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ESG Disclosure: The Extent of Investors' Confidence In Stock Market

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Abstract

Sustainability development information in stock market that consists of Environmental, Social and Governance (ESG) disclosure signal as a relevant information to increase investors' confidence prior for investment decision. However, the accuracy of ESG disclosure information's ability to maximize shareholders wealth. Even though Malaysian stock market has seen an increasing number of Public Listed Firm (PLF) that presents ESG information, the extent of ESG disclosure's relevance for investor to include in their investment decision remains questionable. Sustainability development framework that has been practicing is believed to be able to attract investors to access and evaluate firms' ability to maximize investors wealth. In contrast, the component of signalling theory that explain greater information provides firstly, higher cost and time-consuming factors and secondly the observable information may avoid fabricate positive signal does not seen in the context of ESG disclosure. Using event methodology and PLFs from Malaysian stocks market as sample, evidence showed that greater ESG disclosure increases investors uncertainty about the true value of firms in the market. The incentive of high-quality firms presenting their favourable ESG information to the market is able to signal high firm value in the market does not see in Malaysian stock market.

Keywords: ESG, Investors' Uncertainty, Sustainability Development, Malaysian Stock's Market, Investment Decision.

Introduction

Accurate information regarding the firm's capabilities is a crucial element for market players in accessing and evaluating the firm's future and value, especially in its ability to maximize shareholders' wealth (Becchetti et al., 2015). This study intends to pursue the ability of specific information about a firm to affect investors' confidence to invest inside the firm, specifically, based on the level of sustainability performance reported to the public. In the marketplace, firms present their sustainability performance based on environmental, social and governance (ESG) disclosures (Chauhan & Kumar, 2018; Fatemi et al., 2016; Lo & Kwan, 2017).

Since Brundtland's (1987) report showed that the firm's environmental, social, and governance (ESG) could enhance the firm's image and maintain its focus towards maximising the stockholder wealth, firms started to focus on their ESG activities. Furthermore, the effect of ESG disclosure by a firm result in a high valuation on the firm from investors (Patricia et al., 2015).

In literature, sustainability development based on environmental, social and governance information disclosure (ESG disclosure) is able to signal firm future and value (Rezaee & Tuo, 2017). From the literature, there are debates on the value relevance or irrelevance of ESG disclosure for investors to include in their investment decision process. (Erragragui, 2017; Shahira et al., 2017; Ong et al., 2014; Ortas et al., 2013; Taylor et al., 2018). Therefore, investors' confidence to evaluate the beneficial of ESG disclosure in the market is important to explain the important of ESG disclosure in the stock market.

Annual reports of the public listed firms not only provide the financial information, but also the non-financial information such as disclosure on the ESG. ESG disclosure provides signal on the reputation and performance of firms in terms of strategies in managing resources in the market (Rezaee & Tuo, 2017). Therefore, some investors have interpreted the ESG disclosure as beneficial and relevance for investors to be included in their investment criteria when assessing a firm for their investment decision. (Erragragui 2017; Shahira, Aziz & Bidin 2017; Ong et al. 2014; Ortas, Burritt & Moneva, 2013; Taylor et al., 2018).

However, there are still inconclusive debate on the relevance of investors to include this criterion in their investment decision process (Gómez-Bezares, Przychodzen & Przychodzen 2017, Rezaee & Tuo 2017, Erragragui 2017, Shahira, Aziz & Bidin 2017). Besides that, Public Listed Firms (PLFs) are in dilemma to diversify firm's strategy for the ESG disclosure. Firms are requiring presenting ESG disclosure in an annual report, but the beneficial of the strategy to present high ESG disclosure is questionable.

Different interpretation among investors and firms regarding ESG disclosure creates investors' uncertainty to signal firm value (Gómez-Bezares, Przychodzen & Przychodzen 2017, Rezaee & Tuo 2017, Erragragui 2017, Shahira, Aziz & Bidin 2017). The pieces of information related to ESG disclosure in the annual report has the ability to attenuate investors' uncertainty during investment decision process (Chauhan & Kumar 2018; Lo & Kwan 2017). Therefore, this paper examines the relationship of ESG disclosure and investors uncertainty during investment decision making.

Any investment decision made by investors on the day information related to decision making was released may create abnormal return on that day (Zhang, Djajadikerta & Zhang 2018; Lo & Kwan 2017). ESG disclosure information is made public once annual reports are released. The ESG disclosures that are relevant to investors during investment decision could have significant impact to the size of abnormal return of the stocks. By using event methodology, past studies are focused on news, announcements, and the inclusion or exclusion of firm from index that related to sustainability development (Zhang, Djajadikerta & Zhang 2018; Lo & Kwan 2017). This current study focused on the release date of annual reports in examining the significant investment decision from ESG disclosure. Event study methodology is employed to collect data for cumulative abnormal return as a proxy for investors' uncertainty. Results from this study, therefore, will reveal the impact of ESG disclosure on investment decisions.

The expected contribution of this research is firstly, by extending the research on ESG disclosure and investment decision with the inclusion of investors' uncertainty. According to Halbritter, & Dorfleitner (2015), ESG disclosure provides an investor with relevant information regarding firm's effort to reduce environmental impacts through firms' sustainability commitment. Such information gives a strategic effect in order to ensure that investors respond to the signal as good information to be evaluated. This paper gathers data from 2012 to 2019 provide the effect from proactive regulation enforcement on sustainability development practices.

Next section is the literature review that briefly explaining the component of ESG disclosure, discuss past study on ESG disclosure and investors' uncertainty and hypothesis development. Section continues with data and methodology. Next section includes the results and discussion, and last section is conclusion that provides summary of the research.

Literature Review

ESG Disclosure

ESG disclosure is an element in the corporate social responsibility; a set of information related to environmental, employees, community, products, and customers (Eccles, Loannou, Serafeim et al. 2014). However, during the global financial crisis in 2007, market participants have realised that ESG disclosure is an effective model to enhance a firm's transparency (García-Benau et al. 2013; Silalahi et al., 2023). Thus, sustainability development also becomes part of the corporate governance strategies. As a result, a set of information related to environmental, social, and governance is able to reflect both financial and non-financial objectives in maximising shareholder wealth.

Firms should emphasise that their environmental topics have covered the management and operational approach. In doing so, firms have avoided any related environmental and natural resources risks. The risks in this context are the risks of an economic loss due to the inability to complement the stakeholders' satisfaction in terms of a firm not showing the evidence of being responsible (Erragragui 2017; Kung 2016). Hence, firms are losing investors, reputation, earning quality, and trust.

Malaysian stock market practicing sustainability framework since 2014. In sustainability framework, PLFs are require disclosing ESG information in annual report. Firm in Malaysian Stock Market was reported to have major positive changes in ESG score in 2015 (ROBECOSAM 2018). A report by ROBECOSAM stated that Malaysia is ranked 36th out of 60 countries worldwide as of April 2018 in terms of ESG disclosure reporting. This research argues that the cause of such competitiveness in terms of ESG disclosure reporting is due to the strengthening of the regulatory environment.

Investors Uncertain The degree of firms incorporating greater ESG disclosure has created a debate on whether ESG disclosure is value relevant or value irrelevant. While firms are gaining opportunity through the benefits of sustainability development, high cost, and increment burden, firms need to put some considerations before releasing information to the public (Shahira, Aziz & Bidin 2017). Not only firms are in a dilemma, but investors are also having difficulty to put ESG disclosure into their investment decision process (Chauhan & Kumar 2018; Fatemi et al. 2016; Lo & Kwan 2017).

Besides, Serafeim et al. (2014) provided evidence that there is no significant difference between greater or lower ESG disclosure provided by firms with their total assets, return on assets, return on equity, leverage, turnover, and market to book ratio. It indicates that the variations of firms to convey ESG disclosure are not determined by the size of the firms or the existence of firm performance.

Past studies have strong evidence that investors incur higher monitoring cost due to insufficient information about the firm (Jensen & Meckling 1976; Morris1987). In other words, shareholders, potential investors, and public communities have no control over operating decisions made by the firm and induced firm to present greater information about a firm (Connelly et al. 2011). In contrast, greater information may also create investor's uncertainty concerning the information. In this regard, high investor's uncertainty about a firm is determined by two categories. Firstly, investor's uncertainty about the firm's credibility to present information (Connelly et al. 2011). Secondly, investor's uncertainty about the firm's quality in delivering the information (Akerlof 1970; Hahn & Kühnen 2013).

According to Cellier and Chollet (2016), ESG disclosure is subject to both categories of investor's uncertainty. However, this research argues that ESG disclosure acts as a signal of credibility and quality of the firm behind the information. The signalling theory explains the role of ESG disclosure to attract attention from investors in the process of accessing and evaluating the firm's ability.

Signaling Theory

In a stock market context, Connelly et al. (2011) said that the signaling theory describes the behaviour from a firm (signaler) on how to communicate the information to the stakeholders, potential investors, shareholders, and competitors (receiver) and the behaviour from a receiver on how they interpret the information. The signaler often has greater prudence over the information disclosed to the receiver. As a result, investors acknowledge that they are at the disadvantaged to believe the information. In this regard, the information itself is able to hide any crucial information about the actual firm performance. However, the role of ESG disclosure provided by a third party like Bloomberg is able to reduce investors' concerns regarding the credibility and quality of ESG disclosure. For example, a firm has better information about the present condition of ESG disclosure and the actual state of the activities of firm value. Therefore, information intermediaries communicate about the credibility and quality of a firm (Adamska & Shauki 2014; Kuzey & Uyar 2017). In this regard, the role of ESG disclosure is able to alleviate investors' interpretation regarding the credibility and quality of ESG disclosure reporting.

The intended signal from the information intermediaries improves the credibility and quality of the information provided by a firm. The signal is able to create legitimacy to attract future investors even though the reality behind the information provided by a firm is unknown. Hence, through greater details of ESG disclosure, investors can differentiate firms with higher quality from lower quality prior to investment decision making. Thus, there is less monitoring cost from investors on the firm.

In conclusion, ESG disclosure is initiated by a firm to acquire a strategic effect to ensure that investors respond to the signal as good information to be evaluated. Investors gain high-quality signal, and higher confidence through effective signal; thus, the firm gains a higher market valuation in a market. As a result, ESG disclosure is expected to increase investors' willingness to put their investment into the firm.

ESG Disclosure and Investors Uncertainty

By being costly and observable through the information provided by a firm, ESG disclosure signals the seriousness of a firm's measures for sustainability development. In doing so, a greater sense of confidence from investors exists in the process of accessing and evaluating the firm's ability in maximising shareholder wealth. Since individual risk tolerance varies amongst investors, this situation creates a variation on investors' expectation about the stock they are going to invest (Pak & Mahmood 2015; Pane 2020).

According to Hafenstein and Bassen (2016), the risk reduction potential achieved through ESG disclosure could be important for risk-averse investors. Risk aversion refers to when investors do not prefer to take the uncertainty risk to maximise the utility of expected wealth (Copeland & Weston 2005; Hafenstein & Bassen 2016). Investors are risk aversion when they reduce the risk of maximising their expected wealth. It depends on how satisfied they are towards the investment portfolio. For instance, a firm will have credit risk from carbon dioxide's price; however, when the firm diversifies its electricity with clean energy, the credit risk will reduce. Shareholders will be satisfied when there is a value-added in their expected return.

Besides risk-averse investors, Hafenstein and Bassen (2016) revealed that the decision to invest in a firm with high sustainability development makes the investors waive their returns. Non-professional investors use ESG disclosure in making their investment decisions because they have a personal orientation towards sustainability issue. They are not differentiating each ESG component but feel that ESG information gives high value to them as well as good feeling when investing in a firm provided with sustainability development. Research by Klyver et al. (2017) stated that an altruistic investment behaviour from informal investors makes some of them not expect to gain more return from their investment. However, investors have the desire to help others and the environment. Nevertheless, according to Wai, Cheung and Roca (2013), the Malaysian market has strong sustainability development practices contributing to higher valuation effect from investors due to high satisfaction in investing into firms with greater ESG disclosure.

According to Benlemlih (2017), shareholders believe any strategy of overinvestment in ESG disclosure by managers will create agency problem. In this regard, firms should get benefits by addressing the environmental and social concern. In contrast, firms have to face negative financial impact due to higher cost and more processes are needed to implement. However, the importance of firm presenting ESG disclosure to the public is a signal that the firm has the ability to maximise shareholder wealth. Insufficient information related to the firm will give impact to investors underestimating firm value. As such, if a stock price is reduced and the information about an investment to ESG disclosure has been informed to outside investors, the investors may have compensated the manager's strategy on ESG disclosure as a good managerial strategy. Thus, investors will compensate the manager with a higher managerial reward for their good reputation even though the stock price is reduced (Chen & Liu 2013). Overinvestment in ESG disclosure by the firm somehow has been compensated by a good managerial strategy presented by the firm.

Building from the literature, this research argues that ESG disclosure is a strategic tool by a firm to maximise shareholder wealth. Investors should accept ESG disclosure as an incremental value to them. The decisions by investors to invest in a firm means that investors have confidence and believe the firm has the ability to maximise shareholder wealth. Once investors decide to invest in a firm, the market should gain impact from the investor's investment decisions (Adamska & Dabrowski 2016; Purwati et al., 2021).

Furthermore, taking into consideration that the ESG disclosure signal plays a major role in reducing investor's uncertainty and enhancing the information channel in the market, this research derives its hypotheses H1 as follow:

H1: Greater level of ESG disclosure has a negative relationship with investor's uncertainty.
According to Alsayegh et al. (2020), environmental disclosure signals a firm's overall financial health. Furthermore, environmental disclosure is able to generate long-term shareholder wealth through effective management practices and resources (Alsayegh et al. 2020). Therefore, the positive signal to maximise return to investors from environmental disclosure can enhance investors' confidence inside a firm presenting greater environmental disclosure. As a result, greater environmental disclosure increases the willingness of investors to invest in the stock market (Leuz and Wysocki 2016). This research has come out with the following hypothesis H1a:

H1a: Greater level of Environmental disclosure has a negative relationship with investor's uncertainty.
From the signaling theory, a greater level of social disclosure implies that the firm has absorbed high cost and high observability compared to a firm presenting less social disclosure. Evidence showed that social disclosure signals higher firm value from good activities inside a firm for the community and employees (Taylor et al. 2017; Rezae 2017). Holding by the firm has incurred high cost to present social disclosure in the market, the firm is showing as a high-quality firm in the market. A firm with less social disclosure has difficulties imitating the same quality level as a firm holding greater social disclosure. Therefore, investors are intense to invest inside a firm with greater social disclosure. In this regard, social disclosure has reduced uncertainty on a firm's ability to maximise wealth. From the signaling theory and past studies, the following is the hypothesis H1b created:

H1b: Greater level of Social disclosure has a negative relationship with investor's uncertainty.
Evidence showed that investors gain confidence from greater governance disclosure (Al-jaifi et al., 2017; Dwirianto et al., 2023). By holding greater governance disclosure, firms acquire high transparency, legitimacy, and trustworthiness from the market players. The components of governance disclosure, such as board characteristics, audit committee characteristics and internal audit function, and audit quality, signal the existence of a monitoring approach inside a firm that helps protect investors. In this regard, efficient governance disclosure creates a high-quality signal in the market. In addition, past studies also indicated that high-quality governance disclosure induces greater firm valuation. This situation implies that the firm acquires greater confidence from investors from greater governance disclosure. Therefore, this research derives its hypotheses H1c as follows:
H1c: Greater level of Governance disclosure has a negative relationship with investor's uncertainty.

Methodology
These data are data of firms listed in the main market of Malaysian stock market. This research has gathered data from 2010 to 2019. This research highlighted that, sustainability framework that firm has been practicing since 2014 should be able to attract investors confidence to invest inside firm that disclose greater ESG information. The sustainability framework is expected to increase sustainable investment market which able to reduce government's subsidiary for climate fund (Bursa Malaysia, 2016).
However, there was a lack of data available in the period of 2010 and 2011 because data on ESG disclosure is new in Bloomberg and thus the number of firms with ESG disclosure was limited for those years. As a result, final data provided in this research is from 2012 to 2019.

Furthermore, several firms have been taken out due to their score for ESG disclosure, environmental disclosure, social disclosure and governance disclosure are found to have an extreme data distribution. According to Walker et al (2018), the boxplot is still relevant to use in detecting any data beyond the normal or skewed distribution. At this stage, extreme data is taken out as an outlier (Mahapatra et al. 2020). The data found beyond the boxplot have been taken out in order to avoid extreme data that may cause inefficient results (Mahapatra et al. 2020).

In summary, data gathered are data from 60 firms for ESG disclosure, 62 firms for environmental disclosure (ENV), 58 firms for social disclosure (SOC) and 57 firms for governance disclosure (GOV) with seven years of observations. Table 1 shows the number of firm with the sectors that been included in the data analysis.

Table 1
Number of firm with the sector

No	**Sector**	**Number of firm**
1.	Energy	9
2.	Consumer product and services	18
3.	Plantation	5
4.	Industrial and Product services	8
5.	Health care	4
6.	Construction	4
7.	Financial services	10
8.	Telecommunication	7
9.	Property	6
10.	Transportation and logistic	4
11.	Technology	1

Data collected from Bloomberg were restructured based on the 5-day event window, particularly for the cumulative average return (CAR). In another words, this research incorporated CAR of 5 days prior and 5 days after annual report of firms were released, denoted as CAR (-5, +5). A 90-day estimation window was used in order to establish the α and β of the market model.

Control variables are needed to assess and precisely examine the relationship between the four ESG disclosure variables and investor's uncertainty. These control variables have been proven, based on the literature, to have a significant relationship with investment decision. This research uses four control variables, which are the leverage, firm size, firm age, and institutional investor involvement. Table 2 summarises the control variables used.

Table 2
Summary of the control variables used

Symbol	Variables	Reference variables	Unit	Source
LEV	Leverage	Ratio of debt-to-equity ratio	Ratio	Bloomberg data
SIZE	Firm size	Market capitalisation	In million	Bloomberg data
AGE	Firm age	Age of firm	Year	Annual report by PLFs
INST	Institutional investor involvement	Percentage of institutional ownership	Percentage	Bloomberg data

Leverage tends to have a positive or negative impact on firm value (Li, Gong & Zhang 2015; Siew, Balatbat & Carmichael 2016). Past researchers incorporated leverage as a control variable to indicate the level of risk in a firm. Leverage is measured as a ratio of debt to equity. As the ratio increases, it shows that a firm becomes increasingly uncertain due to a high risk that the firm cannot give assurance to investors whether it could fulfil the firm's debt. Furthermore, a firm inclines to hide the information from the public and therefore, a positive relationship between leverage and investor's uncertainty is expected.

Evidence showed that firm size is associated with firm value (Garcia et al. 2017; Said, Zainuddin & Haron 2009; Siew et al., 2016). High firm size reflects the high financial position in a firm (Garcia et al. 2017; Said, Zainuddin & Haron 2009; Siew et al. 2016). The firm has potential to grow because the firm has high financial resources to conduct an effective business in terms of high profitability (Garcia et al. 2017; Said, Zainuddin & Haron 2009; Siew et al. 2016). Thus, high firm size signals high firm value. Firm size is included in the model as a control variable because firm size could influence firm value and assist in a valid justification for firm value.

The longer the age of a firm conducts business, the more the firm has experience and maturity in conducting business. The firm has a high opportunity to show good performance in the market. Therefore, evidence showed that firm age might have an impact to influence firm value (Cheema & Nartea 2014).

Those firms with higher institutional involvement have a higher opportunity to signal higher firm value compared to firms with lower institutional involvement. It is because the institution is monitoring any strategies applied by firms with higher institutional involvement. Therefore, firms are normally using effective strategies benefitting high firm value. In this context, the percentage of institutional involvement influences firm value (Prommin et al. 2016; Fatemi et al. 2016).

We employed panel regression analysis for testing the hypotheses. The econometric model to test the relationship between ESG disclosure and investor's uncertainty in each context is shown in equation (4.1), (4.2), (4.3) and (4.4).

$$IU_{it} = \beta_1 ESG_{it} + \beta_2 LEV_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INST_{it} + \text{news} + \epsilon_{it} \quad \ldots (4.1)$$
$$IU_{it} = \beta_1 ENV_{it} + \beta_2 LEV_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INST_{it} + \text{news} + \epsilon_{it} \quad \ldots (4.2)$$
$$IU_{it} = \beta_1 SOC_{it} + \beta_2 LEV_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INST_{it} + \text{news} + \epsilon_{it} \quad \ldots (4.3)$$
$$IU_{it} = \beta_1 GOV_{it} + \beta_2 LEV_{it} + \beta_3 AGE_{it} + \beta_4 SIZE_{it} + \beta_5 INST_{it} + \text{news} + \epsilon_{it} \quad \ldots (4.4)$$

where:
subscript *i* denotes an individual firm and t indicates year. IU_{it} is investor's uncertainty for firm *i* in year t , ESG_{it} = ESG disclosure for firm *i* in year t, LEV_{it}= risk for firm *i* in year t, AGE_{it}= firm age for firm *i* in year t, $SIZE_{it}$= firm size for firm *i* in year t, $INST_{it}$= institutional investor involvement for firm *i* in year t, ENV_{it}= environmental disclosure at time t for firm *i*, SOC_{it} = social disclosure for firm *i* in year t, GOV_{it} = governance disclosure for firm *i* in year t, , news is a dummy variable which carries a value of 1 for good news and 0 for bad news. Finally, ε_{it} = the error term for firm *i* in year t.
As market efficiency is in weak form in Malaysian stock market, investors have the opportunity to gain positive return from any information they received prior (Lim et al. 2005; Marsani & Shabri, 2019). At this stage, CAR is seen as good news to investors as it put their investment before the information is released to the market (Doque & Pinto, 2004; Docking & Koch, 2005). For an example, prior to information being released to the public, any leakage of information may give the investors an opportunity to gain positive return during the event window period. Post-event positive return are good news to investors.
Besides good news, there are two other types of cumulative abnormal return in the market when the information is released to the market publicly. There could also be bad news; negative return post-event, and no news; there are no changes in return (Doque & Pinto 2004; Docking & Koch, 2005). In this research, good news and bad news were found. Those good and bad news may have a significant influence on any information in an annual report.
Figure 1 below shows an example of the existence of good news in IOI Plantation Group prior to the annual report that was released on day 0. CAR has seen increases from -0.02 to 0.1 in five days before the annual report was released until five days after the annual report was released. Meanwhile, Figure 2 shows an example of bad news in Hartalega Holding Berhad prior to the annual report that was released on day 0. There is a decreasing trend on CAR, from 0.013 to -0.05 during the event window, five days before the annual report was released until five days after the annual report was released to the market. Therefore, news has been included in the econometric model as a control variable beside other control variable that may influence the dependent variable.

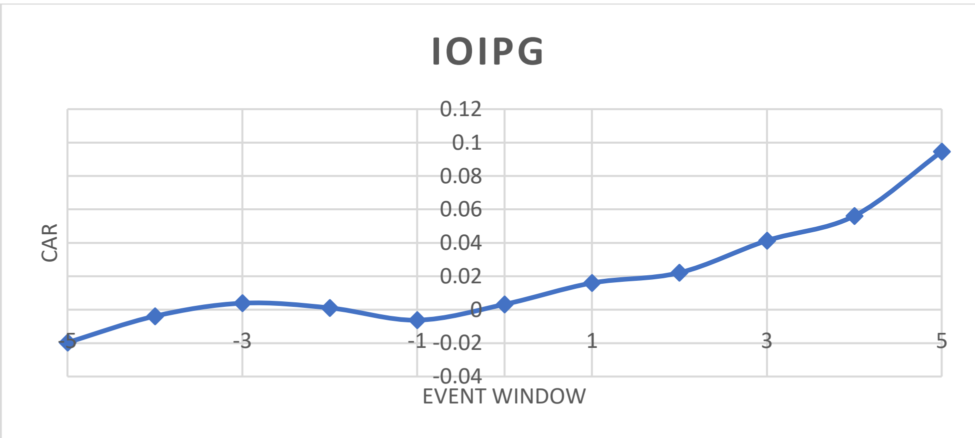

Figure. 1 Curve pattern of good news in IOI Plantation Group (IOIPG) during the event window

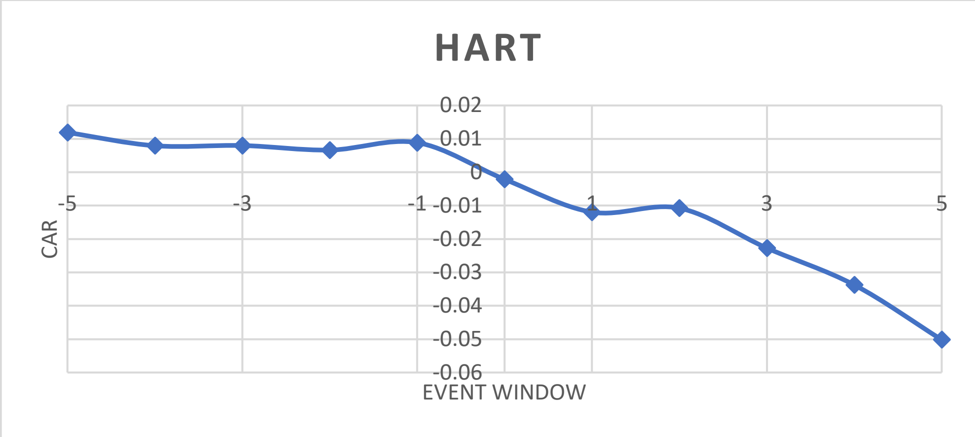

Figure. 2 Curve pattern of bad news in Hartalega Holding Berhad (HART) during the event window

Descriptive Statistic

Table 3 presents the descriptive statistic of ESG disclosure, environmental disclosure, social disclosure and governance disclosure. Mean for ESG is reported at 22.7983 percent with the standard deviation of 9.5540, ENV at 14.2555 percent with standard deviation of 11.5678, SOC at 31.3662 percent with standard deviation of 15.2574, and GOV as the highest mean score compared to others at 52.1266 percent with standard deviation of 4.5463. The highest score for GOV with the lowest standard deviation shows that there is a low variation in the score for GOV among the firms in Malaysian stock market. The requirement to disclose GOV activities has been practised by the firms since 2007 and the importance to disclose GOV information was revealed earlier compared to ESG, ENV and SOC. This showed that the compliance to disclose GOV information is higher compared to ESG, ENV and SOC.

From the signaling theory, greater information disclosed by a firm signifies higher quality firms compared to less information disclosed by a firm (Akerlof, 1970; Spence, 1973). Firms with high quality ESG disclosure and low quality ESG disclosure use the above median as a high-quality firm and the below median as a low-quality firm (Fatemi, Glaum & Kaiser, 2016). In this research, evidence showed that there is a lower median score for GOV at 51.7857 percent compared to the mean for GOV at 52.1266 percent. This showed that on average, firms present a high level of quality in presenting firm's GOV activities inside a firm. ESG, ENV and social disclosures reported higher mean compared to median. On average, firms present high quality of ESG, ENV, SOC and GOV.

CAR shows mean value 0.0421, median value 0.0051, maximum at 0.1923 and standard deviation 0.0603. Negative value on minimum value -0.3038 is indicate by the investors perceive as bad news in the market, as the value decreases. The mean statistic for LEV is reported at 93.23, size of the firm reported at an average RM 16177.08 millions of market capitalisation, age shows 43 years old, and INST is 76.64 percent. From the sample, the report found that most of the firms are those with a high institutional ownership. Additionally, most of the firms in Malaysian stock market have a high institutional ownership.

Table 3
Descriptive statistic of variables

	Mean	Median	Maximum	Minimum	Std. Dev.
ESG	22.7983	20.2479	51.4403	9.9174	9.5540
ENV	14.2555	11.6279	39.8374	2.3256	11.5678
SOC	31.3662	30	64.0625	5.2632	15.2574
GOV	52.1266	51.7857	62.5	42.8571	4.5463
CAR	0.00421	0.0051	0.1923	-0.3038	0.0603
LEV	93.23478	66.0691	1115.561	0.0004	121.1443
SIZE	16177.08	8307.481	105527.9	63.4221	19465.79
AGE	43	34	190	6	33.13638

Results

To avoid inconsistent results in testing the relationship between independent variable and dependent variable, some of observations have been taken out from the analysis. As such, several firms have been taken out due to their score for ESG disclosure, environmental disclosure, social disclosure and governance disclosure are found to have an extreme data distribution. According to Walker et al (2018), the boxplot is still relevant to use in detecting any data beyond the normal or skewed distribution. At this stage, extreme data is taken out as an outlier (Mendoca et al., 2012). From Figure 3, the data found beyond the boxplot have been taken out in order to avoid extreme data that may cause inefficient results.

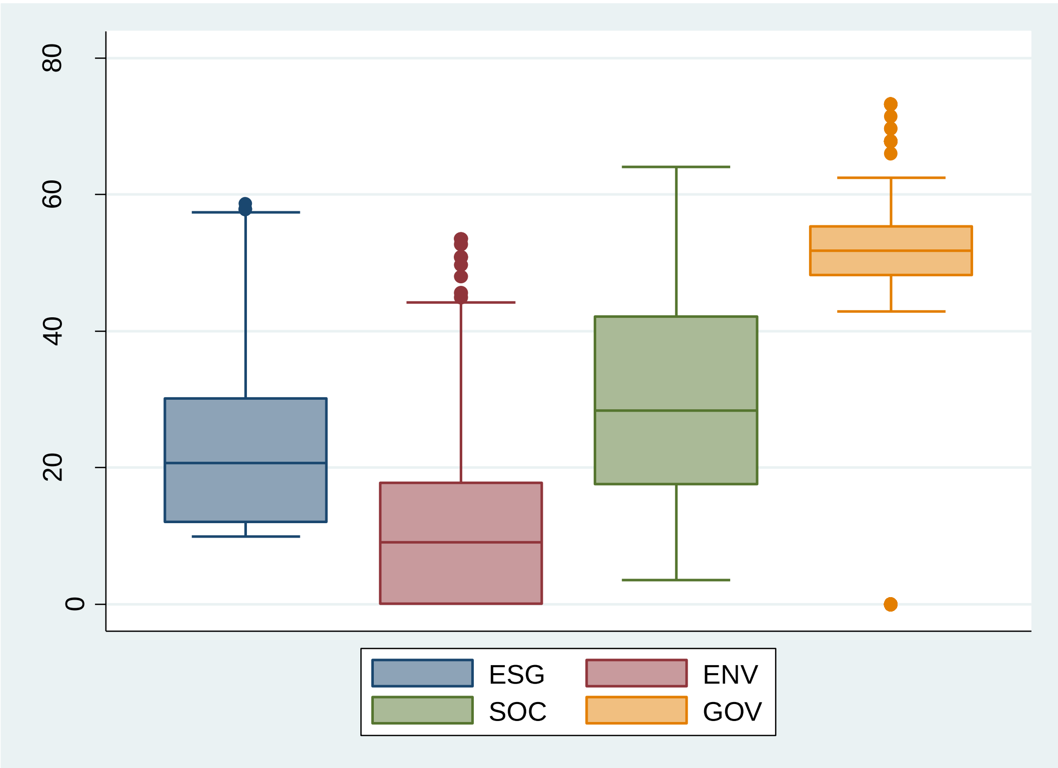

Figure. 3 Boxplot for ESG disclosure, Environmental disclosure, Social disclosure and Governance disclosure

Next, the best sample subset has been identified through the smallest effect of independent variables versus residuals. In doing so, the residual in the error term from the model of regression has seen no influence on the independent variable. Furthermore, the best sample subset has also been identified through the highest R-squared that can be achieved in a regression model (Todeschini et al., 2004) is chosen. Figure 4, 5, 6 and 7 showed the residual plot to independent variable for the final sample subset. Besides the proxy for ESG disclosure tested in a bucket that was provided by Bloomberg, data for environmental disclosure, social disclosure and governance disclosure have also been tested accordingly. There are 60 firms for ESG disclosure, 62 firms for environmental disclosure, 58 firms for social disclosure and 57 firms for governance disclosure with seven years of observations.

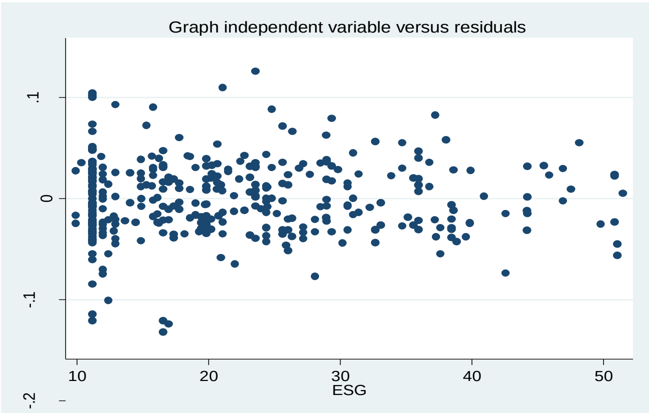

Figure. 4 ESG disclosure versus residuals

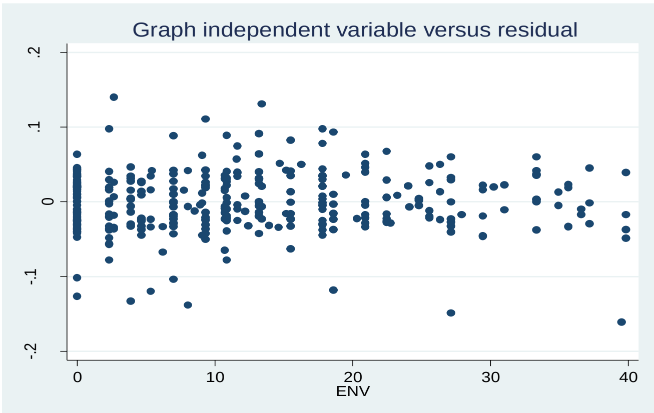

Figure. 5 ENV disclosure versus residuals

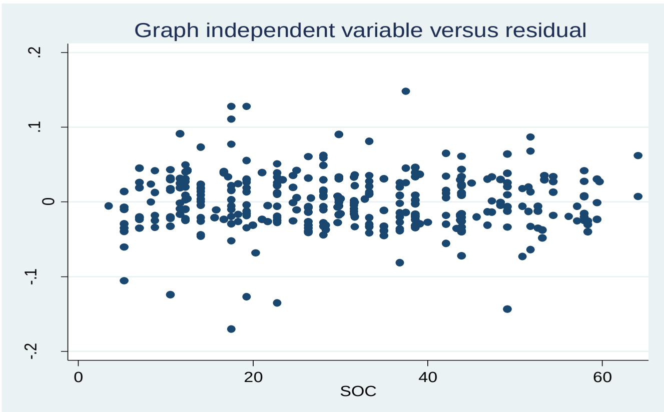

Figure. 6 Social disclosure versus residuals

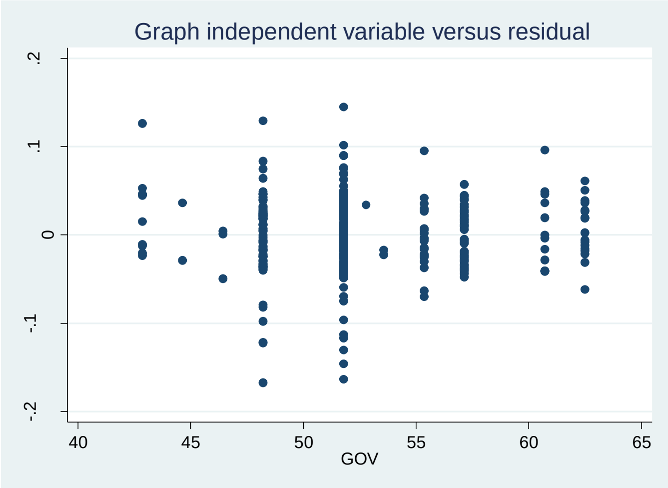

Figure. 7 Governance disclosure versus residuals

Table 4 shows the results for any existence of multicollinearity issue between dependent and independent variables. The results show that the correlation of independent variables in the model that expands the standard errors of the coefficient estimators does not exist (Berey & Feldman 1985). VIF less than 5 indicates that no multicollinearity issue existed, while VIF greater than 5 shows the existence of multicollinearity. In present study, there is no multicollinearity existed.

Table 0

Results for multicollinearity test between dependent variables and independent variables in equation 3.6 (CAR -5, +5 as proxy for investors' uncertainty)

	CAR (5, -5)	**CAR (5, -5)**	**CAR (5, -5)**	**CAR (5, -5)**
ESG	1.09			
ENV		1.03		
SOC			1.06	
GOV				1.04
LEV	1.02	1.03	1.04	1.04
OWN	1.21	1.14	1.20	1.26
AGE	1.08	1.09	1.05	1.08
Ln (SIZE)	1.19	1.16	1.20	1.25
News	1.00	1.01	1.01	1.01

The regression to test model for hypothesis is found with no firm effect and time series effect. At this stage, Breusch and Pagan Lagrangian multiplier test (LM test) and White's test failed to reject the null hypothesis. Therefore, the model for hypothesis is analysed using POLS model. Table 5 shows result for hypothesis testing. All the regression used the Stata "regress" command, including a "robust" option, to give the best estimation results. Robust option may assist in minimising any concern to meet all the assumptions for panel regression. Besides that, any outliers are considered out by using the "robust" option. The benefit of each estimation regression model is evaluated through the value of R-squared and F-statistic. The significance level of the estimation regression model is reported from the value of F-statistic.

Table 5
Results panel regression for relationship between ESG, ENV, SOC and GOV disclosures and IU proxy by CAR (-5, +5)

Variables	Dependent variable: Investors' uncertainty (IU)			
	Model 4.1	Model 4.2	Model 4.3	Model 4.4
ESG	0.0005683 (2.31)**			
ENV		-0.0002667 (-1.22)		
SOC			0.0000584 (0.43)	
GOV				0.0000218 (0.04)
LEV	0.0000465 (3.09)***	0.0000294 (2.02)**	0.0000291 (2.10)**	0.0000221 (1.46)
AGE	0.0000759 (1.27)	0.0000521 (0.89)	0.0000241 (0.42)	0.0000554 (0.88)
Log (SIZE)	-0.0013472 (-0.86)	-0.0035101 (-2.22)**	-0.0016807 (-1.14)	-0.002153 (-1.17)
INST	-0.0006119 (-3.46)***	0.0002104 (-1.22)	-0.0004042 (-2.35)**	-0.0001975 (-1.15)
news	0.0854098 (18.56)***	0.0860422 (18.89)***	0.0799611 (18.78)***	0.0902958 (18.64)***
CONS	-0.002251 (-0.14)	0.004074 (0.24)	0.0043008 (0.26)	-0.0157664 (-0.49)
Prob>F	0.0000	0.0000	0.0000	0.0000
R-squared	0.5659	0.5414	0.5348	0.5374

*Notes: ***, **, * indicate significance at 1%, 5% and 10% respectively. Value in bracket indicates z-value*
Estimation results for Models 4.1, 4.2, 4.3 and 4.4
Model of regressions are estimated using POLS
Numbers in bracket reports t-statistics.

Discussion

Results of the analysis for Models 4.1 to 4.4 are presented in Table 4.2. Results in Table 4 shows that the relationship between ESG disclosure and investors' uncertainty using CAR (-5, +5) is significant (F-value at < 0.05 and R-squared of 56 percent).

Investors found that ESG information is relevant for them to evaluate prior an investment decision-making. Therefore, ESG activities assist investors to evaluate a firm for an investment decision. The result reported is consistent with Cheung (2016), which stated that the inclusion of firm in sustainability index has a significant influence to affect the price at five days after the announcement. A leverage (z at 3.09) and institutional ownership (z at -3.46) showed a significant relationship with CAR (-5, +5). Within this period, investors strongly believe that a leverage, which refers to the ratio of debt to equity, will affect their valuation of a firm value. ESG disclosure information is able to increase investors' uncertainty in their investment decision process regarding a firm because the firm has a high leverage. This explains that a high leverage firm presented high ESG disclosure to get investors' demand in the market. Firms that have a bad performance use ESG disclosure to present that a firm has a good strategy, which increases investors' uncertainty as a result.

From the model, the evidence stated that with greater ESG information disclosed, investors are faced with higher uncertainty. It is found that investors are uncertain whether ESG disclosure are considered as good news in the stock market. Besides that, both insiders and outside firms have a high uncertainty about the information. In conclusion, in the context of

ESG information, the greater level of ESG disclosure presented by a firm, the higher the uncertainty.

Even though investors use ESG information during an investment decision, investors are uncertain about the true value of return for them. There is a high uncertainty to invest in a firm with greater ESG disclosure. There is a debate that may weaken the confidence of investors to invest in a firm with higher ESG disclosure as ESG disclosure is a strategy utilised by a firm to cover the bad condition of a firm's performance (Cheung, 2016; Fatemi et al., 2016).

Results reported in column 3 for Model 4.2 show that ENV is not significant with CAR (-5, +5) with R-square at 54 percent, and prob-F at < 0.05. Control variables LEV, and SIZE are found significant at 5 percent with investors' uncertainty. From the result, there is not enough evidence to accept the null alternative hypothesis, H2. Therefore, this research failed to reject the null hypothesis because the model tested ENV disclosure as a good strategy by a firm in the market.

Consistent with ENV disclosure and investors' uncertainty, the relationship between SOC disclosure and investors' uncertainty using CAR (-5, +5) as a proxy for investors' uncertainty is not significant. From the Table, SOC disclosure is found not significant with CAR (-5, +5). There is not enough evidence to prove that SOC disclosure is relevance for investors to consider as good signal for investment in the market. Social disclosure is irrelevant for investors to include in their investment decision.

From the results, both environmental disclosure and social disclosure are irrelevance for investors to use as a good signal as high return of investment. According to GRI (2019), there is still existence of report stated that investors are unclear about the strategy by a firm particularly in terms of environmental disclosure. As such, firm that disclose information related to waste management does not provide the cost benefits from the waste management strategy. In this regards, the materiality of each information is not visible and can be doubt.

GOV disclosure has shown to be not significant with investors' uncertainty as provided by results in column 5 of Table 3. GOV disclosure has been in practice by firms in Malaysian stock market for ages. The results may prove that a mandatory requirement is needed to disclose related governance information compared to ENV, SOC and ESG. As a result, data distribution on the level of firm's score for GOV disclosure is ranging from 43 to 63 score. There is less variation between each firm in the stock market in order to present GOV disclosure in the market. From standard deviation at 4.5 percent only, firms have high similarity of information presented in the market.

There are debates stated that firms in the stock market are still at a low level of transparency in terms of GOV disclosure. Firms continue to withhold governance-related information from being presented in the market. Investors view it as all firms having the same information that made GOV disclosure not relevant for investors to evaluate. As such, past research has reported that mostly similar content in GOV disclosure among firms are the board structure and audit committee (Khanifah et al., 2020). A specific content in the GOV disclosure has valuable information for market participants. Market participants have preferable content that refers to a specific characteristic in a firm. In this regard, investors evaluate the specific content in the GOV disclosure that is relevant for investors to assist their investment decision. Investors do not believe that with more information regarding GOV disclosure, it gives relevant information prior to an investment decision process. Instead, investors have a preferable specific information of a firm involving GOV information.

Other than that, high information related to GOV disclosure will demonstrate that a firm has a good managerial system within. According to an agency theory, a good managerial system in a firm affects the firm's performance in terms of financial profitability. A firm with a good managerial system incorporates good strategies in managing its business; thus, providing a high value in terms of financial profitability. However, evidence showed that higher GOV disclosure does not has significant relationship with investors' uncertainty. In this regards, investors are not confidence that higher GOV disclosure signal to high firm value.

Conclusion

In conclusion, present study found that sustainability development strategies by firms in the Malaysian stock market are at the introductory stage. Firms are in the stage of understanding to plan a strategy related to sustainability development activities that reflect to ESG activities in a firm. In general, ESG disclosure has increases investors' uncertainty during investment decision being made. the strong negative signal to high firm value may highlighted that the materiality of information related to ESG, ENV and SOC disclosures is still low. According to the GRI report assessment in 2019, the person-in-charge to report and collect the data regarding the materiality of information is still unclear of the information to be accounted for in the report. GRI suggested to increase training and understand the information related to sustainability development strategies, particularly the environmental disclosure. Therefore, an effective training is to ensure that the firm recognises and reinforces skills and behaviours required for the changed effort.Chuah and Lu (2019) stated that purchase intention among Malaysian nowadays are reflected by their concerned about environmental. Therefore, sustainability development framework should be able to attract investors put investment to sustainable investment market. In this regards, investors are expected to value the firm that provide greater ESG disclosure (Atan et al., 2018). In Malaysian stocks Market, this paper provide evidence that firm showed less materiality in oder to provide high confidence on the relevance of ESG disclosure to include prior to investment decision process. Investors also less understanding about the information provided. Firms and Policy makers have to re energise the strategy to ensure that valueble information related to ESG disclosure is materiality in the annual report.

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