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Enterprises: Evidence from Vietnam

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# CORPORATE SOCIAL RESPONSIBILITY DISCLOSURE AND FINANCIAL PERFORMANCE OF CONSTRUCTION ENTERPRISES: EVIDENCE FROM VIETNAM

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## ABSTRACT

Currently, although Vietnam is increasingly participating in the process of globalization and international integration, the issue of corporate social responsibility has not been given adequate attention from both theoretical and practical perspectives in Vietnam. To ensure sustainable development for businesses and for society, the issue of corporate social responsibility (CSR) is increasingly concerned. In the construction industry, the implementation of CSR activities has yielded some results, but there are still some limitations. Based on 135 observations samples from 27 construction companies listed on the Vietnam Stock Exchange during the 2014-2018 period, the study showed a positive relationship between CSR disclosure and financial performance, including the positive relationship of product CSR disclosure with respect to ROA.

**Keywords:** CSR, CSR index, construction enterprise, CSR in construction, stakeholder theory, Vietnam.

## 1 INTRODUCTION

Over the past decades, the construction industry has faced many challenges of causing environmental and social pollution. Global pollution is thought to be the main cause of the construction and maintenance of buildings, including air pollution (23%), climate change (50%), water pollution (40%), landfill waste (50%) and ozone depletion (50%) (Homer - Dixon, T.F. 1999; Delpla et al. 2009). From the enormous challenges of causing environmental pollution in the construction industry, contractors are encouraged to implement social responsibility as one of the additional measures to reduce the risk of environmental pollution and waste of resources. The application of scientific and technological advances in the production of construction materials and in the course of project construction will solve this problem.

In addition, many organizations have set out rules and indicators for sustainable development for manufacturing enterprises and for the construction and real estate industry to help businesses reflect their economic impact social, environmental and social (GRI, 2014). ISO 26000: Guidelines for Social Responsibility, developed by ISO to guide corporations to behave in an ethical and transparent manner. More specifically, there are some guidelines specific to contractors in the implementation of CSR, such as Social Responsibility 8000, Global Compact Initiative and ECS 2000 Standard.

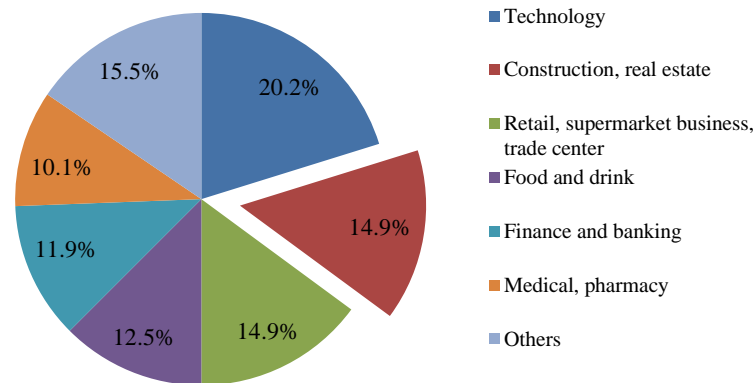
Competition in the construction industry is considered fierce. In order to be highly profitable, many construction companies have to reduce costs, so safety standards, occupational health of workers, the treatment of environmental waste may be ignored or provided. very limit. It is from these paradoxes that the implementation of social responsibility becomes prominent and is the leading core issue of the construction industry to society. Besides, the construction industry also adversely affects the natural environment including: depletion of land resources, generation of wastes and various forms of pollution (Lu and Tam 2013; Zhao et al. 2012; Ofori 1993).

However, the implementation of social responsibility and CSR disclosure have only been implemented strongly and widely in developed countries more than in developing countries which has not been adequately addressed. According to a study by Petrovic-Lazarevic (2008) investigating seventeen major construction corporations in Australia, found that social responsibility in the construction industry includes an ethical obligation to perform well such responsibilities: Citizens organization, sustainable development, must be a reputable company, the relationship between employees and trade unions, the relationship between suppliers and the community representative and commitment to CSR disclosure. While in the UK, construction companies are concerned about the environment, health and safety, human resources, supply chain management, customers and the community, and governance and ethics (Jones et al., 2006). Promoting the CSR implementation which is also to pursue a balance between economic, social and environmental efficiency. Putting CSR disclosure into the project construction process will control the prevention of waste production, waste management by reusing them in the production of construction materials that are both beneficial to society and reduce costs, increase profits for the company.

## 2 BACKGROUND OF RESEARCH IMPLEMENTATION OF CSR AT CONSTRUCTION ENTERPRISES IN VN

There are many studies related to the implementation CSR in Vietnam but currently there are no studies related to the social responsibility of the construction industry although it is to with hold 48.6% of the increase in GDP of Vietnam's economy in 2018 ([countryeconomy.com/gdp/vietnam](http://countryeconomy.com/gdp/vietnam)). According to the assessment, the growth rate of the construction industry will accelerate in 2019, and this is also the only field with positive prospects when considering that Vietnam's economy is forecast to grow by 6.9% in 2018 which is considered one of the countries with the highest growth rates in Asia, after Bangladesh and India (GSO, FPTS 2019). Also according to statistics, the construction industry has a very strong growth of investment capital of 25% compared to the same period last year ([reatimes.vn](http://reatimes.vn)). In particular, the impact of Vietnam's construction industry on other related industries is very large, for example, the construction industry has

created jobs for a large social labor force that is being accounted for 15.6 million people and for 28.6% of the total labor force (GSO 2019).



**Figure 1** Expected industry growth in 2019 (According to VNR)

Despite of an important role, there is much CSR limit in the construction industry in particular and other industries. Today's worldwide trend, investors often pay more attention to businesses that conduct responsibly, especially improving their social responsibility, environmental and ethical relationships and culture in businesses. Therefore under the impact of the market, Vietnamese's construction enterprises need to pay attention to the environment and society responsibility when carrying out their production and business. This can be to improve labor productivity and increase business efficiency that carry a harmonize economic, social objectives and enhance their credibility. The studies of Mai N.T.P (2013), Hoa D.T, Trang G.T.H (2015), Lanh N.T and Tram P.T.N (2016) evaluated the impact factors of CSR to financial performance such as leather and tobacco industries... They all show the mixed relationship of CSR to financial performance in some aspects but none of research has published the relevant on social responsibility for the construction industry.

Meanwhile, construction activities in some regions and developing countries, such as China, have caused particular concerns such as environmental pollution, resource wastage, safety issues, and public benefit issueses (Griffith A et al., 2005; Hill RC & Bowen P, 1997). It has been reported that these issues provide basic barriers to implementing the principles of sustainable development in developing countries such as China (Shen Ly et al., 2005). In fact, there is a close relationship between the implementation of social responsibility and the inefficiency of current practice in carrying out the project's feasibility study.

Therefore, by using the CSR disclosure data from construction industry companies on the Vietnamese stock market, this research will analyze and evaluate the relationship between CSR disclosure and financial performance in the implementation of construction projects. From there, develop the trends and prospects in the CSR disclosure by enterprises:

- Firstly, the trends that can clarify the concept of CSR have been interpreted and practiced by businesses;
- Secondly, exploring trends in CSR disclosure will help to publish a standardized way of reporting social responsibility;
- Finally, assessing the prospects of CSR disclosure will help businesses to extrapolate their future CSR reporting methods. Research will help them use resources more effectively in disclosing information on the excellence of social responsibility.

### 3 THEORETICAL PERSPECTIVES AND BACKGROUND LITERATURE ON CSR DISCLOSURE

Many organizations and researchers have generalized the conceptual framework of social responsibility. Caroll's theory (1979) has been used and developed by many studies. The first is a three-circle concentric model with economic, social values and social issues, then evolved into a pyramid model (Carroll, 1991) that can be applied to all sectors. This model consists of 4 levels: economic responsibility, legal responsibility, moral responsibility and charity responsibility. This theory is been used by Lee et al. (2012), Polychronidou et al. (2014), Saeidi et al. (2015).

The majority of theoretical is related to CSR that is stakeholders theory. Stakeholders are those who participate, influence or benefit from CSR-related activities, including: shareholders / owners, communities, customers, partners, and employees. The first theoretical stakeholder approach was presented by Freeman (1984) on business ethics in an organization. The majority of theories is related to CSR that is stakeholders theory. Stakeholders are those who participate, influence or benefit from CSR-related activities, including: shareholders / owners, communities, customers, partners and employees. The first theoretical stakeholder approach was presented by Freeman (1984), which based business ethics in an organization. According to this theory, stakeholders are any group or individual affected, either directly or indirectly by company activities such as shareholders, owners of companies, government agencies, political groups, associations, trade, community, employees, customers who should harmonize the interests of stakeholders, Deegan and Samkin (2009).

Using stakeholders theory, but Lee (2011) further developed the interaction of CSR strategy on company-level strategy and opposite. Öberseder et al (2013) also uses this theory to consider CSR activities and customer perceptions in the context of assessing most stakeholders.

In addition, the other theories used in the CSR study are also diverse, such as Becker-Olsen et al. (2006), McDonald and Rundle-Thiele (2008) use marketing theory to study CSR activities that benefit the company; Scholtens (2009) uses the socially responsible investment theory of Sparkes and Cowton (2004); Kang et al. (2010) use the theory of

positive and negative effects. A number of the more recently used theories include social identification theory (He and Li, 2011); organizational theory (Lee, 2011); fair value theory (Carnevale et al., 2012); supply and demand theory (Bauman and Skitka, 2012); benefit cost theory (Rhou et al., 2016) ... In general, theories included in the CSR study are increasingly diverse to be able to better explain the impact on each enterprise by other industries.

From a theoretical point of view of stakeholders, companies need to be transparent about their responsibilities to stakeholders so that they are assured that their rights are always taken care of and guaranteed by the company. The Sustainable Development Report (GRI) proposes a lot of content, which focuses on 5 aspects including: (i) Responsibility to shareholders (economic); (ii) Environmental responsibility; (iii) Responsibility to the community; (iv) Responsibilities for employees; (v) Responsibility for products /customers, for example: economic impact on customers, suppliers, employees, capital suppliers and public sector (Nikolaeva and Bicho, 2010).

With information related to business management and corporate finance management, the information on social and environmental activities also becomes an issue that requires businesses to be transparent and publicity to evaluate the effectiveness and social responsibility in its operations. According to Waller and Lanis (2009), CSR disclosure is a means of legalization, however, in some countries, the CSR disclosure will depend on the regulation of professional organizations following the mandatory trend or Voluntary. The activities of construction companies and other companies in general are affected by the socio-political context and stakeholders. In addition, social contracts between a company and society are formed by different stakeholders (Deegan 2002; Mathews 1993; Patten 1992). Constrained by this contract, companies agree to take various actions to achieve social satisfaction with their other goals and rewards, which also ensures the existence of companies (Deegan 2002; Brown and Deegan 1998; Guthrie and Parker 1989). In this sense, CSR disclosure is a way in which management can interact with society to influence the society of their organizations (Deegan 2002) and fulfill their obligations (Farook et al. 2011; Campbell 2000). In addition to gaining legality, there are other incentives for a company to participate in the disclosure of CSR information.

In order to meet the information requirements on this issue, implementing the "sustainable development" report (hereinafter referred to as sustainability report) has become a trend of CSR disclosure of businesses being encouraged to implement over the world. Sustainability reporting is the practice of measuring, announcing and being responsible to the stakeholders for their business activities towards sustainable development. Corporate sustainability reports can include information based on indicators: economic activity indicators (economic activity, market presence, indirect economic impacts), and environmental indicators (materials, energy, water, biodiversity, emissions, sewage and waste, compliance, transportation), social indicators (common labor and employment practices, personal rights, product responsibilities, social and community). Stakeholders will be provided with information on the goals, methods and results of environmental and social responsibility management in businesses. The publication of sustainability reports is made into an independent report or published in the annual report of the business and can be applied to businesses and organizations of all types, sizes and fields.

## **4 RESEARCH METHODS**

### **4.1. Research process**

Qualitative research: this is a preliminary research step to refine the variables included in the research model, check the scales used, consult the experts' opinions. The author carries out the research by collecting, classifying, compiling and analyzing data in relation to the topic. The aggregated content is the basis for determining research gap.

Quantitative research: quantitative research was conducted to re- test the scales in the research model. This is a detailed analysis of CSR disclosure collection data presented on the sustainability reports of construction enterprises listed on Vietnam Stock Exchange. After the screening process, 27 construction enterprises on HNX and HOSE were selected to be included in the survey.

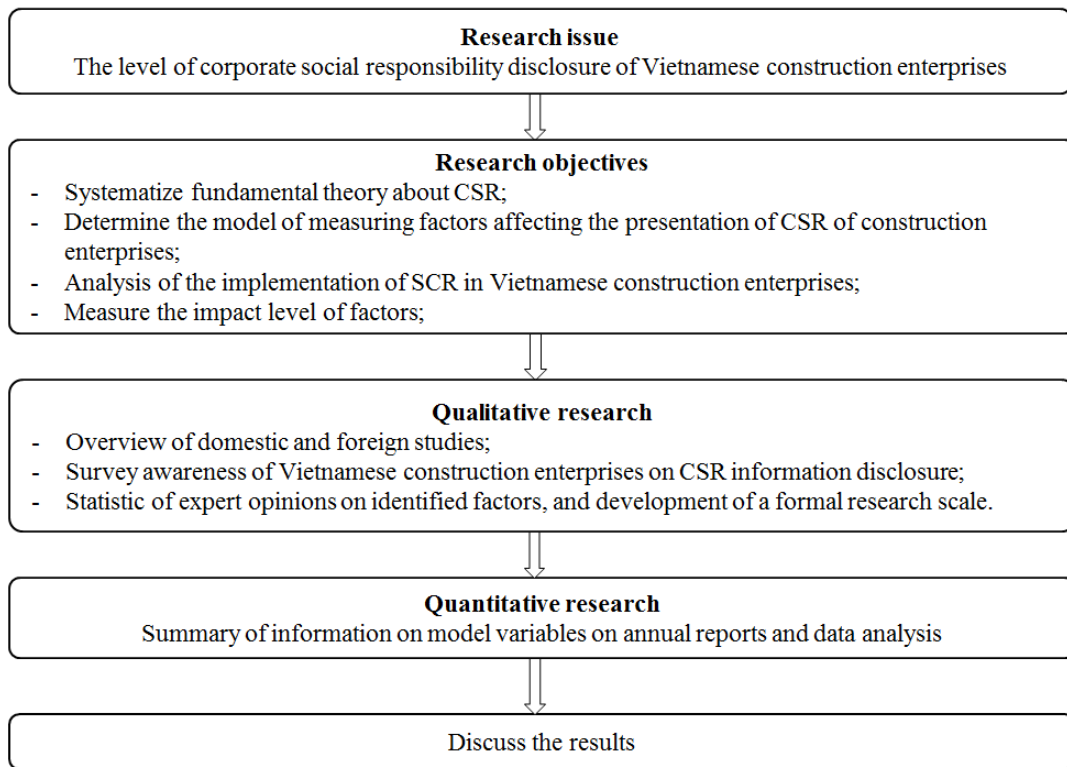


Figure 1 Detail reseach process

#### 4.2. Data collection

This study is based on 135 observations samples from 27 conctruction companies on the HOSE and HNX from 2014 to 2018 with the purpose of examining the relationship between CSR disclosure and financial performance. Research, review and measure the level of information disclosure of businesses based on the annual report that were been published relating to their own implementation of social responsibility. To measure CSR disclosure indicator, the research uses a weighted content analysis method of Gray et al (1995). Accordingly, CSR of construction enterprises will be based on the background theory of stakeholders affecting the effectiveness of the objects in the process of project formation including 5 indicators reflecting the level of CSR disclosure, including: employees, products, environment, community, contractors / suppliers and 2 indicators reflecting the financial performance, including: ROA, ROE. The content of the five CSR disclosure is been based on the existence and comprehensiveness of the published information. Each CSR disclosure indicator is rated from 0 to 3 corresponding to the level of information disclosure.

Table 1 Scale measuring CSR disclosure

CSR disclosure level	Score
CSR disclosure presented on Sustainability reporting has specific values and is compared with the previous year	3,0
CSR disclosure presented on Sustainability reporting has specific values but not compared to the previous year	2,0
CSR disclosure presented on Sustainability reporting	1,0
There is no information about CSR disclosure presented on Sustainability reporting	0

Therefore, a maximum of three points for each indicator and 15 points is the maximum total score for the level of CSR disclosure of each construction enterprise. CSR disclosure scale is the ratio of actual survey points to the maximum points that a construction enterprise can achieve.

$$CSRI_j = \frac{\sum_{i=1}^n x_{ij}}{n_j} \quad (1)$$

In wich:

$CSRI_j$ : corporate social responsibility disclosure index of  $j$  firm in period  $t$

$n_j$ : Total number of CSR items for  $j^{th}$  firm

$x_{ij} = 1$  if  $i^{th}$  item is published

$= 0$  if  $i^{th}$  item is unpublished

Then  $0 \leq CSRI \leq 1$

Based on previous studies, control variables were added to ensure full reflection of the factors affecting the performance of the CSR, including firm class, debt ratio on equity and activities to control the presentation and disclosure of CSR information of enterprises. In the Table 1 presents a summary of the variables in the model to be measured. At the same time, we estimate the regression model of disclosure of corporate social responsibility information for a company:

$$FP = \beta + \beta_1 CSRI_{jt} + \varepsilon_{jt} \quad (2)$$

Therefore:

*FP*: Financial performance index of construction enterprises

$CSRI_{jt}$ : corporate social responsibility disclosure index of  $j$  firm in period  $t$ .

$\varepsilon_{jt}$ : A random error of firm  $j$  in period  $t$ .

In order to examine the hypothesis to the relationship between the disclosure of CSR information to the financial efficiency of construction enterprises in Vietnam, this research method is applied by the Lee and Associates (2013). The instrumental stakeholder theory predicts that high CSR engagement leads to better CFP. The first hypothesis defines CSR disclosure as independent variable. The first alternative hypotheses are as follows:

There is a positive and significant relationship between CSR disclosure and Return on Assets (ROA): ( $H_1^A$ )

$$H_1^A: Y_{ROA} = \beta_{0ROA} + \beta_{1ROA}CSRI_{jt} + \beta_{2ROA}SIZE_{jt} + \beta_{3ROA}LEV_{jt} + \varepsilon_{jt} \quad (3)$$

There is a positive and significant relationship between CSR disclosure and Return on Equity (ROE):: ( $H_1^B$ )

$$H_1^B: Y_{ROE} = \beta_{0ROE} + \beta_{1ROE}CSRI_{jt} + \beta_{2ROE}SIZE_{jt} + \beta_{3ROE}LEV_{jt} + \varepsilon_{jt} \quad (4)$$

The second hypothesis is based on the relationship between each dimension of CSR disclosure and financial performance, which defines each dimension of CSR disclosure as independent variable. The alternative sub categories of hypotheses are as follows:

There is a positive and significant relationship between each dimension of CSR disclosure and Return on Assets (ROA): ( $H_2^A$ )

$$H_2^A: Y_{ROA} = \beta_{0ROA} + \beta_{1ROA}CSR\_emp_{jt} + \beta_{2ROA}CSR\_pro_{jt} + \beta_{3ROA}CSR\_env_{jt} + \beta_{4ROA}CSR\_com_{jt} + \beta_{5ROA}CSR\_supl_{jt} + \beta_{6ROA}SIZE_{jt} + \beta_{7ROA}LEV_{jt} + \varepsilon_{jt} \quad (5)$$

There is a positive and significant relationship between each dimension of CSR disclosure and Return on Equity (ROE): ( $H_2^B$ )

$$H_2^B: Y_{ROE} = \beta_{0ROE} + \beta_{1ROE}CSR\_emp_{jt} + \beta_{2ROE}CSR\_pro_{jt} + \beta_{3ROE}CSR\_env_{jt} + \beta_{4ROE}CSR\_com_{jt} + \beta_{5ROE}CSR\_supl_{jt} + \beta_{6ROE}SIZE_{jt} + \beta_{7ROE}LEV_{jt} + \varepsilon_{jt} \quad (6)$$

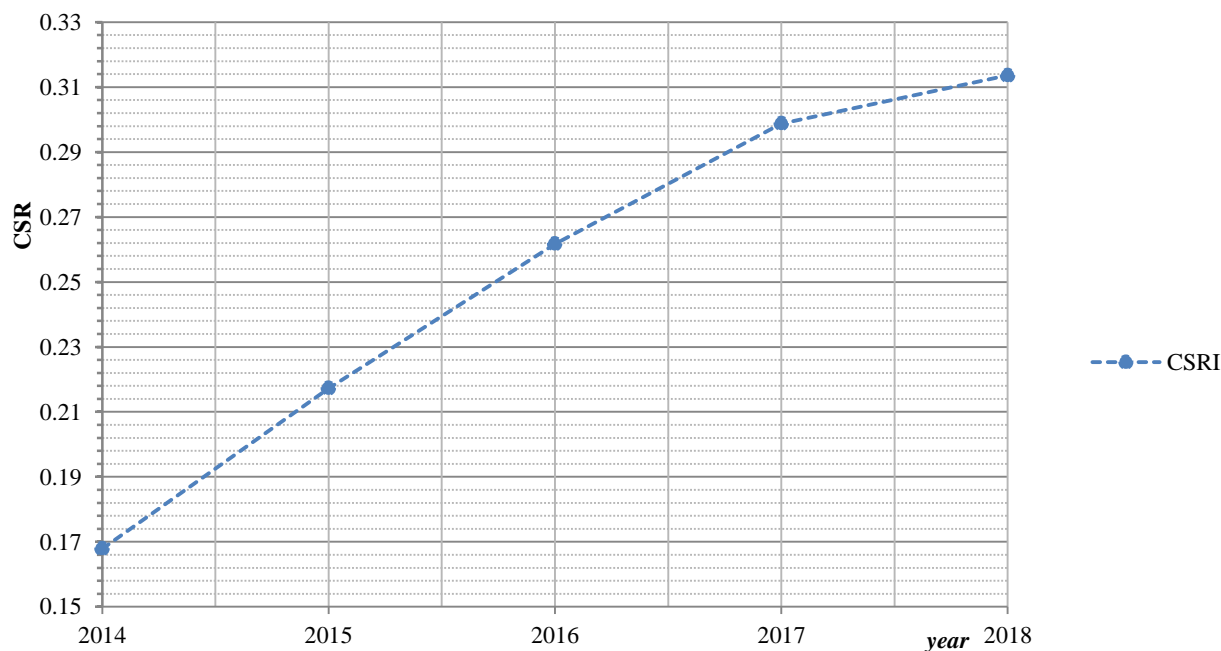
**Table 2** Summary of variables in the model to be measured

Variables	Description
<b>Corporate Social Responsibility Disclosure Variable</b>	
$CSRI_{jt}$	= A variable of corporate social responsibility disclosure index of $j$ firm in period $t$ . It is defined as number of CSR items which firm disclosed divided by total CSR disclosure items
<b>Financial Performance Measures Variable</b>	
$ROA_{jt}$	= A variable of return on equity of firm $j$ in period $t$ . It is defined an average total assets and Earnings (loss) before tax (EBT) scaled by average total assets.
$ROE_{jt}$	= A variable of return on assets of firm $j$ in period $t$ . It is defined dividing net income by shareholders' equity.
<b>Control Variables</b>	
$SIZE_{jt}$	= A variable of firm size of firm $j$ in period $t$ . It is defined as the logarithm of total assets.
$LEV_{jt}$	= A variable of debt to equity ratio of firm $j$ in period $t$ . It is defined as total interest bearing debts divided by total shareholders' equity.
$\varepsilon_{jt}$	= A random error of firm $j$ in period $t$ .

## 5 RESULTS

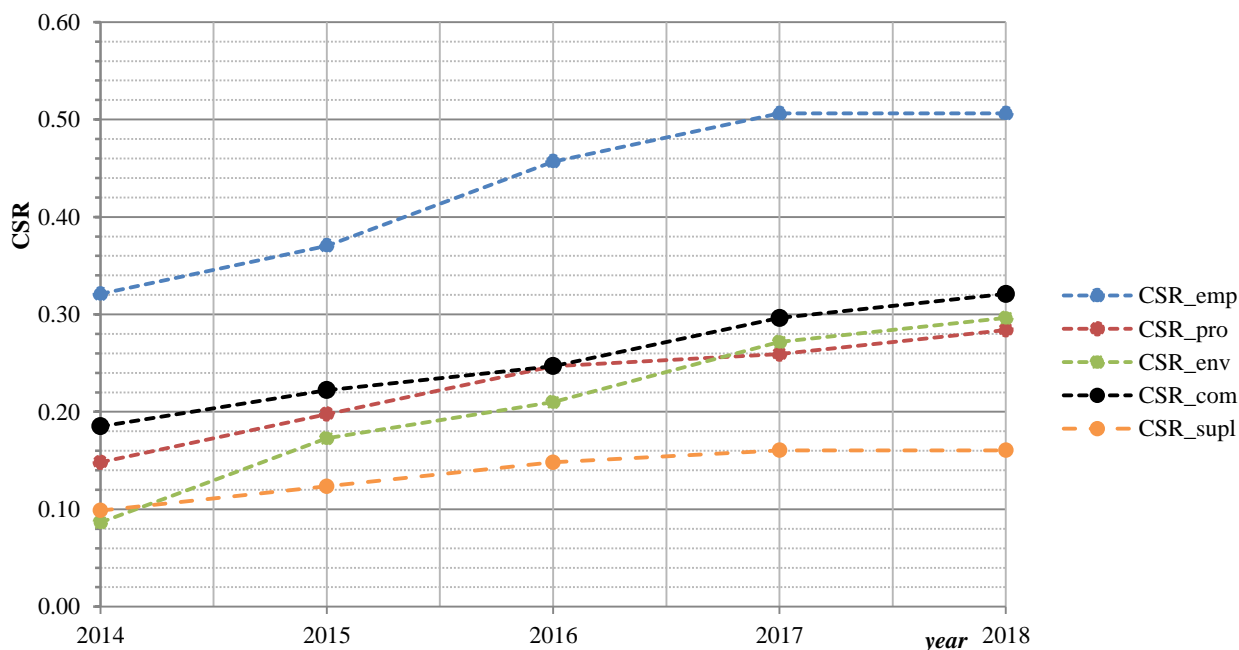
### 5.1. Disclosure of CSR by construction enterprises in Vietnam

In general, construction enterprises are increasingly focusing on the disclosure of social responsibility information over the years (Fig. 2). The level of public information disclosure tends to increase and pay more attention in both content and form of publication.



**Figure 2** The level of disclosure of social responsibility information

One of the information themes showed in Fig. 2 shows the level of employee information disclosure is very focused by companies. This is partly due to the requirement of disclosure of information on social responsibility of Circular 155/2015/TT-BTC that requires companies listed on the stock market to disclose social and environmental information. This is followed by information related to the social community, products, energy and contractors / suppliers. The level of disclosure of social responsibility information is increasingly focused and tends to increase both in quality and quantity of publication.



**Figure 3** The level of disclosure of social responsibility information in the content

### 5.2. Model test results

Table 3 presents the descriptive statistics of variables from year 2009 to 2011. The deviations between maximum and minimum for some variables were high. For instance, on average, return on assets is spreading from - .92% to 22.74% and return on equities is spreading from -2.33% to 49.64% for the whole period. The debt to equity ratio was 0.63 times, suggesting that total liabilities form a significant percentage of the capital structure.

The mean and median of CSRI were 0.00 and 0.60, respectively, suggesting that firms in Vietnam disclosed CSR activities as not same. Some indicator CSR had a differently disclosing level, such as the max and min of *csr\_com*, *csr\_env*, *csr\_emp* were 0 to 1, suggesting that the difference among the firms.

**Table 3** Descriptive Statistics for all Construction Enterprises in the Years 2014 to 2018

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	135	4.346	4.620504	-.92	22.74
roe	135	11.778	9.930796	-2.33	49.64
csri	135	.2515556	.1396417	0	.6
csr_supl	135	.1374815	.200662	0	.67
csr_com	135	.253037	.2855167	0	1
csr_env	135	.2062222	.2296001	0	1
csr_pro	135	.2255556	.1975698	0	.67
csr_emp	135	.4303704	.205867	0	1
lev	135	.6371111	.1808721	.22	.91
size	135	9.224222	.5470511	8.13	10.36

Our first consideration is that the correlation coefficient ( $r$  of Pearson) is low in all cases. Therefore, even if there is a significant correlation, it is weak. This implies that it does not totally explain our phenomenon. We need a formal model in regression. This could solve the multi-collinearity problem among variables in the model we will show look at.

Table 4 shows that:

- ROA, ROE are positively correlated with *csr\_env* and *csr\_com*;
- ROA, ROE are negative correlation with *csr\_emp*, *csr\_pro* and *csr\_supl*;
- Lev, size are positively correlated with *csr\_pro*, *csr\_supl* and *csri*.

**Table 4 Correlations among variables**

	roa	roe	size	lev	csr_emp	csr_pro	csr_env	csr_com	csr_supl	csri
roa	1.0000									
roe	0.7828	1.0000								
size	-0.1614	0.0077	1.0000							
lev	-0.5424	-0.0642	0.2894	1.0000						
csr_emp	-0.1081	-0.2078	-0.1676	0.0593	1.0000					
csr_pro	-0.0931	-0.0764	0.0724	0.1138	0.5935	1.0000				
csr_env	0.1694	0.0823	0.1777	-0.1787	0.4302	0.4122	1.0000			
csr_com	0.0680	0.0708	-0.0136	-0.0217	0.4929	0.3219	0.6178	1.0000		
csr_supl	-0.1343	-0.1099	0.2490	0.0147	-0.1350	-0.1296	-0.1239	-0.3121	1.0000	
csri	-0.0157	-0.0602	0.1026	-0.0116	0.7616	0.6891	0.7921	0.7557	0.0422	1.0000

Table 5 presents the findings of the multiple regressions of the relationship between CSR disclosure as independent variable and ROA, ROE as the dependent variable from the years 2014 to 2018. Regression analysis of the relationship presented the following results.

**Table 5 Regression Analysis: ROA, ROE as the Dependent Variable**

Variables	ROA			ROE		
	OLS	FE	RE	OLS	FEM	REM
csri	7.735*** (2.504)	10.29*** (2.853)	7.735*** (2.504)	11.53* (6.809)	16.11* (8.316)	11.53* (6.809)
lev	-21.47*** (2.405)	-26.69*** (2.828)	-21.47*** (2.405)	-12.49* (6.433)	-22.09*** (8.243)	-12.49* (6.433)
size	0.941 (1.075)	2.108 (1.795)	0.941 (1.075)	2.952 (2.732)	8.418 (5.233)	2.952 (2.732)
Constant	7.403 (9.418)	-0.685 (15.67)	7.403 (9.418)	-10.39 (23.93)	-55.85 (45.67)	-10.39 (23.93)
<b>Hausman</b>						
Chi( $\chi^2$ )		27.28			9.84	
Prob>chi2		0.0000			0.0200	
<b>Vif</b>		1.07			1.07	
<b>White's test</b>						
chi2(9)		24.09			6.58	
Prob>chi2		0.0042			0.6810	
<b>Wooldridge test</b>						
Prob > F		0.1303			0.7004	
Observations	135	135	135	135	135	135
R-squared		0.509			0.130	
P value	0.0000	0.0000	0.0000	0.0507	0.0021	0.0507
Number of mack	27	27	27	27	27	27

*Standard errors in parentheses*



\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results of the Hausman specification test from Table 5.4 confirm that individual effects were correlated with the other regressors in the model ( $\chi^2 = 27.28$ , probability = 0.0000;  $\chi^2 = 9.84$ , probability = 0.0200), indicating that there is an association between the individual effects and the regressors. So the null hypothesis was rejected, and the fixed effects model is more suitable than the random effects model.

Table 5 shows the results from **White's test**. It can be seen that the variance across entities was not zero ( $\chi^2 = 24.09$  and probability = 0.0042), indicating that the null hypothesis was rejected and with ( $\chi^2 = 6.58$  and probability = 0.6810) indicating that the null hypothesis was accepted. That is, the random effects model is favoured over the pooled OLS model for ROA and fixed effects model is favoured over the random effects model.

It is apparent from Table 5 that all models were found to be statistically significant at the 1% level ( $p = 0.00$ ). The results from the tests in table show that the random effects model is a proper model. The finding shows that the coefficients of CSR index were found to be positively and significantly related to ROA at the 1% level and significantly related to ROE at the 10% level for all model.

**Table 6 Multiple Regression Analysis between each Dimension of CSR Disclosure and ROA, ROE**

Variables	ROA			ROE		
	OLS	FE	RE	OLS	FEM	REM
csr_supl	-2.153 (2.405)	-2.586 (2.956)	-2.153 (2.405)	-3.802 (6.260)	-7.366 (8.738)	-3.802 (6.260)
csr_com	-0.0209 (1.883)	0.545 (2.341)	-0.0209 (1.883)	4.787 (4.946)	9.819 (6.921)	4.787 (4.946)
csr_env	1.343 (1.803)	1.477 (1.873)	1.343 (1.803)	6.026 (5.012)	6.589 (5.536)	6.026 (5.012)
csr_pro	4.255* (2.387)	6.159** (2.613)	4.255* (2.387)	5.192 (6.462)	6.609 (7.725)	5.192 (6.462)
csr_emp	1.375 (2.173)	1.533 (2.270)	1.375 (2.173)	-5.564 (6.000)	-4.118 (6.709)	-5.564 (6.000)
lev	-21.98*** (2.424)	-27.22*** (2.829)	-21.98*** (2.424)	-11.27* (6.434)	-23.62*** (8.361)	-11.27* (6.434)
size	1.116 (1.122)	1.889 (1.815)	1.116 (1.122)	2.275 (2.775)	7.719 (5.364)	2.275 (2.775)
Constant	6.526 (9.859)	2.129 (15.88)	6.526 (9.859)	-2.735 (24.41)	-46.92 (46.93)	-2.735 (24.41)
<b>Hausman</b>						
Chi( $\chi^2$ )	6.77			6.77		
Prob>chi2	0.4537			0.4537		
<b>Vif</b>						
1.70						
<b>White's test</b>						
chi2(35)	37.46			26.70		
Prob>chi2	0.3569			0.8419		
<b>Wooldridge test</b>						
Prob > F	0.1096			0.7435		
Observations	135	135	135	135	135	135
P value	0.0000	0.0000	0.0000	0.1758	0.0116	0.1758
R-squared	0.539			0.160		
Number of mack	27	27	27	27	27	27

*Standard errors in parentheses*

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The results of the Hausman specification test from Table 5.4 confirm that individual effects were correlated with the other regressors in the model ( $\chi^2 = 6.77$ , probability = 0.4537), indicating that there is an association between the individual effects and the regressors. So the random effects model is more suitable than the fixed effects model.

Table 6 shows the results from **White's test**. It can be seen that the variance across entities was not zero ( $\chi^2 = 37.46$  and probability = 0.3569;  $\chi^2 = 26.70$  and probability = 0.8419) indicating that the null hypothesis was accepted. That is, the random effects model is favoured over the pooled OLS model.

It is apparent from Table 6 that all models were found to be statistically significant at the 1% level ( $p = 0.00$ ). The results from the tests in table show that the random effects model is a proper model. The finding shows that the coefficients of csr\_pro index were found to be positively and significantly related to ROA at the 1% level for OLS, REM model and at 5% level for FEM. No relationship was found between the other dimensions and ROE.

## 6 DISCUSSION

This section elaborates the analyses of the relationship between CSR disclosure and financial performance for all construction enterprises. A number of studies have detected a relationship between CSR disclosure and FP. In order to improve statistical methodology and to produce more reliable results, this section used pooled OLS and panel data regression to explain the existence and direction of the relationship between CSR and FP; Also, to discuss the robustness

of results and reliability. The results from the alternative hypotheses are summarized in the following section. Table 6 presents the summary of hypotheses tested for Eq. 1 to 4, using financial performance measures.

**Table 6** Summary of the Hypotheses Tested for Hypothesis 1 and 2

Hypothesis	Relationship between two variables	Expected relationship	Results	Outcome
$H_1^A$	CSRI on ROA	Postive	Postive	P<0.01 Accepted
$H_1^B$	CSRI on ROE	Postive	Postive	P<0.1 Accepted
$H_2^A$	CSRij on ROA	Postive	Postive	P<0.5 Accepted
$H_2^B$	CSRij on ROE	Postive	Negative	No sign Rejected

## 7 CONCLUSIONS

This research presents the relationship between CSR disclosure and two financial performance measures for the construction enterprises. The relationship between CSR disclosure and financial performance was examined, with financial performance defining as dependent variable. The empirical results for the manufacturing industry indicate that CSR disclosure is significantly related to financial performance as measured by ROA and ROE. CSR disclosure has a positive and significant relationship with financial performance for construction enterprises as well.

The relationship between each dimension of CSR disclosure and financial performances are also carried out, by dividing CSR disclosure into five dimensions namely: environment, contractor/supplier, employee, community and products dimensions. The results of the manufacturing industry show that the products dimension was found to be positively and significantly related to ROA, suggesting that better performing firms disclose more CSR in the environment, employee, community dimension. The contractor/supplier disclosures had a negative effect on ROA.

This study also makes a significant contribution to the knowledge on corporate social responsibility disclosure from the context of developing countries in Vietnam in the following ways:

*Firstly*, this study makes an important contribution to the literature of CSR disclosure, especially in relation to stakeholder theory in construction enterprises. *Secondly*, this study has contributed to a further understanding of the practices of CSR disclosure in VN context. *Thirdly*, this study provides a valuable contribution to the model of the relationship between CSR disclosure and financial performance. *Finally*, this study has made a significant contribution to methodology by constructing a CSR index, which is used to determine the level of CSR disclosure for construction enterprises.

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