## DO CONSISTENT CSR ACTIVITIES MATTER FOR FIRM VALUE?

Loai Alsaid\*

\*Aberystwyth University, Mauritius Campus & Beni-Sueif University, Egypt

## Abstract

This paper investigates how investments in corporate social responsibility (CSR) activities affect firm value. We categorise firms' CSR activities as strategic or opportunistic based on consistency, and analyse the differential value relevance effect. We use the Egyptian Economic Justice Index (EEJI) as the most representative measure for firms' CSR activities in Egypt. To measure valuation effect, we adopt an earnings response coefficient (ERC) model. Our main explanatory variables are interaction variables with unexpected earnings and two dummy variables; one indicating CSR activities, and one indicating their consistency. We document these variables as positively and negatively significant. Our findings show that investing in CSR activities consistently and strategically may increase firm's profitability and firm value. However, firms that sporadically invest in CSR activities show a smaller relationship between unexpected earnings and stock returns than firms that consistently invest in CSR activities.

**Keywords:** Agency Costs, Earnings Response Coefficients, CSR Activities, Firm Value, Strategic and Opportunistic activities

## **1. INTRODUCTION**

This paper examines how the investment behaviour of firms in corporate social responsibility (CSR) is related to firm value. Consistent with previous studies (Hemingway and Maclagan, 2004; Barnea and Rubin, 2010; Pathirawasam and Wickremasinghe, 2012; Kostyuk et al., 2013; Pozzoli and Romolini, 2013; Uddin, 2015), we argue that if firms invest in CSR opportunistically or managers invest in CSR ceremonially, that is, to serve their own interests, CSR may decrease the firm value instead of increasing it. Investing in CSR in this setting mobilises firms' valuable economic resources in activities which are not related to firms' profitable projects (Barnea and Rubin, 2010). However, if firms invest in CSR strategically, that is, consistently and in the best interest of the firms, the firm value is likely to increase, because strategic investments in CRS potentially create goodwill, such as a good product image, which attracts more consumers to the firm (Brown and Dacin, 1997), and can improve future profitability (Waddock and Graves, 1997; Banker and Mashruwala, 2007; Qiu et al., 2016). For example, corporate giving can create goodwill by enhancing employee morale, improving customer loyalty and creating a favourable impression for government officials and regulators (Brown et al., 2006). Such firms are likely to attract and retain highly talented employees (Edmans, 2011) and decrease lawsuits and environmental costs (Dhaliwal et al., 2012). Research has shown that firms with positive cash-flows and low debts are more likely to invest strategically and consistently in CSR than firms with financial difficulties or that operate in flawed stock markets (Dhaliwal et al., 2012; Seo et al., 2015). This raises the question of how investing in CSR affects the firm value for companies

operating in developing countries, an issue that has attracted less attention in academic research with a positivistic tradition (Momin and Parker, 2013).The aim of this paper is to address this gap by analysing cases in which investing in CSR improves, or alternatively decreases, firm value by using data from a developing country.

Using quantitative data based on 1,862 firmyears listed in the Egyptian Stock Market between 2009 and 2014, we compare the earnings response coefficients, hereinafter referred to as ERC, (Collins & Kothari, 1989) of firms investing in CSR activities and other firms that do not invest in CSR activities to examine how firms' CSR activities affect firm value in general. We also compare the ERC of firms with strategic and consistent CSR activities, with those of firms with inconsistent CSR activities, to examine the effect of consistency of CSR activities on firm value. As expected, we find that firms with CSR activities show higher ERC than firms without or low level CSR activities. This finding implies that investing in CSR activities strategically and consistently increases firm value in general. However, the ERC of firms that sporadically and opportunistically invest in CSR activities is smaller than that of firms investing in CSR activities consistently. This finding implies that consistent investments in CSR activities may increase earnings continuously, while sporadic investments in CSR activities may hurt firm earnings and thereby firm value. These findings are robust due to different measures of investments in CSR activities, such as the pattern in and variance of the level of CSR activities.

Our research makes the following contributions. First, our paper adds to the empirical evidence concerning the general effect of investing in CSR activities on firms' earnings and stock returns. Second, we explain the inconsistent findings in previous studies regarding the relationship between firms' investment behaviour in CSR activities and differential implications on firm value. Third, our research findings confirm that investors consider the investment behaviour of firms in CSR activities when making their capital budgeting decisions. Fourth, managers and practitioners can use our findings in making strategic decisions on when and how to invest in CSR activities.

The paper proceeds as follows. The next section provides a literature review and explains our hypothesis. Section 3 explains research methodology, variable measurement and sample data. Section 4 shows descriptive statistics and empirical results of our multiple regression. Section 5 explains sensitivity tests of the main results. Section 6 summarises our findings and conclusions.

## 2. LITERATURE REVIEW

Davis (1960) defines CSR as businessmen's decisions and actions taken for reasons that are, at least partially, beyond the firm's direct economic or technical interest. Friedman (1970) argues however, that the only and ultimate responsibility of firms is to maximise profit; CSR may decrease a firm's value because it involves expenses that are unnecessary for the firm to operate. This argument suggests that CSR activities may involve costs not directly related to revenue generating activities, which might decrease firm value. Since the early 1950s, decisions surrounding investment in CSR activities have attracted researchers and practitioners with different backgrounds. For example, Bowen (1953) argues that managers have obligations to adopt policies and make decisions that are desirable from the perspectives of societal goals and values as a whole. Since then, scholars have developed and applied the concept of CSR in various settings, such as reporting on the environmental and social activities of firms (Kostyuk et al., 2013; De Villiers and Alexander, 2014; Michelon et al., 2015) and the effects of environmental and social activities on the financial performance of firms (Pozzoli and Romolini, 2013; Qiu et al., 2016). Firms have started to disclose their CSR activities voluntarily because investors, customers, and other stakeholders have shown interest in businesses that are green and societally friendly (KimPark and Wier, 2012).

studies have conceptualised CSR Many activities as agency costs and have documented negative relationships between financial performance metrics and costs of CSR activities (Brown et al., 2006). Managers can decide to invest in CSR to improve their personal interests (Barnea and Rubin, 2010). Corporate giving may enhance the reputations of managers or directors in their social circles and provide them with other benefits at shareholders' expense. If the cost of giving is not offset by reductions in managerial compensation, giving represents an agency cost that may decrease firm value (Brown et al., 2006). Wright and Ferris (1997) have shown that public firms that disinvested business units in South Africa because of political reasons, had significantly negative stock market returns around the date of the disinvestment decision. This finding suggests that when under political pressure, managers can make decisions that decrease the firm value. Using British data, Brammer and Millington (2006) found negative relationships between three CSR indicators that measure contributions to the environment, employment and community, and stock returns. Brammer and Millington's (2006) findings suggest that firms that contribute least to community show the highest stock returns, which implies that investing in CSR activities affects the firm value negatively. Brown et al. (2006) argue that agency costs play a prominent role in explaining corporate giving, because firms with a large board of directors are likely to give more money or establish foundations, whereas firms with high debts show a lower level of philanthropic acts. In consequence, Brown et al. (2006) argue that managers and board members can increase their utility through corporate philanthropy. own Similarly, Barnea and Rubin (2010) argue that managers and large shareholders overinvest in CSR activities for private benefits, such as enhancing personal reputation and increasing self-satisfaction. They analysed the relationship between CSR activities, financial structure and ownership of the firms, and found a negative relation between inside ownership and CSR. Brown et al.'s (2006) research suggests that managers and/or large shareholders increase philanthropic spending when inside ownership is low, because they obtain relatively bigger private benefits from firms' philanthropic behaviour at low or no personal cost. They also found that leverage is significantly negatively correlated with CSR, which implies that CSR related expenditure is more likely to reflect agency costs. Many other studies have found no significant correlation between CSR and financial performances (Aupperle et al., 1985; McWilliams and Siegel, 2000; Teoh and Wong, 1993; Nelling and Webb, 2009). Aupperle et al. (1985) do not find a significant correlation between Return of Assets (ROA) and CEO's orientation toward social responsibilities. Teoh and Wong (1993) examine market reactions to the shareholders boycott of South Africa due to race discrimination and found no significant market reactions. McWilliams and Siegel (2000) and Nelling and Webb (2009) confirm that there is no significant correlation between CSR and financial performances as documented in Waddock and Graves (1997) after adding control variables and using time series fixed effect regression models to analyse similar empirical data. These results suggest that CSR may not have any impact on firms' profitability or value.

In contrast, many other previous studies have shown that CSR activities enhance the image and reputation of firms, which could lead to favourable treatment from regulatory agencies, improve the preference for firms' products, boost employee morale, help to recruit talented employees (Brown and Dacin, 1997; Landon and Smith, 1997), and eventually increase firms' profitability (Banker and Mashruwala, 2007; Edmans, 2011). CSR activities also improve production efficiency and reduce operational uncertainties through the reduction of lawsuit, environmental costs and equity costs (Dhaliwal et al., 2011; 2012). Kahneman et al. (1986) argue that consumers, suppliers, and employees care about being treated fairly and treating others fairly and are willing to resist unfair firms at cost to themselves, and satisfying fairness constraints may lead to better long-term financial performance based on survey evidence which supports the causal link between CSR and financial performance. Because company image or reputation is created over time, firms that invest in CSR activities consistently over a long-term are more likely to show better financial performance (Dhaliwal et al., 2011). Pava and Krausz (1996) argue that socially responsible firms show slightly better long-term financial performance than other firms. Posnikoff (1997) investigates the market reactions of U.S firms that disclosed disinvestment or withdrawal from South Africa, using event study methodology. Contrary to Wright and Ferris (1997) who also examined the market reactions of firms that disinvested from South Africa, he finds significant positive market reactions during the event period. Waddock and Graves (1997) investigate the association and causality between CSR and subsequent accounting returns such as ROA, ROE, and ROS. Their findings show that CSR is significantly positively related to past accounting returns, suggesting that firms with good financial performance in the past invest more resources in CSR. Further, they document that CSR is also positively related to future accounting returns, indicating that CSR activities may improve firm images and thereby affect the future performance of firms. Landon and Smith (1997) examine firms in the Bordeaux Wine industry and find that consumers consider market reputation to be much more important than product quality, implying that financial performance could be improved with CSR which could enhance the image of firms. Roberts and Dowling (2002) also document that firms with good reputations maintain better financial performance over a long-term period.

These results suggest that as CSR can improve a firm's reputation, consistent investment in CSR can improve financial performance. Chang (2010) also document the positive relation between CSR, measured by Korean economic justice index, and financial performances such as ROA and Tobin's q. The results of these studies suggest CSR may enhance firm image, which leads to increase in accounting returns, and eventually positively affect financial performance and firm value. These evidences suggest that spending on CSR activities improves non-financial performance and ultimately will be helpful to increase financial performance and firm value (Dhaliwal, 2012; Pozzoli and Romolini, 2013; Kostyuk et al., 2013).

As shown above, previous studies show that CSR could increase financial performances or firm value in some cases and might not affect or could even decrease financial performances. In this study we seek an explanation regarding the mixed results regarding the relationship between CSR activities and firm value. When firms or managers engage in opportunistic CSR activities, firm value may not increase or may even decrease because the benefits of CSR may not adequately improve firm reputation to compensate for the cost of CSR and/or may enhance only managers' reputation rather than firm reputation. Because a firm's CSR activities may not improve firm image, the firm's future earnings are not likely to be increased by CSR and therefore current earnings change does not offer more information about firms' profitability than usual. When firms engage opportunistically in CSR, they are more likely to do sosporadically, rather than consistently, because those CSR activities may not be related to firms' operation and spending on activities not related to firms' operations is more likely to be curbed. In this case, firms' CSR activities are less likely to be significantly related to stock returns, or may even be negatively correlated.

However, when firms invest in CSR activities consistently and strategically, resultant reputation enhancement is more likely to increase the value of the firms, leading to the recruiting of talented employees and a reduction in the possibility of lawsuits, etc., as documented in previous studies. In this case, firms pursue CSR strategically in relation to firms' operations, and consistently engage in CSR activities over long-term periods, which lead to higher earnings in the future than in the current period. Therefore, when firms engage in CSR strategically, investors will expect firms' earnings to be sustained in the future as a result of current period earnings change. That is, consistent investments in CSR activities are expected to be significantly related to stock returns. Therefore, our hypothesis is as follows;

When firms invest in CSR activities strategically (consistently), firms' CSR activities are likely to affect firms' future earnings and be positively related to stock returns.

#### 3. RESEARCH METHODOLOGY AND SAMPLE

# 3.1. Research methodology and variable measurement

The purpose of this study is to address the question of whether differential implications of investments in CSR activities on firm value exist, and if so, why. We address this question using the association between annual accounting earnings and stock returns. We expect the value relevance of CSR activities for firms that consistently engage in CSR, to be higher than that for firms that engage opportunistically in CSR. We use an earnings response coefficient model which examines the relationship between stock return and accounting earnings to analyse the value relevance of CSR activities. Our basic research models are as follows.<sup>10</sup>

BHRET (SAR) =  $\alpha$  +  $\beta$ 1UE +  $\beta$ 2EDUM +  $\beta$ 3UE\*EDUM +  $\beta$ 4LMVE +  $\beta$ 5LEV +  $\beta$ 6MARGIN (1) +  $\beta$ 7MTB + $\beta$ 8NEG +  $\epsilon$ 

BHRET (SAR) = $\alpha$ + $\beta$ 1UE + $\beta$ 2FreqDUM +	
$\beta$ 3UE*FreqDUM + $\beta$ 4LMVE + $\beta$ 5LEV +	(2)
$\beta$ 6MARGIN + $\beta$ 7MTB + $\beta$ 8NEG + $\epsilon$	

where:

BHRET	- buy and hold stock return between
	the fourth month of the year and three
	months after fiscal year end.
SAR	- size-adjusted annual cumulative
	abnormal stock return over equally
	weighted market return between the
	fourth month of the year and three

<sup>&</sup>lt;sup>10</sup>Teoh and Wong (1993) suggest that interaction variables with unexpected earnings and control variables be included in the ERC model. However, there exists a multicollearity issue when interaction variables are included in our regression model. Therefore, we follow Gelb and Zarowin (2002) who include only control variables in their regression.

months after fiscal year end.

UE

- unexpected income (difference between current year and last year incomes) divided by market value.
- EIndex raw Egyptian Economic Justice Index (EEJI) score.
- EDUM CSR investment dummy variable, which is 1 when EEJI score is disclosed (top 200), otherwise 0.
- FreqDUM CSR investment consistency dummy variable, which is 1 when EEJI score is disclosed equal to or less than one time over most recent four years, 0 when the score is disclosed equal to or more than three times during recent four years.
- LMVE natural log transformed market value at the end of the third month of the fiscal year.
- LEV debt ratio calculated by dividing total liabilities by total assets.
- MARGIN total asset profit ratio calculated by dividing net income before taxes by total assets.
- MTB market to book ratio measured at the end of third month of the fiscal year.
- NEG loss indicator variable which is 1 when net loss is reported for the year, otherwise 0.

In these two regression models, we measure stock returns by using buy and hold return (BHRET) and annual size-adjusted cumulative abnormal stock returns (SAR) over an equally weighted market index, measured from the beginning of April of the current year. To calculate annual size-adjusted abnormal stock return over equally weighed market index, we form ten portfolios based on total market value at the end of the third month of the fiscal year. Then we calculate average return on each portfolio and subtract from firms' stock return to measure size-adjusted cumulative abnormal return. To answer our main hypothesis, we categorise the expenditure as managers' opportunistic CSR behaviour or firms' strategic activities depending on the pattern of CSR activities and examine how firm value is affected by the pattern of firms' CSR activities. If firms engage in CSR activities due to managers' opportunistic incentives, they may not be able to maintain the same level of CSR activities over several periods and firm value may not change or even decrease, due to the waste of firms' valuable resources. On the other hand, if firms engage in CSR activities for strategic reasons, firms are likely to maintain the same level of CSR activities over long periods and firm value is more likely to increase due to CSR activities.

In model 1, the interaction variable (UE\*EDUM) between unexpected income (UE) with CSR activity dummy variable (EDUM) is our main explanatory variable for CSR activity in general. We adopt the EEJI index score as CSR activity level of firms, as in many other studies such as Chang and Choi (2009) and Kostyuk et al. (2013). Based on the predetermined rules, the Citizens' Coalition for Economic Justice Institute in Egypt selects firms on which it calculates an individual EEJI index score out of all the listed firms in Egypt each year and

discloses the top 200 firms based on the EEJI score.<sup>11</sup> We dichotomise our sample into firms that engage in CSR activities and firms that do not, depending on whether the EEJI score is disclosed or not, and compare the effect of CSR activities on firm value in model 1. If firms' CSR activities do benefit firms in general, the coefficient on the interaction variable (UE\*EDUM) between unexpected income (UE) with CSR activity dummy variable (EDUM) is expected to be significantly positive in the regression. That is, the coefficient will show whether firms' CSR activities do have an incremental effect on the relation between earnings change and stock return and there by firm value.

In model 2, our interest variable is the CSR frequency variable (FreqDUM) which indicates the frequency of CSR activity levels. When firms invest in CSR activities for strategic reasons and long-term sustainable growth, they are expected to maintain a high level of CSR activities. However, firms are more likely to seldom show high levels of CSR activities. We calculate the CSR frequency dummy (FreqDUM) based on the number of times a firm's EEJI index score is disclosed. Specifically, we first count the number of years that a firm's EEJI score is disclosed to the public in the past four years, including the current year, and assign a CSR frequency variable value as one when a firm's EEJI score is disclosed equal to or less than one time during the past four years, zero when firm's EEJI score is disclosed equal to or more than three times during the past four years. If the coefficient on the interaction variable (UE\*FreqDUM) between unexpected earnings (UE) and the CSR activity frequency variable (FreqDUM) is significantly negative, we can infer that investors interpret the change in reported earnings for firms that have engaged in CSR activities opportunistically, and creates agency problems, are temporary, and discount the stock price. That is, when managers use CSR activities for their personal benefits (or opportunistically) firms do not receive the benefits of CSR activities.

Because many previous studies show that earnings response coefficients are affected by firm size, financial characteristics, growth and risk factors (Teoh, 1993; Ayers, 2002), we control for firm size, leverage, profitability, book to market ratio and loss dummy in our regressions. Firm size (LMVE) is measured by total market value as of the end of the third month of the fiscal year. As firm size becomes larger, investors are more likely to have more information because large firms disclose more information. Therefore, we add firm size to control for information environment effect on the

<sup>1</sup> IIn this study, we use the EEJI index score from the Citizens' Coalition for Economics Justice Institute in Egypt as a proxy for the level of CSR performance score. The Citizens' Coalition for Economics Justice Institute develops an index which measures the social contribution of corporate activities for listed firms in the Egyptian stock market since 2005 and discloses the scores of the top 200 firms. The EEJI index score consists of the following seven components; soundness, fairness, contribution to social service, customer protection, environmental protection, employee satisfaction, and contribution to economic development. Each component is also comprised of several subcomponents, of which different weights are fairly and objectively assigned in advance. Our study uses total scores of EEJI index which shows firms' comprehensive CSR activities.



earnings response coefficient. Leverage (LEV) is also included because firms with high leverage tend to be high risk, which affects the relation between earnings and stock returns. We measure leverage by dividing total liabilities by total assets. Because the market to book ratio (MTB) could imply the profitability or growth potential of firms, we include it in our regressions. Finally, we add a net loss dummy variable (NEG) which indicates whether firms report loss because the market reactions to reporting net loss are different to reporting net income (Hayn, 1995).

#### 3.2. Sample selection

We use firms listed in the Egyptian Stock Market (ESM) between 2009 and 2014. We calculate stock return by using monthly stock returns provided by EsmGuide.<sup>12</sup> Financial statement data are extracted from EGX database.<sup>13</sup> Following are specific sample selection criteria:

- Firms listed in the Egyptian stock market in periods over 2009 to 2014;

- Firms whose EEJI index score is available;
- Firms of which the financial and stock price data are available from EsmGuide and EGX database;
- Firms not in the financial industries;
- Firms with December fiscal year end.

We exclude firms in the financial industries because those firms are different from firms in other industries such as manufacturing industries in characteristics of operation and financial structures. We only use firms with December year end to ensure homogeneity in our sample firms in the analysis. Also, we exclude firm-year observations from our sample when any of the data we use is not available.

Panel A. Distribution by year												
Year	2009	2010	2011	20	12	2013	2014	Total				
# of obs.	327	288	299	29	95	315	338	1,862				
Percentage (%)	17.56	15.47	16.06	15.	84	16.92	18.15	100.00				
Panel B. Distribution by Industry (ESIC)												
Industry						# of obs.	Perce (%					
Agriculture	forest	ry and fi	shing			8	0.4	43				
Manufactur	ing					1,294	69.	50				
Electricity, g supply	gas, ste	am and	water		42		2.25					
Constructio	n					160	8.59					
Wholesale a	nd reta	il trade				141	7.57					
Transportat	ion					56	3.01					
Information	and co	ommuni	cations			48	2.58					
Professiona activities	l, scien	tific and	technical			100	5.37					
Education					3 0.16			16				
Arts, sports, and recreation related services						7	0.38					
Membership other perso	3		0.16									
Total						1,862	100	.00				

Table 1. Sample Distribution

12EsmGuide is the database which provides stock returns and analyst forecasts for firms listed in the Egyptian Stock Markets (http://www.mubasher.info/countries/EG).

Table 1 shows the distribution of the samples used in this study by year and industry. The total number of samples is 1,862 firm-years, and samples are almost evenly spread over the sample period, as shown in panel A of Table 1. Panel B shows the distribution of the sample based on industry classification by the Sections of Egyptian Standard Industry Classifications (ESIC). Most of the sample firms are in the manufacturing industries, 69.50%, followed by construction and wholesale and retail industries, 8.59% and 7.57%, respectively. Because sample firms are well spread over years and industries, there is less likely to be sample selection bias.

#### 4. EMPIRICAL RESULTS

## 4.1. Descriptive statistics and correlation among variables

Table 2 provides the descriptive statistics for variables used in this study. We winsorize the value of variables which have top and bottom 1% value to control for the effect of extreme values of the parameters. CSR investment indicator dummy variable (EDUM) is determined based on total EEJI score, i.e., 1 when a firm ranks top 200 out of all listed firms, otherwise 0.

As Table 2 shows, two dependent variables, buy and hold return (BHRET) and equally weighted sizeadjusted annual cumulative abnormal return (SAR), have the distribution skewed to the right. The average and median of buy and hold return (BHRET) are 33.7% and 22.4%, and the average and median of size-adjusted abnormal return (SAR) are 10.9% and 3.1%, respectively. The average and median of unexpected earnings (UE) are close to zero, 0.051 and 0.014 respectively, and standard deviation is 0.204. The total EEJI index score (EIndex) shows the average of 45.292, median of 45.155, implying this variable is evenly distributed. Among control variables, firm size (LMVE), profitability (MARGIN), and market to book ratio (MTB) are overall skewed to the right, and leverage (LEV) is skewed to the left.

Table 3 presents the correlations among primary variables used in this study. The buy and hold returns (BHRET) and size-adjusted annual cumulative abnormal return (SAR) show significantly positive correlations with unexpected earnings at the 1% level. The buy and hold return (BHRET) has significantly negative correlations with total EEJI index score (EIndex) and CSR investment dummy (EDUM) at the 5% level, size-adjusted annual cumulative abnormal return (SAR) shows no significant correlation with these two variables. Also, most other control variables in the ERC regression model show significant correlations with the dependent variables. This result implies there is no significant multicollinearity problem in our sample.

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<sup>13</sup>EGX database provides financial statement data for firms listed in the Egyptian Stock Markets (http://www.egx.com.eg/).

Variable	Ν	Mean	Std.	Min.	25%	Median	75%	Max.
BHRET	1,862	0.337	0.572	-0.575	-0.036	0.224	0.592	2.502
SAR	1,862	0.109	0.509	-0.937	-0.208	0.031	0.318	2.167
UE	1,862	0.051	0.204	-0.465	-0.027	0.014	0.080	1.144
EIndex	1,862	45.292	3.524	35.330	42.879	45.155	47.644	57.151
EDUM	1,862	0.602	0.490	0.000	0.000	1.000	1.000	1.000
FreqDUM	1,480	0.586	0.493	0.000	0.000	1.000	1.000	1.000
LMVE	1,862	25.535	1.719	22.707	24.275	25.188	26.454	30.264
LEV	1,862	0.419	0.176	0.077	0.283	0.424	0.554	0.788
MARGIN	1,862	0.081	0.065	-0.083	0.036	0.070	0.116	0.297
MTB	1,862	0.837	0.674	0.142	0.392	0.628	1.001	3.558
NEG	1,862	0.042	0.200	0.000	0.000	0.000	0.000	1.000

#### Table 2. Descriptive Statistics

## Table 3. Correlation among variables

	BHRET	SAR	UE	EIndex	EDUM	Freq DUM	LMVE	LEV	MAR GIN	МТВ
SAR	0.811 (0.00)									
UE	0.387 (0.00)	0.334 (0.00)								
EIndex	-0.056 (0.02)	-0.022 (0.34)	-0.053 (0.02)							
EDUM	-0.057 (0.01)	-0.024 (0.29)	-0.077 (0.00)	0.775 (0.00)						
Freq DUM	0.172 (0.00)	0.073 (0.00)	0.142 (0.00)	-0.650 (0.00)	-0.685 (0.00)					
LMVE	-0.208 (0.00)	-0.080 (0.00)	-0.157 (0.00)	0.536 (0.00)	0.395 (0.00)	-0.462 (0.00)				
LEV	0.064 (0.01)	0.071 (0.00)	0.063 (0.01)	-0.209 (0.00)	-0.157 (0.00)	0.143 (0.00)	0.047 (0.04)			
MARGI N	0.157 (0.00)	0.176 (0.00)	0.284 (0.00)	0.314 (0.00)	0.232 (0.00)	-0.209 (0.00)	0.276 (0.00)	-0.287 (0.00)		
МТВ	-0.288 (0.00)	-0.162 (0.00)	-0.152 (0.00)	0.307 (0.00)	0.229 (0.00)	-0.276 (0.00)	0.579 (0.00)	0.122 (0.00)	0.254 (0.00)	
NEG	-0.129 (0.00)	-0.088 (0.00)	-0.240 (0.00)	-0.069 (0.00)	-0.066 (0.01)	0.036 (0.16)	-0.018 (0.45)	0.115 (0.00)	-0.386 (0.00)	0.029 (0.22)

Note: P-values are in parentheses.

## 4.2. Multivariate regression results

We provide the multiple regression results for the relation between CSR activities and earnings change in Table 4. In this section, we present the multiple regression results that tested hypothesis described in section 2.

Table 4. Regression results for the relation between CSR investment and stock returns

Indep. Variables	Pred.	Dependent Var.	= BHRET	Dependent Var. = SAR		
	sign	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	1.008 ***	3.07	0.074	0.22	
UE	+	0.613 ***	8.58	0.528 ***	7.30	
EDUM	+	0.004	0.17	0.015	0.59	
UE*EDUM	+	0.287 ***	2.70	0.294 ***	2.74	
LMVE	-	-0.014	-1.64	0.004	0.47	
LEV	+	0.425 ***	5.95	0.415 ***	5.73	
MARGIN	+	1.393 ***	6.52	1.627 ***	7.52	
MTB	-	-0.171 ***	-8.05	-0.185 ***	-8.62	
NEG	+/-	0.096 *	1.65	0.095	1.61	
Year fixed effect		Yes		Yes		
Industry fixed effect		Yes		Yes		
Adj. R2		0.3762		0.1933		
F-Value		49.80		20.39		
# of Samples		1,862		1,862		

Note: \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests.

In the table, the coefficients on unexpected earnings for both stock return variables (BHRET and SAR) are 0.613 and 0.528, respectively, which are significant at the 1% level. The coefficient on our interest variable (UE\*EDUM), interaction variable between unexpected earnings (UE) and CSR

investment indicator variable (EDUM), is 0.287 (tstat=2.70) when a dependent variable is the buy and hold return (BHRET), and 0.294 (t-stat=2.74) when a size-adjusted annual dependent variable is cumulative abnormal return (SAR), respectively. Both

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coefficients are statistically significant at the 1% level.

This result suggests that firms' investment in CSR are likely to generate more earnings in the future and thereby increase firm value through good customer relations, reputation enhancement, etc., as we predicted. Other control variables also generally show correlations consistent with our expectation in the regressions. The coefficients on firm size (LMVE) are negative in both regressions as expected, although not significant. Leverage (LEV) and profitability (MARGIN) are significantly positively related with stock returns at the 1% level. Market to book ratio (MTB) shows significantly negative coefficients in both regressions. Net loss dummy variable (NEG) shows slightly negative coefficient in the buy and hold return regression and slightly positive coefficient in size-adjusted stock return regression.

BHRET (SAR) =  $\alpha$  +  $\beta_1 UE$  +  $\beta_2 EDUM$  +  $\beta_3 UE * EDUM$  +  $\beta_4 LMVE$  +  $\beta_5 LEV$  +  $\beta_6 MARGIN$  + (3)  $\beta_2 MTB$  +  $\beta_2 NEG$  +  $\epsilon$ 

Table 5 presents the results of multiple regressions for our main hypothesis. Table 5 shows that the coefficients on unexpected earnings (UE) are 0.864 and 0.739 in both regressions, respectively,

which are significant at the 1% level. The interest variable in the test (UE\*FreqDUM), the interaction variable between unexpected earnings and the frequency of CSR investment of firms, show significantly negative coefficients in both buy and hold return (BHRET) and size-adjusted annual cumulative abnormal return (SAR) regressions.

The coefficients are -0.447 and -0.454, respectively, which are both significant at the 1% level. Because this variable measures whether firms consistently invest in CSR activities for several years, this implies that when firms do not invest in CSR consistently, firm value does not increase or even decrease, while firm value could increase when firms engage in CSR consistently. The results for other control variables are similar to those in Table 4. Leverage (LEV) and profitability (MARGIN) show significantly positive correlations in both regressions at 1% level, and market to book value ratio (MTB) also shows significantly negative relations at 1% level. Net loss dummy (NEG) is not statistically significant even though it shows positive coefficients in both regressions.

BHRET (SAR) =  $\alpha$  +  $\beta_1$ UE+  $\beta_2$ FreqDUM +  $\beta_3$ UE\*FreqDUM +  $\beta_4$ LMVE +  $\beta_5$ LEV +  $\beta_6$ MARGIN (4) +  $\beta_2$ MTB +  $\beta_6$ NEG +  $\epsilon$ 

<b>Table 5.</b> Regression results for the relation between the sustainability of CSR activities and stock
returns

Indep. Variables	Pred.	Dependent Var	= BHRET	Dependent Va	r. = <i>SAR</i>	
indep. variables	sign	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.333	0.69	0.240	0.50	
UE	+	0.864 ***	5.18	0.739 ***	4.47	
FreqDUM	-	0.063 **	2.08	0.054 *	1.79	
UE*FreqDUM	-	-0.447 **	-2.57	-0.454 ***	-2.63	
LMVE	-	0.007	0.66	-0.005	-0.54	
LEV	+	0.453 ***	5.32	0.386 ***	4.57	
MARGIN	+	1.312 ***	5.18	1.428 ***	5.69	
MTB	-	-0.134 ***	-5.76	-0.134 ***	-5.80	
NEG	+/-	0.030	0.44	0.020	0.30	
Year fixed effect		Yes		Yes		
Industry fixed effect		Yes		Yes		
Adj. R2		0.3658		0.1556		
F-Value		29.73		10.18		
# of Samples		1,047		1,047		

*Note: 1) \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests; 2) CSR investment consistency dummy variable equals 1 when EEJI score is disclosed more than three times over most recent four years, otherwise 0.* 

## 5. SENSITIVITY ANALYSES

## 5.1. Pattern in CSR activities of firms

We argue that firm value will be increased when firms consistently engage in CSR activities, because consistent CSR activities are likely to enhance firm reputation and successful recruitment of talented employees, and decrease or remain unchanged when firms engage in CSR for opportunistic purposes, and present test results consistent with our hypothesis in the previous section. To test the sensitivity of our results, we analyse how the results are affected by the inclusion and exclusion of firms in the Top 200 EEJI index firms over two consecutive years, and present the results in Table 6. We categorise firms which have an EEJI index score into four groups as follows: First, each year we dichotomise firms with an EEJI score as firms with high level CSR activities (High) and low level CSR activities (Low) depending on whether firms are included in Top 200 firms in the EEJI index or not. Second, we assign firms to one of the following four groups, HH, LH, HL, LL based on the CSR activity levels of two consecutive years. If firms are included in the high group for two consecutive years, they are assigned to the HH group. If firms show a low level of CSR activities in the previous year and a high level of CSR activities in the current year, they are assigned to the LH group. If firms show a high level of CSR activities in the previous year and a low level of CSR activities in the current year, they are assigned to the HL group. If firms show a low level of CSR activities for two consecutive years, they are categorised as belonging



in the LL group. We expect the larger coefficients of unexpected earnings on stock returns for firms in the HH group, because these firms are more likely to invest in CSR for strategic reasons rather than for managers' opportunistic reasons. By the same token, we expect the smaller coefficients for firms in the LL group while the magnitude of the coefficients for firms in the HL and LH groups is expected to be in between the HH and LL groups.

Panel A of Table 6 shows the results of multiple regressions that analysed the relationship between unexpected earnings (UE) and buy and hold returns (BHRET) within these groups. The coefficients on unexpected earnings (UE) are all significantly positive at the 1% level in four groups. Consistent with our hypothesis, the coefficient on UE in HH group is the largest (1.136, t-stat=9.57), and those in LL group is the smallest (0.461, t-stat=4.83). In panel B of Table 6, which presents the results of size-adjusted abnormal return regression, all the results are qualitatively similar to the results in panel A of Table 6. These results imply that investors interpret earnings information by firms in the HH group as having higher sustainability than firms in the LL group, because firms that consistently engage in CSR activities at a high level improve a firm's good reputation, attract highly talented employees, and thus increases firm value.

Table 6. Multiple regression results by change patterns in CSR investment

Variables	sign	High High (HH)			Low High (LH)		)W	Low Low (LL)		
, and the sugar		Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.507	1.10	1.031	1.43	-0.156	-0.19	2.354***	3.10	
UE	+	$1.136^{***}$	9.57	0.833***	5.78	0.885***	4.01	0.461***	4.83	
LMVE	-	-0.012	-1.13	-0.002	-0.08	0.013	0.42	-0.050**	-2.31	
LEV	+	0.508***	4.96	0.260	1.44	0.144	0.57	0.368***	2.61	
MARGIN	+	0.993***	3.48	1.352***	2.81	0.238	0.29	2.168***	4.51	
MTB	-	-0.126***	-4.75	-0.197***	-3.53	-0.232**	-2.58	-0.228***	-4.72	
NEG	+/-	$0.159^{*}$	1.74	0.221	1.40	0.028	0.21	0.082	0.70	
Year		fixed		fixed		fixed		fixed		
Industry		fixed		fixed		fixed		fixed		
Adj. R2		0.402		0.371		0.413		0.339		
F-Value		27.49		10.34		7.13		15.94		
Obs(N)		788		333		158		583		
		Panel B. Whe	n depend	dent variable is	size-adjuste	d cumulative abr	normal retur	n (SAR)		
		High High (HH)		Low H		High Lo	w	Low Low		
Variables	sign			(LH)		(HL)		(LL)		
• • •	(	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.044	0.09	-0.107	-0.15	-1.110	-1.34	0.411	0.54	
UE	+	1.028***	8.50	0.750***	5.06	0.698***	3.17	0.429***	4.48	
LMVE	-	-0.012	-1.13	0.020	0.91	0.041	1.29	0.007	0.30	
LEV	+	0.475***	4.55	0.281	1.52	0.096	0.38	0.388***	2.74	
MARGIN	+	1.190***	4.10	1.841***	3.72	0.665	0.81	2.106***	4.37	
MTB	-	-0.139***	-5.15	-0.205***	-3.58	-0.248***	-2.77	-0.227***	-4.67	
NEG	+/-	0.127	1.37	0.251	1.55	0.063	0.46	0.072	0.62	
Year	_	fixed		fixed		fixed		fixed		
Industry		fixed		fixed		fixed		fixed		
Adj. R2		0.192		0.204		0.170		0.192		
F-Value Obs(N)		10.36 788		5.06 333		2.79		7.91		
(hbo)		700	1	222	1	158		583	1	

Note: 1) \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests; 2) When firms' EEJI index scores are disclosed, i.e, top 200, they are assigned to High group, otherwise assigned to Low group.

#### 5.2. Analysis by the variance of EEJI index scores

When we measure the consistency of CSR activities as the frequency of CSR activity level, firms that engage in CSR activities consistently with a strategic purpose, but invest in a relatively low level, may be categorised as firms that do not engage in CSR activities. To avoid this problem, we measure the consistency of CSR activities as the variance of EEJI index scores. When we use the variance of EEJI index scores as the consistency of CSR activities, firms that engage in strategic CSR activities with a small investment, will be categorised as firms that engage in CSR consistently.

Table 7 provides the results of the regressions based on the variance of EEJI index scores. After we calculate the variance of EEJI index scores of a firm using available data in the sample, we categorise samples into high, middle, and low level variance groups depending on the magnitude of variance and examine the magnitude of the coefficients on the interaction variable between unexpected earnings and the CSR activity level dummy (UE\*EDUM). If firms have all six year data, six EEJI scores are used in variance calculation, while the smaller number of observations is used in variance calculation when firms are included in the sample for less than six years. When firms engage in CSR activities opportunistically, the variance of firms CSR activity level is expected to be large because it is very difficult to maintain the same level of CSR activity when CSR activities are engaged in for personal purposes. That is, we interpret smaller CSR variance



as evidence of CSR for firms' sustainable growth or strategic purposes.

Panel A of Table 7 shows the results of multiple regressions when the dependent variable is buy and hold returns (BHRET). In all three groups, unexpected earnings (UE) show a significant positive correlation with stock returns, consistent with the results in the previous tests and studies. Our interest variable, interaction variable between unexpected earnings and CSR activity level dummy (UE\*EDUM), shows a significantly positive coefficient at the 5% level in the low variance group (coeff.=0.408, t-stat=2.13) and the 10% level in the

middle variance group (coeff.=0.370, t-stat=1.87), and an insignificant coefficient in the high variance group, even though all coefficients are positive. These results suggest that investors interpret that unexpected earnings for firms with a low variance in CSR activities are more likely to be permanent, while unexpected earnings for firms with a high variance in CSR activities are more likely to be temporary. These results complement the results in our main tests. Panel B of Table 7, which presents the results of size-adjusted returns, also shows similar results to buy and hold returns regressions.

Variables	Pred	Low Varia Group	ance	e is buy-and-hold retu Medium Varia Group		High Varia Group		
Vurlubico	sign	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.628	1.38	0.490	1.12	0.859 *	1.84	
UE	+	0.640 ***	5.45	0.679 ***	4.85	0.769 ***	5.46	
EDUM	+	0.005	0.11	0.048	1.06	-0.018	-0.40	
UE*EDUM	+	0.408 **	2.13	0.370 *	1.87	0.188	0.99	
LMVE	-	-0.005	-0.37	-0.015	-1.00	-0.001	-0.09	
LEV	+	0.432 ***	3.53	0.512 ***	4.28	0.349 **	2.41	
MARGIN	+	1.137 ***	3.08	1.566 ***	4.11	1.119 ***	2.85	
MTB	-	-0.155 ***	-4.44	-0.163 ***	-4.53	-0.225 ***	-5.09	
NEG	+/-	0.038	0.33	0.192 **	2.01	0.096	0.95	
Year fixed effect		Yes		Yes		Yes		
Industry fixed effect		Yes		Yes		Yes		
Adj. R2		0.3576		0.4138		0.4111		
F-Value		16.64		21.00		21.66		
# of Samples		591		596		593		
	Panel B. W	hen dependent var	iable is size-ad	djusted cumulative ab	normal return	(SAR)		
	Pred	Low Varia		Medium Varia	High Variance			
Variables	sign	Group		Group	-	Group		
	÷	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	-0.839 *	-1.84	-0.574	-1.29	-0.033	-0.07	
UE	+	0.546 ***	4.63	0.582 ***	4.08	0.664 ***	4.64	
EDUM	+	0.020	0.44	0.064	1.39	-0.003	-0.06	
UE*EDUM	+	0.352 *	1.83	0.399 **	1.97	0.212	1.10	
LMVE	-	0.013	0.92	0.006	0.40	0.014	0.87	
LEV	+	0.449 ***	3.66	0.451 ***	3.70	0.335 **	2.29	
MARGIN	+	1.452 ***	3.92	1.869 ***	4.82	1.198 ***	3.01	
MTB	-	-0.172 ***	-4.90	-0.192 ***	-5.22	-0.232 ***	-5.18	
NEG	+/-	0.044	0.37	0.167 *	1.72	0.096	0.93	
Year fixed effect		Yes		Yes		Yes		
Industry fixed effect		Yes		Yes		Yes		
Adj. R2		0.2088		0.2177		0.1997		
F-Value		8.416		8.886		8.387		
# of Samples	1	591		596		593	1	

Table 7. Multiple regression results by variance groups based on EEJI index scores

Note: 1) \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed tests; 2) Samples are divided into Low Variance Group, Medium Variance Group, and High Variance Group based on the variance of EEJI index score during sample period.

### 5.3. Subsequent accounting performance of CSR activities

The results of this study imply that consistent investments in CSR activities may increase accounting earnings and firm value. Prior research provides evidence consistent with socially responsible firms providing better financial longterm performance than other firms (Pava, 1996; Waddock, 1997; Roberts, 2002; Pozzoli and Romolini, 2013). Accordingly, firms' consistent investments in CSR activities as a corporate strategy are expected to show higher performances in the future periods.

Using three accounting performance measures such as return on equity (ROE3), sales growth (S3), and earnings growth (G3), we examine whether strategic CSR activities are associated with better firm performance in future periods. Panel A of Table 8 shows the results of multiple regressions that investigate the relationship between each performance indicator and CSR activity dummy variable (EDUM). Consistent with our expectations, the interest variable (EDUM) has significantly positive coefficients in both future ROE and sales growth except for earnings growth. Panel B of Table 8 provides the results of the relationship between accounting performance and the frequency of CSR investment of firms. We find that our variable of



interest (FreqDUM) is significantly negatively correlated with future ROE and earnings growth, which supports our projection. Taken together, these results suggest that CSR activities in general have an effect on better accounting performance in future periods, but that the effect of CSR is relatively weaker when firm insiders such as managers and large shareholders spend corporate resources on CSR activities for private benefits.

## Table 8. Multiple regression results for the effect of CSR activities on the subsequent accounting performance

		Panel A. When	the interest va	ariable is EDUM				
Variables	Pred	PERF. = R	OE3	PERF. =	PERF.	= G3		
variables	sign	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.209	0.86	0.644 ***	3.07	0.055	1.38	
EDUM	+	0.083 ***	4.41	0.033 **	2.00	0.003	0.87	
lnTA	+	0.032 ***	5.02	-0.001	-0.19	0.001	0.76	
LEV	+/-	0.085	1.61	0.245 ***	5.33	0.000	-0.05	
Year fixed effect		Yes		Yes		Yes		
Industry fixed effect		Yes		Yes		Yes		
Adj. R2		0.0794		0.7916		0.3720		
F-Value		9.79		9.76		4.94		
# of Samples		1,836		1,836		1,836		
		Panel B. When th	e interest var	able is FreqDUM				
Variables	Pred	PERF. = R	OE3	PERF. =	S3	<b>PERF. = G3</b>		
variables	sign	Coefficient	t-stat	Coefficient	t-stat	Coefficient	t-stat	
Intercept	+/-	0.496 *	1.67	0.819 ***	3.15	0.093 *	.91	
FreqDUM	+	-0.113 ***	4.95	-0.011	0.53	-0.011 ***	3.04	
lnTA	+	0.033 ***	4.52	0.004	0.66	0.001	1.02	
LEV	+/-	0.061	1.05	0.263 ***	5.14	0.000	0.02	
Year fixed effect		Yes		Yes		Yes		
Industry fixed effect		Yes		Yes		Yes		
Adj. R2		0.0966		0.0854		0.0565		
F-Value		9.66		8.56		5.85		
# of Samples		1,459		1,459		1,459		

Note: 1) \*\*\*. \*\*, \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively, based on two-tailed ROE3 is return on equity measured as total earnings in the subsequent three year, divided by the current tests; 2) level of total equity. That is, ROE3=(Earningst+1+Earningst+2+Earningst+3)/Total Equity; S3 is subsequent earnings growth measured as average sales in the subsequent three years minus current earnings, divided by the current level of total assets. That is, S3={(Salest+1+Salest+2+Salest+3)/3-Salest}/Total Assets; G3 is subsequent earnings growth measured as average earnings in the subsequent three years minus current earnings, divided by the current level of total assets. That is, G3={(Earningst+1+Earningst+2+Earningst+3)/3-Earningst}/Total Assets; lnTA is natural log of total assets; LEV is debt ratio calculated by dividing total liabilities by total assets.

## 6. CONCLUSION

In this paper, we examine how investors interpret firms' investments in CSR activities by examining the difference in the relationship between accounting earnings and stock returns. As a proxy for the level of CSR activities, we use the EEJI index announced by the Citizens' Coalition of Economic Justice Institute in Egypt. We categorise firms as firms that engage in CSR activities at a high level, if the EEJI index is disclosed. After we identify the consistency of CSR activities based on the number of times that firms are included in the disclosure group, we analyse the differential effect of CSR activities on the earnings response coefficients.

Our results are as follows; first, firms included in the disclosure list for CSR activities show a higher positive correlation between unexpected earnings and stock returns than firms not included in the EEJI list. This implies that firms engaging in CSR activities may increase profitability permanently and firm value. However, firms that sporadically (opportunistically) engage in CSR activities show a smaller relationship between unexpected earnings and stock returns than firms that consistently invest in CSR activities. This suggests that consistent CSR likely to activities are increase earnings permanently, while sporadic CSR activities are likely to hurt a firm's earnings and thereby firm value. This result does not change when the consistency of CSR activities is measured by the pattern in the level of CSR activities and the variance of level of CSR activities, suggesting our results are robust due to different measures of the consistency of CSR activities. In sum, our results imply that consistent CSR activities help firms to increase earnings and firm value.

Our findings offer the following contributions. Our paper adds to the mixed results of many previous studies that examined the relationship between CSR and financial performance. That is, when firms or managers invest in CSR activities opportunistically, CSR activities may not help to enhance financial performance, while CSR activities do help to improve financial performance when firms invest in CSR strategically. The results of the paper helps investors to evaluate and make investment decisions when considering the effectiveness of firms' investments in CSR activities on profitability. Managers can also use our findings to guide their actions when they engage in CSR activities. Also, we add one more piece of evidence to the literature that CSR activities in general do help to improve the financial performance of firms. Finally, in a period when many global firms are increasing their investment in CSR as international

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organisations, we hope our study raises the concern in our society about the need for more aggressive responses to CSR activities and many developed countries level up their regulations and standards on firm CSR activities and sustainable management.

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