Does Corporate Social Responsibility Provide Protection Against Systemic Risks? Evidence from Taiwan during the US-China Trade War

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Abstract

The primary aim of this study is to examine the protection against systemic risks of the financial and stock performance of firms in receipt of 'corporate social responsibility' (CSR) awards. Our 2016-2018 study sample, obtained from the Taiwan Economic Journal (TEJ), comprised of CSR-award-recipient firms (CSR firms) voted for by the Common Wealth and Global Views magazines, for a sample period running from the third quarter of 2017 to the third quarter of 2018. Our empirical results reveal that in terms of their financial performance, as compared to non-CSR-award-recipient (non-CSR) firms, CSR firms failed to demonstrate any better protection against systemic risks (such as the US-China trade war). However, the stock performance of CSR firms clearly provided better protection than that of non-CSR firms; the reason for this observation is assumed to be the higher operational costs faced by CSR firms seeking to continue to pursue their CSR goals when encountering systemic risks (like the US-China trade war). Nevertheless, participation in CSR is found to have an insurance-like effect on firm value, which clearly helps to increase the confidence of investors and reduce stock volatility.

Keywords: Corporate social responsibility; Stock performance; Financial performance.

1. Introduction

As a result of the ethical issues and economic impacts arising from, amongst other things, the financial crisis, environmental changes and natural resource depletion, professionals in both academia and the practical world have become much more aware of the responsibilities that need to be accepted by enterprises. In addition to placing effort into maximizing their profits, such enterprises must also go above and beyond such a focus to help both their stakeholders and the environment; they should seek to raise their efforts from simple participation in charity events to providing feedback on social development, environmental protection and their own products and services.

As a result of the all-encompassing trend of globalization, environmental pollution attributable to corporate financial development has become a popular subject among both non-governmental organizations and consumers alike, with enterprises being encouraged to take their 'corporate social responsibility' (CSR) seriously and minimize the conflict between stakeholders and the environmental damage caused by their relentless pursuit of profits. Since government and corporate policies from different parts of the world have now become intertwined, this has attracted even greater attention around the world to the various issues surrounding CSR.

As a direct result of the enforcement of associated policies by the Taiwanese government, which began in 2002, enterprises in Taiwan have also begun participating in proactive CSR activities involving, for example, the preparation of CSR reports or participation in CSR awards, such as the Dow Jones Sustainability Index (DJSI), Carbon Disclosure Project (CDP), Asian Responsibility Enterprise Awards and Global Corporate Sustainability Forum/Global Corporate Sustainability Awards (GCSF/GCSA).

The overall aims of CSR are essentially to maximize stockholder profits whilst simultaneously preserving the rights of stakeholders, such as suppliers, consumers, employees involved in a firm's internal activities and competitors associated with market operations, as well as the communities, environment and other organizations that are not directly associated with such operations.

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The definition of CSR provided by the World Business Council for Sustainable Development (WBCSD) has also succeeded in further establishing the direction of CSR; the definition states that "Corporate social responsibility is the continuing commitment by businesses to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families, as well as of the local community and society at large".

There is, however, a distinct absence of any representative CSR database, and as such, only the annual evaluations carried out by the Common Wealth and Global Views magazines are available for use as references. Both the Common Wealth and Global Views magazines carry out their evaluations with reference to the Organization for Economic-Co-operation and Development (OECD) Guidelines for Multinational Enterprises; for example, the Global Views magazine places specific focus on the four major aspects of CSR, 'corporate governance', 'corporate commitment', 'social participation' and 'environmental protection'. Those firms winning CSR awards (CSR firms) are announced by the Common Wealth and Global Views magazines on an annual basis, with these award-winning firms being considered to have achieved better CSR than those firms who were not in receipt of such awards (non-CSR firms).

Nevertheless, quite conflicting conclusions are drawn within academia as to whether the fulfillment of CSR goals ultimately benefits an enterprise; although several studies have demonstrated the positive effects of CSR on a firm's financial and stock performance (Waddock and Graves, 1997; Choi, Kwak, and Choe, 2010), other studies, such as Shen and Chang (2008), have highlighted the increased operational burden incurred by a firm when seeking to achieve its CSR goals. Indeed, some firms are thought to have blindly pursued CSR activities with the primary aim of meeting public expectations, with such a focus ultimately weakening the competitiveness of their own products and putting the firm at a disadvantage, in terms of its overall performance.

Chen, Shiu and Chang (2015) concluded that prior participation in CSR helped to increase the confidence of stockholders during periods when firms were faced with negative market news. In such cases, stockholders would be unlikely to sell their stocks, which would naturally provide the firm with an additional buffer against such risks. Chih, Miao and Chuang (2014) provided support for the 'frame and profit win-win' (FPWWH) hypothesis, arguing that the fulfilment of CSR goals not only promoted positive growth – specifically in terms of market performance – but also that when surpluses were lower than expected, a reputation for such fulfilment also helped to minimize agency problems during negative event periods, thereby helping to stabilize investor confidence.

However, it is clear that the prior studies have tended to focus primarily on non-systemic risks, with a distinct lack of any investigations focusing on the impact of systemic risks. In an attempt to make up for this current lack of focus within the extant literature, in the present study, we include 2016-2018 samples of CSR firms from both the Common Wealth and Global Views magazines, along with their non-CSR-firm counterparts. This provides us with study samples for our investigation of whether, and if so why, participation in CSR helps to reduce any negative impacts when firms are faced with systemic risks. The primary aims of our study are to determine whether the financial and stock performances of CSR firms are superior to those of non-CSR firms, and when faced with systemic risks (taking the US-China trade war as an example), whether the financial and stock performances of CSR firms are better protected than those of non-CSR firms.

Our paper find that in terms of financial performance, compared with non-CSR award- recipient (non-CSR) firms, CSR firms failed to demonstrate better protection against systemic risks (such as the US-China trade war). However, the stock performance of CSR firms clearly provided better protection than that of non-CSR firms; it is believed that the reason for this situation is that CSR firms encounter systemic risks (like US-China trade War), seeking to continue to pursue corporate social responsibility goals faces high operational costs. However, it is found that the participation of corporate social responsibility has an insurance-like effect on firm value (Godfrey, 2005; Godfrey, Merrill, and Hansen, 2009; Minor and Morgan, 2011), which obviously helps to increase the confidence of investors and reduce stock volatility.

The remainder of this paper is presented as follows. Section 2 provides a review of the related literature, along with the development of our hypotheses. This is followed in Section 3 by the presentation of our data and methodology, including our sample sources and matching methodology, sample variables, an event study and the regression model. The descriptive statistics of our samples are provided in Section 4, followed by a discussion on the empirical results. Finally, the conclusions drawn from this study are presented in Section 5.

2. Literature Review and Hypothesis Development

Several scholars within the prior related literature have argued that enterprises need to step up and assume their corporate social responsibilities, not only because corporate financial activities are closely associated with society as a whole, but also because of the need to protect the rights of stakeholders and provide feedback to society (Bowen, 1953; Arrow, 1973). Given that acts aimed at fulfilling CSR goals, such as sponsoring charity events and preventing internal unethical behavior, are supported by consumers, the reputation of a firm, and trust in the firm, can be enhanced by active participation in social charity events (Bowman and Haire,1975; Alexander and Bucholtz, 1978).

Whilst the findings of Dowling (2006) showed that a good corporate reputation can increase firm value, they also proved that a good reputation can bring about better average financial performance throughout the industry as a whole. Although Brammer and Pavelin (2004) had earlier emphasized that the primary reason for building a good reputation was to bring benefits and rewards to an enterprise, such aims can only be achieved by integrating the CSR activities of the enterprise with its key role.

Based upon their review of 52 studies covering the years 1972 to 1997, Orlitzky, Schmidt and Rynes (2003) demonstrated not only a positive, but also causal, relationship between CSR and financial performance. Lee, Liu and Yang (2011) similarly identified a positive impact of CSR on corporate financial performance, as well as non-financial performance and research and development expenditure, providing clear support for the 'social impact' hypothesis; they argued that devotion to CSR goals would be unlikely to have any unfavorable impacts on a firm.

Whilst the above studies clearly demonstrate a positive correlation between CSR and financial performance, others pursue a contrasting viewpoint. For example, Shen and Chang (2008) provided support for the hypothesis that CSR is of no benefit to the 'shift of focus' theory, since some firms embarking on policies aimed at meeting public expectations ultimately found that such policies raised the firm's operational costs; indeed, if firms elect to blindly follow CSR rules to the detriment of the advancement of their own products, this can ultimately weaken their competitiveness.

There are also other scholars who believe that CSR activities can compromise the financial targets of traditional firms, causing serious agency problems; for example, Beltratti (2005) noted that participation in CSR gave rise to agency problems which compromised the fundamental interests of the stockholders, and indeed, from their empirical examination of S&P 500 data, Hillman and Keirn (2001) noted that whilst good management of the stakeholder relationship could indeed promote stockholder value, participation in CSR was negatively correlated with stockholder value.

Wei, Lu, Chen and Wang (2018) argued that participation in CSR could help to promote the reputation of a firm and further improve its financial status; they noted that after the announcement of CSR award winners, the positive image gained from winning the award would enhance the firm's image among investors and provide a boost to their future stock market performance, such that, in the long run, their stock market returns would be better than those of non-CSR firms.

From an examination of the correlation between CSR participation and stock market performance within the Chinese food industry, Kong (2012) discovered that in the long run, CSR had a profound effect on abnormal returns. However, once again, clear differences are discernible in the viewpoints within much of the related literature; for example, Curran and Moran (2007) identified a lack of any significant correlation between CSR agency problems and 'cumulative abnormal returns' (CARs).

Since it is apparent that general consensus has yet to be reached within the extant related literature involving in-depth studies into the correlation between CSR activities and financial/stock performance, in the present study, we set out to investigate whether the financial and stock performances of those CSR firms formally recognized by the Common Wealth and Global Views magazines are found to be superior to those of their counterparts; we propose the following hypotheses:

Hypothesis 1: *The receipt of a CSR award has a significantly positive effect on the financial performance of a firm.*
Hypothesis 2: *The receipt of a CSR award has a significantly positive effect on the stock performance of a firm.*

The empirical results reported by Kao, Shiu and Lin (2016) revealed a negative correlation between the pursuit of CSR activities by a firm and its total risk, thereby providing support for the 'risk reduction' hypothesis; they also found that by incorporating CSR activities into its business, a firm could effectively reduce its downside risk during a period of financial crisis. Their empirical results and the insurance-like effect of CSR on firm value (Godfrey, 2005) suggested that participation in CSR could be utilized as an effective risk management tool.

Chen, Shiu and Chang (2015) demonstrated that participation in CSR activities had a risk management effect on stock prices, which they found to be even more profound for safety events, with this phenomenon having a long-term effect on minimizing stock volatility. Committing to CSR helps to reduce any unfavorable evaluation when negative events are reported, and can also minimize the level of punishment; the so called "good will be rewarded with good" argument. Bhattacharya and Sen (2004) further showed that firms were able to establish a good reputation through their commitment to CSR, as they noted that when firms were faced with a negative event, consumers were more readily prepared to forgive those with a long-standing good reputation.

Since most of the current literature focuses on the impact of non-systematic risks on the company's CSR, there are few discussions on systemic risks, and the conclusions are still unclear such as Lins, Servaes, and Tamayo (2017) comprehensively examine CSR's effects during the 2008-2009 financial crisis, showing that CSR firms have better stock return and operating performance during the crisis period compared with non-CSR firms. In contrast, Berkman, Li, and Lu (2020) and Boubaker et al. (2020) find that CSR firms do not outperform non-CSR firms during crisis periods when using different proxy for firm performance. This may be due to the fact that the number of systemic risk events is less than that of non-systematic risks. Because systemic risks are less likely to be avoided by diversifying risks like non-systematic risks, the scope of the enterprise's impact is larger. To make up for this gap, this article treats the US-China trade war as a systemic risk event, because its occurrence does affect the performance of the relevant Asian-Pacific countries' stock markets. Because manufacturers in many countries, such as Japan, South Korea, and Taiwan, have moved their factories to mainland China to produce and export to the United States because of the low wages in mainland China, so as to reduce costs and increase profits. Among them, because of Taiwan's advantages in language and culture, and China's release of preferential policies due to political factors, it has attracted Taiwanese investment. In the early days, a large number of manufacturers began to move to mainland China. Therefore, this production model has been greatly impacted by the US-China trade war.

As a result, greater attention needs to be paid to determining whether commitment to CSR can effectively reduce the impact on a firm when it is faced with such systemic risks. In our attempt to expand on the prior related studies, we focus on investigating whether, when faced with systemic risks, the benefits of CSR commitment can help a firm to survive the risk or reduce the impact on its financial and stock performance, which leads to our proposal of the following hypotheses:

Hypothesis 3: *When faced with systemic risks (such as the US-China trade war), the impact on financial performance will be lower for CSR firms than non-CSR firms.*

Hypothesis 4: *When faced with systemic risks (such as the US-China trade war), the impact on stock performance will be lower for CSR firms than non-CSR firms.*

3. DATA AND METHODOLOGY

3.1   Sample Selection

The initial samples, covering the years 2016 to 2018, comprised of all recipients of the 'Excellence in Corporate Social Responsibility Award' presented by the Global Views magazine, and the 'Corporate Social Responsibility Award' presented by the Common Wealth magazine, with these award-winning firms being referred to throughout this study as 'CSR firms'. Since only those firms winning either of these two awards were identified – as opposed to disclosure of all of the award candidates – we modified the matched-sample method of Wei et al. (2018) and Lee et al. (2011) in order to match one CSR firm with three non-CSR firms.

The criteria for matching the non-CSR firm samples required that the matching samples must be: (i) firms selected from the year prior to the CSR award; (ii) firms that had generated profits in all of the previous three consecutive years; (iii) firms in the same stock (or emerging stock) exchange market as the matching CSR firm; (iv) firms in the same TEJ sub-industry as the matching CSR firm (if no matching firms could be identified, then candidates were sought in the same TEJ industry, and if there were still no matching samples, then candidates were sought from the same new TSE industry); and (v) firms for whom the absolute difference between the total assets of the matching sample and the CSR firm was less than 50% of the total assets of the CSR firm. Since the financial performance of firms within the financial industry differs from that of other firms, all financial firms were excluded from the sample.

Full details of the sources and the descriptive statistics of the samples are presented in Table 1, which shows that from 2016 to 2018, a total of 96 award-winning firms (CSR firms) and 233 non-award-winning firms (non-CSR firms) were selected from the time of the announcement of the award by the Global Views and Common Wealth magazines based upon the above screening criteria.

Table 1 Sample distribution

Variables	2016	2017	2018	Total
CSR Firm Data Sources				
Global Views magazine	65	65	65	195
Common Wealth magazine	22	19	21	62
Final Data Sample Selection				
CSR firms	31	32	33	96
Non-CSR firms	78	80	75	233

Notes: CSR firms are those in receipt of CSR awards, whilst non-CSR firms are those firms which have not received any CSR awards. The CSR firms used in this study exclude all financial enterprises, overlapping firms, unlisted OTC firms and those with incomplete matching criteria.

3.2 Variable Measurement

Using quarterly financial data collected from the Taiwan Economic Journal (TEJ) database, we calculated the 'cumulative abnormal return' (CAR) using the TEJ event study. The definitions of CSR and all of the variables used in this study are provided in the following sub-sections.

3.2.1 Dependent variables

In order to test the protection of firm performance against systemic risks from the time the CSR award was received, we adopted the method proposed by Peters and Mullen (2009) and Wei et al. (2018), using 'return on assets' (ROA) and 'return on equity' (ROE) as our proxy variables for financial performance, and 'cumulative abnormal return' (CAR) as the proxy variable for stock performance.

3.2.2 Independent variables

Those firms in receipt of either the Global Views magazine "Excellence in Corporate Social Responsibility Award" or the Common Wealth magazine "Corporate Social Responsibility Award" were used as our study samples. Those firms in receipt of either of these awards (none of these awards) were referred to as CSR firms (non-CSR firms), with the variable taking the value of 1 for a CSR firm, and 0 for a non-CSR firm.

3.2.3 Control variables

The control variables used in our study include: firm size (*Size*), calculated as the natural logarithm of total assets based upon a modification of the Tsao, Chen, Chi and Lo (2009) 'control scale effect' calculation; years of establishment (*Age*), a proxy variable, modified from the Lee et al. (2011) approach, and calculated by subtracting the year of establishment from the year prior to receipt of the award; leverage ratio (*Lev*), calculated as total debt divided by total assets; turnover (*Turn*), calculated as total circulation divided by circulating shares; and price-to-book ratio (*P/B*), calculated as the market value per share divided by the book value per share.

3.3 The Model

3.3.1 Event study

The US-China trade war is used in this study as an example of a systemic risk event, setting the start date of the trade war as 22 March 2018, the date adopted by most of the related media. This was the date that US President Donald Trump signed the 'Presidential Memorandum Targeting China's Economic Aggression' based on the US Trade Representative (USTR) Special 301 Report, a report which announced that the Office of the USTR would be instructed to impose a 25% tariff on US$500-600 billion of goods imported from China, and to consider restricting investment activities from China. The timeline of the impact of this risk event is illustrated in Figure 1.
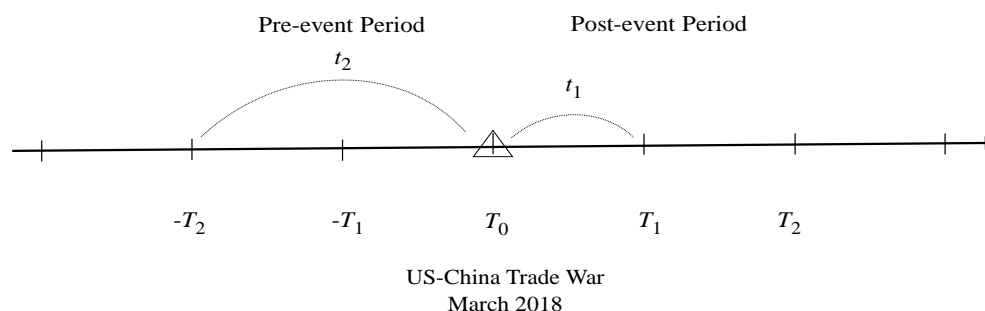

Figure 1 Timeline of risk event impacts

Note: T_0 denotes the systemic risk event of the US-China trade war; $-T_1$ and T_1 refer to the quarters (t_1) immediately before and after the event date T_0 ($-T_1$ is the fourth quarter of 2017, and T_1 is the second quarter of 2018); $-T_2$ and T_2 refer to the quarters (t_2) that were two quarters before and after the event date T_0 ($-T_2$ is the third quarter of 2017, and T_2 is the third quarter of 2018).

We used the 'cumulative abnormal return' (CAR) calculated for period T after the systemic risk event to investigate the impact of CSR on the stock market performance of our sample firms after the systemic risk, with the same approach also used being to measure their financial performance. The 'abnormal return' (AR) and CAR were calculated as follows:

$$AR_{i,t} = R_{i,t} - E(R_{i,t}) \qquad (1)$$
$$CAR_{i,T} = \sum_{t=T_0}^{T} AR_{i,t} \qquad (2)$$

where $AR_{i,t}$ is the abnormal return of firm i, at day t; and $CAR_{i,T}$ is the cumulative abnormal return of firm i in the time period $(T_0, T_0 + T)$ after the systemic risk event.

3.3.2 Model specifications

Equations (3) and (4) examine whether a significantly positive effect exists between CSR and financial performance, whilst Equation (5) investigates whether a significantly positive effect exists between CSR and stock performance. The regression models are expressed as follows:

$$ROA = \alpha_0 + \alpha_1 CSR + \alpha_2 Size + \alpha_3 Age + \alpha_4 Lev + \alpha_5 Turn + \alpha_6 P/B + \varepsilon_{it}, (3) ROE = \alpha_0 + \alpha_1 CSR + \alpha_2 Size + \alpha_3 Age + \alpha_4 Lev + \alpha_5 Turn + \alpha_6 P/B + \varepsilon_{it}, (4) CAR = \alpha_0 + \alpha_1 CSR + \alpha_2 Size + \alpha_3 Age + \alpha_4 Lev + \alpha_5 Turn + \alpha_6 P/B + \varepsilon_{it}, (5)$$

Where, *ROA* is net income/total assets at the end of the period; *ROE* is net income/total equity; *CAR* is calculated by the TEJ event study; *CSR* takes the value of 1 (0) for CSR (non-CSR) firms; *Size* is calculated as the natural logarithm of total assets; *Age is* years of establishment; *Lev* is calculated as total debt divided by total assets; *Turn is* calculated as total circulation divided by circulating shares; *P/B is* calculated as the market value per share divided by the book value per share.

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

The descriptive statistics of the CSR and non-CSR firms are reported in Table 2, which shows that in both the pre- and post-event periods, the financial performance (*ROA*, *ROE*) of CSR firms was superior to that of non-CSR firms, a result which is consistent with the conclusions of Wei et al (2018). Both the *Size* and *Age* variables are found to be higher for CSR firms than non-CSR firms, which suggests that CSR firms are generally larger than non-CSR firms, with longer tenure and higher stability within their industry. We also find that *Turn* was lower for CSR firms than non-CSR firms, which indicates that investors tend to hold on to their stocks in CSR firms for longer periods of time, as opposed to pursuing short-term investment gains.

Table 2: Sample descriptive statistics

Variables	CSR Firms				Non-CSR Firms			
	Min.	Max.	Avg.	S.D.	Min.	Max.	Avg.	S.D.
Panel A: Pre-event								
Financial performance								
ROA	-0.26	8.62	3.3318	1.7938	-8.07	35.90	2.9866	3.4491
ROE	-4.78	37.64	4.1851	4.2809	-28.81	21.86	2.9784	3.6987
Stock performance								
CAR	-36.63	21.52	-1.4237	10.0663	-43.81	90.10	-0.4311	13.8851
Control variables								
P/B	0.57	9.17	2.3080	1.4255	0.14	13.12	1.8474	1.5013
Lev	14.20	85.86	48.8894	17.4000	8.34	73.81	45.7255	14.8312
Turn	0.54	81.84	10.6917	15.5483	0.24	234.07	13.9348	20.0780
Size	14.03	19.92	17.3563	1.4487	13.81	20.13	16.9132	1.2671
Age	8.00	69.00	32.3011	12.2750	2.00	67.00	30.9156	13.9550
Panel B: Post-event								
Financial performance								
ROA	-7.51	8.37	3.0148	2.13782	-5.21	13.68	2.9376	2.22330
ROE	-1.85	12.09	3.8716	2.64051	-16.58	13.67	2.9912	2.94361
Stock performance								
CAR	-124.22	38.75	-5.8038	29.06184	-124.22	137.13	-8.8360	37.39897
Control variables								
P/B	0.61	11.86	2.4148	1.80080	0.13	16.75	1.7302	1.58172
Lev	12.62	85.26	51.7231	16.12728	8.95	74.28	46.9311	14.32042
Turn	0.30	48.02	8.7225	9.90589	0.20	199.55	12.9335	23.03774
Size	14.06	19.91	17.4154	1.44276	13.97	20.16	16.9619	1.26293
Age	8.00	69.00	32.3011	12.27503	2.00	67.00	30.9156	13.95497

Notes: CSR (corporate social responsibility) takes the value of 1 for CSR firms and 0 for non-CSR firms; *ROA* (return on assets) = net income/total assets at the end of the period; *ROE* (return on equity) = net income/ total equity; *CAR* (cumulative abnormal returns) are calculated by the TEJ event study; *P/B* (Price-Book ratio) is calculated as the market value per share divided by the book value per share; *Lev* (leverage ratio) = total debt/total assets; *Turn* (turnover) = total circulation/circulating shares. *Size* (firm size) = natural logarithm of total assets; *Age* (firm age) = years of establishment - year before receiving an award.

4.2 Correlation Analysis Results

The results of our analysis of the correlation coefficients are reported in Table 3, which reveals positive correlations between CSR and both financial (*ROA*, *ROE*) and stock (*CAR*) performance. CSR is found to be positively correlated with *Age* and *Size* and negatively correlated with *Turn*, thereby clearly indicating that participation in CSR provides investors with confidence, encouraging them to hold on to their stocks for longer periods of time, as opposed to pursuing short-term investment gains. It is also likely that CSR firms have a stronger enterprise structure which would enable such firms to naturally behave in socially-responsible ways.

Table 3 Pearson correlation coefficient matrix

	CSR	P/B	ROA	Lev	Turn	ROE	Size	Age
P/B	0.164**							
ROA	0.036	0.412**						
Lev	0.118**	-0.108**	-0.260**					
Turn	-0.087**	0.054	0.038	-0.056*				
ROE	0.138**	0.469**	0.670**	-0.081**	0.075**			
Size	0.153**	-0.140**	-0.013	0.410**	-0.124**	0.000		
Age	0.047	-0.193**	-0.156**	0.047	-0.178**	-0.107**	0.136**	
CAR	0.017	0.092**	0.052	-0.062*	0.195**	0.076**	-0.130**	0.013

Notes:

1 See Table 2 for the definitions of all of the variables referred to in this table.

2 *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

4.2.1 CSR and financial performance

Panel A of Table 4 shows that for the full sample of firms, CSR had a significantly negative impact on *ROA* (coefficient: -0.279), which is contrary to our Hypothesis 1, and indeed, the same conclusion is again drawn from further analysis of the 2016-2017 variable data.

A possible reason for this is that although the samples were collected from the Global Views and Common Wealth magazines between 2016 and 2018, the number of award-winning firms was already starting to increase, from 40 to 65, from 2015 onwards. This increase included both CSR-participating firms and award-winning firms, which may have resulted in the lack of consideration of enterprise stability as a result of their blind pursuit of CSR activities.

Table 4 Regression results on CSR firms, by financial and stock performance

This table reports the regression results for the CSR firms, with Panels A, B and C respectively reporting the results for *ROA*, *ROE* and *CAR* as the dependent variables. The regression results are based upon the following regression models:

$$ROA \ / \ ROE \ / \ CAR = \alpha_0 + \alpha_1 CSR + \alpha_2 Size + \alpha_3 Age + \alpha_4 Lev + \alpha_5 Turn + \alpha_6 P/B + \varepsilon_{it}$$

Variables	All Samples			2016-2017 Sample Variables		
	Coeff.		t-value	Coeff.		t-value
Panel A: *ROA*						
Constant	-2.582	***	-2.836	-4.213	***	-2.717
CSR	-0.279	*	-1.862	-0.538	**	-2.108
P/B	0.270	***	3.403	0.102		0.589
Lev	-0.026	***	-4.176	-0.020	*	-1.787
Turn	-0.001		-0.304	-0.002		-0.317
Size	-0.709	***	-3.704	-0.674	**	-1.83
Age	-0.018	***	-3.671	-0.025	***	-2.926
Adj-*R²*	0.261			0.156		
Panel B: *ROE*						
Constant	-4.212	***	-3.587	-5.042	***	-2.661
CSR	0.189		0.98	0.015		0.049
P/B	0.367	***	3.575	0.281		1.334
Lev	0.021	***	2.668	0.039	***	2.909
Turn	0.008	*	1.732	0.011		1.306
Size	-1.454	***	-5.889	-1.500	***	-3.333
Age	-0.006		-0.975	-0.012		-1.135
Adj-*R²*	0.261			0.177		
Panel C: *CAR*						
Constant	30.464	***	2.962	17.450	*	1.565
CSR	3.206	*	1.894	1.653		0.901
P/B	3.595	***	4.003	0.45		0.362
Lev	-0.153	**	-2.205	-0.180	**	-2.269
Turn	0.275	***	7.213	0.382	***	7.797
Size	4.215	**	1.95	4.193	*	1.583
Age	0.151	***	2.703	0.073		1.193
Adj-*R²*	0.063			0.096		

Notes:
[1] See Table 2 for the definitions of all of the variables referred to in this table.
[2] *** indicates significance at the 1% level; ** indicates significance at the 5% level; and * indicates significance at the 10% level.

Chen, Wang and Hung (2017) concluded that firms fulfilling their CSR activities under robust corporate governance structures – such as management stock holdings, the stock holding of major stockholders, the General Manager holding a concurrent position as President of the Board, the size of the Board, the ratio of independent directors and the stock holdings of institutional investors – helped to promote firm value and improve operational performance.

Conversely, the blind pursuit of CSR activities by firms with weak corporate governance structures would have resulted in setbacks, which would not only have led to the inability to increase firm value and the operational performance of the firm, but also compromised its operational efficiency, thereby leading to proxy problems. As shown in Panel B of Table 4, *CSR* was not found to have any significant impact on *ROE*, which is consistent with the findings within the extant related literature.

4.2.2 CSR and stock performance

According to Panel C of Table 4, *CSR* was found to be significantly and positively correlated with *CAR* (coefficient: 3.206), which is consistent with the conclusions of Wei et al. (2018) and thereby provides support for our Hypothesis 2. When a firm is able to fulfill its CSR goals, this will clearly help to increase its reputation and project a good impression on investors, which will, in turn, further improve the firm's stock performance; this is consistent with the findings of Kong (2012), that corporate social responsibility has a profound effect on abnormal returns in the long run.

4.2.3 CSR and US-China Trade War

In this section, we investigate whether, when faced with systemic risks (such as the US-China trade war), the benefits of CSR commitment can help a firm to survive the risk or reduce the impact on its financial and stock performance. To address this question, we follow the setting of Lins et al. (2017) and use a difference-in-differences (DID) model to isolate the effects of CSR during US-China Trade War. We estimate the following model:

$$ROA \text{ / } ROE \text{ / } CAR = \alpha_0 + \alpha_1 CSR \times Pre + \alpha_2 CSR \times Post + \alpha_3'\mathbf{X}$$
$$+Time\ Dummies + \ Firm\ Fixed\ Effects + \varepsilon_{it}, \quad (6)$$

where, *ROA* is net income/total assets at the end of the period; *ROE* is net income/total equity; *CAR* is calculated by the TEJ event study; *CSR* takes the value of 1 (0) for CSR (non-CSR) firms; *Pre* is a dummy variable set to one in the period before March 2018, *Post* is a dummy variable set to one in the period after March 2018; **X** is a vector of control variables. The control variables are the firm financial characteristics employed in Table 2, but updated annually (accounting variables) or monthly (market-based variables). Time dummies are specified at the quarterly level and firm fixed effects control for time-invariant omitted risk factors. The firm's *CSR* itself is absorbed by the firm fixed effects.

As we can see from Tables 5, the correlation between *CSR* and *ROA* changed from insignificant prior to the US-China trade war, to significantly negative after the trade war. We surmise that when a firm is faced with a systemic risk affecting its entire assets, and the risk cannot be averted or reduced by creating an asset portfolio, this will inevitably lead to an increase in operational costs as the firm finds itself faced with unavoidable risks in its pursuit of CSR. This would have led to the correlation between *CSR* and *ROA* becoming significantly negative after the US-China trade war.

Table 5 Firm performance surrounding the US-China trade war and CSR

This table reports the regression results on the impact of CSR on firm performance in the one- and two-quarter periods surrounding the US-China trade wars. The regression results are based upon the following regression models:

$$ROA \text{ / } ROE \text{ / } CAR = \alpha_0 + \alpha_1 CSR \times Pre + \alpha_2 CSR \times Post + \alpha_3'\mathbf{X}$$
$$+Time\ Dummies + \ Firm\ Fixed\ Effects + \varepsilon_{it},$$

Panel A: Surrounding the ($-T_1$, T_1) periods						
Variables	ROA		ROE		CAR	
$CSR \times Pre$	-0.003		0.005		0.040	**
	(0.003)		(0.004)		(0.025)	
$CSR \times Post$	-0.023	**	0.001		0.002	
	(0.003)		(0.004)		(0.025)	
$\mathbf{X}$ (control variables)	Yes		Yes		Yes	
Time (quarterly) fixed effects	Yes		Yes		Yes	
Firm fixed effects	Yes		Yes		Yes	
N	1,760		1,760		1,760	
Adj-R^2	0.255		0.264		0.057	
Panel B: Surrounding the ($-T_2$, T_2) periods						
Variables	ROA		ROE		CAR	
$CSR \times Pre$	-0.002		0.001		0.032	**
	(0.005)		(0.005)		(0.028)	
$CSR \times Post$	-0.004	**	0.001		0.002	
	(0.005)		(0.005)		(0.028)	
$\mathbf{X}$ (control variables)	Yes		Yes		Yes	
Time (quarterly) fixed effects	Yes		Yes		Yes	
Firm fixed effects	Yes		Yes		Yes	
N	1,200		1,200		1,200	
Adj-R^2	0.211		0.240		0.052	

As shown in Tables 5, the correlation between *ROE* and *CSR* was found to be insignificant in both the pre-and post-event periods, which is in line with the findings within the extant literature.

The correlation between *CAR* and *CSR* in the pre- and post-event periods can also be calculated from Tables 5, from which we find that the correlation changed from significantly positive in the pre-event period, to insignificant in the post-event period. Obviously, when encountering systematic risk, the stock price of all companies will be affected, even CSR award-winning companies are inevitably affected. However, whether CSR can reduce the impact of systematic risk can be observed from Table 6.

Table 6 Firm performance and changes in the pre- and post-US-China trade war periods

Variables	ROA		ROE		CAR	
	CSR	Non-CSR	CSR	Non-CSR	CSR	Non-CSR
Panel A: Firm performance (%)						
Pre-event periods						
$(-T_2, 0)$	3.46	2.91	4.00	2.86	-2.03	0.41
$(-T_1, 0)$	3.20	3.07	4.37	3.09	-0.82	-1.27
Avg.	3.33	2.99	4.19	2.98	-1.42	-0.43
Post-event periods						
$(0, T_1)$	2.94	2.89	3.65	2.83	-5.58	-6.75
$(0, T_2)$	3.09	2.98	4.09	3.16	-6.02	-10.92
Avg.	3.01	2.94	3.87	2.99	-5.80	-8.84
Panel B: Changes in performance (%)						
Pre- and post-event periods						
$(-T_1, T_1)$	-0.27	-0.17	-0.72	-0.27	-4.77	-5.49
$(-T_2, T_2)$	-0.37	0.07	0.10	0.29	-3.99	-11.32
Avg.	-0.32	-0.05	-0.31	0.01	-4.38	-8.40

The results reported in Table 6 provide the answer to the question of whether fulfilling CSR can help to protect the performance of a firm against systemic risks (US-China trade war). As the table shows, the average *ROA* was found to have declined by 0.32% from the pre-event period for CSR firms, whereas it was only reduced by 0.05% for non-CSR firms, thereby suggesting that participation in CSR did not provide any protection for the *ROA* of CSR firms; clearly, this does not provide support for our Hypothesis 3, and a potential reason for this is that since CSR firms tend to be larger in size, and thus, also tend to have reduced flexibility, there is an increased likelihood of these firms responding more slowly than non-CSR firms to systemic risks.

Another possible reason is as described in Table 6, that the change to a significantly negative correlation between *CSR* and *ROA* in the post-event period may be attributable to the firms encountering an increased operational burden in their attempts to fulfil their CSR activities when faced with such risk. Tables 5 both reveal an insignificant association between *CSR* and *ROE*, which is consistent with both the prior related studies and our Hypothesis 1; thus, we will pursue no further investigation in this study on the presence or absence of CSR protection for a firm's ROE during a period of systemic risk, such as the US-China trade war.

As regards *CAR*, as shown in Table 6, the average value in the pre- and post-event periods declined by 4.38% for CSR firms and 8.40% for non-CSR firms, with the reduction in the average *CAR* value being smaller for the CSR firms. Regardless of whether we carry out a comprehensive examination of the full sample of observations or just

quarterly observations, a smaller reduction is discernible in the average *CAR* after the systemic risk event for all CSR firms. In other words, commitment to CSR is indeed found to provide firms with protection against systemic risks (US-China trade war). This result provides support for our Hypothesis 4 and is also consistent with the findings of Chen et al. (2015), that participation in CSR has a risk management effect on stock prices and a long-term dampening effect on stock volatility; that is to say, "good will be rewarded with good".

This finding is also consistent with the empirical results reported by Kao et al. (2016), in which it was noted that firms fulfilling their CSR activities had a significantly negative correlation with total risk, thereby providing support for the 'risk reduction' hypothesis. Our finding is also in line with that of Godfrey (2005), who suggested that CSR acted as insurance-like protection for firm value, indicating that participation in CSR also serves as a risk management tool. As demonstrated by Wei et al. (2018), the positive image projected by CSR firms helps to build a good company image among investors and improve the overall performance of the firm in the stock market.

5. CONCLUSIONS

Greater attention has been paid over recent years to the issue of 'corporate social responsibility' (CSR), with various theories and opinions emerging from different disciplines. In this study, we discuss protection against the effects of the US-China trade war through participation in socially-responsible activities by analyzing CSR award-winning firms selected from the Global Views and Common Wealth magazines, and by obtaining samples of non-CSR firms based on matching criteria.

Our empirical results first of all demonstrate that no positive correlation is discernible between the systemic risk event and the financial performance of CSR firms, although a positive correlation is observed between the systemic risk event and the stock performance of these firms. We therefore draw the conclusion that participation in CSR helps a firm to project a favorable reputation and a good impression among investors, which is eventually reflected in the firm's stock performance. As a result, many firms are likely to have rushed blindly into CSR, with some of these firms having failed to consider their own capabilities, and indeed, they may have overestimated the robustness of the firm's operations. This could easily result in the paradoxical phenomenon of a positive correlation with stock performance alongside a negative correlation with financial performance.

Our empirical findings also confirm that when firms are faced with a systemic risk (such as the US-China trade war), the protection of the financial performance of CSR firms was no better than that of non-CSR firms; however, better protection of stock performance was observed for CSR firms as compared to the stock performance of non-CSR firms. We conclude that during a period of systemic risk (US-China trade war), there is no discernible protection of the financial performance of CSR firms given that they are bigger than non-CSR firms, and as such, it may be that their flexibility to change is more constrained. Furthermore, it is likely that the CSR firms may be faced with higher operational costs in continuing to ensure that they behave in socially-responsible ways.

The creation of insurance-like protection was, nevertheless, discernible for firm value, since the stock performance of the firms was found to be protected by their continuing participation in CSR activities during a period of systemic risk (US-China trade war). It is also likely that their participation in CSR would have improved investor confidence, thereby helping to minimize stock volatility.

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