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Workforce environment and audit fees: International evidence

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ABSTRACT

Using a dataset from 30 countries over the period from 2002 to 2017, we examine the effects of auditing clients' workforce environment on audit fees as well as the role that national labor market flexibility plays in this relationship. We find evidence that audit fees are significantly lower for firms with a good workforce environment, suggesting that auditors perceive such clients as less risky; as a result, auditors expend less effort and/or charge a lower risk premium. Furthermore, we find this effect to be stronger for firms in countries with a more flexible labor market. Our mediation test results indicate that the relationship between the audit client workforce environment and audit fees is mediated by media coverage of workforce controversies. Our study contributes to the international audit fee literature by identifying employee welfare as a distinct audit pricing factor, above and beyond the effects of overall corporate social responsibility practices.

1. Introduction

The auditor is one of the important stakeholders in a modern corporation (Ormazábal, 2018) and understanding how client characteristics affect auditors' behavior is an important and popular area of research in the accounting literature. When making pricing decisions, auditors evaluate the costs of conducting an audit, the litigation risk inherent therein, and non-litigation risk brought about by a client's potential failure (Houston et al., 2005; Pratt and Stice, 1994; Simunic, 1980). Audit processes and audit efforts are adjusted to reduce any potential costs stemming from client-specific risks. For risks that are costly to reduce and that cannot be decreased by increasing audit efforts, auditors charge a compensatory premium. Therefore, any factors related to client-specific risks could influence auditors' pricing decisions. As employees could be a source of sustained competitive advantage inasmuch as they facilitate a firm's success in the market (e.g., Fulmer et al., 2003), employee- or workforce-related information could be of interest to auditors concerned about clients' performance and risk. Auditors have previously voiced their interest in workforce environment. For example, Rebecca Dabbs, a partner of Ernst & Young, claims that firms can improve workplace productivity by "...better managing environment, health and safety risks."[1] In this paper, we examine whether auditors price information related to a client's workforce environment. We also investigate whether country-level labor market characteristics moderate this relationship.

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[1] See https://www.ey.com/en_gl/assurance/how-to-support-better-environment-health-and-safety-outcomes.

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Recent studies suggest that a family-friendly workforce environment could not only help firms attract and keep talented employees (Hom et al., 2017; Turban and Cable, 2003), but also motivate employees to be more cooperative and productive (Bloom et al., 2011; Fehr and Gächter, 2000). In addition, empirical studies show that relative to peers with a less favorable environment, firms with a favorable workforce environment have high performance and valuation levels, high levels of innovation performance, few internal control inefficiencies, and a low cost of debt capital, among other advantages (e.g., Chen et al., 2019, 2016a; Edmans, 2011; Guo et al., 2016; Lee and Kim, 2016). For instance, Guo et al. (2016) find that the probability of experiencing an employee-related material internal control weakness is relatively low when employees work in a workforce-friendly environment. In addition, Ji et al. (2018) find that auditors charge higher fees for firms that disclose material internal control weaknesses that are non-financial in nature. Therefore, the favorable workforce environment, a key ingredient of non-financial information, could be interpreted as a signal of both a low level of client internal control risk and highly credible client financial statements. Such positive signals would decrease audit fees accordingly.

Moreover, a good workforce environment could decrease the incidence of workforce-related controversies. Employees are less prone to report managerial wrongdoing when they work in a satisfactory environment (e.g., Ben-Nasr and Ghouma, 2018; Rothschild and Miethe, 1999). From an audit risk perspective, less media coverage of workforce controversies is likely to decrease audit fees, because less public attention on clients will reduce auditors' litigation risk (e.g., Gong et al., 2018; Redmayne et al., 2010). Building on these studies, we posit that firms with a favorable workforce environment are relatively less risky, and auditors consequently charge lower fees, as such clients require both a reduced audit effort and lower audit risk premiums.

Additionally, the effects of workforce-related information may vary across jurisdictions with different labor market characteristics. Given that labor market flexibility is associated with firing and hiring costs, employee mobility, and worker behavior (Addison and Teixeira, 2003; Gangl, 2003; Haltiwanger et al., 2014; Ichino and Riphahn, 2005), there is an unresolved question as to how *labor market flexibility* influences the relationship between the workforce environment and audit fees. In more flexible labor markets, firms with a better workforce environment can easily replace low-productive employees with more productive ones, as they will have fewer adjustment costs than their peers in less flexible labor markets. At the same time, in more flexible labor markets, low-productive employees risk losing their job if they shirk their responsibilities, which will force them to improve their performance. As a result, firms that operate in a flexible labor market and that have a favorable workforce environment may have stable or even improved employee productivity and, consequently, firm performance, thereby reducing audit risk even further. The benefits of investing in the workforce environment are thus likely to be higher in countries with high labor market flexibility, where firms can easily and quickly adjust their workforce as needed. Thus, we posit that auditors will further decrease audit fees for firms that have a favorable workforce environment and that are domiciled in countries with a more flexible labor market.

Using data from publicly listed companies in 30 countries during a sample period from 2002 to 2017, we find that firms with a favorable workforce environment pay significantly lower audit fees than their counterparts with a relatively poor workforce environment. The reported coefficient in the baseline model suggests that a one-standard-deviation increase in the workforce environment index is associated with a 2.57 percent decrease in audit fees. Furthermore, we find that the negative relationship between the workforce environment and audit fees is strongest in countries with a high level of labor market flexibility. Moreover, we find that media coverage of workforce controversies mediates this relationship. Employing a battery of sensitivity tests, our results remain robust when we use alternative measurements for the workforce environment, remove clients with multinational operations, control for non-audit services (NAS), and remove countries with an atypical sample composition. In addition, we use a two-stage-least-squares (2SLS) regression model to alleviate endogeneity concerns stemming from, for example, omitted variables that could influence both the workforce environment and audit fees.

This paper adds to the existing literature in several ways. First, although Huang et al. (2017) document a similar relationship in the U.S.,[2] we extend this relationship between the client's workforce environment and audit behavior (i.e., audit fees) to an international context, thereby responding to the call for additional, international-level research to exploit the moderating role of variations in institutional factors on existing findings (e.g., Ball, 2016).

Second, our paper explores issues affecting firms' operations and performance, rather than employee-related issues associated with earnings management (e.g., Chen et al., 2017). Chen et al. (2017) suggest that firms sponsoring defined benefit pension plans for their employees need more complex accounting estimates, thus providing unique opportunities for managers to manipulate earnings that, in turn, give rise to increased audit fees. Moreover, our study focuses on the *supply side* rather than the *demand side* of audit services. For example, Duellman et al. (2015) find that firms with overconfident managers are less likely to demand a high-quality audit, leading to lower audit fees. We, on the other hand, explore the relationship between the workforce environment and audit fees from the supply-side perspective.

Third, this paper is also distinct from those in the literature that examine the relationship between the voluntary disclosure of corporate social responsibility (CSR) information and audit fees (e.g., Carey et al., 2017; Chen et al., 2016b). LópezPuertas-Lamy et al. (2017) test the association between firm-level CSR performance and audit fees internationally,

[2] Our study also differs from Huang et al. (2017) in two other important ways. First, we examine whether auditors price *employer efforts* to improve employees' working environment, while they rely on *employees' satisfaction* with the workforce environment. Second, Huang et al. (2017) do not explore the possible channel through which employee ratings of their workforce environment might affect audit risk. We address this void by showing that audit clients with a good workforce environment have fewer workforce-related controversies covered by the media (an outcome that decreases audit fees) relative to their counterparts with a poor workforce environment.

and find evidence that auditors adjust their pricing in response to clients' CSR performance. Their CSR proxy includes both social dimensions (e.g., workforce-related variables) and environmental dimensions. However, we incorporate workforce-related indicators as our main variable of interest for the following reasons. First, in a financial statement audit, an auditor's main objective is to be reasonably assured that the financial statements are free of material misstatements owing to fraud or error. Employees have been found to be the most effective detectors of corporate fraud and misconduct (Dyck et al., 2010); therefore, workforce-related information is important to auditors. Second, workforce-related information is important not only to the firms themselves, but also to their business partners. For instance, importers (e.g., Next and H&M) expressed concerns about recent wage disputes in Bangladesh's garment industry, and requested their auditors to investigate the matter.[3] Therefore, an audit client's workforce environment may have a different impact on audit risk assessment than do other CSR dimensions.

Our paper proceeds as follows. In Section 2, we present the extant literature on the determinants of audit fees and employee-related studies, as well as develop our hypotheses. We then describe our research methodology and sample selection procedure in Section 3. In Section 4, we present descriptive statistics, our main test results, and our mediation test results. In Section 5, we provide our robustness and endogeneity test results, and we conclude this paper in Section 6.

2. Literature review and hypotheses development

Academic studies suggest that the costs of conducting an audit (i.e., audit fees) consist of a "resource cost factor" and an "expected loss factor" (e.g., Pratt and Stice, 1994; Simunic, 1980). The resource cost factor is a quantitative measurement of how many audit efforts the auditor performed, while the expected loss factor is the present value of future losses for which the auditor will be liable, which is related to client-specific risks. Furthermore, auditors will expend their audit efforts to reduce future expected losses to the point at which the overall cost of conducting an audit is expected to be the lowest. Auditors charge a litigation risk premium to compensate for the remaining expected loss factors (Simunic and Stein, 1996). Moreover, Houston et al. (2005) introduce a non-litigation risk premium into the audit fee model. In sum, audit efforts, litigation risk, and non-litigation risk premiums collectively comprise the audit fees that auditors charge.

According to Hay et al. (2006), most of the determinants of audit fees can be categorized into client attributes, auditor attributes, and engagement attributes. We consider audit clients' workforce-related information as a client attribute that will affect an auditor's pricing behavior. The role of employees in modern corporations has been debated for several years. Instead of considering employees as a common input factor in the production process, modern management theory suggests that employees are a resource crucial to a firm's success. According to the resource-based view, firms' resources are classified into three categories: physical capital resources, human capital resources, and organizational capital resources (Barney, 1991). Human capital resources consist of training, experience, judgment, intelligence, relationships, and the insights of *individual* managers and workers in a firm. Human capital resources meet the criteria for sustained competitive advantage because of their VRIN characteristics (i.e., valuable, rare, inimitable, and non-substitutable), which distinguish human capital resources from other types and help firms to pursue competitive success (Pfeffer and Villeneuve, 1994; Wright et al., 1994).

Therefore, corporations must necessarily improve and maintain their employees' effectiveness and efficiency to remain competitive. In addition to giving normal monetary incentives, employers can motivate employees by also providing non-monetary, welfare-related benefits. These non-monetary benefits include opportunities to be involved in the firm's decision-making process, a flexible working schedule, a safer workplace environment, and more training and career development opportunities, among others. Employees make more effort and perform better in their tasks when they work in a good workforce environment, which leads to higher productivity and performance (Akerlof, 1982; Bloom et al., 2011; Dalal et al., 2012; Levine, 1992). Meanwhile, employees are also more cooperative and less likely to become involved in sabotaging activities when they are treated well (Fehr and Gächter, 2000). Many other studies, both in single country and international settings, present evidence that firms with satisfied employees are more likely to outperform counterparts with dissatisfied employees (e.g., Chen et al., 2016a; Edmans, 2011, 2012; Faleye and Trahan, 2011; Fauver et al., 2018; Filbeck and Preece, 2003; Gupta and Krishnamurti, 2018; Huselid, 1995; Lee and Kim, 2016). Firms with a high employee-friendly rating tend to maintain low leverage ratios (Bae et al., 2011), and debtholders require lower returns (Chen et al., 2019). Note that these benefits may be limited to treating employees well within an appropriate range, and that excess employee welfare treatment could have detrimental effects on shareholder value (Ben-Nasr and Ghouma, 2018).

On the other hand, Hom and Kinicki (2001) suggest that in response to an unsatisfactory workforce environment, employees may choose to either leave a firm or to perform in a detrimental way. Therefore, poor employee treatment policies significantly increase the likelihood of an employee-related material internal control weakness and the probability of a misstatement caused by an unintentional error (Guo et al., 2016). Firms with a poor workforce environment are more likely to have employee disputes (e.g., strikes and litigation) that lead to significant financial and reputational losses (e.g., Karpoff and Lott, 1999). Thus, auditors will increase their professional skepticism toward client-specific risks when a client has a poor workforce environment, a proposition that has been empirically confirmed in U.S. contexts by Huang et al. (2017).

Given these studies, the client's workforce environment may affect audit fees in multiple ways. First, a better workforce environment may lead to a lower likelihood of a financial statement misstatement, thereby reducing audit efforts and hence

[3] See https://qz.com/1540275/5000-garment-workers-in-bangladesh-were-fired-after-protesting-low-wages/amp.

audit fees. Employees who work in a favorable environment are more likely to properly perform internal tasks and hence significantly reduce the propensity for having material internal control weaknesses. Second, the litigation risk premiums that auditors charge may also be lower when clients have a favorable workforce environment, because auditors are less likely to be sued for material misstatements. Relatedly, such firms tend to have fewer workforce-related disputes and controversies reported in the media, leading to less public attention on both the firms and their auditors, as well as decreased litigation risks for the auditor. Overall, firms with a good workforce environment are highly likely to be seen to have relatively few audit risks; therefore, auditors will expend less effort on such clients and charge them lower risk premiums. We therefore state our first hypothesis as follows:

H_1: A good (poor) audit client's workforce environment decreases (increases) audit fees, ceteris paribus.

H_1 focuses on the firm-specific workforce environment determinants of audit fees. However, prior studies document that institutional factors (e.g., the broader legal environment) also play a vital role in determining audit fees (e.g., Choi et al., 2008; Kuo and Lee, 2016; Taylor and Simon, 1999). Our second hypothesis considers country-level labor market flexibility, referring to the speed with which labor adapts to fluctuations and changes in market conditions, as a possible moderator between the client's workforce environment and audit fees. Labor market flexibility has been found to be negatively associated with the restrictiveness of employment protection regulations (e.g., Addison and Teixeira, 2003; Gangl, 2003; Haltiwanger et al., 2014). Employment protection regulations influence firms' employee-related costs including *per worker employment costs* and *employment adjustment costs* (Addison and Teixeira, 2003). The former reflects the costs of hiring and providing benefits to employees, and the latter reflects costs that accompany gross changes, especially those that occur when employers dismiss employees. Both costs will be higher in countries/markets with more protective employment regulations and, consequently, lower labor market flexibility. In such countries, firms are less likely to hire and fire employees, which decreases both employees' labor mobility and their external opportunities (Gangl, 2003). In countries with a more flexible labor market, high external job availability allows employees to switch firms more easily.

Moreover, when more outside options are available, firms need to pay higher compensation to retain key skilled employees. According to the theoretical discussion from Shapiro and Stiglitz (1984), the total demand for labor declines when all firms raise their wages. Thus, employees who shirk their responsibilities are under the threat of job loss, which encourages them to make more firm-specific investments. Ichino and Riphahn (2005) use data from a large Italian bank and document that the number of days of absence per week, on average, increases significantly after employees are protected by the employment regulation. Bjuggren (2018) uses a natural experiment method in Sweden to explore the causal relationship between labor market flexibility and labor productivity. He finds that after a reform of Swedish last-in-first-out (LIFO) labor rules,[4] labor productivity increased by 2 percent to 3 percent in small treated firms compared to large firms that were not affected by the reform. The author suggests that the increased threat of job loss may induce employees to exert greater effort in their jobs. Edmans et al. (2017) and Gupta and Krishnamurti (2018) provide further evidence on the benefits of undertaking employee-friendly practices in countries with high labor market flexibility.

Building on this discussion, we conjecture that in flexible labor markets, firms with a favorable workforce environment are more likely to retain productive employees and to lay off low-productivity employees, thus creating for incumbent employees a job termination threat that forces them to work diligently. Therefore, firms with a good workforce environment should maintain or increase their employees' performance easily, because of the low hiring and firing costs in flexible labor markets. Therefore, the benefits brought about by a good workforce environment will be enhanced in countries with a more flexible labor market. As a result, auditors' concerns about such firms' specific risk will further diminish with increased labor market flexibility. Accordingly, we state our second hypothesis as follows:

H_2: The impact of the workforce environment on audit fees will be reinforced in countries with high labor market flexibility.

3. Research methodology

3.1. Model specification

To test H_1, we develop the following Ordinary Least Square (OLS) regression model:

$$\begin{aligned} LANF_{i,t} = {} & \beta_0 + \boldsymbol{\beta_1 WEI_{i,t}} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 INVREC_{i,t} + \beta_5 ROA_{i,t} \\ & + \beta_6 LOSS_{i,t} + \beta_7 NBS_{i,t} + \beta_8 NGS_{i,t} + \beta_9 SPECIAL_{i,t} + \beta_{10} CROSS_{i,t} + \beta_{11} MTB_{i,t} \\ & + \beta_{12} CURRENT_{i,t} + \beta_{13} INTS_{i,t} + \beta_{14} TURN_{i,t} + \beta_{15} ISSUE_{i,t} + \beta_{16} CSR_{i,t} \\ & + \beta_{17} BIGN_{i,t} + \beta_{18} AO_{i,t} + \beta_{19} BUSY_{i,t} + \beta_{20} BSIZE_{i,t} + \beta_{21} BIND_{i,t} + \beta_{22} ACM_{i,t} \\ & + \beta_{23} ACMIND_{i,t} + \beta_{24} ACMEXP_{i,t} + \beta_{25} CEODUAL_{i,t} + \beta_{26} LAW_{i,t} + \beta_{27} LNGDP_{i,t} \\ & + \beta_{28} FDI_{i,t} + \beta_{29} DISCL_{i,t} + \beta_{30} CORRUP_{i,t} + Fixed\,Effects + \varepsilon_{i,t}, \end{aligned} \tag{1}$$

where the dependent variable is the natural logarithm of audit and audit-related fees (*LNAF*) (see Section 3.2 for a detailed construction). Our variable of primary interest is the *Workforce Environment Index* (*WEI*), which provides a comprehensive

[4] Before 2001, regulations mandated that if the firm wished to lay off staff, the employee who last joined the firm should be the first fired. After the 2001 reform, firms with <11 employees were granted the option to choose which of the three shortest-tenure employees should be let go.

rating of a company's workforce environment (see Section 3.3 for a detailed discussion). In H_1, we argue that firms with a good workforce environment pay significantly lower audit fees. Therefore, we predict a negative β_1.

We include several control variables that are likely to determine audit fees. Firm size (*SIZE*), measured as the natural logarithm of total assets, is found to be an extremely critical explanatory variable for audit fees (Hay et al., 2006). In addition, we use five variables to control for firm complexity, including *INVREC* (the sum of inventories and receivables divided by total assets), *NBS* (the natural logarithm of the number of business segments), *NGS* (the natural logarithm of the number of geographic segments), *TURN* (net sales divided by total assets), and *INTS* (coded as 1 for firms that have at least 10 percent international sales to total sales, and zero otherwise). Since operational or geographical diversification and internationalization often signal greater complexity in a firm's operations, such firms require more audit efforts and procedures, resulting in higher audit fees (e.g., Choi et al., 2008; Jaggi and Low, 2011; Kim et al., 2012). Thus, we expect positive associations between audit fees and firm size and the complexity measures.

We control for several client-specific risk factors because auditors will either make greater auditing efforts or charge fee premiums to high-risk clients, leading to increased audit fees (e.g., Pratt and Stice, 1994). Consistent with Choi et al. (2008), proxies for the client-specific risks are *LEV*, *ROA*, *LOSS*, *SPECIAL*, *MTB*, and *CURRENT*. We measure *LEV* as the sum of short- and long-term debt divided by total assets, *ROA* as net income divided by total assets, and *LOSS* as a dummy variable that is coded as 1 for firms reporting negative income before extraordinary items for the current year, and zero otherwise. Firms that report special items (*SPECIAL*) are coded as 1, and zero otherwise. The market to book ratio (*MTB*) is measured as the ratio of firm market capitalization to common shareholder equity, and the liquidity ratio (*CURRENT*) is measured as total current assets divided by total current liabilities. We predict positive coefficients on *LEV*, *LOSS*, and *SPECIAL*, and negative coefficients on *ROA, MTB*, and *CURRENT*. We use cross-listing on the U.S. markets (*CROSS*) as an additional variable for client-specific litigation risk, because auditors face increased legal liability when client firms are cross-listed in countries with stronger legal regimes than those in their home country (Choi et al., 2009). Similar to Kuo and Lee (2016), we include firms' financing activities (*ISSUE*) as a control variable that is coded as 1 when a firm obtains either equity or debt capital in the current year, and zero otherwise; we include this particular control variable since both the demand for audit quality and audit risk are higher when firms are involved in such activities. We also include CSR as an additional control variable.

We also include a set of auditor and engagement attributes likely to affect audit fees, including *BIGN* auditor (a dummy variable coded as 1 for firms audited by a Big N audit firm, 0 otherwise), audit opinion (*AO*; a dummy variable coded as 1 for firms receiving qualified opinions, 0 otherwise), and busy season (*BUSY*; a dummy variable coded as 1 for firms for which the fiscal year-end comes during an auditor busy season, 0 otherwise).[5] All these audit-related variables are expected to have a positive relationship with audit fees. Carcello et al. (2002), Hay et al. (2008), and Zaman et al. (2011) find that firms with a good corporate governance structure are more likely to demand high-quality audits, whereas other studies suggest the opposite (e.g., Griffin et al., 2008). As proxies for a client's corporate governance structure, we include board size (*BSIZE*; the number of board members), board independence (*BIND*; the proportion of independent board members), CEO duality (*CEODUAL*; a dummy variable coded as 1 for firms in which the CEO and chair of the board are the same person, 0 otherwise), the presence of an audit committee (*ACM;* a dummy variable coded as 1 for firms with an audit committee, 0 otherwise), audit committee independence (*ACMIND*; the proportion of independent audit committee members), and audit committee expertise (*ACMEXP*; a dummy variable coded as 1 for firms that have an audit committee with at least three members and at least one financial expert, 0 otherwise).

Similar to Choi et al. (2009) and Kuo and Lee (2016), we include five country-level control variables that may affect cross-country variations in audit fees. *LAW* is a dummy variable for legal origin that is coded as 1 for common law countries and 0 for code law countries, which represents a country's legal origin and the level of investor protection; *FDI* is the level of foreign direct investment as a proportion of gross domestic product (GDP); *LNGDP* is the natural logarithm of GDP per capita; *DISCL* measures a country's required disclosure level; and *CORRUP* is the perceived corruption index. We expect all the country-level variables to be positively related to audit fees. We further include year- and industry-fixed effects in our Eq. (1).

In H_2, we hypothesize that the negative relationship between the workforce environment and audit fees is stronger in countries with high labor market flexibility. We develop the following Eq. (2) to test H_2:

$$LNAF_{i,t} = \beta_0 + \beta_1 WEI_{i,t} + \beta_2 LMF_{i,t} + \boldsymbol{\beta_3 LMF_{i,t}} * \boldsymbol{WEI_{i,t}} + Control\ variables + Fixed\ Effects + \varepsilon_{i,t}, \quad (2)$$

where *LMF* refers to the country-level labor market flexibility (for a detailed construction of *LMF*, see Section 3.4). In Eq. (2), our main variable of interest is the interaction term between *LMF* and *WEI* (i.e., $\boldsymbol{LMF_i}$, * $\boldsymbol{WEI_{i,t}}$), and we expect a negative association between *LNAF* and this interaction term ($\beta_3 < 0$.) Such a negative association would indicate that auditors tend to further decrease fees for client firms with a favorable workforce environment, as the country-level labor market flexibility increases.

3.2. Measurement of audit fees

We use the natural logarithm of the sum of audit fees and audit-related fees (*LNAF*) as our proxy for audit pricing, as is consistent with U.S. audit fees research. The most common measure of audit fees in international audit fees research

[5] Prior studies use a single month (e.g., December or January) to proxy the auditor busy season effect for all countries. In this study, however, for each country in our initial sample, we designate the month when the largest number of firms have their fiscal year-end as the auditor busy month.

(e.g., Bronson et al., 2017; Choi et al., 2008) is "fees paid to auditor" and includes (1) audit and audit-related fees and (2) other non-audit-services fees. We did not include the fees paid for non-audit services because regulations permitting or prohibiting the provision of such services vary widely across jurisdictions. Consequently, we use audit and audit-related fees, rather than the total fees paid to the auditor, as our proxy for audit pricing.[6]

3.3. Measure of workforce environment index

We retrieve firm-level workforce environment data from the Thomson Reuters ESG database, which covers information related to ESG (Environmental, Social, and Governance) and significant ESG controversies.[7] The Thomson Reuters ESG database provides over 400 ESG measures and both enhances and replaces the ASSET4 database used in prior studies (e.g., Gupta and Krishnamurti, 2018; Thomson Reuters, 2018). Following Gupta and Krishnamurti (2018), we identify a list of 20 indicators that are available consistently across the sample period to construct the Workforce Environment Index (*WEI*).[8] These indicators combine both qualitative (19) and quantitative (1) attributes. We provide the details of each measure and the scoring approach we use in Appendix A. We add all of a firm's scores to construct a *WEI* that ranges from 0 to 20. A high value for *WEI* indicates that a firm has a favorable workforce environment.

3.4. Measurement of labor market flexibility

We use two measures of labor market flexibility. The first is the Employment Protection Legislation (*EPL*) Index for OECD countries and some emerging countries. This index measures "the procedures and costs involved in dismissing individuals or groups of workers and the procedures involved in hiring workers on fixed-term or temporary work agency contracts."[9] It consists of three category scores: individual dismissals of regular workers (EPR), additional costs of collective dismissals (EPC), and the regulation of temporary contracts (EPT). Consistent with prior studies (Banker et al., 2013; Pagano and Volpin, 2005), we measure *EPL* as the equally weighted EPR, EPC, and EPT. Furthermore, we multiply *EPL* by -1 for ease of interpretation. Following Edmans et al. (2017), we use the labor market regulations index (*EFW*) from the Economic Freedom of the World database as our second measure of labor market flexibility to represent the "de facto strictness of labor regulation" (Feldmann, 2009, p. 77). There are six components of *EFW*: hiring regulations and minimum wage (5Bi), hiring and firing regulations (5Bii), centralized collective bargaining (5Biii), working-hours regulations (5Biv), mandated cost of worker dismissal (5Bv), and conscription (5Bvi). We use the average of these six components to construct the *EFW* index. High values for both *EPL* and *EFW* indicate greater labor market flexibility.[10]

3.5. Sample

We extract audit and audit-related fees data, all of which required firm-specific financial information from the Thomson Reuters Fundamentals (via Thomson Reuters Eikon) and Worldscope databases. We retrieve workforce-related information from the Thomson Reuters ESG database, as we discussed in Section 3.3. Auditor classification information is gathered from Thomson Reuters Eikon, which provides time-series auditor information. We source firm-level governance data from the Thomson Reuters ESG database, and country-level variables mainly from World Bank, the International Monetary Fund (IMF), and prior literature (e.g., La Porta et al., 2008). The country-level required disclosure index is developed by the Center for International Financial Analysis and Research (CIFAR). The perceived corruption index, developed by Transparency International, ranges from 1 to 10. For ease of interpretation, we replace the original index with 10 minus the original value, which means that the higher the index, the higher the perceived corruption level. In Appendix B, we include detailed variable definitions and sources. The sample period is from 2002 to 2017. We choose 2002 as the beginning year, because workforce-related information became available beginning in that year.

We begin with a sample of 32,666 firm-year observations with non-missing audit fees and *WEI* data from 43 countries for the 2002–2017 sample period. Consistent with previous literature, we eliminate firm-years from the financial (4787) and utility industries (1323) based on the 2-digit Global Industry Classification Standards (GICS), as the audit fee determinants for such industries are distinct. After further applying the data requirements for computing firm-specific financial variables,

[6] Audit-related fees include fees paid for external services that are reasonably associated with performing the audit or reviewing financial statements. We find similar results when we use only audit fees as the dependent variable.

[7] The Thomson Reuters ESG database provides ESG data for 7000+ companies globally, which gives us a platform for comparing ESG performance globally. The ESG database collects ESG information from multiple sources, including annual reports, NGO websites, CSR reports, company websites, stock exchange fillings, and news sources, among others.

[8] Gupta and Krishnamurti (2018) identify 35 workforce-related performance indicators to construct their own employee treatment index. Because the Thomson Reuters ESG database is an updated version of the ASSET4 database and it classifies some indicators that are better related to the workforce, we identify 20 measures among those indicators to capture the overall workforce environment. However, we acknowledge that our *WEI* based on the selected indicators may not capture the entire workforce environment. Therefore, in Section 5.1, we confirm the validity of *WEI* using alternative independent variables gathered from the ESG and the ASSET4 databases.

[9] This definition is retrieved from the OECD website: http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm.

[10] The current form of the *EPL* data is available annually until 2013, and the *EFW* data is available annually until 2016. To maximize our sample size in Eq. (2), we replace the missing *EPL* and *EFW* using their latest values.

Table 1
Industry distribution.

Industry group	Name	N	% of N
1010	Energy	1791	7.93
1510	Materials	3011	13.34
2010	Capital Goods	3361	14.89
2020	Commercial & Professional Services	828	3.67
2030	Transportation	1110	4.92
2510	Automobiles & Components	656	2.91
2520	Consumer Durables & Apparel	877	3.89
2530	Consumer Services	828	3.67
2540	Media	736	3.26
2550	Retailing	1234	5.47
3010	Food & Staples Retailing	375	1.66
3020	Food, Beverage & Tobacco	982	4.35
3030	Household & Personal Products	277	1.23
3510	Health Care Equipment & Services	906	4.01
3520	Pharmaceuticals, Biotechnology & Life Sciences	1001	4.43
4510	Software & Services	1206	5.34
4520	Technology Hardware & Equipment	1044	4.62
4530	Semiconductors & Semiconductor Equipment	548	2.43
5010	Telecommunication Services	568	2.52
6010	Real Estate	1234	5.46
Total		22,573	100.00

we delete 3876 observations. Similar to Jaggi and Low (2011), we drop some countries (Brazil, Chile, Greece, Hungary, Indonesia, Luxembourg, Mexico, Philippines, Portugal, and Thailand) with <30 firm-year observations. Our baseline regression, therefore, includes 22,573 firm-year observations from 30 countries. We then delete 2454 firm-year observations with missing corporate governance variables. Finally, we exclude 315 observations with missing country-level data, resulting in 19,804 firm-year observations that we use for the most comprehensive regression specification.[11] To mitigate the impact of outliers, we winsorize all the continuous variables at the 1st and 99th percentiles of their respective distributions. In Table 1, we present our industry-based sample distributions. Our sample is well distributed, as no single industry covers more than 15 percent of the total sample. A total of 14.89 percent of the sample comes from Capital Goods (GICS 2010), followed by 13.34 percent from Materials (GICS 1510) and 7.93 percent from Energy (GICS 1010).

4. Results

4.1. Descriptive statistics

In Table 2, we report the detailed descriptive statistics of the variables used in this study. As shown in Panel A, the mean of *LNAF* is 7.44, corresponding to 3.91 million $US, which is similar to the result found by LópezPuertas-Lamy et al. (2017).[12] The average workforce environment index is 10.37, exhibiting a large standard deviation. The mean *SIZE* of the sample firms is 15.23 (i.e., 12,362 million $US), while about 14 percent of firms report negative incomes for the current year, and the majority of them (*INTS* statistic of 0.70) have substantial international operations. The ratio of receivables and inventory over total assets is 23 percent, while current assets are, on average, two times larger than current liabilities. The mean leverage ratio is 55 percent, while 8 percent of sample firms are cross-listed in the U.S. markets. With respect to the firm-level governance variables, we note that the mean size of the board of directors is 10. Most of the firms (93 percent) have an audit committee, which shows that most countries follow a best practice code that suggests the formation of an audit committee. The percentages of independent directors on the board of directors and the audit committee are 57 percent and 80 percent, respectively. Moreover, about 75 percent of audit committees have at least three members and at least one financial expert. Big N audit firms audit most of the sample firms (94 percent), and only a few firms (0.2 percent) received qualified audit opinions. In addition, about 74 percent of firms have their fiscal year-end during the auditor's busy season.

In Table 2, Panel B, we provide country distribution and descriptive statistics for our main variables (i.e., *LNAF* and *WEI*) and the country-level variables. About 31 percent of the sample comes from the United States (6960 observations), while around 24 percent is from Japan (2932 observations) and the United Kingdom (2495 observations). Russia (30 observations) has the lowest representation followed by Israel (39 observations) and Ireland (71 observations). The mean *LNAF* and *WEI* reveal significant variation across countries. For example, firms are more likely to have a better workforce environment when they are from certain European countries (e.g., France, Germany, Spain, Sweden). Regarding the country-level variables

[11] Our sample is comparable to Fauver et al. (2018) who use 21,103 observations to investigate the impact of employee-friendly culture on firm value.
[12] The average amount of audit fees is calculated using unlogged audit fees, which, for our comprehensive sample observations, is 3.98 million $US.

Table 2
Descriptive statistics.

Panel A: Firm-level variables

Variable	N	Mean	SD	P25	Median	P75
LNAF	22,573	7.44	1.32	6.53	7.44	8.34
WEI	22,573	10.37	4.00	7.00	11.00	14.00
SIZE	22,573	15.23	1.52	14.30	15.22	16.18
LEV	22,573	0.55	0.22	0.41	0.55	0.68
INVREC	22,573	0.23	0.16	0.10	0.22	0.34
ROA	22,573	0.05	0.10	0.02	0.05	0.09
LOSS	22,573	0.14	0.35	0.00	0.00	0.00
NBS	22,573	1.02	0.71	0.00	1.10	1.61
NGS	22,573	1.19	0.70	0.69	1.39	1.79
SPECIAL	22,573	0.88	0.32	1.00	1.00	1.00
CROSS	22,573	0.08	0.28	0.00	0.00	0.00
MTB	22,573	3.01	3.47	1.18	2.05	3.66
CURRENT	22,573	1.92	1.47	1.09	1.52	2.24
INTS	22,573	0.70	0.46	0.00	1.00	1.00
TURN	22,573	0.86	0.59	0.45	0.76	1.13
ISSUE	22,573	0.27	0.44	0.00	0.00	1.00
CSR	22,573	51.62	17.40	38.17	51.59	65.05
BIGN	20,119	0.94	0.23	1.00	1.00	1.00
AO	20,119	0.00	0.05	0.00	0.00	0.00
BUSY	20,119	0.74	0.44	0.00	1.00	1.00
BSIZE	20,119	9.73	3.10	8.00	9.00	11.00
BIND	20,119	0.57	0.28	0.38	0.62	0.80
ACM	20,119	0.93	0.26	1.00	1.00	1.00
ACMIND	20,119	0.80	0.34	0.67	1.00	1.00
ACMEXP	20,119	0.75	0.43	0.00	1.00	1.00
CEODUAL	20,119	0.40	0.49	0.00	0.00	1.00
LAW	19,804	0.71	0.46	0.00	1.00	1.00
LNGDP	19,804	10.64	0.55	10.61	10.76	10.89
FDI	19,804	0.04	0.08	0.02	0.02	0.03
DISCL	19,804	76.14	5.42	74.00	76.00	80.00
CORRUP	19,804	2.49	1.03	2.40	1.90	2.70
EPL	18,366	−1.60	0.52	−1.83	−1.50	−1.13
EFW	19,804	8.06	1.19	7.70	8.33	9.10

Panel B: Country distribution (N=22,573)

Country	N	% of N	LNAF	WEI	LAW	LNGDP	FDI	DISCL	CORRUP	EPL	EFW
Australia	1849	8.19	6.307	9.981	1	10.93	0.0046	80	1.82	−1.79	7.64
Austria	100	0.44	6.871	12.06	0	10.78	0.0188	62	2.48	−2.31	5.94
Belgium	116	0.51	7.136	12.01	0	10.70	0.0631	68	2.53	−3.14	7.27
Canada	1336	5.92	6.999	9.240	1	10.75	0.0390	75	1.61	−1.38	8.31
China	353	1.56	6.839	9.181	0	8.883	0.0101	–	6.11	−2.42	5.55
Denmark	198	0.88	7.399	11.80	0	10.97	0.0264	75	0.85	−2.14	7.40
Finland	218	0.97	7.338	12.42	0	10.77	0.0269	83	0.97	−1.79	5.33
France	642	2.84	8.703	13.88	0	10.62	0.0263	78	3.01	−3.13	5.70
Germany	679	3.01	7.992	13.78	0	10.69	0.0315	67	2.03	−2.46	6.18
Hong Kong	709	3.14	7.119	9.395	1	10.54	0.3220	73	2.17	–	9.33
India	259	1.15	5.858	11.81	1	7.365	0.0044	61	6.28	−1.85	6.83
Ireland	71	0.31	7.397	9.775	1	10.93	0.2310	81	2.56	−1.81	7.79
Israel	39	0.17	7.758	8.641	1	10.44	0.0230	74	3.92	−1.60	5.29
Italy	168	0.74	8.039	13.14	0	10.45	0.0123	66	5.56	−2.88	6.68
Japan	2932	12.99	7.569	10.64	0	10.61	0.0257	71	2.49	−1.83	8.21
Malaysia	245	1.09	6.283	12.13	1	9.205	0.0413	79	5.17	–	7.95
Netherlands	257	1.14	8.386	12.62	0	10.82	0.3440	74	1.43	−2.29	7.01
New Zealand	135	0.60	5.768	8.948	1	10.57	0.0003	80	0.91	−0.81	8.72
Norway	135	0.60	7.586	11.57	0	11.37	0.0416	75	1.41	−2.61	4.77
Poland	99	0.44	5.899	9.364	0	9.491	0.0102	–	4.14	−2.29	7.47
Russia	30	0.13	9.009	9.533	0	9.346	0.0282	–	7.41	−1.90	5.84
Singapore	325	1.44	6.567	9.606	1	10.79	0.1210	79	1.16	–	7.65
South Africa	503	2.23	7.009	13.07	1	8.769	0.0142	79	5.65	−1.51	6.21
South Korea	454	2.01	6.154	10.80	0	10.15	0.0210	68	4.58	−2.12	4.70
Spain	253	1.12	7.544	13.42	0	10.30	0.0335	72	3.89	−2.83	5.54
Sweden	395	1.75	7.598	12.25	0	10.90	0.0436	83	1.06	−1.99	6.39
Switzerland	303	1.34	7.840	11.93	0	11.29	0.0762	80	1.32	−2.12	8.01
Taiwan	315	1.40	5.508	10.97	0	9.990	0.0002	58	3.91	–	5.90
United Kingdom	2495	11.05	7.035	11.53	1	10.65	0.0280	85	2.04	−1.45	8.26
United States	6960	30.83	8.131	8.778	1	10.86	0.0209	76	2.61	−1.13	9.12

Note: Variables are defined in Appendix B.

shown in Table 2, over 71 percent of firms come from common law countries; the average disclosure requirement is over 76, and the mean perceived corruption index is about 2.49, suggesting that the countries covered in our sample provide high levels of protection and financial information to investors in general. Also, labor markets are more flexible in Hong Kong (mean *EFW* is 9.33), the United States (mean *EFW* is 9.12), and New Zealand (mean *EFW* is 8.72), and they are less flexible in South Korea (mean *EFW* is 4.70) and Norway (mean *EFW* is 4.77).

4.2. Correlation analysis

Table 3 presents the Pearson correlations among the variables included in our baseline regression. The test variable *WEI* is significantly and negatively correlated with *LNAF* (correlation coefficient of −0.20, $p < 0.01$), indicating that a good workforce environment decreases audit fees in the absence of relevant controls. This univariate result supports our prediction. Consistent with the existing auditing literature, we find that audit fees (*LNAF*) are positively and significantly correlated with *SIZE* (correlation coefficient of 0.73), *LEV* (coefficient of 0.32), complexity (e.g., coefficients of 0.41 and 0.35 for *NBS* and *INTS*, respectively), and *BIGN* (coefficient of 0.22, untabulated). The positive correlations between firm-level governance variables (i.e., *BSIZE*, *BIND*, *ACM*, *ACMIND*, and *ACMEXP*) and *LNAF* indicate that well-governed firms are likely to demand more audit services (untabulated). Regarding country-level variables, audit fees are higher in countries with good economic conditions (coefficient of 0.21 for *LNGDP*, untabulated).

4.3. Workforce environment and audit fees: Baseline regression results for H_1

In Table 4, we report the OLS regression results for H_1. Throughout this paper, we compute all reported t-statistics in parentheses using heteroscedasticity-robust standard errors clustered by firm. In Column (1), we report the association between audit fees (*LNAF*) and the workforce environment index (*WEI*), controlling for financial statement-based control variables. In Column (2), we include firm-level corporate governance variables, and Column (3) introduces country-level control variables. In addition, we control for firms' CSR performance in Column (4) to test whether workforce-related performance impacts audit fees after controlling for overall CSR practice performance. The coefficients on *WEI* are consistently negative and statistically significant for all the specifications mentioned above. These results support H_1, suggesting that auditors may expend less effort, and charge lower risk premiums, in response to a better audit client's workforce environment. In terms of economic significance, the reported coefficient in Column (4) suggests a decrease of US$ 102,292 in audit fees for a one-standard-deviation increase in *WEI*.[13] Given that the unlogged mean value of audit fees is US$ 3.98 million, a one-standard-deviation increase in *WEI* would decrease the mean audit fees by 2.57 percent. Therefore, the effects of the workforce environment on audit fees are both statistically and economically significant.

With respect to the sign and significance of the control variables, we find that large and complex firms (e.g., *SIZE*, *NBS*, *NGS*, *TURN*, *INTS*) and high audit risk firms (e.g., high *LEV*) are more likely to pay relatively high audit fees. The coefficients on *BIGN* and *AO* are positive and significant, indicating that there is a Big N premium and a risk premium for high audit risk firms. Consistently, we find that *BSIZE*, *BIND*, *ACM*, and *ACMEXP* are positive and significant, suggesting that good corporate governance structures are more likely to demand a high-quality audit. Also, the coefficients for *LAW*, *LNGDP*, *DISCL*, and *CORRUP* are positive and significant at the 1 percent level, as expected. Taken together, our findings suggest that the client's workforce environment plays an important role in the audit pricing process.

We conduct a diagnostic test to mitigate possible concerns about multicollinearity. Our untabulated result shows that all the variance inflation factors (VIFs) are well below 10 (Marquaridt, 1970) (the highest value is 4.14 for *ACMIND*). Therefore, multicollinearity should not be a concern in this study.

4.4. Workforce environment and audit fees: moderation results for H_2

In this section, we test whether audit fees are related to the interactive effects of a country's labor market flexibility and *WEI*. H_2 predicts that the effect of the workforce environment on audit fees will be stronger in countries with a more flexible labor market. We report our results in Table 5, Columns (1) (*EPL*WEI*) and (2) ($EFW * WEI$). In both columns, our variable of interest (i.e., *WEI*) is still negatively and significantly associated with audit fees, supporting our main results (coefficients of −0.010 ($p < 0.05$) and −0.011 ($p < 0.01$) on *WEI*, respectively). Furthermore, the coefficients of $EPL * WEI$ and $EFW * WEI$ are negative and statistically significant at the 1 percent level in Columns (1) and (2), respectively.[14] Thus, our results suggest

[13] Following Kuo and Lee (2016), we first multiply the coefficients (excluding year and industry) from Table 4, Column (4) with the mean values of the corresponding variables as reported in Table 2. The sum of these numbers equals the logged audit fees (*LNAF*) of 6.98, which implies: $e^{6.98} * 1000 = \text{US}1,074,918$. Then, we recalculate the sum by replacing the mean value of *WEI*, 10.37, with 14.37, where 14.37 equals a one-standard-deviation increase in the mean value of *WEI*, all else being the same. Thus, the revised *LNAF* is 6.88, while the unlogged audit fees are US$ 972,626. The differences are $972,626-$1,074,918=US$ −102,292.

[14] In our main test, we replace missing *EPL* and *EFW* with their latest values. If we use only the available *EPL* and *EFW* data, then our sample sizes decrease to 9994 for *EPL* and 18,406 for *EFW*, respectively. Our results remain the same if we use smaller samples. Moreover, to mitigate the multicollinearity problem resulting from the introduction of interactive terms and to ease interpretation, we apply a mean-centering approach to both the *WEI* and *EPL* (*EFW*) variables before constructing the interaction terms.

Table 3
Correlations.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
LNAF	(1)	–															
WEI	(2)	**−0.20**	–														
SIZE	(3)	**0.73**	**0.40**	**–**													
LEV	(4)	**0.32**	**0.16**	**0.27**	**–**												
INVREC	(5)	**0.06**	**0.13**	**−0.05**	**0.14**	**–**											
ROA	(6)	**0.02**	**0.06**	**0.08**	**−0.10**	**0.13**	**–**										
LOSS	(7)	**−0.07**	**−0.08**	**−0.15**	**0.04**	**−0.13**	**−0.64**	**–**									
NBS	(8)	**0.41**	**0.20**	**0.39**	**0.12**	**0.12**	**0.07**	**−0.11**	**–**								
NGS	(9)	**0.25**	**0.14**	**0.16**	**0.03**	**0.12**	**0.02**	**−0.03**	**0.16**	**–**							
SPECIAL	(10)	**0.06**	**0.15**	**0.09**	**0.08**	−0.01	**−0.08**	**0.05**	**0.05**	**0.06**	**–**						
CROSS	(11)	**−0.05**	**0.05**	**−0.04**	**−0.09**	**−0.09**	**−0.12**	**0.10**	**−0.07**	0.02	**0.03**	**–**					
MTB	(12)	0.00	**−0.05**	**−0.13**	**0.09**	**0.03**	**0.23**	**−0.08**	**−0.06**	**−0.04**	**−0.11**	**−0.07**	**–**				
CURRENT	(13)	**−0.21**	**−0.20**	**−0.29**	**−0.52**	−0.00	**−0.06**	**0.10**	**−0.11**	−0.01	**−0.07**	**0.08**	−0.01	–			
INTS	(14)	**0.35**	**0.21**	**0.22**	**0.02**	**0.16**	**0.05**	**−0.04**	**0.20**	**0.41**	**0.09**	−0.00	−0.00	**0.02**	–		
TURN	(15)	**0.09**	**0.04**	**−0.09**	**0.19**	**0.57**	**0.21**	**−0.15**	**0.05**	**0.03**	**−0.07**	**−0.12**	**0.15**	**−0.16**	−0.00	**–**	
ISSUE	(16)	**−0.02**	**−0.05**	−0.01	**0.03**	**−0.05**	**−0.09**	**0.06**	**−0.05**	0.00	0.00	**0.05**	−0.00	−0.01	**−0.03**	**−0.09**	**–**

Note: Sample size: 22,573. Boldface indicates significance at the 1% level. Variables are defined in Appendix B. This table reports the correlations between the variables used in the baseline regression. Other untabulated correlations are generally as expected, except for the insignificant correlation between *AO* and *FDI*.

Table 4
Baseline regression: Workforce environment and audit fees.

	(1) LNAF	(2) LNAF	(3) LNAF	(4) LNAF
WEI	−0.009**	−0.010***	−0.012***	−0.023***
	(−2.38)	(−3.14)	(−3.66)	(−5.17)
SIZE	0.587***	0.548***	0.567***	0.558***
	(56.24)	(51.77)	(52.79)	(51.32)
LEV	0.813***	0.589***	0.495***	0.501***
	(11.06)	(9.97)	(8.68)	(8.73)
INVREC	−0.899***	−0.349***	−0.030	−0.015
	(−8.12)	(−3.08)	(−0.24)	(−0.12)
ROA	−0.807***	−0.925***	−0.795***	−0.787***
	(−7.88)	(−9.82)	(−8.75)	(−8.69)
LOSS	0.085***	0.029	0.025	0.021
	(3.25)	(1.19)	(1.05)	(0.91)
NBS	0.196***	0.183***	0.177***	0.173***
	(8.97)	(8.92)	(9.16)	(8.88)
NGS	0.148***	0.108***	0.095***	0.094***
	(8.54)	(6.77)	(6.03)	(5.98)
SPECIAL	−0.092***	0.004	0.041	0.044
	(−3.12)	(0.14)	(1.52)	(1.64)
CROSS	0.106**	0.126***	0.065	0.056
	(2.37)	(2.96)	(1.49)	(1.29)
MTB	0.016***	0.005*	0.007**	0.006**
	(5.04)	(1.94)	(2.46)	(2.24)
CURRENT	0.058***	0.034***	0.015*	0.014*
	(6.22)	(4.28)	(1.95)	(1.88)
INTS	0.391***	0.370***	0.386***	0.385***
	(13.89)	(13.83)	(14.11)	(14.05)
TURN	0.430***	0.312***	0.250***	0.247***
	(13.74)	(10.49)	(8.07)	(8.00)
ISSUE	0.010	0.012	0.009	0.010
	(0.73)	(0.91)	(0.71)	(0.77)
CSR	–	–	–	0.003***
				(3.50)
BIGN	–	0.411***	0.229***	0.228***
		(7.69)	(4.40)	(4.38)
AO	–	0.338***	0.261**	0.264**
		(2.59)	(2.18)	(2.18)
BUSY	–	0.033	0.078***	0.080***
		(1.27)	(2.98)	(3.08)
BSIZE	–	0.029***	0.034***	0.034***
		(6.72)	(7.91)	(7.92)
BIND	–	0.821***	0.638***	0.603***
		(13.67)	(10.32)	(9.73)
ACM	–	0.137**	0.223***	0.222***
		(2.29)	(4.01)	(4.02)
ACMIND	–	−0.078	−0.356***	−0.363***
		(−1.22)	(−5.75)	(−5.86)
ACMEXP	–	0.180***	0.104***	0.101***
		(6.39)	(3.96)	(3.88)
CEODUAL	–	0.165***	0.131***	0.136***
		(7.44)	(5.93)	(6.12)
LAW	–	–	0.171***	0.187***
			(3.82)	(4.18)
LNGDP	–	–	0.469***	0.470***
			(11.33)	(11.37)
FDI	–	–	−0.335*	−0.290
			(−1.87)	(−1.62)
DISCL	–	–	0.023***	0.023***
			(6.71)	(6.76)
CORRUP	–	–	0.138***	0.140***
			(6.18)	(6.29)
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
_cons	−3.189***	−3.864***	−10.779***	−10.744***
	(−19.71)	(−22.86)	(−20.08)	(−20.01)
N	22,573	20,119	19,804	19,804
Adj.R-Square	0.64	0.71	0.74	0.74

Note: Robust t-statistics are in brackets. Variables are defined in Appendix B.
***p < 0.01, **p < 0.05, *p < 0.10.

Table 5
Interactive effects of the workforce environment and labor market flexibility on audit fees (Moderation effects).

	(1) LNAF	(2) LNAF
WEI	−0.010**	−0.011***
	(−2.39)	(−2.70)
EPL	0.165***	–
	(3.71)	
EPL∗WEI	−0.041***	–
	(−7.29)	
EFW	–	0.208***
		(12.41)
EFW∗WEI	–	−0.016***
		(−6.91)
Other control variables	*SIZE; LEV; INVREC; ROA; LOSS; NBS; NGS; SPECIAL, CROSS, MTB, CURRENT, INTS, TURN, ISSUE, CSR, BIGN, AO, BUSY, BSIZE, BIND, ACM, ACMIND, ACMEXP, CEODUAL, LAW, LNGDP, FDI, DISCL, CORRUP*	
Industry	Yes	Yes
Year	Yes	Yes
_cons	−8.576***	−11.065***
	(−15.65)	(−21.10)
N	18,366	19,804
Adj.R-Square	0.77	0.75

Note: Robust t-statistics are in brackets. Variables are defined in Appendix B.
***p < 0.01, **p < 0.05, *p < 0.10.

that the impact of *WEI* on audit fees is stronger in countries with a more flexible labor market, where employees have more outside opportunities and higher productivity. The findings of our empirical tests support H_2.

4.5. Mediation test results

The mediation effect refers to "the presence of an intervening variable or mechanism that transmits the effect of an antecedent variable on an outcome" (Aguinis et al., 2017, p. 666). Our results thus far do not identify the specific channel(s) through which the workforce environment reduces audit fees. We propose the *financial reporting quality* (FRQ) and *media coverage of workforce controversies* (CONTRO) as two such possible channels. We choose FRQ because Guo et al. (2016) provide evidence that firms with an employee-friendly environment are less likely to have employee-related material internal control weaknesses and financial restatements. Poor FRQ has been found to increase audit fees (e.g., Cho et al., 2017; Ji et al., 2018). We use a number of FRQ measures to conduct our mediation test.[15] We choose *CONTRO* as another mediating variable because employees are less prone to report managerial wrongdoing when they work in a satisfactory environment. Therefore, a negative association is expected between the client firm's workforce environment and the frequencies of *CONTRO*. *CONTRO* may increase audit fees because either the negative media coverage provides more information related to client firms' risks to auditors (i.e., the *information* role), or media coverage places more public attention on clients, which will increase an auditor's litigation risks (i.e., the *disciplining* role) (e.g., Gong et al., 2018; Redmayne et al., 2010).

Following Baron and Kenny (1986), we use the following four steps to establish these mediation channels (Eqs. (3A)–(3C)). First, we show that variations in the independent variable (i.e., *WEI*, in our study) are correlated with the dependent variable (i.e., audit fees, *LNAF*; Eq. (3A); α_1), to confirm the possibility that a mediation effect is present. Second, we show how variations in the independent variable (i.e., *WEI*) account for variations in the mediator (i.e., *M*; Eq. (3B); β_1). Third, we show that the mediator (i.e., *M*) has a significant effect on the dependent variable (i.e., *LNAF*; Eq. (3C); γ_2). Finally, we show that the significant relationship between *WEI* and *LNAF* (Eq. (3A)) either becomes insignificant after controlling for *M* (full mediation) or that the significance level shrinks after doing so (partial mediation). To conduct our mediation test, we develop the following set of equations:

$$LNAF_{i,t} = \alpha_0 + \alpha_1 WEI_{i,t} + Control\ \ variables + Fixed\ Effects + \varepsilon_{i,t}, \tag{3A}$$

$$M_{i,t} = \beta_0 + \beta_1 WEI_{i,t} + Control\ \ variables + Fixed\ Effects + \varepsilon_{i,t}, \tag{3B}$$

$$LNAF_{i,t} = \gamma_0 + \gamma_1 WEI_{i,t} + \gamma_2 M_{i,t} + Control\ \ variables + Fixed\ Effects + \varepsilon_{i,t}. \tag{3C}$$

[15] Owing to data unavailability at the international level for clients' material internal control weaknesses and financial restatements, we were unable to perform a mediation test using these two variables. Instead, in this section, we employ several FRQ measures suggested by the prior literature, such as discretionary accruals (Dechow et al., 1995; Kothari et al., 2005), real earnings management (Roychowdhury, 2006), and earnings smoothness (Dechow et al., 2010). We find consistent results for all these FRQ measures. For brevity's sake, we report only results for the discretionary accruals test.

The mediators (i.e., *M*) are |*DAC*| and *CONTRO*. |*DAC*| is measured as the absolute value of discretionary accruals generated from the modified Jones model (Dechow et al., 1995), while *CONTRO* is measured as the natural logarithm of the total number of controversies published in the media related to workforce plus one.[16] The total effect of *WEI* on *LNAF* (i.e., α_1 from Eq. (3A)) can be decomposed into a direct effect and an indirect effect (i.e., through the mediator). The direct effect is γ_1 from Eq. (3C), whereas the indirect effect is $\beta_1 * \gamma_2$ for the proposed mediator. The core of the mediation effect rests in testing the null hypothesis H_0: $\beta_1 * \gamma_2 = 0$. For the estimation we provide, we first use the OLS regressions to perform Baron and Kenny's (1986) causal step regression. However, we acknowledge that Baron and Kenny's (1986) causal step regression has come under criticism in recent years (Hayes, 2009; Zhao et al., 2010). Zhao et al. (2010) suggest a superior test approach (i.e., the "bootstrap" approach proposed by Preacher and Hayes, 2004) for the mediation test. Therefore, we report the results of both Baron and Kenny's (1986) causal step regression and the bootstrap approach.[17]

We report the direct and indirect effects of the workforce environment on audit fees for the pooled sample in Table 6, Panels A and B. In Columns (1) and (4) of Panel A, we document negative and significant coefficients on *WEI* when we run the regressions without mediators (i.e., |*DAC*| and *CONTRO*; Eq. (3A)), which is in line with our H_1 that a good audit client's workforce environment decreases audit fees. We do not find a significant relationship between *WEI* and |*DAC*| in Column (2), indicating that a client's workforce environment has no direct impact on the overall FRQ for our chosen FRQ measures.[18] Therefore, we conclude that our chosen FRQ proxies do not mediate the relationship between the workforce environment and audit fees. Our result in Column (3) suggests that our main result remains unchanged, even after controlling for the FRQ in the model. On the other hand, we find a significantly negative association between *WEI* and *CONTRO* in Column (5) (coefficient −0.003, $p < 0.05$), suggesting that the frequency of media coverage of workforce controversies is lower for firms with a better workforce environment. As we show in Column (6), there is a partial mediation effect between *WEI* and *LNAF* through *CONTRO*. The results from the bootstrap approach support Baron and Kenny (1986)'s causal step regression results by showing significant indirect effects for *CONTRO* but not for |*DAC*|. However, the direct effects account for the bulk of the total effects. In sum, our evidence suggests that media coverage of workforce controversies, a hitherto unexplored channel in the international audit fee literature, affects the relationship between the workforce environment and audit fees.

5. Additional robustness tests

5.1. Alternative measure of workforce environment

So far in this paper, we use the workforce-related measures from the ESG database to construct our workforce environment index (*WEI*). Although this approach is prevalent in the prior literature (e.g., Fauver et al., 2018; Gupta and Krishnamurti, 2018), we now examine whether we obtain consistent results when we employ alternative workforce environment (*WEI_ALT*) proxies. The first alternative variable is the Workforce Score (*WS*) calculated and provided by the ESG database, which measures "...a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce" (Thomson Reuters, 2018, p. 15). *WS* is benchmarked to the Thomson Reuters Business Classification (TRBC) industry groups. Thus, the higher the *WS*, the better a firm's workforce environment is, when compared to its industry peers. Furthermore, as the *WS* is a substitute for four subscores that are not benchmarked to industry groups in the ASSET4 database,[19] we use the equal weighted workforce score (*WS_A4*) as our second alternative variable by taking the average of those subscores. We re-estimate Eqs. (1) and (2) using *WS* and *WS_A4* as the independent variables. Our results, reported in Table 7, Panel A, show negative relationships between the workforce environment (both *WS* and *WS_A4*) and audit fees, and thus support H_1. Moreover, such relationships are stronger in countries with a more flexible labor market, which support H_2. Overall, as we show in Table 7, Panel A, our findings are robust to alternative proxies for the workforce environment. These consistent results also validate the construction of our *WEI*.

5.2. Exclusion of multinational firms

In our main analyses, we add *INTS* (coded as 1 for firms that have at least 10 percent international sales to total sales, and zero otherwise) to control for the impact of internationalization on audit pricing. However, the internationalization of audit

[16] The Thomson Reuters ESG database provides the following controversy indicators for the workforce: (1) the number of controversies published in the media linked to workforce diversity and opportunity; (2) the number of controversies published in the media linked to workforce health and safety; (3) the number of controversies published in the media linked to the company's relations with employees or relating to wage or wage disputes; and (4) whether an important executive management team member announced a voluntary departure (other than retirement) or had been ousted. We add up the three quantitative indicators, (1) to (3), to derive the total number of controversies published in the media related to workforce. In addition, the original *WEI* includes an indicator, "Is the company under the spotlight of the media because of a controversy linked to the company's employees, contractors or suppliers due to wage, layoff disputes or working conditions?," which is related to our media coverage proxy. Thus, we exclude this indicator and re-construct our *WEI* for this analysis.

[17] The bootstrap approach is a non-parametric method based on resampling with replacement, which is done multiple times (e.g., 5000 times in our study). For a more detailed discussion of the use of the bootstrap approach in mediation tests, see Hayes (2018).

[18] We also find insignificant relationships between WEI and other FRQ measures from Eq. (3B): performance-matched discretionary accruals (coefficient −0.001, p = 0.32), real earnings management (coefficient −0.014, p = 0.551), and earnings smoothness (coefficient −0.007, p = 0.377). We caution readers that our mediation results are based on the chosen FRQ measures and that we could not rule out the possibility that other, unselected FRQ measures might mediate the relationship between the workforce environment and audit fees.

[19] Those scores are employment quality (*SOEQ*), health and safety (*SOHS*), training and development (*SOTD*), and diversity and opportunities (*SODO*).

Table 6
Regression results of mediation tests (Mediation effects).

Panel A: The Baron and Kenny's (1986) causal step regression results						
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	LNAF (3A)	|*DAC*| (3B)	*LNAF* (3C)	*LNAF* (3A)	*CONTRO* (3B)	*LNAF* (3C)
WEI	−0.023*** (−5.17)	−0.001 (−0.85)	−0.025*** (−5.42)	−0.022*** (−5.08)	−0.003** (−2.56)	−0.022*** (−5.04)
|*DAC*|	–	–	0.018* (1.76)	–	–	–
CONTRO	–	–	–	–	–	0.068** (2.24)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry and year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	−10.744*** (−20.01)	−1.252*** (−9.93)	−10.989*** (−18.66)	−10.778*** (−20.04)	−0.962*** (−8.52)	−10.712*** (−19.90)
N	19,804	17,574	17,574	19,804	19,804	19,804
Adj.R-Square	0.74	0.10	0.74	0.74	0.13	0.74
Panel B: Bootstrap approach results						
Direct effect			−0.0247***			−0.0223***
Indirect effect			−0.0000			−0.0002***
Total effect			−0.0247***			−0.0225***
Indirect/Total			0.0009			0.0089
Indirect/Direct			0.0009			0.0090
Total/Direct			1.0009			1.0090

Note: Our primary independent variable is *WEI*, and our dependent variable is *LNAF*. We use as mediators financial reporting quality proxied by discretionary accruals (i.e., |*DAC*|) and media coverage of workforce controversies (*CONTRO*). Column (1) shows the effect of the independent variable (*WEI*) on the dependent variable (*LNAF*) without the mediator (|*DAC*|). Column (2) presents the effect of *WEI* on |*DAC*|, while Column (3) shows the results with both the independent variable (*WEI*) and the mediator (|*DAC*|). Columns (4) to (6) report the results of the mediation test using *CONTRO* as the mediator. Robust t-statistics are in brackets. Variables are defined in Appendix B.
***p < 0.01, **p < 0.05, *p < 0.10.

clients may also influence their workforce environment. More concretely, multinational audit clients must adopt the best standards from all the countries in which they operate. As a result, their workforce environment affected by all of these countries' employment regulations, which may introduce noise in our main findings. To mitigate this issue, we partition our sample into multinational (*INTS* = 1; 13,942 observations) and domestic clients (*INTS* = 0; 5864 observations). The results (untabulated) show that the mean value of *WEI* in our multinational clients subsample (i.e., 10.92) is significantly higher than that in our domestic clients subsample (i.e., 9.12), supporting the prediction that to comply with multiple countries' employment regulations, multinational clients offer a relatively better workforce environment. We re-run our Eqs. (1) and (2) using the domestic clients subsample only, and the results (untabulated) show significantly negative coefficients on *WEI* in Eq. (1) and on *EPL* ∗ *WEI* (*EFW* ∗ *WEI*) in Eq. (2), which is consistent with our main findings.

5.3. Control for non-audit services fees

We include an additional variable (*LN_NAS*, the natural log of the sum of tax and other services fees) in our equations to control for the possible association between audit fees and NAS fees, based on the notion that the simultaneous provision of audit and NAS may reduce audit costs owing to either economies of scope or knowledge spillover (e.g., Chung and Kallapur, 2003; O'Keefe et al., 1994). Our untabulated results show that our main variable of interest (i.e., *WEI*) is still significantly and negatively associated with *LNAF* across all specifications, which supports our main findings. In contrast to our expectations, the coefficient on *LN_NAS* is significantly positive. A possible explanation suggested by Simunic (1984) is that knowledge spillover helps auditors reduce the unit costs of audit services and, in turn, the reduced price encourages clients to buy additional audit services.

5.4. Additional analyses

We also perform two additional analyses. First, as we show in Table 2, Panel B, about 33 percent of the observations in our sample are from the U.S., leading to a concern that U.S. firms might be primarily driving our findings. To mitigate this concern, we re-run our models by excluding all U.S. observations. Our results in Table 7, Panel B suggest that our results do not suffer from sample concentration. Second, there is a concern that auditors may decide how much they will charge at the beginning of the year, which may lead to incorrect inferences when we use the workforce environment from the current year to predict audit fees for those current years. We mitigate this concern by repeating Eqs. (1) and (2) using lagged *WEI* and

Table 7
Robustness and the endogeneity test.

Panel A: Alternative independent variables

	WS			*WS_A4*		
	(1)	(2)	(3)	(4)	(5)	(6)
	LNAF	LNAF	LNAF	LNAF	LNAF	LNAF
WEI_ALT	−0.297***	−0.138***	−0.175***	−0.328***	−0.206**	−0.131*
	(−5.75)	(−2.79)	(−3.56)	(−4.68)	(−2.85)	(−1.98)
EPL	–	0.158***	–	–	0.202***	–
		(3.63)			(3.94)	
EPL∗WEI_ALT	–	−0.529***	–	–	−0.631***	–
		(−6.97)			(−6.63)	
EFW	–	–	0.201***	–	–	0.201***
			(12.23)			(10.61)
EFW∗WEI_ALT	–	–	−0.195***	–	–	−0.242***
			(−6.24)			(−6.31)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	−11.122***	−8.589***	−10.874***	−9.661***	−7.967***	−10.100***
	(−20.56)	(−15.66)	(−20.60)	(−15.37)	(−11.94)	(−16.21)
N	19,804	18,368	19,804	15,839	14,945	15,839
Adj.R-Square	0.74	0.77	0.75	0.75	0.78	0.77

Panel B: Non-US results and results with lagged independent variables

	Non-US observations			Lagged independent variables		
	(1)	(2)	(3)	(4)	(5)	(6)
	LNAF	LNAF	LNAF	LNAF	LNAF	LNAF
WEI	−0.010*	−0.012*	−0.011*	−0.023***	−0.013***	−0.012***
	(−1.75)	(−1.96)	(−1.90)	(−4.79)	(−2.78)	(−2.68)
EPL	–	−0.302***	–	–	0.137***	–
		(−5.65)			(2.95)	
EPL∗WEI	–	−0.023***	–	–	−0.038***	–
		(−2.89)			(−6.68)	
EFW	–	–	0.128***	–	–	0.192***
			(6.85)			(11.18)
EFW∗WEI	–	–	−0.012***	–	–	−0.015***
			(−4.03)			(−5.86)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
_cons	−7.209***	−5.749***	−8.223***	−9.830***	−7.930***	−10.263***
	(−11.25)	(−8.83)	(−12.60)	(−17.24)	(−13.47)	(−18.26)
N	13,292	11,854	13,292	16,576	15,347	16,576
Adj.R-Square	0.72	0.76	0.73	0.73	0.76	0.74

Panel C: 2SLS results for the endogeneity test

	(1)	(2)
	WEI	LNAF
WEI	–	−0.044**
		(−2.22)
COUN_WEI	0.272***	–
	(9.73)	
IND_WEI	0.374***	–
	(16.60)	
Control variables	Yes	Yes
Industry	Yes	Yes
Year	Yes	Yes
_cons	−9.310***	−10.840***
	(−7.18)	(−20.26)
N	19,786	19,786
(Centered) R-Square	0.726	0.739
Kleibergen-Paap rk LM statistics (under-identification test)		280.989 (p=0.0000)
Kleibergen-Paap rk Wald F statistic (weak identification test)		259.312
Hansen J statistic (over-identification test)		2.073

Note: Robust t-statistics are in brackets. Variables are defined in Appendix B. All the independent variables used in Panel B, Columns (4) to (6) are lagged forms.
***p < 0.01, **p < 0.05, *p < 0.10.

lagged independent variables. The coefficients on lagged *WEI* and on *EPL* ∗ *WEI* (*EFW* ∗ *WEI*) are also significantly negative, as we report in Panel B of Table 7. These results further support our main findings.

5.5. Endogeneity test

We further address endogeneity concerns about omitted variables by implementing a two-stage-least-squares (2SLS) regression. We report our results in Table 7, Panel C. Similar to normal CSR practice (Ioannou and Serafeim, 2012), we argue that a firm's workforce environment is determined by both country and industry characteristics. Ioannou and Serafeim (2012, 2017) suggest that in a given country, a firm's CSR practice might vary over time systematically as a result of regulatory changes. In addition, a firm's incentives and abilities to engage in CSR are influenced by its competitors in the same industry (Hawn and Kang, 2018). If a firm operates in an industry in which its peers have a stronger commitment to employee well-being and that firm cannot provide a workforce environment comparable with those of its competitors, then it risks losing employees. Thus, firms are more likely to provide a favorable workforce environment if they are headquartered in countries, as well as operate in industries, that have a stronger commitment to employee well-being. Following prior studies (e.g., Cheng et al., 2014; Gupta and Krishnamurti, 2018), we select the country-year mean *WEI* (*COUN_WEI*) and the country-industry mean *WEI* (*IND_WEI*) as our instruments. When calculating both *COUN_WEI* and *IND_WEI*, we exclude the focal firm's workforce environment performance to eliminate the firm's influence on both instrumental variables. As a result, our instruments represent the average workforce environment of the focal firm's competitors within the same industry and across years, in a given country.[20] We predict positive effects for *COUN_WEI* and *IND_WEI* on *WEI*. However, we have no a priori reason to believe that *COUN_WEI* and *IND_WEI* to have a direct impact on audit fees through channels other than the firm-level workforce environment.

In the first stage, we regress *WEI* on *COUN_WEI*, *IND_WEI* and other control variables that we used in Eq. (1). Our results in Column (1) of Table 7, Panel B show that both the coefficients on *COUN_WEI* and *IND_WEI* are positive and significant at the 1 percent level, supporting our argument that a firm's workforce environment is determined by both country and industry characteristics. In the second stage, we replace the original *WEI* with the predicted *WEI* generated from the first stage. Our results in Column (2) of Table 7, Panel B show that the coefficients on *WEI* remain negative and significant at the 5 percent level, further supporting our main finding that a favorable workforce environment leads to lower audit fees. Similar to Cheng et al. (2014), we perform three tests to check the validity of our instruments in Table 7, Panel B. First, the result of the under-identification test, the Kleibergen-Paap rk LM statistic, illustrates that our model is identified (p = 0.0000). Second, we report the Kleibergen-Paap rk Wald F statistic (Kleibergen and Paap, 2006) for our weak identification test. The *F*-statistic is very high in our sample, suggesting that our instruments are relevant and strong. Third, we report the Hansen's J statistic (Hansen, 1982) to test the over-identification concern. The *p*-value of the Hansen's J statistic is high for this test, suggesting that we cannot reject the null hypothesis that the instruments are exogenous. Following Larcker and Rusticus (2010), we also regress the residuals of the second stage on the exogenous variables (i.e., *COUN_WEI*, *IND_WEI*, and control variables) to test the over-identification concern. Our untabulated results support the Hansen's J statistic. Overall, our post-estimation tests confirm both the relevance and the exclusion restrictions of our instruments.

5.6. Alternative argument on workforce environment

Our results suggest that auditors charge lower audit fees for client firms that provide a favorable workforce environment. However, this negative relationship may hold up only to a certain point, as this relationship may reverse if a client firm improves its workforce environment beyond that point. From the agency perspective, opportunistic managers may provide generous welfare to employees to increase employee satisfaction, which will reduce the likelihood that employees report managers' wrongdoing. From a traditional cost efficiency perspective (e.g., Taylor, 1914), employers should keep the employees from being too satisfied by paying them no more than their reservation wages because over-satisfaction might lead to complacency and shirking responsibilities. Based on both agency and efficiency perspectives, auditors may assess higher risks and, in turn, increase auditing efforts and audit fees, when client firms' employee welfare is too generous. Therefore, a U-shaped relationship may exist between the workforce environment and audit fees.

We introduce a quadratic term, WEI^2, into our Eq. (1) and report our results in Table 8. The coefficient on *WEI* remains negative and significant. The positive and significant coefficient of WEI^2 confirms that the optimal level (i.e., *WEI* = 18.98) for a workforce environment is very close to the maximum value of our workforce environment index (20).[21] Our results suggest that auditors charge higher fees only to those clients with an extremely favorable workforce environment, to compensate for the extra risks related to agency or employee efficiency problems. However, the untabulated results find that this U-shaped relationship exists only in firms with poor corporate governance mechanisms, indicating that good corporate governance mechanisms can mitigate auditors' concerns about the extreme workforce environment.

[20] We acknowledge the limitation inherent in selecting industry-average as the instrument (Larcker and Rusticus, 2010). Larcker and Rusticus (2010) suggest that accounting researchers often use regulatory changes as a quasi- experiment to address endogeneity concerns. However, owing to the international nature of our study, we could not identify a universal regulatory shock.

[21] We derive the optimum level of 18.98 using the formula: $\frac{-\text{coefficient on } WEI}{2\times\text{coefficient on } WEI^2} = \frac{-(-0.0491243)}{2\times 0.0012939} = 18.98$. Both coefficients on *WEI* and WEI^2 are from Table 8, Column (3).

Table 8
Additional test results: Non-linear relationship between the workforce environment and audit fees.

	(1) LNAF	(2) LNAF	(3) LNAF
WEI	−0.034***	−0.037***	−0.049***
	(−2.60)	(−3.00)	(−3.82)
WEI^2	0.001*	0.001**	0.001**
	(1.83)	(2.05)	(2.14)
Other control variables	*SIZE; LEV; INVREC; ROA; LOSS; NBS; NGS; SPECIAL, CROSS, MTB, CURRENT, INTS, TURN, ISSUE, BIGN, AO, BUSY, BSIZE, BIND, ACM, ACMIND, ACMEXP, CEODUAL*	*SIZE; LEV; INVREC; ROA; LOSS; NBS; NGS; SPECIAL, CROSS, MTB, CURRENT, INTS, TURN, ISSUE, BIGN, AO, BUSY, BSIZE, BIND, ACM, ACMIND, ACMEXP, CEODUAL, LAW, LNGDP, FDI, DISCL, CORRUP*	*SIZE; LEV; INVREC; ROA; LOSS; NBS; NGS; SPECIAL, CROSS, MTB, CURRENT, INTS, TURN, ISSUE, CSR, BIGN, AO, BUSY, BSIZE, BIND, ACM, ACMIND, ACMEXP, CEODUAL, LAW, LNGDP, FDI, DISCL, CORRUP*
Industry	Yes	Yes	Yes
Year	Yes	Yes	Yes
_cons	−3.754***	−10.654***	−10.613***
	(−21.14)	(−19.73)	(−19.65)
N	20,119	19,804	19,804
Adj.R-Square	0.71	0.74	0.74

Note: Robust t-statistics are in brackets. Variables are defined in Appendix B.
***p < 0.01, **p < 0.05, *p < 0.10.

6. Conclusion

The objective of this research is to investigate the relationship between an audit client's workforce environment and audit fees in an international setting. Specifically, we posit and find a better workforce environment may encourage employees to dedicate themselves to their work, resulting in higher productivity and firm performance; as a result, this dedication decreases client-specific risks and, thus, audit fees. In addition, our results also show that the negative association between audit fees and the workforce environment is stronger in countries with a more flexible labor market, presumably because the low hiring and firing costs in such markets encourage employees to be diligent and to cope with both external opportunities and internal job loss threats, which will further decrease client-specific risks. We also posit that both firms' financial reporting quality and media coverage of workforce controversies might mediate the effect of the workforce environment on audit fees; however, we find supportive evidence for the media coverage channel only.

Our research is related to the literature studying the consequences of treating employees well from an external stakeholder's perspective (i.e., an auditor). Our study, in particular, should be of interest to corporate insiders (i.e., managers and directors), as our results show that a firm's efforts to improve its workforce environment will be recognized by both internal (i.e., employees) and external stakeholders (e.g., auditors). In addition, our study responds to the call for additional international-level research, so we may better understand how the variations in institutional factors influence existing findings. In particular, we extend and complement Huang et al.'s (2017) results by showing that country-level labor market flexibility moderates the negative association between audit fees and the workforce environment. Our findings also improve our understanding of the channels through which a favorable workforce environment contributes to reduced audit fee.

Data availability

Data are available from the public sources cited in the text.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A

Components of Workforce Environment Index

No.	Description	Positive or Negative	Compliance (%)
1	Does the company have a policy to drive diversity and equal opportunity?	P: 1 for Yes, 0 for No	71.71%
2	Has the company set targets or objectives to be achieved on diversity and equal opportunity?	P: 1 for Yes, 0 for No	12.90%
3	Does the company claim to provide flexible working hours or working hours that promote a work-life balance?	P: 1 for Yes, 0 for No	27.65%
4	Does the company have a policy to improve employee health & safety within the company and its supply chain?	P: 1 for Yes, 0 for No	75.71%
5	Does the company have an employee health & safety team?	P: 1 for Yes, 0 for No	47.78%
6	Does the company have health and safety management systems in place like the OHSAS 18001 (Occupational Health & Safety Management System)?	P: 1 for Yes, 0 for No	38.26%
7	Does the company claim to provide day care services for its employees?	P: 1 for Yes, 0 for No	13.24%
8	Does the company report on policies or programs on HIV/AIDS for the workplace or beyond?	P: 1 for Yes, 0 for No	13.18%
9	Does the company have a policy to improve the skills training of its employees?	P: 1 for Yes, 0 for No	62.86%
10	Does the company train its executives or key employees on health & safety?	P: 1 for Yes, 0 for No	62.89%
11	Does the company train its executives or key employees on employee health & safety in the supply chain?	P: 1 for Yes, 0 for No	9.22%
12	Does the company have a policy to improve the career development paths of its employees?	P: 1 for Yes, 0 for No	60.05%
13	Does the company claim to favor promotion from within?	P: 1 for Yes, 0 for No	32.32%
14	Does the company claim to provide regular staff and business management training for its managers?	P: 1 for Yes, 0 for No	49.01%
15	Does the company provide training in environmental, social or governance factors for its suppliers?	P: 1 for Yes, 0 for No	15.13%
16	Does the company have a policy to support the skills training or career development of its employees?	P: 1 for Yes, 0 for No	68.76%
17	Is the company under the spotlight of the media because of a controversy linked to the company's employees, contractors or suppliers due to wage, layoff disputes or working conditions?	N: 1 for No, 0 for Yes	96.69%
18	Has there have been a strike or an industrial dispute that led to lost working days?	N: 1 for No, 0 for Yes	97.49%
19	Has an important executive management team member or a key team member announced a voluntary departure (other than for retirement) or has been ousted?	N: 1 for No, 0 for Yes	94.20%
20	Total number of announced lay-offs by the company divided by the total number of employees.	N: 1 for no layoffs, 0 for having lay-offs	89.84%
N			

Note: The qualitative measures provide binary information on whether a firm has a particular attribute, while the quantitative measure gives information about actual lay-off activities. For qualitative measures with positive attributes, we assign a score of 1 to a firm that has the attribute, and zero otherwise. For example, a firm will receive a score of 1 if it has an employee health and safety team, and zero otherwise. For qualitative measures with negative attributes, we apply a score of 1 to a firm that lacks the attribute, and zero otherwise. For instance, we give a score of 1 to a firm that has no strikes or industrial disputes during the current year, and zero otherwise. For the quantitative measure, a firm receives a score of 1 if it does not lay off its employees, and zero otherwise.

Appendix B

Variable Definitions

Variable	Definition	Sources
Dependent variable		
LNAF	Natural logarithm of audit and audit-related fees.	Thomson Reuters (TR) Fundamentals
Independent variable		
WEI	Workforce environment index, measured by 20 firm-level qualitative and quantitative workforce-related indicators, which measures the overall workforce environment for employees.	Authors' calculation; TR ESG database
WS	Thomson Reuters ESG workforce score, which measures "a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce."	TR ESG database
WS_A4	The equal weighted workforce score (*WS_A4*) as the average of employment quality (*SOEQ*), health and safety (*SOHS*), training and development (*SOTD*), and diversity and opportunities scores (*SODO*).	ASSET4; Authors' calculation
Firm-level control variable		
SIZE	Natural logarithm of total assets.	TR Fundamentals
LEV	The leverage ratio, defined as the sum of short- and long-term debt divided by total assets.	TR Fundamentals
INVREC	The sum of inventories and receivables divided by total assets.	TR Fundamentals
ROA	Net income divided by total assets.	TR Fundamentals
NBS	Natural logarithm of the number of business segments.	Worldscope
NGS	Natural logarithm of the number of geographic segments.	Worldscope
LOSS	Dummy variable coded as 1 for firms reporting negative income before extraordinary items, 0 otherwise.	TR Fundamentals
SPECIAL	Dummy variable, coded as 1 for firms reporting special items, 0 otherwise.	TR Fundamentals
CROSS	Dummy variable, coded as 1 for firms cross-listing in the US, 0 otherwise.	Worldscope
MTB	Market to book ratio, defined as the firm market value divided by common shareholder equity.	TR Fundamentals
CURRENT	Current ratio, defined as current assets divided by current liabilities.	TR Fundamentals
TURN	Turnover ratio, defined as net sales divided by total assets.	TR Fundamentals
INTS	International operation, coded as 1 for firms that have at least 10 percent international sales to total sales, 0 otherwise.	Worldscope
ISSUE	Dummy variable, coded as 1 when the following conditions apply: long-term debt increased by at least 20 percent, or the number of common shares increased by at least 10 percent after controlling for stock splits; 0 otherwise.	Worldscope
CSR	Corporate social responsibility score, which ranges from 0 to 100.	TR ESG database
BIGN	Dummy variable, coded as 1 for firms audited by one of the Big 4 firms (i.e., PricewaterhouseCoopers, Deloitte Touche Tohmatsu, KPMG, and Ernst & Young), 0 otherwise.	TR Eikon
AO	Audit opinion, coded as 1 for firms receiving qualified opinions for the current year, 0 otherwise.	Worldscope
BUSY	Dummy variable, coded as 1 for firms for which the fiscal year-end comes during an auditor busy season, 0 otherwise.	Worldscope
Firm-level governance control variable		
BSIZE	The total number of board members at the end of the fiscal year.	TR ESG database
BIND	The percentage of independent members on the board of directors.	TR ESG database
ACM	Dummy variable, coded as 1 for firms with an audit committee, 0 otherwise.	TR ESG database
ACMIND	The percentage of independent members on the audit committee.	TR ESG database
ACMEXP	Dummy variable, coded as 1 for firms that have an audit committee with at least three members and at least one financial expert, 0 otherwise.	TR ESG database

(*continued on next page*)

Appendix B (*continued*)

Variable	Definition	Sources
CEODUAL	Dummy variable, coded as 1 for firms where the CEO and chair of the board are the same person, 0 otherwise.	TR ESG database
Country-level control variable		
LAW	Legal origin. Dummy variable, coded as 1 for common law countries, 0 for code law countries.	La Porta et al. (2008)
LNGDP	Natural logarithm of gross domestic product (GDP) per capita in U.S. dollars.	International Monetary Fund
FDI	Foreign direct investment divided by GDP.	World Bank
DISCL	CIFAR disclosure developed by Center for International Financial Analysis and Research. CIFAR (1995) creates a country-specific index by rating the annual reports of at least three firms in every country for the inclusion or omission of 85 specific items. These 85 items include specific disclosures in the following seven categories: general information (8 items), income statement (11 items), balance sheet (14 items), funds flow statement (5 items), accounting policy disclosure (20 items), shareholder information (17 items) and other supplementary information (10 items). Each country is given a score that ranges from 0 to 85, with higher scores indicating greater disclosure.	CIFAR
CORRUP	Perceived corruption index, ranging from 0 to 10. For convenient interpretation, we use 10 minus the actual values. Thus, the higher the index, the higher the perceived corruption level.	Transparency International
EPL	Employment protection legislation index. It consists of three category scores: individual dismissal of regular workers (EPR), additional costs of collective dismissals (EPC), and regulation of temporary contracts (EPT). *EPL* is measured as the equally weighted score of EPR, EPC, and EPT. We multiply *EPL* by -1 for ease of interpretation.	OECD website
EFW	Labor market regulations including hiring regulations and minimum wage (5Bi), hiring and firing regulations (5Bii), centralized collective bargaining (5Biii), hours regulations (5Biv), mandated cost of worker dismissal (5Bv), and conscription (5Bvi). We use the average of these six components to construct the *EFW* index.	The Fraser Institute's Economic Freedom of the World
Mediation variable		
|*DAC*|	The absolute value of discretionary accruals (*DAC*), generated from the modified Jones model (Dechow et al., 1995). We estimate the model for all firms in the same country and industry (using the GICS industry group code) with at least eight observations in an industry-year-country pair using the following equation: $\frac{ACC_{i,t}}{TA_{i,t-1}} = \gamma_0\left(\frac{1}{TA_{i,t-1}}\right) + \gamma_1\left[\frac{\Delta SALES_{i,t} - \Delta RECEIVABLE_{i,t}}{TA_{i,t-1}}\right] + \gamma_2\left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}$, (4) where *ACC* is the total accruals calculated as earnings before extraordinary items and discontinued operations, minus operating cash flows. $\Delta SALES$ is the change in sales revenue in year t; $\Delta RECEIVABLE$ is the change in accounts receivable in year t; and *PPE* is the gross value of property, plant, and equipment at the end of year t. All variables, including the intercept, are deflated by lagged total assets. Non-discretionary accruals (*NDAC*) is the predicted value from the above equation, with *DAC* representing the residuals.	TR Fundamentals; Authors' calculation
CONTRO	Media coverage of workforce controversies, measured as the natural logarithm of the total number of controversies published in the media related to workforce plus one. The total number of controversies published in the media related to workforce includes "Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment)," "Number of controversies published in the media linked to the workforce health and safety," and "Number of controversies published in the media linked to the company's relations with employees or relating to wage or wage disputes."	TR ESG database

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