The Relationship between Corporate Social Responsibility and Abnormal Return: Mergers and Acquisitions Events

Review of Integrative Business & Economics Research

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ABSTRACT

The purpose of this study is to investigate the relationship between corporate social responsibility (CSR) and stock returns using samples of mergers and acquisitions (M&A) in Taiwan. The good or bad practices of CSR within companies may, however, result from other factors, such as industry characteristics and management styles. Thus, the Heckman (1979) two-stage method is applied to resolve the endogeneity of CSR, and by using the sample selection model the relationship between corporate social responsibility and stock returns is examined. The traditional model estimation bias can thus be reduced, and the study helps explain the inconsistency of past research results. In examining whether CSR will continue to affect a company's long-term stock price performance, this study follows the four-factor model of Carhart (1997) and discusses the abnormal stock returns of the company in the three years after the completion of the M&A.

Keywords: Corporate social responsibility, Mergers and acquisitions, Abnormal stock returns, Heckman two-stage method.

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1. INTRODUCTION

Corporate social responsibility (CSR) is becoming increasingly more important. Company objectives are thus not only to maximize profit but also to be responsible to stakeholders. CSR has become a method companies in various fields use to meet social expectations. It can express their concern for employees, customers, upstream and downstream manufacturers, communities, and the environment. In Taiwan, food and environmental issues emerged in 2014. The desire of companies to earn short-term benefits, and to disregard public health and integrity management, demonstrates that they are implementing CSR deficiencies and necessity**.**

Although the importance of CSR investment in business operations has increased, managers are still hesitant to implement CSR. There is a long-standing debate in the research about whether companies are obliged to implement social responsibility. For example, Chen et al. (2014) pointed out that companies with better social responsibility

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performance reflect lower stock price rewards. Lloyd (2018) found in the energy sector that the correlations between CSR and most financial performance indicators have no statistical significance. Other studies provide evidence that social responsibility behavior will benefit a company's stock price and enhance the welfare of shareholders (Hall and Rieck,1998; Ramchander et al., 2012; Flammer, 2013; Lyon and Shimshack, 2015). The value of an enterprise depends not only on the explicit cost of investors, but also on the hidden costs of stakeholders. Therefore, in this study we assess the impact of corporate social responsibility on abnormal returns in the long and short term.

In addition, M&As involve the interests of many stakeholders, so represent the best time to undertake and review CSR. First, when companies adopt M&A events, the implementation of M&A activity can result in changes to the enterprise itself and externally. The interests of not only shareholders but also the company's employees, customers, and other parties, and of the local society, are affected. These stakeholders thus have a significant influence on the process of M&A. According to Bekier and Bogardus (2001), during the M&A period if a manager fails to effectively deal with the relationship with the stakeholders, key employees and customers will be lost. Therefore, satisfaction with companies with high CSR stakeholders may be higher than those with low CSR, so a high CSR company's shareholders can benefit further from M&As. Second, the M&A event is an unanticipated and risky behavior, and the use of its announcement returns in the analysis can alleviate the reverse causality problem between CSR and firm value (Deng, 2013). Therefore, M&A is an important event through which the impact of CSR on shareholders' wealth can be examined. To summarize, this study examines the impact of corporate social responsibility on stock performance with a sample of Taiwanese M&A events.

The results of the study are expected to demonstrate that companies with good CSR performance can generate positive average abnormal returns during the declaration period and three years after the completion of the M&A. Thus, it can be inferred that corporate investment in social responsibility activities can bring positive benefits to shareholders, and encourage enterprises to formulate strategic practical methods and aims in light of organizational goals and operational advantages, and to take into account their own interests while fulfilling their social responsibilities, to achieve the sustainable development of both the enterprises and society.

2. SAMPLE CHARACTERISTICS

Our sample is of companies that have successfully acquired other companies in Taiwan. The sample period observed is from January, 2008 to December, 2014. The research object excludes the financial, securities, and investment trust industries and incomplete information. In addition, the long-term stock performance in the three years after the completion of the M&A is calculated. Therefore, the research period is from January 2008 to December 2017, which is a total of 10 years. The data were collected from the Taiwan Economic Journal Database (TEJ) and the Taiwan Market Observation Post System.

3. METHODOLOGY

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3.1 The score of corporate social responsibility

Taiwan does not currently have a large database to measure corporate social responsibility performance, and most of the domestic literature uses magazine-selected companies as samples, but this makes the research sample limited and is not appropriate for the sample of mergers and acquisitions in this study. Therefore, considering the difficulty of information acquisition, we refer to the KLD database, the Common Wealth Magazine, and the CSR scoring project of Chen et al. (2013). The four main aspects of CSR are corporate commitment, social participation, environmental protection, and information disclosure, and are constructed to classify samples as good or bad practices of social responsibility. These four aspects of the CSR scoring project are discussed as follows.

Items in the form will be given 1 point or 0 points, up to a total of 11 points, if they are included or not in the table; if the value is quantifiable, the scores of all the samples will be divided into 10 levels, and the phases will be given corresponding scores, up to a total of 5 points. For example, employee benefits are a positive indicator of corporate commitment. By assuming a company's total employee benefits divided by the number of employees is ranked in the top 24% of all sample companies, then the project provides the company with 0.76 points. Each company's social responsibility score for the year is the sum of the scores for all items. Finally, the CSR scores of the sample companies are ranked in descending order. The top 50% are high CSR companies, and the remaining 50% are low CSR companies.

3.2 Event study

Under the hypothesis of market efficiency, event study is the purpose of the discussion when an event occurs (e.g., this study explores M&A events). When market investors respond immediately after receiving the message, this can cause abnormal changes in stock prices, and thus produce abnormal returns (AR), so the information declared (events) can be used to understand how the market stock price fluctuations are correlated with a particular event.

The first step in using event study in this research is to define the M&A news released on the date of the Market Observation Post System for the event day, as if the announcement comes on a day when the stock market was closed, this will be declared and adjusted to open on the next day of the market. The second step refers to the literature and an estimation period of stock returns is established, based on the past 160 to 11 trading days from the M&A announcement date (event date), and then establishes the effect of the observation of the event on the five trading days before and after the announcement day. The following figures illustrate the estimation period and the event period.

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Table 3.1 Corporate social responsibility scoring project

Major aspects	Project	Method
Corporate commitment	Employee pension	Pension provision amount/number of employees
	Employee benefits	Total employee benefits/number of employees
	Salary	Salary expenses/number of employees
	Research development	R&D expenses/net sales revenue
	Turnover rate (reverse)	Employee turnover rate
Social participation	Corporate donation Foundation Volunteer service Corporate illegal situation (Reverse)	With or without in the current year
Environmental protection	Formulate environmental policy conserve energy and reduce carbon Set up special units Acquired ISO14001 certification Environmental fines (reverse)	With or without in the current year
Information disclosure	Announcement of corporate social responsibility information Prepare CSR report	With or without in the current year

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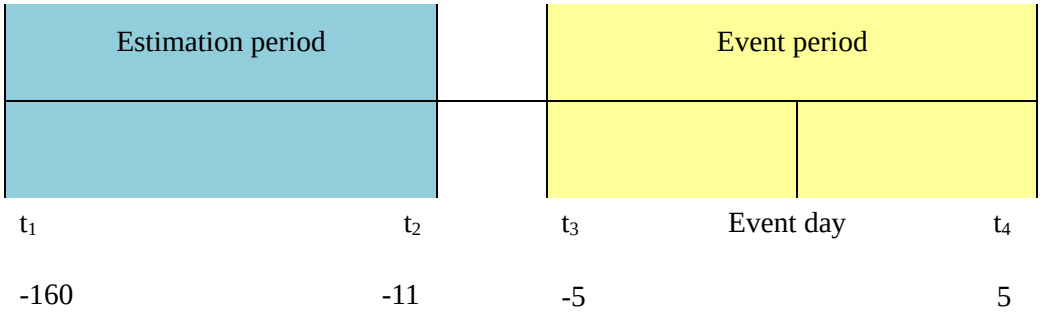
Figure 3.1 Event study interval



Mean adjusted, market adjusted, and the market model returns are three common procedures to calculate abnormal returns. The most commonly used is the market model, which controls for the historical relationship between the abnormal returns of a firm with the abnormal returns to an index.

The abnormal return is the difference between actual and predicted stock returns during a specific time period around the announcement day. The actual return for stock I on day t is given by

$$R_{i,t} = \alpha + \beta_i \times R_{m,t} + \varepsilon_{i,t}$$

R_{mt} is the return on a market portfolio (Market Index) for day t. The parameter estimates α_i and β_i are obtained by using all available date for trading days -160 to -11 relative to the event date, and ε_{it} is a stochastic error term.

The abnormal returns are computed as follows:

$$AR_{i,t} = R_{i,E} - (\hat{\alpha}_i + \hat{\beta}_i \times R_{m,E})$$

Where $(\hat{\alpha}_i + \hat{\beta}_i \times R_{m,E})$ is the predicted stock return base on 150 day estimated period, and $R_{i,E}$ is the actual return of stock i in event-time period E.

Finally, the average abnormal returns are computed as follows:

$$AAR_E = \frac{\sum_{i=1}^{n} AR_{i,E}}{n}$$

Where n is the number of all sample companies

If the market is efficient, security prices should reflect all potential changes in the event outcomes. That is, if the required rate of return on a stock around the event day is identical to that of any other random trading day, one should not be able to make excess returns by trading around all of these event days.

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Finally, the average abnormal volume ratio is computed as follows:

$$AAVR_E = \frac{\sum_{i=1}^{n} VR_{i,E}}{n}$$

where n is the mean number of all sample companies.

3.3 Heckman two-stage model

This study follows Heckman's (1979) two-stage estimation method, which attempts to correct the errors in sample selection, resulting in an overestimation or underestimation of the relationship between corporate social responsibility and stock price remuneration. This research process is as follows. Whether the CSR performance is a self-selected behavior or a random state is considered in the first stage. The factors that affect CSR are therefore first estimated and the inverse Mills ratio is then calculated as a correction of the selection bias factor. If the sample selection correction factor reaches a significant level, it means that companies with high CSR have different stock price reward models to those with low CSR, and there are unobservable or unobserved factors that affect share price compensation. In the second stage, when testing the relationship between CSR and accumulated abnormal returns, companies with high and low CSR performance were modeled separately and included in an inverse Mills ratio to correct sample selection bias. The correction bias makes the estimation of the regression coefficient unbiased and approaches the normal distribution, attempting to avoid the errors of the traditional regression model estimation. Therefore, the model is as follows.

In the first step of our analysis, we estimate a profit regression with a dummy variable for whether the firm has better CSR as the dependent variable and include additional controls in:

$$CSR_i *= \alpha' Z_i + \mu_i$$

The variables are as follows:

CSR_i: A dummy variable equal to 1 if the company has better corporate social responsibility, and 0 otherwise.

Z_i are the independent variables that influence corporate social responsibility, and are $Duality\_dum_i$, $Dirship_i$, $Pledge_i$, $Family_i$, $Size_i$ and $Tech_i$.

$Duality\_dum_i$: A dummy variable equal to 1 if the chairman and general manager are the same person, otherwise is 0.

$Dirship_i$: The proportion of shares owned by the director and supervisor.

$Pledge_i$: The proportion of board pledge.

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$Family_i$: A dummy variable equal to 1 if the company is a family corporation, otherwise is 0.

$Size_i$: Firm size, defined as the natural log of a firm's total assets.

$Tech_i$: A dummy variable equal to 1 if the company is an electronic industry and 0 otherwise.

In the second stage of our selection model approach, we estimate the cumulative abnormal returns (CAR) as the dependent variable. The set of control variables in the second-stage regression includes the financial variables:

$$CAR_{0i,t} = \beta'_0 X_{it} + \beta_{\lambda 0}\lambda_{0it} + \varepsilon_{0it} \ , if \ CSR_i = 0$$

$$CAR_{1i,t} = \beta'_1 X_{it} + \beta_{\lambda 1}\lambda_{1it} + \varepsilon_{1it} \ , if \ CSR_i = 1$$

according to the equation, $\beta_{\lambda 0} = \sigma_{0\mu}$, $\beta_{\lambda 1} = \sigma_{1\mu}$.

The variables are as follows:

$CAR_{i,t}$: The cumulative abnormal returns on the period of t, for firm i.

X_{it} are the independent variables that influence stock returns on the period of t, for firm i, and are $Duality\_\_dum_{it}$, $Dirship_{it}$, $Pledge_{it}$, $Size_{it}$, $Tech_{it}$, $Debt_{it}$, Cr_{it} and Roa_{it}, and the variables explanation are as follows:

$Dirship_{it}$: The proportion of shares owned by the director and supervisor on the period of t, for firm i.

$Pledge_{it}$: The proportion of board pledge on the period of t, for firm i.

$Size_{it}$: Firm size, defined as the natural log of total assets on the period of t, for firm i.

$Tech_{it}$: A dummy variable equal to 1 if the company is an electronic industry, and 0 otherwise.

$Debt_{it}$: Debt ratio on the period of t, for firm i. We define the debt ratio as the total debt/total assets.

Cr_{it}: Current ratio on the period of t, for firm i. We define the current ratio as the current assets/current liabilities.

Roa_{it}: The return on assets on the period of t, for firm i. We define the return on assets as the net income/average assets.

λ: Sample selection variables, mainly used to correct sample estimation error from censored sample normal distribution.

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λ_1: $\phi(\alpha' Z_i)/\Phi(\alpha' Z)$, if the firm has high corporate social responsibility.

λ_0: $\phi(\alpha' Z_i)/\Phi(\alpha' Z_i)-1$, if the firm has low corporate social responsibility.
$\phi(.)$ and $\Phi(.)$ are standard normal density and the distribution function.
$(\alpha' Z)$ is the predicted value from the Probit model; $\alpha' Z$ is the stock return difference between the firms with high and low CSR.

3.4 Four-factor model

This study uses the robust Carhart's (1997) four-factor model to measure the average long-term stock remuneration, enabling us to examine whether corporate social responsibility will affect the long-term stock returns of the main company when the merger is completed. The model is as follows:

$$R_{i,t} - R_{f,t} = \alpha + \beta_1(R_{m,t} - R_{f,t}) + \beta_2 SBM_t + \beta_3 HML_t + \beta_4 UMD_t + \varepsilon_t$$

We consider 12 months, 24 months, and 36 months after the completion of mergers and acquisitions. Here, α is Jensen's alpha, which is the average monthly abnormal return; $(R_{i,t} - R_{f,t})$ is a stock risk premium, which refers to the t-month month's stock price $(R_{i,t})$ decrease and the risk-free interest rate for the month t $(R_{f,t})$; $(R_{m,t} - R_{f,t})$ is a market factor risk premium; SBM_t is the size factor premium; HML_t is the net market price premium; and UMD_t is the kinetic energy factor.

4. EMPIRICAL RESULTS

The research methods proposed in Chapter 3 are analyzed in this chapter, which is divided into three sections. The first presents the descriptive statistics of the samples. The second provides an analysis of the factors that influence the social responsibility of enterprises in the two-stage selection model, and the influence of social responsibility on stock return when the company publishes the merger announcement. In the third section, the four factor model is used to analyze whether CSR will affect the long-term stock return of the company after the completion of the M&A.

4.1 Descriptive statistics analysis

Our sample is companies that have successfully acquired other companies in Taiwan. A total of 59 companies were selected as samples. According to the CSR scoring standard in the previous chapter, 30 companies have high CSR and 29 low CSR. The sample companies are also divided into the electronic industry and other industries to clarify the sample distribution, and then the proportion of sample distribution is calculated, as shown in Table 4.1.

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Table 4.1 Sample distribution

Year	2008	2009	2010	2011	2012	2013	2014	Total
Full sample	8	11	7	6	11	7	9	59
Electronic industry	5	10	5	6	8	4	6	44
Other industries	3	1	2	0	3	3	3	15
Subsample with high CSR	3	4	3	5	6	5	4	30
Subsample with low CSR	5	7	4	1	5	2	5	29
Proportion of high CSR	38%	36%	43%	83%	55%	71%	44%	51%
Electronic industry								
high CSR	2	3	2	5	5	2	2	21
low CSR	3	7	3	1	3	2	4	23
Proportion of high CSR	40%	30%	40%	83%	63%	50%	33%	48%
Other industries								
high CSR	1	1	1	0	1	3	2	9
low CSR	2	0	1	0	2	0	1	6
Proportion of high CSR	33%	100%	50%	-	33%	100%	67%	60%

Table 4.2 presents the overall sample descriptive statistics, which measure the impact of the company's stock return on the issuance of mergers and acquisitions information by the cumulative abnormal return rate of each unit. The mean of Car(0, 1) is obviously greater than the cumulative abnormal return rate before the incident day, and Car(0, 2), Car(0, 4), and Car(0, 5) show an upward trend. Therefore, it can be assumed that the release of corporate M&A news will have an impact on stock returns. The mean of the CSR variables shows that more than half of the companies with good corporate social responsibility had a mean of industrial virtual variables of 0.746, indicating that the demand for mergers and acquisitions in the electronics industry was significantly higher during the study period. The electronics industry accounts for more than 70% of the entire sample.

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Table 4.2 Descriptive statistics for all samples

	Mean	SD	Median	Min	Max
Car(-5, 0)	0.238	3.570	-0.134	-8.197	9.513
Car(-4, 0)	0.421	3.771	0.135	-9.054	13.540
Car(-3, 0)	0.500	2.916	-0.080	-7.565	9.742
Car(-2, -0)	0.531	3.006	0.133	-6.345	9.601
Car(-1, 0)	0.254	4.631	-0.641	-12.627	14.350
Car(0, 1)	0.944	5.051	0.371	-12.259	13.430
Car(0, 2)	0.434	5.361	0.146	-10.047	13.170
Car(0, 3)	-0.425	4.294	-0.365	-8.773	14.982
Car(0, 4)	0.513	3.339	0.234	-5.542	12.377
Car(0, 5)	0.558	4.157	0.030	-12.068	13.925
CSR	0.508	0.504	1.000	0.000	1.000
Duality_dum	0.271	0.448	0.000	0.000	1.000
Dirship	22.753	15.548	17.970	5.680	73.650
Pledge	9.261	16.170	0.000	0.000	57.390
Family	0.492	0.504	0.000	0.000	1.000
Size	23.043	1.873	22.671	19.642	26.842
Tech	0.746	0.439	1.000	0.000	1.000
Debt	43.382	16.585	45.090	11.080	76.540
CR	223.714	130.183	189.090	49.910	610.070
ROA	5.634	9.942	4.810	-22.380	32.660

The sample data were further classified into the two subsamples of high and low CSR, to examine whether there were significant differences in their coefficients. Table 4.3 gives the independent sample T-tests for the two subsamples and finds that before the event dates Car(-5, 0), Car(-3, 0), and Car(0, 1), Car(0,5) both achieved a significant level of 5% or more. The mean of accumulated abnormal returns shows that companies with good social responsibility were negative before the event date. There are significant differences in the impact of corporate social responsibility on stock returns. In addition, when examining the factors affecting corporate social responsibility in the first phase, Table 4.3 shows that high CSR companies have

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significant differences from those with low CSR in corporate governance related variables such as Duality_dum, Dirship, and Pledge, which attain significant levels. This demonstrates that companies with good CSR may have specific company attributes, which contributes to the empirical analysis of this study.

To further test whether there is multicollinearity between the explanatory variables that can affect the model result, we examined the variables of the correlation coefficient analysis, and give the relationship of variables between the sequence in Appendix 1. The Pearson correlation coefficient analysis shows that 10 cumulative abnormal returns (Car) have a moderate relationship, and the rest of the independent variables have moderate or low correlations, so when conducting regression analysis the influence of complex collinearity between independent variable will be negligible.

Table 4.3 Descriptive statistics for subsamples

	High CSR(N=30)				**Low CSR (N=29)**				**T-test**
	Mean	Median	Min	Max	Mean	Median	Min	Max	**t 值**
Car(-5, 0)	-0.023	2.140	-0.099	-6.080	0.974	2.783	0.970	-5.213	-1.497***
Car(-4, 0)	0.032	1.898	-0.224	-6.246	0.848	2.445	-0.156	-3.711	-0.245
Car(-3, 0)	-0.162	1.399	0.029	-4.006	0.789	2.029	0.267	-3.362	0.799**
Car(-2, -0)	-0.271	1.317	-0.216	-3.674	0.755	1.931	0.094	-1.942	0.085
Car(-1, 0)	-0.227	1.422	-0.373	-4.574	0.400	1.826	-0.250	-2.040	-0.932
Car(0, 1)	0.318	2.225	-0.213	-3.716	0.629	1.851	0.518	-2.213	-0.410**
Car(0, 2)	0.141	2.474	0.145	-5.249	0.423	2.661	-0.098	-3.200	0.283
Car(0, 3)	0.291	2.366	-0.290	-4.813	0.296	3.292	-0.398	-4.083	-0.490
Car(0, 4)	0.316	2.496	-0.479	-3.649	0.657	3.486	0.470	-3.949	-1.907*
Car(0, 5)	0.181	2.355	-0.634	-3.233	0.882	3.810	0.134	-5.498	-1.474**
Duality_dum	0.200	0.000	0.000	1.000	0.345	0.000	0.000	1.000	1.243**
Dirship	18.016	15.545	5.680	37.850	27.654	21.570	9.000	73.650	2.459***
Pledge	12.160	1.495	0.000	57.390	6.262	0.000	0.000	44.990	-1.421**
Family	0.467	0.000	0.000	1.000	0.517	1.000	0.000	1.000	0.382
Size	24.148	24.278	20.358	26.842	21.901	21.706	19.642	24.888	-5.767*
Tech	0.700	1.000	0.000	1.000	0.793	1.000	0.000	1.000	0.812
Debt	43.988	42.565	11.080	76.540	42.755	48.230	12.210	68.210	-0.283
CR	215.633	178.035	49.910	610.070	232.074	194.420	83.420	537.880	0.482
ROA	5.274	5.285	-13.510	22.370	6.006	4.570	-22.380	32.660	0.281

***, **, * represent 1%, 5%, and 10% of significant levels

4.2 Analysis of corporate social responsibility and M&A announcement

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Table 4.4 OLS analysis- CAR(-5,0), CAR(-4,0), CAR(-3,0), CAR(-2,0), CAR(-1,0)

$$CAR_{i,t} = \alpha_{it} + \beta_1 Duality\_dum_{it} + \beta_2 Dirship_{it} + \beta_3 Pledge_{it} + \beta_4 Size_{it} + \beta_5 Tech_{it} + \beta_6 Debt_{it} + \beta_7 Cr_{it} + \beta_8 Roa_{it} + \beta_9 CSR_{it} + \varepsilon_{it}$$

	CAR(-5,0)	CAR(-4,0)	CAR(-3,0)	CAR(-2,0)	CAR(-1,0)
Constant	-6.259 (-0.699)	-8.271 (-1.002)	-9.758 (-1.461)	-5.399 (-0.806)	2.090 (0.312)
Duality_dum	-2.171*** (-3.090)	-1.557** (-2.402)	-1.045* (-1.993)	-0.540 (-1.027)	-0.671 (-1.276)
Dirship	0.033 (1.509)	0.018 (0.898)	0.019 (1.194)	0.013 (0.801)	0.011 (0.675)
Pledge	-0.015 (-0.733)	-0.011 (-0.593)	-0.002 (-0.113)	0.008 (0.501)	0.003 (0.195)
Size	0.430* (1.824)	0.401* (1.842)	0.267 (1.516)	0.068 (0.387)	-0.048 (-0.273)
Tech	-1.210 (-1.664)	-0.766 (-1.143)	-0.451 (-0.830)	-0.156 (-0.288)	0.501 (0.921)
Debt	-0.028 (-0.936)	-0.014 (-0.500)	0.001 (0.033)	0.011 (0.503)	-0.009 (-0.387)
Cr	0.045 (0.046)	0.377 (0.413)	0.974 (1.321)	0.822 (1.112)	-0.113 (-0.153)
Roa	-0.058* (-1.688)	-0.060* (-1.877)	-0.054** (-2.093)	-0.049* (-1.903)	-0.026 (-1.002)
CSR	-1.988** (-2.577)	-1.753** (-2.464)	-1.467** (-2.547)	-1.139* (-1.973)	-0.502 (-0.869)
Adj-R2	0.316	0.247	0.251	0.180	0.115

***, **, * represent 1%, 5%, and 10% of significant levels

4.2.1 Ordinary least square method regression analysis

According to the analysis results in Tables 4.4 and 4.5, the virtual variable of corporate social responsibility is 5% significantly negatively related to CAR(-5,0), CAR(-4,0), and CAR(-3,0) before the announcement date of the M&A, indicating that the better CSR performance before the M&A announcement date, the more unfavorable the stock returns. Table 4.4 also shows that factors with a significant negative

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relationship before the event date include Duality_dum and ROA, indicating that they have a negative effect on the company's stock returns before the event date. In addition, the company's size also shows a significant positive relationship of 10% for CAR (-5,0) and CAR (-4,0), indicating that the size of the company has a positive influence on stock returns. Table 4.5 presents the regression results after the event date. Only Dirship has a significant positive relationship between CAR(0,3) and CAR(0,4). This result is in line with the "benefits" proposed by Jensen and Meckling (1976). The "convergence hypothesis" view holds that a higher shareholding ratio of managers can help reduce the conflicts of interest between managers and shareholders, lower the equity agency problem, and thus increase shareholder wealth.

Table 4.5 OLS analysis- CAR(0,1), CAR(0,2), CAR(0,3), CAR(0,4), CAR(0,5)

	CAR(0,1)	CAR(0,2)	CAR(0,3)	CAR(0,4)	CAR(0,5)
Constant	4.605	0.598	-1.001	-1.110	4.658
	(0.542)	(0.056)	(-0.087)	(-0.090)	(0.360)
Duality_dum	0.106	0.336	0.415	-0.179	-0.045
	(0.159)	(0.400)	(0.460)	(-0.185)	(-0.044)
Dirship	-0.001	0.030	0.057*	0.053*	0.047
	(-0.057)	(1.164)	(2.052)	(1.777)	(1.491)
Pledge	-0.018	-0.008	-0.020	-0.030	-0.029
	(-0.923)	(-0.314)	(-0.779)	(-1.070)	(-0.991)
Size	-0.105	-0.104	-0.031	0.117	0.152
	(-0.468)	(-0.368)	(-0.102)	(0.362)	(0.445)
Tech	-0.569	0.350	0.353	0.283	0.437
	(-0.824)	(0.403)	(0.378)	(0.283)	(0.416)
Debt	-0.012	-0.007	-0.008	-0.018	-0.052
	(-0.420)	(-0.187)	(-0.219)	(-0.444)	(-1.213)
Cr	-0.096	0.244	0.117	-0.241	-1.182
	(-0.102)	(0.206)	(0.092)	(-0.177)	(-0.828)
Roa	-0.017	-0.017	-0.030	-0.033	-0.005
	(-0.522)	(-0.406)	(-0.680)	(-0.695)	(-0.100)
CSR	-0.029	0.396	0.833	0.055	-0.468
	(-0.040)	(0.429)	(0.841)	(0.052)	(-0.420)
Adj-R2	0.066	0.056	0.118	0.096	0.095

***, **, * represent 1%, 5%, and 10% of significant levels

4.2.2 Heckman two-stage model analysis

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Whether CSR performance is a self-selection behavior or a random state is considered in the first stage. The factors affecting CSR are first estimated and three types of variables are incorporated: corporate governance, family business, and industrial characteristics. Table 4.8 shows the regression results for probit model analysis. Dividing the sample into the two subsamples shows whether the company's size and characteristics of the industry have reached a significant level, indicating that companies with good CSR have the characteristics of large companies and non-electronic industries. In addition, it is important that the λ (Inverse Mills Ratio, IMR) calculated from this probit model will control the regression estimation of the second stage from the sample selection model, which may produce sample-selection bias.

Table 4.6 Probit model

$$CSR_i = \alpha + \gamma_1 Duali\_dum_i + \gamma_2 Dirship_i + \gamma_3 Pledge_i + \gamma_4 Family_i + \gamma_5 Size_i + \gamma_6 Tech_i$$

	High CSR	Low CSR
	CSR=1	CSR=0
Constant	-11.586***	11.586***
	(-3.366)	(3.366)
DUALITY	-0.423	0.423
	(-0.908)	(0.908)
DIRSHIP	-0.019	0.019
	(-1.087)	(1.087)
PLEDGE	-0.013	0.013
	(-0.885)	(0.885)
FAMILY	0.096	-0.096
	(0.218)	(-0.218)
SIZE	0.561***	-0.561***
	(3.790)	(-3.790)
TECH	-0.852*	0.852*
	(-1.670)	(1.670)

***, **, * represent 1%, 5%, and 10% of significant levels

Tables 4.7 and 4.8 give the results of the regression analysis of the second-stage equation using the sample selection model for this study, and include the λ (Inverse Mills Ratio) calculated from the first stage (factors that influence the company's social responsibility) (IMR), and when the coefficient of λ is significant, it highlights the importance of controlling the sample selection error. The following provides an in-depth discussion and explanation.

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Table 4.7 Sample selection model- CAR(-5,0), CAR(-4,0), CAR(-3,0), CAR(-2,0), CAR(-1,0)

$$CAR_{0i,t} = \beta'_0 X_{it} + \beta_{\lambda 0}\lambda_{0it} + \varepsilon_{0it}, \quad if\ CSR_i = 0$$

$$CAR_{1i,t} = \beta'_1 X_{it} + \beta_{\lambda 1}\lambda_{1it} + \varepsilon_{1it}, \quad if\ CSR_i = 1$$

	CAR(-5,0)		**CAR(-4,0)**		**CAR(-3,0)**		**CAR(-2,0)**		**CAR(-1,0)**	
	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0
Constant	35.015**	-46.285*	28.581**	-49.686**	23.653**	-63.901***	21.737*	-52.756***	29.127**	-40.876**
	(2.369)	(-1.874)	(2.265)	(-2.208)	(2.514)	(-3.601)	(1.930)	(-3.125)	(2.333)	(-2.340)
Duality_dum	-1.009	-2.202**	-1.136	-1.075	-0.738	-0.639	0.272	-0.267	0.090	-0.473
	(-1.178)	(-2.563)	(-1.554)	(-1.372)	(-1.355)	(-1.035)	(0.417)	(-0.455)	(0.125)	(-0.778)
Dirship	0.051	-0.008	0.054	-0.029	0.049*	-0.034	0.038	-0.031	0.026	-0.021
	(1.201)	(-0.231)	(1.489)	(-0.885)	(1.786)	(-1.298)	(1.179)	(-1.241)	(0.715)	(-0.828)
Pledge	-0.004	-0.021	0.002	-0.027	0.028**	-0.065**	0.025*	-0.031	0.016	-0.029
	(-0.217)	(-0.513)	(0.144)	(-0.728)	(2.193)	(-2.178)	(1.688)	(-1.108)	(0.987)	(-0.989)
Size	-1.482**	2.763***	-1.357**	2.676***	-1.340***	2.777***	-1.188**	2.095***	-1.163**	1.583**
	(-2.278)	(2.641)	(-2.444)	(2.806)	(-3.235)	(3.693)	(-2.397)	(2.929)	(-2.116)	(2.138)
Tech	1.817	-4.357***	2.438**	-4.309***	2.122***	-3.787***	1.603*	-2.373**	1.946*	-1.025
	(1.525)	(-2.671)	(2.396)	(-2.898)	(2.796)	(-3.230)	(1.765)	(-2.128)	(1.933)	(-0.888)
Debt	-0.009	-0.033	0.014	-0.013	0.027	0.036	0.027	0.054	-0.009	0.049
	(-0.347)	(-0.642)	(0.622)	(-0.267)	(1.617)	(0.965)	(1.366)	(1.524)	(-0.424)	(1.335)
Cr	0.567	-0.386	0.868	0.486	1.485**	2.325*	1.111	2.500**	-0.188	1.888
	(0.616)	(-0.221)	(1.106)	(0.305)	(2.537)	(1.852)	(1.585)	(2.094)	(-0.243)	(1.528)
Roa	-0.089**	-0.026	-0.070**	-0.042	-0.054**	-0.055*	-0.020	-0.073**	0.008	-0.062*
	(-2.438)	(-0.582)	(-2.233)	(-1.027)	(-2.325)	(-1.702)	(-0.728)	(-2.380)	(0.268)	(-1.931)
λ	-6.776***	-10.112**	-6.255***	-10.175***	-5.462***	-10.253***	-4.898***	-9.036***	-4.090**	-6.807**
	(-2.908)	(-2.459)	(-3.144)	(-2.714)	(-3.682)	(-3.469)	(-2.758)	(-3.214)	(-2.078)	(-2.340)
Adj-R2	0.544	0.445	0.577	0.402	0.567	0.460	0.300	0.461	0.262	0.354

***, **, * represent 1%, 5%, and 10% of significant levels

We first explain the importance of the variables. According to Table 4.7, five samples of regression results found in the two subsample (CSR = 1 for high CSR and CSR = 0 for low CSR) that the lambda sample selection of variables in CAR (-5, 0), CAR (-4, 0), CAR (-3, 0), CAR (-2, 0), and CAR (-1, 0) are at a significance level of 1% or 5%, and thus show a significant negative correlation. Therefore the model does indeed have sample selection biases. If we use the traditional least squares regression

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method to analyze CSR and the above five cumulative abnormal returns, we will ignore samples with low CSR due to sample selection bias. The regression of the least square method has an impact, with the result of the CSR having no significant effect on stock returns. However, regardless of the CSR performance, the stock price of the two subsample companies is lower than that of all sample companies.

In addition, company size (Size) and the industry virtual variable (Tech) are significantly related in all five sections. The difference is that when we classify the sample into the two subsamples of high and low CSR, the size of high CSR companies is negatively correlated, while the sample of low CSR is positively related to the size of the company. This indicates that before the M&A announcement, if a company has good CSR performance, the larger it is, the lower the accumulated abnormal returns. However, if the CSR performance of the company is poor, the larger it is, the greater the accumulation of abnormal returns. In the part of industrial virtual variables, when the company belongs to a sample group with good social responsibility, the industry's virtual variables have a significant positive relationship with accumulated abnormal returns. For example, before a company issued M&A news, if it is a high CSR company in the electronics industry this will have a positive effect on its stock remuneration. When a company is in the sample group with poor social responsibility, the industry's virtual variables are significantly negatively correlated with accumulated abnormal returns. If a low CSR company is in the electronics industry, this will have a negative impact on its stock returns.

However, when corporate social responsibility is low, Duality_dum has a significant negative correlation with CAR (-5,0), suggesting that if the company's chairman and general manager are the same person this will have a negative impact on the company's stock returns. In the Pledge relationship, when the company has good social responsibility, it has a significant positive correlation with CAR(-3,0) and CAR(-2,0), indicating that before the release of the news the supervisor's pledge rate is positive for the company's stock. For businesses with low corporate social responsibility, Pledge and CAR (-3,0) show a significant negative correlation, indicating that if corporate social responsibility is poor, the pledge rate of the company's directors and supervisors has a negative impact on the company's stock returns. In addition, the high CSR current ratio (Cr) was significantly positively correlated with CAR (-3,0), and the low CSR current ratio was significantly positively correlated with CAR(-3,0) and CAR(-2,0). This indicates that the company's short-term solvency has a positive effect on stock returns in both subsamples. In the correlation of return on assets (Roa), there is a significant negative relationship between CAR (-5,0), CAR (-4,0), and CAR (-3,0) in a sample group with high CSR; The sample group with low CSR is also significantly negatively related to CAR(-3,0), CAR(-2,0), and CAR(-1,0), indicating that the rate of return on assets before the news release negatively affects the company's stock return.

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Table 4.8 Sample selection model- CAR(0,1), CAR(0,2), CAR(0,3), CAR(0,4), CAR(0,5)

	CAR(0,1)		**CAR(0,2)**		**CAR(0,3)**		**CAR(0,4)**		**CAR(0,5)**	
	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0	CSR=1	CSR=0
Constant	4.611	7.772	-18.230	-4.323	-16.142	-7.531	-7.184	-24.504	-7.163	-28.838
	(0.468)	(0.513)	(-0.769)	(-0.191)	(-1.283)	(-0.285)	(-0.350)	(-0.813)	(-0.362)	(-0.854)
Duality_dum	0.014	0.696	-0.492	1.081	-0.788	1.711*	-1.236	0.958	-1.050	0.819
	(0.013)	(1.072)	(-0.359)	(1.373)	(-0.664)	(1.860)	(-0.951)	(0.913)	(-0.844)	(0.698)
Dirship	-0.038	0.016	-0.067	0.030	-0.048	0.066*	-0.035	0.042	-0.020	0.015
	(-0.731)	(0.774)	(-0.982)	(0.889)	(-0.831)	(1.687)	(-0.539)	(0.953)	(-0.317)	(0.299)
Pledge	-0.012	-0.003	-0.012	-0.017	-0.024	-0.025	-0.015	-0.069	-0.004	-0.096*
	(-0.521)	(-0.130)	(-0.382)	(-0.459)	(-0.945)	(-0.572)	(-0.494)	(-1.360)	(-0.132)	(-1.695)
Size	-0.236	-0.059	0.628	0.596	0.526	0.662	0.091	1.823	0.170	2.537*
	(-0.478)	(-0.106)	(0.602)	(0.622)	(0.872)	(0.591)	(0.100)	(1.427)	(0.194)	(1.774)
Tech	-0.737	-0.458	-0.933	-1.002	-1.035	-0.349	-0.252	-1.749	-0.336	-2.281
	(-0.672)	(-0.463)	(-0.488)	(-0.671)	(-0.813)	(-0.200)	(-0.147)	(-0.878)	(-0.204)	(-1.023)
Debt	0.018	-0.046	0.033	-0.060	0.047	-0.081	0.056	-0.097	0.040	-0.140**
	(0.491)	(-1.300)	(0.777)	(-1.262)	(1.186)	(-1.462)	(1.380)	(-1.531)	(1.016)	(-1.981)
Cr	0.422	-0.554	0.519	-0.564	0.603	-0.386	0.839	-1.040	0.496	-2.332
	(0.331)	(-0.442)	(0.352)	(-0.352)	(0.437)	(-.206)	(0.588)	(-0.488)	(0.363)	(-0.977)
Roa	0.054	-0.060*	0.059	-0.043	0.008	-0.050	-0.004	-0.037	0.007	0.015
	(1.045)	(-1.910)	(1.006)	(-1.036)	(0.143)	(-1.028)	(-0.073)	(-0.670)	(0.127)	(0.241)
λ	-1.081	-1.699	1.822	-5.602	1.098	-5.683	-0.616	-9.121*	-0.574	-11.672**
	(-0.361)	(-0.589)	(0.488)	(-1.487)	(0.335)	(-1.291)	(-0.173)	(-1.817)	(-0.169)	(-2.076)
Adj-R2	0.171	0.406	0.123	0.490	0.144	0.545	0.188	0.472	0.165	0.446

***, **, * represent 1%, 5%, and 10% of significant levels

Table 4.8 shows that the overall level of significance is not as high as that before the M&A announcement date. In the sample of low CSR, the sample selection variable λ has a significant effect on CAR(0,4) and CAR(0,5); in the sample of high CSR, no variables have a significant effect.

4.3 Analysis of long-term stock returns

We use the Carhart (1997) four-factor model to measure stocks' average long-term average remuneration and examine whether corporate social responsibility affects the

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company's long-term stock returns at 12, 24, and 36 months after the M&A is completed. The results are presented in Table 4.9.

Table 4.9 Four factor model

$$R_{i,t} - R_{f,t} = \alpha + \beta_1\left(R_{m,t} - R_{f,t}\right) + \beta_2 SBM_t + \beta_3 HML_t + \beta_4 UMD_t + \varepsilon_t$$

	After one year		After two year		After three year	
Variable	Coefficent	t-statistics	Coefficent	t-statistics	Coefficent	t-statistics
Panel A: Full sample						
α	-1.027	-1.427	-2.21***	-2.855	-1.444	-1.093
β_{MKT}	0.712*	1.784	1.129**	2.570	1.589*	1.825
β_{SBM}	1.525**	2.506	1.763***	3.244	-0.008	-0.010
β_{HML}	-0.409	-0.453	-0.996	-1.545	0.811	0.822
β_{UMD}	0.082	0.188	0.59	1	-0.435	-0.506
Adj-R2	0.228		0.377		0.249	
Sample size	59		59		57	
Panel B: Subsample of low CSR						
α	-0.081	-0.058	-1.977*	-1.958	-1.626	-1.06
β_{MKT}	0.778	1.058	1.119	1.549	4.51***	4.18
β_{SBM}	2.122*	1.976	2.013**	2.506	-3.418***	-2.97
β_{HML}	-1.936	-1.127	-1.143	-1.012	-2.338*	-2.04
β_{UMD}	0.004	0.005	0.345	0.454	-0.533	-0.52
Adj-R2	0.189		0.488		0.556	
Sample size	29		29		29	
Panel C: Subsample of high CSR						
α	-1.606**	-2.369	-2.984**	-2.116	-0.611	-0.301
β_{MKT}	0.644	1.529	1.303*	1.899	-1.056	-0.748
β_{SBM}	1.01*	1.712	1.292	1.620	1.122	1.107
β_{HML}	0.543	0.683	-0.989	-1.169	3.841**	2.299
β_{UMD}	0.153	0.294	1.316	1.213	-0.288	-0.245
Adj-R2	0.238		0.120		0.205	
Sample size	30		30		28	

***, **, * represent 1%, 5%, and 10% of significant levels

α: Jensen's alpha, which is the average monthly abnormal return

$(R_{i,t} - R_{f,t})$: stock risk premium

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$(R_{m,t} - R_{f,t})$: market factor risk premium

SBM_t: size factor premium

HML_t: net market price premium

UMD_t: kinetic energy factor

Panel A presents the regression result of all samples from one to three years after the completion date of the merger. In the second year, α is at a negative level of 1%, indicating that there is a negative abnormal return in the second year after the merger. To examine whether CSR has different effects on the long-term abnormal returns after mergers and acquisitions, the sample is divided into two factor models: subsamples of low and high CSR. The regression results are given in Panels B and C. In the first year after the acquisition, only the sample with good CSR performance showed a significant negative value, indicating that companies with good CSR performance incurred significant abnormal returns in the first year. In the second year, companies with both poor and good CSR performance had significant abnormal returns. The values were -1.977 and -2.984, respectively, indicating that companies with better corporate social performance had relatively low returns.

This result may be due to M&R events generating transaction and integration costs, and the integration of internal and external resources is not easy, so the company's stock price will not be favorable in the first three years of completion of the M&R. Companies with good social responsibility may consider the interests of stakeholders more during M&Rs, enabling them to spend more resources on dealing with employees, customers, or related suppliers. In addition, the long-term share price performance after M&Rs is explored over three years, but it may be affected by other factors during the period, and the abnormal returns of the regression results are not entirely due to M&R events.

5. SUMMARY AND CONCLUSION

By focusing on CSR in this study, we discuss the correlation between a company's CSR performance and abnormal stock returns compensation at the time of M&A announcement. We then examine whether the performance of CSR after M&A will continue to affect long-term unusual stock price remuneration. The sample consists of companies that have successfully acquired other companies in Taiwan. The study period observed is from January 2008 to December 2017. The empirical results are as follows. In the discussion of the factors affecting corporate social responsibility in the first phase, the significant explanatory variables are the size of the company and the industry category, indicating that the larger the company and the characteristics of non-electronic industries, the better its CSR performance.

In the second stage the relationship between corporate social responsibility and stock abnormal returns is examined, along with the cumulative returns before the announcement of M&A. The empirical results show that the sample selection variable λ is significantly negatively correlated. This indicates that there are sample selection biases in the traditional regression model, and there is a correlation between corporate social responsibility and stock returns, rather than being generally regarded as exogenous variables. In addition, the explanatory variables in the samples of high and low CSR all had obvious effects before the announcement of M&As. Company size,

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industry virtual variables, turnover rate, and return on assets all reached significant levels. The effect of the explanatory variables on the abnormal returns of the stocks was obvious before the announcement.

The empirical result of investigating long-term abnormal remuneration shows that in the second year after the M&A, abnormal returns of enterprises were significantly negative, possibly due to the problems of cost and merger integration. High CSR companies may pay more attention to the interests of stakeholders during the integration period, and other factors during the research period may result in the company's stock returns in the past two years being relatively low.

Based on the above empirical analysis, the investigation of announced abnormal remuneration from M&As suggests that CSR does affect a company's stock returns. The main factors affecting CSR performance are company size and industry category. The performance of the stock price for the completion of M&A reflects a situation in which M&A costs and resource integration are not easy. Thus, the stock price performance after M&As is not as good as the short-term announcement. When investors, consumers, and government regulators apply more stringent standards to companies, non-financial management elements such as social welfare, environmental management, employee care, and product liability are examined in CSR. Therefore, the implementation of corporate social responsibility is not only related to the individual shareholders' equity, but can also enhance the company's real competitiveness. The empirical analysis in this study can provide a better understanding of the influencing factors of corporate social responsibility, and its influence on stock returns, thus allowing enterprises to objectively evaluate the ability to set their own goals, formulate strategic practices, and fulfill their social responsibilities, thus achieving both their own interests and the sustainable development of society and business as a whole.

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APPENDIX

1. Pearson correlation coefficient for each variable

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Car(-5, 0)	1																			
(2) Car(-4,0)	.703**	1																		
(3) Car(-3, 0)	.263*	.550**	1																	
(4) Car(-2, 0)	.100	.128	.404**	1																
(5) Car(-1, 0)	.104	.078	-.149	.632**	1															
(6) Car(0, 1)	-.073	-.110	-.246	.144	.545**	1														
(7) Car(0, 2)	-.242	-.191	-.142	-.051	.064	.712**	1													
(8) Car(0, 3)	-.201	-.108	-.035	.075	.048	.156	.613**	1												
(9) Car(0, 4)	.353**	.459**	.345**	.328*	.214	-.012	.044	.454**	1											
(10) Car(0, 5)	.345**	.401**	.329*	.092	.101	-.148	-.220	-.133	.536**	1										
(11)CSR	-.055	.037	-.065	-.246	-.193	-.122	.011	.106	-.032	-.197	1									
(12)Duality	-.329*	-.330*	-.175	-.053	-.152	.109	.211	.101	-.165	-.214	-.163	1								
(13)DIRSHIP	.045	-.060	.029	.191	.135	.086	.203	.424**	.190	-.207	-.313*	.116	1							
(14)PLEDGE	.008	.003	.052	.105	-.004	-.119	-.067	-.063	-.141	-.017	.184	-.118	-.201	1						
(15)Family	-.254	-.236	.010	-.092	-.202	-.017	.016	-.052	-.126	-.065	-.051	.315*	-.081	-.065	1					
(16)Size	.120	.262*	.144	-.081	-.078	-.164	-.139	-.031	.115	.098	.605**	-.209	-.379**	.391**	-.181	1				
(17)Tech	-.090	-.050	-.121	-.003	.101	-.091	-.041	.125	.114	.139	-.107	-.169	-.132	-.031	-.282*	.098	1			
(18)Debt	-.073	-.124	-.168	.029	-.011	-.019	.016	.076	.004	-.253	.037	.170	.205	.005	.157	.108	-.122	1		

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(19)CR	-.049	-.017	.163	.010	.004	-.012	.004	.002	-.079	.057	-.112	-.101	-.097	-.130	-.182	-.265*	.173	-.774**	1	
(20)ROA	-.017	-.021	-.028	-.263*	-.150	-.139	-.024	.088	-.032	.102	-.037	-.124	.075	-.131	.020	-.085	.072	-.237	.439**	1

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REFERENCES

[1] Bekier, M.M., et al. (2001), "Why mergers fail", *The McKinsey Quarterly*, 6.

[2] Chen, R.C., et al. (2013), "Corporate social responsibility and firm performance".

[3] Deng, X., Kang, J.K., Low, B.S. (2013), "Corporate social responsibility and stakeholder value maximization: Evidence from mergers", *Journal of Financial Economics*, 110(1), 87–109.

[4] Flammer, C. (2013), "Corporate social responsibility and shareholder reaction: The environmental awareness of investors", *Academy of Management Journal* 56(3), 758–781.

[5] Hall, P.L., R. Rieck (1998), "The effect of positive corporate social actions on shareholder wealth", *Journal of Financial and Strategic Decisions*, 11(2), 83–89.

[6] Lloyd, R.A. (2018), "The impact of CSR efforts on firm performance in the energy sector", *Review of Integrative Business and Economics Research*, 7(3), 25–65.

[7] Lyon, T.P., Shimshack, J.P. (2015), "Environmental disclosure: Evidence from Newsweek's green companies rankings", *Business & Society*, 54(5), 632–675.

[8] Ramchander, S., et al. (2012), "The informational relevance of corporate social responsibility: Evidence from DS400 index reconstitutions", *Strategic Management Journal*, 33(3), 303–314

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