



DOI: [https://doi.org/10.14505/jemt.10.1\(33\).18](https://doi.org/10.14505/jemt.10.1(33).18)

## Linking Ownership Concentration to Firm Value: Mediation Role of Environmental Performance

Mohamad Nur UTOMO

Faculty of Economics  
Borneo Tarakan University, Indonesia  
[mohnurutomo@gmail.com](mailto:mohnurutomo@gmail.com)

Sugeng WAHYUDI

Faculty of Economics and Business  
Diponegoro University, Indonesia  
[sug\\_w@yahoo.com](mailto:sug_w@yahoo.com)

Harjum MUHARAM

Faculty of Economics and Business  
Diponegoro University, Indonesia  
[hardjum@gmail.com](mailto:hardjum@gmail.com)

Monica Rahardian Ary HELMINA

Faculty of Economics and Business  
Lambung Mangkurat University, Indonesia  
[monicarahardian@gmail.com](mailto:monicarahardian@gmail.com)

### Suggested Citation:

Utomo, M.N., Wahyudi, S., Muharam., Helmina, M.R.A. (2019). Linking Ownership Concentration to Firm Value: Mediation Role of Environmental Performance. *Journal of Environmental Management and Tourism*, (Volume X, Spring), 1(33): 182 - 194. DOI:10.14505/jemt.v10.1(33).18

### Article's History:

Received February 2019; Revised February 2019; Accepted March 2019.  
2019. ASERS Publishing©. All rights reserved.

### Abstract:

Research was aimed to examine the indirect effect of ownership concentration on firm value through environmental performance. Firms with businesses at mining, manufacture, and agriculture sectors, and that listing at Indonesia Stock Exchange and participating with Environmental Performance Assessment Program (PROPER), were the sample of research. Research has given some results. Ownership concentration has positive impact non-linearly on environmental performance. Ownership concentration can increase firm value through strategy of improving environmental performance. These results supported stakeholder theory and legitimacy theory. Corporate action that adopts environmentally friendly issue was selected as strategy to create firm value.

**Keywords:** environmentally friendly; Indonesia; ownership concentration; strategy.

**JEL Classification:** G32; Q50.

### Introduction

Agency theory has explained that the separation of firm's ownership function from its controlling function is potentially causing agency conflict between shareholders and manager, and accordingly, ownership concentration is then used as monitoring mechanism to reduce the occurrence of agency conflict (Berle and Means 1932; Jensen and Meckling 1976). Ownership concentration manifests as the controlling-shareholders, where *the fewer the number of shareholder, the more concentrated is the ownership*, which means that it would be easier for these shareholders to control manager to maximize firm value (Shleifer and Vishny 1997; Thomsen

and Pedersen 2000). Ownership concentration helps management to achieve shareholder goals through voting power or through their representation in managerial position (Porta, Lopez-De-Silanes and Shleifer 1999).

The effect of ownership concentration on firm value has been examined in many researches but each does not have consistent relationship. There was a gap among previous researches, and some of them indicated that ownership concentration can reduce agency conflict and improve firm value (Caixe and Krauter 2013; Farooque, Ziji, Dunstan and Karim 2010; Jaafar and El-Shawa 2009; Nguyen, Locke and Reddy 2015; Vintila and Gherghinaa 2014). Other researches showed that ownership concentration does not have an impact on firm value (Ahmed, Sehrish, Saleem and Yasi 2012; Al-Saidi and Al-Shammari 2015; Wahla, Shah and Hussain 2012; Yasser and Mamun 2015). Next, Jiang, Habib, and Smallman (2009) found that the increase of ownership concentration will only exacerbate conditions because the controlling-shareholders do not act their controlling function, which thus giving managers opportunities to exploit their bad behavior of seeking personal leverages.

Other research discovered other factor with indirect effect on the relationship between ownership concentration and firm value. This factor mediates the relationship of ownership concentration and firm value. It is consistent with stakeholder theory, which saying that manager is not only an agent for shareholders but also for all stakeholders (Henriques and Sadorsky 1996). Any firms attempting to maximize their firm value must keep into balance of interests between shareholders and stakeholders (Jensen 2001). One vital interest of stakeholders is the sustainability of environmental performance. Literatures concerning stakeholders have said that firms must satisfy demands of various stakeholders, including to maintain a healthy life environment, to produce good wellbeing of employees, and to help society to be successful (Freeman and Evan 1990; Marcus and Geffen 1998; Sharma, Pablo and Vredenburg 1999).

In current days, the phenomenon of environmentally friendly business has been becoming a demand that compels firms to seek other orientation other than economic performance. Stakeholder theory has given a change toward new paradigm in the measurement of firm performance. One part of this change is the birth of new concept called *Triple Bottom Line*, which measuring firm performance in holistic way involving three performance measures, such as: economic measure, related with profit; environmental measure, connected to environmental care; and social measure, represented by social care (Elkington 1997). This paradigm encourages firm owners to integrate both environmental and social cares into firm's strategic policies in order to maintain their reputation and legitimacy (Aerts and Cormier 2009). Corporate action to improve environmental performance also provides economic benefits to the firms, including creating innovation and efficiency in firm operational (Caracuel and Mandojana 2013; Porter and Linde 1995), increasing competitive advantage of the firm (Hart 1995; Russo and Fouts 1997), improving employee commitment and firm's environmental reputation (Dogl and Holtbrugge 2014), and substantiating firm's legitimacy (Hart 1995).

Within Indonesia context, the government has regulated firm's environmental performance through policies concerning with the conservation of life environment. During seventh period of Five-Year Development Program, the Decree of People Deliberation Council (MPR) No. II/MPR/1998 concerning Drafts of National Directions (GBHN) has determined that "policies at life environment sector, including those concerning with the development of life environment, are aimed to keep the life environment functioning as the supporter and also the back-up for life ecosystem in order to produce balance, harmony and dynamic compatibility between the systems of ecology, socio-economy, and socio-culture to warrant the sustainability of national development" (GBHN, 1998). This position is supported by Law No.23/1997 concerning Life Environment Management.

The presence of these laws has compelled Indonesian firms to take responsibility for their actions on the environment. Environment-based economic practice that Indonesian industrialists must attend has been laid upon a platform consisting some elements, such as: Environmental Management System, Energy Efficiency, Emission Reduction, 4R (Reuse, Reduce, Recycle, Recovery) of Non-B3 Solid Wastes, Biological Diversity Protection, and Community Development. This platform is used to assess the appropriateness of industrial operation on life environment and community. This platform has been set into a program called as Environmental Performance Assessment Program (PROPER = *Program Penilaian Kinerja Lingkungan*) designed by the Ministry of Life Environment for Indonesia Republic to make firms focusing more on the issue of environmental conservation (Djajadiningrat, Hendriani and Famiola 2014).

Number of research that examines the relationship between ownership concentration, environmental performance, and firm value within Indonesia context is still very few. The current research attempts to prove that firms with good environmental performance will create economic value to themselves and mediate the relationship between ownership concentration and firm value. Previous researches are mostly yet to examine these topics. The current research takes place at several firms listed with Indonesia Stock Exchange and focuses

on mining, manufacture and agriculture sectors because these sectors are considered as vulnerable to environmental issues (Post, Rahman and McQuillen 2015; Zou, Lin and Xie 2015).

Result of research indicates that ownership concentration has positive effect on environmental performance with non-linear pattern. Environmental performance improves firm value and mediates the effect of ownership concentration on firm value. The outline of this paper includes five sections. Next section is literature review and hypothesis development. Third section explains research methodology. Fourth section presents empirical results. Final section is conclusion and the limit of current research for improvement of next research.

## 1. Literature Review

### 1.1. Ownership Concentration and Environmental Performance

The effect of ownership concentration on firm value is examined by utilizing agency theory, which indicates that agency conflict is mostly understood in narrow perspective, especially based on the relationship between owner and manager of the firm (Parkinson 1994). Stakeholder theory, however, exploits wider perspective by stating that firm is not only about the relationship between management and shareholders, but also about the interests of other entities (stakeholders) who can affect and be affected by firm decision (Freeman 1984). Under perspective of legitimacy theory, firms strategically do corporate actions that adopt social and environmental values. Firms need people legitimacy because it is a strategic factor for the development of firms in the future (Epstein 1972). Both stakeholder and legitimacy theories are underlying the relationship between firm ownership and environmental performance (Henriques and Sadosky 1996; Ullmann 1985) and also explaining the effect of environmental performance on firm value (Aerts and Cormier 2009).

In general, the existence of firm brings positive impact on economic progress and national development. However, firm's production activity is mostly understating the presence of environment as a factor of production process, or precisely only considering environment as natural gift that can be exploited without conservation. Production activity without environmental care always has consequences on natural balance, such as global warming, climate change, natural disaster, and pollution of water, air and land. All of them are prices paid by society for firm activity. It provokes the emergence of conflict between people as stakeholders and firms.

People, through times, become aware that environment is a factor of production that its importance shall be strongly attended. This position got the peak when "Environmental Impact Assessment (EIA)" was introduced in 1970s in America that requires firms to involve environmental impact calculation into their activity plan to understand whether their production activity has great or adverse impact on environment (Djajadiningrat *et al.* 2014).

After having their mind blown by the issues concerning environmental damage due to the increase of firm's production activity, firms then measure their performance not only from economic dimension, but also from other dimension, such as environment and society. Accordingly, *Triple Bottom Line* emerges as a concept measuring firm performance in holistic way involving three performance measures, such as: economic measure, in form of profit; environmental measure, in form of environmental care; and social measure, in form of social care (Elkington 1997).

Firm's care to environment and society is explainable through stakeholder theory, which says that firms' success in maximizing their economic performance is not only understood from the relationship between firm and shareholders, but also from the relationship between firm and stakeholders (Jensen 2001; Ullmann 1985). Firms with strong conscience to environmental and social issues would motivate shareholders to persuade management to improve firms' environmental performance (Henriques and Sadosky 1996; Ullmann 1985).

Shareholders who dominate firm ownership are different from other shareholders in 2 aspects. Dominant shareholders always have greater interest to know firm's long-term survival rate and identify their reputation with the firm (Anderson, Deli and Gillan 2003). At least, there are 3 reasons why shareholders care to environment, respectively: 1). Dissatisfaction with environmental fines (pecuniary) that may reduce their earning, 2). Disappointment with slow progression of environmental performance, and 3). Difficulty to arise new capitals or attract new investors (Henriques and Sadosky 1996). Therefore, dominant shareholders (ownership concentration) tend to make decisions to maximize firm goals on economic, society and environment.

Previous researches declared that there is strong relationship between ownership concentration and efforts to improve both firm's environmental and social performances. Earnhart and Lizal (2006) found that firms in Czech Republic with ownership concentration structure are motivated more to improve their environmental performance. The first biggest shareholders as the proxy of ownership concentration are very persuasive on the firm to take efforts to reduce the impact of air pollutants (such as CO, SO<sub>2</sub>, and NO<sub>x</sub>) emitted from firm's

operational activity. Environmental performance is measured from the emission level of main pollutants (CO, SO<sub>2</sub>, and NO<sub>x</sub>) produced by firm activity and regulated mostly by the government of Czech Republic.

Crisostomo and Freire (2015) discovered that firms with ownership concentration in Brazil always attempt to maintain their name and reputation by making engagement with social and environmental activities (Corporate Social Responsibility). The improvement of social and environmental performances will result in the sustainability of firm's image and reputation, which then lead to the arrival of people legitimacy to the firm. Moreover, Chang and Zhang (2015) asserted that firms with ownership concentration tend to increase their level of control and monitoring on operational costs related with environment.

Based on theoretical reviews and empirical studies previously given, then the following hypotheses are proposed:

H1: The first biggest ownership concentration has positive effect on environmental performance.

H2: The biggest ownership concentration from the first to the third has positive effect on environmental performance.

## 1.2. Environmental Performance and Firm Value

Environmental management by the firm is aimed to achieve good environmental performance. This environmental management is done by using natural resources for as great as possible benefits without sacrificing environmental conservation. To obtain good environmental performance, the firm must do environmentally friendly business practice with outputs such as preventing pollution, using renewable energy, and having good environmental reputation (Walls, Berrone and Phan 2012). Environmental performance is also defined as protective steps for air, water, soil and immediate ecosystems, which by the times, these will create pattern for each economic activity (Bran, Radulescu and Ioan 2011).

As explained in stakeholder theory, maximization of firm value shall not make firms to disregard stakeholders other than dominant shareholders (Jensen 2001). People are the key stakeholder who are mostly affected by the impact of environmental damage due to firm's operational activity. Legitimacy theory explains that there is a social contract between firm and society. Any firms must have integrity and ethic in doing their business, and shall improve their social and environmental responsibilities to be acceptable in people eye (Deegan 2002). People legitimacy is obtained by firms through their corporate actions to adopt social and environmental values (Aerts and Cormier 2009).

Corporate action that is environmentally friendly will substantiate firm's legitimacy by which the firm finds as easier to access the desired resources, to create better employees, and to improve the synergy relationship with partners (Aldrich and Fiol 1994; DiMaggio and Powell 1983; Pfeffer and Salancik 1978; Turban and Greening 1997). Substantiating legitimacy through environmental performance is a strategy possibly used by the firm to improve environmental performance. Previous studies concerning with the relationship between environmental performance and firm value have shown that improvement of environmental performance will give positive effect on firm value (Al-Tuwaijri, Christensen and Hughes 2004; Moneva and Ortas 2010; Muhammad, Scrimgeour, Reddy and Abidin 2015; Purnomo, Karin, Widianingsih and Patricia 2012).

By taking into account theoretical reviews and empirical studies previously given, the following hypotheses are then suggested:

H3: Environmental performance positively affects firm value.

H4: Ownership concentration indirectly affects firm value through environmental performance

## 2. Methodology

### 2.1 Research Sample Data

Data type used in this research is panel data. Research sample is firms that its shares are traded publicly in Indonesia Stock Exchange in period 2010-2016 and that run businesses at mining, manufacture and agriculture sectors. These sectors are selected because these are the most vulnerable industries to environmental issues (Post *et al.* 2015; Zou *et al.* 2015). The criteria to determine the sample include: (1) The firms have businesses at mining, manufacture and agriculture sectors and must have released annual statement on period 2010-2016; (2) The firms have participated into Environmental Performance Assessment Program (PROPER) since 2010. After applying these criteria, it results in 44 firms comprising with 6 firms at mining sector, 34 firms at manufacture sector, and 4 firms at agriculture sector. Data source is secondary, which includes annual statement prepared by firms listing at Indonesia Stock Exchange on poeriod 2010-2016 and the rating given to the firms concerning with

their performance in environmental management (in PROPER), which the rating is released by the Ministry of Life Environment.

## 2.2 Variable Measurement

Dependent variable in this research is Firm Value (FV). It is measured with Tobin's Q (Lin 2011; Warrad, Almahamid, Slihat and Alnimer 2013). Tobin's Q is derived from the addition of share market value with debt total value, which the result of addition is divided by asset total value.

Environmental performance (EP) is mediator variable in this research. Environmental performance can be referred as the efforts of managing natural resources to bestow a lot of benefits to humans without destroying their opportunity of conservation. Firms with good environmental performance are those doing environmentally friendly business practice with outputs such as preventing pollution, using renewable energy, and having high quality of environmental disclosure (Walls *et al.* 2012). Indeed, environmental performance is measured from the achievement of firm from its participation in PROPER, a program designed by the Ministry of Life Environment (KLH) to stimulate firms to restructure their management of life environment through information instrument (Angeliaa and Suryaningsih 2015; Iqbal, Assih and Rosidi 2013; Purnomo *et al.* 2012). PROPER's rating system of environmental performance comprises with five colors, respectively: (1) Gold Rating: Definitely Very Good, Score=5; (2) Green Rating: Very Good, Score=4, (3) Blue Rating: Good, Score=3, (4) Red Rating: Bad, Score=2; and (5) Black Rating: Very Bad, Score= 1. PROPER elements used to measure environmental performance among Indonesian industrialists are Environmental Management System, Energy Efficiency, Emission Reduction, 4R (Reuse, Reduce, Recycle, Recovery) of Non-B3 Solid Wastes, Biological Diversity Protection, and Community Development (Djajadiningrat *et al.* 2014).

Independent variable in this research is ownership concentration. It is defined as a condition where the dominant shareholders exist over other shareholders, and they can be individual or group of individuals, by their dominant position, they become the controlling-shareholders (Dallas 2004). There are 2 elements constituting ownership concentration, namely: (1) the percentage of the first biggest shareholders (OC1) of all firm's circulated shares (Caixe and Krauter 2013; Gaur, Bathula and Singh 2015), and (2) the percentage of the consolidated biggest shareholders that comprise the first, the second, and the third (OC2) of all circulated shares (Desoky and Mousa 2013; Earle, Kucsera and Telegdy 2004).

Few control variables are used in this research, such as Firm Size (SIZE), Firm Leverage (LEV), and Return on Assets (ROA). These variables are those most frequently used by previous researches. It is expected that by controlling those variables, then the relationship between ownership concentration and environmental performance. Firm Size (SIZE). There is close relationship between firm size and environmental performance. Therefore, firm size is a variable that is always to be controlled in empirical studies about environmental management (Cong and Freedman 2011; Earnhart and Lizal 2006; Henriques and Sadorsky 1996; Zou *et al.* 2015). Firm size is known by determining natural logarithm of assets total value. Firm Leverage (LEV). Firm leverage is the ratio of debt total value to assets total value. Firm leverage is considered as influencing the firm's efforts to improve environmental performance, and therefore, this variable is always used as control variable in the studies about environmental management (Desoky and Mousa 2013; Lahouel, Peretti and Autissier 2014; Zou *et al.* 2015). Return on Assets (ROA). ROA is a measure of firm performance, which is described as how strong can be organizational capability and firm resources in affecting environmental performance (Walls *et al.* 2012; Zou *et al.* 2015). ROA is derived from ratio of net earnings to assets total.

## 2.3 Analysis Model

Research uses variance-based SEM or partial least squares (SEM-PLS) supported with computer application of WarpPLS version 6.0. There are five stages in PLS-SEM, which include model conceptualization, path diagram determination, and model evaluation. The determination of algorithm analysis method in WarpPLS program involves two arrangements that must be completed before proceeding to model analysis. These arrangements are outer model and inner model. For outer model analysis, research uses *PLS Regression* because it has ability to process data that have collinearity problems (Latan and Ghazali 2016). After making arrangement for outer model, the process is continued to the setting of inner model. In this research, *Warp* is chosen to analyze inner model because this technique is able to detect whether there is non-linear relationship or not. Afterward, the most important step that must be taken before evaluating research model through PLS-SEM analysis is to determine resampling method. Resampling is a procedure to redesign the sample because PLS model's estimated significance value is still unknown (Latan and Ghazali 2016). In this research, *bootstrap* is used as



resampling method because it is more stable when the original sample is more than 100 (Latan and Ghazali 2016).

Model evaluation in PLS-SEM involves two stages, respectively measurement model evaluation and structural model evaluation. Measurement model evaluation is done to assess reliability and validity of indicators that constitute latent construct. Structural model evaluation is aimed to predict the relationship among latent variables by examining how many variances can be explained and counting the significance level of p-value (Latan and Ghazali 2016). However, this research does not undergo measurement model evaluation because research uses manifest variable. Therefore, research does not find necessary to assess reliability and validity of construct measurement.

The effect of ownership concentration variables (OC1 & OC2) and control variables (SIZE, LEV and ROA) on variables of environmental performance (EP) and firm value (FV) is tested using model equation. Either the effect of ownership concentration and control variables on environmental performance, or the effect of environmental performance on firm value, can be understood through this model equation, written as follows:

$$EP = \alpha_1 + \beta_1 OC1 + \beta_2 OC2 + \beta_3 SIZE + \beta_4 LEV + \beta_5 ROA + \epsilon_1 \quad (1)$$

$$FV = \alpha_2 + \beta_6 EP + \epsilon_2 \quad (2)$$

### 3. Results

#### 3.1. Description and Correlation

Table 1 indicates description data of research variables along with Minimum, Maximum, Mean and Standard Deviation. As indicated by Table 1, the first biggest shareholders (OC1) and the consolidated biggest shareholders from the first to the third (OC2) are dominating firm ownership over 50 % (0.74 and 0.70). Regarding to the size of firms observed in this research, it seems that the sample consists of big firms (28.77) and in average, capital structure of these firms is financed by debt over 30% (0.44). Result in Return on Assets (ROA) shows that the firms are profitable (8.17). Based on the result in Environmental Performance (EP), the firms in this research have PROPER score above 3 or stand within green rating (3.15). It indicates that the firms already have good environmental performance and have applied environmentally friendly management system. Concerning with Firm Value (FV), firm's market value is higher than its assets value (2.32).

Table 1. Descriptive Statistic of Research Variables

Variable	Min	Max	Mean	SD
OC1	0.32	1.00	0.74	0.15
OC2	0.28	1.00	0.70	0.17
SIZE	0.20	33.20	28.77	1.76
LEV	0.04	1.49	0.44	0.20
ROA	-51.60	43.93	8.17	11.20
EP	1	5	3.15	0.65
FV	0.33	18.92	2.32	3.07

Table 2. Correlation Matrix of Main Variables

Variable	1	2	3	4	5	6	7
OC1	1						
OC2	0.67***	1					
SIZE	0.29***	-0.09	1				
LEV	-0.04	0.03	-0.14**	1			
ROA	0.29***	0.13**	0.48***	-0.31***	1		
EP	0.22***	0.04	0.33***	-0.02	0.21***	1	
FV	0.22***	0.19***	0.32***	-0.01	0.72***	0.17**	1

\*\*\*, \*\*, \* denotes significance levels at 0.001, 0.05 and 0.1, respectively.

Table 2 displays the result of matrix correlation of all research constructs. It shows that the first biggest shareholders (OC1) have positive correlation with the consolidated biggest shareholders from the first to the third (OC2), firm size, ROA, environmental performance, and firm value (at significance level of 0.001). Meanwhile, the consolidated biggest shareholders from the first to the third (OC2) have positive correlation either with ROA and firm value (at significance levels of 0.05 and 0.001). Firm size has positive correlation with environmental

performance, ROA, and firm value (at significance level of 0.001) but has negative correlation with firm leverage (at significance level of 0.05). Firm leverage has negative correlation with ROA (at significance level of 0.001). Variable of ROA has positive correlation with environmental performance and firm value (at significance level of 0.001). Environmental performance has positive correlation with firm value (at significance level of 0.05).

### 3.2. Result of Analysis with PLS-SEM

Before testing main structural model, it is preceded by evaluation on goodness-of-fit of the model. Outputs of this evaluation are presented in Table 3.

Table 3. Goodness-of-Fit of Structural Model

Criteria	Parameter
Average path coefficient (APC)	0.172***
Average R-squared (ARS)	0.112***
Average adjusted R-squared (AARS)	0.104**
Average block VIF (AVIF)	1.779
Average full collinearity VIF (AFVIF)	2.013
Tenenhaus GoF (GoF)	0.335
Sympson's paradox ratio (SPR)	1.000
R-squared contribution ratio (RSCR)	1.000
Statistical suppression ratio (SSR)	0.833
Nonlinear bivariate causality direction ratio (NLBCDR)	0.750

\*\*\*, \*\*, \* denotes significance levels at 0.001, 0.05 and 0.1, respectively.

Based on the contents in Table 3, research model is considered as fit because P-value for APC and ARS is < 0.001 while for AAR is <0.05, precisely APC = 0.172, ARS = 0.112 and AARS = 0.104. Values for AVIF and AFVIF are < 3.3, which means that there is no multicollinearity problem among indicators and among exogenous variables. Goodness-of-fit (GoF) is valued at 0.335 > 0.25, which makes the model considered as fit and put it into medium category. The values for SPR, SSR and NLBCDR are more than 0.70 while RSCR value is 1.000 > 0.90. It means that the model is acceptable because there is no causality problem in the model (Latan and Ghazali 2016).

Next, results of the estimated relationship among the constructs and the variance level are shown in Table 4.

Table 4. Result of Structural Model Evaluation

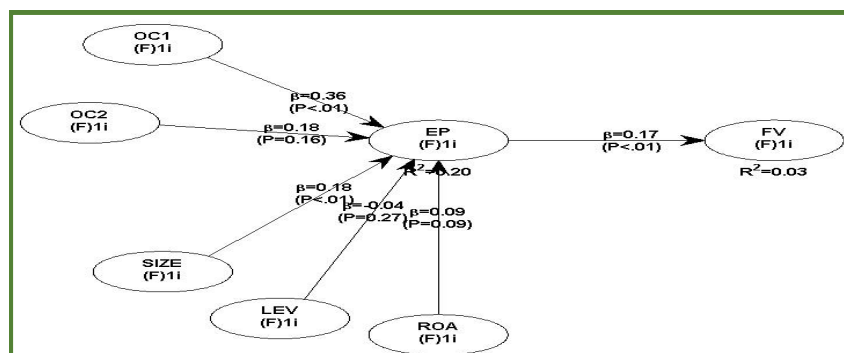
Description Path	Path Coefficient	R <sup>2</sup>	Q <sup>2</sup>	Effect Size	Standar Error
OC1 → EP	0.363**	0.195	0.169	0.106	0.141
OC2 → EP	0.179			0.008	0.183
SIZE → EP	0.180**			0.059	0.063
LEV → EP	-0.042			0.002	0.068
ROA → EP	0.093*			0.020	0.069
EP → FV	0.173***	0.030	0.035	0.030	0.056

\*\*\*, \*\*, \* denotes significance levels at 0.001, 0.05 and 0.1, respectively.

Path coefficient estimates are based on robust standard errors.

The estimated relationship among the constructs is depicted in Figure 1.

Figure 1. Result of the Estimated Relationship among the Constructs



As shown by Table 4 and Figure 1, R-squared ( $R^2$ ) value produced by environmental performance is 0.195. This value remains in small category ( $\leq 0.25$ ) and the variance that can be explained by independent variable is 19.5%. Moreover, R-squared ( $R^2$ ) value produced by firm value is 0.030. It belongs to small category ( $\leq 0.25$ ) and the variance explained by mediator variable is 3%. Q-squared values produced by environmental performance and firm value are  $0.169 > 0$  and  $0.030 > 0$ , which means that model has predictive validity. Effect size value of the first biggest shareholders (OC1) on environmental performance is  $0.106 > 0.02$  while that of environmental performance on ROA is  $0.030 > 0$ , which means that practically, this effect size plays important role.

Result of the estimated relationship among the constructs shows that the first biggest shareholders (OC1) have positive and significant effect on environmental performance with path coefficient value of 0.363. It supports Hypothesis 1. However, the effect of the consolidated biggest shareholders from the first to the third (OC2) on environmental performance is not significant. Thus, it rejects Hypothesis 2. Both results still support previous findings stating that ownership concentration facilitates the firms to make strategic decisions to maximize their behavior toward economical, social, and environmental goals (Chang 2013; Chang and Zhang 2015; Crisostomo and Freire 2015; Earnhart and Lizal 2006). It can also be said that ownership concentration of the first biggest shareholders has greater effect size than that of the consolidated biggest shareholders from the first to the third. It is consistent with Shleifer and Vishny (1997) and also proves the statement that the less the number of investors who dominate ownership, the easier will be to control firm management.

Result of estimation indicates that environmental performance has positive and significant effect on firm value with path coefficient value of 0.173. This result supports Hypothesis 3 and advocates the finding of previous researches that firms with good environmental performance will find their firm value increasing (Al-Tuwaijri *et al.* 2004; Moneva and Ortas 2010; Muhammad *et al.* 2015; Purnomo *et al.* 2012).

Table 5 presents the result of estimated indirect effect of independent variable on dependent variable through mediator variable. The result will be used to answer Hypothesis 4.

Table 5. Estimated Indirect Effect among Variables

Description Path	Path Coefficient	Standard Error
OC1 → EP → FV	0.063**	0.028
OC2 → EP → FV	0.031	0.031
SIZE → EP → FV	0.031**	0.015
LEV → EP → FV	-0.007	0.013
ROA → EP → FV	0.016	0.017

\*\*\*, \*\*, \* denotes significance levels at 0.001, 0.05 and 0.1, respectively.

Path coefficient estimates are based on robust standard errors.

Table 5 shows that ownership concentration of the first biggest shareholders (OC1) has significant indirect effect on firm value through environmental performance, and path coefficient value of this effect relationship is 0.063. This result supports Hypothesis 4. It can be said that ownership concentration can increase firm value by directing the firm to operate in manner of environmentally friendly.

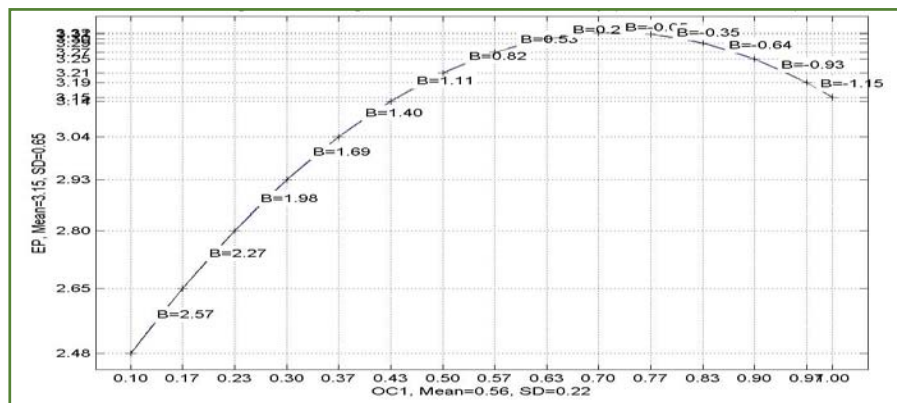
### 3.3. Linear and Non-Linear Relationship among Variables

WarpPIs version 6.0 can deliver outputs that help research ascertaining whether the relationship among variables is linear or non-linear. These outputs are derived from the operation of inner model analysis algorithm on Warp selection. Figure 2 indicates non-linear relationship between the first biggest shareholders (OC1) and environmental performance.

As indicated by Figure 2, the relationship between OC1 and EP is non-linear with inverted-U curve. In the beginning, the increase of ownership concentration will improve environmental performance, but at ownership level of 77%, environmental performance starts to decline. It means that the increase of ownership concentration is not always improving environmental performance. At certain domination point (especially at 77% ownership level), ownership concentration is not anymore persuading the firm to be more environmentally friendly. This point is also the time when ownership concentration is getting stronger and majority shareholders start to concern more with personal interests (Jiang *et al.* 2009).

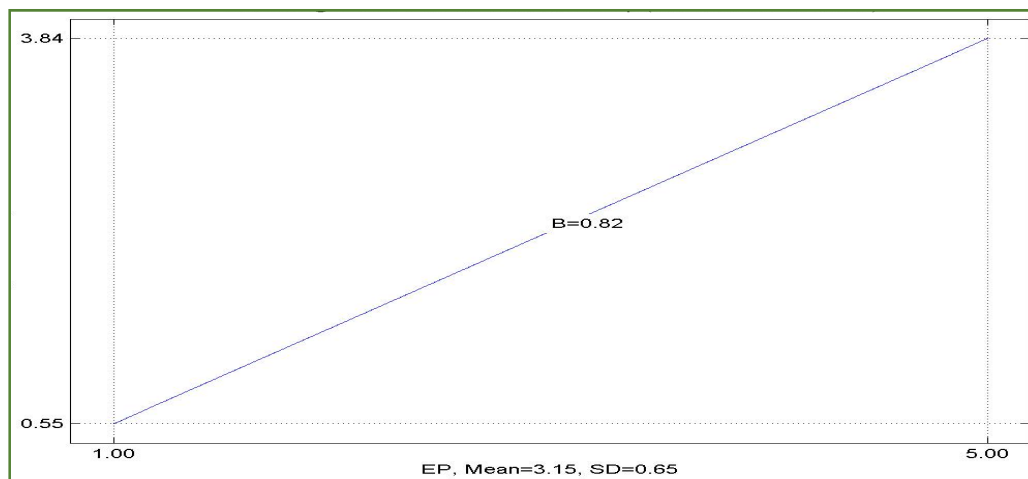


Figure 2. Output Plot of The Relationship Between OC1 and EP



Next, Figure 3 illustrates linear relationship between variable of environmental performance and variable of firm value.

Figure 3. Output Plot of The Relationship Between EP and FV



As indicated in Figure 3, the relationship between environmental performance and firm value is linear, meaning that the improvement of environmental performance to the highest PROPER rating (golden rating = 5) will then increase firm value (Tobin's Q).

### Conclusion

Research is aimed to conduct empirical test over the indirect effect of ownership concentration on firm value through environmental performance as mediator variable. Four hypotheses are proposed by referring to stakeholder theory, legitimacy theory, and results of some empirical studies.

Result of research indicates that the control given by the first biggest shareholders has positive contribution to environmental performance improvement. Ownership concentration in the hand of single investor is more effective in controlling firm management to improve environmental performance when it is compared to ownership concentration with the consolidation of three biggest shareholders. This result supports the opinion of Shleifer and Vishny (1997), which stating that the lesser number of investors who hold ownership concentration, then the easier will be for shareholders to control manager. This result also upholds the position of stakeholder theory, which asserting that successful maximization of firm value is not only depending on the relationship between shareholders and firm, but also on the relationship between firm and stakeholders who have stronger concern to environmental and social issues (Jensen 2001; Ullmann 1985). Other finding shows that the relationship between ownership concentration and environmental performance is non-linear. It means that the increase of ownership concentration is still restrained to a certain level, precisely at the point where environmental performance starts to decline.

It is also found that environmental performance can be one strategic option to increase firm value. Firms with commitment to be environmentally friendly can deliver economic benefits to the firms, especially when the firms attempt to improve performance based on market value. It is consistent with the perspective of legitimacy

theory, which explaining that firms with corporate action that adopts social and environmental issues are easier to access capital sources, which potentially helpful to them to increase firm value (Aerts and Cormier 2009).

It may be concluded that ownership concentration increases firm value indirectly through environmental performance improvement. The biggest shareholders can increase firm value by giving pressure on firm management to be environmentally friendly. Indeed, environmentally friendly management strategy is practically the determinant factor to increase firm value (Tobins Q).

### Limitation

Research still faces a certain limit. R-square value remains in small category ( $\leq 0.25$ ) and thus, the variation that influences environmental performance and firm value is less powerful to explain the relationship of variables. There are still many other variables beyond research model with more significant explanatory strength. These variables shall be examined in the future, especially concerning with its capacity to improve environmental performance and firm value.

### References

- [1] Aerts, W., and Cormier, D. 2009. Media legitimacy and corporate environmental communication. *Accounting, Organizations and Society*, 34(1): 1-27.
- [2] Ahmed, K., Sehrish, S., Saleem, F., and Yasi, M. 2012. Impact Of Concentrated Ownership On Firm Performance (Evidence From Karachi Stock Exchange). *Interdisciplinary Journal of Contemporary Research In Business* 4(5): 201-210.
- [3] Al-Saidi, M., and Al-Shammari, B. A. 2015. Ownership concentration, ownership composition and the performance of the Kuwaiti listed non-financial firms. *International Journal of Commerce and Management*, 25(1): 108-132.
- [4] Al-Tuwaijri, S. A., Christensen, T. E. and Hughes, K. E. 2004. The relationship among Environmental Disclosure, Environmental Performance, and Economic Performance: A Simultaneous Equation Approach. *Accounting Organization and Society*, 29(5/6): 447-471.
- [5] Aldrich, H. E., and Fiol, C. M. 1994. Fools rush in? The institutional context of industry creation. *Academy of Management Review*, 19(4): 645-670.
- [6] Anderson, K. L., Deli, D. N., and Gillan, S. L. 2003. *Boards of Directors, Audit Committees, and the Information Content of Earnings* Paper presented at the Weinberg Center for Corporate Governance Working Paper Retrieved from <http://www.lerner.udel.edu/ccg/>
- [7] Angeliaa, D., and Suryaningsih, R. 2015. The Effect of Environmental Performance And Corporate Social Responsibility Disclosure Towards Financial Performance (Case Study to Manufacture, Infrastructure, And Service Companies That Listed At Indonesia Stock Exchange) *Social and Behavioral Sciences*, 211: 348-355
- [8] Berle, and Means. 1932. *The Modern Corporation and Private Property*. New York: The Mac-millan Company.
- [9] Bran, F., Radulescu, C. V., and Ioan, I. 2011. Measures of Environmental Performance *Review of International Comparative Management*, 12(5): 893-900.
- [10] Caixe, D. F., and Krauter, E. 2013. The Influence of the Ownership and Control Structure on Corporate Market Value in Brazil. *R. Cont. Finance*, 24(62): 142-153.
- [11] Caracuel, J. A., and Mandojana, N. O. d. 2013. Green Innovation and Financial Performance: An Institutional Approach. *Organization & Environment* <http://oae.sagepub.com>.
- [12] Chang, K. 2013. The Effects of Ownership and Capital Structure on Environmental Information Disclosure Empirical Evidence from Chinese Listed Electric Firms. *WSEAS Journal*, 12(12): 637 - 649.
- [13] Chang, K., and Zhang, L. 2015. The Effects of Corporate Ownership Structure on Environmental Information Disclosure—Empirical Evidence from Unbalanced Penal Data in Heavy-pollution Industries in China *WSEAS Transactions on Systems and Control*, 10: 405 - 414.

- [14] Cong, Y., and Freedman, M. 2011. Corporate governance and environmental performance and disclosures. *Advances in Accounting, incorporating Advances in International Accounting*, 27: 223-232.
- [15] Crisostomo, V. L., and Freire, F. d. S. 2015. The Influence of Ownership Concentration on Firm Resource Allocations to Employee Relations, External Social Actions, and Environmental Actions *Review of Business Management*, 17(55): 987-1006.
- [16] Dallas, G. 2004. *Governance and Risk. Analytical Hand books for Investors, Managers, Directors and Stakeholders Standard and Poor*. New York Governance Services, MC. Graw Hill. .
- [17] Deegan, C. 2002. Introduction: The legitimising effect of social and environmental disclosures – a theoretical foundation. *Accounting, Auditing & Accountability Journal*, 15 (3): 282 - 311.
- [18] Desoky, A. M., and Mousa, G. A. 2013. An empirical investigation of the influence of ownership concentration and identity on firm performance of Egyptian listed companies. *Journal of Accounting in Emerging Economies*, 3(2): 164 - 188.
- [19] DiMaggio, P. J., and Powell, W. W. 1983. The iron cage revisited: institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48 (2): 147-160.
- [20] Djajadiningrat, S. T., Hendriani, Y., and Famiola, M. 2014. *Green Economy*. Bandung: Rekayasa Sains.
- [21] Dogl, C., and Holtbrugge, D. 2014. Corporate environmental responsibility, employer reputation and employee commitment: an empirical study in developed and emerging economies. *The International Journal of Human Resource Management*, 25(12): 1739-1762.
- [22] Earle, Kucsera, and Telegdy. 2004. Ownership Concentration and Corporate performance on the Budapest Stock Exchange. *Journal of Corporate governance*, 11: 1-24.
- [23] Earnhart, D., and Lizal, L. 2006. Effects of ownership and financial performance on corporate environmental performance. *Journal of Comparative Economics*, 34: 111-129
- [24] Elkington, J. 1997. *Cannibal with Forks: The Triple Bottom Line of 21st Century Business*. Oxford, UK: Capstone.
- [25] Epstein, E. M. 1972. The Historical Enigma of Corporate Legitimacy *California Law Review*, 60(6): 1701-1717.
- [26] Farooque, O. A., Zijl, T. v., Dunstan, K., and Karim, A. W. 2010. Co-deterministic relationship between ownership concentration and corporate performance. *Accounting Research Journal*, 23(2): 172 - 189.
- [27] Freeman, R. 1984. *Strategic Management: A Stakeholder's Approach*: Pitman, Boston, MA. .
- [28] Freeman, R. E., and Evan, W. M. 1990. Corporate governance: A stakeholder interpretation. *Journal of Behavioral Economics*, 19(4): 337-359.
- [29] Gaur, S. S., Bathula, H., and Singh, D. 2015. Ownership concentration, board characteristics and firm performance. *Management Decision*, 53(5): 911 - 931.
- [30] Hart, S. 1995. A natural resource-based view of the firm. *Academy of Management Review*, 20(4): 874-907.
- [31] Henriques, I., and Sadorsky, P. 1996. The Determinants of an Environmentally Responsive Firm: An Empirical Approach. *Journal of Environmental Economics and Management*, 30: 381-395.
- [32] Iqbal, M., T, S., Assih, P., and Rosidi. 2013. Effect of Environmental Accounting Implementation and Environmental Performance and Environmental Information Disclosure as Mediation on Company Value. *International Journal of Business and Management Invention*, 2(10): 55-67.
- [33] Jaafar, A., and El-Shawa, M. 2009. Ownership concentration, board characteristics and performance: evidence from Jordan. *Accounting in Emerging Economies*, 9: 73-95.
- [34] Jensen, M. C. 2001. Value Maximization, Stakeholder theory, and the Corporate Objective Function. *European Financial Management*, 7(3): 297-317.
- [35] Jensen, M. C., and Meckling, W. H. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure *Journal of Financial Economics*, 3(4): 305-360.

- [36] Jiang, H., Habib, A., and Smallman, C. 2009. The effect of ownership concentration on CEO compensation-firm performance relationship in New Zealand. *Pacific Accounting Review*, 21(2): 104 - 131
- [37] Lahouel, B. B., Peretti, J. M., and Autissier, D. 2014. Stakeholder power and corporate social performance. *Corporate Governance*, 14(3): 363-381.
- [38] Latan, H., and Ghozali, I. 2016. *Partial Least Squares Konsep, Metode dan Aplikasi Menggunakan WarpPLS 5.0*. Semarang: Badan Penerbit Universitas Diponegoro.
- [39] Lin, C. J. 2011. An Examination of Board and Firm Performance: Evidence From Taiwan. *The International Journal of Business and Finance Research*, 5(4).
- [40] Marcus, A., and Geffen, D. 1998. The Dialectics of Competency Acquisition: Pollution Prevention in Electric Generation. *Strategic Management Journal*, 19(12): 1145-1168.
- [41] Moneva, J. M., and Ortas, E. 2010. Corporate environmental and financial performance: a multivariate approach *Industrial Management & Data Systems*, 110(2): 193-210
- [42] Muhammad, N., Scrimgeour, F., Reddy, K., and Abidin, S. 2015. The Relationship between Environmental Performance and Financial Performance in Periods of Growth and Contraction: Evidence from Australian Publicly Listed Companies. *Journal of Cleaner Production*, 102: 324-332.
- [43] Nguyen, T., Locke, S., and Reddy, K. 2015. Ownership concentration and corporate performance from a dynamic perspective: Does national governance quality matter? . *International Review of Financial Analysis* 41: 148-161
- [44] Parkinson, J. 1994. *Corporate power and responsibility*: Oxford University Press.
- [45] Pfeffer, J., and Salancik, G. R. 1978. *The External Control of Organizations*. New York: Harper & Row.
- [46] Porta, R. L., Lopez-De-Silanes, F., and Shleifer, A. 1999. Corporate Ownership Around the World. *The Journal Of Finance*, LIV(2): 471 - 517.
- [47] Porter, M. E., and Linde, C. v. d. 1995. Green and competitive: Ending the stalemate. *Harvard Business Review*, 73(5): 120-134.
- [48] Post, C., Rahman, N., and McQuillen, C. 2015. From Board Composition to Corporate Environmental Performance Through Sustainability-Themed Alliances. *Journal Business Ethics*, 130: 423-435.
- [49] Purnomo, Karin, P., and Widianingsih, Patricia, L. 2012. The Influence Of Environmental Performance On Financial Performance With Corporate Social Responsibility (CSR) Disclosure As A Moderating Variable: Evidence From Listed Companies In Indonesia. *Society Of Interdisciplinary Business Research* 1(1): 57-69.
- [50] Russo, M. V., and Fouts, P.A. 1997. A Resource-Based Perspective On Corporate Environmental Performance and Profitability. *Academy of Management Journal*, 40(3): 534-559.
- [51] Sharma, S., Pablo, A. L., and Vredenburg, H. 1999. Corporate environmental responsiveness strategies: The importance of issue interpretation and organizational context. *Journal of Applied Behavioral Science*, 35(1): 87-108.
- [52] Shleifer, A., and Vishny, R. W. 1997. A Survey of Corporate Governance. *The Journal of Finance* LII(2): 737 - 783.
- [53] Thomsen, S., and Pedersen, T. 2000. Ownership Structure and Economic Performance in the Largest European Companies. *Strategic Management Journal*, 21: 689-705.
- [54] Turban, D. B., and Greening, D. W. 1997. Corporate social performance and organizational attractiveness to prospective employees. *The Academy of Management Journal*, 40(3): 658-672.
- [55] Ullmann, A. A. 1985. Data in Search of a Theory: A Critical Examination of the Relationships among Social Performance, Social Disclosure, and Economic Performance of U. S. Firms. *The Academy of Management Review*, 10(3): 540-557

- [56] Vintila, G., and Gherghinaa, S. C. 2014. The Impact of Ownership Concentration on Firm Value. Empirical Study of The Bucharest Stock Exchange Listed Companies. *Procedia Economics and Finance*, 15: 271 – 279.
- [57] Wahla, K.-U.-R., Shah, S. Z. A., and Hussain, Z. 2012. Impact of Ownership Structure on Firm Performance Evidence from Non-Financial Listed Companies at Karachi Stock Exchange. *International Research Journal of Finance and Economics* (84): 6-13.
- [58] Walls, J. L., Berrone, P., and Phan, P. H. 2012. Corporate governance and environmental performance: Is there really a link? *Strategic Management Journal*, 33(8): 885-913.
- [59] Warrad, L., Almahamid, S. M., Slihat, N., and Alnimer, M. 2013. The Relationship Between Ownership Concentration And Company Performance, A Case of Jordanian Non-Financial Listed Companies. *Interdisciplinary Journal of Contemporary Research In Business*, 4(9).
- [60] Yasser, Q. R., and Mamun, A. A. 2015. Effects of ownership concentration on firm performance: Pakistani evidence. *Journal of Asia Business Studies*, 9(2): 62 - 176.
- [61] Zou, H. L., Lin, S. X. Z. H., and Xie, X. M. 2015. Top executives' compensation, industrial competition, and corporate environmental performance Evidence from China. *Management Decision*, 53(9): 2036 - 2059.