Audit Quality and Environment, Social, and Governance Risks

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Abstract

This study examines the association between a firm's environment, social and governance (ESG) risks and audit quality. We measure audit quality using two proxies: audit fees and discretionary accruals. ESG risk is measured using Representative Risk Index from the *RepRisk AG* database. Using a sample of public U.S. firms from the period between 2007 and 2016, we find that there is positive association between audit fess and ESG risk implying that firms pay higher audit fees when their ESG risk increase in order obtain higher quality audit services. We also find that there is a negative relationship between ESG risk measures and discretionary accruals suggesting firms assessed having high ESG risks do not manage their earnings as much. Overall, our results indicate that auditors take ESG risks of a firm into account when performing financial statements audit.

Key words: Environment, Social, and Governance Risks, Audit Quality, Firm Performance.

1. INTRODUCTION

In recent years, companies have focused their efforts on improving environmental, social and governance performance in order to increase financial performance. These firms tend to disclose more of their ESG performance to meet the demand of investors and regulatory requirements (Brockett & Rezaee, 2012; Dhaliwal et al., 2014; Rezaee, 2017; Robb & Zarzeski, 2001). Since firms are becoming increasingly aware of the impact of ESG risks on their operations, as well as on their public image and reputation, they are increasingly integrating these risks into the assessment of their business risk to help improve their operating effectiveness and profitability. We investigate the impact of firms' ESG risks on audit quality. Audit quality refers to providing quality external audit service requires a rigorous audit, with an appropriate degree of professional skepticism, conducted in compliance with the applicable standards (KPMG 2016).

We argue that firms' ESG risks should become an additional risk consideration in auditors' decisions when they assess clients' risks. Prior studies also suggest that consideration of clients' social issues by auditors in their audit help managers improve strategic planning (Reamer, 2000, 2001; Waddock & Frasure-Smith, 2000). The 2007 financial crisis shocked the public and raised serious doubts on auditors' ability to assess client exposure to systematic risk (Doogar et al., 2015). The American Institute of Certified Public Accountants (AICPA) and the Public Company Accounting Oversight Board (PCAOB) require that public company auditors consider auditees' business environment and macroeconomic and societal factors in planning their audit (PCAOB 2011). Additionally, the media is an important contributor of information to the market. It can shape a company's public image and influence public opinion (Rogers et al., 2016). Media coverage of a firm's ESG practices can increase the salience of these issues in the public agenda (Carroll & McCombs, 2003; McCombs & Shaw, 1972).

We use the Representative Risk Index (RRI) data to obtain the indices for corporate reputational risk related to ESG risk issues. Due to the *RepRisk's* primary focus on the internet and social media and stakeholders' information, ESG risks measured by *RepRisk* reflect a highly transparent and connected world, which serves to increase stakeholders' expectations about ESG issues. Therefore, taking an external perspective on company operations, ESG risks provides valuable third-party stakeholders' information which can provide insights into corporate operations and can act as an early warning system. We posit that auditors consider both traditional risk and firms' ESG risks to properly choose their audit quality and thus provide appropriate assurance on the quality of a client's financial statements.

We find that auditors charge higher audit fees of clients when the clients face higher ESG risks. Using discretionary accruals as a second proxy for audit quality, we find that discretionary accruals are negatively associated with a firm's ESG risks, indicating that audit quality improves when firms have higher ESG risks. High discretionary accruals suggest increased management of earnings and the negative association between discretionary accruals and ESG risk indicate that firms with higher ESG risks do not manage their earnings as much.

Our study makes the following contributions. First, using *Reprisk's* reputational indices to proxy for ESG risks, we find that firms' ESG risks significantly impact auditor behavior and that auditors consider their clients' ESG risks in their billing of audit fees. Furthermore, taking into consideration of clients' ESG risks can help auditors improve their audit quality. Second, we contribute to the auditing literature by showing that ESG risks quantified by *RepRisk* database provide useful information about a firm's future financial performance and firm valuation.

Our study proceeds as follows: In Section 2, we discuss related literature and hypotheses development. In Section 3, we present the research methodology and empirical models. In Section 4, we describe empirical results. In Section 5, we provide conclusive remarks.

2. LITERATURE REVIEW

Investors, regulators, and regulated companies have begun to pay more attention to business sustainability and to disclosure of non-financial ESG sustainability performance information (Cheng et al., 2015; Cohen et al., 2012a; Cohen et al., 2012b; Green & Li, 2011; Huggins et al., 2011; Pflugrath et al., 2011; Rezaee, 2016). Public companies have focused on improving ESG performance to initiatives that can promote sales growth and high-quality financial performance (Brockett & Rezaee, 2012; Rezaee, 2016; Robb & Zarzeski, 2001). The 2016 report of the *Investor Responsibility Research Center Institute* (IRRC) indicates that investors and portfolio managers incorporate ESG risks information into their investment decisions (IRRC, 2016).

Extant research has also examined the association between CSR/ESG performance/disclosures and financial performance, earnings management, cost of capital and firm value (e.g. Anderson & Frankle, 1980; CFA Institute, 2015; Clarkson, 1995; P. M. Clarkson et al., 2011; Dhaliwal et al., 2014; Dhaliwal et al., 2011; El Ghoul et al., 2011; Mackey et al., 2007; Mastsumura et al., 2013). Prior studies suggest that nonfinancial disclosures, such as ESG disclosures, are informative to investors (Clarkson et al., 2013; Dhaliwal et al., 2014; Dhaliwal et al., 2011, 2012; Griffin & Sun, 2013) as their information can signal future financial performance to investors (Lys et al., 2015), signal management trustworthiness, and communicate private information on firm's future prospects (Christensen, 2016). ESG can be associated with a firm's financial performance through intangible assets and stakeholder engagement (Barnett and Salomon, 2006; Mishra, 2017), and an insurance-like protection (Schnietz and Epstein, 2005; Godfrey et al., 2009). Prior empirical literature also indicates that positive CSR activities will advance a firm's reputation (Turban and Greening, 1997; Albinger and Freeman, 2000; Greening and Turban, 2000), which is particularly important because those firms are repetitive players in the financial market. However, since such disclosure is voluntary and is subject to limited regulatory guidance and oversight (Chen et al., 2016) in the U.S., voluntary ESG disclosures driven by managers' self-interests can be disclosed strategically (Hobson & Kachelmeier, 2005; Holder-Webb et al., 2009; Ingram & Frazier, 1980; Muslu et al., 2019; Simnett et al., 2009).

2.1 Hypotheses Development

Simunic (1980) shows that audit fees are the reflection of costs of resources used in auditing; the higher audit fees suggest that auditors have made more efforts in conducting the audit. Prior studies also show a positive relationship between audit fees and clients' business risks (Bell et al., 2008; Ferguson et al., 2003; Houston et al., 2005; Reichelt & Wang, 2010). Auditors' business risk is the risk that the audit firm will bear when doing business with clients in an audit engagement (Koh & Tong, 2013). Client specific business risk arises when financial statements of a client company contain material misstatements due to error or fraud (AICPA, 1983, 1997).

A higher the business risks auditors' face, the more audit work they will be performing in order to mitigate future litigation risks, which increases the amount of audit fees (Brumfield et al., 1983). Markelevich & Rosner (2013) indicate that two competing arguments dominate in audit pricing literature. The first argument suggests that higher audit fee is associated with higher audit quality (Basioudis et al., 2008; Kinney et al., 2004; Srinidhi & Gul, 2006). The second argument shows that higher audit risk encourages auditors to charge higher audit fees in order to expend greater audit effort (Ashbaugh et al., 2003; Markelevich & Rosner, 2013).

Previous studies have also explored audit fee models by incorporating different risk measures (Donohoe & Robert Knechel, 2014; Fields et al., 2004; Kanagaretnam et al., 2010; Lennox & Li, 2014; Markelevich & Rosner, 2013). While these studies give insights into how auditors price clients' business risks, they do not advance our understanding of actual risk factors incorporated in auditors' assessment of their client-level business risk. Therefore, auditors should be encouraged to consider a wider perspective of risk indicators into their audit, including ESG risks.

A high ESG risk raises auditors' concerns about management integrity and ethics as well as managerial opportunism, which subsequently result in increased risk of financial misstatements and other fraudulent reporting decisions. (Kim et al., 2012) find that firms performing poorly in their social responsibilities are likely to engage in earnings management through accrual-based and real earnings manipulations and are more likely to be subject to SEC investigations. Koh & Tong (2013) document that auditors' charge higher audit fees from clients, who engage in controversial activities related to consumers, employees, community and the environment. Considering the above discussion, we propose the following alternate hypothesis:

H1: Auditors charge higher audit fees when their clients have higher ESG risks.

The risk management argument based on the stakeholder theory predict that higher firm's ESG risk indicates more current and future negative social performance, thereby increasing a firm's risk. High ESG risk reflect stakeholders' negative perceptions about the firms' social performance, which could damage public image, increase regulatory pressure and scrutiny (Luo & Bhattacharya, 2009). In addition, high ESG risks signal negative social performance, which may increase financial and operating risks (McGuire et al., 1988). According to the audit risk theory (Markelevich & Rosner, 2013), auditors bear significant economic costs from the potential for audit failure and the increased ESG risk leads to higher audit risk or litigation risk and potential loss of reputation. The increased risk incentivizes auditors to perform a high-quality audit that dominates over the potential benefits of retaining clients when independence is decreased (Ashbaugh et al., 2003).

The agency theory predicts that a firm's low ESG risk may result from management entrenchment. Martínez-Ferrero et al. (2016) show that CSR activities can be strategically used to mask earnings management practices, consistent with the theoretical arguments that managers use CSR practices for self-promotion and rent extraction (Barnea and Rubin, 2010) rather than a voluntary activity that promote sustainable economic growth (Handelman and Arnold, 1999). A firm's low perceived ESG risk may raise auditors' concern about management entrenchment strategies and earnings management practices thereby encouraging auditors to perform a higher quality audit. In line with the managerial opportunism argument, we posit a negative relationship between ESG risk and audit quality and develop the following alternate hypothesis to test the association between discretionary accruals and ESG risks.

H2: ESG risk measures are negatively associated with discretionary accruals.

Serving the implicit claims of stakeholders enhances the company's reputation in a way that positively influences its financial performance over the long term (Freeman, 1984; Makni et al., 2009). On the contrary, dissatisfying stakeholders may have an adverse effect on financial performance (Preston and O'Bannon, 1997) and may cause stakeholder sanction against a firm for the firm's irresponsible actions. Based on this explanation, firms who are exposed to negative ESG issues reported by stakeholders and communicated by the media may have reputation deteriorating concern and can later face negative financial performance prospect. Negative CSR performance resulting from engaging in socially controversial activities informs investors of potential changes in firms' earnings potential or risk owing to CSR-related stakeholder mismanagement. Koelher and Hespenheide (2013) identify ESG issues which can directly affect a company's financial performance by impacting its operations and sales. These risks can also adversely affect earnings growth and persistence (Cormier and Magnan, 2014), which is a common objective of stakeholder sanctions. Stakeholders' sanction due to firms' negative ESG practices may tend to hurt firms' earnings in order to attain leverage over the target firm (Kolbel et al., 2017). When presenting a firm's ESG issues to the public, stakeholders impose pressures on firms to expect relevant, appropriate and effective firm responses. In the absence of enough firm response, stakeholders can boycott, file lawsuits, and protest to significantly influence firm ESG behavior (Baron and Diermeier, 2007; Doh and Guay, 2006; Easley and Lenox, 2006; Cordeiro and Tewari, 2015). Therefore, we predict the following hypothesis:

H3: Clients that have higher ESG risks have higher financial performance next year.

3. RESEARCH METHOD

3.1 The ESG Measure

RepRisk AG Corporation is a well-known business intelligence provider specializing in environmental, social and governance (ESG) risk analytics and metrics and it operates a database that collects the risk exposure of approximately 11,000 firms from all sectors and geographies, industries and countries related to twenty-eight environmental, social and governance topics and issues. [1] *RepRisk* makes daily assessments of the risks, criticism and allegations related to issues such as environmental pollution, human rights, labor relations and corruption that negatively affect firms' reputation, profitability, or credit worthiness within firms. ESG risks assessed by *RepRisk* are widely used by financial institutions, corporations, and regulatory organizations.

RepRisk innovates the *RepRisk Index* (RRI) to facilitate an assessment of the ESG risks. The *RepRisk Index* is a proprietary algorithm that quantitatively measures a company's exposure to ESG risks. The RRI is an indicator of corporate reputational risk related to ESG risk issues. A company's RRI score ranges from the lowest of zero to the highest of 100.[2] The higher the RRI score, the higher level of criticism received and borne by a firm and thus higher the ESG risks. Firms with the index between 76 and 100 have very high-risk exposure, firms with the index between 51 and 75 have high risk exposure, the index between 26 and 50 indicates median risk exposure, and the index below 25 are low risk exposure firms. We use three RRI indices for our study: Current RRI, Peak RRI and RRI trend. A current RRI indicates the media and stakeholder exposure of a company at the current time, and a Peak RRI shows an overall risk indicator for the highest level of assessment over the past two years received by a company.[3] RRI trend captures the change in the RRI within the past 30 days (RepRisk, 2015). Empirical Models such as audit fees model, discretionary accruals model and future performance model will be explained in Appendix II.

3.2 Sample Selection

Our sample consists of U.S. publicly traded companies, covering the time-period from 2007 to 2016. We collect financial performance variables from *Compustat* database and auditing information variables from *Audit Analytics* database. We collect firms' financial information from *Compustat* database by obtaining

[1] See the link: http://3we057434eye2lrosr3dcshy.wpengine.netdna-cdn.com/wp-content/uploads/2017/07/RepRisk.pdf
[2] See http://conferences.iaia.org/2015/Final-Papers/150422%20RepRisk%20presentation%20for%20IAIA%20Conference%20-%20final.pdf
[3] See https://platform.reprisk.com/downloads/RepRisk%20Company%20Reports.pdf.

273,021 firm-year observations. After merging the data from both *RepRisk* and *Compustat* databases, we have 17,616 firm-year observations including missing values. However, there are unmatched firm-year observations where firms' names from *RepRisk* database are not equivalently matched with the firms' names corresponding to GVKEY identifiers in *Compustat* database. We manually clean the merged data, remove unmatched observations and obtain 12,381 firm-year observations. Finally, we winsorize all continuous variables at 1 percent and 99 percent. Table 1 shows that after deleting the missing values for firms' financial data and auditor-related information, we are left with 4,121 firm-year observations for the audit fee model and 2,694 observations for the discretionary accruals model.

Sample Selection

	AF Model	DA Model
All Compustat observations from 2007 to 2016	273,021	273,021
Matched Compustat and RepRisk observations	17,616	17,616
Matched Compustat, Reprisk and Audit Analytics observations	9,157	9,157
Total observations used in the main multivariate analyses	4,121	2,694

TABLE 1: This table presents the sample selection procedure where AF = audit fees and DA = discretionary accruals.

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 2, Panel A shows the descriptive statistics of the variables used in the audit fee model based on Equation (1). The mean and median values for current RRI are 8.4033 and 3.25, respectively. Average peak RRI has a mean value of 16.13 and median value of 18. The mean and median value for Trend RRI is 8.29 and 2.83, respectively. The mean and median for the log of total assets are 8.12 and 8.11, respectively. Firms have on the average 53.33 percent leverage ratio (LEV) and 5.11 percent return on assets (ROA), respectively. Market-to-book ratio (MB_t) is 3.03 on average, operating cash flow is 10.57 percent on average, and have 3.94 percent total accruals, on average. On average 14.63 percent of sample firms report losses (LOSS) and 11.51 percent of firms have foreign operations, on average. The mean and median value for Zscore (ZSCORE) are 4.29 and 3.50, respectively. Firms have at least a single business segment and around 88.61 percent of sample firms on average hire one of the big four audit firms for assurance services. The log of audit fee has the average value of 13.17. Approximately 0.25 percent of firms have received a going concern opinion. The mean value for the likelihood of material weakness in firms' internal controls is 2.79 percent. On average 8.3 percent of firms have restated their financial statements.

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl	Minimum	Maximum
$AVG\_CURRENT\_RRI_{i,t}$	2433	8.4033	3.2500	10.9616	-1.0000	16.6667	-1.0000	50.4167
$AVG\_PEAK\_RRI_{i,t}$	2433	16.1256	18.0000	16.4950	-1.0000	29.8333	-1.0000	61.0000
$AVG\_RRI\_TREND_{i,t}$	2433	8.2871	2.8333	10.9300	-1.0000	16.6667	-1.0000	50.0833
$LNTA_{i,t}$	2433	8.1169	8.1128	1.5820	7.0665	9.1316	3.2541	12.5873
$LEV_{i,t}$	2433	0.5333	0.5260	0.2292	0.3799	0.6658	0.1096	1.3653
$LEVREC_{i,t}$	2433	0.2694	0.2594	0.1301	0.1737	0.3457	0.0142	0.7247
$ROA_{i,t}$	2433	0.0511	0.0599	0.0954	0.0265	0.0958	-0.7838	0.2561
$MB_{i,t}$	2433	3.0312	2.3646	3.7420	1.5040	3.5809	-10.6488	28.3394
$OPCFO_{i,t}$	2433	0.1057	0.1011	0.0747	0.0666	0.1455	-0.4914	0.3256

	3							
	243	0.0394	0.0276	0.0397	0.0128	0.0535	0.0005	0.4267
$ABS\_ACCRUAL_{i,t}$	3							
	243	0.1463	0.0000	0.3535	0.0000	0.0000	0.0000	1.0000
$LOSS_{i,t}$	3							
	243	0.1151	0.0000	0.3192	0.0000	0.0000	0.0000	1.0000
$FOROPS_{i,t}$	3							
	243	4.2873	3.4990	3.1837	2.3959	5.3123	-2.7394	17.6224
$ZSCORE_{i,t}$	3							
	243	0.8871	1.0986	0.7078	0.0000	1.3863	0.0000	2.3026
$LOGSEG_{i,t}$	3							
	243	0.8861	1.0000	0.3177	1.0000	1.0000	0.0000	1.0000
$BIG4_{i,t}$	3							
	243	13.173	13.268	1.8014	12.142	14.466	7.4955	17.6657
$LNNAF_{i,t}$	3	8	4		7	7		
	243	0.0025	0.0000	0.0496	0.0000	0.0000	0.0000	1.0000
$GCONCERN_{i,t}$	3							
$MATERIAL\_WEAKNESS_{i,t}$	243	0.0279	0.0000	0.1649	0.0000	0.0000	0.0000	1.0000
	3							
	243	0.0830	0.0000	0.2760	0.0000	0.0000	0.0000	1.0000
$RESTATEMENT_{i,t}$	3							

TABLE 2 PANEL A: This table presents the descriptive statistics for the variables used in the three regression models. All the variables are defined in Appendix I.

Table 2, Panel B provides descriptive statistics regarding the variables in the discretionary accruals model Equation (5). The descriptive statistics in Table 2, Panels A and B are generally similar.

Variable	N	Mean	Median	Std Dev	25th Pctl	75th Pctl	Minimum	Maximum
$DA_{i,t}$	2694	0.0433	0.0300	0.0461	0.0137	0.0551	0.0006	0.2624
$AVG\_CURRENT\_RRI_{i,t}$	2694	7.9954	1.9583	10.8171	-1.0000	16.2500	-1.0000	53.6667
$AVG\_PEAK\_RRI_{i,t}$	2694	15.5418	15.3333	16.4455	-1.0000	29.2500	-1.0000	62.4167
$AVG\_RRI\_TREND_{i,t}$	2694	7.8868	1.6667	10.7971	-1.0000	16.0833	-1.0000	54.2500
$LNTA_{i,t}$	2694	7.9554	7.9872	1.7065	6.7615	9.0552	3.0712	12.5873
$LEV_{i,t}$	2694	0.5274	0.5229	0.2293	0.3733	0.6630	0.0927	1.3474
$ROA_{i,t}$	2694	0.0461	0.0582	0.1048	0.0231	0.0945	-0.7398	0.2429
$MB_{i,t}$	2694	2.9669	2.3270	3.5597	1.4634	3.5232	-10.3946	26.2014
$FOROPS_{i,t}$	2694	0.1099	0.0000	0.3128	0.0000	0.0000	0.0000	1.0000
$OPCFO_{i,t}$	2694	0.1017	0.1002	0.0809	0.0638	0.1449	-0.4644	0.3201
$LOSS_{i,t}$	2694	0.1670	0.0000	0.3731	0.0000	0.0000	0.0000	1.0000
$ABS\_ACCRUAL_{i,t}$	2694	0.0416	0.0288	0.0431	0.0133	0.0566	0.0005	0.4159
$OPCYCLE_{i,t}$	2694	4.8020	4.8390	0.6459	4.4998	5.1739	2.5582	8.5326
$ZSCORE_{i,t}$	2694	4.2766	3.4661	3.3848	2.3167	5.2850	-2.8274	18.5549
$LOGSEG_{i,t}$	2694	0.8840	1.0986	0.7029	0.0000	1.3863	0.0000	2.0794
$CAP\_INTENSITY_{i,t}$	2694	0.5198	0.4105	0.3607	0.2476	0.72037	0.01449	1.9290
$INT\_INTENSITY_{i,t}$	2694	0.0619	0.0225	0.0935	0.0033	0.0872	0.0000	0.6145
$BIG4_{i,t}$	2694	0.8471	1.0000	0.3600	1.0000	1.0000	0.0000	1.0000

TABLE 2 PANEL B: This table reports the number of observations (N), the mean, median, standard deviation, and quartile (25% and 75%) distributions of the variables.In both panels, an RRI variable (i.e. Current RRI, Peak RRI or RRI Trend) between 0 and 25 indicates low risk exposure of a firm; An RRI between 26 and 50 indicates medium risk

exposure of a firm; An RRI between 51 and 75 indicates high risk exposure of a firm; An RRI between 76 and 100 indicates very high risk exposure of a firm.

4.2 Correlation Tables

Table 3 reports the correlation results on the variables used in the discretionary accruals model based on Equation (5). All ESG risk variables are positively correlated with discretionary accruals. These results contradict H1 prediction. The untabulated results show that all ESG risk variables are positively correlated with audit fees, which supports H2 prediction. The untabulated results also show that all ESG risk variables are positively correlated with valuation variables, which supports H2 prediction.

	$DA_{i,t}$	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
$DA_{i,t}$	1.00																	
$AVG\_CURRENT\_RRI_{i,t}$	0.04	1.00																
$AVG\_PEAK\_RRI_{i,t}$	0.04	0.88	1.00															
$AVG\_RRI\_TREND_{i,t}$	0.03	0.65	0.55	1.00														
$LNTA_{i,t}$	0.05	0.49	0.43	0.44	1.00													
$LEV_{i,t}$	-0.05	0.14	0.13	0.14	0.32	1.00												
$ROA_{i,t}$	0.36	0.01	0.01	0.00	0.07	-0.12	1.00											
$MB_{i,t}$	0.00	0.01	0.01	-0.02	0.01	0.00	0.02	1.00										
$FOROPS_{i,t}$	0.01	0.24	0.21	0.15	0.28	0.06	0.00	0.01	1.00									
$OPCFO_{i,t}$	-0.14	0.02	0.03	0.00	0.16	-0.05	0.82	0.02	0.02	1.00								
$LOSS_{i,t}$	-0.28	-0.11	-0.11	-0.07	-0.28	0.05	-0.03	-0.02	-0.03	-0.15	1.00							
$ABS\_ACCRUAL_{i,t}$	-0.16	-0.01	-0.01	0.00	-0.06	0.04	-0.95	-0.01	0.00	-0.83	0.02	1.00						
$OPCYCLE_{i,t}$	0.05	0.08	0.07	0.23	0.12	-0.05	-0.04	-0.01	0.03	-0.20	0.03	-0.03	1.00					
$ZSCORE_{i,t}$	0.02	-0.07	-0.07	-0.07	-0.19	-0.49	0.40	0.04	-0.08	0.36	-0.26	-0.12	0.10	1.00				
$LOGSEG_{i,t}$	0.08	0.14	0.15	0.05	0.31	0.11	0.02	-0.01	0.11	0.06	-0.12	-0.05	0.09	-0.06	1.00			
$CAP\_INTENSITY_{i,t}$	0.12	0.00	0.00	-0.06	-0.09	0.05	0.01	0.00	0.03	0.01	0.11	-0.01	-0.40	-0.20	-0.06	1.00		
$INT\_INTENSITY_{i,t}$	-0.05	0.00	0.00	0.01	-0.03	0.09	-0.21	0.00	-0.01	-0.22	0.06	0.03	0.07	0.00	-0.03	-0.02	1.00	
$BIG4_{i,t}$	0.06	0.18	0.17	0.08	0.40	0.14	0.13	0.01	0.08	0.08	-0.18	-0.09	0.01	-0.04	0.09	-0.03	-0.04	1.00

TABLE 3: Presenting correlations for the variables used in the discretionary accruals model. Variables are defined as in Appendix I.
|Correlations| > .01 are significant p < .05.
N=2,694.

4.3 Estimation of The Audit Fee Model

Table 4 reports the regression results on the association between audit fees and firms' ESG risk variables. In Column 1, the coefficient on Current RRI is 0.0026 and is highly significant (p-value=0.0008) indicating that when the current level of media and stakeholder interest is high on ESG related issues, audit fees tend to increase. This shows that client companies pay higher audit fees when their clients have higher ESG risks measured by current RRI, strongly supporting H1.

		(1)	(2)	(3)
Variables	Coefficient	Coefficient	Coefficient	
Intercept		9.6237***	9.5959***	9.6259***
		(0.0763)	(0.0749)	(0.0762)
$AVG\_CURRENT\_RRI_{i,t}$		0.0026***		
		(0.0008)		
$AVG\_PEAK\_RRI_{i,t}$			0.0011*	
			(0.0005)	
$AVG\_RRI\_TREND_{i,t}$				0.0027**
				(0.0008)
$LNTA_{i,t}$		0.4026***	0.4067***	0.4023***
		(0.0081)	(0.0079)	(0.0081)
$LEV_{i,t}$		0.1332***	0.1324***	0.1329***

	(0.0446)	(0.0447)	(0.0446)
$LEVREC_{i,t}$	0.8746***	0.8744***	0.8744***
	(0.0590)	(0.0590)	(0.0590)
$ROA_{i,t}$	-0.2186*	-0.2182	-0.2183
	(0.1146)	(0.1146)	(0.1146)
$MB_{i,t}$	0.0002	0.0002	0.0002
	(0.0001)	(0.0001)	(0.0001)
$OPCFO_{i,t}$	-0.3013**	-0.3029***	-0.3017***
	(0.1366)	(0.1369)	(0.1365)
$ABS\_ACCRUAL_{i,t}$	-0.5906***	-0.5842***	-0.5896***
	(0.1478)	(0.1478)	(0.1477)
$LOSS_{i,t}$	0.0817***	0.0824***	0.0815***
	(0.0282)	(0.0282)	(0.0282)
$FOROPS_{i,t}$	0.2448***	0.2480*	0.2444*
	(0.0256)	(0.0257)	(0.0256)
$ZSCORE_{i,t}$	-0.0064**	-0.0063**	-0.0065**
	(0.0027)	(0.0033)	(0.0027)
$LOGSEG_{i,t}$	0.2317***	0.2311***	0.2317***
	(0.0122)	(0.0122)	(0.0122)
$BIG4_{i,t}$	0.0597**	0.0591***	0.0597 ***
	(0.0275)	(0.0276)	(0.0275)
$LNNAF_{i,t}$	0.1061***	0.1059***	0.1061***
	(0.0053)	(0.0053)	(0.0053)
$GCONCERN_{i,t}$	0.0491	0.0499***	0.0497***
	(0.0992)	(0.0993)	(0.0991)
$MATERIAL\_WEAKNESS_{i,t}$	0.2946***	0.2952***	0.2951***
	(0.0717)	(0.0718)	(0.0717)
$RESTATEMENT_{i,t}$	0.0474	0.0479	0.0473
	(0.0292)	(0.0293)	(0.0292)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	4121	4121	4121
Adjusted R^2	73.97	73.94	73.97

TABLE 4: Presenting the regression analysis of firms' likelihood of audit fees for firms.

This table presents the regression analysis of firms' likelihood of audit fees for firms on the firms' ESG risk proxied by Current RRI, Peak RRI or RRI Trend. Current RRI denotes the current level of media and stakeholder exposure of a company related to ESG issues. Peak RRI denotes the highest level of reputational risk exposure related to ESG issues over the last two years. RRI Trend denotes the difference in the RRI between current date and the date 30 days ago. All variables are defined in Appendix I. Standard errors are adjusted for heteroskedasticity and within firm clustering. Standard errors are in parentheses. Significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

Like prior literature on audit fees, most of the variables in our model are significant. Specifically, audit fees are higher when clients have bigger firm size (LNTA), have higher leverage (LEV), more business segments (LOGSEG), more losses (LOSS), audited by one of the big four audit firms (BIG4), and more material weaknesses in internal controls (MATERIAL_WEAKNESS). Consistent with prior literature, there is also a negative and significant relationship between audit fees and the probability of financial distress of a firm (ZSCORE). This indicates that auditors charge lower audit fees when their client is not financially

distressed. Audit fees are negatively associated with operating cash flows (OPCFO) and total accruals (ABS_ACCRUAL) held by firms indicating that higher OPCFO and accruals reduces audit fees.

Column 2 in Table 4 shows the results of the effect of Peak RRI on audit fees. Peak RRI represents the highest level of a firm's reputational risk exposure related to the ESG issues over the previous two years. As an alternative measure of ESG risks, Peak RRI is also positively associated with audit fees as its coefficient is 0.0011 and is significant at 10 percent level. This provides marginal support that firms with higher level of reputational risk exposure related to ESG issues charge higher audit fees. Moreover, in Column 3, we find that consistent with H_1, there is a significant positive association between audit fees and RRI_Trend suggesting that increase in ESG risks over time increases audit fees. The economic effect of the regression coefficient of 0.0026 of Current RRI, indicates that a one standard deviation increase in Current RRI (10.9616) is associated with an average increase in audit fees by 2.84 percent (0.0026*100*10.9616) or an average increase in dollar amount of audit fees by $140,418 (0.0284* $4,944,303). Similarly, the economic effect of 0.0011coefficient of Peak RRI is related to an average increase of $90,619 in audit fee for a one standard deviation increase in Peak RRI (0.0011*16.495*$4,994,303). Lastly, for the economic effect of 0.0027 of RRI Trend, a one standard deviation increase in RRI Trend (10.9300) is associated with an average increase in audit fees by 2.95 percent or $145,857 (0.0295*4,944,303). Overall results in Table 3 indicate that firms experiencing high ESG risk have higher audit quality as depicted in the increase in audit fees.

Our untabulated results of the change regression of the audit fee model show robust evidence that auditors charge more audit fees when clients have higher ESG risks as indicated by the positive significant coefficient on each of the ESG risks proxies. Overall, auditors charge higher fees when clients face higher ESG risks.

4.4. Estimation of The Discretionary Accruals Model

Table 5 shows the results on the association between discretionary accruals (DA, a proxy for audit quality) and ESG risks, proxied by Current RRI. Column 1 uses discretionary accruals based on the modified Jones (1999) model (equation 2). Column 2 uses discretionary accruals based on Kothari et al. (2005, equation 3) and Column 3 uses discretionary accruals developed using Ball and Shivakumar (2006).

		(1)	(2)	(3)
Variables	Exp. Sign	Coefficient	Coefficient	Coefficient
Intercept		0.0174	0.0099	0.0055
		(0.0121)	(0.0132)	(0.0152)
$AVG\_CURRENT\_RRI_{i,t}$		0.0000	-0.0002**	-0.0004***
		(0.0001)	(0.0001)	(0.0001)
$LNTA_{i,t}$		-0.0007	0.0005	-0.0007
		(0.0008)	(0.0009)	(0.0010)
$LEV_{i,t}$		0.0161**	0.0145**	0.0201***
		(0.0063)	(0.0070)	(0.0075)
$ROA_{i,t}$		-0.1224***	-0.1918***	-0.037
		(0.0291)	(0.0284)	(0.0364)
$MB_{i,t}$		0.0000	0.0000	-0.0001
		(0.0000)	(0.0000)	(0.0000)
$FOROPS_{i,t}$		0.0020	-0.0007	0.0024
		(0.0024)	(0.0026)	(0.0034)
$OPCFO_{i,t}$		-0.0264	0.1250***	-0.1687***
		(0.0268)	(0.0289)	(0.0302)
$LOSS_{i,t}$		-0.0018	0.0105**	-0.0162***
		(0.0037)	(0.0044)	(0.0052)

$ABS\_ACCRUAL_{i,t}$	0.4017***	0.3882***	0.3453***
	(0.0364)	(0.0418)	(0.0386)
$OPCYCLE_{i,t}$	0.0039**	0.0027	0.0084***
	(0.0017)	(0.0019)	(0.0021)
$ZSCORE_{i,t}$	0.0011***	0.0015***	0.0015***
	(0.0003)	(0.0004)	(0.0004)
$LOGSEG_{i,t}$	-0.0015	-0.0017	0.0026
	(0.0013)	(0.0014)	(0.0017)
$CAP\_INTENSITY_{i,t}$	-0.0101***	-0.0173***	0.0313***
	(0.0026)	(0.0032)	(0.0041)
$INT\_INTENSITY_{i,t}$	-0.0046	0.0123	-0.0193
	(0.0112)	(0.0148)	(0.0135)
$BIG4_{i,t}$	-0.0007	-0.0038	0.0013
	(0.0029)	(0.0032)	(0.0035)
Industry Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Observations	2694	2483	2483
Adjusted R^2	26.42	32.39	17.11

TABLE 5: This table presents the regression analysis of firms' discretionary accruals on the firms' ESG risk proxied by Current RRI. Discretionary accruals ($DA_{i,t}$) in Column (1) are based on Equation (2); Discretionary accruals ($DA_{i,t}$) in Column (4) are based on Equation (3); Discretionary accruals ($DA_{i,t}$) in Column (3) are based on Equation (4). All variables are defined in Appendix I. Standard errors are adjusted for heteroskedasticity and within firm clustering. Standard errors are in parentheses. Significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

In Table 5, Column 1, we do not capture the effect of ESG risk on discretionary accrual (a proxy for audit quality) because the coefficient on Current RRI is zero. The coefficient on Current RRI in Columns 2 and 3 is negative and significant, suggesting that firms who face higher ESG risks reduce their discretionary accruals. These results indicate that audit quality improves when firms have higher ESG risks or firms do not use discretionary accruals to manage earnings when the media and the stakeholder perceives these firms to have ESG risks. In terms of control variables, we find a positive and significant relationship between leverage and DA in each of the columns in Table 8. Auditors tend to lower their audit work when firms have higher leverage. Clients with higher performance (ROA) and clients with higher capital asset intensity (Cap_intensity) have higher discretionary accruals and thus lower audit quality. Clients with longer operating cycle (Opcycle) and stronger financial position (Zscore) have higher discretionary accruals suggesting lower audit quality. Using the coefficient of -0.0004 of Current RRI, a one standard deviation in Current RRI (10.8171) is associated with an average decrease in discretionary accruals by 0.433 percent.

Table 6 shows the results on the association between discretionary accruals (DA) and ESG risks, proxied by Peak RRI. Peak RRI measures the highest level of reputational risk exposure related to ESG issues over the previous two years. Column 1 uses discretionary accruals based on the modified Jones model. Column 2 uses discretionary accruals using (Kothari et al., 2005) and Column 3 uses discretionary accruals developed based on Ball and Shivakumar (2006).

		(1)	(2)	(3)
Variables	Exp. Sign	Coefficient	Coefficient	Coefficient
Intercept		0.0086	0.0091	0.005
		(0.0126)	(0.0130)	(0.0150)
$AVG\_PEAK\_RRI_{i,t}$		-0.0002***	-0.0002***	-0.0003***
		(0.0001)	(0.0001)	(0.0001)
$LNTA_{i,t}$		0.0011	0.0007	-0.0006
		(0.0008)	(0.0009)	(0.0010)
$LEV_{i,t}$		0.0129*	0.0152**	0.0213***
		(0.0067)	(0.0070)	(0.0075)
$ROA_{i,t}$		-0.1857***	-0.1912***	-0.0361
		(0.0277)	(0.0283)	(0.0364)
$MB_{i,t}$		0.0000	0.0000	0.0000
		(0.0000)	(0.0000)	(0.0000)
$FOROPS_{i,t}$		0.0013	-0.0005	0.0025
		(0.0026)	(0.0026)	(0.0034)
$OPCFO_{i,t}$		0.1098***	0.1229***	-0.1719***
		(0.0281)	(0.0287)	(0.0301)
$LOSS_{i,t}$		0.0094**	0.0104**	-0.0162***
		(0.0040)	(0.0044)	(0.0052)
$ABS\_ACCRUAL_{i,t}$		0.3659***	0.3876***	0.3441***
		(0.0402)	(0.0416)	(0.0384)
$OPCYCLE_{i,t}$		0.0031*	0.0027	0.0084***
		(0.0018)	(0.0019)	(0.0021)
$ZSCORE_{i,t}$		0.0014***	0.0015***	0.0015***
		(0.0004)	(0.0004)	(0.0004)
$LOGSEG_{i,t}$		-0.0029**	-0.0016	0.0028*
		(0.0013)	(0.0014)	(0.0017)
$CAP\_INTENSITY_{i,t}$		-0.0149***	-0.0172***	0.0315***
		(0.0029)	(0.0032)	(0.0041)
$INT\_INTENSITY_{i,t}$		0.0132	0.0123	-0.0193
		(0.0149)	(0.0149)	(0.0136)
$BIG4_{i,t}$		-0.0054*	-0.0036	0.0017
		(0.0030)	(0.0032)	(0.0035)
Industry Fixed Effects		Yes	Yes	Yes
Year Fixed Effects		Yes	Yes	Yes
Observations		1791	2483	2483
Adjusted R^2		30.01	32.56	17.43

TABLE 6: This table shows the regression analysis of firms' discretionary accruals on the firms' ESG risk proxied by Peak RRI. Discretionary accruals ($DA_{i,t}$) in Column (1) are based on Equation (2); Discretionary accruals ($DA_{i,t}$) in Column (4) are based on Equation (3); Discretionary accruals ($DA_{i,t}$) in Column (3) are based on Equation (4). All variables are defined in Appendix I. Standard errors are adjusted for heteroskedasticity and within firm clustering. Standard errors are in parentheses. Significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

In Column 1 of Table 6, the coefficient on Peak RRI is -0.0002 and highly significant. This result indicates that there is a negative and significant association between a firm's ESG risks in the form of Peak RRI and discretionary accruals indicating that firms having higher ESG risks have lower level of discretionary

accruals and thus higher audit quality. Similar results can be seen in Columns 2 and 3. The marginal effect of the coefficient of -0.0003 for Peak RRI, a one standard deviation increase in Peak RRI (16.4455) is associated with an average decrease in discretionary accruals by 0.49 percent. Firm with more leverage (LEV), more operating cash flows (OPCFO), and stronger financial conditions (ZSCORE) have higher level of discretionary accruals and thus lower audit quality. Firms with lower ROA, lower level of capital intensity, and more segments are associated with higher level of discretionary accruals, indicating that audit quality is lower.

Table 7 reports the results on the effect of a firms' ESG risks measured by RRI Trend on discretionary accruals. All coefficients on RRI Trend are negative and significant in the three columns, indicating that discretionary accruals are negatively associated with firm's ESG risk. This suggests that firms exposed to higher ESG risks have lower level of discretionary accruals and thus higher audit quality. The sign of control variables in Table 7 are like those in Tables 5 and 6. For the marginal effect of -0.0004 coefficient for RRI Trend, a one standard deviation increase in RRI Trend (10.7971) is associated with an average decrease in discretionary accruals by 0.43 percent.

	(1)	**(2)**	**(3)**
Variables	Coefficient	Coefficient	Coefficient
Intercept	0.0092	0.0099	0.0056
	(0.0128)	(0.0131)	(0.0151)
$RRI\_Trend_{i,t}$	-0.0002**	-0.0002**	-0.0004***
	(0.0001)	(0.0001)	(0.0001)
$LNTA_{i,t}$	0.0009	0.0005	-0.0008
	(0.0008)	(0.0009)	(0.0010)
$LEV_{i,t}$	0.0124*	0.0145**	0.0202***
	(0.0067)	(0.0070)	(0.0075)
$ROA_{i,t}$	-0.1861***	-0.1918***	-0.037
	(0.0278)	(0.0284)	(0.0364)
$MB_{i,t}$	0.0000	0.0000	-0.0001
	(0.0000)	(0.0000)	(0.0000)
$FOROPS_{i,t}$	0.0012	-0.0006	0.0023
	(0.0026)	(0.0026)	(0.0034)
$OPCFO_{i,t}$	0.1115***	0.1250***	-0.1686***
	(0.0283)	(0.0289)	(0.0302)
$LOSS_{i,t}$	0.0096**	0.0105**	-0.0161***
	(0.0041)	(0.0040)	(0.0052)
$ABS\_ACCRUAL_{i,t}$	0.3665***	0.388***	0.3449***
	(0.0403)	(0.0418)	(0.0386)
$OPCYCLE_{i,t}$	0.0030*	0.0027	0.0084***
	(0.0018)	(0.0019)	(0.0021)
$ZSCORE_{i,t}$	0.0014***	0.0015***	0.0015***
	(0.0004)	(0.0004)	(0.0004)
$LOGSEG_{i,t}$	-0.0030**	-0.0017	0.0026
	(0.0013)	(0.0014)	(0.0017)
$CAP\_INTENSITY_{i,t}$	-0.0151***	-0.0174***	0.0313***
	(0.0029)	(0.0032)	(0.0041)
$INT\_INTENSITY_{i,t}$	0.0132	0.0123	-0.0193
	(0.0148)	(0.0148)	(0.0135)
$BIG4_{i,t}$	-0.0055	-0.0038	0.0013
	(0.0030)	(0.0032)	(0.0035)
Industry Fixed Effects	Yes	Yes	Yes

Year Fixed Effects	Yes	Yes	Yes
Observations	2694	2483	2483
Adjusted R^2	29.89	32.39	17.09

TABLE 7: This table presents the regression analysis of firms' discretionary accruals on the firms' ESG risk proxied by RRI Trend. Discretionary accruals ($DA_{i,t}$) in Column (1) are based on Equation (2); Discretionary accruals ($DA_{i,t}$) in Column (4) are based on Equation (3); Discretionary accruals ($DA_{i,t}$) in Column (3) are based on Equation (4). All variables are defined in Appendix I. Standard errors are adjusted for heteroskedasticity and within firm clustering. Standard errors are in parentheses. Significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

We report the results of valuation variables in Table 8 using the Ohlson (1995) valuation model. The dependent variable is price per share in Panel A and log of market capitalization in Panel B, and operating cash flow valuation in Panel C. We also include in the performance models the two audit-quality proxies (i.e., audit fess and discretionary accruals).

4.5 Estimation of Firm Performance

Table 8 presents regression estimates of equations 5, 6, and 7. We find that ESG risks are positively and significantly associated with firms' valuation measures: price per share, market valuation, and operating cash flow. These findings indicate that firms with negative media coverage, represented by higher ESG risks in the prior period, report higher firm valuation and higher cash flows in the current year. In other words, these firms with higher ESG risk exposure improve firm valuation and cash flow from operations. In sum, the negative media coverage of ESG compels firms to improve their performance and firm valuation. Jain et al. (2016) report that ESG risk is positively associated with their performance measures. In addition, we find that the discretionary accruals variable in the prior period is positively and significantly associated with price per share valuation in the current period indicating that lower earnings quality in the prior period is followed by increase in firm valuation in the current year.

With respect to market capitalization and operating cash flow models, the discretionary accruals variable, as expected, is negative and significant suggesting that firms with high discretionary accruals experience lower valuation and operating cash flow in the current period. We also find that firms pay higher audit fees with increasing firm valuation and operating cash flow. The going concern variable displays similar sign of the coefficient in each of the three models as the discretionary accruals' variable indicating that the market assessment of the going concern and discretionary variables is related. The other two control variables, book value and earnings, are positively and significantly related in each of the three models indicating that increases in book value and earnings increase firm valuation and operating cash flow in the current period. In terms of economic significant, Table 8, Panel A shows that given the coefficient of -0.388 of Current RRI, a one standard deviation increase in Current RRI (12.63) is associated with an average increase in price per share by 490 percent. Similarly, for the coefficient of 0.24 for Peak RRI, a one standard deviation increase in Peak RRI (17.78) is associated with an average increase in price per share by 426 percent. The coefficient of 0.39 for RRI Trend, suggests a one standard deviation increase in RRI Trend (12.62) is associated with an average increase in price per share by 492 percent.

Similarly, in terms of economic significance, Table 8, Panel B shows that the 0.05 coefficient of Current RRI indicates that a one standard deviation increase in Current RRI (12.63) is associated with an average increase in market capitalization by 63 percent. Additionally, for the 0.03 coefficient for Peak RRI, a one standard deviation in Peak RRI (17.78) is associated with an average increase in market capitalization by 53.34 percent. In addition, the coefficient of 0.05 for average RRI Trend, suggests a one standard deviation increase in RRI Trend (12.62) is associated with an average increase in market capitalization by 63.1 percent.

Finally, economic significance of the RRI coefficients in Table 8, Panel C shows that for the coefficient of 0.05 for Current RRI, a one standard deviation increase in Current RRI (12.63) is associated with an average increase in operating cash flows by 63 percent. For the coefficient of 0.024 for Peak RRI, a one standard deviation in Peak RRI (17.78) is associated with an average increase in operating cash flows by 42.67 percent. Finally, the coefficient of 0.04 for RRI Trend, a one standard deviation in RRI Trend (12.62)

is associated with an average increase in operating cash flows by 50.48 percent. Overall, these results suggest that prior period negative media coverage of ESG components are positively associated with current period financial performance after controlling for the audit quality proxies.

Panel A: Price Per Share

Variable	Model 1	Model 2	Model 3
Intercept	0.2842	-1.1554	0.3042
	(3.8008)	(3.7628)	(3.8008)
$Avg\_Current\_RRI_{i,t-1}$	0.3876***		
	(0.0712)		
$Avg\_Peak\_RRI_{i,t-1}$		0.2411***	
		(0.0423)	
$Avg\_RRI\_Trend_{i,t-1}$			0.3911***
			(0.0715)
$DA_{i,t}$	64.5978***	65.3126***	64.6076***
	(11.2447)	(11.2480)	(11.2442)
$GCONCERN_{,t}$	31.6496***	32.2199***	31.7680***
	(9.4269)	(9.4345)	(9.4366)
$LNAF_{i,t}$	0.7805***	0.8310***	0.7807***
	(0.3216)	(0.3178)	(0.3215)
Book Value per $share_{i,t}$	1.0442***	1.0471***	1.0440***
	(0.344)	(0.0343)	(0.0344)
Earnings per $share_{i,t}$	4.9920***	4.9864***	4.9931***
	(0.1552)	(0.1552)	(0.1552)
Adjusted R^2	45.04	45.08	45.04
Number of observations	4712	4712	4712

Panel B: Market Capitalization

Variable	Model 1	Model 2	Model 3
Intercept	4.4041***	4.2303***	4.4021***
	(0.1251)	(0.1255)	(0.1252)
$Avg\_Current\_RRI_{i,t-1}$	0.0490***		
	(0.0023)		
$Avg\_Peak\_RRI_{i,t-1}$		0.0271***	
		(0.0014)	
$Avg\_RRI\_Trend_{i,t-1}$			0.0490***
			(0.0023)
$DA_{i,t}$	-3.2852***	-3.2630***	-3.2921***
	(0.3420)	(0.3443)	(0.3421)
$GCONCERN_{,t}$	-2.8091***	-2.7476***	-2.7957***
	(0.2927)	(0.2945)	(0.2928)
$LNAF_{i,t}$	0.2828***	0.2929***	0.2835***

	(0.0107)	(0.0106)	(0.0107)
Book value of Equity$_{i, t}$	0.0000***	0.0001***	0.0000***
	(0.0000)	(0.0000)	(0.0000)
Earnings$_{i,t}$	0.0000***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)
Adjusted R^2	52.58	52.02	52.60
Number of observations	4712	4712	4712
Panel C: Operating Cash Flows			
Variable	**Model 1**	**Model 2**	**Model 3**
Intercept	1.9652***	1.8083***	1.9617***
	(0.1316)	(0.1323)	(0.1318)
Avg_Current_RRI$_{i,t-1}$	0.0456***		
	(0.0024)		
Avg_Peak_RRI$_{i,t-1}$		0.0240***	
		(0.0014)	
Avg_RRI_Trend$_{i,t-1}$			0.0453***
			(0.0024)
DA$_{i,t}$	-1.7355***	-1.7664***	-1.7534***
	(0.3915)	(0.3950)	(0.3918)
GCONCERN$_{i, t}$	-2.7306***	-2.7157***	-2.7074***
	(0.4360)	(0.4397)	(0.4364)
LNAF$_{i, t}$	0.2957***	0.3064***	0.2967***
	(0.0112)	(0.012)	(0.0112)
Book value of equity$_{i,t}$	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)
Earnings$_{i,t}$	0.0000***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)
Adjusted R^2	52.41	51.60	52.32
Number of observations	4424	4424	4424

TABLE 8: This table presents the regression results of firms' valuation variables on the firms' ESG risk variables collected from RepRisk database and other financial variables. In Panel A, Price per share is the valuation variable, and in Panel B, firms' market capitalization is the valuation variable and Panel C uses firm's operating cash flows as the valuation variable. Appendix I indicates the variables definitions. Standard errors are in parentheses. Significance at the 10%, 5%, and 1% levels are indicated by *, **, and ***, respectively.

5. CONCLUSION

Firms are self-reporting corporate social responsibility and environment sustainability information voluntary to attract green investors. Third party firms, similar to *RepRisk AG* are also engaged in assessing firms' performance of various sustainable measures. Sustainability Accounting Standards Boards has also developed industry specific sustainability standards in assessing firm sustainability performance. We examine whether companies having higher environment, social, and governance (ESG) risks pay more for higher audit quality work to assure the market that their financial reporting meets corporate social responsibility. We obtain ESG risk measures from *RepRisk AG* and use two proxies to assess audit quality. These proxies are audit fees and discretionary accruals. Our results show that firms

perceived to have high ESG risks pay higher audit fees and that higher ESG firms report lower discretionary accruals. The latter results imply that ESG firms report lower earnings management and higher audit quality. We also find that ESG risks are positively and significantly associated with market valuation measures as indicated by the positive coefficients on each of the three proxies for ESG risks. Overall, our findings suggest that auditors should take into consideration ESG risks when designing their audit and that client companies' management of ESG risks increases future earnings performance and firm valuation. Although standard-setting bodies are attempting to mandate sustainability standards to firms, it would still be important to monitor the reputational effects of ESG risks disclosed by the media in the markets.

There are two studies which are related to our work. Burke et al. (2019) investigate auditor response to negative media coverage of ESG practices. They examine the association of the components of ESG on audit fees and find that negative media coverage of ESG issues increases the likelihood of auditor fess and auditor resignation. There are some major differences between Burke et al. (2019) study and our work. We examine not only the association of negative media coverage of ESG with audit fees but also with audit quality and future firm performance. Instead of examining the components of ESG, we focus on ESG index over current and prior two-year period. Similar to Burke et al. (2019), our results show that negative media coverage of ESG is positively associated with audit fees. Additionally, we find that negative media coverage of ESG decreases discretionary accruals suggesting increase in audit quality. Our future performance analysis shows that firms respond to negative media coverage by improving their performance in the following period.

The other study related to our work is by Asante-Appiah (2020), which finds that auditors manage engagement risk, resulting from tainted ESG, by increasing audit effort. Increased audit effort reduces financial misstatements thereby increasing audit quality for up to three years. The increased audit effort increases audit report lags and has no effect on audit fees. On the other hand, our evidence shows that audit fees increase when negative media coverage of ESG occurs or when ESG risk increases. Consistent with Asante-Appiah (2020), we also find that audit quality increases with the issuance of negative media coverage on ESG related issues indicating that audit firms increase audit efforts to adverse media coverage of ESG items. Our proxy for audit quality is discretionary accruals (DA). We found that DA decreases following the issuance of negative media report on ESG components.

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Appendix I

Variable	Definition
Current RRI	The current level of media and stakeholder exposure of a company related to ESG issues
Peak RRI	The highest level of reputational risk exposure related to ESG issues over the last 2 years.
RRI Trend	Difference in the RepRisk Index (RRI) between current date and the date 30 days ago.
$ABS\_ACCRUAL_{i,t}$	Absolute value of total accruals
$BIG4_{i,t}$	One if firm is audited by a Big 4 audit firm and zero otherwise
$BM_{i,t}$	Ratio of book value to closing market value at fiscal year ends
Book Value of $Equity_{i,t}$	Book value per share times shares outstanding at the end of fiscal year for firm i during fiscal year t
Book Value Per $Share_{i,t}$	Book value per share at the end of fiscal year for firm i during fiscal year t
$CAP\_INTENSITY_{i,t}$	Net property, plant and equipment divided by total assets
Current $RRI_{i,t}$	the media and stakeholder exposure of a company at the current time
$DA_{i,t}$	Discretionary accruals based on modified Jones Model (1991), Kothari et al. (2005) or Ball and Shivakumar (2006)
Earnings (in millions) $_{i,t}$	Earnings per share before extraordinary items times shares outstanding for firm i during fiscal year t
Earnings per $share_{i,t}$	Earnings per share at the end of fiscal year for firm i during fiscal year t
$FOROPS_{i,t}$	One if foreign income or loss is not equal to zero and zero otherwise
$GCONCERN_{i,t}$	One if an auditor issues a going concern opinion and zero otherwise
$INT\_INTENSITY_{i,t}$	R&D plus advertising divided by sales
$LEV_{i,t}$	Ratio of long-term liability to total assets
$LEVREC_{i,t}$	Ratio of accounting receivables to total assets
$Leverage_{i,t}$	Total assets minus common equity divided by common equity for firm I during fiscal year t
$LNAF_{i,t}$	Log of Audit fees
$LNNAF_{i,t}$	Log of non-audit fees for firm i for year t
$LNTA_{i,t}$	Log of total assets
$LOGSEG_{i,t}$	Log of the number of business segments
$LOSS_{i,t}$	One if net income is negative and zero otherwise
$Market\_Capitalization_{i,t}$	Log of shares outstanding times stock price at the end of fiscal year
$MATERIAL\_WEAKNESS_{i,t}$	Number of weaknesses in a firm's internal controls
$MB_{i,t}$	Ratio of closing market value to book value at fiscal year ends
$OPCFO_{i,t}$	Cash flows from operations scaled by total assets
$OPCYCLE_{i,t}$	Log of the operating cycle calculated as the sum of 360/ costs of goods sold turnover and 360/sales turnover
Operating Cash $Flow_{i,t}$	Log of cash flows from operations scaled by total assets
Peak $RRI_{i,t}$	an overall risk indicator for the highest level of criticism over the past two years received by a company
Price per $share_{i,t}$	Price at the end of fiscal year for firm i during fiscal year t
$RESTATEMENT_{i,t}$	One if a firm has restated its financial statement and zero otherwise
$ROA_{i,t}$	Ratio of earnings before extraordinary items to total assets
RRI $Trend_{i,t}$	the change in the RRI within the past 30 days

Total Assets$_{i,t}$	Total assets for firm i during fiscal year t
ZSCORE$_{i,t}$	Altman's [1983] raw scores

The above variables are used in the following models.

Appendix II
Empirical Models

There is no direct measure of audit quality. Prior studies have used various proxies to measure audit quality. We select two measures of audit quality commonly used in the audit literature— audit fees and discretionary accruals.

Audit Fees Model

We use audit fees as the first proxy of audit quality. For this purpose, we adopt the Francis, Reichelt and Wang (2005) model to examine the association between the ESG risk and audit fees:

$$LNAF_{i,t} = \omega_0 + \omega_1 ESG\_Risk_{i,t} + \omega_2 LNTA_{i,t} + \omega_3 LEV_{i,t} + \omega_4 ROA_{i,t} + \omega_5 MB_{i,t} + \omega_6 OPCFO_{i,t} + \omega_7 ABS\_ACCRUAL_{i,t} + \omega_8 SEGSUM_{i,t} + \omega_9 LOSS_{i,t} + \omega_{10} ZSCORE_{i,t} + \omega_{11} BIG4_{i,t} + \omega_{12} MATERIAL\_WEAKNESS_{i,t} + \omega_{13} RESTATEMENT_{i,t} + \omega_{14} YEAR\ FE + \omega_{15} INDUSTRY\ FE + v_{i,t} \quad (1)$$

In this model, we use the natural logarithm of audit fees (*LNAF*) as the dependent variable. *ESG_Risk* is either *Current RRI* or *Peak RRI* or *RRI Trend* explained in the previous section. The ω_1 coefficient is expected to be positive if higher ESG risk leads to increase in audit fees. We run the regressions on each ESG risk measure separately. Following prior literature on audit quality, we include control variables that are related to both firm characteristics and other audit–related characteristics (Reichelt & Wang, 2010; Schroeder & Shepardson, 2016). *LNTA*, the proxy for firm size, is the natural logarithm of total assets and prior studies show that large firms are more likely to pay higher audit fees; *LEV* is the ratio of long-term liabilities to total assets. *LEVREC* is the ratio of accounting receivable to total assets. *ROA* is calculated as net income divided by average total assets, *MB* is the market to book ratio, calculated as market capitalization divided by book value, and *OPCFO* is cash flow from operations divided by average total assets. *ABS_ACCRUAL* is the absolute value of total accruals divided by average total assets, *SEGSUM* is the number of business segments used to control for complexity of firms, *LOSS* is "1" if income before extraordinary items is negative, and "0" otherwise, and *ZSCORE* is the Altman financial distress score (1983). *BIG* is an indicator variable that equals "1" if the client has a Big 4 auditor, and "0" otherwise, and *MATERIAL_WEAKNESS* is an indicator variable equals 1 if the auditor issued a material weakness opinion on internal controls. *RESTATEMENT* is also an indicator variable that equals 1 if there is a presence of restatements in a client's financial statements and 0 otherwise. We include firm and industry fixed effects in our fixed effect model to focus on within-firm variations. *INDUSTRY FE* is the industry fixed effects. *YEAR FE* is the year fixed effects. Our primary variable of interest is *ESG Risk*, we predict that it will be positive and significant, indicating that increase in ESG risks will increase audit fees.

Discretionary Accruals Model

We use discretionary accruals as our second proxy for audit quality. Prior studies on audit quality use the magnitude of discretionary accruals as a proxy for audit quality (e.g. Asthana & Boone, 2012; Balsam et al., 2003; Boone et al., 2010; Choi et al., 2010; Chung et al., 2017; Francis & Yu, 2009; López & Peters, 2012; Reichelt & Wang, 2010; Reynolds & Francis, 2000). Client firms with higher discretionary accruals are likely to manage earnings. Whereas, when auditors see higher discretionary accruals, they are likely to spend more time auditing to prevent distorted earnings. We use absolute discretionary accruals estimated using annual cross-sectional regression model at the industry-level. We use three approaches to measure discretionary accruals. First, we calculate discretionary accruals using the error term of the modified Jones (1991) model given in equation (1).

$$\frac{Accruals_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{t-1}}\right) + \alpha_2 \left(\frac{\Delta S_t}{A_{t-1}}\right) + \alpha_3 \left(\frac{PPE_t}{A_{t-1}}\right) + \varepsilon_t \quad (2)$$

We also use two alternative measures of discretionary accruals developed by and Ball & Shivakumar (2006) and Kothari et al. (2005). These measures of discretionary accruals are the errors terms derived terms from equations (3) and (4).

$$\frac{Accruals_t}{A_{t-1}} = \gamma_0 + \gamma_1\left(\frac{1}{A_{t-1}}\right) + \gamma_2\left(\frac{\Delta S_t}{A_{t-1}}\right) + \gamma_3\left(\frac{PPE_t}{A_{t-1}}\right) + \gamma_4\left(\frac{ROA_t}{A_{t-1}}\right) + \sigma_t \quad (3)$$

$$\frac{Accruals_t}{A_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{t-1}}\right) + \beta_1\left(\frac{\Delta S_t}{A_{t-1}}\right) + \beta_2\left(\frac{PPE_t}{A_{t-1}}\right) + \beta_3\left(\frac{CFO_t}{A_{t-1}}\right) + \beta_4 DCFO_t + \beta_5\left(\frac{CFO_t}{A_{t-1}}\right) * \quad DCFO_t + \mu_t \quad (4)$$

Where, *Accruals* denotes total accruals (income before extraordinary items minus cash flow from operations). *A*, Δ*S*, and *PPE* represent total assets, changes in net revenue, and gross property, plant, and equipment, respectively; *CFO* represents cash flow from operations; *DCFO* is a dummy variable that equals 1 if *CFO* is negative, and 0 otherwise; and *ε, σ, μ* are error terms in equations (2), (3), and (4), respectively. We expect that firms with higher ESG risk will have lower discretionary accruals because increase in audit work will constrain the client firms to keep their discretionary accruals low.

Regression model in equation (5) is used to explore the association between discretionary accruals and ESG risks in the form of current RRI, peak RRI, and RRI Trend:

$$DA_{i,t} = \omega_0 + \omega_1 ESG\_Risk_{i,t} + \omega_2 LNTA_{i,t} + \omega_3 LEV_{i,t} + \omega_4 ROA_{i,t} + \omega_5 MB_{i,t} + \omega_6 FOROPS_{i,t} + \omega_7 OPCFO_{i,t} + \omega_8 LOSS_{i,t} + \omega_9 ABS\_ACCRUAL_{i,t} + \omega_{10} OPCYCLE_{i,t} + \omega_{11} ZSCORE_{i,t} + \omega_{12} LOGSEG_{i,t} + \omega_{13} CAP\_INTENSITY_{i,t} + \omega_{14} INT\_INTENSITY_{i,t} + \omega_{15} BIG4_{i,t} + \omega_{16} YEAR\ FE + \omega_{17} INDUSTRY\ FE + v_{i,t} \quad (5)$$

We use fixed effect model to estimate the impact of ESG risks on discretionary accruals. We expect that firms with higher risks are not likely to manage earnings and, therefore, ω_1 coefficient will be negatively associated with discretionary accruals. *DA* is the discretionary accruals; Discretionary accruals (DAi,t) is based on the modified Jones (1991) model developed by Dechow et al. (1995) stated in Equation (1). All variables are defined in Appendix I. *ESG_Risk* is either Current RRI, Peak RRI, or RRI Trend. Following prior literature on audit quality, we include control variables that are related to both firm characteristics and other audit-related characteristics (e.g., Reichelt and Wang, 2010; Schroeder and Shepardson, 2016). *LNTA*, the proxy for firm size, is the natural logarithm of total assets while large firms are more likely to have higher accruals or lower audit quality. *LEV* is total liabilities divided by total assets; *ROA* is (net income)/average total assets; *MB* is the market to book ratio which is calculated as market capitalization divided by book value; *FOROPS* is the absolute value of foreign exchange income/loss; *OPCFO* is (cash flow from operations)/average total assets; *LOSS* is "1" if income before extraordinary items is negative, and "0" otherwise; *ABS_ACCRUAL* is the absolute value of total accruals/average total assets; *OPCYCLE* is the natural logarithm of the operating cycle (calculated as the sum of 360/cost of goods sold turnover and 360/sales turnover) and this measure is used to control for the time needed to realize accruals in cash flows (Dhaliwal et al., 2011). *ZSCORE* is the Altman financial distress score (1983); *LOGSEG* is the natural logarithm of the number of business segments is used to control for complexity of firms; *CAP_INTENSITY* is the capital asset intensity calculated as net property, plant and equipment divided by total assets. *INT_INTENSITY* is the intangible asset intensity measured as R&D plus advertising divided by sales. These two measures are used to control for asset structure of a firm and the probability of accrual adjustments because of differences in measurement of assets (Schroeder and Shepardson, 2016). *BIG4* is defined as an indicator variable that equals "1" if the client is audited by one of the Big 4 audit firms and "0" otherwise. We include firm and industry fixed effects in our fixed effects model to focus on within-firm variations. *YEAR FE* is year fixed effects and *INDUSTRY FE* is industry fixed effects.

ESG Risks and Firm Performance

In this section, we explore the relationship between ESG risks and firms' financial performance measured using market valuation. We include in the performance models two audit-quality proxies (i.e., discretionary accruals, and log of audit fees). The independent variable of interest in these models is one of the three

ESG risks proxies (current, trend, and peak). We use Ohlson (1990) valuation framework in developing our performance models containing our key variable -- ESG risk, and discretionary accruals, audit fees, and control variables. We obtain control variables from Jain et al. (2016); these variables are going concern, book value of equity, and earnings. The dependent variable is price per share, market capitalization (market price share * number of commons shares outstanding), and operating cash flow in models 6, 7, and 8. The three performance models are given below.

$$Price\ Per\ Share_{i,t} = \alpha_0 + \alpha_1 ESG\ risk_{i,t-1} + \alpha_2 Discretinary\ Accruals + \alpha_3 Going\ Concern_{i,t} + \alpha_4 Log\_Auditfees_{i,t} + \alpha_6 Book\ value\ per\ share_{i,t} + \alpha_7 Earnings\ per\ share_{i,t} + \varepsilon_{i,d} \quad (6)$$

$$Market\ Capitalization_{i,t} = \alpha_0 + \alpha_1 ESG\ risk_{i,t-1} + \alpha_2 Discretinary\ Accruals_{i,t} + \alpha_3 Going\ Concern_{i,t} + \alpha_4 Log\_Auditfees_{i,t} + \alpha_5 Book\ Value\ to\ Equity_{i,t} + \alpha_6 Earnings_{i,t} + \varepsilon_{i,d} \quad (7)$$

$$Operating\ Cash\ Flows_{i,t} = \alpha_0 + \alpha_1 ESG\ risk_{i,t-1} + \alpha_2 Discretinary\ Accruals_{i,t} + \alpha_3 Going\ Concern_{i,t} + \alpha_4 Log\_Auditfees_{i,t} + \alpha_5 Book\ Value\ to\ Equity_{i,t} + \alpha_6 Earnings_{i,t} + \varepsilon_{i,d} \quad (8)$$

We expect that the current period performance of firms (price per share, market valuation, or operating cash flow) would largely dependent upon previous period reputational risk exposure of the firms in our sample. We argue that higher the reputational risk exposure in the previous period, the more responsive will the market be to the current period performance. Therefore, we expect a positive association between ESG risk and valuation/performance measures. With respect to other variables, we expect positive association between these variables and firm valuation measures (stock price per share, market capitalization, and operating cash flow). The discretionary accruals (Robin & Wu, 2015) and audit fee variables are likely to increase with increasing firm valuation suggesting expanding or high growth firms. The higher book value and earnings also suggest higher contemporaneous valuation measure. Firms with going concern opinion at the year-end may have a negative or insignificant association with stock price per share (Blay & Geiger, 2001; Dodd et al., 1984; Jones, 1996; Menon & Williams, 2010).

Conflict of interest/Competing interest: The authors have no conflict of interest to declare that are relevant to the content of this article.

Availability of data and material: The data that support the findings of this study are available from Wharton Research Data Services (WRDS) but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of WRDS.

Code availability: The SAS code was created by the authors and is available upon request.