

The Effect of Global Competitive Index on Carbon Disclosure

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Abstract: This study aimed to examine the effect of global competitiveness index on carbon disclosure. This study focuses on in listed non financial companies that participate in ISRA Awards and provide sustainability report from 2010-2014. Sample of this research is nonfinancial companies that participate in ISRA Awards and provide sustainability report from 2010-2014. This research is using multiple regression method with SPSS 22.0 as statistic tool to process research variables from primary data from questionnaires and secondary data in annual reports and sustainability reports. The results showed that global competitiveness index influence positively on the disclosure of carbon emissions. In regard to testing of moderation, the results showed that the environmental performance and intensive carbon industry moderate the relationship between global competitiveness index on the disclosure of carbon emissions. Lastly, the size of the company into a good control variable for disclosure of carbon. For future research, research can add new variables such as economic growth in this research model so there are macro economic perspectives.

Keyword: carbon emissions disclosure, environmental performance, global competitive index, industry type

Introduction

Now, the issue of climate change has become a global environmental issue (Haque & Islam, 2012). This is due to climate change and the energy crisis has been a major factor that threatens the global environment and sustainable development of living things (Stern, 2007). The perceived impact of climate change in the world is rising temperatures, rising sea levels, flooding, availability of water, but uneven, erosion and increasingly melting snow, especially in the Arctic (IPCC, 2007). The main cause of climate change is the greenhouse gas effect. Many non-profit organization that began concerns on social and environmental impacts. Government and non-government organizations have been urging companies to reduce carbon emissions. Latest agreement is agreed Kyoto Protocol and the European Union Emission Trading Scheme (EU ETS), where the objective is to minimize the cost to reduce emissions (Pinkse & Kolk, 2009). Carbon emissions has also become a threat to the legality of a company and also to all industries (Pellegrino & Lodhin, 2012). Therefore, the company will often reveal more environmental information (such as carbon emissions) in the face of public pressure and get a positive image of the stakeholders. This is seen by a growing number of participating companies in the Carbon Disclosure Project (CDP) approximately 82% of the global top 500 enterprises in which the number of companies involved in CDP grew from 235 in 2003 to 3050 in 2010 (Zheng, 2011). There are several considerations that encourage corporate disclosure of carbon emissions is to gain legitimacy from stakeholders; avoiding the various threats for companies have an incentive GHG (greenhouse gas) such as increased operating costs, demand reduction (reduced demand), the risk of reputation (reputational risk), law (legal proceedings), and fines / penalties (Barthelot & Robert, 2011).

Based on the literature there are many studies disclosure of carbon emissions associated with some things like finance (ROE, ROA, profitability, leverage, etc.), country characteristics (common law, developed or developing countries, resources) and the characteristics of the company (environmental performance, type industry and company size). However, in this study, researchers analyzed carbon disclosure is influenced by internal aspect from country side such as global competitiveness index. This index will be presented by institutional ownership of listed companies. This internal aspect can support the implementation of carbon disclosure in the future. In addition, the

results of this study will contribute to a model of the new disclosure of carbon emissions in the carbon literature-literature. Finally, the results of this study can provide a new idea in creating corporate sustainability in terms of carbon emission disclosure.

Literature Review

Global Competitiveness Index (GCI) of Institutional Ownership

According to the World Economic Forum (2014), the Global Competitiveness Index (GCI) is a collection of institutions, policies and factors that determine the level of productivity of the State, state institutions, public and technical conditions. The components of GCI includes 12 pillars: institutions, infrastructure, macroeconomic environment, the education of primary and health, training and higher education, goods market, labor market, financial market development, literacy technology, market size, uniqueness / specificity of business and innovation. In general, the CDP signatory is an institution that has ownership of the company in a country. In the study of Li & Yuanhua (2013) in which the empirical results indicate institutional ownership has a positive influence on carbon disclosure by the company.

Environmental Performance

According to ISO 14001, environmental performance is the relationship between the organization and the environment, this performance includes the environmental impact of resources consumed, the environmental impact on the organization, the environmental implications of products and services, recovery and processing of products and the fulfillment of environmental requirements under the law. Environmental performance may include (1) the results of the measurement of the environmental management system related to control over the organization's environmental aspects or based environmental policy along with its goals and objectives; and (2) the results of the organization's management of the environmental impacts (Arafat et al, 2012). Environmental performance assessment using environmental indicators that can measure the pressure on the environment, assessing the status of ecosystems and evaluate the impact on human activity as a result of changes in environmental quality. Environmental performance can also be used as a comparison between the state and the measurement of potential future improvement (Zanella et al, 2013).

Industry Type

Industry Type divides the industry into two categories such as an intensive enterprise carbon and a non carbon intensive companies. This is according to research conducted by Choi et al (2013). The difference between intensive and non-intensive depend on the environmental impacts generated. Carbon-intensive industries are industries that produce large carbon emissions to a greater relative impact on environmental pollution, while non carbon-intensive industry is the industry that produces carbon emissions small that a relatively small impact on environmental pollution. Based-used in the classification of these categories refers to rules issued GICS (Global Industry Classification Standard). GICS enter a company whose activities are related to the availability of energy, transportation, materials and utilities into carbon-intensive industry (Choi et al, 2013). Beside that sector is include a non carbon-intensive industry.

Carbon Emissions Disclosure

In general, according to Suwardjono (2005) the purpose of the disclosure is a presentation of information deemed necessary to achieve the objectives of financial reporting in serving the interests of different stakeholders. Therefore, with increasing transparency in the information presented by an enterprise through a disclosure, is expected to increase the company's success in the business world on an ongoing basis (Valletta, 2005). Disclosure of carbon emissions by companies increased in recent years and generally still served voluntarily for the purpose of internal decision making and external companies (Andrew & Cortese, 2011). IAS 1 paragraph 9 states, "companies may also present additional statements such as environmental and report value added, especially for industries where environmental factors play an important role ..". One that can be expressed is a reduction in carbon emissions disclosure by companies.

Relationship between Global Competitiveness Index and Carbon Disclosure

In 2007, the National Greenhouse and Energy Reporting Act (NGER) was introduced by the Australian Government as a framework for national reporting and disseminating information on GHG emissions, GHG Projects and the use / production of energy. This condition is different in developing countries. Many previous studies concluded that the company reports regarding social and environmental impacts in a growing company is still in the early stages and has not been on par with the level and quality of information disclosed by the developed countries. For example, Liu

& Anbumozhi (2009) found that the level of disclosure of environmental information companies is still small in China country where there are 40% of the sample of companies that did not make the disclosure. In fact, empirical evidence found in Luo et al (2013) study which showed that developing countries lag far behind the developed countries in the subject of carbon disclosure.

In research Darus et al (2009), the company's shares owned by the Malaysian government will be more incentivizing to disclose CSR information to reduce the agency conflict. This is in line with government efforts where the government promote about the importance of the disclosure of more detailed CSR activities in Malaysia. The empirical results show that institutional ownership has positive influence on how big the disclosure of CSR.

H1; GCI of institutional ownership influences Carbon Disclosure

Relationship between GCI of Institutional Ownership and Carbon Emissions Disclosure that moderated by the Environmental Performance

According to research Dawkins & Fraas (2011), environmental performance has a positive relationship with environmental disclosure related to climate change. This is in line with research Verrechia (1983) which shows that the company is more proactive environment (for example, through initiatives such as the implementation of pollution prevention powerful and use of renewable energy, etc.) have an incentive to voluntarily disclose environmental information, such as the level carbon emissions in order to reveal the type of performance they are not directly observed by investors and other external stakeholders. Results were consistent with research Clarkson et al (2008) showed that the environmental performance positively associated with the level of discretionary environmental disclosures. Al-Tuwajiri et al (2004) also analyzed using content analysis environmental disclosures on SEC forms filling and 10k, while the environmental performance based TRI (Toxic Release Inventory), which measures the total waste is recycled. They concluded that a strong environmental performance will significantly affect the disclosure of environmental and economic performance.

H2; The role of environmental performance on the relationship between GCI of institutional ownership and Carbon Disclosure

Relationship between GCI of Institutional Ownership and Carbon Emissions Disclosure that moderated by the Industry Type

According to Wang et al (2013), the carbon-intensive company operational activities have a negative impact on the environment are likely to reveal more of corporate social responsibility (CSR) information than non-carbon intensive. Companies in the industry that is sensitive or negative impact on the environment are likely to reveal more than any other CSR, especially CSR information relating to environmental responsibility. Carbon-intensive companies are more sensitive to the environment may face political costs are much higher than the company's non-carbon intensive. Results of the study Choi et al (2013) showed that the level of voluntary disclosure of carbon emissions will be greater in companies in industries intensive in emissions such as energy, transportation, materials and utilities.

Industrial emissions intensive will face closer scrutiny from government (Reid & Toffel, 2009) and is often used as a political issue that is sensitive in a country that makes those who are in the emissions-intensive are more likely to provide voluntary disclosure, including disclosure of carbon emissions (Mckinnon & Dalimunthe, 1993; Collet & Hrasky, 2005). Patten (1992) found that company in the industry that produces more pollutants that will do greater disclosure to legitimize their activities. In the theory of legitimacy, carbon-intensive companies tend to have a greater pressure from social citizens that make company must provide a carbon disclosure statements. By doing this, company can gain legitimacy from the public. Research conducted by Choi et al (2013), Zhang et al (2012) and Ghomi & Leung (2013) find evidence that this type of industry influence on the disclosure of carbon emissions.

H3; The role of industry type on the relationship between GCI of institutional ownership and Carbon Disclosure

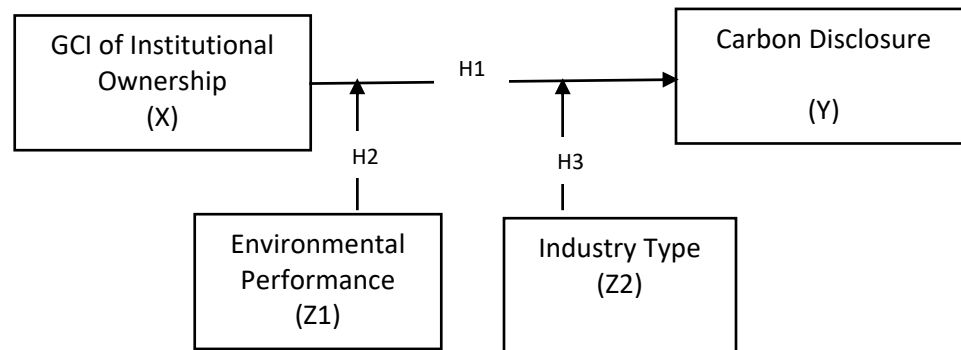


Figure 1
Conceptual Framework

Research methodology

In this study, researchers will test the hypothesis that explains the specific relationships in certain situation. In this study is hypothesis testing aims to examine the relationship between the independent variables on the dependent variable, which examined the effect GCI of Institutional Ownership on Carbon Emissions Disclosure moderated by Type of Industry and Environmental Performance.

Operational research variables

In this study, researchers used multiple variables to support operational research studies. Here is a breakdown of variables - operational variables of the study:

Table 3.1
Operational Variables

Function	Operational Variables	Measurement	Scale	Reference
Dependent	Carbon Emission Disclosure	Scope of Carbon Emission Disclosure	Ratio	Choi et al (2013)
Independent	GCI Institutional Ownership	Global Competitiveness Index	Interval	World Economic Forum
Moderating	Industry Type	1= high intensity carbon; 0=low intensity carbon	Nominal	Global Industry Classification Standard (GICS)
	Environmental Size	PROPER Index	Interval	Environmental and Forestry Department
Control	Firm Size	Ln (Asset)	Ratio	Sujoko&Subiantoro, 2007

Source: developed dissertation (2017)

Population, Sample Research and Collection Methods

The population in this study are all companies that listed on the Indonesian Stock Exchange (BEI). Unit of analysis used in this study is the organization, namely the corporate issuers. Samples of this study are all companies that go public are selected based on purposive sampling method. Here are the criteria - the criteria for the selection of the sample:

1. The non-financial company listed on the Stock Exchange for the years 2009-2014.
2. Provide an annual report and sustainability report for the year 2009-2014.
3. Companies that implicitly or explicitly disclose carbon emissions (including at least one policy that is associated with carbon emissions / greenhouse gases or express at least one item of disclosure of carbon emissions).

The data used in this study comes from secondary data, financial reports, annual reports, global competitiveness report, proper index report and sustainability report. Data were collected through a review of the literature. Here are the details of the availability of data for all study variables:

1. Variable GCI institutional ownership found in the Global Competitiveness Report.
2. Variables in the environmental performance of the PROPER get Index Report.
3. Variable types of industrial uses dummy variables were based on the GICS (Global Industry Classification Standard)

Data Analysis Methods

Regression analysis is the study of the dependence of the dependent variable with one or more independent variables, with the purpose to estimate or predict average rat population or value. The mean a dependent variable based on the value of the variable is known (Ghozali, 2011). According to Ghozali (2011) the accuracy of the sample regression function in assessing the actual value can be measured from the Goodness of fit her. Statistically, at least this can be measured by the coefficient of determination, the F statistic value and the value of the t statistic. Statistical calculation called statistically significant if the statistical test values differ in critical areas (areas where H_0 is rejected). Otherwise called not significant if the statistical test value is within the area where H_0 is accepted.

Results and Analysis Research

Research object description

This research was conducted on non-financial firms go public in BEI involved in ISRA Awards and provide sustainability reports from 2010-2014. The research sample included companies engaged in mining as many as 32 companies; in the field of basic industry and chemicals as much as 1 company; in the field of miscellaneous industry as one company; in the field of infrastructure, utilities and transportation as much as 3 companies; in the field of agriculture as one company; in the field of consumer goods industry as one company; and in the field of property, real estate and building construction as one company.

Research data

Data of this study using panel data which is a combination of several companies within a few years. The research data covers the period 2010 - 2014 with a total number of 40 companies making research observations is 200 years of observation. This data is sourced from questionnaire data, sustainability report, proper report, the global competitive index and annual report.

Discussion analysis

Table 4.1
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
GCI	200	0	6	4.939	0.612
Carbon	200	6	39	15.40	5.766
Industry Type	200	0	1	0.83	0.401
Environmental Performance	200	1	5	3.02	1.616
Firm Size	200	8.03	19.18	15.314	1.587
Valid N (listwise)	200				

Global competitiveness index shows an average of 4.94. This means that the average global competitiveness index on non-financial companies involved in ISRA Awards and companies engaged in the oil and gas during the years 2010- 2014 have an average value of 4.94. The lowest value of the global competitiveness index is at 0 and the highest is 6.

Disclosure of carbon emissions showed an average of 15.40. This means that the disclosure of carbon emissions in the annual report period, non-financial companies involved in ISRA awards and companies engaged in the oil and gas during the years 2010- 2014 are reveal as much as 15.40 of the optimal disclosure may be disclosed.

Industry type shows the average of 0.83. This means that the average type of industry in non-financial companies involved in ISRA awards and companies engaged in the oil and gas during the years 2010 to 2014. It is categorized as a non-intensive.

The environmental performance shows an average of 3.02. This means that the average environmental performance at non-financial companies involved in ISRA Awards and companies engaged in the oil and gas during the years 2010- 2014 as measured by PROPER of the Ministry of Environment considered good.

Control variables in this study is the size of the company that showed an average of 15.31. This means the size of the company in non-financial companies involved in ISRA awards and companies engaged in the oil and gas during the years 2010- 2014 have an average value of 15.31. The lowest value of the size of the company amounted to 8.03% and the highest value is 19.18

Classic Assumption Test

In normality test, the number of samples processed is 200 observation years. The significance of normality test results above shows the results of $0.058 > 0.05$, this means that residual data is normally distributed.

In multicollinearity test, result show that variable Global Competitiveness Index (GCI) and the Carbon Emissions Disclosure doesn't happen any multicollinearity. It is show from variable tolerance value Global Competitiveness Index (GCI) and Carbon Emissions Disclosure showed no less than 0.1, then the value of the variable VIF Global Competitiveness Index (GCI) and Carbon Emissions Disclosure of the results showed no more than 10.

In heteroscedastic test, result show that variable Global Competitiveness Index (GCI) and the Carbon Emissions Disclosure doesn't happen any heteroscedastic. The same result also shown in autocorrelation test where durbin-watson result is 0.878 where range between -2 and 2. So we can conclude that the data the researchers did not happen autocorrelation.

Hypothesis Discussion

Table 4.2
T Test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(constant)	-1.240	1.447		-.857	.393
GCI	.136	.055	.196	2.467	.015

From the results of the partial t test for significance values obtained hypothesis 1 Global Competitiveness Index (GCI) of the Carbon Emissions Disclosure of 0.015 less than 0.05. These results indicate that the independent variables Global Competitiveness Index (GCI) was statistically significantly affect the dependent variable is the Carbon Emissions Disclosure. These results concur with those of Liu and Anbumozhi (2009) and Luo et al (2013) which states that the competitiveness of a country will encourage the disclosure of carbon. It is evident that developing countries lagging far behind developed countries in the subject of environmental regulations that are binding (mandatory). The different outcomes possible because the portion of the majority shareholding of 40 sample

companies are owned by developed countries as many as 21 companies (ASII, ATPK, BRAU, EARTH, BYAN, CITA, CKRA, CTTH, DEWA, DOID, ENRG, GTBO, INCO, ITMG KKG, MEDC, MYOH, PSAB, SMCB, TKG and UNVR) is almost comparable to the majority shareholding is owned by the Indonesian state (as a developing country) as many as 19 companies (ADRO, ANTM, ARTI, BIPI, BORN, DKFT, ELSA, HRUM, INDY, MITI, PKPK, PTBA, PTRO, RUIS, TINS, TLKM, UNSP and WIKA). So overall, the empirical testing showed significant effect on carbon disclosure. In addition, the participation of local companies in the Indonesian Sustainability Awards presentation or sustainability reports are inconsistent in 7 years showed local companies have yet to commit fully to the disclosure of carbon.

Table 4.3
Moderating Regression Analysis for Hypothesis 2

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(constant)	-1.159	1.432		-.809	.420
GCI	.165	.056	.237	2.928	.004
Mod_ Env	-4.343E-005	.000	-.206	-2.043	.043

From the test results MRA for hypothesis 2, obtained moderating variable environmental performance parameter values provides coefficient of 0.000 with a significance level of 0.043, as it has a positive value with a significance level of <0.05. Then Environmental Performance powerfully moderating between Global Competitiveness Index (GCI) and Carbon Emissions Disclosure. The empirical results are in line with the results of previous studies (Clarkson et al, 2008) which states that companies with superior environmental performance has a proactive environmental strategy. It encourages companies to inform investors and stakeholders (stakeholders) other through voluntary disclosure about the environment. Moreover, environmental performance (known PROPER) is a program of environmental performance assessment of a company that was developed by the Ministry of Environment. Environmental performance will be a means of legitimacy of the company towards the stakeholders, especially the social responsibility of companies on the surrounding environment.

Table 4.4
Moderating Regression Analysis for Hypothesis 3

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(constant)	-1.209	1.443		-.838	.403
GCI	.118	.057	.169	2.081	.039
Mod_ Ind	.000	.000	.129	1.370	.173

From the test results MRA for hypothesis 3, obtained moderating variable coefficients industry type provides the parameter value of 0.000 with a significance level of 0.173, due to the level of significance of > 0.05 . Industry Type then not moderate or not as moderating variable between Global Competitiveness Index (GCI) and Carbon Emissions Disclosure. The empirical results are not in line with the results of previous studies (Wang, Lin and Yao, 2013; Choi et al, 2013) which states that the level of disclosure of carbon emissions will voluntarily larger companies in the industry that is intensive in emissions such as energy, transportation, materials and utilities. The different outcomes because of the type of industry in Indonesia has become a major factor in the carbon disclosure. This can be seen only 12 of the 72 publicly traded companies serving less carbon-intensive and involved in a sustainability report in Indonesian sustainability awards from 2010 to 2015.

Table 4.4

Control Variables Test

Control variables in this study is the size of the company. Results SPSS output 22 indicates a significance

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.771	.259		10.700	.000
UkuranPerusahaan	-.008	.017	-.038	-.473	.637

a. Dependent Variable: Ln_Carbon

value of 0.637 is more than 0.05, which was not statistically significant. According to Sholihin & Ratmono(2013) regardless of the outcome the estimated effect of these variables on the variable control criterion will not affect the outcome of that hypothesized. These results are not in line with the results of previous studies (Kaya, 2008; Luo et al, 2012; Zhang et al, 2012), concluded that the size of the company's positive effect on the disclosure of carbon emissions. The empirical results of different possible because not all companies Indonesia contributed in presenting a sustainability report. In the period 2010-2015, there were only 57 companies presenting sustainability reports. This amount is fairly small when compared with the 525 listed companies listed on the Stock Exchange where the company has a high income or have a high ratio of the size of the company. This shows the firm size factor will not be a predictor for the disclosure of carbon emissions.

Conclusions, Implications of Theoreticaland Recommendations For Further Research

This research analyses Global Competitiveness Index of Institutional Ownership in listed companies on Carbon Emission Disclosure that moderated by Environmental Performance and Industry Type. Based on the results of the regression test the first hypothesis (H1), global competitiveness index was found to have a positive and significant effect on the disclosure of carbon emissions. These results concur with those of Liu and Anbumozhi (2009) and Luo et al (2013) which states that the competitiveness of a country will encourage the disclosure of carbon. It means that level of development of institutional ownership will effects companies goal and objective in Indonesia. Based on the test results MRA second hypothesis (H2), it was found that the environmental performance may moderate the relationship between global competitiveness index on the disclosure of carbon emissions. The empirical results are in line with the results of previous studies (Clarkson et al, 2008) which states that companies with superior environmental performance has a proactive environmental strategy. Lastly, based on the test results MRA third hypothesis (H3), it was found that this type of industry can not moderate the relationship between global competitiveness index on the disclosure of carbon emissions.

The results showed that the index of global competitiveness is a significant factor in encouraging disclosure of carbon emissions. This may be a consideration for investors, especially in the CDP signatories have invested so much to create green world. So the better the GCI of a country, it will align with disclosure of carbon emissions in the country, thereby reducing global warming. In future research, researcher can use the macro factors such as economic growth, the category of developed countries / developing, foreign direct investment toward the disclosure of carbon emissions.

References

- [1] Al-Tuwaijri, S. A., Christensen, T. E. & Hughes, K. E.. (2004) 'The Relations Among Environmental Disclosure Environmental Performance, and Economic Performance: A Simultaneous Equations Approach', *Accounting, Organizations & Society* 29(5/6), 447-465.
- [2] Andrew, J. & Cortese, C. (2011), Carbon Disclosures: Comparability, the Carbon Disclosure Project and the Greenhouse Gas Protocol. *AAFBJ* Vol.5 No.4, 2011.
- [3] Arafat, M.Y., Warokka, A. & Dewi, S.R. (2012). Does Environmental Performance Really Matter? A Lesson from the Debate of Environmental Disclosure and Firm Performance. *Journal of Organizational Management Studies*, 2012.
- [4] Barthelot, Sylvie & Robert, A.M. (2011). Climate Change Disclosure : An examination of Canadian Oil and Gas Firms. Vol. 5 pp 106-123.
- [5] Choi, B., Lee, D. & Psaros, J. (2013), An analysis of Australian company carbon emission disclosures. *Pacific Accounting Review* Vol.25 No.1, pp. 58-79
- [6] Clarkson, P.M., Li, Y., Richardson, G.D. & Vasvari, F.P. (2008), "Revisiting the relation between environmental performance and environmental disclosure: an empirical analysis", *Accounting, Organizations and Society*, Vol. 33 Nos 4/5, pp. 303-327
- [7] Collet, P. & Hrasky, S. (2005). Voluntary Disclosure of Corporate Governance Practices by Listed Australian Companies. *Corporate Governance : An International Review*, 13(2), 188-196.
- [8] Darus, F., Arshad, R. , Othman, S. & Jusoff, K. (2009), Influence of Institutional Pressure and Ownership Structure on Corporate Social Responsibility Disclosure. *Interdisciplinary Journal of Contemporary Research in Business* Vol. 1 No. 5 pp 123 – 150.
- [9] Dawkins, C. & Fraas, J. 2011. The Impact of Environmental Performance and Visibility on Corporate Climate Change Disclosure. *Journal of Business Ethics* 100 (2):303 – 322(2011).
- [10] Ghomi, Z.B. & Leung, P. (2013). An Empirical Analysis of the Determinants of Greenhouse Gas Voluntary Disclosure in Australia. *Sciedu Press* Vol.2 No.1.
- [11] Ghozali, I. (2011). *Aplikasi Analisis Multivariate dengan Program IBM SPSS19*, Badan Penerbit Universitas Diponegoro, Semarang.
- [12] Haque, S. & Islam, M.A. (2012). Stakeholder Pressures and Climate Change Disclosure: Australian Evidence . *In AFAANZ 2012 Open Conference Proceedings, Accounting and Finance Association of Australia and New Zealand (AFAANZ), Melbourne, VIC, pp. 1-31*
- [13] IPCC. (2007), Climate Change, 2007: Synthesis Report. Downloaded at http://www.ipcc.ch/pdf/assessmentreport/ar4/wg2/ar4_wg2_full_report.pdf
- [14] Kaya, O. (2008). Companies Responses to Climate Change : The Case of Turkey. *European Journal of Social Sciences*, 7(2).
- [15] Li, L. & Yuanhua, Y. (2013), Empirical Analysis on Disclosure Willingness of Carbon Information in Chinese Enterprises. *Journal of Applied Sciences* 13 (20): 4261-4269, 2013
- [16] Liu, X. & Anbumozhi, V. (2009), "Determinant factors of corporate environmental information disclosure: an empirical study of Chinese listed companies", *Journal of Cleaner Production*, Vol. 17 No. 6, pp. 593-600.
- [17] Luo, L., Tang, Q. & Lan, Y. (2013), Comparison of propensity for carbon disclosure between developing and developed countries, *Accounting Research Journal* Vol.26 No.1 pp.6 - 34
- [18] McKinnon, J.L. & Dalimunthe, L. (1993). Voluntary Disclosure of Segment Information by Australian Diversified Companies. *Accounting and Finance*, 33(2), 33-50.
- [19] Patten, D.M. (1992), "Intra-industry environmental disclosures in response to the Alaskan oil spill: a note on legitimacy theory", *Accounting, Organizations and Society*, Vol. 17 No. 5, pp. 471-475.
- [20] Pellegrino, C. & Lodhia, S.. (2012). Climate change accounting and the Australian mining industry: Exploring the links between corporate disclosure and the generation of legitimacy. *1 Cleaner Prod.*, 36: 68-82.
- [21] Pinkse, J. & Kolck, A. (2009), *International Business and Global Climate Change*, Taylor & Francis, Basingstoke
- [22] Reid, E. & Toffel, M. (2009), "Responding to public and private politics: corporate disclosure of climate change strategies", *Strategic Management Journal*, Vol. 30 No. 11, pp. 1157-1178.
- [23] Stern, N. (2007). *The Economics of Climate Change: The Stern Review*. Cambridge University Press, Cambridge. ISBN-13: 9780521700801. Pages: 692.
- [24] Sujoko & Subiantoro, U. (2007). Pengaruh Struktur Kepemilikan Saham, Leverage, Faktor Intern dan Faktor Ekstern Terhadap Nilai Perusahaan. *Jurnal Manajemen dan Kewirausahaan* 9 (1), 41-48.

- [25] Valletta, R.M. (2005). Clear as Glass: Transparent Financial Reporting. *Journal of The Healthcare Financial Management Association*.
- [26] Verrecchia, R. (1983). Discretionary Disclosure. *Journal of Accounting and Economics*, 5 : 179 – 194.
- [27] Wang, J., Lin, S., and Yao, S. (2013). The Determinants of Corporate Social Responsibility Disclosure: Evidence From China. *The Journal of Applied Business Research Volume 29, Number 6*.
- [28] Zanella, A., Camanho, A.S. & Dias, T.G. (2013). Benchmarking countries' environmental performance. *Journal of the Operational Research Society* 64, 426-438.
- [29] Zhang, S., McNicholas, P. & Birt, J. (2012). Australian Corporate Responses to Climate Change : The Carbon Disclosure Project. Paper to be presented at *the RMIT Accounting for Sustainability Conference* on the 28th of May 2012.
- [30] Zheng, Y. (2011). Showing up your carbon information. *World IT Manager*. 5: 24-24.