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Sustainability reporting and retail sector performance: worldwide evidence

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ABSTRACT

This study investigates the relationship between the level of sustainability reporting and retail sectors' performance (operational, financial and market). Using data culled from 4065 observations from 38 different countries for ten years (2008–2017), an independent variable derived from ESG score are regressed against dependent manufacture performance indicator variables [Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q (TQ)]. Two types of control variables complete the regression analysis in this study: firm-specific and macroeconomic. The findings elicited from the empirical results demonstrate that there is a significant relationship between ESG and operational performance (ROA), financial performance (ROE) and market performance (TQ). The model in this study presents a valuable analytical framework for exploring sustainability reporting as a driver of performance in retail sectors' economies. In addition, the results of this study has significant implications for retailers, as it allows the current retailers to consider the possible sustainable activities for better outcomes, and encourages newcomers to find different sustainability approaches to attempt to offer better returns.

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Sustainability Reporting;
ESG; Retail sector;
Performance

Introduction

The retail sector is an international economic powerhouse that is expected to increase to US\$28 trillion by 2019 (Businesswire 2016). Despite that retail sector represents 31% of the world's gross domestic product (GDP), which means that the retail sector has fundamental economic power and substantial environmental impacts. These include impacts from retailing operations (Brancoli, Roust, and Bolton 2017; Bradley 2016; Zaatari, Novoselac, and Siegel 2016) and from the production of retailed goods (Cimini and Moresi 2018).

As the retail sector plays an important international economic sector, it must play a leading role in identifying and implementing sustainable solutions (Buallay et al. 2020a). In contrast to the anti-industry, anti-profit and anti-growth orientation of much of the early environmentalist movement, it has become increasingly clear that the business sector must play a central role in achieving the goals of sustainable development strategies (Buallay 2019a). Retailers adopt different corporate sustainability actions and strategies to decrease the internal and external impacts of their

operations (Naidoo and Gasparatos 2018). Understanding the motivations of retailers for adopting sustainability is necessary for determining the possible financial benefits (Al Hawaj and Buallay 2021).

Sustainability reporting including (environments, corporate social responsibility, and corporate governance) have emerged as very important strategic issues for companies in virtually every industry (Buallay 2020). There are various studies about the environmental impacts of individual retailers (Brancoli, Roustia, and Bolton 2017; Mylona, Kolokotroni, and Tassou 2017). However, studies connecting sustainability actions and their economic impacts are rare. Therefore, this study investigating the relationship between sustainability reporting and performance in this sector. Delai and Takahashi (2013) clarify that research on retail sustainability is lacking, especially research on sustainability reporting. Therefore, this paper investigates the relationship between sustainability reporting and retail performance.

This study is divided into different sections with the first section being the introduction. The second section overviews the literature and develops hypotheses. The third section presents the theoretical framework. The fourth section draws the design and research methodology. The fifth section elicits insights drawn from descriptive statistics. The sixth section elucidates results of empirical analysis and the discussion. The seventh section presents, in succession, conclusions, recommendations and scope for further research.

Literature review and developing hypotheses

The relationship between sustainability reporting and firm performance

There are numerous studies investigating this relationship. In 1972, the first two research studies were published by (Bragdon and Marlin 1972) and (Moskowitz 1972). Since then, thousands of empirical studies have investigated the relationship between a firm's sustainability reporting and its financial performance. However, these studies have generated mixed results (Buallay & AlDhaen, 2018).

Some found a positive relationship between sustainability reporting and financial performance (e.g., Pava and Krausz 1996; Preston and O'bannon 1997; Waddock and Graves 1997; Simpson and Kohers 2002; Ngwakwe 2008; Callan and Thomas 2009; Castaldo et al. 2009; Samy, Odemilin, and Bampton 2010; Uwuigbe and Egbide 2012; Buallay et al. 2019a). Carter, Kale, and Grimm (2000), Jo and Harjoto (2011) and Buallay et al. (2020b) stated that disclosing information about environmental practices improved financial performance. Margolis and Walsh (2003) found that disclosing social information about the firm enhanced its financial performance. Gompers, Ishii, and Metrick (2003, 2010) found that governance disclosure improved financial performance.

Other studies have found a negative relationship between sustainability reporting and financial performance (e.g., McGuire, Sundgren, and Schneeweis 1988; Patten 1991; Riahi-Belkaoui 1992; Sarkis and Cordeiro 2001; Buallay 2019b). Still other studies have seen no relationship or a non-significant relationship (e.g., Levy 1995; Buys, Oberholzer, and Andrikopoulos 2011; Buallay 2019c). Smith, Yahya, and Marzuki Amiruddin (2007) found an inverse relationship between environmental disclosure and firm performance. Balabanis, Phillips, and Lyall (1998) found a negative relationship between social disclosure and firm performance, and Rose (2016) found that governance disclosure has a

negative impact on return on assets and return on equity. Hassan Che Haat, Abdul Rahman, and Mahenthiran (2008), however, found that governance disclosure does not significantly affect market performance.

When measuring firm performance, scholars usually face three options: use accounting-based measures, market-based measures or a combination of both (Buallay 2019d). Many scholars have preferred to use accounting-based measures of performance, which are a firm's return on assets (ROA) and return on equity (ROE). Other scholars, however, have selected market-based measures (i.e., Tobin's Q) (Buallay 2021).

Accounting-based measures are less complex, since they reflect what actually happens in a firm (López, Garcia, and Rodriguez 2007), and they are better at forecasting sustainability performance (McGuire, Sundgren, and Schneeweis 1988). Market-based measures suffer from information asymmetry between managers and shareholders (Cordeiro and Sarkis 1997) and assume that shareholders are the main stakeholder group (Orlitzky, Schmidt, and Rynes 2003). Given the criticisms of accounting-based measures, some studies have used a combination of accounting- and market-based measures (e.g., Callan and Thomas 2009). Thus, to overcome the criticism of both measures in this paper, accounting-based (operational and financial performance) and market-based measures are used.

The relationship between sustainability reporting and operational performance

Many empirical studies have tried to investigate the relationship between ESG disclosure and operational performance using ROA (Nishitani and Kokubu 2012; Jayachandran, Kalaiganam, and Eilert 2013). Some of them found that ESG was positively associated with ROA (Fatemi, Fooladi, and Tehranian 2015; Malik, Ali, and Ishfaq 2015). However, other studies found a negative relationship between ESG and operational performance (i.e., Lyon et al. 2013). A number of studies have found a non-significant association between ESG and ROA (Renneboog, Ter Horst, and Zhang 2008).

The relationship between sustainability reporting and financial performance

The question of what the relationship between sustainability reporting and firm financial performance has been the subject of contentious debate (Fatemi, Glaum, and Kaiser 2017). According to neoclassical theory, the early studies that investigated the relationship between ESG and financial performance found an inverse relationship (e.g., Vance 1975; Wright and Ferris 1997). Kim and Lyon (2014) observed that the negative relationship between ESG and financial performance continued to exist (Fisher-Vanden and Thorburn 2011; Jacobs, Singhal, and Subramanian 2010; Lyon et al. 2013). Such evidence suggests that shareholders perceive that disclosure of ESG is a costly investment. On the other hand, recent studies have found that ESG is positively associated with financial performance (Fatemi, Fooladi, and Tehranian 2015). This positive relationship is supported by stakeholder theory (Freeman 1999), which argues that disclosing sustainability information better satisfies the needs of other stakeholders (e.g., debtors, employees, customers and regulators). A number of studies have found a non-significant association between ESG and financial performance (e.g. Horváthová 2010).

Table 1. Recent studies of the relationship between sustainability reporting and operational performance.

Author(s)	Country(s)	Year(s)	Relationship
Duque-Grisales and Aguilera-Caracuel (2019)	Brazil, Chile, Colombia, Mexico and Peru	2011–2015	-
Deng and Cheng (2019)	China	2011–2019	+
Aouadi and Marsat (2018)	worldwide	2002–2011	+
Zhao et al. (2018)	China	2008–2012	+
Velte (2017)	Germany	2010–2014	+
Lins, Servaes, and Tamayo (2017)	US	2007–2013	+

The relationship between sustainability reporting and market performance

The stock price or market value of a firm is seen as the most objective way of rating a firm. When we move to firm valuation, we find studies that have linked ESG with differences in valuation (as measured by Tobin's Q). For example, Buallay (2019c) found that ESG disclosure has a positive impact on market performance, although Marsat and Williams (2011) documented a negative impact of ESG on market performance. The finding of a negative relationship between sustainability disclosure and market value was later supported by Baboukardos and Rimmel (2016).

As detailed above, studies of the relationship between sustainability reporting and firm performance (operational, financial and market) have returned mixed results. Similarly, the most recent studies in this topic have shown positive, negative and neutral results (Tables 1, 2 and 3). Therefore, a question raised about the relationship between sustainability reporting and firm performance (operational, financial and market) in retail sector. What is the relationship between sustainability reporting and the retail sectors' operational performance? What is the relationship between

Table 2. Recent studies of the relationship between sustainability reporting and financial performance.

Author(s)	Country(s)	Year(s)	Main Result
Aouadi and Marsat (2018)	worldwide	2002–2011	+
Zhao et al. (2018)	China	2008–2012	+
Atan et al. (2018)	Malaysia	2010–2013	non

Table 3. Recent studies of the relationship between sustainability reporting and market performance.

Author(s)	Country(s)	Year(s)	Main Result
Garcia, Mendes-Da-Silva, and Orsato (2019)	Brazil, Russia, India, China and South Africa	2010–2012	+
Aybars, Ataünal, and Gürbüz (2019)		2006–2016	+
Nekhili et al. (2019)	France	2007–2017	+
Balasubramanian (2019)	India	2014–2018	non
Landi and Sciarelli (2019)	Italy	2007–2015	-
Miralles-Quirós, Miralles-Quirós, and Redondo Hernández (2019)	31 countries	2010–2015	+
Aouadi and Marsat (2018)	worldwide	2002–2011	+
Atan et al. (2018)	Malaysia	2010–2013	non
Fatemi, Glaum, and Kaiser (2017)	US	2006–2011	+
Velte (2017)	Germany	2010–2014	non

sustainability reporting and the retail sectors' financial performance? What is the relationship between sustainability reporting and the retail sectors' market performance?

To solve these questions, the study's hypotheses are constructed as follows:

H1: Sustainability reporting positively affects the retail sectors' operational performance.

H2: Sustainability reporting positively affects the retail sectors' financial performance.

H3: Sustainability reporting positively affects the retail sectors' market performance.

Theoretical framework

This section provides the theoretical framework leading to the linking of sustainability disclosure (environmental, social and governance) and performance.

In this section and based on the purpose of this study, many theoretical explanations are discussed. These theories are categorised into two groups: theories supporting the positive impact of sustainability reporting on firm performance and theories defending the negative impact of sustainability reporting on firm performance (Table 4).

Theories supporting sustainability reporting

First, *agency theory* describes the relationship between a principal (shareholders) and the agent (management) (Holmstrom 1979; Holmstrom and Milgrom 1987; Jensen and Meckling, 1976). This theory states that managers are agents to maximize shareholder wealth (Quinn and Jones 1995, p. 22). It suggests that principal-agent problems can appear from nonalignment of interests between principals and agents (Jensen and Meckling, 1976). Managers focused on the need for maximizing profit own stock in the firm and/or receive compensation in reward for strong financial performance. The shareholders/principals, however, are focused on reducing risk and costs while increasing financial returns. Therefore, agency theory puts forward the concept that managers are agents for shareholders, and maximizing the profitability of the firm is motivating the shareholders to reward the management.

Watts and Zimmerman (1990) assume that agency costs include transactions, and information costs exist. These costs are incurred due to sustainability disclosures, as this disclosure is used as a tool to communicate with stakeholders, thus reducing the information asymmetry between shareholders and management. Thus, agency theory outlines that sustainability reporting reduces agency costs and decreases the problem of information asymmetries, as many of these risks are disclosed in sustainability reports. Therefore, reducing agency costs might increase financial performance.

Table 4. Summary of theories.

Theories Supporting Sustainability Reporting	Theories against Sustainability Reporting
Stakeholder Theory	Shareholder expense theory
Agency theory	Trade-off theory

Second, *stakeholder theory* expounds on why firms worldwide disclose their sustainability activity (Hörisch, Freeman, and Schaltegger 2014). Freeman (2010) defined a stakeholder as ‘any group or individual who can affect or is affected by the achievement of an organization’s objectives’ (Freeman and Medoff 1984: 46). In defining stakeholder, Freeman (2010) considers both internal and external parties that affect and are affected by the firm (Sarkis, Gonzalez-Torre, and Adenso-Diaz 2010). External parties often create pressures on firms to lower negative impacts and improve positive ones (Sarkis, Gonzalez-Torre, and Adenso-Diaz 2010). According to Keynes (1936), stakeholders are categorized into three major groups:

- External stakeholders: governments, suppliers, competitors and customers.
- Internal stakeholders: boards of directors, employees, subsidiaries and parent company.
- Shareholders: all individuals or firms who are investing in shares and other securities of the firm.

Freeman (1994) poses two essential questions to understand the core of stakeholder theory: 1) What is the main aim of the firm? and 2) What is the management responsibility to stakeholders? The first question addresses the value firms creates. The second question relate to management’s communication with stakeholders.

Stakeholder theory basically depends on the assumption that firms need to manage their relationship with their stakeholders in order to survive. Deegan and Blomquist (2006, p. 349) clarify that according to stakeholder theory, reporting on specific types of information can be used to attract or maintain particular groups of stakeholders. For example, if a powerful individual or group is interested in a firm’s social or environmental activities, then disclosing information about social or environmental performance is essential to attract or maintain them.

In fact, firms face challenges in meeting the expectations of various stakeholders. More attention is paid to investors (Verbeeten, Gamerschlag, and Möller 2016), as they are the main contributors to the firm’s survival. In the context of sustainability, the issue is to consider the needs of all stakeholders (shareholders, investors, employees, community and so on) while reporting on sustainability. This is supported by the normative section of stakeholder theory. A normative theory states that firms not only increase stockholders’ financial returns but also must give equal consideration to the needs of other stakeholders to gain the optimal balance among them (Hasnas 1998, p. 32). In fact, any firm has explicit costs and implicit costs. The firm that attempts to decrease its implicit costs by being socially irresponsible will certainly incur additional explicit costs.

Therefore, managers should satisfy the needs of all stakeholders, not just investors or shareholders (Melé 2008). Thus, sustainability reporting will satisfy stakeholders’ needs. For example, if employees are satisfied, they will work more effectively; satisfied customers will purchase more, and satisfied suppliers will provide discounts.

Theories against sustainability reporting

First, *shareholder expense theory* suggests that sustainability practices will lead to putting social benefits before shareholders' benefits. This means that sustainability practices such as social responsibility activities are perceived to be beneficial to the society at the expense of investors and shareholders (Buallay and Al-Ajmi 2019). Thus, firms should not be engaged in sustainability activities unless they have excess returns. Manchiraju and Rajgopal (2017) showed that forcing firms to invest in sustainability activities leads to a drop in their returns.

Second, *trade-off theory* suggests that sustainability practices create additional expenses that reduce profitability (Aupperle, Carroll, and Hatfield 1985). Firms that spend on sustainability activities will have lower profits (Balabanis, Phillips, and Lyall 1998; Buallay, Al Hawaj, and Hamdan 2020d).

Methodology

Study model

In the model of our study, firm performance is the dependent variable. Firm performance consists of three dimensions: financial, operational and market performance (Buallay, Al-Ajmi, and Barone (2021). In addition, some factors were considered to be control variables to control the model.

To determine the relationship between sustainability reporting and firm performance, we estimate the equations below.

The model is constructed to investigate the effects of sustainability disclosure on firm performance as follows:

$$Perf_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

This equation is divided further into three sub-equations based on the performance as follows:

$$ROA_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

$$ROE_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

$$TQ_{itg} = \beta_0 + \beta_1 ESG_{itg-1} + \beta_2 TA_{itg} + \beta_3 FL_{itg} + \beta_4 GDP_{itg} + \beta_5 GOV_{itg} + \varepsilon_{itg}$$

Where: Perf is a continuous variable; the dependent variable is the performance measured by three models (i.e. ROA model, ROE model and Tobin's Q model). β_0 is the constant and β_1 -5 the slope of the controls and independent variables. The independent variable is sustainability disclosure (ESG) measured by the three indicators E, S and G. The firm's control variables are TA and FL, and the country's control variables are GDP and (Table 5)GOV. (ε) is a random error, (i) stands for firms, (t) stands for the period, (g) represents the country, and (-1) represents the 1-year lagged variables of ESG.

Table 5. Variable measurement.

VARIABLES	LABELS	MEASUREMENTS
<i>DEPENDENT VARIABLES</i>		
Operational Performance	ROA	Net income divided by total assets
Financial Performance	ROE	Net income divided by shareholder equity
Market Performance	TQ	(Market value of equity + total liabilities + preferred equity + minority interest) ÷ book value of assets
<i>INDEPENDENT VARIABLES</i>		
ESG Disclosure	ESG	Bloomberg index which combines E, S and G
Environmental Disclosure	E	Bloomberg index which measures the disclosure of the bank's energy use, waste, pollution, natural resource conservation and animal treatment
Corporate Social Responsibility Disclosure	S	Bloomberg index which measures the disclosure of the bank's business relationships, bank donations, volunteer work, employees' health and safety
Corporate Governance Disclosure	G	Bloomberg index which measures the disclosure of corporate governance code
<i>CONTROL VARIABLES:</i>		
<i>FIRM-SPECIFIC VARIABLES</i> <i>CONTROL</i>		
Financial Leverage	FL	Ratio of non-equity funds to total assets
Total Assets	TA	Logarithm of annual total assets of the firm
<i>FIRM-SPECIFIC VARIABLES</i> <i>CONTROL</i>		
Gross Domestic Product	GDP	Logarithm of annual GDP of the country
Governance	GOV	Worldwide Governance Indicators (WGI) of the country which measures six indicators (control of corruption, governmental effectiveness, political stability and absence of violation, rule of law, regulatory quality, and voice and accountability)

Prior literature states that ESG will not immediately lead to better financial performance (Choi and Wang 2009). Porter and Kramer (2006) stated that sustainability reporting is a strategic concept, thus effects do not occur immediately (i.e., in the same year) but rather in the following period. Thus, we compare the ESG scores of the year $t - 1$ with the current performance (Buallay et al. 2020e).

Sample selection

This researcher used secondary data. In this paper, ESG data were retrieved from the Bloomberg database as a proxy for disclosure. Bloomberg's data are from different sources, such as CSR reports, annual reports, and corporate websites, and thus reflect the universe of information publicly available to investors.

The data used in this paper were collected from the Bloomberg database and included all firms in the Bloomberg database that

- 1) disclosed ESG information and
- 2) had data available from 1 January 2008 to 31 December 2017.

As listed in Table 6, The sample contains 4065 observations derived from 38 countries.

Table 6. Sample selection.

Country	Observations	Country	Observations
Australia	187	Netherlands	30
Belgium	7	New Zealand	21
Brazil	120	Norway	14
Canada	81	Poland	8
Chile	8	Portugal	10
China	760	Singapore	7
Denmark	53	Slovenia	10
Finland	57	South Africa	61
France	143	South Korea	140
Germany	151	Spain	29
Hong Kong	74	Sweden	112
India	177	Switzerland	57
Indonesia	23	Taiwan	144
Ireland	15	Thailand	12
Israel	12	Turkey	25
Italy	60	United Arab Emirates	8
Japan	469	United Kingdom	377
Malaysia	6	United States	579
Mexico	10	Vietnam	8
Total			4065

Reliability and validity

We adopt three kinds of diagnostic tests to assess the validity and reliability (Buallay, Al Hawaj, and Hamdan 2020d).

- Data diagnostics: normality (skewness, kurtosis and Jarque–Bera tests).
- Variables diagnostics: stationarity (augmented Dickey–Fuller test) and collinearity (variance inflation factor test).
- Models diagnostics: autocorrelation (Durbin–Watson) and heteroscedasticity (Breusch–Pagan and Koenker tests).

Table 7. Normality tests.

VARIABLES	LABELS	NORMALITY TESTS			
		Skewness	Kurtosis	Jarque–Bera	Probability
<i>DEPENDENT VARIABLES</i>	ROA	−0.388	17.858	150,116	0.000
	ROE	18.313	865.593	506,000,000	0.000
	TQ	90.538	8,267.742	46,300,000,000	0.000
<i>INDEPENDENT VARIABLES</i>	E	0.657	2.411	1,405	0.000
	S	0.535	2.878	786	0.000
	G	0.057	3.640	287	0.000
<i>FIRM-SPECIFIC CONTROL VARIABLES</i>	FL	27.676	1,300.553	1,140,000,000	0.000
	TA	2.998	14.875	166,593.4	0.000
<i>COUNTRY-SPECIFIC CONTROL VARIABLES</i>	GDP	0.419	3.247	719.469	0.000
	GOV	−0.433	1.456	2,125	0.000

Data diagnostics

As presented in Table 7, to test the normality of the data, the skewness and kurtosis tests were used. The results show that not all the values for skewness and kurtosis were between -2 and $+2$, which are considered unacceptable proof of normal univariate distribution (George 2011).

The normality of data was tested using the Jarque–Bera test. Variables are not normally distributed, as the p-value appears to be less than 0.050.

All test results indicate that data are not normally distributed; the abnormally distributed data may not influence the credibility of the study because the sample was large and it was assumed that the data was not distributed normally. However, to overcome this problem, the natural logarithms of these variables were considered.

Variables diagnostics

The strength of the linear model depends on the hypothesis that independent variables are not correlated. Extreme multicollinearity tends to inflate the standard errors of the estimated coefficients. To test the collinearity of the independent variables, we calculated the variance inflation factor (VIF). Gujarati and Porter (2003) stated that a VIF higher than 10 indicates serious multicollinearity problem for the independent variable of concern. Table 4 shows that the VIF values for all independent variables are less than 10, meaning that the variables are not suffering from a serious collinearity problem.

However, empirical research using time series, as in this study, presupposes the stability of the series. Autocorrelation can occur in the model because the time series on which this study is based is non-stationary (Gujarati and Porter 2003). To check the stationarity of time series, unit root tests, which include the parametric augmented Dicky–Fuller (ADF) test, were used. The results, presented in Table 8, show that the ADF test is statistically significant at the 1% level, meaning that the data series is stationary. This stationarity allows us to proceed with the regression. However, since the effect of ESG on financial performance does not occur immediately (in the same period), the lag ESG is included in the regression.

Table 8. Variables diagnostics.

VARIABLES	LABELS	STATIONARITY TEST		COLLINEARITY TEST	
		ADF	Probability	Tolerance	VIF
<i>DEPENDENT VARIABLES</i>	ROA	−57.202	0.000		
	ROE	−56.607	0.000		
	TQ	−38.778	0.000		
<i>INDEPENDENT VARIABLES</i>	E	−8.239	0.000	0.190	5.271
	S	−9.017	0.000	0.467	2.143
	G	−14.852	0.000	0.572	1.749
<i>FIRM-SPECIFIC CONTROL VARIABLES</i>	FL	−42.542	0.000	0.988	1.012
	TA	−31.530	0.000	0.914	1.094
	AQ	−22.564	0.000	0.641	1.561
	SEC	−30.193	0.000	0.952	1.051
<i>COUNTRY-SPECIFIC CONTROL VARIABLES</i>	GDP	−30.691	0.000	0.801	1.248
	GOV	−29.008	0.000	0.190	5.271

Table 9. Models diagnostics.

MODELS	AUTOCORRELATION TEST		HETEROSCEDASTICITYTEST		
	Durbin–Watson	Breusch–Pagan	Probability	Koenker	Probability
ROA	1.060	392.371	0.000	22.010	0.000
ROE	1.297	1,368.589	0.000	3.415	0.491
TQ	1.010	53,239.742	0.000	10.232	0.037

Models diagnostics

A significant assumption of the regression is the presence of heteroscedasticity. We tested heteroscedasticity using the Breusch–Pagan and Koenker tests. As Table 9 shows, the p-values of the Breusch–Pagan tests for the three performance measures were lower than the conventional level of significance of 5% (0.000), so we rejected the null hypothesis that the models have a heteroscedasticity problem. However, the Koenker test for the ROE model was greater than the 5% level of significance in both models (0.491 and 0.399), so we accepted the null hypothesis that the models have a heteroscedasticity problem. This problem had to be resolved to obtain an accurate estimate of the standard error. The results used to test the hypotheses were therefore based on heteroscedasticity-robust standard errors. If heteroscedasticity is present in the model, then some statistical methods must be used to overcome this problem, such as the White test.

Finally, to test the autocorrelation problem in the study models, we used the Durbin–Watson (DW) test. Table 9 shows that the DW values of both models are almost within the 1.5–2.5 range. This indicates there is no autocorrelation problem that may affect the results of the regression.

Descriptive analysis

As shown in Table 10, the average ESG disclosure was 30%; the maximum ESG disclosure was 76%, while the minimum was only 0.8%.

Table 10. Descriptive results.

VARIABLES	INDEPENDENT VARIABLE		DEPENDENT VARIABLES		
	ESG	ROA	ROE	TQ	
Mean	29.49	6.59	15.05	2.09	
Median	25.62	5.72	12.87	1.60	
Maximum	76.03	58.82	1059.74	17.18	
Minimum	0.83	–134.70	–198.17	0.43	

Table 11. Multiple regressions.

Variables	ROA Model			ROE Model			TQ Model		
	β	t-Statistic	Sig.	β	t-Statistic	Sig.	β	t-Statistic	Sig.
<i>INDEPENDENT VARIABLE</i>									
ESG	2.524	6.249	0.000	1.163	2.936	0.003	1.694	4.242	0.000
F	24.114			39.127			34.617		
Sig.	0.000			0.000			0.000		
R Square	0.061			0.097			0.086		
Adjusted R Square	0.059			0.094			0.084		

Findings and discussion

In this section, we test the hypotheses developed in section 3. Table 11's results reveal that ROA, ROE and TQ regression models have high statistical significance and high explanatory power, as the p-value of the F-test is less than 5% (0.000).

Also in Table 11, the slope coefficients of ESG for ROA, ROE and TQ indicate that the impact of sustainability disclosure is positively significant, as evident from the coefficients and the p-values of less than 5% (0.000, 0.003 and 0.000). Therefore, we accept the following null hypotheses:

H1: Sustainability reporting positively affects the retail sector's operational performance.

H2: Sustainability reporting positively affects the retail sector's financial performance.

H3: Sustainability reporting positively affects the retail sector's market performance.

It is clear that the return on assets generated by disclosing ESG information in retail sector exceeds the costs of that disclosure. Research that confirms a positive relationship between sustainability reporting and operational performance supports the thought that satisfying the needs of internal stakeholders (i.e., employees and management) raises a firm's operational performance by strengthening relationships and improving employee motivation and loyalty (Buallay et al. 2020f). Moreover, La Porta et al. (2000) found that sustainability disclosure may increase firm value by improving management of a firm's assets, and this could happen when employees are satisfied. Furthermore, a positive relationship will result if firms with greater ESG disclosure are better able to recruit and hold onto talented workers (Greening and Turban 2000). Therefore, its clear signal in retail sector that better disclosing of ESG improving the employee motivation.

For the relationship between ESG and ROE, this result is in line with a recent studies that find a positive relationship between ESG and ROE (Aouadi and Marsat 2018; Zhao et al. 2018). An explanation of the results is that investors feel that expenditure on sustainability reporting is necessary and puts the firm at a competitive disadvantage (Barnett 2007; Lee and Faff 2009). For this reason, sustainability reporting may have a positive impact on intangible assets such as shareholder satisfaction, which is reflected in terms of their investment in the firm's equity (Lee and Faff 2009).

Finally, for the relationship between ESG and TQ, research that indicates a positive relationship between sustainability reporting and market performance clearly supports the thought that satisfying the needs of stakeholders raises firm performance by strengthening relationships with stakeholders, promoting the firm's reputation, enhancing legitimacy and reducing transaction costs (Barnett 2007; Buallay et al. 2020g). Moreover, sustainability reporting can be viewed as an investment that, in return, enhances a firm's value (Perrini et al. 2009).

Research that indicates a positive relationship between sustainability reporting and performance clearly supports the argument that satisfying the needs of stakeholders raises firm performance by strengthening relationships with stakeholders, boosting employee motivation and loyalty, promoting the firm's reputation, distinguishing the firm's products, enhancing its legitimacy and reducing its transaction costs (Castaldo et al. 2009).

Many explanations for a positive relationship between sustainability reporting and firm performance can be found in the literature:

- Sustainability reporting can be viewed as an investment that brings financial benefits (Castaldo et al. 2009).
- Sustainability reporting produced competitive advantage for firms (Lee, Park, and Lee 2013).
- Minimal costs of sustainability reporting resulted in greater benefits to firms (Waddock and Graves 1997).
- Firms with higher profits have more resources to fund sustainability reporting (Preston and O'bannon 1997). By contrast, firms with lower profit have fewer resources to fund sustainability reporting (Campbell 2007).

Conclusion

This study investigates the relationship between the level of sustainability reporting and retail sectors' operational, financial and market Performance. Using data culled from 3311 observations in 50 different countries for ten years (2008–2017), an independent variable derived from ESG score are regressed against dependent manufacture performance indicator variables [Return on Assets (ROA), Return on Equity (ROE) and Tobin's Q (TQ)]. Two types of control variables complete the regression analysis in this study: bank-specific and macroeconomic. The findings elicited from the empirical results demonstrate that there is a significant relationship between ESG and operational performance (ROA), financial performance (ROE) and market performance (TQ).

There is a huge debate in the literature about whether sustainability is superior when it comes to generating returns. These studies have been conducted in different geographic locations in both developed and undeveloped markets. The new idea of this paper is that we provided a study on retail sector, which as to the extent of our knowledge, has not been done before. The results of this study has significant implications for retailers, regulators, investors. The study has significant implication on the mentioned parties as it allows them to consider the possible sustainable activities of current retailers, and therefore should encourage newcomers to find different sustainability approaches to attempt to offer better returns.

Our first recommendation is to the retailers. It is essential for retailers to increase their awareness on the sustainability reporting. We would recommend the retailers to align their profitability strategy with their sustainability strategy and merge them into a single strategy that focus on both profit and sustainability. Our second recommendation is to the policy makers. It is essential in our opinion for policy makers to promote and implement the appropriate legislative framework for sustainability reporting, which should enhance both the sustainability practices as well the profitability of

retailers. Our third recommendation is to the investors. we recommend that they differentiated sustainable retailers from non-sustainable retailers in their investment decision.

This study has two limitations; The first limitation of this paper is that content analysis captures only quantity rather than the quality of ESG disclosure. Therefore, the results of this study may not necessarily give the 'true' motivation for firms to disclose sustainability activities. Hence, the quality of ESG disclosure could be gathered from primary sources, such as interviews with firms' managers, to understand motivations that may be behind the sustainability practices. Second, the sample is restricted to only listed operating firms whose information is available on Bloomberg. There are many small and medium enterprises that are disclosing ESG but are not listed in Bloomberg. Thus, still more significant results could have been derived if the sample size had been enlarged.

Therefore, Future research could use mixed research methods (quantitative and qualitative). Supporting the analysis of secondary data with some primary sources, such as interviews with firms' managers, might allow for better understanding of motivations behind the sustainability practices. Other future research could perform similar testing by including small and medium business in retails' sector to get the full picture on the relationship between ESG and performance.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Amina Mohamed Buallay holds a position of Chief of Scientific Research Development at higher education council, Bahrain. Awarded her PhD in management studies (sustainability reporting) from Brunel University, London. Awarded five international and regional research prizes, ICAI International Research Awards (Commendable Research Paper) and (Best Research Paper); Kondo Research Prize, Innovation Arabia; University of Sharjah Award for Islamic Economy Research; and OAPEC Award for Scientific Research- Petroleum and Energy Related Economic Research . She is an author of many publications in international journals that discussed several accounting, financial and economic issues and has over thousand citation.

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