INFLUENCE OF FIRMS' FINANCIAL PERFORMANCE ON DISCLOSURE OF SUSTAINABILITY INITIATIVES AND ASSURANCE OF SUSTAINABILITY REPORTS

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Abstract

This study provides a better understanding of the possible influence of firms' financial performance on the disclosure of sustainability initiatives and assurance of sustainability reports (Perego & Kolk, 2012). The study analyzes the use of Big4 accounting, engineering, and boutique/consultancy firms for assurance of sustainability reports. A total of 2084 sustainability reports from 42 different countries were retrieved from the Global Reporting Initiative and the corresponding financial variables were obtained from the S&P Capital IQ database. Multilevel logistic regression analysis was undertaken to investigate the issue. We hypothesize that companies with higher financial performance will be more likely to choose an assurance provider from the Big4 (Carey, Simnett, & Tanewski, 2000). While we find that higher financial performers are no different from other performers (as proxied by EVA, TEV, or ROS) when it comes to Big4, we do find that engineering firms are approximately seven times more likely to be chosen as an assurance provider, after controlling for other variables (when EVA and TEV (not ROS) is used as a proxy for financial performance). Importantly, the number of employees and being in the manufacturing industry are significantly related to choosing an engineering firm as an assurance provider when EVA or TEV is used as a proxy for financial performance, and significantly related to choosing a boutique/consultancy firm when ROS is used as a proxy for financial performance.

Keywords: Sustainability Report, Sustainability Assurance, Assurance Report, Big4, EVA, ROA

Authors' individual contribution: Conceptualization – S.R. and N.J.; Investigation – S.R.; Methodology – S.R.; Formal Analysis – S.R.; Discussion – S.R. and N.J.; Writing – S.R. and N.J.; Review & Editing – S.R. and N.J.; Funding – S.R. and N.J.; Resources – S.R. and N.J.; Supervision – S.R. and N.J.

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1. INTRODUCTION

In this study, we examine the likelihood of assurance and of choosing a Big4 provider when assuring corporate sustainability reports. An increasing number of companies, especially the big ones (proxied by sales), are seeking assurance on their sustainability reports (Simnett, Vanstraelen, & Chua, 2009; KPMG, 2013). Previous research suggests that assurance on sustainability reports is vital in

establishing the credibility of sustainability reports, thus performing a similar function to auditing in financial reporting (Simnett et al., 2009; Edgley, Jones, & Solomon, 2010).

The motivation for this study comes from Cohen and Simnett (2014), who highlight the competitive nature of the assurance services market. Strong motivation for this study is also provided by Cohen, Holder-Webb, Nath, and Wood (2012), who demonstrate that assurance of sustainability reports acts as a signal to the marketplace "that the firm is taking this disclosure quite seriously" (p. 85). If this is true for companies that obtain assurance on their sustainability reports, then the examination of the likelihood of assurance and the likelihood of choosing a Big4 assurance provider becomes crucial, since assurance providers are a primary indicator of audit quality. Additionally, Perego and Kolk (2012) call for studies that could jointly examine country-level and firm-level factors as potential drivers of sustainability assurance. They opine that their study emphasizes the need to extend the firm-level analysis from demand-side characteristics (i.e., the auditee firm) to supply-side characteristics (i.e., the auditor or assurance provider). Our study addresses both empirical gaps.

Our research is of interest to researchers, companies, practitioners, and regulators. The study analyzes the use of Big4 firms, engineering firms, and boutique/consultancy firms for assurance of sustainability reports. This may provide possible reasons behind the assurance market domination by one type of assurance provider. Since companies seek to improve the credibility of their information (Simnett et al., 2009), the results of this study may influence their choice of assurance provider. Likewise, regulators like the International Auditing and Assurance Standards Board (IAASB) could use the results of this study to provide better guidance for practitioners in the assurance area by positioning and marketing themselves as a certain type of assurance provider.

The remainder of this paper is organized as follows. We outline the background of sustainability assurance and highlight some of its key features in Section 2. In Section 3 we provide a literature review and develop the hypothesis. We describe our research methodology and the use of STATA 14.2 to perform a multilevel logistic regression analysis in Section 4. Our results and discussion are presented in Section 5, while the conclusion, limitations of the current study, and future research agenda are described in Section 6.

2. FEATURES OF SUSTAINABILITY ASSURANCE

Providing assurance on sustainability reports involves collecting evidence on sustainability activities and items. These are sometimes amenable to being quantified, but at other times are somewhat more difficult to quantify. Guidance for collecting evidence and for using assurance procedures are provided by International Standard for Assurance Engagements (ISAE) 3000, issued by the International Auditing and Assurance Standards Board (IAASB, 2013), the international arm of the International Federation of Accountants (IFAC). Another institution that provides guidance related to assurance is called AccountAbility (AA), a UK based nonprofit global standards firm. Its assurance standard is called AA1000 AS (AA, 2008) and it provides broad guidelines about evidence collection and conclusion.

The assurance on sustainability reports is provided by three types of assurance providers, accounting firms, engineering firms, and boutique/consultancy firms. Accounting firms are required by IFAC to use ISAE 3000 and many of them use AA1000 AS together with ISAE 3000. Many consultancy/engineering firms do the same since the IFAC does not place any restrictions on its usage. Accounting firms cover between 65% and 67% of the sustainability assurance market (KPMG, 2015).

Many assurance reports indicate a low level of assurance. AA1000 AS defines a low level of assurance as follows: "Evidence from internal sources and parties; evidence gathering generally restricted to corporate/management levels in the organization" (AA, 2008, p. 22). In addition, "limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization as necessary. Emphasis is on the plausibility of the information" (AA, 2008, p. 22). We expect company, industry, and country characteristics to influence the likelihood of assurance and the likelihood of selecting an assurance provider (Simnett et al., 2009; Simnett, Carson, & Vanstraelen, 2016). Consistent with extant literature, we distinguish between Big4 firms, engineering firms, and boutique/consultancy firms and classify the Big4 as high-quality assurance providers, because of their higher reputation, higher litigation risk, and experience in the assurance business (Simnett et al., 2016). We classify engineering firms as next in quality, as they frequently present themselves on their websites as sustainability subject matter experts. Boutique/consultancy firms come last since they are engaged by companies to consult on or assure specific things only.

3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Sustainability assurance is a voluntary process and the client company pays for this service. Sustainability assurance is complex because it combines quantitative information (i.e., greenhouse gas emissions) with qualitative elements (i.e., social impact) and it is unlikely that highly reliable verification is possible (Manetti & Toccafondi, 2012).[1] These engagements require different evaluation methods and a greater reliance on the professional judgment of assurance providers (Sonnerfeldt, 2014). Lennox and Pittman (2011) report that companies that continue to acquire assurance on a voluntary basis after a change in regulation in the United Kingdom experience improved credit ratings compared to firms that discontinue the assurance. This result demonstrates that assurance can improve the perceived credibility of company reports (Knechel, Vanstraelen, & Zerni, 2015).

Research on sustainability assurance focuses on many issues including research on greenhouse

[1] Their study also highlights features of international standards ISAE 3000 and AA1000 AS.

gas information assurance (Zhou, Simnett, & Green, 2016), content of assurance reports (Radin, 2016; Bepari & Mollik, 2016), impact on investors' decision making (Cheng, Green, & Ko, 2015), sustainability governance characteristics (Peters & Romi, 2015), and influence of assurance on reputation (Alon & Vidovic, 2015; Michelon, 2011). For a review of leading archival research on audit quality, see Simnett et al. (2016).

3.1. Voluntary and high-quality assurance

Signaling is a mechanism deployed in an attempt to reduce information asymmetries. In this case, companies have information that investors do not. Asymmetries can be reduced if the party with more information signals to others (Watson, Shrives, & Marston, 2002). For instance, managers of firms that seek assurance can wish to distinguish themselves from lower-quality firms (i.e., those who do not seek assurance). For managers to signal quality successfully, the signal must be credible. Assurance signals higher credibility given that a third party has verified the accuracy of the company's sustainability report. Companies that voluntarily seek assurance encounter increases in their credit ratings, but companies that do not face a decrease (Lennox & Pittman, 2011). Simnett et al. (2009) identify the factors associated with the decision to purchase assurance and the choice of assurance provider. They find that companies seek assurance to strengthen credibility and build their reputation and are more likely to choose a Big4 firm if they are operating in stakeholder-oriented countries. Moroney, Windsor, and Aw (2012) find that the quality of environmental disclosures is significantly higher for assured companies than for unassured ones, regardless of the type of assurance provider.

3.2. Hypotheses development

Disclosure affects information asymmetry between informed insiders and uninformed outsiders, and, failure to disclose performance information results in the market assuming a firm to be of low quality because the undisclosed information is assumed to be 'bad news' (Diamond & Verrecchia, 1991). Diamond and Verrecchia further argue that high-quality firms, therefore, have an incentive to signal their superiority by disclosing their performance. However, disclosure of financial and non-financial performance alone may not earn the firm the desired credibility. External stakeholders such as investors may question the legitimacy (purpose) of published reports especially the voluntary sustainability reports because of the publicity around companies' tendency to greenwash (Boiral, 2013; Dahl, 2010). According to signaling theory, the impact of a signal is a function of its legitimacy, transparency, reliability, and credibility. In this study, we argue that higher-performing firms are more likely to disclose voluntarily their sustainability initiatives and moreover, they are likely to have those reports assured to increase their credibility and validity. Lower quality firms or the underperforming firms are less likely to make a voluntary disclosure of their sustainability initiatives and when they do, they are less likely to assure those reports.

We use economic value added (EVA) and total enterprise value (TEV) as financial performance indicators. Both EVA and TEV go beyond conventional accounting measures. EVA is often referred to as economic profit, as it attempts to capture the true economic profit of a company. EVA measures the incremental return that the investment earns over the market rate of return (Sharma & Kumar, 2010). Sharma and Kumar (2010) further assert that EVA is the amount by which earnings exceed or fall short of the required minimum rate of return that shareholders and lenders could get by investing in other securities of comparable risk. Stewart and Stern (1991) argue that EVA can be used instead of earnings or cash from operations as measures of both internal and external performance.

Chen and Dodd (1997) find EVA to be more powerful than traditional measures of accounting profit in explaining the stock return. Their study concludes that EVA is similar to residual income in concept and is empirically comparable. These findings are consistent with extant literature that finds EVA to be more strongly associated with stock return than other measures (Erasmus, 2008; Kim, 2006; Lehn & Makhija, 1996, 1997; Palliam, 2006).

Additionally, we use total enterprise value (TEV), which is also referred to as enterprise value (EV) or firm value (FV). TEV is the measure of a company's total value and it goes beyond market capitalization (Pantaleo & Ridings, 1996). It is a sum of claims by all claimants: creditors (secured and unsecured) and shareholders (preferred and common). Market capitalization focuses on equity only whereas TEV factors in debt and excludes cash and cash equivalents. Debt and cash have high impacts on a company's financials. Two firms that seem to have similar market capitalizations may end up with very different enterprise values, due to capital structure.

Finally, we include a conventional accounting measure, return on sales (ROS), which is often referred to as operating profit margin or operating margin (Farris, Bendle, Pfeifer, & Reibstein, 2010). It is also highly correlated to profitability. ROS evaluates a firm's operating performance and it is useful to compare firms across industries.

In summary, whereas we would expect higher-performing firms to disclose voluntarily their sustainability initiatives, we anticipate that conventional and low performing firms are less likely to disclose their sustainability initiatives. Furthermore, we opine that higher performers are likely to have those reports assured to increase their credibility and validity whereas the average or lower performers may not have the resources to assure the reports.

Extant literature finds that Big4 firms produce a higher audit quality level than non-Big4 (Blokdijk, Drieenhuizen, Simunic, & Stein, 2006; Eshleman & Guo, 2014). Thus, in this study we presume that Big4 and non-Big4 firm assurance reports are quality differentiated, that is Big4 auditors provide higher-quality assurance reports. We argue that higher-quality firms have more reputation to lose by greenwashing and are more motivated to earn

legitimacy and credibility by having their sustainability reports assured by Big4. The impact of sustainability reports may vary depending on the stakeholders' perception of the legitimacy of the reports. It is difficult for stakeholders to determine which companies are genuinely committed to sustainability because of information asymmetry (Delmas & Burbano, 2011; Lydenberg, 2005). Firms can reduce information asymmetry through signals such as assuring sustainability reports. Whereas assured reports may signal legitimacy of sustainability initiatives, we argue that sustainability reports assured by the Big4 will have a stronger signal due to reputational capital on the part of the auditing company (DeAngelo, 1981) and the financial commitment on the part of the focal firm (Simunic, 1980). Thus, we hypothesize that:

Hypothesis 1 (H1): Companies with higher financial performance will be more likely to choose an assurance from the Big4.

Further, companies operate in different countries with national institutional differences (Ahmadjian, 2016; Ortas, Álvarez, Jaussaud, & Garayar, 2015). To recognize these differences among national institutions and to allow for companies operating within different rules, we use multilevel logistic regression. This method recognizes the nesting of companies within countries (Snijders & Bosker, 2011) by placing all companies in our sample at level 1 and all 42 countries at level 2. Nesting companies within countries is both intuitive and logical, as companies operate within countries' institutional framework. Multinational corporations adjust their operations when they move outside of familiar territories. However, it is still true they have to abide by the rules and regulations of the countries that they are moving into.

4. METHODOLOGY

4.1. Sample selection

Sample selection began with purchasing data from the Global Reporting Initiative (GRI). Since GRI did not guarantee accurate data, we hired a student assistant to check if all the details of assurance were correct. At the time of writing this paper, all the 2016 assurance data were verified. This gave us a total of 2084 sustainability reports from 42 countries to analyze for this study for which financial data were available. Out of these 2084 sustainability reports, 634 (30.42%) were assured and 1450 (69.58%) were unassured. Further, the assured group is composed of the following: 1) the Big4 (408 firms out of 2084, 19.58%); 2) engineering firm (95 firms out of 2084, 4.56%); or, 3) small consultancy/boutique firm (131 firms out of 2084, 6.29%). Financial variables for these companies were obtained from the S&P Capital IQ database and others were hand-collected from the sustainability assurance report.[2]

4.2. Analysis

We use STATA 14.2 to perform multilevel and regression analysis. As mentioned earlier in Sub-section 3.2, we use this method to recognize the nesting of companies within countries by placing all companies at level 1 and all 42 countries at level 2 (Snijders & Bosker, 2011). The data can be analyzed using any nested model such as linear mixed models, generalized linear mixed models, structural equation models, etc. (Sweet & Grace-Martin, 2010). We elect to use multi-level modeling, which is also known as hierarchical linear modeling or mixed-effects modeling. Multi-level modeling allows us to model nested data more appropriately than a regular multiple linear regression. We use the sector classification provided by S&P Capital IQ to categorize our sample firms into industries. We use the country of incorporation of each company to classify our sample firms as belonging to a country. In all, our sample firms are categorized into 341 industries and 42 countries. These constitute the second level for our multilevel analyses. As mentioned earlier, our variable of interest is the Type of Assurance Provider (Big4, an engineering firm, or small consultancy/boutique firm).

Our predictor variables reflect financial performance measures: EVA, TEV, and ROS. We use the multilevel logit analysis to account for the natural nesting of companies within countries (Snijders & Bosker, 2011). Consistent with extant studies we controlled for country effect, using stakeholder-orientation (García-Sánchez, Oliveira, & Martínez-Ferrero, 2020). We also control for industries that have a large environmental and/or social footprint (Sarkis & Cordeiro, 2001; Simnett et al., 2009.) These are classified into mining, utilities, finance, manufacturing, and other industries, based on the Simnett et al. (2009) study. Furthermore, we control for firm size using total assets, number of employees, and net sales as proxies.

5. RESULTS AND DISCUSSION

We hypothesize that companies with higher financial performance will be more likely to choose an assurance provider from the Big4. While we find that higher financial performers are no different from average financial performers (as proxied by EVA, TEV, or ROS) when it comes to Big4, we do find that, on average, engineering firms are approximately seven times more likely to be chosen as an assurance provider, after controlling for other variables (when EVA and TEV (not ROS) is used as a proxy for financial performance). Notably, the number of employees and being in the manufacturing industry are significantly related to choosing an engineering firm as an assurance provider when EVA or TEV is used as a proxy for financial performance, and significantly related to choosing a boutique/consultancy firm when ROS is used as a proxy for financial performance. In this section, we present our results and discussion.

[2] Assurance provider, procedures, assurance conclusion, publication date, level of assurance, framework used.

5.1. External assurance (EVA)

Table 1 presents a multilevel logistic model of external assurance on the sustainability report. The intercept is -0.5157, significant at $a < 0.01$. The odds ratio of 0.59708 means that the odds of a company seeking external assurance are about 0.6 times as large as the odds of a company not seeking external assurance. This indicates that an average company has a greater chance of not seeking external assurance on its sustainability report. The intercept variance (i.e., the between-country variance) for the null model is 0.76044, which is significantly different from zero ($chibar^2 = 295.4$, p-value = 0.000). Here, the null hypothesis is that the between-country variance is zero. This significant result shows that the multilevel model recognizes the nested structure of the data, fits the data appropriately, and is an improvement over the single-level logit model. The interclass correlation, 0.188, indicates that 18.8% of the total variance in the dependent variable is accounted for by countries in level 2.

The results of the Wald chi-square test for the full model (80.16) and the associated p-value (0.000) show that the full model is significant. The intercept is -3.72099, which is significant at $a < 0.01$. The odds ratio of 0.02421 means that the odds of a company seeking external assurance are about 0.02 times as large as the odds of a company not seeking external assurance if all the other independent variables have zero value. This, in turn, means that an average company has a much greater chance of not seeking external assurance on its sustainability report if all the other independent variables have zero value. The intercept variance (i.e., the between-country variance) for the full model is 1.13994, which is significantly different from zero ($chibar^2 = 205.6$, p-value = 0.000.) The null hypothesis is that the between-country variance is zero. The interclass correlation, 0.257, indicates that 25.7% of the total variance in the dependent variable is accounted for by countries in level 2.

Regarding the predictor variable, the natural logarithm of EVA (*LnEVA*) is not significant. This is contrary to our expectations. We anticipated that the financial performance as measured by EVA would lead to a higher level of disclosure, that those disclosures were more likely to be assured and higher financial performance would also lead to selecting Big4 as assurance provider (*H1*). Our assumption was based on extant literature that finds performance is an antecedent to reputation rather than a consequence (Deephouse & Carter, 2005; Fombrun & Shanley, 2017; Sobol & Farrelly, 1988). We extrapolate that finding to imply that high performers will invest in credible signals such as voluntary disclosure of sustainability initiatives and selection of high-quality assurance providers to enhance validity. The lack of finding calls for further research. A plausible explanation could be a possible lag between performance and reputational capital.

The control variables are total assets, a number of employees, and net sales. The natural logarithm of total assets (*LnTA*) is significant at $a < 0.01$ (coeff 0.5045, odds ratio 1.65616). This means that if the total assets increase by $e = 2.71$, the odds of seeking assurance will increase by 165.62%. Since we measure total assets in millions of USD, which is a proxy for company size, this means that for each USD 100,0000 increase in total assets, the chances of a company seeking assurance on its sustainability report go up by approximately 61.25%. This is a very interesting finding since it reveals that a moderate increase in company size, as proxied by total assets, contributes highly to the chances of obtaining assurance on its sustainability report. However, the natural logarithm of net sales (*LnNetSales*) is not significant.

The natural logarithm of the number of employees (*LnEmp*) is significant at $a < 0.05$ (coeff -0.20821, odds ratio 0.81204). This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance will decrease by 81.20%. Since we measure the number of employees in thousands, it means that for each 1000 increase in the number of employees, the chances of a company seeking assurance on its sustainability report decrease by $2.996 \approx 3\%$. This finding is contrary to expectation. Larger firms measured in total assets, number of employees, or net sales, are expected to have a higher probability of seeking assurance given their slack resources and greater need to protect their reputational capital.

We observe that mining (coeff 0.83052, odds ratio 2.29451, p-value < 0.05), utilities (coeff -0.82693, odds ratio 0.43739, p-value < 0.05) and finance (coeff -0.79309, odds ratio 0.45244, p-value < 0.05) industries are significant. While companies in the mining industry have a substantially greater chance of seeking external assurance (229.45%) when compared to other industries, companies in the utilities and finance industries have a lower chance (respectively, 43.74% and 45.24%) of doing the same. The substantially higher chance of the mining industry can be attributed to higher output of emissions, which, in turn, provides an incentive to these mining companies to seek legitimacy via seeking assurance on sustainability reports (Sethi, Martell, & Demir, 2016). The lower chances of the utilities and finance industry can be attributed to the rigorous government regulation pertaining to disclosures, which might make assurance on sustainability reports redundant.

Table 1. Multilevel logistic model of external assurance on sustainability reports with financial performance indicated by economic value added (EVA)

Dependent variable / *Independent variable*	*External assurance*	*External assurance*	*External assurance*	*External assurance*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnEVA			0.01020	1.01025
			(0.08281)	(0.08366)
LnTA			0.50450***	1.65616***
			(0.12812)	(0.21218)
LnNoEmp			-0.20821**	0.81204**
			(0.09763)	(0.07928)
LnNetSales			0.07776	1.08087
			(0.15842)	(0.17123)
Mining industry			0.83052**	2.29451**
			(0.39374)	(0.90345)
Utility industry			-0.82693**	0.43739**
			(0.35879)	(0.15693)
Finance industry			-0.79309**	0.45244**
			(0.36126)	(0.16345)
Manufacturing industry			0.17087	1.18634
			(0.17010)	(0.20179)
Stakeholder-oriented country			0.40015	1.49205
			(0.41804)	(0.62374)
Between-country variance	0.76044***	2.13921***	1.13994***	3.12658***
	(0.20937)	(0.44788)	(0.35151)	(1.09902)
Constant	-0.51570***	0.59708***	-3.72099***	0.02421***
	(0.15360)	(0.09171)	(0.63111)	(0.01528)
No. of observations	2,084	2,084	1,224	1,224
Number of countries	42	42	40	40
Log likelihood	-1133	-1133	-603.8	-603.8
Wald chi^2			80.16	80.16
p-value			0	0
$chibar^2$	295.4	295.4	205.6	205.6
p-value	0	0	0	0
Interclass correlation	0.188	.	0.257	.

*Note: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.*

5.2. Type of assurance provider (EVA)

Table 2 presents a multilevel logistic model of assurance providers on the sustainability report. Six hundred and thirty-four companies in level 1 are nested in 42 countries in level 2. Cut Point 1 (Big4) is 0.95051, which is significant at $a < 0.01$. This means the overall average logit or log odds of selecting a Big4 firm as the assurance provider is 0.95051. The odds ratio of 2.58702 means that the odds of a company selecting a Big4 firm as an assurance provider are about 2.59 times as large as the odds of a company selecting a consulting/boutique firm as an assurance provider. Cut Point 2 (engineering) is 1.95648, which is also significant at $a < 0.01$. This means the overall average logit or log odds of selecting an engineering firm as the assurance provider is 1.95648. The odds ratio of 7.07441 means that the odds of a company selecting an engineering firm as an assurance provider are about 7.07 times as large as the odds of a company selecting a consulting/boutique firm as an assurance provider. This means that an average company has a greater chance of seeking assurance from an engineering firm than from a Big4 firm when both are compared to the chances of selecting a consultancy/boutique assurance provider.

The intercept variance (between-country variance) for the null model is 1.97397, which is significantly different from zero ($chibar^2$ =145.9, p-value = 0.000). Here, the null hypothesis is that the between-country variance is zero. This significant result shows that the multilevel model recognizes the nested structure of the data, fits the data appropriately, and is an improvement over the single-level logit model. The interclass correlation, 0.375, indicates that 37.5% of the total variance in the dependent variable is accounted for by countries in level 2.

The results of the multilevel regression full model show that the number of observations for the full model is 375 companies in level 1 is nested in 40 countries in level 2. The results of the Wald chi-square test for the full model (21.58) and the associated p-value (0.0103) show that the full model is significant. In the full model, Cut Point 1 (Big4) is not significant. Cut Point 2 (engineering) is 2.01814, which is significant at $a < 0.1$. This means the overall average logit or log odds of selecting an engineering firm as the assurance provider is 2.01814. The odds ratio of 7.52429 means that the odds of a company selecting an engineering firm as an assurance provider are about 7.52 times as large as the odds of a company selecting a consulting/boutique firm as an assurance provider. This means that an average company may not select a Big4 firm as an assurance provider but has a much greater chance of seeking assurance from an engineering firm when compared to a consultancy/boutique assurance provider. This may be due to the perceived expertise in sustainability matters and lower assurance expenses. Unlike the audits of financial statements, the Big4 does not have a monopoly on the assurance of

sustainability reports, and they must compete with engineering assurance providers and boutique/consultancy assurance providers both in terms of cost efficiency and quality of the assurance report (Cohen & Simnett, 2014).

The intercept variance (i.e., the between-country variance) for the full model is 1.33096, which is significantly different from zero (chibar^2 = 25.55, p-value = 0.000.) Here, the null hypothesis is that the between-country variance is zero. This significant result shows that the multilevel model recognizes the nested structure of the data, fits the data appropriately, and is an improvement over the single-level logit model. The interclass correlation, 0.288, indicates that 28.8% of the total variance in the dependent variable is accounted for by countries in level 2.

Regarding the independent variable in the full model, the natural logarithm of EVA (*LnEVA*) is not significant. This finding is contrary to expectation. A plausible explanation may be attributed to the debate about the relative strengths of accounting performance measures (in our case, EVA and ROS) and market performance measures (in our case, TEV) (Gentry & Shen, 2010). Gentry and Shen (2010) find that accounting measures and market-based measures are distinct dimensions with minuscule empirical overlap. Their finding is consistent with extant literature that theorizes that accounting measures depict past or short-term financial performance, whereas market-based measures depict future or long-term financial performance (Hoskisson, Johnson, & Moesel, 1994; Juma & Payne, 2004; Keats & Hitt, 1988). Given that investment in sustainability initiatives may take an extended period (long-term oriented) to come to fruition, it is plausible that the predictive power of accounting measures (short-term oriented) may be muted.

Among the control variables, the natural logarithm of the number of employees (*LnNoEmp*) is significant at $a < 0.01$ (coeff 0.64726, odds ratio 1.91030). This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance from an engineering firm will increase by 191.03%, when compared to those seeking assurance from a consulting/boutique firm, holding all the other variables constant. Since we measure the number of employees in thousands, an increase of 1000 employees would increase the chances of seeking assurance from an engineering firm by 70.49%.

The natural logarithm of net sales (*LnNetSales*) is significant at $a = 0.05$ (coeff -0.80952, odds ratio 0.44507). This means that if net sales increase by $e = 2.71$, the odds of seeking assurance from an engineering firm will decrease by 44.5%, when compared to the odds of seeking assurance from a consulting/boutique firm, holding all the other variables constant. Since we measure net sales in millions of USD, for each increase in net sales of USD 1,000,000, there is a decrease of 16.42% in the chances of selecting an engineering firm as an assurance provider, compared to the chances of selecting a consulting/boutique. However, the natural logarithm of variable total assets (*LnTA*) is not significant.

In the full model, we see that manufacturing industries are significant (coeff 0.56599, odds ratio 1.76119, p-value < 0.1). This means that companies in the manufacturing industry are 176.12% more likely to choose an engineering firm as an assurance provider when compared to companies in other industries. The substantially higher chances of the manufacturing industry can be attributed to greater damage to the environment caused by the manufacturing processes and higher discharge of effluents, which, in turn, provides an incentive to these manufacturing companies to seek legitimacy via seeking assurance on sustainability reports. Interestingly, stakeshare (whether a country is stakeholder-oriented or shareholder-oriented) is significant at p-value < 0.05 (coeff -1.16336, odds ratio 0.31243). This means that a company from a stakeholder-oriented country is 31.24% less likely to choose an engineering firm as an assurance provider when compared to choosing a boutique/consultancy firm as an assurance provider. Stakeholder orientation involves identifying various stakeholder groups (Jain, Aguilera, & Jamali, 2017) and legitimizing a business by meeting those stakeholder's demands (García-Sánchez et al., 2020). Germany (Bottenberg, Tuschke, & Flickinger, 2017) and Japan (Endo, 2020) are considered prime examples of stakeholder-oriented countries. A company from a stakeholder-oriented country would be less likely to choose an engineering firm as an assurance provider when compared to choosing a boutique/consultancy firm because their existing stakeholder orientation is likely to provide legitimacy. They are likely to view assurance as redundant.

Table 2. Multilevel logistic model of a type of assurance provider with financial performance indicated by economic value added (EVA)

Dependent variable / *Independent variable*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnEVA			-0.02299	0.97727
			(0.14502)	(0.14172)
LnTA			0.10535	1.11110
			(0.24403)	(0.27114)
LnNoEmp			0.64726***	1.91030***
			(0.18535)	(0.35408)
LnNetSales			-0.80952**	0.44507**
			(0.31885)	(0.14191)
Mining industry			-0.41929	0.65752
			(0.63460)	(0.41726)
Utility industry			-0.11825	0.88847
			(0.78680)	(0.69905)
Finance industry			0.30395	1.35520
			(0.68108)	(0.92300)
Manufacturing industry			0.56599*	1.76119*
			(0.31301)	(0.55128)
Stakeholder-oriented country			-1.16336**	0.31243**
			(0.54141)	(0.16916)
Cut Point 1 Big4	0.95051***	2.58702***	0.88305	2.41825
	(0.26187)	(0.67747)	(1.05534)	(2.55207)
Cut Point 2 engineering	1.95648***	7.07441***	2.01814*	7.52429*
	(0.27268)	(1.92907)	(1.06005)	(7.97612)
Between-country variance	1.97397***	7.19918***	1.33096*	3.78469*
	(0.68538)	(4.93418)	(0.68080)	(2.57662)
No. of observations	634	634	375	375
Number of countries	42	42	40	40
Log likelihood	-493.8	-493.8	-265.5	-265.5
Wald chi^2			21.58	21.58
p-value			0.0103	0.0103
$chibar^2$	145.9	145.9	25.55	25.55
p-value			2.16e-07	2.16e-07
Interclass correlation	0.375	.	0.288	.

*Note: Standard errors in parentheses *** p < 0.01, ** p<0.05, * p < 0.1.*

5.3. External assurance (TEV)

The intercept variance (i.e., the between-country variance) for the full model is 1.08164, which is significantly different from zero ($chibar^2 = 243.2$, p-value = 0.000.) This significant result shows that the multilevel model recognizes the nested structure of the data, fits the data appropriately, and is an improvement over the single-level logit model. The interclass correlation, 0.247, indicates that 24.7% of the total variance in the dependent variable is accounted for by countries in level 2.

Regarding independent variables, the natural logarithm of total enterprise value (*LnTEV*) is significant at $a < 0.05$ (coeff 0.21988, odds ratio 1.24593). This means that if the total enterprise value increases by $e = 2.71$, the odds of seeking assurance will increase by 124.59%, holding all the other variables constant. Since we measure total enterprise value in millions of USD, this indicates that for each USD 1,000,000 increase in total enterprise value, the chances of a company seeking assurance on its sustainability report go up by approximately 45.97% ≈ 46%. As companies work hard to increase their total enterprise value, they begin the view assurance on sustainability reports as valuable and something that will add to their reputation and credibility.

The natural logarithm of total assets (*LnTA*) (coeff 0.20941, odds ratio 1.23295) is significant at $a < 0.1$. This indicates that if total assets increase by $e = 2.71$, the odds of seeking external assurance increase by 123.3%, holding all the other variables constant. Since we measure total assets in millions of USD, this shows that for each increase in net sales of USD 1,000,000, there is an increase of 45.498% of obtaining external assurance.

Similarly, the natural logarithm of number of employees (*LnNoEmp*) is significant at $a < 0.05$ (coeff -0.16817, odds ratio 0.84521). This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance will decrease by 84.52%, holding all the other variables constant. Since we measure the number of employees in thousands, it indicates that an increase of 1000 employees decreases the chances of obtaining external assurance by 31.19%. Similar results were observed when EVA (Table 1) is used to proxy for financial performance.

Mining industry (coeff 0.54394, odds ratio 1.72278, p-value < 0.1), utilities industry (coeff -0.70034, odds ratio 0.49642, p-value < 0.05) and finance industry (coeff -0.57907, odds ratio 0.56042, p-value < 0.1) are significant. Companies in the mining industry have a substantially greater chance of seeking external assurance (172.27%) when compared to companies in the utilities (49.64%) and finance industries (56.04%). As mentioned earlier, the substantially higher chance of the mining industry can be

attributed to higher output of emissions, which, in turn, provides an incentive to these mining companies to seek legitimacy via seeking assurance on sustainability reports (Sethi et al., 2016). The lower chances of the utilities and finance industry can be attributed to the rigorous government regulation pertaining to disclosures, which might make assurance on sustainability reports redundant.

Table 3. Multilevel logistic model of external assurance on sustainability reports with financial performance indicated by total enterprise value (TEV)

Dependent variable / *Independent variable*	*External assurance*	*External assurance*	*External assurance*	*External assurance*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnTEV			0.21988**	1.24593**
			(0.10006)	(0.12467)
LnTA			0.20941*	1.23295*
			(0.12594)	(0.15527)
LnNoEmp			-0.16817**	0.84521**
			(0.08458)	(0.07149)
LnNetSales			0.14814	1.15968
			(0.12212)	(0.14162)
Mining industry			0.54394*	1.72278*
			(0.30968)	(0.53351)
Utility industry			-0.70034**	0.49642**
			(0.33547)	(0.16653)
Finance industry			-0.57907*	0.56042*
			(0.31463)	(0.17632)
Manufacturing industry			0.02500	1.02531
			(0.16003)	(0.16408)
Stakeholder-oriented country			0.54571	1.72584
			(0.40465)	(0.69836)
Between-country variance	0.76044***	2.13921***	1.08164***	2.94953***
	(0.20937)	(0.44788)	(0.33036)	(0.97441)
Constant	-0.51570***	0.59708***	-4.08710***	0.01679***
	(0.15360)	(0.09171)	(0.55851)	(0.00938)
No. of observations	2,084	2,084	1,501	1,501
Number of countries	42	42	40	40
Log likelihood	-1133	-1133	-714.2	-714.2
Wald chi^2			98.54	98.54
p-value			0	0
$chibar^2$	295.4	295.4	243.2	243.2
p-value	0	0	0	0
Interclass correlation	0.760	.	1.082	.
icc3	0.188	.	0.247	.

*Note: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.*

5.4. Type of assurance provider (TEV)

Cut Point 1 (Big4) is not significant. Cut Point 2 (engineering) is 1.94516, which is significant at $a < 0.05$. This means the overall logit or log odds of selecting an engineering firm as the assurance provider is 1.94516. The odds ratio of 6.99475 means that the odds of a company selecting an engineering firm as an assurance provider are about 7 times as large as the odds of a company selecting a consulting/boutique firm as an assurance provider. This means that a company may not select a Big4 firm as an assurance provider but has a substantially greater chance of seeking assurance from an engineering firm when compared to a consultancy/boutique assurance provider.

The intercept variance (i.e., the between-country variance) for the full model is 1.29711, which is significantly different from zero ($chibar^2 = 41.18$, p-value = 0.0000.) Here, the null hypothesis is that the between-country variance is zero. This significant result shows that the multilevel model recognizes the nested structure of the data, fits the data appropriately, and is an improvement over the single-level logit model. The interclass correlation, 0.283, indicates that 28.3% of the total variance in the dependent variable is accounted for by countries in level 2.

Regarding the independent variable in the full model, we find that the natural logarithm of total enterprise value (*LnTEV*) is not significant. Among the control variables, the natural logarithm of total assets (*LnTA*) is not significant while the natural logarithm of the number of employees (*LnNoEmp*) is significant at $a < 0.01$ (coeff 0.46337, odds ratio 1.58942). This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance from an engineering firm will increase by about 159%, when compared to seeking assurance from a consulting/boutique firm, holding all the other variables constant. Since we measure the number of employees in thousands, it indicates that an increase of 1000 employees contributes 58.67% to the chances of obtaining assurance from an engineering firm.

The natural logarithm of net sales (*LnNetSales*) is significant at $a = 0.1$ (coeff -0.42319, odds ratio 0.65496). This means that if net sales increase by $e = 2.71$, the odds of seeking assurance from an engineering firm will decrease by about 65.5%, when compared to the odds of seeking assurance from a consulting/boutique firm, holding all

the other variables constant. Since we measure net sales in millions of USD, this shows that for each increase in net sales of USD 1,000,000, there is a decrease of 24.17% in the chances of selecting an engineering firm as an assurance provider, compared to the chances of selecting a consulting/boutique.

As in the case of Table 2 full model, we see that manufacturing industries are significant (coeff 0.61888, odds ratio 1.85684, p-value < 0.05). This means that companies in the manufacturing industry are 185.68% more likely to choose an engineering firm as an assurance provider when compared to companies in other industries. Since companies in the manufacturing industry tend to have a large environmental and social footprint (Gaona, Pepping, Keenan, & DeVito, 2020; Moktadir, Rahman, Rahman, Ali, & Paul, 2018), choosing an engineering firm suits their purposes because of their expertise in sustainability matters. Akin to Table 2 full model, stakeshare (whether a country is stakeholder-oriented or shareholder-oriented; marked 1 if a country is stakeholder-oriented, 0 otherwise) is significant at p-value < 0.05 (coeff -1.03067, odds ratio 0.35677). This means that a company from a stakeholder-oriented country is 35.68% less likely to choose an engineering firm as an assurance provider when compared to choosing a boutique/consultancy firm. Thus, a company from a stakeholder-oriented country is more likely to choose a boutique/consultancy firm as an assurance provider.

Table 4. Multilevel logistic model of a type of assurance provider with financial performance indicated by total enterprise value (TEV)

Dependent variable / *Independent variable*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnTEV			-0.28811	0.74968
			(0.19107)	(0.14324)
LnTA			0.19845	1.21951
			(0.23788)	(0.29010)
LnNoEmp			0.46337***	1.58942***
			(0.16170)	(0.25701)
LnNetSales			-0.42319*	0.65496*
			(0.22581)	(0.14789)
Mining industry			-0.15400	0.85727
			(0.52328)	(0.44859)
Utility industry			-0.25834	0.77233
			(0.75968)	(0.58673)
Finance industry			0.39889	1.49017
			(0.56832)	(0.84689)
Manufacturing industry			0.61888**	1.85684**
			(0.29280)	(0.54369)
Stakeholder-oriented country			-1.03067**	0.35677**
			(0.52338)	(0.18673)
Cut Point 1 Big4	0.95051***	2.58702***	0.79008	2.20358
	(0.26187)	(0.67747)	(0.90616)	(1.99680)
Cut Point 2 engineering	1.95648***	7.07441***	1.94516**	6.99475**
	(0.27268)	(1.92907)	(0.91204)	(6.37947)
Between-country variance	1.97397***	7.19918***	1.29711**	3.65871**
	(0.68538)	(4.93418)	(0.57354)	(2.09841)
No. of observations	634	634	429	429
Number of countries	42	42	40	40
Log likelihood	-493.8	-493.8	-310.9	-310.9
Wald chi^2			19.50	19.50
p-value			0.0213	0.0213
$chibar^2$	145.9	145.9	41.18	41.18
p-value			6.95e-11	6.95e-11
Interclass correlation	0.375	.	0.283	.

*Note: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.*

5.5. External assurance (ROS)

The null model in Table 5 above is the same as the null model in Table 1 and Table 3, hence, the interpretation remains the same. The results of the full model show that a total of 1443 companies are nested in 40 countries in level 2. The results of the Wald chi-square test for the full model (110.7) and the associated p-value (0.000) show that the full model is significant. The intercept is -3.71401, which is significant at $a < 0.01$. This means the overall logit or log odds of having a company's sustainability report assured is -3.71401 if all the other independent variables have zero value. The odds ratio of 0.02438 means that the odds of a company seeking external assurance are about 0.02 times as large as the odds of a company not seeking external assurance if all the other independent variables have zero value. This, in turn, means that a company has a substantially greater chance of not seeking external assurance on its sustainability report if all the other independent variables have zero value. The intercept variance (i.e., the between-country variance) for the full model is 1.04571, which is significantly different from zero ($chibar^2 = 224.1$, p-value = 0.000.) Here, again, the null hypothesis is that the between-country variance is zero. The interclass correlation, 0.241, indicates that

24.1% of the total variance in the dependent variable is accounted for by countries in level 2.

Regarding the independent variables, we see that the natural logarithm of return on sales (*LnROS*) is significant at $a < 0.05$ (coeff 0.19039, odds ratio 1.20973). This means that if the return on sales increases by $e = 2.71$, the odds of seeking assurance will increase by about 120.97%, holding all the other variables constant. Since we measure return on sales in millions of USD, this indicates that for each USD 1,000,000 increase in return on sales, the chances of a company seeking assurance on its sustainability report go up by approximately 44.64% ≈ 45%. As companies work hard to increase their return on sales, they begin to view assurance on sustainability reports as valuable and something that will add to their reputation and credibility.

Among the control variables, the natural logarithm of total assets (*LnTA*) is significant at $a = 0.01$ (coeff 0.37472, odds ratio 1.45459.) This means that if total assets, a proxy for company size, increases by $e = 2.71$, the odds of seeking assurance will increase by 145.46%, holding all the other variables constant. Since we measure total assets in millions of USD, this indicates that for each USD 1,000,000 increase in size of companies, the chances of a company seeking assurance on its sustainability report go up by 53.68% ≈ 54%.

The natural logarithm of number of employees (*LnNoEmp*) is significant at $a = 0.05$ (coeff -0.18186, odds ratio 0.83372). This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance will decrease by 83.37%, holding all the other variables constant. Since we measure the number of employees in thousands, this indicates that with each increase of 1000 employees, the chances of a company seeking assurance on its sustainability report decrease by about 30.76% ≈ 31%.

The natural logarithm of net sales (*LnNetSales*) is significant at $a = 0.05$ (coeff 0.24100, odds ratio 1.27252). This means that if net sales increase by $e = 2.71$, the odds of seeking assurance will increase by 127.25%, holding all the other variables constant. Since we measure net sales in millions of USD, this shows that for each increase in net sales of USD 1,000,000, there is an increase of 49.95% ≈ 50% of obtaining external assurance.

As in the full model of Table 1 and Table 3, we see that mining (coeff 0.63787, odds ratio 1.89245, p-value < 0.1), utilities (coeff -0.81963, odds ratio 0.44060, p-value < 0.05) and finance (coeff -0.85092, odds ratio 0.42702, p-value < 0.01) industries are significant. While companies in the mining industry have a substantially greater chance of seeking external assurance (189.24%) when compared to companies in other industries, companies in the utilities and finance industries have a lower chance (44.06% and 42.7%, respectively) of doing the same, when compared to companies in other industries. These results are the same as in the sections related to EVA and TEV, and we refer the reader to those sections for the explanation of these results.

Table 5. Multilevel logistic model of external assurance on sustainability reports with financial performance indicated by return on sales (ROS)

Dependent variable / *Independent variable*	*External assurance*	*External assurance*	*External assurance*	*External assurance*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnROS			0.19039**	1.20973**
			(0.07845)	(0.09490)
LnTA			0.37472***	1.45459***
			(0.09845)	(0.14320)
LnNoEmp			-0.18186**	0.83372**
			(0.08138)	(0.06784)
LnNetSales			0.24100**	1.27252**
			(0.11181)	(0.14228)
Mining industry			0.63787*	1.89245*
			(0.37604)	(0.71165)
Utility industry			-0.81963**	0.44060**
			(0.36765)	(0.16198)
Finance industry			-0.85092***	0.42702***
			(0.31825)	(0.13590)
Manufacturing industry			0.15940	1.17280
			(0.16825)	(0.19733)
Stakeholder-oriented country			0.54463	1.72397
			(0.39582)	(0.68239)
Between-country variance	0.76044***	2.13921***	1.04571***	2.84542***
	(0.20937)	(0.44788)	(0.32745)	(0.93174)
Constant	-0.51570***	0.59708***	-3.71401***	0.02438***
	(0.15360)	(0.09171)	(0.54120)	(0.01319)
No. of observations	2,084	2,084	1,443	1,443
Number of countries	42	42	40	40
Log likelihood	-1133	-1133	-707.3	-707.3
Wald chi^2			110.7	110.7
p-value			0	0
$chibar^2$	295.4	295.4	224.1	224.1
p-value			0	0
Interclass correlation	0.188	.	0.241	.

*Note: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.*

5.6. Type of assurance provider (ROS)

Table 6 null model interpretation is the same as Table 2 and Table 4. Four hundred and thirty-eight companies in level 1 are nested in 39 countries in level 2. The results of the Wald chi-square test for the full model (17.04) and the associated p-value (0.0481) show that the full model is significant. As in Table 2 and Table 4, Cut Point 1 (Big4) is not significant. However, unlike Table 2 and Table 4, Cut Point 2 (engineering) is also not significant.

The intercept variance (i.e., the between-country variance) for the full model is 1.98013, which is significantly different from zero ($chibar^2 = 55.69$, p-value = 0.000.) Here, the null hypothesis is that the between-country variance is zero. This significant result shows that the between-country variance is not zero. Our analysis in Table 6 above reveals that companies do not prefer Big4 firms or engineering firms to consulting/boutique. The interclass correlation, 0.376, indicates that 37.6% of the total variance in the dependent variable is accounted for by countries in level 2. Of all our tables above, this is the largest amount of variance in the dependent variable that is being accounted for.

Regarding the independent variables in the full model, we find that the natural logarithm of return on sales (*LnROS*) is not significant. Likewise, the control variables, the natural logarithm of net sales (*LnNetSales*), the mining industry, and the utility industry are not significant. However, the natural logarithm of total assets (*LnTA*) is significant at $a = 0.05$ (coeff -0.40137, odds ratio 0.66940). This means that for each increase in total assets of $e = 2.71$, there is a 66.94% decrease in the chances that a company will prefer a Big4 firm or an engineering firm over a boutique/consultancy firm to provide assurance on its sustainability report, holding all the other variables constant. Since we measure total assets in millions, each increase of USD 1,000,000 leads to 24.7% ≈ 25% decrease that a company will prefer a Big4 firm or an engineering firm over a boutique/consultancy firm.

The natural logarithm of the number of employees (*LnNoEmp*) is also significant at $a = 0.05$ (coeff 0.29967, odds ratio 1.34941.) This means that if the number of employees increases by $e = 2.71$, the odds of seeking assurance from a consulting/boutique firm will increase by 134.94%, when compared to seeking assurance from a Big4 or an engineering firm, holding all the other variables constant. Since we measure the number of employees in thousands, it indicates that an increase of 1000 employees contributes 49.79% ≈ 50% to the chances of obtaining assurance from a consulting/boutique firm.

In Table 6 full model, we find that the finance industry (coeff 1.12941, odds ratio 3.09384) and manufacturing industry (coeff 0.54686, odds ratio 1.72782) are significant at $a = 0.1$. This is a partial change from Tables 2 and 4, where only the manufacturing industry is significant. This means that companies in the finance industry are 309.38% more likely to choose a consultancy/boutique firm as their assurance provider, when compared to selecting a Big4 firm or an engineering firm, holding all the other variables constant. Companies in the manufacturing industry are 172.78% more likely to choose a consultancy/boutique firm as their assurance provider, when compared to selecting a Big4 firm or an engineering firm, holding all the other variables constant. Big4 companies have made a substantial investment in developing and offering a variety of high-quality CSR services (Akisik & Gal, 2019). Akisik and Gal (2019) further opine that non-accounting assurance providers are generally small firms, which limits their ability to benefit from scale efficiencies. Furthermore, they argue that engineering firms might be more elaborate and informative, as they possess a higher level of expertise in the subject matter. Moreover, they contend that engineering expertise is necessary to evaluate environmental and chemical data. On the other hand, consultancy firms are believed to focus more on completeness, fairness, and overall balance in the opinion statements. Based on this, we argue that consultancy/boutique firms charge less than Big4 and engineering firms, in addition to focusing on assuring subject matters that are company deems important.

Similar to Table 2 full model and Table 4 full model, stakeshare (whether a country is stakeholder-oriented or shareholder-oriented; marked 1 if a country is stakeholder-oriented, 0 otherwise) is significant at p-value < 0.05 (coeff -1.58890, odds ratio 0.20415). This means that a company from a stakeholder-oriented country is 20.42% less likely to choose a Big4 firm or an engineering firm as an assurance provider when compared to choosing a boutique/consultancy firm as an assurance provider. This means that a company from a stakeholder-oriented country is more likely to choose a boutique/consultancy firm as an assurance provider. As mentioned earlier, stakeholder orientation involves identifying various stakeholder groups (Jain et al., 2017) and legitimizing a business by meeting those stakeholder's demands (García-Sánchez et al., 2020). Germany (Bottenberg et al., 2017) and Japan (Endo, 2020) are considered prime examples of stakeholder-oriented countries. A company from a stakeholder-oriented country would be less likely to choose an engineering firm as an assurance provider when compared to choosing a boutique/consultancy firm because their existing stakeholder orientation is likely to provide legitimacy. They are likely to view assurance as redundant.

Table 6. Multilevel logistic model of a type of assurance provider with financial performance indicated by return on sales (ROS)

Dependent variable / *Independent variable*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*	*Type of assurance provider*
	Logit coeff	Odds ratio	Logit coeff	Odds ratio
	Null model	Null model	Full model	Full model
LnROS			0.03633	1.03700
			(0.13822)	(0.14333)
LnTA			-0.40137**	0.66940**
			(0.18927)	(0.12670)
LnNoEmp			0.29967**	1.34941**
			(0.14862)	(0.20054)
LnNetSales			0.05889	1.06066
			(0.21859)	(0.23185)
Mining industry			-0.04510	0.95590
			(0.69703)	(0.66629)
Utility industry			0.46469	1.59152
			(0.80263)	(1.27740)
Finance industry			1.12941*	3.09384*
			(0.59912)	(1.85357)
Manufacturing industry			0.54686*	1.72782*
			(0.31456)	(0.54350)
Stakeholder-oriented country			-1.58890**	0.20415**
			(0.62037)	(0.12665)
Cut Point 1 Big4	0.95051***	2.58702***	0.33889	1.40339
	(0.26187)	(0.67747)	(0.96492)	(1.35416)
Cut Point 2 engineering	1.95648***	7.07441***	1.53699	4.65056
	(0.27268)	(1.92907)	(0.96751)	(4.49945)
Between-country variance	1.97397***	7.19918***	1.98013**	7.24369**
	(0.68538)	(4.93418)	(0.84108)	(6.09252)
No. of observations	634	634	438	438
Number of countries	42	42	39	39
Log Likelihood	-493.8	-493.8	-299.1	-299.1
Wald chi^2			17.04	17.04
p-value			0.0481	0.0481
$chibar^2$	145.9	145.9	55.69	55.69
p-value			0	0
Interclass correlation	0.375	.	0.376	.

*Note: Standard errors in parentheses *** p < 0.01, ** p < 0.05, * p < 0.1.*

6. CONCLUSION

This paper shows that firms' financial performance influences the disclosure of sustainability initiatives and assurance of sustainability reports. Furthermore, we demonstrate that firms' financial performance does influence the selection of the type of assurance providers. However, not all firms' financial performance indicators depict the same results. The economic value added (EVA) is not significant, while total enterprise value (TEV) and return on sales (ROS) are significant. These findings are consistent with extant literature, Ameer and Othman (2012) find a bi-directional relationship between superior sustainable practices and corporate financial performance. They hypothesize that companies that attend to superior sustainable practices have higher financial performance compared to those that do not engage in such practices. Their findings support a bi-directional relationship rather than a unidirectional relationship.

We find that being in the mining industry increases the likelihood of seeking assurance and being in the utilities or the finance industries decreases the likelihood of seeking assurance (Tables 1, 3, and 5). This can be attributed to the fact that the mining industry has a high environmental footprint, and seeking assurance greatly increases its credibility. However, companies in the utilities and finance industries are heavily regulated, and thus such firms may find it unnecessary to devote additional resources to seek assurance. When it comes to the choice of an assurance provider, we see that companies in the manufacturing industry are much more likely to seek assurance from an engineering firm (Tables 2, 4, and 6). This can be attributed to the fact that the engineering assurance providers are subject matter experts (Akisik & Gal, 2019) who offer a full range of services at a competitive price, which serves the needs of manufacturing companies. As mentioned in Sub-section 5.6, we argue that consultancy/boutique firms charge less than Big4 and engineering firms, in addition to focusing on assuring subject matters that our company deems important.

This research is useful for companies, as we observe that companies headquartered in stakeholder-oriented countries are more likely to choose an engineering firm when EVA is used as a proxy for financial performance (Table 2). Also, we see that companies headquartered in stakeholder-oriented countries are more likely to choose a boutique/consultancy firm when ROS is used as a proxy for financial performance (Table 2). Such companies might find engineering and boutique/consultancy assurance providers acceptable since their objective might be to signal that their sustainability information is credible, however, they do not want to incur extra funds on a Big4 assurance provider. These results can be used by researchers to dig deeper into the area of sustainability assurance by investigating which segments of the environmental/social/governance

sections of the sustainability reports are being verified by assurance providers. Further, researchers can explore the methods used by the assurance providers. Practitioners can use these results to hire suitable individuals to form the required verification teams to negotiate contracts and market themselves appropriately. Regulators can use these results to provide better guidance for practitioners and to set up rules to differentiate engineering firms from consultancy firms.

There are limitations to our findings. First, we focus on just three measures of firm performance, although we are very intentional on the three performance measures. For instance, we select EVA because it measures both internal and external performance (Stewart & Stern, 1991; Stewart, 1994). Our findings are partially supported, the economic value added (EVA) was not significant. There may be a lag period between when a firm attains higher financial performance and when it elects to invest and report on sustainability initiatives. Future studies can use a time series approach to test if a lag period can explain this discrepancy.

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