

## Examining the relationship between corporate social responsibility and stock price crash risk of companies listed in Tehran Stock Exchange

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**Abstract:** The study aimed to investigate the relationship between corporate social responsibility and stock price crash risk of companies listed in Tehran Stock Exchange. To measure the level of disclosing corporate social responsibility dimensions and the variable of the stock price crash risk, Check Lists Disclosure of Barzegar (20113) and to binary approach (0 & 1) Houghton et al (2009) Kim and Zhang (2010) were used, respectively. Due to restrictions in this research and using systematic elimination method, 341 companies were selected from the population under study and 68 companies based on De Morgan Table as statistical samples and studied. A statistical analyses by was done by EVIEWS and EXCEL 7. The results showed there is a significant relationship between disclosure dimensions from aspects of environmental. Economy and sociology responsibility and the stock price crash risk of the companies listed in Tehran Stock Exchange.

**Key words:** Corporate social responsibility; Stock price crash risk; Tehran Stock Exchange

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### 1. Introduction

Many various definitions about CSR are suggested by the suppliers and academics, for example, International Financial Institute of World Bank (IFC) defines corporate social responsibility: it is a business commitment to participate in the sustainable economic development by employers, families, local communities and the larger societal dimensions to improve their livelihoods through the methods tailored to trading and development. There are numerous definitions about CSR's focus on voluntary measures exerted by companies that reflected moral values and the legal arrangements with improvement of social and environmental conditions; and just as importance of CSR in dealing is also rising daily and materials related to CSR are rising. Many studies examine motivations and determinants of CSR and also economic consequences. Of course, the issue gets special attraction is that do companies with good performance outperform compared with other ones (Kim et al., 1024 )? Previous researches suggest different views on the concept of CSR for managers are speculating and companies' financial reporting transparency. (Kim et al., 2012) find out that the companies, social responsible for financial reporting, display responsible behavior and show little evidence in relation to earnings management that this demonstrates the companies' commitment to superior ethical standards has a positive effect on accountant information quality. (Glob and Astraveser, 2013), in a similar study, find out that undertake activities based on social responsibility

demonstrated greater financial disclosure and it shows companies consider more disclosure as a form of social responsible behavior in when acting all practices related to CSR. If companies have a better CSR cultures, they keep the same superior level of standard in financial reporting and it is more likely to them related to the higher level of transparency and there is a negative relationship between it and hiding bad news from investors. Therefore, we expect that these companies are at risk of long-term concern based on maybe the managers use CSR voluntary to advance their business and other personal plans (Kim et al., 2014). So it seems that issue of corporate social responsibility is essentially important, in this study, we sought to examine the relationship between corporate social responsibility and the stock price crash risk of companies listed in Tehran Stock Exchange.

### 2. Literature

(Albakourck et al., 2013) evaluated the relationship between corporate social responsibility and risk on firms. The results showed that CSR leads to an asymmetric risk reduction and its activities leads to an increase in firm value. (Kim and Zhang, 2013) evaluated the relationship between conservatism and risk of the share price reduction. Using a large sample of companies in the United States of America 1964-2007, the results indicate that there is a correlation between low-probable conditional conservatism and risks associated with future shares price reduction. This is more visible in companies with high information asymmetry.

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(Kim et al., 2014) evaluated the relation between social responsibility and risk of shares price reduction. The results show that social responsibility affects the risk of falling shares prices. There is a negative correlation between performance of CSR and the risk of share price reduction. On the other hand, the effect of corporate social responsibility on risk of reduction in the share prices of companies with weak corporate governance and low ownership structure.

(Kim and Zhang, 2014) investigated the relationship between the ambiguity of financial reporting and risk of expected shares price reduction. The results indicate that the management of accruals, manipulation of financial statements, and internal control weaknesses all has a positive and significant correlation with the risk of stock price reduction.

### 3. Methodology

#### 3.1. Hypotheses

- There is a significant relationship between disclosure of corporate social responsibility of environmental aspect and stock price crash risk of companies listed in Tehran Stock Exchange.
- There is a significant relationship between disclosure of corporate social responsibility of economy aspect and stock price crash risk of companies listed in Tehran Stock Exchange.
- There is a significant relationship between disclosure of corporate social responsibility of societal aspect and stock price crash risk of companies listed in Tehran Stock Exchange.

#### 3.2. Statistical population and sample

The research study includes all companies listed in Tehran Stock Exchange for a time period 2006-2012, which all the following conditions must be met:

1. Listed in the Tehran Stock Exchange, before 2006.
2. The fiscal year ended 13 March each year.
3. The number of days of trading for companies in each fiscal year, not less than 70 days.
4. Not belonging to financial and investing companies.

5. Financial information available needed for companies.

Due to the limitations of the study, 341 companies were selected by systematic removal method and 68 companies based on De Morgan Table as sampled and studied as a statistical sample.

#### 3.3. Regression model

$$CRASH\_RISK_{it} = \beta_0 + \beta_1 CSR_{it-1} + \beta_2 DTURNOVER_{it-1} + \beta_3 MB_{it-1} + \beta_4 SIZE_{it-1} + \beta_5 LEVERAGE_{it-1} + \beta_6 ROA_{it-1} + \epsilon_{it}$$

Crash\_RISK<sub>it</sub>: To measure this variable and to identify in which the period the falling not happened, the model of research by (Huton et al., 2009; Kim and Zhang, 2010), and regression model based on the market model were used, respectively.

CSR<sub>it</sub>: In this study, to analyze content in determining the level of corporate social responsibility, check list of disclosure and corporate social responsibility of (Barzegar, 2013) and in binary method (0 and 1) were used.

DTURNOVER<sub>i,t-1</sub>: average monthly stock return in year t minus average monthly stock return in year t-1

MB<sub>i,t-1</sub>: ratio of market value to book value of equity in company i in year t-1

SIZE<sub>i,t</sub>: natural logarithm of the book value of assets of company i in year t-1

LEVERAGE<sub>i,t</sub>: ratio of total liabilities to total assets company i in year t-1

ROA<sub>i,t</sub>: the ratio of net income to total assets of the company i in year t-1

#### 3.4. Data analysis

F-test And Hausman both are used to determine one of two fixed effects or random effects. To illustrate explanatory power to the explaining variables, the adjusted determination coefficient was used, to study significance of the variables, t-statistic and to examine total model adequacy, F-statistic. The statistical analysis will be done by EXCEL and EVIEWS 7.

### 4. Results

#### 4.1. Variance heterogeneity test

**Table 1:** Results of variance heterogeneity test LM Arch in the research model

| Explanation   | Statistics value | Probability |
|---------------|------------------|-------------|
| F-statistic   | 1.914115         | 0.116       |
| Obs*R-squared | 1.026512         | 0.116       |

\*5% error level

According to Table 1, f-statistic in test is not significant at level of 5%, so hypothesis on the variance homogeneity was confirmed and the variance heterogeneity of disturbing terms rejected.

#### 2.4 Determining estimate method of the model-significance testing of the fixed effects method

According to Table 2, the results of two tests conducted (F, Hausman), the probability obtained in both tests was less than 5% and so it should be used fixed-effects method in relevant regression model.

**Table 2: Results of F-statistic test**

| F-Lymear test            |                 |                |             |
|--------------------------|-----------------|----------------|-------------|
| Explanation              | Statistic value | Freedom degree | Probability |
| Cross-section F          | 1.516226        | 67             | 0.000*      |
| Cross-section Chi-square | 124.036748      | 67             | 0.006*      |
| Hausman test             |                 |                |             |
| Explanation              | 7.005162        | 11             | 0.002*      |

\*5% error level

### 4.3. First hypothesis testing

**Table 3: Regression test and the model significance**

| Variable name                          | Estimated coefficients    | Estimated deviation                | t-statistics | Significance level |
|--|---------------------------|------------------------------------|--------------|--------------------|
| Fixed                                  | 0.745                     | 0.114                              | 6.535        | 0.006*             |
| CSR disclosure of environmental aspect | -1.226                    | 0.262                              | -4.679       | 0.031*             |
| Return on stock                        | -0.498                    | 0.112                              | -4.446       | 0.035*             |
| Market value to book value             | -0.621                    | 0.394                              | -1.576       | 0.078              |
| Firm size                              | 4.325                     | 0.552                              | 7.835        | 0.000*             |
| Financial leverage                     | 0.228                     | 0.184                              | 1.239        | 0.086              |
| Return on assets                       | -0.917                    | 0.273                              | -3.358       | 0.042*             |
| Watson-Durbin                          | Determination coefficient | Adjusted determination coefficient | F-statistic  | Significance level |
| 2.116                                  | 0.412                     | 0.396                              | 89.236       | 0.000**            |

\*5% error level and \*\*1% error level

According to Table 3, estimated coefficient of variable of CSR disclosure of environmental aspect is -1.226 to stock price crash risk that shows there is a negative and inverse between CSR disclosure of environmental aspect and the stock price crash risk, that is, if they enlarge their own disclosure of social aspect, they can expect stock price crash risk getting down. Since significance level of t-statistic to independent variable gets less than error level of

5%,  $H_0$  can be rejected at confident level of 95% but  $H_1$  is accepted. According to Table 1-4, the empirical model can be written to this hypothesis as follows:

$$CRASH\_RISK_{it} = 0.745 - 1.226CSR_{it} - 0.498TURNOVER_{it} - 0.621MB_{it} + 4.325SIZE_{it} + 0.228LEVERAGE_{it} - 0.917ROA_{it} + \epsilon_{it}$$

### 4.4. Second hypothesis testing

**Table 4: Regression model and model significance**

| Variable name                    | Estimated coefficients    | Estimated deviation                | t-statistics | Significance level |
|----------------------------------|---------------------------|------------------------------------|--------------|--------------------|
| Fixed                            | 0.487                     | 0.117                              | 4.163        | 0.016*             |
| CSR disclosure of economy aspect | -1.265                    | 0.281                              | -4.502       | 0.011*             |
| Return on stock                  | -0.513                    | 0.107                              | -4.794       | 0.006*             |
| Market value to book value       | -0.974                    | 0.578                              | -1.685       | 0.074              |
| Firm size                        | 4.336                     | 0.663                              | 6.539        | 0.000*             |
| Financial leverage               | 0.274                     | 0.102                              | 2.686        | 0.068              |
| Return on assets                 | -0.571                    | 0.173                              | -4.167       | 0.016*             |
| Watson-Durbin                    | Determination coefficient | Adjusted determination coefficient | F-statistic  | Significance level |
| 1.815                            | 0.486                     | 0.475                              | 55.427       | 0.000**            |

\*5% error level and \*\*1% error level

According to Table 4, estimated coefficient of variable of CSR disclosure of economy aspect is -1.265 to stock price crash risk that shows there is a negative and inverse between CSR disclosure of economy aspect and the share price reduction, that is, if they enlarge their own disclosure of economy aspect, they can expect stock price crash risk getting down. Since significance level of t-statistic to

independent variable gets less than error level of 5%,  $H_0$  can be rejected at confident level of 95% but  $H_1$  is accepted. According to Table 1-5, the empirical model can be written to this hypothesis as follows:

$$CRASH\_RISK_{it} = 0.487 - 1.265CSR_{it} - 0.513DTURNOVER_{it} - 0.974MB_{it} + 4.336SIZE_{it} + 0.274LEVERAGE_{it} - 0.571ROA_{it} + \epsilon_{it}$$

### 4.5. Third hypothesis testing

**Table 5:** Regression model and model significance

| Variable name                    | Estimated coefficients    | Estimated deviation                | t-statistics | Significance level |
|----------------------------------|---------------------------|------------------------------------|--------------|--------------------|
| Fixed                            | 0.647                     | 0.1627                             | 3.993        | 0.043*             |
| CSR disclosure of economy aspect | -2.059                    | 0.429                              | 4.779        | 0.032*             |
| Return on stock                  | -0.674                    | 0.117                              | 4.799        | 0.003*             |
| Market value to book value       | -0.992                    | 0.561                              | 1.768        | 0.076              |
| Firm size                        | 5.326                     | 0.789                              | 6.751        | 0.000*             |
| Financial leverage               | 0.189                     | 0.112                              | 1.687        | 0.082              |
| Return on assets                 | -0.716                    | 0.203                              | -3.527       | 0.047*             |
| Watson-Durbin                    | Determination coefficient | Adjusted determination coefficient | F-statistic  | Significance level |
|                                  | 1.815                     | 0.341                              | 72.302       | 0.000**            |

\*5% error level and \*\*1% error level

According to Table 5, estimated coefficient of variable of CSR disclosure of social aspect is -2.059 to stock price crash risk that shows there is a negative and inverse between CSR disclosure of social aspect and the stock price crash risk, that is, if they enlarge their own disclosure of economy aspect, they can expect stock price crash risk getting down. Since significance level of t-statistic to independent variable gets less than error level of 5%,  $H_0$  can be rejected at confident level of 95% but  $H_1$  is accepted. According to Table 1-6, the empirical model can be written to this hypothesis as follows:

$$CRASH\_RISK_{it} = 0.647 - 2.059CSR_{it} - 0.674DTURNOVER_{it} - 0.992MB_{it} + 5.326SIZE_{it} + 0.189LEVERAGE_{it} - 0.716ROA_{it} + \epsilon_{it}$$

### 5. Conclusion and suggestion

The results showed that there is a significant relationship between CSR disclosure dimensions of environmental, Economy, social aspects and stock price crash risk of companies listed in Tehran Stock Exchange. In this regard, (Kim et al., 2014) showed that social responsibility has the reduced effect on the risk of falling stock prices. Also, there is a negative correlation between CSR performance and risk of the share price reduction. (Albakourk et al., 2013) showed that CSR leads to asymmetric risk reduction and also increases the activities on social responsibility increases firm value. According to results the following can be expressed as:

1. Reform framework and content of board activity reports and annual reports of companies with lasting approach and attention to disclose indicators of social, Economic and environmental.
2. Formulate appropriate requirements and regulations by the relevant institutions in the area of corporate reporting, including the Exchange Organization with cooperation of the active institutes in environmental and social fields of the country to respond the expectations of stakeholders and enforce government pressure

and obligation for companies to disclose information of social responsibility in the annual reports of all companies operating in the industry, especially state-owned and great enterprises.

Enforce companies to form independent unit or committee of social responsibility in organizational structure to develop strategies, goals and programs of corporate social responsibility and how to monitor and disclose it on the different dimensions along with approach on sustainable development and making stock price crash risk down.

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