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How does environmental, social, and governance disclosure promote sales? Empirical evidence from global firms

Abstract

This paper investigates the influence of environmental (E), social (S) and governance (G) disclosure, and the composite ESG disclosed by firms on their sales performance. Using the 2SLS IV regression method, the study analyses 826 global firms across seven years spanning the 2008 financial crisis to understand how firms use ESG to promote sales in normal and disruptive periods. The effects of ESG and S alone on sales are significantly positive, while no significant effect of E and/or G is found. ESG has a robust significant effect on sales in the time of market turbulence, but the effect is not robust in normal time. The interaction of E*S/E*G/S*G is also analysed. Even the effect of E alone on sales tends to be negative in our results, the interactive effect of S and E has a positive impact on sales. The study suggests ESG as a whole and S, in particular, is an effective marketing instrument. This paper is among the first to investigate the influence of ESG in whole or in part on sales using a global-level dataset, taking into account a contextual factor, i.e., market turbulence time.

Keywords: Sales, ESG, corporate social responsibility, market turbulence

1. Introduction

Environmental, social and governance disclosure (ESG) refers to the information that a company discloses about its environmental, social and governance performance. ESG covers various issues

related to the environment, e.g. climate change, energy and water use, social responsibility, e.g. human rights, gender equality, corporate governance, e.g. corruption and bribery, shareholder protection as guided by ISO 26000:2010. The ESG information can be published in a joint corporate annual report alongside financial information or a separate sustainability report.

ESG disclosure can take many forms. A firm may undertake all three dimensions of responsibility toward E, S, G or be active in one or two dimensions. The extent to which sales are sensitive to ESG rating scores is an important consideration as the monetisation of ESG efforts could be tied to how the communicating firms identify the means to convert ESG scores to sales (Patel *et al.*, 2020).

Moreover, each of the ESG dimensions may influence different stakeholder groups and produce differential outcomes. According to Schwepker and Good (2011), various moral philosophies explain how individuals establish ethical standards for determining right from wrong. These create the basis for one's moral values (Hosmer, 1985). Individuals may draw from numerous moral philosophies such as justice, ethical relativism, deontology, teleology, or egoism when making ethical judgments (Schwepker & Good, 2011). Meanwhile, each philosophy differs in its approach to determining right from wrong, ethical from unethical (Reidenbach et al., 1991). Accordingly, individuals may have different attitudes and responses toward each E, S, G component. For instance, some people may be more sceptical to the polluting firms than the firms that do not comply with corporate governance standards, while some others may be more tolerant to the firms with limited philanthropy activities than the firms mistreating their employees. These attitudes of potential customers towards the firms will affect their intention to buy the firms' products and services (Pham & Ahammad, 2017). However, the knowledge of how ESG or each

dimension promotes sales performance of the communicating firms is still limited, despite a large amount of literature exploring the relationship between ESG disclosure and firm performance.

ESG disclosure has emerged as part of the corporate social responsibility (CSR). Critics assert that CSR research is often too general; it seldom addresses what firms should do specifically to inform strategic decisions (Wang *et al.*, 2020). Reviewing the extant research on CSR/ESG disclosure and firm performance, many scholars report inconsistent conclusions of the effect of CSR/ESG reporting (Brooks and Oikonomou, 2018) on firm performance. It is possibly because of two reasons. Many studies ignore the level of influence of each granular component, E, S and G on a firm's performance, as pointed out by Hamrouni *et al.* (2019), and disregard the contextual factors that may influence this relationship as suggested by Wang *et al.* (2020). Therefore, it is pertinent to study the impact of the aggregated ESG on sales performance with segregation of the impact of each component, E, S and G, taking account of the contextual factors, normal time vs crisis time (i.e., the last global financial crisis). Such a study could shed more light on the puzzle of ambiguous results reported in the extant research on the relationship between CSR/ESG disclosure and firm performance.

Drawing on the legitimacy theory (Suchman, 1995), this study aims to understand how disclosure of ESG information or each component E, S, G promotes sales performance of the communicating firms. In addition, the study investigates the interaction of each pair of E, S, G on sales performance. Sales performance in this study relates to sales revenue (Nyame-Asiamah and Ghulam, 2019) measured by the number of sales (Zhang *et al.*, 2020).

The study uses a sample of 3,458 firm-year observations of a global-level dataset of 826 Fortune World's Most Admired (FWMA) firms based in 31 countries from 2005 to 2011. Our study period captures the market fluctuation in and around the 2008 global crisis to add an

exogenous shock to the empirical analysis. The study finds that the effects of ESG and S disclosure on sales performance is significantly positive, while the influence of E and/or G disclosure on sales performance is not clear. The composite ESG has a robust significant effect on sales in the time of market turmoil, but the effect is not robust in normal time. Even the effect of E alone on sales tends to be negative in our results, the interactive effect of S and E has a positive impact on sales.

This paper provides two important contributions. *First*, the paper extends the CSR/ESG literature by identifying market turbulence time as the contextual factor that changes the link between ESG disclosure and sales performance. To better understand the mixed findings into the CSR/ESG disclosure - firm performance link in the extant literature, some scholars (e.g., Wang et al., 2020) call for a shift of focus to boundary conditions and contextual factors conditioning the relationship; our paper responds to this call. Specifically, this paper shows that the investment in ESG in general and particularly in S is a more effective marketing tool to enhance sales revenues in crisis time than in normal time. This insight is of value as one may argue that ESG disclosure may not matter during the financial crisis as consumers may focus on immediate gains to satisfy a lower level of need such as basic needs in Maslow's (1970) hierarchy of needs while psychological needs such as being philanthropic and ethical may come after satisfying basic needs. In the context of ethical business, Carroll (1991), in his seminal work on the pyramid of CSR, argues that philanthropic and ethical responsibilities come after satisfying economic and legal responsibilities, but our results are opposite. Our results support an argument that ESG, particularly S, could be a strategic marketing tool to boost sales, hence a higher likelihood of profitability for socially responsible firms who communicate about ESG to the public.

Second, to the best of our knowledge, this study is the first that investigates the effect of each of ESG components in addition to the interaction of these components on sales. Most of the

research examines the link between composite ESG disclosure on a firm's financial performance. Recent studies (i.e., Bahadori et al., 2021; Bătae et al., 2021; Duque-Grisales and Aguilera-Caracuel, 2019; Limkriangkrai et al., 2017) started to look at the effects of composite ESG as well as of each E, S, G component, but their focus is still on the overall financial performance rather than specific attention to sales performance. Advancing from these studies, we have provided empirical evidence highlighting the effects of those factors on sales of global firms. Such evidence helps to inform strategic marketing decisions on how firms should communicate their CSR information, the strategic issue in marketing practice that is still inconclusive in the marketing literature (Lindgreen and Swaen, 2009). Appendix 1 presents the representative literature on this relationship and highlights unique positioning of our study. Based on our evidence, we provide insight that if a firm has to prioritise its investment among three areas (i.e., E, S, and G), S is the most effective marketing tool compared to E and G. Although the investment in E alone or G alone might not be effective for sales performance when implemented separately, the investment in reporting S and E or all three components of ESG would strengthen their effects on sales revenue. We emphasise that if a firm can afford, investment in all of these three components together could maximise the benefits of voluntary disclosure in terms of sales revenue.

The remaining sections are the theoretical background and hypotheses development followed by the research method, empirical results, and discussions of the findings. The paper concludes with the managerial implications and suggestions for future research.

2. Theoretical background and hypotheses development

2.1. Theoretical foundation

The concept of legitimacy refers to "a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions" (Suchman, 1995, p. 574). Suchman (1995) conceptualises the legitimacy theory suggesting the importance of societal acceptance in ensuring a company's survival. According to the legitimacy theory (Suchman, 1995), any organisation operates in society via a social contract whereby its survival and growth are based on: (1) the delivery of some socially desirable ends to society, and (2) the distribution of economic, social, or political benefits to groups from which it derives its power (Shocker and Sethi, 1973, p. 97). Society's increasing awareness about environmental and social issues has led to a growing expectation of corporate responsibility toward the environment, society and its employees. As a result, the legitimacy theory (Suchman, 1995) has become widely employed in research examining the causes and consequences of CSR/ESG disclosure. We draw on the legitimacy theory (Suchman, 1995) to frame the idea that disclosure of ESG information enhances sales performance. Detailed arguments are as follows.

2.2. The impacts of ESG disclosure and each E, S, G component on sales performance

The impact of modern economic activities on quality of life has caused growing public concerns about environmental and social issues (Raelin and Bondy, 2013). These concerns have raised expectations of firms' stakeholders about their accountability and transparency. Among a firm's stakeholders, customer groups are the most influential on the firm's sales performance. Existing consumer research finds that consumers have a positive attitude toward socially responsible companies (Pham & Tran, 2020). Satisfied customers may result in loyalty, a willingness to pay a higher price and positive word-of-mouth comments (Pham & Ahammad, 2017). By disclosing ESG information, a firm becomes more legitimate in the eyes of the public. This creates

competitive advantages for firms in attracting customers (Porter and Kramer, 2006). As a result, ESG disclosure by a firm may entice customers to buy a product or service, enabling the firm to reap a price premium or increase in market share.

Empirically, most of the research focuses on the effect of ESG disclosure on a firm's financial performance and reports mixed findings. For example, Duque-Grisales and Aguilera-Caracuel (2019) discover a negative effect of ESG on firm value while Aouadi and Marsat (2018) show a nonsignificant effect of ESG disclosure on a firm's financial performance. Although very few studies examine the impact of ESG disclosure on sales performance, there is some supporting evidence of the positive influence provided by Yu and Zheng (2020). To the light of legitimacy theory (Suchman, 1995), we expect:

H1: Overall ESG disclosure affects sales performance positively.

Global warming, climate change, and the hysteria surrounding events such as Mad Cow disease have underlined society's concerns about the quality of the environment, especially corporations' role and responsibility in that regard (Berthelot *et al*., 2003). When firms go green or embrace environmentalism, demonstrating ecological commitment, they can gain legitimacy in the eyes of society (Bansal and Roth, 2000). By disclosing the information of what a firm has done to reduce negative impacts on the natural environment such as greenhouse gas emissions (e.g. carbon dioxide, nitrous oxide and methane), energy and water consumption, waste discharge, the firm may be able to address its customers' concerns about the declining quality of the environment which in turn helps increases the likelihood of customers' deciding to buy the firm's product. As such, we propose:

H2: Environmental disclosure (E) affects sales performance positively.

Social progress in humanity (e.g. human right, gender equality, race equality) has enhanced society's expectations of the role of corporations and their responsibility in that respect. Social discourse can be viewed as a method of responding to the changing perceptions of society toward corporation legitimacy (Suchman, 1995). When a firm discloses to the public their social actions relating to the protection of rights and benefits of their workforce (e.g. human rights, gender equality) and community development initiatives (e.g. philanthropy and charity contributions), the firm may obtain favour from potential customers who are keen on social progress and humanity. As a result, those potential customers may buy the firm's product to promote responsible business and social progress. It is, therefore, reasonable to expect that:

H3: Social disclosure (S) affects sales performance positively.

A wave of corporate scandals (e.g. Enron, Worldcom, Parmalat) at the beginning of the millennium has undermined public trust in capital markets. Greater transparency and information provision on capital and control structures are claimed to be critical means to restore public trust in capital markets (Vander Bauwhede and Willekens, 2008). By disclosing corporate governance information such as shareholder protection, corruption and bribery, a firm may stand out in the market as an accountable and transparent business. This may help gain an advantage over competitors who do not appear accountable and transparent as many consumers and business customers nowadays do not want to associate with unaccountable and un-transparent businesses. Hence, we propose:

H4: Governance disclosure (G) affects sales performance positively.

2.3. The impacts of ESG disclosure, E, S, G component on sales performance in the financial crisis time vs normal time

The last global financial crisis that started in The USA in 2007 affected economies and financial systems worldwide during the peak period between the third quarter of 2007 and the first quarter of 2009 (Filardo et al., 2010). Many companies struggled to survive during the global financial crisis and so had to cut CSR investment. Examining the financial performance of 100 socially responsible companies before the crisis and when the crisis started, 2007 and 2008 respectively, Karaibrahimoglu (2010) reports a significant reduction of CSR projects during the financial crisis while other companies cut their expenses for CSR projects that were about to start. During the crisis some companies still connected their CSR practices to their core business in a responsible way, while others had to abandon CSR investment for cost-cutting measures. Firms that still engaged in CSR during the crisis may have attracted more attention from their stakeholders. In this regard, the global financial crisis may have been a good chance for high CSR firms to stand out more and obtain more support from their stakeholders compared to a normal time. Therefore, it is reasonable to believe that ESG disclosure would be more beneficial for high CSR firms to compete in attracting their customers' support and increasing sales performance in crisis time rather than in normal time.

However, one may argue that customers might not consider a firm's CSR endeavours when making a purchase decision because in the crisis, due to a shortage of capital, customers might focus on immediate gains such as low-cost products to satisfy basic needs as described in Maslow's (1970) hierarchy of need model. Psychological needs such as philanthropic and ethical desires are in the higher order of Maslow's (1970) needs that might appear after consumers are satisfied with basic needs. In the context of ethical business, Carroll (1991), in his seminal work on the pyramid

of corporate social responsibility, argues that philanthropy and ethics come after satisfying economic and legal responsibilities.

It is worth noting that according to expert opinions (e.g. Stiglitz, 2008; Reich, 2008), the recent global financial crisis isn't a lack of capital but a lack of trust. Financial markets hinge on trust, and that trust has been eroded, bringing about a catastrophic collapse in confidence as well as the crisis. A firm's CSR helps build stakeholder trust and cooperation that should pay off when being trustworthy is more valuable, such as in an unexpectedly low-trust period (Lins et al., 2017). Stakeholders (e.g., employees, customers, suppliers, and the community at large) are more likely to help high CSR firms to weather a negative shock (Lins et al., 2017). In the low trust period like that of the 2008 financial crisis, high ESG disclosure firms gain more trust and hence more support by customers, consequently better sales revenue. Lins et al. (2017) provide evidence that during the crisis, firms with high ESG scores increased more firm value than firms with low ESG scores. Taking all together, we expect that:

H5: The effects of ESG disclosure as well as of each E, S, G on sales performance are more pronounced in a crisis time than in normal time.

3. Research Methods

3.1. Sample and data collection

This study investigates the influences of ESG disclosure as a whole as well as each of its components on sales performance. The study uses the 2SLS IV estimation method to address the endogeneity issue in the regression model and the data from FWMA and Bloomberg.

The sample includes 3,458 firm-year observations of 826 FWMA firms in 30 industry sectors classified by Fortune, in 31 countries. To understand the impact of ESG on sales

performance in normal times vs. turbulent times, we use the study period from 2005 to 2011 since the global financial crisis happens in the middle of this period, destroying demand and sales dramatically.

First, the FWMA firm name and reputation for product and service quality, a firm's industry, headquarter country were collected manually from the Fortune website. The sample was narrowed down to 826 active public companies as of 2012. Then, the ISIN code or the Bloomberg ticker for each firm was manually collected. Finally, annual 2005-2011 data on sales revenue, E, S, G, ESG, operating expense, total assets, and the number of employees were collected from Bloomberg. This is an unbalanced dataset.

3.2. Regression models and variables description

Two empirical models were developed in which ESG disclosure and the three components, i.e., E, S, and G, take a turn to be the key independent variable. The dependent variable, sales performance (*sales*), is mirrored by annual sales of a firm in the formula used by Bloomberg as follows:

Sales/Revenue/Turnover = total of operating revenues - various adjustments to gross sales.

The adjustment in the formula is the reduction of returns, discounts, allowances, exercise taxes, insurance charges, sales taxes, and value-added taxes. The annual sales calculation of a firm includes the revenues from financial subsidiaries in an industrial firm if the consolidation includes those subsidiaries throughout the report and inter-company revenue.

The key independent variable is, alternatively, ESG[E][S][G]. To measure this variable, we use the rating scores by the Bloomberg ESG group as done in the previous studies (e.g. Hamrouni *et al.* 2019). Bloomberg calculated the score for each company in their database based on the extent of the information about ESG[E][S][G] that a company disclosed through the

company's CSR/sustainability reports and communication on media. ESG[E][S][G] were measured in terms of the degree of transparency of a company's reporting on ESG[E][S][G] metrics, in which:

$$ESG = (E + S + G)/3$$

Although ESG[E][S][G] disclosure scores are not specifically a performance metric, the scores demonstrate the degree to which a company reports non-financial information. The scores range from 0.1 for companies that disclosed a minimum amount of data to 100 for those that disclosed every data point.

E addresses many issues related to the business environment and the association between business and society (e.g. CO2 emissions, energy consumption, energy efficiency policy, total waste and emissions reduction policy). S measures the firm's social disclosure information (e.g. fair-trade principles, gender equality, employee turnover ratio, human rights, product safety, a ratio of women in management, a ratio of female employees). G reflects issues related to corporate governance structure (e.g. board independence, corruption, bribery, reporting and disclosure, shareholder protection) (Alareeni and Hamdan, 2020).

According to Bloomberg (2012), each data point is weighted in terms of importance, with environmental data carrying greater weight than other disclosures in the aggregated ESG; greenhouse gas emission carrying greater weight than other environmental disclosures in E, workforce data carrying greater weight than other social disclosures in S, and board of director data-carrying greater weight than other governance disclosure. The scores were also tailored to different industries.

We added several control variables in the model. These are:

crisis. The collapse of global finance in September 2008 (Kemper and Martin, 2010) dragged the demand down and hence sales drop; thus, the binary variable for global financial crisis (*crisis*) event in 2007- 2008 was controlled. *crisis* takes the value of 1 if the year is either 2007 or 2008, or 0 otherwise.

operatingexpense. Firms' operating expenditure is controlled since a part of this budget is spent on marketing and advertising, which might affect sales (Kim *et al.*, 2019).

prodserquality. Product and service quality might also affect sales (Jeffrey *et al.*, 2019) and hence is controlled. It is proxied by firms' reputation in the product and service quality.

Firm size was proxied by a total asset (*asset*) and employee number (*employee*) as done in previous studies (e.g. Pham & Tran, 2020)

AsiaandAustralia, *NorthAmerica*, and *Europe.* Regional effect was controlled since regional culture has an influence on consumption habit and CSR perception (Matten and Moon, 2008), which might affect sales of global firms. Regional effect is captured by controlling the binary variables which take value of 1 if a firm's headquarter is located in the region, or 0 otherwise.

industrydummy. Patel et al.'s (2020) framework proposes an important dynamic of ESG and sales at the industry level; thus, we control industry effect.

countrydummy. Home country factors may influence sales performance due to the heterogeneity in demand among the countries. Therefore, the study controlled for country effect.

yeardummy. Year effect was controlled to account for the impact of macro environment change in a particular year which might affect sales.

We developed Equation 1 and Equation 2 below using the above variables. One-year lag data of the independent variables was used to minimise the possibility of a loop between the

dependent variable and the independent variables, also in response to the suggestion of Dai *et al.* (2020) that CSR efforts increase only the customers' future sales growth.

Equation 1 is used to test H1 and H5

$$sales_{it} = \beta_0 + \beta_1 (ESG)_{it-1} + \beta_2 (crisis)_{it-1} + \beta_3 (operatingexpense)_{it-1}$$
$$+ \beta_4 (prodserquality)_{it-1} + \beta_5 (asset)_{it-1} + \beta_6 (employee)_{it-1} + \beta_7 (AsiaandAustralia)_{it}$$
$$+ \beta_8 (NorthAmerica)_{it} + \beta_9 (Europe)_{it} + \beta_{10} (industrydummy)_{it}$$
$$+ \beta_{11} (countrydummy)_{it} + \beta_{12} (yeardummy)_{it} + \varepsilon_{it}$$

Equation 2 is employed to test H2, H3, H4, and H5

$$sales_{it} = \beta_0 + \beta_1 (E)_{it-1} + \beta_2 (S)_{it-1} + \beta_3 (G)_{it-1} + \beta_4 (crisis)_{it-1} + \beta_5 (operatingexpense)_{it-1}$$
$$+ \beta_6 (prodserquality)_{it-1} + \beta_7 (asset)_{it-1} + \beta_8 (employee)_{it-1} + \beta_9 (AsiaandAustralia)_{it}$$
$$+ \beta_{10} (NorthAmerica)_{it} + \beta_{11} (Europe)_{it} + \beta_{12} (industrydummy)_{it}$$
$$+ \beta_{13} (countrydummy)_{it} + \beta_{14} (yeardummy)_{it} + \varepsilon_{it}$$

Following Kumar *et al*. (2021), industry mean average value (*industryaverage*) is used as the instrument variable for *ESG*[*E*][*S*][*G*], respectively. This instrument variable must meet the two requirements of exclusion and relevance for a good IV: uncorrelated with the error term ($p > 0.05$) but correlated with *ESG*[*E*][*S*][*G*] in the regression models ($p < 0.05$).

The list of variables, measures, and data sources are presented in Table 1.

(Table 1 here)

3.3. Estimation strategy

First, the multicollinearity problem was checked by examining the correlation coefficients among predictors and their Variance Inflation Factor (VIF).

Second, to deal with the endogeneity of *ESG*[*E*][*S*][*G*] in case the baseline models have omitted essential variables, or a loop of causality between *ESG*[*E*][*S*][*G*] and *sales*, the 2SLS IV regression method was used as suggested by Wooldridge (2013), and *industryaverage* was employed as the IV for *ESG* when running Equation 1, and as the IV for *E,S,G* when running Equation 2.

To check if the endogeneity of *ESG*[*E*][*S*][*G*] is addressed with the IV, the Durbin (score) chi-sq test and Wu-Hausman F test of endogeneity were conducted. The large p-values obtained from these tests show that the hypothesis of exogenous regressor cannot be rejected ($p > 0.05$). The first-stage regression summary statistics of the Wald test show that p small ($p = 0.00$), indicating that the IV is not weak. Thus, the endogeneity issue of the baseline models was addressed.

Third, to test H1, H2, H3, H4, 2SLS IV regressions were run using Equation 1 and Equation 2 with the whole dataset.

Fourth, to test H5, we ran Equation 1 and Equation 2 with the subset of crisis-year data, i.e. 2007 and 2008, and the subset of the remaining data. After that, the t-test was conducted.

Fifth, the model robustness was checked with the subset of the non-financial firms.

Last but not least, we conducted additional analysis to test the synergy effect of each pair of E, S, G when they are present together in a firm. The IV 2SLS estimation method was also used in which the industry mean average was used as the IV for S*E, S*G, and E*G, respectively.

4. Results

4.1. Descriptive results and correlation matrix

The descriptive statistics of the variables and the correlation matrix are presented in Table 1 and Table 2. The mean average size of a firm in the dataset is the one with 66,960 employees. The smallest firm has 195 staff while the biggest has 2,100,000 employees. The mean average total assets of a firm is USD 78.2 billion. The smallest firm has total assets of USD 1.351 million USD while the biggest has 3,500 billion USD worth of total assets.

On mean average, a firm has USD 27.11 billion in terms of annual sales revenue. During the study period, due to the global market turbulence, the annual sales of some of the firms were zero in 2008. The maximum annual sales a firm achieved is USD 433.53 billion. A firm has the mean score of ESG[E][S][G] of 31.36[29.92][26.86][54.87] respectively.

(Table 1)

(Table 2)

As can be seen, all of the VIFs are smaller than 4 (the smallest VIF = 1.02; the largest VIF = 2.15), suggesting that multicollinearity is not a problem with the dataset (Mason and Perreault, 1991). Although S and E are significantly correlated at the coefficient of 0.68, their VIF is 2.04, which is much smaller than 10.

4.2. Regression results

Table 3 displays the baseline results obtained from running Equation 1 and Equation 2 with the whole dataset. As can be seen, sales performance is significantly and positively related to ESG and S (β= 0.102; p = 0.025 in Model 1; β= 0.145; p = 0.039 in Model 2). Therefore, H1 and H3 are accepted. However, H2 and H4 are not confirmed because of the large p-value.

(Table 3)

Table 4 present the testing results of the effects of ESG[E][S][G] disclosure in normal time vs crisis time. Interestingly, the effect of overall ESG on sales is insignificant in normal time (β=

0.074; p = 0.199 in Model 3) but significant and positive in the crisis time (β= 0.188; p = 0.001 in Model 5). S has a significant positive effect on sales in both normal (β= 0.145; p = 0.052 in Model 4) and crisis time (β= 0.198; p = 0.038 in Model 6); further, the t-test result shows that the coefficients β for E, S, G in Model 4 are significantly smaller than that in Model 6. Therefore H5 is accepted.

(Table 4)

Table 5 show the results for checking the robustness of the findings. The subset of non-financial firms was extracted by excluding the finance, banking and insurance firms from the whole dataset. The results held (Model 7 and Model 8).

(Table 5)

4.3. Additional analysis

As ESG issues are interconnected, concentrating on a single dimension could be problematic (Galbreath, 2013); thus, the interaction of E, S, G are taken into account for additional analysis. In the additional analysis, the industry mean average was used as the IV for S*E, S*G, E*G correspondingly.

The interactive variables were added to the equation (*SE* = S*E in Model 9; *SG* = S*G in Model 10; *EG* = E*G in Model 11). Interestingly, in Model 9, the regression coefficient of the moderating variable S*E on sales are significantly positive (see Appendix 2). This result supports a novel finding that the presence of S and E together could promote sales performance while E alone might not affect sales.

(Appendix 2 here)

We could not confirm the regression outputs in Model 10 and Model 11 because the exogenous conditions are not met. That is, the Durbin (score) chi2(1) and Wu-Hausman F tests of

endogeneity with the null hypothesis (H0: the instrument variable is exogenous) are violated ($p < 0.05$). Therefore, one should be cautious when interpreting the results reported in Model 10 and Model 11.

5. Discussions

Our findings show that overall disclosure of ESG information significantly strengthens sales. However, the results also point to the fact the effectiveness of ESG disclosure is only applicable in crisis time, not a normal time. These findings are consistent with Dai *et al.*'s (2020) results that CSR efforts increase future sales to corporate customers. Notably, our results are associated with the insignificant effect of composite ESG disclosure on sales performance in normal time verse the strongly significant effect in crisis time, demonstrating the important role of contextual factor, market turbulence. The CSR/ESG disclosure-sales performance link is dynamic and may change over time, upon market conditions. This finding offers insight into the importance of boundary conditions and contextual factors that some scholars (e.g. Wang et al., 2020) recently called for a study to understand the mechanisms that change the CSR/ESG disclosure - firm performance link across the disruptive time of the global economy.

Interestingly, we found the insignificant impact of E disclosure on sales performance. This finding is unique. Previous research focuses on the impact of a firm's actions in relation to environmental issues on financial performance. A popular assumption in the current literature is that the firm's actions in relation to environmental issues help to reduce production cost or improve innovation and productivity, hence more outputs and eventually improving firm financial performance. For example, Limkriangkrai et al. (2017) report a significant positive effect of E on financial performance (stock return). Different from this trend, we examine the impact of E

disclosure on sales performance. Our results suggest that from a consumer perspective, disclosure of a firm's activities in relation to the environment does not help to encourage consumers to purchase products. Consumers seem not to notice and reward a firm's effort in addressing environmental issues; environmental management system such as ISO 14001 may hinder sales growth (Ye *et al.*, 2020). Perhaps, this is because a firm's actions in relation to environmental issues are often invisible to consumers. What firms have done in respect of the environment may help them to reduce production costs but is not a significant determinant of consumers' purchase decisions.

In contrast, we discovered that social disclosure alone (S) have significant and positive effects on sales performance. This result is state-of-the-art as it has not been studied in previous research on CSR-sales performance. While there is a large amount of marketing literature suggesting a positive effect of a firm's CSR activities on customer satisfaction and purchasing intention, evidence for the impact of disclosure of S on sales is scant. This is documented in many literature review papers (e.g, Andrew & Baker,2020; Brooks & Oikonomou, 2018). These studies indicate that the research on the outcomes of ESG disclosure has focused on firm performance in terms of financial performance, which is widely measured by ROA, ROE and Tobin Q, and mostly neglected the links between the disclosure of social initiatives on sales performance. More importantly, our finding that S has a significant and positive effect on sales performance supports the assumption of the benefit of social activities to sales in both normal and crisis time. As for this, our findings are contemporary because they expand the extant marketing literature (Zhang *et al.*, 2020), which believes that a firm's CSR activities can add value to firms by meeting consumers' expectations for good corporate behaviour.

Interestingly, our empirical results show that the interaction effect of S and E on sales is significant. The results indicate that the presence of S and E together can promote sales performance while E alone will not affect sales. A firm's actions toward the environment alone are less noticeable to the public, but when it is combined with social activities, the firm's CSR activities stands out more in the eyes of the public. Accordingly, the firm becomes more favourable and get more rewards from customers, leading to better sales performance. Again, this finding is novel as, to the best of our knowledge, it has not been discovered in the extant CSR research. However, this type of synergistic effect is not rare. It can also happen in another research context. In a recent study by Adhikary et al. (2021) examining the impact of digital payment system adoption on the sales performance of unorganised retailers, they report that the effect is enhanced by such retailers' prioritisation of technological investments and attenuated by their credit facilities.

The insignificant effect of G on sales performance is also unexpected. Perhaps, from the customers' point of view, among them majority are consumers, they do not care much about the governance of the firm. Our findings indicate a possibility that the expectations for corporate accountability and transparency in their governance practices are not strong enough to induce customers to buy products from accountable and transparent firms.

6. Conclusion

Despite a significant amount of research on the effect of CSR in general and ESG disclosure in specific on firm performance, the findings are inconsistent, as can be seen from various reviews (e.g. Andrewand Baker, 2020). Indeed, CSR/ESG research has been criticised for rarely addressing what firms should do specifically to inform strategic decisions (Wang *et al.*, 2020).

Therefore, it is imperative to find further research-led evidence to inform marketing practitioners, business leaders and scholars of how each and/or all of the granular components of ESG disclosure influence firm performance, particularly when the market is in disruption. To that end, this paper investigates the influences of ESG disclosure and each of its components on sales, taking into account contextual factors and crisis vs normal time.

The main findings of the paper are that the effect of a firm's social disclosure on sales performance is significantly positive. At the same time, there is no significant effect of the environmental and governance disclosure on sales performance. However, both S and E together could promote sales. ESG as a whole tends to have a positive influence on sales, and this effect is significant in market turbulence time. Although we apply the same logic of legitimacy theory (Suchman, 1995) to predict the effects of ESG as a whole and each component on sales performance, the empirical results show that the significance of the impact varies. The results indicate that customers appreciate a firms' responsible actions toward the environment, society and internal governance differently. Firms involved in CSR activities in general may appear legitimate in the eyes of customers, but the extent of customers' awards to the firms depends on how each aspect of CSR (i.e., E or S or G) are morally important to customers. This suggests that the legitimacy of the E, S and G aspects in the eye of customers can be ranked. In other words, our results indicate that customers value a firm's actions toward a society more than the environment or the firm's internal governance. This is one of the significant contributions of our research to the literature.

Moreover, our research findings clearly show that customers' views of legitimacy vary between normal and crisis times. Customers are more attracted to firms that still engaged in CSR during the crisis. This means ESG disclosure is more beneficial for high CSR firms to compete in

attracting their customers' support and increasing sales performance in crisis time rather than in normal time. This finding is novel, providing meaningful implications for practice.

In particular, based on our research findings, we suggest that a firm should engage in ESG disclosure with an emphasis on social initiatives. If the firm has limited resources and needs to prioritise its investment in ESG for the enhancement of sales revenue, the firm should focus on S as the most effective instrument while keeping investment in E and G at the reasonable minimum levels. In a crisis time when market demand badly drops, a firm should consider social programs and disclose composite ESG information as well as social information. Firms can be assured that philanthropy (e.g. fair-trade principles, gender equality, employee turnover ratio, human rights, product safety, a ratio of women in management, a ratio of women employees) enables them to improve sales, which is evidenced by our research findings.

This study has limitations that open the avenue for future research. First, the dataset is not the most updated, despite capturing the contextual effect of global turbulence. Second, ESG rating scales are debatable, and Bloomberg ESG ratings also have limitations. Giant firms in a controversial industry such as the extractive sector, the automobile sector and tobacco rank highly on some ESG rating scales because some ESG methods reward a company solely for tracking and reporting its sustainability data. This approach can result in companies being scored poorly regardless of their impact on the environment because they may be reporting insufficient data (Patel *et al.*, 2020). Thus, an important direction for future research is to compare the variations in ESG disclosure score across several rating agencies such as ASSET4 by Thomson Reuters, Ethical Investment Research Service (EIRIS), MSCI ESG Rating and Sustainability Asset Management (SAM) Group. We believe that future research may bring more theoretical nuance in this area.

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Table 1: Descriptive Statistics and Correlation Matrix for Equation 1

	Variable	Mean	S.D.	Min	Max	1	2	3	4	5	6	VIF
1	*sales*	27.11	42.20	0.01	433.53	1						
2	*ESG*	31.36	15.30	1.51	79.75	0.32***	1					1.19
3	*operatingexpense*	23.20	38.28	0.01	396.31	1.00***	0.29***	1				2.15
4	*prodserquality*	12.05	3.52	1.00	17.00	-0.09***	-0.13***	-0.10***	1			1.02
5	*equity*	78.21	266.32	0.01	3500.41	0.38***	0.18***	0.72***	-0.02	1		2.06
6	*employee*	10.32	1.32	5.27	14.56	0.52***	0.37***	0.50***	-0.12***	0.27***	1	1.46
											Mean	VIF = 1.58

Table 2: Descriptive Statistics and Correlation Matrix for Equation 2

	Variable	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	VIF
1	*sales*	27.11	42.20	0.01	433.53	1								
2	*E*	29.92	17.34	0.78	82.17	0.23***	1							1.9
3	*S*	26.86	19.31	3.13	83.33	0.29***	0.68***	1						**2.04**
4	*G*	54.87	8.33	8.93	85.71	0.13***	0.33***	0.44***	1					1.22
5	*operatingexpense*	23.20	38.28	0.01	396.31	1.00***	0.21***	0.27***	0.09***	1				2.13
6	*prodserquality*	12.05	3.52	1.00	17.00	-0.09***	-0.10***	-0.12***	0.06**	-0.10***	1			1.03
7	*equity*	78.21	266.32	0.01	3500.41	0.38***	0.13***	0.13***	0.16***	0.72***	-0.02	1		2.03
8	*employee*	10.32	1.32	5.27	14.56	0.52***	0.21***	0.34***	0.09***	0.50***	-0.12***	0.27***	1	1.39
												Mean VIF =		1.68

* p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3: The effects of EGS on sales performance

	Model 1 *sales*	Model 2 *sales*
L.ESG	**0.102****	
	(0.025)	
L.E		-.015
		(0.772)
L.S		**0.145****
		(0.039)
L.G		0.039
		(0.720)
crisis	2.991***	4.119***
	(0.000)	(0.000)
L.operatingexpense	1.095***	1.096***
	(0.000)	(0.000)
L.prodserquality	-0.066	-0.150
	(0.433)	(0.133)
L.asset	0.034***	0.029*
	(0.000)	(0.066)
L.employee	-0.221	-0.094
	(0.466)	(0.895)
AsiaandAustralia	-6.516*	-2.294
	(0.051)	(0.586)
NorthAmerica	-3.973	-0.555
	(0.228)	(0.895)
Europe	-5.331	-2.605
	(0.105)	(0.522)
industrydummy	Y	Y
countrydummy	Y	Y
yeardummy	Y	Y
N	3,458	3,458
R^2	0.853	0.850
Durbin (score) chi2(1) p=	0.427	0.183
Wu-Hausman F(1,1143) p=	0.428	0.183
First-stage regression summary statistics p =	0.000	0.000

p-values in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Industry mean average of ESG is used as the IV for *ESG*[*E*][*S*][*G*].

Durbin (score) chi2(1) and Wu-Hausman F tests of endogeneity with the null hypothesis that the IVs are exogenous. First-stage regression summary statistics of the test of the null hypothesis that the instruments are weak.

Table 4: The effects of EGS on sales performance in the crisis vs non-crisis years

	Non-crisis years		In crisis years	
	Model 3 *sales*	Model 4 *sales*	Model 5 *sales*	Model 6 *sales*
L.ESG	**0.074**		**0.188*****	
	(0.199)		**(0.001)**	
L.E		-.001		-.026
		0.975		0.770
L.S		**0.145***		**0.198****
		(0.052)		(0.038)
L.G		-0.023		0.232
		(0.849)		(0.151)
Control variables				
N	2,461	2,461	997	997
R^2	0.845	0.840	0.881	0.881

p-values in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: The effects of EGS disclosure on sales performance – Non-financial firms

	Model 7 *sales*	Model 8 *sales*
L.ESG	**0.116****	
	(0.043)	
L.E		-0.013
		(0.767)
L.S		**0.135***
		(0.051)
L.G		-0.004
		(0.939)
Control variables		
N	3,045	3,045
R^2	0.853	0.850

p-values in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01

Appendix 1: Contributions to the extant literature

Study	Type of article	Context	ESG	Separate E/S/G component	Impact on corporate performance	
					Finance	Sales
Bahadori et al., 2021	Empirical	Firms in 24 emerging countries	Yes	Yes	Yes	No
Bătae et al., 2021	Empirical	European banks	Yes	Yes	Yes	No
Duque-Grisales and Aguilera-Caracuel, 2019	Empirical	Multinational companies in Latin America	Yes	Yes	Yes	No
Limkriangkrai et al., 2017	Empirical	Australian companies	Yes	Yes	Yes	No
This study	**Empirical**	**Multinational companies in 31 countries across four continents**	**Yes**	**Yes**	**No**	**Yes**

Appendix 2: Additional analysis result

	Model 9 (S*E) *sales*	Model 10 (S*G) *sales*	Model 11 (E*G) *sales*
L.S	**0.153**	**-0.908*****	
	(0.144)	(0.000)	
L.E	**-0.144**		**-1.200*****
	(0.217)		(0.005)
L.G		**-0.576*****	**-0.745*****
		(0.000)	(0.007)
L.(S*E)	**0.006***		
	(0.079)		
L.(S*G)		**0.017*****	
		(0.000)	
L.(E*G)			**0.023*****
			(0.003)
Control variables			
N	3,458	3,458	3,458
R^2	0.850	0.853	0.848
Durbin (score) chi2(1) p	0.236	**0.006**	**0.008**
Wu-Hausman F test p	0.238	**0.006**	**0.009**
First-stage regression summary statistics p	0.000	0.000	0.000

p-values in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Model 9: Industry mean average of *S*E* is the IV for *S*E*. The results of the Durbin (score) chi2(1) test (p = 0.236) and the Wu-Hausman F test (p = 0.238) demonstrate that the IV is *exogenous* to the error term of the model.

We **do not use** the regression result of the interaction model of S and G (Model 10) because when using Industry mean average of *S*G* as the IV for *S*G*, the results of the Durbin (score) chi2(1) test (p = 0.006) and the Wu-Hausman F test (p = 0.006) demonstrate that the IV is *not exogenous* to the error term.

Likewise, we **do not use** the regression result of the interaction model of E and G (Model 11) because when using Industry mean average of *E*G* as the IV for *E*G*, the results of the Durbin (score) chi2(1) test (p = 0.008) and the Wu-Hausman F test (p = 0.009) demonstrate that the IV is *not exogenous* to the error term. Therefore, there is no need to interpret the result of Model 10 and Model 11.