

SOCIAL DETERMINANTS OF VOLUNTARY CARBON INFORMATION DISCLOSURE IN THE REAL ESTATE SECTOR OF MALAYSIA

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ABSTRACT. The knowledge is power is a quote effective in the public space, where the level of information and awareness people have determines the level of power they exercise. The aim of this study is to investigate the influence social factors has on corporate voluntary carbon disclosure in the property sector of a developing country. The data was collected from 2013 annual reports of 126 listed companies, comprising sixteen (16) property investment companies, seventy six (76) property companies and thirty four (34) construction companies in Malaysia. The analysis was conducted with Partial Least Square-Structural Equation Modeling, with the bootstrap used for significance testing. The result shows that social factor has a significant influence in determining voluntary carbon disclosure. It was observed in the result that company visibility has a greater influence in motivating disclosure. The implication of the outcome is that, improvement in the level of knowledge and awareness of the public, on the need for corporate participation in climate change mitigation and carbon reduction. The more awareness, the more demand by stakeholders on companies; the more companies will be motivated to disclose carbon information in their annual report.

Keywords: social factor, legitimacy, carbon disclosure, real estate, Malaysia

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1. Introduction

There is a scientifically established connection between climate change and carbon emission. Climate change with its effect on the environment has become a great challenge to life and business; hence corporations are becoming more responsible on their carbon footprint. This is due to the prospective risks associated with effect of climate change, which are through physical impact, or changes in policies. Other risk factors include, variations in the demand patterns, changes in business terms, and insurance policies, so businesses are acknowledging the effect of global warning to the business (Busch & Hoffmann, 2007). The global quest to manage the greenhouse gases, especially carbon emission led to the adoption of the Kyoto protocol. With stakeholders demanding the reporting of carbon emission information, to enable them in investment assessment and decision making (King, 2009). In developing countries such disclosure is not mandatory. Therefore, it is imperative to understand the social factor determinants which motivate voluntary carbon information disclosure among companies in the property sector. The study attempts to identify the major social construct that motivate the corporate climate change information disclosure in company's annual reports. Current literature offer legitimacy theory as the motivation social factor influence on voluntary disclosure of environmental information.

There are many studies on environmental disclosure, few focused on carbon information reporting, while some studies investigated motivating factors in developed countries, a few studied determinant for disclosure in companies in developing countries. Luo, Tang, and Lan (2013) in a study of carbon disclosure between developed and developing countries, argued that the propensity to disclose varies between developing countries and developed, suggesting a shortage of resource as one factor that introduces variation in the willingness and capacity to disclose in developed

and developing nation. The study looks at variant effect of economic factor on propensity to make voluntary carbon disclosure; it did not look at the effect of social factor proxies on carbon disclosure. Similarly, another study on the influence of economic, regulatory, social and financial market factors on incentive of Global 500 companies, to voluntarily disclose carbon information in Carbon Disclosure Project in 2009; Luo, Lan, and Tang (2012) the study maintained that firms undertake climate change activities and disclosure in responds to social pressure, the study used data from CDP survey and was limited to global 500 companies. Likewise, (Dwyer et al., 2009) investigating the different factors behind the disclosure of corporate information on issues related to greenhouse gas emissions and climate change world-wide, using content analysis and a multiple linear regression dependency model. The result shows a direct relationship between corporate size and the disclosure of information, while the study did not consider the possible variation in application between developed and developing countries; it established the significant positive effect between social factor constructs and corporate disclosure. Also, that company size is significantly associated with GHG disclosures was established in Musa Mangena, Jia Liu, Chithambo, and Tauringana (2014), but (Liu & Anbumozhi, 2009) claim that corporate environmental disclosure effort is significantly relative to its environmental sensitivity and its size. Therefore, this studies aims to investigate the effect of social factor determinants on carbon information disclosure in the property sector of a developing country.

2. Literature Review

The effect of climate change on individuals and businesses can be seen through the rise in temperature and sea levels, also in changes in demand patterns in business. Due to the adverse consequences of climate change there is a public expectation for businesses to play an active role toward climate change mitigation for the creation of a low carbon society. This public expectation is expected to vary with the size of the companies because of its political visibility. The legitimacy theory reasons that corporations are motivated to disclose information because of social

factors so as to legitimize their existence in business with the host community and to discharge their social pact voluntarily (Cho & Patten, 2007; Clarkson, Li, Richardson, & Vasvari, 2008; Cormier, Magnan, & Van Velthoven, 2005; Mobus, 2005; Solomon & Lewis, 2002). A corporation that is not responsive to emission reduction or mitigation policies conveys the views to the society that they are not aware or does not consider the risk of global warming; or does not have the know-how to mitigate the risk of carbon emissions. The society may respond by limiting the supply of resources and patronage to such company, as a punishment measure for non-disclosing businesses. The influence of the community or the public is considered social factor pressure.

2.1. Firm size

Firm size is one of the constructs used to measure social factor in prior studies on information disclosure (Gray, Javad, Power, & Sinclair, 2001; Patten, 1992). Large-size businesses are expected to receive more attention from the society, hence disclose more carbon and environmental information, with the intension of legitimizing their company and reducing conflicts (Archel, 2003). The participation in carbon disclosure demands significant expenses in capitals and technicalities, which are related to the size of the company, the greater the size of the company the greater their capacity to undertake the expense for disclosure (Larrán Jorge & Giner, 2002). The future advantage for disclosure is also higher for large-size companies, as there is a link between expenditure on disclosure and privilege drawn from it (Freedman & Jaggi, 2005). The logic of the argument is that large companies are more motivated to disclose, than small companies, and there is a positive association between the size of a company and voluntary disclosure (Berthelot & Robert, 2011; Rankin, Windsor, & Wahyuni, 2011; Stanny, 2013). Other studies that show that size is an influence to greenhouse gas disclosure include the following Cormier et al. (2005) for German economies; Liu and Anbumozhi (2009) studied Chinese companies; and Clarkson et al. (2008) for US businesses. In a study of 120 large size firms in a country that has ratified the Kyoto Protocol and those that has not, Freedman and

Jaggi (2005) claim that carbon disclosures are related to company size. Roberts (1992) is also of the opinion that once a company start making disclosure of environmental and social issues it considers it counter-productive to stop at a time, in view of the of the negative publicity it may get from the public and its impact in relation with stakeholders. While others contend that time-honored companies have the advantage of time to create network with stakeholders, which aids its disclosure program (Alsaeed, 2006; Kang & Gray, 2011). Most of the studies mentioned have used total assets, sales and market capitalization to measure corporate size. In this work, we have used natural log of total asset in 2013, obtained from the financial information disclosed in annual reports.

2.2. Company visibility

There are companies that attract more public attention than others; this is considered to be more visible than others. The level of public visibility may be a function of media coverage that the company attracts due to the quantity or type of business the company undertakes. Firm that are more under media coverage are more visible to the public, hence attract more attention from stakeholders than others (Deegan & Carroll, 1993). Stakeholders are interested in knowing what these companies are doing, and how they can influence them. As a result, social factor influence and checks are more on visible companies than on less visible ones (Belkaoui & Karpik, 1989; Brammer & Millington, 2006; Holthausen & Leftwich, 1983). This means, visible firm are more exposed to civil and public cost as result of the level of visibility. So, the level of visibility is directly proportional to the level of disclosure a company makes, so as to reduce potential political costs (Belkaoui & Karpik, 1989).

3. Theoretical Framework

The popular definition of legitimacy theory is from Suchman (1995), and refers to a general view or notion that the activities of a company are appropriate, suitable or fitting within a communally built system of rules,

tenets and opinions. Legitimacy theory describes a major resource for the existence of companies, as it denotes the level of social sustenance received from the community (Meyer & Scott, 1983). This means businesses need legitimacy to have their decisions accepted by the community so as to develop their projects and get necessary social support and supplies (Deegan, 2002). Moreover, legitimacy changes with time, so corporations need to develop a dynamic scheme for sustaining their legitimacy with the society (Suchman, 1995). The views and perception of the people determine the state of legitimacy (Breton & Côté, 2006), so information disclosure is an important tool in legitimacy plans (Bebbington, Larrinaga-González, & Moneva-Abadía, 2008; Magness, 2006). This means, company executive can use information disclosure to control the views of the public and stakeholders toward the company (Deegan, 2002). It is important that companies increase their disclosure level if they are experiencing legitimacy gap, as reported in a study of environmental information disclosure and legitimacy of corporations (Cho, Freedman, & Patten, 2012; Deegan & Rankin, 1996; Patten, 1992). So, social expectation on environmental issues including carbon emission reduction and climate change mitigation can threaten a company's legitimacy, and if such companies do not respond through information disclosure (De Villiers & Van Staden, 2006; Deegan, 2007; Newson & Deegan, 2002).

Climate change mitigation through carbon information disclosure could be a social expectation and how companies respond to this social demand will affect its legitimacy with the community (Borghei-Ghomi & Leung, 2013; Wittneben, Okereke, Banerjee, & Levy, 2012). Within the limits of legitimacy theory; information disclosure is considered an acceptable management reaction in the face of legitimacy gap (Cho et al., 2012; Dwyer et al., 2009; Reverte, 2009). In particular carbon information disclosure is a veritable means for management to show compliance to social demands with respect to climate change mitigation and to evade threat to legitimacy (Borghei-Ghomi & Leung, 2013; Luo et al., 2012). Legitimacy and stakeholder theories describe environmental information disclosure (Reverte, 2009), and they are corresponding (Gray, Kouhy, & Lavers, 1995; Milne & Patten, 2002). But as shown in Deegan (2002), legitimacy theory deals with social demands in general.

4. Methods

The data used are from annual reports of the listed property sector companies in Kuala Lumpur Stock Exchange (KLSE), a sample of 2013 reports for companies selected for the study. Three industry-types selected within the sector are Property companies, Real Estate Investment companies and the Construction companies. A total of 126 annual reports were selected, comprising sixteen (16) property investment companies, seventy six (76) property companies and thirty four (34) construction companies. To measure the theoretical model the data was analyzed using Smart-PLS, which is Partial Least Square-Structural Equation Modeling (PLS-SEM) software for data analysis. Validity and reliability measures were applied. With the aim of theory development PLS-SEM assesses the path relationships (Hair, Sarstedt, Hopkins, & Kuppelwieser, 2014).

4.1. Measures

Carbon disclosure was measured through a content analysis of each firm's annual reports. Clarkson et al. (2008), Freedman and Jaggi (2011), and Dwyer et al. (2009), have used content analysis in their studies to quantify information disclosure. Financial ratios were used to measure each factor social factor, institutional factor, economic factor, and financial market factor.

5. Results

The PLS path model is a two-stage analysis. The initial stage involves the estimation of latent variables scores through an iterative process for each latent construct. This is the measurement model analysis. The second stage involves the exogenous and endogenous variable are imputed to an ordinary least squares regression equation (Henseler & Fassott, 2010). This is the structural model. The aim is to reduce the error in the residual variance of the endogenous variables (Hair et al., 2014). The PLS-SEM assesses the path model associations (coefficients) where the R² is maximized for the endogenous variables hence attain the prediction

requirement for theory development (Hair et al., 2014). In this study Smart PLS 2.0 has been used, it is an individual specified software developed for PLS path modeling.

Table 1.
Reliability and Validity Results

| Factors | AVE | CR | Cronbachs Alpha |
|-----------------------------|------------|-----------|------------------------|
| Economic Factor | 0.8317 | 0.9368 | 0.8996 |
| Financial Market factor | 0.8199 | 0.9316 | 0.8919 |
| Institutional Factor | 0.7934 | 0.8848 | 0.7397 |
| Voluntary Carbon Disclosure | 0.7944 | 0.9203 | 0.868 |
| Social Factor | 0.919 | 0.9578 | 0.9119 |

Source: Authors' Analysis

Construct reliability assessed by the composite reliability (CR) which estimates construct's internal consistency. For exploratory studies this value needs to be a minimum of 0.70 (Hair, Ringle, & Sarstedt, 2011).

Cronbach's alpha and composite reliability results were used to measure the strength and adequacy of the measurement model (Jin, Doloj, & Gao, 2007). A target of 0.70 is used for Cronbach's alpha coefficient and composite reliability to indicate the acceptable level of internal consistency. The factors in Table 1 that were found to have values above 0.70 resulting in a high degree of reliability and are proved to be sufficiently reliable for analysis.

The convergent validity was measured with the average variance extracted (AVE) of latent constructs exceeds the recommended threshold value of 0.50 (Hair, 2010), and the results signifies that variances observed in the items were accounted for by the constructs. Therefore, the current data have good convergent validity.

5.1. Structural Model

PLS-SEM analysis does not assume multivariate normality, and to test for significance a non-parametric test is used on path coefficients and loadings. A path coefficient bootstrapping is conducted to check for significance of each path.

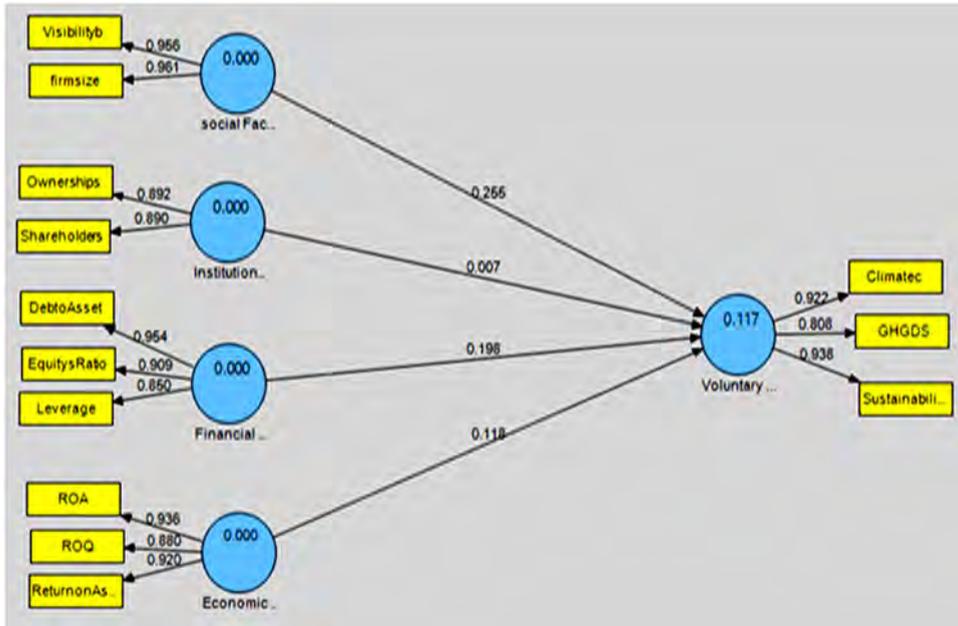


Figure 1. Showing results of the path analysis
(Source: Authors' Analysis)

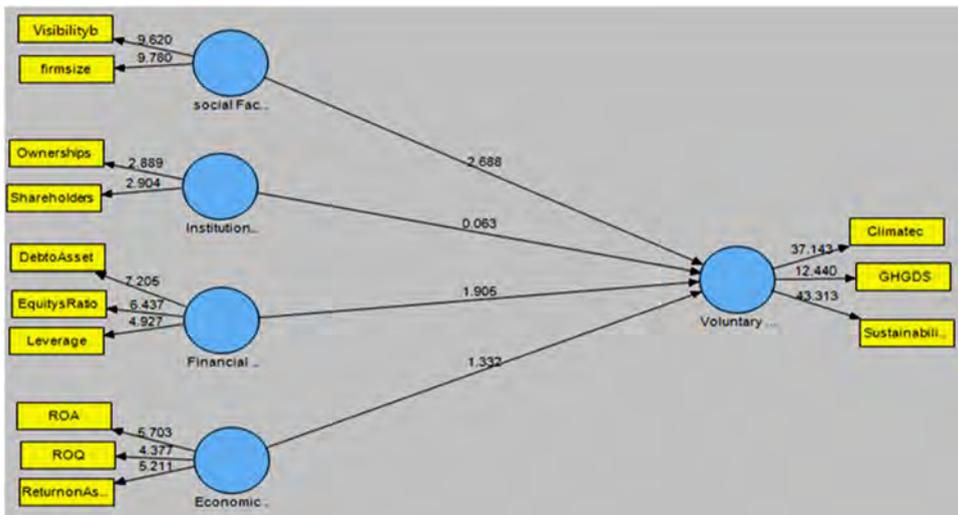


Figure 2. Showing the SEM-PLS bootstrap results for significance
(Source: Authors' Analysis)

The non-parametric bootstrapping method is used for significance test in PLS-SEM(Hair et al., 2011). A higher number to the sample size of the data set is recommended for the bootstrap, and in this study a sample of 500 was used. The significant of the path model analysis was determined through a t-test from the bootstrap of the samples (Hair et al., 2011). These results aids research hypotheses development in supporting or not supporting propositions for each path in the structural model, depicting direct association between latent constructs.

Table 2.

Path Analysis

| Paths | T Statistics | Remarks |
|--|---------------------|----------------|
| Economic factor -> Voluntary Carbon Disclosure | 1.3322 | Not supported |
| Financial Market factor -> Voluntary Carbon Disclosure | 1.9049 | Not supported |
| Institutional factor -> Voluntary Carbon Disclosure | 0.0628 | Not supported |
| Social Factor -> Voluntary Carbon Disclosure | 2.6882 | Supported |

Source: Authors' Analysis

6. Discussion

The study investigated the influence of social factor on voluntary carbon disclosure in listed property sector companies in Malaysia. The industries within the sector include the real estate investment companies, the property management companies and construction companies. The study used the PLS-SEM to model the determinant effect of social factors on Carbon disclosure; and a path model bootstrap to test for significance. The results of the study show that social factor has significantly deterministic influence on voluntary carbon disclosure in the property sector of a developing economy.

In the analysis the social pressure factor had a loading of 0.266, and the bootstrap analysis a shown a result of 2.688 which is higher than the t-test threshold mark of 1.96, hence we can statistically infer that social factor significantly influence voluntary carbon disclosure in the property sector companies. The result agrees with the finding of Luo et al. (2012), which was located with Global 500 companies.

The results of the study agrees with the propositions of legitimacy theory that the size of a company and the media coverage a company attracts due it nature of business is directly proportional to carbon disclosure. This means that large-size companies attracts more media coverage and gets more public and social attention, hence are motivated to disclosure more carbon information so as to bridge legitimacy gap.

The social factor was measured with firm size constructs and political visibility constructs, the results show a loading of 0.961 and 0.966 respectively for the constructs, this statistics is in accordance with the study in (Dwyer et al., 2009; Musa Mangena et al. (2014)), and while both loadings are significantly high, it can be observed that visibility has a higher loading therefore have a greater influence on the influence of social factor.

7. Conclusion

The study aim to determine the influence of social factors on voluntary carbon disclosure in the property sector, the result show that social factor has a significant influence in motivating company executives to disclose carbon information in their annual reports. The social factors are represented by two indicators firm size and visibility; the effectiveness of visibility was found to be greater.

The implication of this result is that with increase in the level of education and awareness of the public the social expectation will increase hence the public pressure and therefore an increase in the disclosure and the more companies will participate in carbon reduction and climate change mitigation.

It also implies that public recognition for companies that contributions in the areas of environmental protection, emission reduction and green projects; will motivate companies to disclosure to attract such positive recognition.

The study is limited to developing countries, which are not obligated under the Kyoto protocol to impose mandatory carbon disclosure regime, also it restricted to the built environment companies, it may be necessary for further studies to be done on other sectors of the economy.

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