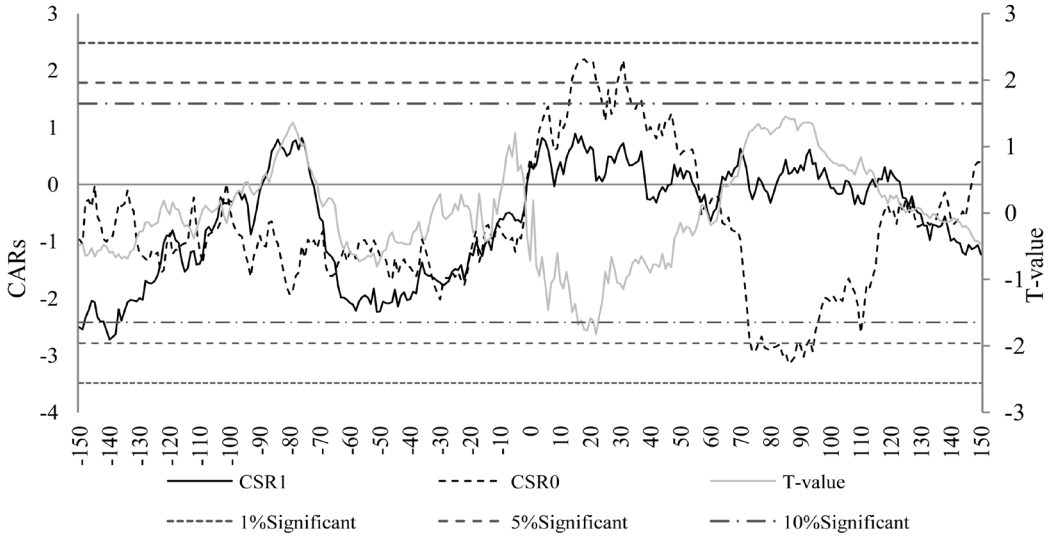

Figure 4 Evolution and t Test of Cumulative Abnormal Returns

Note: This figure illustrates the cumulative abnormal returns (CARs) for 150 trading days prior to and after the announcement of CSR awards. CSR1 refers to the CARs of CSR winners; and CSR0 refers to the CARs of non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

Our empirical results indicate that CSR winners will earn better returns than non-CSR firms, thereby providing support for Hypothesis 1. Our findings are also consistent with those of Gao et al. (2012) and Kong (2012) —CSR awards can have positive effects on stock market performance over longer periods.

The summary statistics of both the CSR and non-CSR firms are presented in Table 6. The financial performance of CSR winners is generally found to be superior to that of non-CSR firms, which is consistent with Preston and O'Bannon (1997) and also provides support for our Hypothesis 2. The *ROA* and *EPS* variables are all found to achieve significance, whilst the *TA, TAT, DR* and *MV* variables of CSR winners are generally found to be higher than those of non-CSR firms, thereby indicating that the scale of CSR

Table 6 Summary Statistics

Variables		CSR Firms				non-CSR Firms				t value
		Mean	Min	Max	*SD*	Mean	Min	Max	*SD*	
Panel A: Pre-CSR Award Announcement Period										
Financial Performance	$ROA_{[-T3,\ T0]}$	4.04	0.29	10.90	2.17	3.46	–0.77	10.30	1.83	3.25***
	$ROE_{[-T3,\ T0]}$	4.02	–2.69	13.81	2.66	3.31	–2.21	15.25	2.43	3.10***
	$GPM_{[-T3,\ T0]}$	25.29	2.22	57.17	14.09	23.75	2.00	72.74	11.33	1.38
	$EPS_{[-T3,\ T0]}$	1.16	–0.32	10.29	1.28	0.83	–0.72	9.25	0.88	3.56***
Stock Market Performance	$RET_{[-T3,\ T0]}$	–0.57	–43.19	61.53	17.78	–1.58	–56.76	81.93	19.59	0.58
	$CAR_{[-T3,\ T0]}$	1.39	–38.63	79.54	20.63	–2.60	–78.74	86.08	21.61	2.06**
Media Reputation	$MEDIA_{[-T3,\ T0]}$	0.51	0.00	4.00	0.48	0.23	0.00	3.60	0.33	8.18***
	$SRso_{[-T3,\ T0]}$	0.05	–0.50	0.47	0.19	0.04	-0.70	0.52	0.14	0.67
Control Variables	$TAT_{[-T3,\ T0]}$	0.29	0.08	0.86	0.17	0.25	0.01	0.92	0.11	3.71***
	$TA_{[-T3,\ T0]}$	17.91	13.77	20.54	1.68	16.00	13.34	19.97	1.22	15.42***
	$DR_{[-T3,\ T0]}$	41.98	11.81	76.86	18.03	38.81	3.29	81.19	14.79	2.20**
	$TURN_{[-T3,\ T0]}$	0.40	0.00	3.22	0.39	0.61	0.01	4.21	0.64	–3.88***
	$MV_{[-T3,\ T0]}$	10.75	6.16	14.55	1.71	8.84	5.41	13.00	1.27	15.19***
	$P/B_{[-T3,\ T0]}$	1.65	0.33	8.55	1.32	1.28	0.24	5.63	0.72	4.59***

Variables		CSR Firms				non-CSR Firms				t value
		Mean	Min	Max	*SD*	Mean	Min	Max	*SD*	
Panel B: Post-CSR Award Announcement Period										
Financial Performance	$ROA_{[T0, T2]}$	3.66	–1.64	9.93	2.32	3.31	–2.96	12.60	1.95	1.85*
	$ROE_{[T0, T2]}$	3.45	–7.37	12.62	3.19	3.05	–8.00	17.14	2.72	1.52
	$GPM_{[T0, T2]}$	24.43	–31.35	58.28	15.93	23.01	–48.09	70.43	12.70	1.13
	$EPS_{[T0, T2]}$	0.98	–2.39	8.34	1.26	0.79	–2.57	10.56	0.96	2.01**
Stock Market Performance	$RET_{[T0, T2]}$	6.45	–44.52	66.71	14.21	8.00	-32.44	100.21	17.27	–0.09
	$CAR_{[T0, T2]}$	0.51	–30.15	53.24	12.06	0.58	–68.62	66.28	13.08	–0.24
Media Reputation	$MEDIA_{[T0, T2]}$	0.63	0.00	3.26	0.53	0.22	0.00	3.53	0.38	8.29***
	$SRso_{[T0, T2]}$	0.04	–0.84	0.86	0.26	0.04	–0.87	0.71	0.20	–0.59
Control Variables	$TAT_{[T0, T2]}$	0.27	0.07	0.80	0.16	0.24	0.03	0.87	0.11	2.66***
	$TA_{[T0, T2]}$	17.93	13.74	20.60	1.68	16.02	13.35	19.97	1.23	15.33***
	$DR_{[T0, T2]}$	44.74	11.05	77.23	17.69	41.17	4.80	82.56	14.23	2.56**
	$TURN_{[T0, T2]}$	0.73	0.00	5.40	0.92	0.75	0.01	6.76	0.79	–3.64***
	$MV_{[T0, T2]}$	9.77	6.10	14.36	1.90	9.18	5.43	14.58	1.50	15.29***
	$P/B_{[T0, T2]}$	1.50	0.25	9.20	1.06	1.42	0.38	8.45	1.03	4.74***

Note: This table reports the summary statistics on CSR and non-CSR firms, with Panel A (Panel B) reporting the statistics for the pre-(post-) CSR award announcement period. In the pre-announcement period, $-T_3$ is calculated for an average of approximately 68 trading days; in the post-announcement period, T_2 is calculated for an average of approximately 29 trading days. The t value is a sample t test of CSR and non-CSR firms. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

winners may be greater than that of non-CSR firms. CSR winners are also found to have lower turnover than non-CSR firms, which may well indicate that investors tend to hold on to the stocks of such firms for longer periods, as opposed to engaging in speculative trading.

The correlation analysis is presented in Table 7, where the correlation between CSR and *MEDIA* is found to be positive of 0.34, thereby indicating that CSR winners tend to have higher media coverage. The relationship between CSR, *TA* and *MV* is found to be positive, whilst that between CSR and *TURN* is negative. This implies that the stocks of the related firms will be held for longer periods, as opposed to being used for short-term speculative trading, perhaps because the constitution of CSR winners may be superior to that of other firms, therefore they have sufficient ability to engage in further CSR activities.

Figures 5 and 6 illustrate the variations in the daily average media reputation of CSR and non-CSR firms for each day, including the daily average media coverage and the news sentiment ratio. As shown in Figure 5, CSR winners are found to have higher media exposure during CSR award announcement periods. The pattern in Figure 6 shows that the variation of news sentiment ratio for non-CSR firms is more stable than that for CSR firms around the CSR announcement date.

Table 7 Correlation Analysis

Variables	*CSR*	*MEDIA*	*SRso*	*ROA*	*GPM*	*EPS*	*TAT*	*TA*	*DR*	*RET*	*CAR*	*TURN*	*MV*
MEDIA	0.34***												
SRso	–0.02	-0.08											
ROA	0.07	0.12***	0.02										
GPM	0.04	0.04	–0.02	0.48***									
EPS	0.08	0.28***	0.04	0.58***	0.31***								
TAT	0.10***	0.08	0.10***	0.00	–0.29***	0.17***							
TA	0.52***	0.58***	–0.01	0.08	–0.21***	0.19***	0.14***						
DR	0.10	0.15***	0.11***	–0.13***	–0.35***	0.06	0.46***	0.40***					
RET	–0.03	–0.05	–0.05	–0.08	–0.09	–0.09	–0.07	–0.05	–0.11***				
CAR	–0.10	–0.03	0.05	0.03	–0.02	0.00	0.05	–0.05	0.03	0.06			
TURN	–0.16***	–0.02	0.11***	0.10***	0.01	0.10	0.01	–0.10	0.03	0.25***	0.04		
MV	0.52***	0.62***	0.02	0.30***	–0.02	0.36***	0.13***	0.93***	0.25***	–0.13***	–0.05	–0.05	
P/B	0.20***	0.33***	0.12***	0.51***	0.31***	0.54***	0.24***	0.18***	0.19***	–0.16***	0.01	0.13***	0.45***

Note: This table reports the correlations between the CSR, media proxies, financial performance, firm characteristics and market characteristics, with the data period running from January 2009 to December 2012. CSR is at time T_0; *MEDIA, SRso, ROA, EPS, GPM, TAT, TA* and *DR* are at time T_2; *RET, CAR, TURN, MV* and *P/B* are at time T_4. Time T_2 refers to the quarterly financial statement announcement period after CSR award announcements; Time T_4 refers to the 90 day period after CSR award announcements. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

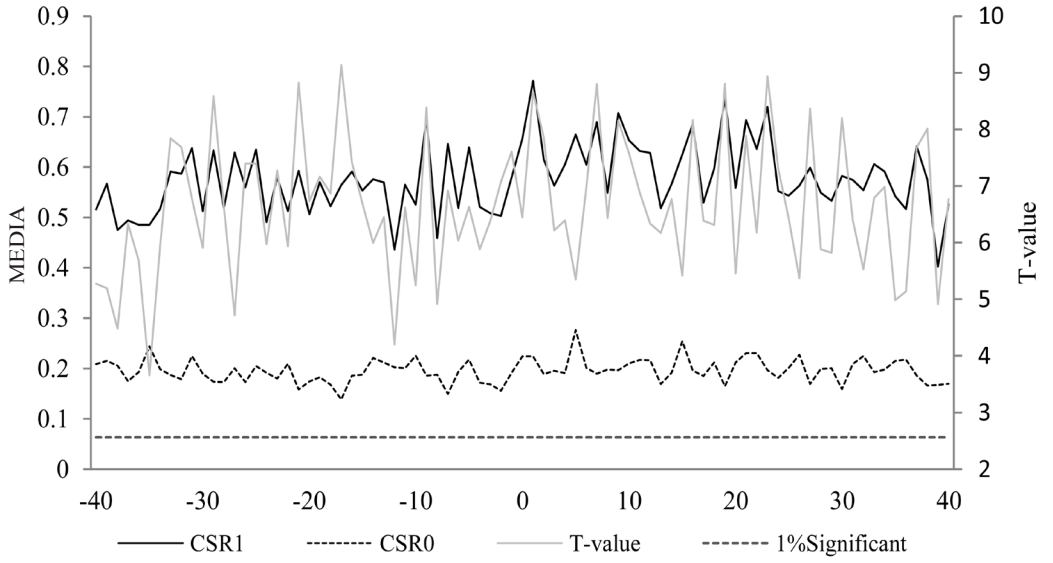

Figure 5 Evolution and t Test of Daily Average Media Coverage

Note: This figure illustrates the daily average media coverage (*MEDIA*) for 40 trading days prior to and after the announcement of CSR awards. CSR1 refers to the daily average media coverage of CSR winners; and CSR0 refers to the daily average media coverage of non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

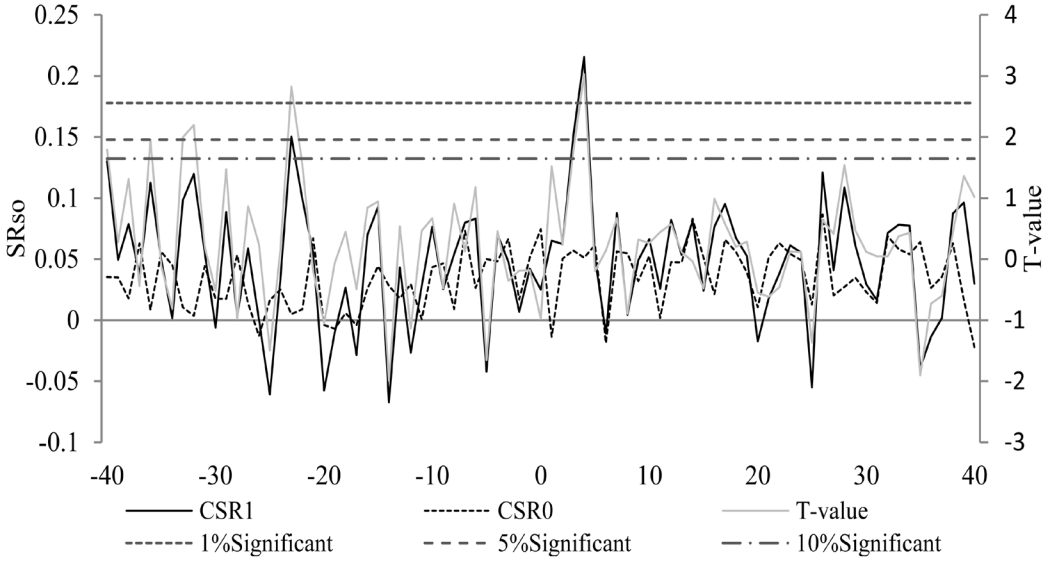

Figure 6 Evolution and t Test of Daily Average Sentiment Ratio

Note: This figure shows the daily average sentiment ratio (*SRso*) for 40 trading days prior to and after the announcement of CSR awards. CSR1 refers to the daily average *SRso* of CSR winners; and CSR0 refers to the daily average *SRso* of non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

Given that CSR winners are invariably going to be consistently involved in social responsibility activities, it may be reasonable to expect that the media will report CSR winners more frequently than non-CSR firms; CSR winners do not, therefore, have any need to interfere in media reporting. In contrast, the more stable pattern for non-CSR firms implies that they may be attempting to manipulate the media in order to avoid any extreme good or bad news reports.

In the present study, we argue that as compared to CSR winners, non-CSR firms may tend to engage more actively in attempts to spin media reporting in order to improve their media reputation. This is consistent with the viewpoints of Chen and Liu (2005) and Lu et al. (2011) —such firms are motivated to manipulate their media reputation, or indeed, manage their media relationship. Despite this, the media reputation of CSR winners is consistently found to be higher than that of non-CSR firms after CSR award announcements, thereby providing support for our Hypothesis 3.

Figure 7 illustrates the average media coverage trend for CSR winners and non-CSR firms during CSR award announcement periods. Media exposure is generally found to be significantly higher for CSR winners than non-CSR firms, although the difference is reduced closer to the announcement date. Despite any potential attempts by non-CSR firms to reduce the gap in media coverage with the approach of the CSR announcement date, as posited in Hypothesis 3 and consistent with the findings of Chang et al. (2010) and Zyglidopoulos et al. (2012); the coverage of CSR winners is consistently higher than that of non-CSR firms. This suggests that: (i) firms engaging in CSR may have a greater likelihood of being reported in the media, and thus, the information relating to CSR winners may be more readily transmitted to investors; and (ii) non-CSR firms may actively engage in releasing more information prior to CSR award announcement periods.

Figure 8 shows the average pattern of *SRso* for both CSR winners and non-CSR firms during CSR award announcement periods. The average *SRso* for CSR winners is generally higher than that for non-CSR firms, although it is interesting to note the reversal in the 20 trading-day period prior to the event date, when, as compared to non-CSR firms, the average news sentiment for CSR winners is relatively pessimistic. This phenomenon disappears after the CSR award announcement date, when the difference between the average *SRso* trend for CSR winners and non-CSR firms starts to expand again, further suggesting that non-CSR firms may be releasing more positive news to 'window dress' their corporate image.

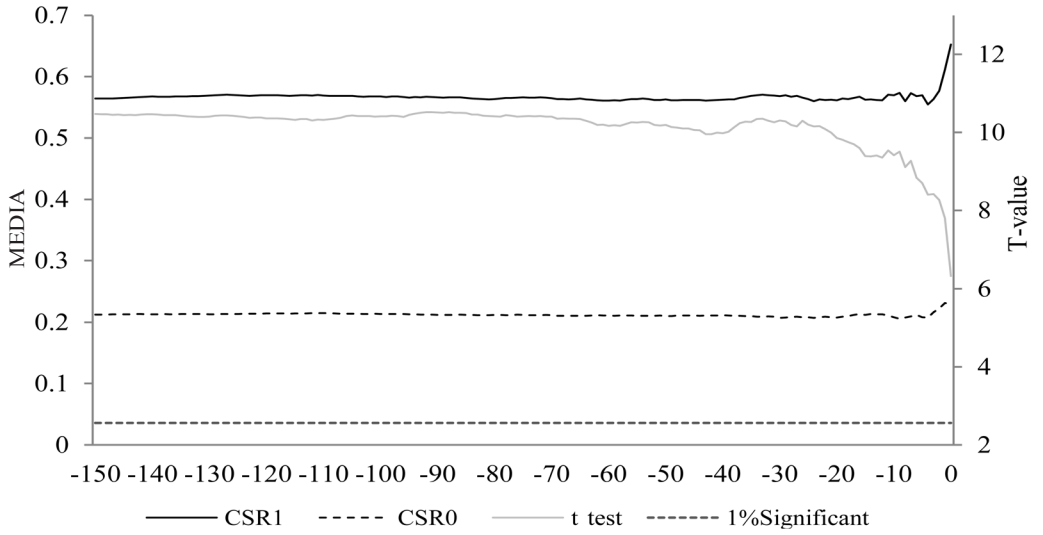

Figure 7a Average Media Coverage prior to CSR Award Announcements

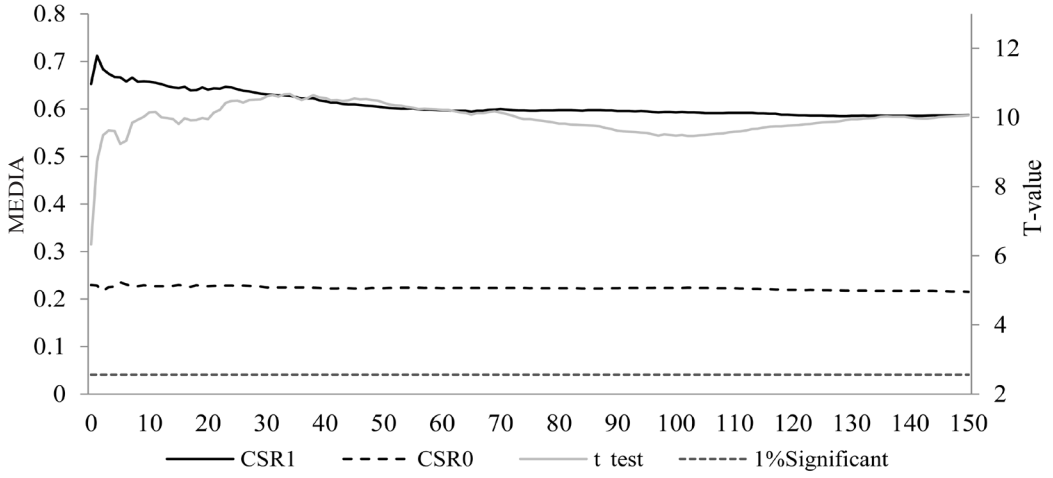

Figure 7b Average Media Coverage after CSR Award Announcements

Figure 7 Evolution and t Test of Average Media Coverage

Note: This figure illustrates the average media coverage (*MEDIA*), with Figure 7a (Figure 7b) showing the average *Media* for the 150 trading days prior to (after) CSR award announcements to (from) the event date, respectively calculated by Equations (6) and (7). CSR1 refers to the average media coverage for CSR winners; CSR0 refers to the average media coverage for non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

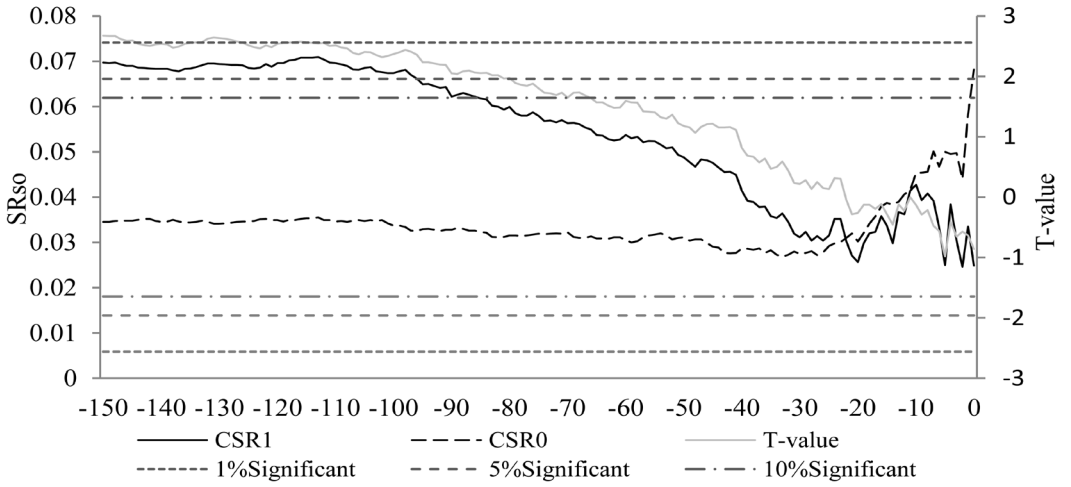

Figure 8a Average Sentiment Ratio prior to CSR Award Announcements

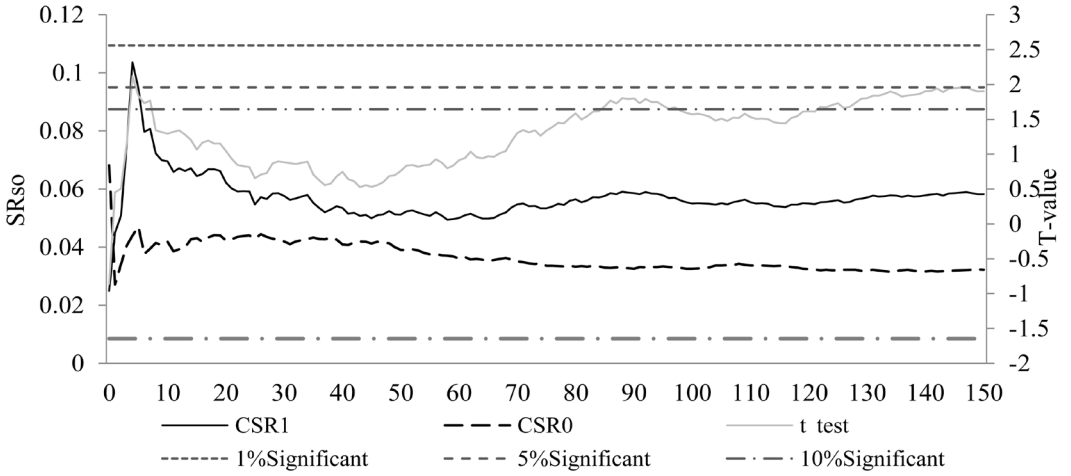

Figure 8b Average Sentiment Ratio after CSR Award Announcements

Figure 8 Evolution and t Test of Average Sentiment Ratio

Note: This figure illustrates the average sentiment ratio (*SRso*), with Figure 8a (Figure 8b) showing the average *SRso* for the 150 trading days prior to (after) CSR award announcements to (from) the event date, respectively calculated by Equations (12) and (13). CSR1 refers to the average *SRso* for CSR winners; CSR0 refers to the average *SRso* for non-CSR firms. The t value is a sample t test of CSR1 and CSR0.

Having checked the related news report for both CSR and non-CSR firms around the award announcement dates, we find some interesting cases.[16] For example, we find that non-CSR firms submit more than one news release in the week prior to the CSR award announcement date, with these news releases predominantly introducing the board, the story of the firm and its employee welfare, as opposed to any announcements of operating performance or bullish/bearish news. This again implies that these firms may be attempting to use the media to embellish their image and impress their stakeholders prior to the announcement of CSR awards.

Since CSR awards signify a good reputation, ultimately improving the corporate image of a firm, the media is an ideal channel to deliver this signal to stakeholders. A better media reputation provides a deeper impression on market participants with regard to the activities of CSR winners, thereby resulting in better stock market performance; however, as already argued in this study, non-CSR firms may well try to enhance their media coverage by actively releasing more optimistic information. Although detailed information in news reports includes the date, title, name of the reporter, content and edition, it may be unclear whether the news is published by a reporter or released by the firm itself; however, the media reports used in the present study include both professional (Commercial Times and Economic Daily News) and general (China Times and United Evening News) reports; thus, the sources reflect various types of news from multiple media channels. As noted by Kothari et al. (2009), firms can attempt to manipulate the timing of information releases, and the media may be directly affected in such situations, which suggests that there is also the possibility that news released by the media have been manipulated.

We argue that the media will readily present information relating to a firm if the news is considered worthy of reporting. We therefore also suggest that future studies may consider the sources of the news reports (that is, whether such reports are obtained from journalists or page one of newspapers) in order to further identify the potential impacts of media reporting on firm performance.

16 For space limitation reasons, we illustrate only the characteristics here as opposed to providing the full report.

4.2 The Relationship between CSR and Stock Market Returns

The patterns illustrated earlier in Figures 7 and 8, which described the variations in media reputation, revealed obvious changes in media coverage and news sentiment in the 5-day period around the CSR award announcement date.

Figures 3 and 4 revealed structural variations in the evolution of stocks returns and CARs in the 60- and 120-trading-day periods after CSR award announcements, and the 90-day period after the point when the structural variation of the event becomes more significant than during other periods.

We therefore carry out examinations of the 5-day impact of media reputation on the market performance of the firms prior to and after CSR award announcements over both short- and longer-term periods after the event day, including 20, 40, 60, 90 and 120 days.[17] Our empirical results show that the signaling effect of the receipt of a CSR award (CSR dummy) has a significantly positive effect on stock returns during the 90-day periods after the award announcement, with the coefficient on the CSR dummy variable ranging between 5.43 and 6.72.

However, no significant impact of the CSR effect is discernible on CARs, regardless of whether this is measured over short- or longer-term periods after the event date. This finding is consistent with the evolution illustrated in Figures 3 and 4. Furthermore, as shown in Table 8, the media reputation prior to the announcement date has no effect on either stock returns or CARs, regardless of whether the returns are calculated over short- or longer-term periods.

17 Due to space considerations, Tables 8 and 9 report only the 90-day stock market performance results; however, the results on all other periods are available from the authors upon request.

Table 8 Effects of Media Reputation prior to CSR Announcements on Stock Market Performance

Variables	Model 1 (M1)		Model 2 (M2a)		Model 2 (M2b)		Model 3 (M3a)		Model 3 (M3b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel A: Dependent variable: $RET_{[T0, T4]}$										
Constant	9.64	1.27	14.03*	1.66	9.61	1.26	10.01	1.22	9.24	1.21
CSR_{T0}	6.52**	2.08	6.24**	1.98	6.52**	2.07	6.11	1.60	6.48**	2.06
$RET_{[-T4, T0]}$	<0.01	0.06	<0.01	–0.01	<0.01	0.05	0.04	<0.01	<0.01	0.03
$TURN_{[-T4, T0]}$	0.28	0.14	0.18	0.09	0.27	0.14	0.31	0.16	0.29	0.15
$MV_{[-T4, T0]}$	1.18	1.32	0.60	0.59	1.18	1.32	1.14	1.19	1.24	1.37
$P/B_{[-T4, T0]}$	–9.08***	–6.44	–9.05***	–6.39	–9.10***	–6.41	–9.15***	–6.41	–9.19***	–6.41
$MEDIA_{[-T1, T0]}$	–	–	2.82	1.19	–	–	–	–	–	–
$SRso_{[-T1, T0]}$	–	–	0.30	0.06	–	–	–	–	–	–
$MR_{[-T1, T0]}$	–	–	–	–	0.52	0.09	–	–	–	–
CSR_{T0}*$MEDIA_{[-T1, T0]}$	–	–	–	–	–	–	0.54	0.14	–	–
CSR_{T0}*$SRso_{[-T1, T0]}$	–	–	–	–	–	–	2.92	0.31	–	–
CSR_{T0}*$MR_{[-T1, T0]}$	–	–	–	–	–	–	–	–	3.98	–0.44
Adj-R^2	0.06		0.06		0.06		0.06		0.06	

Variables	Model 1 (M1)		Model 2 (M2a)		Model 2 (M2b)		Model 3 (M3a)		Model 3 (M3b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel B: Dependent variable: $CAR_{[T0, T4]}$										
Constant	7.53	1.25	10.73	1.60	7.71	1.28	6.11	0.93	7.58	1.25
CSR_{T0}	3.88	1.55	3.64	1.45	3.86	1.54	4.84	1.60	3.88	1.55
$CAR_{[-T4, T0]}$	0.46***	11.53	0.46***	11.51	0.47***	11.61	0.46***	0.46	0.46	11.53
$TURN_{[-T4, T0]}$	–6.93***	–4.45	–6.85***	–4.37	–6.85***	–4.39	–6.97***	–4.46	–6.93***	–4.45
$MV_{[-T4, T0]}$	0.09	0.12	–0.33	–0.41	0.04	0.05	0.24	0.32	0.08	0.11
$P/B_{[-T4, T0]}$	–4.97***	–4.50	–4.83***	–4.36	–4.79***	–4.30	–4.92***	–4.40	–4.96***	–4.40
$MEDIA_{[-T1, T0]}$	–	–	2.07	1.09	–	–	–	–	–	–
$SRso_{[-T1, T0]}$	–	–	–4.62	–1.09	–	–	–	–	–	–
$MR_{[-T1, T0]}$	–	–	–	–	–5.47	–1.25	–	–	–	–
CSR_{T0}*$MEDIA_{[-T1, T0]}$	–	–	–	–	–	–	–1.67	–0.56	–	–
CSR_{T0}*$SRso_{[-T1, T0]}$	–	–	–	–	–	–	–1.54	–0.21	–	–
CSR_{T0}*$MR_{[-T1, T0]}$	–	–	–	–	–	–	–	–	–0.57	–0.08
Adj-R^2	0.22		0.23		0.22		0.22		0.22	

Note: The respective dependent variables in Panels A and B are 'stock returns' (*RET*) and 'cumulative abnormal returns' (*CAR*) at time T_4. Time T_0 refers to the CSR award announcements in the current year; time $-T_4$ refers to the period 90 days prior to CSR award announcements; Times $-T_1$ refers to the period 5 days prior to CSR award announcements; and time T_4 refers to the period 90 days after the CSR award announcements. Model 1, which is examined based upon Equation (14), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$ and the control variables at time $-T_4$; Model 2, which is examined based upon Equation (15), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$, the control variables at time $-T_4$ and the media proxies at time $-T_1$; Model 3, which is examined based upon Equation (16), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$, the control variables at time $-T_4$ and the CSR/media proxies interaction term at time $-T_1$. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

Conversely, the media reputation in the 5-day period after the announcement date is found to have a significantly positive impact on stock returns after CSR announcement. As shown in Panel A of Table 9, CSR winners with a better news sentiment can earn positive stock returns.[18]

Our results reveal that even if non-CSR firms are provided with sufficient motivation to manipulate their media reputation prior to CSR award announcements, it will not improve their stock returns or CARs. In contrast, in post-CSR award announcement periods, CSR winners with a better media reputation can successfully convey the credibility of this news to their investors and further improve their future market performance, thereby providing support for our Hypothesis 4.

18 The results are consistent no matter the stock returns after CSR announcement is calculated during 20, 40, 60, 90, and 120 days. However, the media reputation in the 5-day period after a CSR award announcement is found to have a significant impact on CARs for only 20 days after the event date; thus, the impacts of media reputation are much more obvious on stock returns than on CARs.

Table 9 Effects of Media Reputation after CSR Announcements on Stock Market Performance

Variables	Model (M1)		Model (M2a)		Model (M2b)		Model (M3a)		Model (M3b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel A: Dependent variable: $RET_{[T0, T4]}$										
Constant	9.64	1.27	15.00*	1.84	9.73	1.29	10.77	1.37	9.20	1.21
CSR_{T0}	6.52**	2.08	5.43*	1.72	6.72**	2.14	3.59	0.94	6.51**	2.07
$RET_{[-T4, T0]}$	<0.01	0.06	–0.02	–0.28	–0.01	–0.14	–0.05	0.00	<0.01	0.02
$TURN_{[-T4, T0]}$	0.28	0.14	–0.10	–0.05	0.16	0.08	0.54	0.28	0.33	0.17
$MV_{[-T4, T0]}$	1.18	1.32	0.41	0.42	1.19	1.34	1.06	1.15	1.24	1.39
$P/B_{[-T4, T0]}$	–9.08***	–6.44	–9.13***	–6.52	–9.30***	–6.59	–9.30***	–6.58	–9.23***	–6.52
$MEDIA_{[T0, T1]}$	–	–	3.96*	1.83	–	–	–	–	–	–
$SRso_{[T0, T1]}$	–	–	14.03***	2.85	–	–	–	–	–	–
$MR_{[T0, T1]}$	–	–	–	–	8.64**	2.04	–	–	–	–
CSR_{T0}*$MEDIA_{[T0, T1]}$	–	–	–	–	–	–	2.58	0.89	–	–
CSR_{T0}*$SRso_{[T0, T1]}$	–	–	–	–	–	–	15.90*	1.94	–	–
CSR_{T0}*$MR_{[T0, T1]}$	–	–	–	–	–	–	–	–	5.97	1.11
Adj-R^2	0.06		0.07		0.07		0.07		0.06	

Variables	Model (M1)		Model (M2a)		Model (M2b)		Model (M3a)		Model (M3b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel B: Dependent variable: $CAR_{[T0, T4]}$										
Constant	7.53	1.25	10.12	1.55	7.50	1.25	6.26	1.00	7.39	1.23
CSR_{T0}	3.88	1.55	3.57	1.41	3.86	1.54	5.01	1.63	3.88	1.54
$CAR_{[-T4, T0]}$	0.46***	11.53	0.46***	11.42	0.46***	11.49	0.46***	0.46	0.46	11.50
$TURN_{[-T4, T0]}$	–6.93***	–4.45	–7.00***	–4.48	–6.92***	–4.43	–6.96***	–4.46	–6.92***	–4.44
$MV_{[-T4, T0]}$	0.09	0.12	–0.26	–0.32	0.09	0.12	0.23	0.31	0.11	0.16
$P/B_{[-T4, T0]}$	–4.97***	–4.50	–4.95***	–4.48	–4.95***	–4.46	–4.96***	–4.47	–5.03***	–4.53
$MEDIA_{[T0, T1]}$	–	–	1.80	1.03	–	–	–	–	–	–
$SRso_{[T0, T1]}$	–	–	–0.42	–0.11	–	–	–	–	–	–
$MR_{[T0, T1]}$	–	–	–	–	–0.78	–0.23	–	–	–	–
CSR_{T0}*$MEDIA_{[T0, T1]}$	–	–	–	–	–	–	–1.72	–0.71	–	–
CSR_{T0}*$SRso_{[T0, T1]}$	–	–	–	–	–	–	–0.26	–0.04	–	–
CSR_{T0}*$MR_{[T0, T1]}$	–	–	–	–	–	–	–	–	2.03	0.47
Adj-R^2	0.22		0.23		0.22		0.22		0.22	

Note: The respective dependent variables in Panels A and B are 'stock returns' (*RET*) and 'cumulative abnormal returns' (*CAR*) at time T_4. Time $-T_4$ refers to the period 90 days prior to CSR award announcements; time T_0 refers to the CSR award announcements in the current year; Times T_1 refers to the period 5 days after CSR award announcements; and time T_4 refers to the period 90 days after the CSR award announcements. Model 1, which is examined based upon Equation (14), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$ and the control variables at time $-T_4$; Model 2, which is examined based upon Equation (15), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$, the control variables at time $-T_4$ and the media proxies at time T_1; Model 3, which is examined based upon Equation (16), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_4$, the control variables at time $-T_4$ and the CSR/media proxies interaction term at time T_1. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

4.3 The Relationship between CSR and Financial Performance

In this section, we examine whether CSR awards and media reputation can lead to improved financial performance. The results in Table 10 indicate that winning CSR awards in the current year has an insignificant impact, but that the effect of media reputation is significantly positive, which implies that greater media coverage and a higher sentiment ratio will promote financial performance.

Although CSR awards have no significant effect, CSR winners with greater media coverage and a higher sentiment ratio convey a better reputation to stakeholders, further promoting their financial performance. When media reputation is included in Model 6, the CSR dummy and media reputation interaction term is found to have a positive effect on financial performance. Thus, the impact on financial performance from media reputation is superior to the CSR award signal, which may be due to the image of CSR awards being substituted by media reputation.

Table 10 Effects of Media Reputation prior to CSR Announcements on Financial Performance

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel A: Dependent variable: $ROA_{[T0, T2]}$										
Constant	0.74	1.02	0.72	0.85	0.72	0.99	1.41*	1.73	0.60	0.83
CSR_{T0}	–0.05	–0.28	–0.08	–0.45	–0.05	–0.32	–0.50**	–2.23	–0.08	–0.48
$ROA_{[-T3, T0]}$	0.70***	21.38	0.70***	21.36	0.70***	21.44	0.70***	21.24	0.71***	21.60
$TAT_{[-T3, T0]}$	–2.16***	–4.23	–2.22***	–4.37	–2.22***	–4.39	–2.32***	–4.56	–2.33***	–4.55
$TA_{[-T3, T0]}$	0.05	1.10	0.06	0.96	0.06	1.16	0.01	0.22	0.06	1.30
$DR_{[-T3, T0]}$	<0.01	–0.97	–0.01	–1.15	<0.01	–1.03	<0.01	–0.73	<0.01	–0.99
$MEDIA_{[-T3, T0]}$	–	–	<0.01	0.12	–	–	–	–	–	–
$SRso_{[-T3, T0]}$	–	–	0.01***	2.79	–	–	–	–	–	–
$MR_{[-T3, T0]}$	–	–	–	–	0.02***	2.88	–	–	–	–
CSR_{T0}*$MEDIA_{[-T3, T0]}$	–	–	–	–	–	–	0.08**	2.25	–	–
CSR_{T0}*$SRso_{[-T3, T0]}$	–	–	–	–	–	–	0.02***	3.38	–	–
CSR_{T0}*$MR_{[-T3, T0]}$	–	–	–	–	–	–	–	–	0.02**	2.44
Adj-R^2	0.46		0.46		0.46		0.47		0.46	
Panel B: Dependent variable: $ROE_{[T0, T2]}$										
Constant	1.47	1.28	1.81	1.34	1.44	1.26	2.42*	1.89	1.23	1.07
CSR_{T0}	0.03	0.12	–0.02	–0.09	0.02	0.09	–0.67*	–1.89	–0.03	–0.10
$ROE_{[-T3, T0]}$	0.66***	16.26	0.66***	16.13	0.66***	16.24	0.66***	16.23	0.67***	16.53
$TAT_{[-T3, T0]}$	–2.14**	–2.53	–2.25***	–2.67	–2.22***	–2.63	–2.41***	–2.85	–2.49***	–2.92
$TA_{[-T3, T0]}$	–0.01	–0.09	–0.03	–0.33	<0.01	–0.04	–0.07	–0.77	0.01	0.18
$DR_{[-T3, T0]}$	<0.01	0.10	<0.01	0.02	<0.01	0.06	<0.01	0.31	<0.01	0.01
$MEDIA_{[-T3, T0]}$	–	–	0.02	0.64	–	–	–	–	–	–
$SRso_{[-T3, T0]}$	–	–	0.02***	2.86	–	–	–	–	–	–

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
$MR_{[-T3,\ T0]}$	–	–	–	–	0.02***	2.59	–	–	–	–
CSR_{T0}*$MEDIA_{[-T3,\ T0]}$	–	–	–	–	–	–	0.11**	2.12	–	–
CSR_{T0}*$SRso_{[-T3,\ T0]}$	–	–	–	–	–	–	0.04***	3.59	–	–
CSR_{T0}*$MR_{[-T3,\ T0]}$	–	–	–	–	–	–	–	–	0.04***	2.70
Adj-R^2	0.30		0.31		0.31		0.31		0.31	
Panel C: Dependent variable: $GPM_{[T0,\ T2]}$										
Constant	7.80**	2.12	10.29**	2.35	7.62**	2.08	9.73**	2.33	7.03*	1.91
CSR_{T0}	0.89	1.15	0.70	0.91	0.86	1.11	–0.57	–0.56	0.71	0.92
$GPM_{[-T3,\ T0]}$	0.97***	36.15	0.96***	35.39	0.97***	36.35	0.96***	35.39	0.97***	36.40
$TAT_{[-T3,\ T0]}$	0.20	0.09	–0.56	–0.23	–0.05	–0.02	–0.69	–0.29	–0.56	–0.24
$TA_{[-T3,\ T0]}$	–0.54**	–2.46	–0.70***	–2.60	–0.53**	–2.42	–0.64**	–2.55	–0.48**	–2.18
$DR_{[-T3,\ T0]}$	0.02	1.12	0.02	1.06	0.02	1.11	0.02	1.11	0.02	1.02
$MEDIA_{[-T3,\ T0]}$	–	–	0.12	1.20	–	–	–	–	–	–
$SRso_{[-T3,\ T0]}$	–	–	0.06***	3.25	–	–	–	–	–	–
$MR_{[-T3,\ T0]}$	–	–	–	–	0.06**	2.51	–	–	–	–
CSR_{T0}*$MEDIA_{[-T3,\ T0]}$	–	–	–	–	–	–	0.21	1.35	–	–
CSR_{T0}*$SRso_{[-T3,\ T0]}$	–	–	–	–	–	–	0.11***	3.21	–	–
CSR_{T0}*$MR_{[-T3,\ T0]}$	–	–	–	–	–	–	–	–	0.13***	2.84
Adj-R^2	0.74		0.75		0.74		0.75		0.74	
Panel D: Dependent variable: $EPS_{[T0,\ T2]}$										
Constant	0.37	1.22	0.47	1.34	0.36	1.18	0.48	1.44	0.31	1.01
CSR_{T0}	–0.04	–0.58	–0.05	–0.80	–0.04	–0.62	–0.18*	–1.91	–0.06	–0.82
$EPS_{[-T3,\ T0]}$	0.86***	32.88	0.86***	32.33	0.86***	32.93	0.86***	33.11	0.86***	33.11
$TAT_{[-T3,\ T0]}$	–0.79***	–3.73	–0.82***	–3.88	–0.81***	–3.85	–0.87***	–4.11	–0.87***	–4.10

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
$TA_{[-T3,\ T0]}$	–0.01	–0.38	–0.01	–0.61	–0.01	–0.31	–0.01	–0.60	<0.01	–0.08
$DR_{[-T3,\ T0]}$	<0.01	0.32	<0.01	0.26	<0.01	0.28	<0.01	0.31	<0.01	0.19
$MEDIA_{[-T3,\ T0]}$	–	–	0.01	0.72	–	–	–	–	–	–
$SRso_{[-T3,\ T0]}$	–	–	<0.00**	2.51	–	–	–	–	–	–
$MR_{[-T3,\ T0]}$	–	–	–	–	0.01**	2.49	–	–	–	–
CSR_{T0}*$MEDIA_{[-T3,\ T0]}$	–	–	–	–	–	–	0.02	1.25	–	–
CSR_{T0}*$SRso_{[-T3,\ T0]}$	–	–	–	–	–	–	0.01***	3.68	–	–
CSR_{T0}*$MR_{[-T3,\ T0]}$	–	–	–	–	–	–	–	–	0.01***	3.06
Adj-R^2	0.64		0.65		0.65		0.65		0.65	

Note: The respective dependent variables, from Panels A to D, are 'return on assets' (*ROA*), 'return on equity' (*ROE*), 'gross profit margin' (*GPM*) and 'earnings per share' (*EPS*) at time T_2. Time T_0 refers to the CSR award announcements in the current year; time $-T_3$ refers to quarterly financial statement announcements prior to CSR award announcements; Times T_2 refers to quarterly financial statement announcements after CSR award announcements. Model 4, which is examined based upon Equation (17), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables at time $-T_3$ and the control variables at time $-T_3$; Model 5, which is examined based upon Equation (18), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables on time $-T_3$, the control variables at time $-T_3$ and the media proxies at time $-T_3$; Model 6, which is examined based upon Equation (19), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables at time $-T_3$, the control variables at time $-T_3$ and the CSR/media proxies interaction term at time $-T_3$. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

We argue that whilst the awards do not directly promote financial performance, firms can elevate their visibility through the media and establish a good reputation through optimistic news content, thereby providing stakeholders and shareholders with a positive image. Our empirical results provide support for the findings of both Eberl and Schwaiger (2005) and Lai et al. (2010) that CSR performance and media reputation can effectively enhance the reputation of a firm and lead to further improvements in its financial performance, thereby providing support for our Hypothesis 5.

Similar results are provided in Table 11, although the effect of media reputation is rather less obvious. The effect of the media reputation of CSR winners prior to the CSR announcement date is clearly better than the media reputation released after the CSR award announcement date, thereby indicating that media reputation has a somewhat belated effect on financial performance.

Table 11 Effects of Media Reputation after CSR Announcements on Financial Performance

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
Panel A: Dependent variable: $ROA_{[T0, T2]}$										
Constant	0.74	1.02	0.95	1.17	0.76	1.05	1.06	1.36	0.75	1.02
CSR_{T0}	–0.05	–0.28	–0.06	–0.35	–0.03	–0.20	–0.27***	–1.27	–0.05	–0.28
$ROA_{[-T3, T0]}$	0.70***	21.38	0.70***	21.26	0.70***	21.31	0.70***	21.10	0.70***	21.34
$TAT_{[-T3, T0]}$	–2.16***	–4.23	–2.27***	–4.46	–2.18***	–4.30	–2.14***	–4.20	–2.15***	–4.22
$TA_{[-T3, T0]}$	0.05	1.10	0.04	0.72	0.05	1.10	0.03	0.62	0.05	1.09
$DR_{[-T3, T0]}$	<0.01	–0.97	<0.01	–0.91	<0.01	–1.00	<0.01	–0.80	<0.01	–0.97
$MEDIA_{[T0, T2]}$	–	–	0.01	0.60	–	–	–	–	–	–
$SRso_{[T0, T2]}$	–	–	0.01***	2.64	–	–	–	–	–	–
$MR_{[T0, T2]}$	–	–	–	–	0.01*	1.88	–	–	–	–
CSR_{T0}*$MEDIA_{[T0, T2]}$	–	–	–	–	–	–	0.04	1.41	–	–
CSR_{T0}*$SRso_{[T0, T2]}$	–	–	–	–	–	–	0.01	1.59	–	–
CSR_{T0}*$MR_{[T0, T2]}$	–	–	–	–	–	–	–	–	<0.00**	–0.09
Adj-R^2	0.46		0.46		0.46		0.46		0.46	
Panel B: Dependent variable: $ROE_{[T0, T2]}$										
Constant	1.47	1.28	2.33*	1.82	1.50	1.31	2.12*	1.74	1.47	1.27
CSR_{T0}	0.03	0.12	<0.01	<0.01	0.06	0.21	–0.45	–1.33	–0.03	–0.12
$ROE_{[-T3, T0]}$	0.66***	16.26	0.65***	15.92	0.66***	16.11	0.65***	15.99	0.66***	16.23
$TAT_{[-T3, T0]}$	–2.14**	–2.53	–2.32***	–2.74	–2.15***	–2.55	–2.07***	–2.45	–2.14***	–2.52
$TA_{[-T3, T0]}$	–0.01	–0.09	–0.07	–0.78	–0.01	–0.10	–0.05	–0.64	–0.01	–0.09
$DR_{[-T3, T0]}$	<0.01	0.10	<0.01	0.32	<0.01	0.09	<0.01	0.37	<0.01	0.10
$MEDIA_{[T0, T2]}$	–	–	0.04	1.51	–	–	–	–	–	–
$SRso_{[T0, T2]}$	–	–	0.01***	2.81	–	–	–	–	–	–

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
$MR_{[T0, T2]}$	–	–	–	–	0.01*	1.91	–	–	–	–
CSR_{T0}*$MEDIA_{[T0, T2]}$	–	–	–	–	–	–	0.08*	1.89	–	–
CSR_{T0}*$SRso_{[T0, T2]}$	–	–	–	–	–	–	0.02**	2.34	–	–
CSR_{T0}*$MR_{[T0, T2]}$	–	–	–	–	–	–	–	–	<0.01***	0.04
Adj-R^2	0.30		0.31		0.30		0.31		0.30	
Panel C: Dependent variable: $GPM_{[T0, T2]}$										
Constant	7.80**	2.12	9.32**	2.25	7.83**	2.12	8.46**	2.14	7.82**	2.12
CSR_{T0}	0.89	1.15	0.84	1.08	0.91	1.18	0.28	0.29	0.89	1.15
$GPM_{[-T3, T0]}$	0.97***	36.15	0.96***	35.73	0.97***	36.13	0.96***	35.76	0.97***	36.12
$TAT_{[-T3, T0]}$	0.20	0.09	–0.34	–0.14	–0.15	0.06	0.13	0.06	0.22	0.09
$TA_{[-T3, T0]}$	–0.54**	–2.46	–0.65***	–2.56	–0.55**	–2.47	–0.59**	–2.45	–0.55**	–2.46
$DR_{[-T3, T0]}$	0.02	1.12	0.03	1.23	0.02	1.12	0.03	1.19	0.02	1.13
$MEDIA_{[T0, T2]}$	–	–	0.07	0.86	–	–	–	–	–	–
$SRso_{[T0, T2]}$	–	–	0.02*	1.74	–	–	–	–	–	–
$MR_{[T0, T2]}$	–	–	–	–	0.01	0.60	–	–	–	–
CSR_{T0}*$MEDIA_{[T0, T2]}$	–	–	–	–	–	–	0.09	0.71	–	–
CSR_{T0}*$SRso_{[T0, T2]}$	–	–	–	–	–	–	0.04	1.45	–	–
CSR_{T0}*$MR_{[T0, T2]}$	–	–	–	–	–	–	–	–	<0.01***	–0.11
Adj-R^2	0.74		0.74		0.74		0.74		0.74	
Panel D: Dependent variable: $EPS_{[T0, T2]}$										
Constant	0.37	1.22	0.72**	2.15	0.37	1.21	0.45	1.41	0.37	1.21
CSR_{T0}	–0.04	–0.58	–0.06	–0.83	–0.03	–0.50	–0.13	–1.42	–0.04	–0.58
$EPS_{[-T3, T0]}$	0.86***	32.88	0.84***	31.74	0.86***	32.68	0.86***	32.64	0.86***	32.86
$TAT_{[-T3, T0]}$	–0.79***	–3.73	–0.84***	–4.01	–0.80***	–3.77	–0.79***	–3.72	–0.79***	–3.73

Variables	Model (M4)		Model (M5a)		Model (M5b)		Model (M6a)		Model (M6b)	
	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value	Coeff.	t value
$TA_{[-T3,\ T0]}$	–0.01	–0.38	–0.03	–1.42	–0.01	–0.35	–0.01	–0.61	–0.01	–0.36
$DR_{[-T3,\ T0]}$	<0.01	0.32	<0.01	0.62	<0.01	0.29	<0.01	0.45	<0.01	0.32
$MEDIA_{[T0,\ T2]}$	–	–	0.02***	2.56	–	–	–	–	–	–
$SRso_{[T0,\ T2]}$	–	–	<0.01***	2.63	–	–	–	–	–	–
$MR_{[T0,\ T2]}$	–	–	–	–	<0.01*	1.96	–	–	–	–
CSR_{T0}*$MEDIA_{[T0,\ T2]}$	–	–	–	–	–	–	0.01	1.16	–	–
CSR_{T0}*$SRso_{[T0,\ T2]}$	–	–	–	–	–	–	<0.01**	2.13	–	–
CSR_{T0}*$MR_{[T0,\ T2]}$	–	–	–	–	–	–	–	–	<0.01	0.16
Adj-R^2	0.64		0.65		0.64		0.64		0.64	

Note: The respective dependent variables, from Panels A to D, are 'return on assets' (*ROA*), 'return on equity' (*ROE*), 'gross profit margin' (*GPM*) and 'earnings per share' (*EPS*) at time T_3. Time T_0 refers to the CSR award announcements in the current year; time $-T_3$ refers to quarterly financial statement announcements prior to CSR award announcements; Times T_2 refers to quarterly financial statement announcements after CSR award announcements. Model 4, which is examined based upon Equation (17), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables at time $-T_3$ and the control variables at time $-T_3$; Model 5, which is examined based upon Equation (18), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables on time $-T_3$, the control variables at time $-T_3$ and the media proxies at time T_2; Model 6, which is examined based upon Equation (19), includes the CSR dummy at time T_0, the lag term of the dependent variable at time $-T_3$, the financial performance variables at time $-T_3$, the control variables at time $-T_3$ and the CSR/media proxies interaction term at time T_2. The abbreviation of variables refers to Table 2. * indicates significance at the 10% level; ** indicates significance at the 5% level; and *** indicates significance at the 1% level.

5. Conclusions

Our empirical results clearly show that as compared to non-CSR firms, CSR winners enjoy superior financial performance, and those firms with a higher media reputation will ultimately exhibit better financial performance in the future. These findings provide support for both Eberl and Schwaiger (2005) and Lai et al. (2010) — CSR performance and media reputation can enhance the reputation of firms, ultimately leading to further improvements in their financial performance.

We also propose that the media provides an important channel for delivering a signal of CSR activities to the stakeholders in a firm; however, the impact of media reputation on the financial performance of a firm is found to be superior to the impact from the signal provided by CSR awards, with the reason for this potentially lying in the fact that the positive image provided by CSR awards can be substituted by media reputation.[19]

Firms participating in the CSR award competitions may actively attract the attention of reporters and investors, and indeed, since such firms may well be continuously and actively engaging in CSR activities, the related information is likely to be released through media reports. Since those firms participating in the CSR award competitions may be routinely involved in CSR activities and other related topics, this results in better media coverage and less volatile news sentiment.

However, with the approach of the CSR award announcement date, a resultant reversal in the sentiment ratio leading to a higher media reputation for non-CSR firms, even exceeding that of CSR winners. This would seem to imply that non-CSR firms may be trying to manipulate the media in an attempt to enhance their overall level of coverage and create a positive image amongst investors so as to counteract the strong image enjoyed by CSR winners. Nevertheless, our finding indicate that even if non-CSR firms are provided with sufficient motivation to try to manipulate their media reputation prior to CSR award announcements, it cannot improve their stock returns and CARs.

Following the announcement of their award, the better media reputation of CSR winners can strengthen their image amongst investors and improve their future stock market performance. Furthermore, the signaling effect of a firm winning a CSR award (CSR dummy) has a significantly positive effect on its stock returns during the 90-day

19 See Deephouse (2000), Simpson and Kohers (2002), and Servaes and Tamayo (2013).

periods after the award announcement date. In line with Kong (2012), our results indicate that after announcements of CSR awards, the stock market returns of CSR winners will be superior to those of non-CSR firms over longer periods.

Higher media exposure and positive media reports can generally improve the corporate reputation of CSR winners and successfully transmit a positive image to stakeholders and consumers, with the financial performance of CSR winners ultimately exceeding that of non-CSR firms; this is consistent with the findings of Chang et al. (2010) , Chih et al. (2014) and Byun and Oh (2017). CSR winners with a better media reputation following the receipt of a CSR award will undoubtedly enjoy better stock return performance over longer periods.

We suggest that mutual fund managers and market participants can adjust their portfolios by referring to the signals provided by CSR awards and that holding periods of about four to five months will result in better stock returns, essentially because CSR winners with a good media reputation will tend to have better financial fundamentals and a promising outlook for the future.

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