Carbon Emission Disclosure: A Study on Manufacturing Companies of Indonesia and Australia

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**Abstract:** This study investigates relationship between media exposure, company's growth, reputation of KAP, institutional ownership, managerial ownership and Carbon Emission Disclosure (CED). The sampling techniques used in this research is purposive sampling. Sample of this research is manufacturing companies listed on BEI and TOP 100 manufacturing companies listed on ASX in 2014-2016 year. Data analysis techniques using Eviews program 10. Results of hypothesis testing in this study is (1) media exposure affect to Carbon Emission Disclosure (CED) with probability value is 0.0135 to manufacturing companies registered in BEI and 0.0421 for TOP 100 manufacturing companies listed on ASX (2) company's growth does no affect to Carbon Emission Disclosure (CED) with probability value is 0.7869 for manufacturing companies registered in BEI and 0.5745 for TOP 100 manufacturing companies listed on ASX (3) reputation of KAP does no affect to Carbon Emission Disclosure (CED) with probability value is 0.1494 for manufacturing companies registered in BEI (4) institutional ownership does no affect to Carbon Emission Disclosure (CED) with probability value is 0.4001 for manufacturing companies registered in BEI and 0.9885 for TOP 100 manufacturing companies listed on ASX (5) managerial ownership does no affect to Carbon Emission Disclosure (CED) with probability value is 0.2659 for manufacturing companies registered in BEI and 0.4856 for TOP 100 manufacturing companies listed on ASX.

**Key words:** Carbon Emission Disclosure (CED), Media Exposure, Company Growth, Managerial Ownership and Institutional Ownership

1. **Introduction**

Environmental issues about climate change, emesis greenhouse gases and excessive production of carbon make major problem at this time. Scientific researchers continued to show range evidence effects of greenhouse gases on climate change and company became center of a major concern because amount of greenhouse gas emissions that company produce. This issue is very important and become a liability for company to make a policy about public and corporate so that companies can respond to change environment [20]. The control of greenhouse gas emissions is a fundamental aspect. All managers and personnel of company is obliged to develop organizational structure for controlling emissions, assessment of risks associated with greenhouse gases and carbon control evaluation.
According to Carbon Disclosure Project (CDP, 2011) and Pinkse & Kolk, (2009) improvement of carbon reporting by companies in the world especially in Australia for last years. This is due to issue of climate change is becoming very important for the stakeholders, especially impact of GHG EMISSIONS, such as carbon, caused by company activity [13]. This is evident from increasing of number investments in company because corporate socially responsible (Clarkson, Richardson & Vasvari, 2011). Awareness of environmental pollution become important issue for PBB. PBB founded INC (Intergovernmental Negotiating Committee). The results of conference is (1) biological diversity and climate change and (2) political commitment from 155 countries including Indonesia to safeguard environment.

Conference between some countries supporting Convention Conference of Parties (CoP) to produce some mandates relating environmental issues. At the third CoP in Kyoto 1997 founded Kyoto Protocol. The Kyoto Protocol is an amendment of United Nations Framework Convention on Climate Change (UNFCCC), an international agreement on global warming. Countries which ratify this Kyoto Protocol commit to reduce emissions of greenhouse gases. In April 2010, 191 countries have signed and ratified the Kyoto Protocol, 37 States ("States Annex") is committed to reduction of four greenhouse gases (GRK) (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride) and two groups of gases (hydro fluorocarbons and perfluorokarbon) produced by the country. This is list of 10 countries Producing carbon dioxide Emissions in the world.

| No | Country | Total Emission Donation (MtCO2e) | Emission per Capita (tCO2) |
|----|---------|---------------------------------|---------------------------|
| 1  | China   | 10,684,29                        | 6,68                      |
| 2  | United States | 5,822,87                           | 14,98                     |
| 3  | Uni Eropa | 4,122,64                          | 6,65                      |
| 4  | India   | 2,887,08                          | 1,57                      |
| 5  | Russia  | 2,254,47                          | 11,17                     |
| 6  | Indonesia | 1,981                             | 6,76                      |
| 7  | Brasil  | 1,823,15                          | 6,39                      |
| 8  | Japan   | 1,207,30                          | 8,72                      |
| 9  | Canada  | 856,28                            | 19,24                     |
| 10 | Jerman  | 810,25                            | 8,67                      |

Source: World Research Institute 2012

Indonesia and Australia are two countries contributing considerable gas emissions in Asia after china and Japan. In 2012, Indonesia as a country that has third largest forest with levels of deforestation and forest degradation in the world. In the same year, Australia participates as the country produces most carbon emissions per capita in the world but Australia have committed to reducing emissions 26 to 28 percent until 2030. Australia established a Department of the environment and energy to reduce carbon emissions. In Indonesia practice corporate social responsibility disclosure is governed by IAI PSAK No. 1 paragraph 9 recommends that to express social responsibility environmental and social problems.

Therefore, users of financial statements is not limited only stakeholders, however, has expanded to other stakeholders such as employees, suppliers, customers, communities, and others. Carbon emission disclosure in Indonesia are still in stage to introduction and a voluntary disclosure so that practice is still rarely by company. In Indonesia there hasn't been an institution which concentrates to reduction of greenhouse gas emissions so that there are still many companies that ignore Carbon emission disclosure.
This research is replication of research Jibriel Omer Elsayih (2015) about Corporate Governance and Carbon Performance and Disclosure: the Australian Experience And research of Borghei Ghomi et al (2013) are of An Empirical Analysis of the Determinants of Greenhouse Gas Voluntary Disclosure in Australia: variable independent consists of firm size, age of firm, leverage, listing status, Corporate Governance, industry and ownership concentration. Research on Carbon emission disclosure in Indonesia is still limited, in contrast to international research [22]. Therefore researchers want to examine different variables that is media exposure, company’s growth, reputation KAP, institutional ownership and managerial ownership. The difference with previous research, this research is:

1) The sample of this research focused in manufacturing companies listed on Indonesia stock exchange (BEI) and Australian Stock Exchange (ASX). Indonesia and Australia are two countries that became contributor to greenhouse-gas emissions in Asia after China and Japan but Australia has committed to reducing emissions 26 to 28 percent until 2030. Australia establishment institution to reductions carbon emissions and the name of institution is Australian Government Department of Climate Change and Energy Efficiency, and Australia also sets out a framework for reporting of information greenhouse gas emissions, known as the National Greenhouse and Energy Reporting (NGER) Act 2007.

2) Research period starting from 2015 until 2016, the reason for selecting that year because Indonesia ratified the Kyoto Protocol's second period on September 30, 2014. This means that researchers want to study factors that affect disclosure of carbon emissions after Indonesia ratified Kyoto Protocol in 2014.

Based on literature, purpose and goal of this research is want to test influence of Media Exposure, company’s growth, reputation of KAP, institutional ownership, managerial ownership to carbon emission disclosure?

2. Theories and Hypothesis

2.1 Legitimacy Theory

To maintain legitimacy of companies in community, legitimacy theory assumes that company can make voluntarily disclose about environmental and social performance information in order to company’s legitimize activities can gives impression of socially responsible to Community (Deegan, 2002; O'Donovan, 1999; Patten, 1991).

2.2 Stakeholders Theory

According to stakeholder theory, company must be accountable to all stakeholders and company’s responsibility not only limited shareholders (Barsky, Hussein, & Joblonsky, 1999). Disclosure of information is a medium of communication between company and stakeholders. Investors will be continue to evaluate all information about associated and finally company will be motivated to voluntarily disclose information because disclosure can help companies to get resources (Gray, Meek, & Roberts, 1995).
| No | Peneliti (Tahun) | Judul | Variabel Penelitian | Hasil Penelitian |
|----|-----------------|-------|----------------------|-----------------|
| 1  | Jannah Richatul (2014) | Faktor-faktor yang mempengaruhi carbon emission disclosure pada perusahaan di Indonesia | **Independent:** - Exposure Media - Type of Industry - Profitability - Company’s Growth - Environmental performance - Leverage | - Significant - Significant - Significant - Significant - Significant - Not Significant - Significant |
| 2  | Linggasari Elsa (2015) | Pengaruh karakteristik perusahaan terhadap carbon emission disclosure | - Size - Company’s Life - Leverage - Type of Industry - Institutional Ownership - Exposure Media - Profitabilitas | - Not Significant - Not Significant - Significant - Significant - Not Significant - Significant |
| 3  | Irwhantoko (2015) | Carbon emission disclosure: Studi pada perusahaan manufaktur Indonesia | - Size - Profitability - Kompetence - Growth - Leverage - Public Accountant | - Not Significant - Not Significant - Not Significant - Not Significant - Not Significant |
| 4  | Borghei Ghomi et al (2013) | An Empirical Analysis of the Determinants of Greenhouse Gas Voluntary Disclosure in Australia | - Corporate Governance - Firm Size - Leverage - Age Of Firm - Listing Status - Industry Type - Own Concern | - Significant - Significant - Not Significant - Not Significant - Not Significant - Not Significant - Significant |
| 5  | Lorenzo et al (2009) | Menganalisis pengaruh ukuran perusahaan, leverage, profitabilitas, nilai perusahaan dan Kyoto protocol | - Ukuran perusahaan - Leverage - Profitabilitas - Nilai perusahaan - Kyoto protocol | - Significant - Not Significant - Significant - Not Significant - Not Significant |
| 6  | Akhiroh Titik et al (2016) | The Determinant of Carbon emission disclosure | - Environmental Disclosure - Prganizational | - Not Significant - Significant |

**Table 2. Previous Research**

**Determinants Of Disclosure Of Carbon Emissions**
2.3 Exposure Media and Carbon Emission Disclosure.

Media has an important role in communicating information to public, which one is company's activity. According to Darkwin and Fraas (2011) ability of media associated directly with voluntary disclosure of climate change. According to Wang et al (2013) media exposure affect to CSR disclosure. Janna Richatul (2014) stated that media exposure affect to carbon emission disclosure. While according to Linggasari Elsa (2015) stated that media exposure does no affect to carbon emission disclosure. Based on description the first hypoteisis for this research is:

H1: Media Exposure affect to carbon emission disclosure on manufacturing company in Indonesia and Australia.

2.4 Size and Carbon Emission Disclosure.

Growth is one of indicators that can be used to describe availability of resources. The company is developing will be more conservative to exploit resources. The company has limited resources will be inhibited to do reduction of carbon emission disclosure (Dhalwin et al, Irwanthoko in 2011, 2015). Company that use of energy from coal and gas will be relate with economic growth and carbon emissions (Irwanthoko, 2015). This condition will be underlying contradiction between driving economic growth and carbon emission disclosure. Irwhantoko (2015) stated that company's growth does no effect to carbon emission disclosure, and Luo et al (2013) stated that growth does no effect on carbon emission disclosure. Based on the description, the second hypoteisis of this research is:

H2: Growth affect to carbon emission disclosure on manufacturing company in Indonesia and Australia.

2.5 Reputation of KAP and Carbon Emission Disclosure.

According to Craswell and Taylor (1992) company is audited by a large KAP will be appropriate conduct to provide broader disclosure. So if quality of KAP that evaluate a company then will be more widely information disclosed. According to Irwanthoko (2015) reputation of KAP does no affect to Carbon emission, and D'Amico et al (2014) States that reputation KAP does no effect to Carbon emission disclosure. Based on the description, third hypoteisis for this research is:

H3: Reputation of KAP affect to carbon emission disclosure on manufacturing company in Indonesia and Australia.

2.6 Institutional Ownership and Carbon Emission Disclosure.

Institusioanal ownership has task of monitoring management due to existence of institutional ownership will encourage optimal levels of supervision. According to Baek et al in Ghomi and Leung (2013) companies with high level of institutional ownership will be under pressure from shareholders
or stakeholders, so that company will be additional reports which is about voluntary disclosure and that accordance with theory of stakeholders. Elsayeh Omer (2015) stated that institutional ownership and managerial ownership does not affect to carbon emission disclosure while Akhiroh Point et al (2016) stated that ownership of managerial affect to carbon emission disclosure. Based on the description, fourth hypotesisis of this research is:

H4: Institutional Ownership affect to carbon emission disclosure on manufacturing company in Indonesia and Australia.

2.7 Managerial Ownership and Carbon Emission Disclosure

Managerial ownership is a situation where management has company’s stock and management as well as company’s shareholders. Existence of managerial ownership becomes interesting if it is associated with agency theory. Agency theory is relationship between management and stakeholders and described as relationship between the agent and principal [16]. Akhiroh Point et al (2016) stated that ownership of managerial affect to carbon emission disclosure and Elsayeh Omer (2015) stated that managerial ownership affect to Carbon emission disclosure. Based on the description, fifth hypoteisis of this research is:

H5: Managerial Ownership affect to carbon emission disclosure on manufacturing company in Indonesia and Australia.

2.8 Research Model

![Research Model](image)

Figure 1. Research Model

3. Research Methods

3.1 Population and Sample

Population in this research is manufacturing company in Indonesia and National Greenhouse and Energy Reporting (NGER) Act Australia that produces carbon dioxide more than 10 million tonnes. Sampling method in this research is purposive sampling. Criteria of sample is: (1) manufacturing company that has listed in BEI since January 2014 and enter to list Australia NGER 2015, (2) Publish reports complete with a period of financial annual report ending December 31, (3) company publishes sustainability report from 2014 until 2016 (4) companies that explicitly disclose carbon emissions (minimal includes one policy with carbon emissions/greenhouse gas/or reveals at least one item of carbon emission disclosure.)
3.2 Definition of Variable

| No | Variabel | Definisi | Indikator |
|----|----------|----------|-----------|
| 1  | Carbon emission disclosure (Y) | Items of Carbon emission disclosure | $\frac{Score}{Maximum\ Score}$ |
| 2  | Exposure Media (X₁) | Disclosoure of Exposure Media | 1 for more companies disclose information relating to carbon emissions and 0 otherwise |
| 3  | Pertumbuhan Perusahaan (X₂) | Changes of total assets | Log Total Asset |
| 4  | Reputation of KAP (X₃) | Big four Auditors are auditors who have expertise and high reputation | Reputation of KAP rated 1 if company is audited by KAP Big Four and 0 otherwise. |
| 5  | Institutional Ownership (X₄) | Percentage of Institutional Ownership | Percentage Of Institutional Stock Ownership |
| 6  | Managerial Ownership (X₅) | Percentage of Managerial Ownership | Percentage Of Managerial Stock Ownership |

3.3 Data Analysis Method: Descriptive Statistic, Nomality Test, Classic Assumption Test (Multikoleniaritas Test, Autokorelation Test and Heteroskodestisitas Test)

3.4 Hypotesis Test: Partial Test (Test t), Simultaneous Test (Test F) and Coefficient Of Determination (R²)

4. Result and Discussion

4.1 Population and Sample

Population in this research is manufacturing companies listed on Indonesia stock exchange (BEI) and TOP 100 companies listed on Australia Securities Exchange (ASX) period 2015-2016. Sample in this research with purposive sampling method. Data used in this research is secondary data using regression method data panel, that combines between cross section and time series. Based on the criteria number of sample is 39 for companies listed on the BEI and 25 for companies listed on the Australia Securities Exchange (ASX) during period 2015-2016.

4.2 Statistic Descriptive

Descriptive statistics distribution for variable in manufacturing companies listed on BEI and TOP 100 manufacturing companies listed on ASX contained in table 4.1:
Table 4.1
Description of variable Research manufacturing company listed in BEI

|        | CED      | MEDIA    | GROWTH   | KAP      | KEPINS   | KEPMAN   |
|--------|----------|----------|----------|----------|----------|----------|
| Mean   | 0.281795 | 0.358974 | 0.076883 | 0.538462 | 0.756538 | 0.035373 |
| Median | 0.250000 | 0.000000 | 0.062800 | 1.000000 | 0.810000 | 0.000000 |
| Maximum| 0.720000 | 1.000000 | 0.723300 | 1.000000 | 1.000000 | 0.884000 |
| Minimum| 0.000000 | 0.000000 | -0.319600| 0.000000 | 0.110000 | 0.000000 |
| Std. Dev.| 0.210422 | 0.482805 | 0.156241 | 0.501745 | 0.195620 | 0.140984 |
| Observations | 78      | 78       | 78       | 78       | 78       | 78       |

Table 4.2
Description of variable Research manufacturing company OF TOP 100 listed in ASX

|        | CED      | MEDIA    | GROWTH   | KEPINS   | KEPMAN   |
|--------|----------|----------|----------|----------|----------|
| Mean   | 0.525400 | 0.660000 | 0.172724 | 0.726192 | 0.024520 |
| Median | 0.500000 | 1.000000 | 0.033550 | 0.790000 | 0.000850 |
| Maximum| 1.000000 | 1.000000 | 4.266600 | 0.930000 | 0.350800 |
| Minimum| 0.000000 | 0.000000 | -0.150800| 0.000000 | 0.000000 |
| Std. Dev.| 0.301339 | 0.478518 | 0.642841 | 0.232595 | 0.080926 |
| Observations | 50       | 50       | 50       | 50       | 50       |

4.3 Research Result

4.3.1 Normality Test

Probability value that regression model is distributed normally, because the value of JB (Jarque-Bera) probability for manufacturing companies listed in BEI and TOP 100 ASX > 0.05 are 0.084254 and 0.203737.

4.3.2 Classic Assumption Test

4.3.2.1 Multikoleniaritas Test

Results of Multikoleniarity Test is showed by table 4.3 and 4.4
Table 4.3
Multicollinearity test results listed manufacturing companies in BEI

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|-----------------------|----------------|--------------|
| MEDIA    | 0.002678              | 1.858909       | 1.191608     |
| GROWTH   | 0.022561              | 1.309445       | 1.051518     |
| KAP      | 0.002630              | 2.739221       | 1.264256     |
| KEPINS   | 0.015485              | 18.27247       | 1.131354     |
| KEPMAN   | 0.027955              | 1.128523       | 1.060872     |
| C        | 0.008499              | 16.43713       | NA           |

Sumber: Eviews 10 (data diolah)

Table 4.4
Multicollinearity test results listed manufacturing companies TOP 100 in ASX

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|-----------------------|----------------|--------------|
| MEDIA    | 0.008277              | 3.085473       | 1.049061     |
| GROWTH   | 0.004461              | 1.095561       | 1.020392     |
| KEPINS   | 0.043978              | 14.41522       | 1.316861     |
| KEPMAN   | 0.367023              | 1.455018       | 1.330390     |
| C        | 0.032668              | 18.45052       | NA           |

Based on value of the Variance Inflation Factor (VIF) shows there are not value of independent variable more than 10, so there are no multikolonieritas between independent variables in regression model.

4.3.2.2 Autocorrelation Test
The results showed there is no autocorrelation because values of probability > 0.05 that are 0.6799 dan 0.5201.

4.3.2.3 Heterokedastisitas Test
The results showed there is no heterokedastisitas because values of probability > 0.05 that is 0.6799 and 0.7425.

4.3.3 Test Feasibility Of Model
Results of regression model manufacturing company listed in BEI and manufacturing TOP 100 listed in ASX:
4.3.4 t Test

Result of Eviews 10 output estimation:

Tabel 4.5

Estimation of Linear Regression Model on manufacturing companies listed in BEI

Dependent Variable: CED
Method: Least Squares
Sample: 1 78
Included observations: 78

| Variable   | Coefficient | Std. Error | t-Statistic | Prob.  |
|------------|-------------|------------|-------------|--------|
| MEDIA      | 0.131051    | 0.051745   | 2.532653    | 0.0135 |
| GROWTH     | 0.040801    | 0.150205   | 0.271637    | 0.7867 |
| KAP        | 0.074727    | 0.051287   | 1.457054    | 0.1494 |
| KEPINS     | -0.105324   | 0.124439   | -0.846393   | 0.4001 |
| KEPMAN     | -0.187471   | 0.167198   | -1.121256   | 0.2659 |
| C          | 0.277689    | 0.092189   | 3.012164    | 0.0036 |

R-squared 0.148291  Mean dependent var 0.281795
Adjusted R-squared 0.089145  S.D. dependent var 0.210422
S.E. of regression 0.200824  Akaike info criterion -0.298975
Sum squared resid 2.903772  Schwarz criterion -0.117690
Log likelihood 17.66003  Hannan-Quinn criter. -0.226403
F-statistic 2.507190  Durbin-Watson stat 2.248680
Prob(F-statistic) 0.037746

Source: Eviews 10 (data processed)
Tabel 4.6

Estimation of Linear Regression Model on TOP 100 manufacturing companies listed in ASX

| Variable  | Coefficient | Std. Error | t-Statistic | Prob. |
|-----------|-------------|------------|-------------|-------|
| MEDIA     | 0.190337    | 0.090980   | 2.092062    | 0.0421|
| GROWTH    | 0.037771    | 0.066792   | 0.565495    | 0.5745|
| KEPINS    | 0.003048    | 0.209708   | 0.014536    | 0.9885|
| KEPMAN    | -0.425942   | 0.605824   | -0.703078   | 0.4856|
| C         | 0.401484    | 0.180744   | 2.221291    | 0.0314|

R-squared | 0.104646 | Mean dependent var | 0.525400 |
Adjusted R-squared | 0.025059 | S.D. dependent var | 0.301339 |
S.E. of regression | 0.297539 | Akaike info criterion | 0.508097 |
Sum squared resid | 3.983827 | Schwarz criterion | 0.699299 |
Log likelihood | -7.702424 | Hannan-Quinn criter. | 0.580908 |
F-statistic | 1.314859 | Durbin-Watson stat | 1.665082 |
Prob(F-statistic) | 0.028944 |

Source: Eviews 10 (data processed)

Based on table 4.5 and 4.6 for manufacturing companies listed in BEI and manufacturing company TOP 100 listed in ASX, it can be concluded that Media exposure affect to CED. It can be seen from probability value is 0.0135< significant level 0.05 for manufacturing company listed in BEI and probability value is 0.0421<significant level 0.05 for manufacturing company TOP 100 listed in ASX. This shows that to get response from investors, media is more important to give more information about company so it can be to raise awareness of company in order to publish of environmental activities on an ongoing basis. Results of this research same with Darkwin and Fraas reseach (2011) and not same with Linggasari Elsa reseach (2015) that stated media exposure does no affect to CED.

Growth does no affect to CED. It can be seen from probability value is 0.7867> significant level 0.05 for manufacturing company listed in BEI and probability value is 0.5745>significant level 0.05 for manufacturing company TOP 100 listed in ASX. This means that disclosure of environmental performance is not in line with growth of company. Growth is one of indicators that can be used to describe availability of resources. Growing companies will be more conservative in leveraging resources. Companies that have limited resources will be inhibited to do carbon emissions disclosure (Dhalwin et al, 2011) in Irwanthoko (2015).
Reputation of KAP does no affect to CED. It can be seen from probability value is 0.1494> significant level 0.05 for manufacturing company listed in BEI while data for top 100 manufacturing company listed in ASX could not be processed because score result indicating is number 1 for all companies which means companies in australia have already audited by KAP big four. This means that company is audited by the big four simply provides information related with accounting that useful to investors and will be considered capable to maintain credibility of KAP so that disclosure of environmental performance which still voluntary disclosure report is not important (D’Amico et al: 2014) and this research in line with Irwanthoko (2015) and D’Amico et al (2014) research.

Institutional ownership does no affect to CED. It can be seen from probability value is 0.4001> significant level 0.05 for manufacturing company listed in BEI and probability value is 0.9885>significant level 0.05 for manufacturing company TOP 100 listed in ASX. This result contrast with stakeholders theory while according to Baek et al (in Ghomi and Leung: 2013) companies that have a large institutional ownership will be under pressure of stakeholders or shareholders so that company will disclose additional report like voluntary disclosure to satisfy stakeholders wishes. This research is in line with Akhiroh Point et al research (2016) but not in line with Elsayeh Omer research stating that institutional ownership affect to CED.

Managerial ownership does no affect to CED. It can be seen from probability value is 0.2659> significant level 0.05 for manufacturing company listed in BEI and probability value is 0.4856>significant level 0.05 for manufacturing company TOP 100 listed in ASX. That means is managerial ownership of company is not necessarily capable to improving environmental performance reports like CED because CED still voluntary disclose report, it also showed that at least influence of investor to company then the company hard to expand environmental performance reports such as CED. Percentage of shares owned by management does not affect to widespread disclosure of carbon emissions.

4.3.5 Test Of R2 (Coefficient Of Determination)

Adjusted R-Square value on manufacturing companies listed in BEI and TOP 100 manufacturing companies listed ASX are 0.89145 and 0.025059. This results indicate that independent variable in predicting variable Carbon Emission Disclosure in manufacturing companies registered in BEI is 8.9% and 91.1% is affected by other variables. While on TOP 100 manufacturing companies listed on ASX is 2.5%, and 97.5% is affected by other variables.

4.3.6 F-Test

F probability value to manufacturing companies listed in BEI and TOP 100 manufacturing companies listed in ASX are 0.037746 and 0.028944, that shows level of significance less than 0.05. So it can be inferred that regression model being estimated worth is used to describe influence of variable independent to Carbon Emission Disclosure (CED).

5. Summary and Conclusion

This research aim to investigates simulation influence media exposure, company’s growth, reputation of KAP, institutional ownership and managerial ownership to Carbon Emission Disclosure (CED). Sample of this reseach is manufacturing companies listed on BEI and TOP 100 manufacturing companies listed on ASX in 2014-2016 year. Results of hypothesis testing in this study is media exposure affect to CED for manufacturing company listed in BEI and manufacturing company TOP 100 listed in ASX, response from investors, media is more important to give more information about company to investor so it can be to raise awareness of company in order to publish of environmental activities on an ongoing basis and to growth does no affect to CED for manufacturing company listed in BEI and manufacturing company TOP 100 listed in ASX that means that disclosure of environmental performance is not in line with growth of company. Growth is one of indicators that can be used to describe availability of resources. Growing companies will be more conservative in leveraging resources. Companies that have limited resources will be inhibited to do carbon emissions
disclosure (Dhalwin et al, 2011) in Irwanthoko (2015). While for reputation of KAP does no affect to CED for manufacturing company listed in BEI while data for top 100 manufacturing company listed in ASX could not be processed because score result indicating is number 1 for all companies which means companies in australia have already audited by KAP big four, company is audited by the big four simply provides information related with accounting that useful to investors and will be considered capable to maintain credibility of KAP so that disclosure of environmental performance which still voluntary disclosure report is not important (D’Amico et al: 2014).

Institutional ownership does no affect to CED for manufacturing company listed in BEI and for manufacturing company TOP 100 listed in ASX. This result contrast with stakeholders theory while according to Baek et al (in Ghomi and Leung: 2013) companies that have a large institutional ownership will be under pressure of stakeholders or shareholders so that company will disclose additional report like voluntary disclosure to satisfy stakeholders wishes. Managerial ownership does no affect to CED for manufacturing company listed in BEI for manufacturing company TOP 100 listed in ASX. That means is managerial ownership of company is not necessarily capable to improving environmental performance reports like CED because CED still voluntary disclose report, it also showed that at least influence of investor to company then the company hard to expand environmental performance reports such as CED. Percentage of shares owned by management does not affect to widespread disclosure of carbon emissions.

6. References

[1] Birt, J.L., Bilson, C. M., Smith, T., and Whaley, F.R.E. Ownership, competition, and financial disclosure. Australian Journal of Management, 31(2), 235-263, 2006
[2] Borghei-Ghormi, Z., and Leung, P. An Empirical Analysis of the Determinants of Greenhouse Gas Voluntary Disclosure in Australia. Accounting and Finance Research, 2(1), p110, 2013.
[3] Choi, B.B., Lee, D., and Psaros, J. An Analysis of Australian Company Carbon emission disclosures. Pacific Accounting Review, 25 (1), 58-79, 2013.
[4] Cormier, D., and Magnan, M. Environmental Reporting Management: a Continental European Perspective, Journal of Business Finance & accounting and Public Policy. 22(1), 43-62, 2003.
[5] D’Amico, E., Coluccia, D., Fontana, S., and Solimene, S. Factors Influencing Corporate Environmental Disclosure. Business Strategy and The Environment, 2014.
[6] Dhaliwal, D. S., Li, O. Z., Tsang, A., and Yang, Y.G. Voluntary nonfinancial disclosure and the cost or equity capital: The initiation of corporate social responsibility reporting. The Accounting Review, 86(1), 59-100, 2011
[7] Freedman, M., Freedman, O., and Stagliano, A. Greenhouse Gas Disclosures: Evidence from the EU Response to Kyoto, International, 2012.
[8] Owen, D., and Adams, C. Accounting & Accountability: Changes and Challenges in Corporate Social and Environmental Reporting: Prentice Hall, 1996
[9] Jannah, R., Muid, D. 2014. AnalisisFaktor-Faktor yang Mempengaruhi Carbon emission disclosure pada Perusahaan di Indonesia (StudiEmpirispada Perusahaan yang Terdaftar di Bursa Efek Indonesia Periode 2010-2012).
[10] Jensen, M. C., and Meckling, W. H. Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of financial economics, 3(4), 305-360, 1976.
[11] Lewis, B. W., Walls, J.L., Dowell, G. W. Difference in Degrees: CEO Characteristics and Firm Environmental Disclosure. Strategic Management Journal, 35(5), 712-722, 2014.
[12] Ling, Q., and Mowen, M. M. Competitive Strategy and Voluntary Environmental Disclosure: Evidence from the chemical Industry. *Accounting and the Public Interest*, 13(1), 55-84, 2013.

[13] Luo, L., Lan, Y.-C., and Tang, Q. Corporate Incentives to Disclose Carbon, 2010.

[14] Rankin, M., Windsor, C., and Wahyuni, D. An Investigation of Voluntary Corporate Greenhouse Gas Emissions Reporting in A Market Governance System: Australian Evidence. *Accounting, Auditing and Accountability Journal*, 24 (8), 1037-1070, 2011.

[15] Ratnatunga, J.. Carbon Cost Accounting: The Impact of Global Warming on the Cost Accounting Profession. *Journal of applied management accounting research*, 5 (2), 2007

[16] Scott, A. D., and Sethi, S.P. An Approach to Incorporating Societal Preferences in Developing Corporate Action Strategies. Los Angeles: Melville Publishing Company, 1974

[17] Tang, Q., and Luo, L.. Transparency of Corporate Carbon Disclosure: International Evidence. SSRN 1885230, 2011

[18] United Nations Framework Convention on Climate Change (UNFCCC). Kyoto Protocol to The United Nations Framework Convention on Climate Change, 1998.

[19] Doha Amendment to the Kyoto Protocol, 2012

[20] Sari, P., S. T. Palangngan, E. Mulyaningsih, and F. Rahman. "Environmental expression using discourse analysis." In *IOP Conference Series: Earth and Environmental Science*, vol. 343, no. 1, p. 012149. IOP Publishing, 2019.

[21] Griffiths, Martin, ed. International relations theory for the twenty-first century: an introduction. Routledge, 2007.

[22] Breder, Kristin, Jennifer H. Czerepinski, Flavien Freme, David Louapre, Samuel S. Martin, Yves Boussant-Roux, and Sujatha Iyengar. "Abrasive article including shaped abrasive particles." *U.S. Patent* 9,803,119, issued October 31, 2017.