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Organization capital and audit fees around the world

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We examine whether auditors consider organization capital in audit pricing decisions. Utilizing an international sample from 40 countries spanning the period 2001–2017, we find that firms with high levels of organization capital pay high audit fees: a finding that is consistent with both the risk- and the agency-based arguments for audit pricing. Additionally, our results indicate that the positive relationship between organization capital and audit fees is reinforced in firms with pronounced business risks and agency problems, whereas it is relatively weak in countries with protective employment legislation. Our study contributes to the voluminous literature on the determinants of audit fees by showing that auditors price the risks related to clients' intangible assets, especially those embodied in a firm's key talents. Our study also contributes to the scarce literature on the effects of organization capital in international markets.

KEYWORDS

Agency Problems, Audit Fees, Business Risk, Employment Protection Legislation, Organization Capital

JEL CLASSIFICATION

G32; K31; L23; M42

1 | INTRODUCTION

Since the seminal audit pricing model of Simunic (1980), audit literature has focused substantially on the determinants of audit fees. Prior research on audit pricing suggests that audit fees reflect auditor effort and risk premiums and, thus, should be positively related to auditor engagement risk (DeFond & Zhang, 2014;). Auditors are likely to increase audit effort on riskier clients, to reduce the likelihood of misstatements or fraud (Davis, Ricchiute, & Trompeter, 1993; Hillegeist, 1999). Auditors may also increase billing rates and charge fee premiums to compensate for higher engagement risks (Bedard & Johnstone, 2004). Based on these arguments, extant studies document that a host of firm-level characteristics, industry-level attributes, and regional factors (e.g., social capital and money laundering) affect audit fees (Habib, Hasan, & Al-Hadi, 2018; Hay, 2013; Hay, Knechel, & Wong, 2006; Jha & Chen, 2015; Leventis, Weetman, & Caramanis, 2011). Despite this sizeable literature on audit pricing, the extent to which organization capital, the firm-level stealth asset of a corporation, affects the audit fees of the firm, is largely unexplored. Therefore, in this study, we investigate the relation between organization capital and audit fees internationally. We also examine some firm- and country-level variables that may moderate this relationship.

Organization capital may be defined as the accumulation of firm-specific knowledge that "enables superior operating, investment and innovation performance, represented by the agglomeration of technologies—business practices, processes and designs" (Lev, Radhakrishnan, & Zhang, 2009, p. 277). Firms with high levels of organization capital achieve efficient production, stable business operation, and speedy transactions and thereby generate increased productivity (Black & Lynch, 2005) and better firm performance (Lev et al., 2009).[1] However, Eisfeldt and Papanikolaou (2013) argue that firms with high levels of organization capital are exposed to two additional risks. First, organization capital is embodied in the firm's key talent, and its efficiency is firm-specific. Since part of organization capital is embodied in key talent, it is potentially movable across firms. Hence, both shareholders and key talent have a claim on the cash flows stemming from organization capital. Importantly, sharing of cashflow accruing from organization capital depends on the outside

options available to key talent. Since shareholders do not own all the cash flow rights, investment in high organization–capital firms increases cash flow risks. Second, the key talent of firms with high organization capital may have incentives to overinvest in organization capital in an attempt to enhance their outside options, and this gives rise to agency problems. In this study, we explore how external auditors, an important group of stakeholders, incorporate both cash flow and agency risks into their audit pricing for firms with high levels of organization capital.

We argue that auditors will charge higher fees to client firms with high levels of organization capital, than to firms with low-levels of organization capital. Our argument is premised on the business risk and agency arguments for audit pricing. The business risk perspective on audit pricing contends that auditors assess the business risk of the client in pricing audit fees (Bell, Landsman, & Shackelford, 2001; Lyon & Maher, 2005). This is because auditors are more likely to face a litigation risk if they audit high-business–risk firms (Morgan & Stocken, 1998). Therefore, auditors tend to charge high fees for servicing clients with pronounced business risks. Prior studies suggest that firms with high organization capital are exposed to higher cash flow risks, and to the risk of losing key personnel and invaluable information to rival firms (Eisfeldt & Papanikolaou, 2013). As a result, firms with high organization capital are associated with more business risk. We predict that auditors will incorporate this business risk into pricing audit fees and, accordingly, will require higher audit fees for servicing firms with high organization capital.

The agency argument for audit pricing suggests that audit fees represent monitoring cost (Jensen & Meckling, 1976) and, therefore, in pricing audit fees, auditors should consider the factors affecting agency costs (Gul & Tsui, 2001). Extant studies find support to this argument (Griffin, Lont, & Sun, 2008, 2010; Leventis et al., 2011). We argue that firms with high organization capital are exposed to relatively severe agency problems. This is because key talents (i.e., managers) have incentives to overinvest in accumulating organization capital, to maximize their outside options (Eisfeldt & Papanikolaou, 2013). Therefore, auditors are likely to charge higher audit fees to compensate for the agency problems stemming from organization capital.

We test the above conjectures using an international sample from 40 countries during the period 2001–2017. We argue that international study of the relation between organization capital and audit fees is important, because such an investigation makes possible the use of country-level institutional factor(s) as moderating variable(s), and has the potential to provide greater insights into the proposed relationship (Hay, 2013; Hay et al., 2006). An international study also addresses concerns regarding the generalizability of country-specific findings.

We estimate the stock of organization capital in each year for each firm by accumulating a fraction of past selling, general, and administrative (SG&A) expenditure using the perpetual inventory method (Peters & Taylor, 2017). We also proxy organization capital by the investment portion of SG&A aimed at improving organizational knowledge and capabilities (Enache & Srivastava, 2018), and by executive compensation (Corrado, Hulten, & Sichel, 2005). Using a large international sample from 2001 to 2017, we find a positive and significant relationship between organization capital and audit fees after controlling for various firm-level characteristics, year and industry effects, and country-specific time invariant unobserved heterogeneity. In terms of economic significance, our baseline model shows that a one standard deviation increase in organization capital increases audit fees by 10.82%, relative to the mean, which may be interpreted as an increase in audit fees of about $0.083 million. Our results remain robust to the use of alternative measures of organization capital. We further show that our documented results remain robust after controlling for SG&A expenses and firm-level corporate governance. We find that this positive relation between organization capital and audit fees holds for both U.S. and non-U.S. samples and for both high-tech and non-high–tech samples. Then, we examine whether the positive relation between organization capital and audit fees is driven by business risk and/or by agency problems. We find evidence in support of both the business risks and the agency cost arguments for audit fee determination. In terms of country-level institutional factors, we document that the positive relation between organization capital and audit fees is weak in countries with relatively strong employment protection legislation. Finally, using the two-stage least squares and propensity-matching tests, we show that our results are not driven by endogeneity concerns.

Our study contributes to the literature in several important ways. First, to the best of our knowledge, this is the first study to offer robust international evidence for a link between organization capital and audit fees. Prior literature suggests that audit fees reflect agency problems and client-level business risk, as well as auditors' engagement risk (Griffin et al., 2008, 2010; Leventis et al., 2011; Lyon & Maher, 2005, among others). We contribute to this literature by showing that auditors take into account the business risk and agency cost stemming from high organization capital in determining audit fees. Introducing this new strand of literature in the context of audit pricing is novel, as intangible assets, especially those embodied in a firm's key talents, are considered the hallmark of modern business enterprises. Second, our analyses exploit the richness of our data in examining whether and how the relationship between organization capital and audit fees differs across firms and across countries with varying institutional environments. Hay et al. (2006) suggest that national institutional environments may be important in explaining audit fees. In a recent study, Simnett, Carson, and Vanstraelen (2016) also call for more international research to inform the development of knowledge about external auditing.[2] We contribute to the audit literature by examining how the country-level governance mechanism moderates the relationship between organization capital and audit fees. Finally, our work contributes to the growing literature on the effect of organization capital in international markets. While studies explore the effects of organization capital on firm outcomes in the U.S. setting (Eisfeldt & Papanikolaou, 2013; Hasan & Cheung, 2018; Lev et al., 2009; Li, Qiu, & Shen, 2018), international evidence on the effects of organization capital is scarce, with the notable exception of

Leung, Mazouz, Chen, and Wood (2018). Using data around the world, we contribute to this scant literature.

The rest of the article is organized as follows: we review the relevant literature and outline our hypotheses in Section 5. We present a description of the data, the construction of variables, and our methodology in Section 3. Section 4 discusses the empirical results. Section 5 concludes the article.

2 | LITERATURE AND HYPOTHESES

2.1 | Audit Fees

Academic studies suggest that the costs of conducting an audit (i.e., audit fees) in a competitive market consist of a "resource cost factor" and an "expected loss factor" (e.g., Pratt & 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, and is related to client-specific risks. Furthermore, auditors will expend their audit efforts to reduce the future expected losses to the point where the overall cost of conducting an audit is expected to be lowest. At that point, the marginal cost of a unit of audit effort is equal to the marginal reduction in future expected losses resulting from client-specific risks (Pratt & Stice, 1994). Auditors will charge a litigation risk premium to compensate for the remaining expected loss factors (Simunic & Stein, 1996). Moreover, Houston, Peters, and Pratt (2005) introduce a nonlitigation risk premium into the audit fee model. Specifically, the nonlitigation risk premium is used to cover some implicit risks, such as the loss of prospective clients, the collectability of unpaid fees, and the reduction in reputational capital. In sum, audit efforts, together with litigation and nonlitigation risk premiums, constitute the audit fee charged by auditors.

According to Hay et al. (2006), most of the determinants of audit fees can be categorized into client attributes, auditor attributes, and engagement attributes. As for client attributes, prior studies show that audit fees are significantly higher for large, complex, and risky firms, owing to the increased audit efforts and risk premiums (e.g., Hay, 2013; Pong & Whittington, 1994). Effective and gender-diverse boards of directors and audit committees are more likely to demand high levels of audit quality (Abbott, Parker, Peters, & Raghunandan, 2003; Lai, Srinidhi, Gul, & Tsui, 2017). In terms of auditor attributes, audit firm size, auditor tenure, and industry specialization are associated with audit fees (e.g., Francis, 1984; Hay, 2013; Mayhew & Wilkins, 2003). For example, Hay and Knechel (2017) conduct a meta-regression analysis, and document that large audit firms (i.e., Big 4) still earn an 18.9% fee premium. Regarding engagement attributes, Ho and Ng (1996) show a positive association between audit report lag and audit fees, and Hardies, Breesch, and Branson (2015) show that audit fees tend to be higher when the audit is conducted during a busy season. In this study, we investigate whether and how firms' organization capital affects their audit fees.

2.2 | Organization Capital

Organization capital is one of the important factors of production in today's knowledge-based economy (Eisfeldt & Papanikolaou, 2013). Evenson and Westphal (1995, p. 2337) define organization capital as "the knowledge used to combine human skills and physical capital into systems for producing and delivering want-satisfying products." Examples of organization capital include Wal-Mart's supply chain, where the reading of barcodes of purchased products at the checkout register is directly transmitted to suppliers, thus, smoothing the inventory management system, and Dell's build-to-order system that allows the customer to design products. These examples seem to suggest that the efficiency of organization capital is firm-specific, and this may not be moveable across firms. However, recent studies suggest that a part of organization capital is embodied in key talent and therefore it is potentially movable across firms (Eisfeldt & Papanikolaou, 2013). Example of investment in such organization capital includes white collar wages, the cost of on-the-job training, consulting, and so on.

Prior studies show that organization capital, in the form of superior business practices, processes, culture, and organization design, is associated with more efficient production with stable business operation and transactions, all of which lead to superior firm productivity and performance (Fredrickson, 1986; Lev et al., 2009). Studies also show that firms with more organization capital are more productive, have relatively high levels of Tobin's Q and risk-adjusted returns, and pay high levels of executive compensation (Eisfeldt & Papanikolaou, 2013).

A growing body of literature shows that firms with high organization capital are exposed to high business risk. This is because organization capital is embodied in firms' key talent and therefore both shareholders and key talents have claims on the cash flow accruing from organization capital. Importantly, the division of cash flow between financiers and key talents depends on the outside options for the key talents, and this exposes shareholders to additional risk. Accordingly, shareholders require relatively high risk premiums if they are to invest in firms with high levels of organization capital. Eisfeldt and Papanikolaou (2013) find empirical support for this conjecture. Moreover, since key talents have better outside options, firms with high levels of organization capital are exposed, not only to the loss of key personnel, but also to potential loss of invaluable information to rival firms. In sum, given that organization capital is an important resource base and a valuable factor of production, loss of key talents and confidential business information may expose the firms to adverse financial shocks and further increase business risk. Using data from 20 Organisation for Economic Co-operation and Development (OECD) countries, Leung et al. (2018) find support for this argument. They show that the positive relation between organization capital and expected returns is more prominent when labor market flexibility allows key talent to relocate between firms, taking tacit knowledge with them. In a recent study, Marwick, Hasan, and Luo (2020) show that firms with high organization capital hold more cash to cope with financing constraints.

In addition to the business risk, firms with high organization capital are exposed to a pronounced agency problem. This is because key talents inherently claim a portion of cash flows accruing from organization capital without absorbing any downside risk. Since the costs and benefits of organization capital are not shared between key talent and shareholders equally, key talent may decide to overinvest in organization capital and other projects to further improve their outside options, or to maximize their private benefit (Eisfeldt & Papanikolaou, 2013). Thus, the disproportionate division of cash flows between key talent and shareholders exacerbates the agency problem.

2.3 | Hypotheses Development

Building on the business risk and agency perspectives, we offer two arguments to establish a positive relation between organization capital and audit fees. First, the business risk perspective of audit pricing posits that auditors assess business risk at the client level and pass their expected costs to the client in the form of higher audit fees (Lyon & Maher, 2005). In this connection, Bell et al. (2001) also contend that hourly audit fees, and the number of audit hours, increase with the client's business risk. In addition, auditors are more likely to face litigation risk if they audit high business risk firms. O'Malley (1993, p. 93) argues that "the auditors may be sued by anyone who suffered a financial loss, even though that person may never have so much as glanced at an audit report. The auditors need not have done anything to cause the loss." Prior empirical studies find support for the business risk perspective of audit pricing (e.g., Bell et al., 2001; Cobbin, 2002; Lyon & Maher, 2005; Simunic & Stein, 1996).

As explained above, high organization capital firms are associated with high levels of business risk, in the form of relatively high cash flow risk, and risk of key personnel and invaluable information loss to rival firms (Eisfeldt & Papanikolaou, 2013). We predict that auditors will incorporate both components of business risk defined by the American Institute of Certified Public Accountants (AICPA) (1992): the client's business risk, which reflects client's continued survival and well-being, and the auditor's business risk, which captures the potential litigation costs and other expenditures from association with a client, irrespective of whether or not an audit failure is asserted. Therefore, we hypothesize that organization capital increases firms' business risk and, in turn, causes auditors to increase audit fees.

Second, the agency perspective of audit pricing posits that audit fees represent an important part of the monitoring cost (Jensen & Meckling, 1976), and auditors charge higher audit fees to compensate for the additional risk and effort entailed in ensuring that the managers are behaving according to the owners' interests (Griffin et al., 2008, 2010; Gul & Tsui, 2001). Since better governance reduces control risk and substantive testing, firms with superior governance are found to be associated with reduced audit fees (Cohen & Hanno, 2000; Griffin et al., 2008; Tsui, Jaggi, & Gul, 2001).[3] Using international data, Nikkinen and Sahlström (2004) also find that agency theory can be used to explain audit fees internationally. Eisfeldt and Papanikolaou (2013) indicate that firms with more organization capital are exposed to more agency problems, in that organization capital induces conflicts of interest between the key talent and shareholders. While key talent can extract a payment equal to their outside options, shareholders have a claim to the residual cash flows of organization capital only, though they pay all the cost of investing in it. This indicates that entrenched key talent may overinvest in organization capital to maximize their claim on the cash flows accruing from it, or to enhance their outside options. In addition, key talents of firms with more organization capital may pursue projects to increase their firm's size beyond its optimal level in order to enhance their pay and prestige. Given that auditors will require more time, relative to regular inspection of accounts, to inspect managers' activities if the agency problem is greater, we expect the auditors to charge higher audit fees for serving firms with higher organization capital. Therefore, based on the above arguments, we hypothesize that:

H1. There is a positive relationship between organization capital and audit fees.

While developing the above hypothesis, we argue that organization capital may affect audit fees through two channels: risk and agency cost. Prior studies show that auditors consider firm-level business risk as well as agency problem/cost in preplanning and planning judgements. This is because, such business risk and agency problems increase the risk and effort for the auditor (Griffin et al., 2008, 2010; Gul & Tsui, 2001). Therefore, we contend that for a given level of organization capital auditors will charge higher audit fees for servicing firms with relatively high levels of business risk or agency costs. Accordingly, we hypothesize that:

H2A. The positive relationship between organization capital and audit fees will be more pronounced for firms with high levels of business risk.

H2B. The positive relationship between organization capital and audit fees will be more pronounced for firms with pronounced agency problems.

Next, we consider whether employment protection legislation (EPL), a country-level institutional variable, moderates the positive relationship between organization capital and audit fees. The EPL influences the firms' employee-related costs including *per worker employment costs* and *employment adjustment costs* (Addison & Teixeira, 2003). The former is the cost of hiring and providing benefits to employees (e.g., searching and training costs, minimum wage, mandatory sick pay, and parental/maternity leave). The latter are those costs that accompany gross changes, especially those occurring when employers dismiss employees. Both costs will be higher in countries/markets with more protective employment regulations. In such countries, firms are less likely to hire and fire employees, thus

decreasing both labor mobility and external opportunities for employees (Gal, 2013).

In the context of our study, we argue that since a high protective workforce environment reduces labor mobility, it also reduces the loss of key talents and business secrets that may otherwise be lost with the departing employees. Talented employees, including the CEOs, could receive this protection through an explicit contract (Gillan, Hartzell, & Parrino, 2009) or through labor market restrictions that permeate the social norms (Edmans, Li, & Zhang, 2018). Although these regulations are typically written to protect workers rather than top executives, if they follow a societal norm, we would expect talented executives, as well as workers, to be less mobile in countries with protective workforce environments. As a consequence, EPL is likely to reduce business risk arising from the loss of key employees and business secrets. Therefore, auditors' concerns about client's continued survival and well-being will be less for high organization capital firms located in countries with strong employment protection legislation. Thus, we hypothesize that:

H3. The positive relationship between organization capital and audit fees will be less pronounced for firms headquartered in countries with strong employment protection legislation.

3 | RESEARCH METHODOLOGY

3.1 | Data and Sample

We source audit fees and firm-specific financial data from the Thomson Reuters Fundamentals and Worldscope database. We collect time-series auditor identification from Thomson Reuters Eikon, and country-level data from the International Monetary Fund (IMF), OECD website, and previous research (e.g., Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008; La Porta, Lopez-de-Silanes, & Shleifer, 2008). Stock return data are collected from Datastream. The detailed variable definitions and sources are included in the Appendix. The sample period is from 2001 to 2017. We choose 2001 as the beginning year, because of the subsequent growing coverage of firms in the databases.

We begin with an initial sample of 251,834 firm-year observations with non-missing audit fees data from 44 countries spanning 2001 to 2017. We drop 24,234 (4,874) firm-years from the financial (utility) industries based on the four-digit Global Industry Classification Standards (GICS), because the audit fee determinants for such industries are distinct (e.g., Alexeyeva & Mejia-Likosova, 2016). We derive a sample of 164,964 firm-year observations after merging with the organization capital database. We then exclude observations with missing control variables for the audit fee model. Finally, we drop four countries from our sample (e.g., Chile, Hungary, Luxembourg, and Peru) with less than 30 firm-year observations, consistent with prior international audit fee research (e.g., Jaggi & Low, 2011). As a result, our baseline regression includes 145,979 firm-year observations from 40 countries. All the continuous variables are winsorized at the top and bottom 1% of their respective distributions, to mitigate the impact of outliers.

Table 1 shows the industry-based sample distributions. Observations from the capital goods industry account for the largest proportion of the sample (16.19%), followed by the materials industry (14.67%), whereas only a small proportion of samples are from telecommunication services (0.99%), household & personal products (1.03%), and food & staples retailing (1.23%).

3.2 | Measurement of Organization Capital

We follow Peters and Taylor (2017) to estimate the stock of organization capital based on SG&A expenses. Eisfeldt and Papanikolaou (2013, pp. 1380–1381) argue that "a large part of SG&A consists of expenses related to labor and IT (white collar wages, training, consulting, and IT expenses) … SG&A contains the part of labor expenses that cannot be directly attributed to a particular unit of output. Hence, any spending on the part of the firm to increase its organization capital will be included in SG&A expenses." Lev et al. (2009) also note that SG&A expenses include costs relating to developing information systems, employee training, R&D, consultant fees and brand promotion, which help in accumulating organization capital. The organization capital measure based on SG&A expenses has been used in recent studies for specific countries as well as for international

TABLE 1 Industry distribution

Code	Industry Name	*N*	Percent
1010	Energy	7,359	5.03%
1510	Materials	21,469	14.67%
2010	Capital Goods	23,692	16.19%
2020	Commercial & Professional Services	4,662	3.19%
2030	Transportation	4,646	3.17%
2510	Automobiles & Components	4,751	3.25%
2520	Consumer Durables & Apparel	9,019	6.16%
2530	Consumer Services	5,790	3.96%
2540	Media	4,255	2.91%
2550	Retailing	6,331	4.33%
3010	Food & Staples Retailing	1,803	1.23%
3020	Food, Beverage & Tobacco	7,895	5.39%
3030	Household & Personal Products	1,502	1.03%
3510	Health Care Equipment & Services	4,929	3.37%
3520	Pharmaceuticals, Biotechnology & Life Sciences	7,543	5.15%
4510	Software & Services	9,605	6.56%
4520	Technology Hardware & Equipment	11,190	7.65%
4530	Semiconductors & Semiconductor Equipment	4,065	2.78%
5010	Telecommunication Services	1,452	0.99%
6010	Real estate	4,021	2.75%
	Total	145,979	100.00%

samples (Amatachaya & Saengchote, 2018; Eisfeldt & Papanikolaou, 2013, 2014; Hasan & Cheung, 2018; Li et al., 2018; Marwick et al.,2020; Peters & Taylor, 2017).

Using the perpetual inventory method, we estimate the stock of organization capital (OC) each year by accumulating a *fraction* of past SG&A expenses based on the following equation:

$$OC_{i,t} = OC_{i,t-1}(1-\delta_0) + (SG\&A_{i,t} \times \theta_0) \quad (1.1)$$

where $OC_{i,t}$ (and δ_0) denote the firm-specific stock of organization capital at time t (and depreciation rate of OC), and SG&A and and θ_0 represent the SG&A expenses and the fraction of SG&A expense, which is invested into organization capital, respectively.

We estimate the initial stock of organization capital as follows:

$$OC_{i,t_0} = \frac{(SG\&A_{i,t_0} \times \theta_0)}{g + \delta_0} \quad (1.2)$$

where t_0= initial year for the firm in the sample. Following prior studies (Eisfeldt & Papanikolaou, 2013; Hasan & Cheung, 2018; Peters & Taylor, 2017), we use 30% of SG&A in estimating the stock of organization capital. Furthermore, we use a depreciation rate (δ_0) of 20% (Peters & Taylor, 2017). Growth (g) in the flow of organization capital is estimated as the average real growth of firm-level SG&A expenses. We replace the missing values of SG&A with zero. In the empirical tests, we scale the OC by total assets (*OC1*).

We also follow Enache and Srivastava (2018) who propose a new method to estimate investment in organization capital. The authors argue that investment in organization capital, which aimed at improving organizational knowledge and capabilities, is typically commingled with selling, general, and administrative expenses other than expenditures on advertising and research and development (MainSG&A = Total SG&A – Advertisement expenses – R&D expenses). Importantly, a part of this MainSG&A is intended to support current operations. (i.e., maintenance outlays), while the remaining MainSG&A (referred to as organization capital) produce future benefits.

The authors measure the predicted value of maintenance outlays for a firm in a year by estimating the following regression by industry and year:

$$MainSG\&A_{i,t} = \alpha_{Ind,\ t} + \beta_{1,\ Ind,t} \times Revenues_{i,t} + \beta_{2,\ Ind,t} \times DummyRevenueDecrease_{i,t} + \beta_{3,\ Ind,t} \times DummyLoss_{i,t} + \varepsilon_{i,t}. \quad (2.1)$$

where *i* denotes the firm, *Ind* denotes the industry (Fama–French 48-industry), and *t* denotes the year. *MainSG&A* and *Revenues* are scaled by average total assets. In essence, Equation 2.1 identifies the portion of MainSG&A that varies with current revenues (Dichev & Tang, 2009). Accordingly, maintenance component of MainSG&A is estimated as:

$$\widehat{MaintenanceMainSG\&A}_{i,t} = \hat{\beta}_{1,Ind,t} \times Revenues_{i,t}. \quad (2.2)$$

Finally, the authors estimate firm-year level MainSG&A investment outlays (i.e., organization capital) by subtracting the estimated maintenance portion of MainSG&A from MainSG&A:

$$\widehat{InvestmentMainSG\&A}_{i,t} = MainSG\&A_{i,t} - \widehat{MaintenanceMainSG\&A}_{i,t}. \quad (2.3)$$

We refer to this measure of organization capital as *OC2*. Our final measure of organization capital is based on the conjecture of Corrado et al. (2005) that one-fifth of management time is spent on investing in organizational development and change, while the rest of the management time is spent on routine tasks. Accordingly, following Corrado et al. (2005), we use 20% of executive compensation as a proxy for organization capital and denote this measure as *OC3*.

3.3 | Regression Model

We develop the following ordinary least squares (OLS) regression model to test H1:

$$\begin{aligned} \overline{LNAF}_{i,t} = {} & \beta_0 + \beta_1 OC_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 INVREC_{i,t} + \beta_5 ROA_{i,t} \\ & + \beta_6 MTB_{i,t} + \beta_7 CR_{i,t} + \beta_8 CFO_{i,t} + \beta_9 NBS_{i,t} + \beta_{10} NGS_{i,t} \\ & + \beta_{11} SPECIAL_{i,t} + \beta_{12} LOSS_{i,t} + \beta_{13} CROSS_{i,t} + \beta_{14} AO_{i,t} \\ & + \beta_{15} BUSY_{i,t} + \beta_{16} BIGN_{i,t} + \beta_{17} LNGDP_{i,t} + \beta_{18} PROTECT_{i,t} \\ & + \beta_{19} LAW_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (3)$$

where the dependent variable is the natural log of audit fees charged by auditors for auditing financial reports (*LN_AF*).[4] Our main variable of interest is the firm's organization capital (*OC*). If auditors perceive clients with high organization capital as riskier, they will charge higher audit fees. Thus, the coefficient on OC will be positive and significant.

Equation 2 includes several control variables. We use the natural log of total assets (*SIZE*) to control for size effects. We also include the sum of inventories and receivables scaled by total assets (*INVREC*), the natural log of the number of business segments (*NBS*), and the natural log of the number of geographic segments (*NGS*) to control for firm complexity that could increase audit fees (Choi, Kim, Liu, & Simunic, 2008; Jaggi & Low, 2011; Kim, Liu, & Zheng, 2012; Simunic, 1980). We expect *SIZE*, *INVREC*, *NBS*, and *NGS* will be positively associated with *LN_AF*.

Given that auditors will exert more audit efforts or charge fee premiums to clients with high risks (Choi et al., 2008; Pratt & Stice, 1994), we include several client-specific risk factors that are likely to affect the audit fees. Specially, we control *LEV* (sum of short- and long-term debts scaled by total assets), *ROA* (net income before extraordinary items scaled by total assets), *MTB* (the ratio of market value of common shareholder equity to its book value), *CR* (current assets scaled by current liabilities), and *CFO* (operating cash flow divided by total assets). Two dummy variables (*SPECIAL* and *LOSS*) are

also included in Equation 2 as proxies for client-specific risk. *SPECIAL* is coded 1 for firms report special items and 0 otherwise, while *LOSS* is coded 1 for firms having negative income at the current year and 0 otherwise. Choi, Kim, Liu, and Simunic (2009) suggest that auditors will face higher legal liability when their clients are cross-listed in countries with stronger legal regimes than their home countries. Thus, we include *CROSS*, coded 1 for firms cross-listed on the U.S. markets and 0 otherwise.[5] We expect *LEV*, *SPECIAL*, *LOSS*, and *CROSS* will be positively associated with *LN_AF*, whereas *ROA*, *MTB*, *CR*, and *CFO* will be negatively associated with *LN_AF*. We also include three dummy variables to control for auditor and engagement attributes likely to affect audit fees (Hay et al., 2006). *AO* is coded 1 for firms receiving qualified audit opinions and 0 otherwise, *BUSY* is coded 1 for firms having the fiscal year-end at the auditor busy season and 0 otherwise,[6] and *BIGN* is coded 1 for firms audited by one of BigN audit firms and 0 otherwise. All these audit-related variables are expected to have positive relationships with audit fees.

We include three country-level control variables that may influence cross-country variations in audit fees. *LNGDP* (the natural log of gross domestic product per capita) is expected to be positively associated with audit fees, as the demand for audit services and auditors' reservation compensation are likely to be higher in countries with better economic conditions (Choi et al., 2008). We use two measures for country-level investor protection that have been found to be positively associated with audit fees (e.g., Jaggi & Low, 2011): *PROTECT* is an anti-self-dealing index developed by Djankov et al. (2008), and legal origin (*LAW*) is a dummy variable, coded 1 for firms from common law countries and 0 for firms from code law countries. We also include year, industry, and country fixed effects in Equation 2.

In order to mitigate the omitted variable concerns, we also include some additional controls in the sensitivity analysis. In particular, we add *M&A* (a dummy variable coded 1 for firms with merger and acquisition activities in the current year and 0 otherwise) and *FOR_SALE* (proportion of foreign sales to total sales). Both *M&A* and *FOR_SALE* proxy for firm complexity and, hence, we expect these variables to be positively associated with audit fees. In addition, following Kim et al. (2012), we include an aggregate public enforcement index (*ENFORCE*) as an additional country-level legal environment variable. This index is the average of the supervisor characteristics index, the rule-making power index, the investigative powers index, the orders index, and the criminal index collected from La Porta, Lopez-de-Silanes, and Shleifer (2006). However, inclusion of these additional variables reduces the sample size to 89,731 firm-year observations. We also include two additional firm-level control variables (SG&A deflated by total assets) (*SGA/AT*) and total accruals defined as net income minus operating cash flows scaled by total assets (*ACCRUALS*) and four firm-level corporate governance variables, namely, *BSIZE* (number of board members), *BIND* (proportion of independent directors), *ACM* (coded 1 if firm has an audit committee and 0 otherwise), and *CEODUAL* (coded 1 for firms whose CEO and the chairman of the board are the same person and 0 otherwise).

We estimate the following equation to test H2A, which hypothesized a moderating role for firm-level risk factors on the association between organization capital and audit fees.

$$\begin{aligned} LNA\bar{F}_{i,t} = {} & \beta_0 + \beta_1 OC_{i,t} + \beta_2 RISK_{i,t} + \beta_3 OC_{i,t} \\ & * RISK_{i,t} + Control\ Variables + Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (4.1)$$

We use cash flow volatility (*CFVOL*) and the standard deviation of stock returns (*SDRET*) to proxy for risk. *CFVOL* is defined as the rolling standard deviation of operating cash flows scaled by total assets (*CFO*) over the prior three years. *SDRET* is defined as the standard deviation of monthly stock returns (*RET*) for the fiscal year. A positive and significant coefficient on $OC_{i,t} * RISK_{i,t}$ will support H2A.

We estimate the following equation to test H2B, which hypothesized a moderating role of agency risks on the association between organization capital and audit fees.

$$\begin{aligned} LNA\bar{F}_{i,t} = {} & \beta_0 + \beta_1 OC_{i,t} + \beta_2 AGENCY_{i,t} + \beta_3 OC_{i,t} \\ & * AGENCY_{i,t} + Control\ Variables + Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (4.2)$$

We use four commonly used proxies to capture agency risks facing a firm. First, we include the firm-level corporate social responsibility (*CSR*) score. Prior research suggests that the corporate governance role of CSR is an effective mechanism for reducing the agency problem (Cheung, 2016). Our second measure of agency risk is the dividend payout (*DIV*), defined as common dividends scaled by total assets. We replace missing dividends with zero. Prior research suggests that a higher dividends payout reduces cash holdings, which would otherwise be invested in negative NPV projects (Jensen, 1986). We use the leverage ratio (*LEV*) as our third proxy for agency risk, as prior studies show that leverage can serve as a monitoring mechanism that reduces the agency problem (Jensen, 1986). Finally, we include free cash flows scaled by total assets (*FCF*) as an agency risk factor. Studies show that the agency problem is more severe in firms with high free cash flows (Griffin et al., 2010; Jensen & Meckling, 1976).

In H3, we hypothesize that employee protection legislation (*EPL*) will moderate the association between *OC* and *LN_AF*. The following regression specification tests this hypothesis:

$$\begin{aligned} LNA\bar{F}_{i,t} = {} & \beta_0 + \beta_1 OC_{i,t} + \beta_2 EPL_{i,t} + \beta_3 OC_{i,t} \\ & * EPL_{i,t} + Control\ Variables + Fixed\ Effects + \varepsilon_{i,t} \end{aligned} \quad (5)$$

where *EPL* is a proxy of the strength of country-level employment protection regulations. We use the *EPL* index for the OECD 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."[7] It includes two category scores for regular workers (i.e., *EPR* for individual dismissal and *EPC* for additional costs of collective dismissals) and one category score for the regulation of temporary contracts (i.e., *EPT*). Consistent with prior studies (Banker, Byzalov, & Chen, 2013; Pagano & Volpin, 2005), we measure EPL as the sum of equally weighted scores of *EPR*, *EPC*, and *EPT*. Our main variable of

TABLE 2 Descriptive statistics and country distribution

Panel A: Descriptive statistics					
Variable	***M***	***SD***	**0.25**	***Mdn***	**0.75**
LN_AF	5.29	1.63	4.27	5.20	6.23
OC1	0.25	0.29	0.07	0.15	0.30
OC2	0.04	0.23	−0.07	0.01	0.10
OC3	5.61	1.80	5.28	5.97	6.51
SIZE	12.56	1.89	11.25	12.42	13.70
LEV	0.47	0.23	0.30	0.47	0.64
INVREC	0.30	0.19	0.15	0.29	0.42
ROA	0.01	0.14	0.00	0.03	0.07
MTB	2.46	3.05	0.78	1.50	2.92
CR	2.73	3.30	1.18	1.74	2.86
CFO	0.05	0.12	0.01	0.06	0.11
NBS	0.68	0.72	0.00	0.69	1.39
NGS	0.67	0.66	0.00	0.69	1.10
SPECIAL	0.88	0.32	1.00	1.00	1.00
LOSS	0.23	0.42	0.00	0.00	0.00
CROSS	0.03	0.16	0.00	0.00	0.00
AO	0.01	0.11	0.00	0.00	0.00
BUSY	0.80	0.40	1.00	1.00	1.00
BIGN	0.61	0.49	0.00	1.00	1.00
M&A	0.29	0.45	0.00	0.00	1.00
FOR_SALE	0.28	0.33	0.00	0.12	0.53
LNGDP	9.95	1.16	9.09	10.55	10.76
PROTECT	0.64	0.19	0.50	0.64	0.76
LAW	0.49	0.50	0.00	0.00	1.00
ENFORCE	0.55	0.34	0.25	0.67	0.87
Variables used as additional controls					
SG&A/AT	0.06	0.06	0.02	0.04	0.07
ACCRUALS	−0.04	0.10	−0.07	−0.03	0.01
BSIZE	9.78	3.17	8.00	9.00	11.00
BIND	0.55	0.29	0.33	0.60	0.80
ACM	0.92	0.27	1.00	1.00	1.00
CEODUAL	0.42	0.49	0.00	0.00	1.00
Moderating variables					
CFVOL	0.01	0.03	0.00	0.01	0.01
SDRET	0.13	0.08	0.07	0.11	0.16
CSR	0.51	0.18	0.38	0.51	0.65
DIV	0.02	0.03	0.00	0.01	0.02
FCF	−0.01	0.12	−0.04	0.01	0.05
EPL	1.66	0.52	1.13	1.64	1.83

Panel B: Country distribution									
Country	***N***	***%N***	***LN_AF***	***OC1***	***EPL***	***LNGDP***	***PROTECT***	***LAW***	***ENFORCE***
Australia	6,410	4.39%	5.01	0.30	1.74	10.87	0.76	1	0.90
Austria	226	0.15%	6.01	0.34	2.31	10.78	0.21	0	0.17
Belgium	427	0.29%	6.01	0.33	3.15	10.71	0.54	0	0.15
Brazil	40	0.03%	6.49	0.17	-	9.28	0.27	0	0.58

interest in Equation 4 is the interaction between *OC* and *EPL* (i.e.,$OC_{i,t}$ * $EPL_{i,t}$). A significantly negative β_3 will support H3.

4 | EMPIRICAL RESULTS

4.1 | Descriptive Statistics

Table 2 Panel A shows the descriptive statistics for the variables included in our analyses. The mean (median) value of *LN_AF* is 5.29 (5.20). The average proportion of organization capital to total assets (i.e., *OC1*) is 0.25. The average proportion of organization capital to total assets based on the Enache and Srivastava (2018) model (i.e., *OC2*) is 0.04. Average firms in our sample are large (*SIZE* = 12.56), with moderate growth opportunities (*MTB* = 2.46) and profitability (*ROA* = 0.01). Although the leverage ratio is relatively higher for average firms (*LEV* = 0.47), the short-term financial flexibility is favorable (*CR* = 2.73). In addition, about 23% of firms report negative income (*LOSS* = 0.23), while 3% of sample firms are cross-listed on the U.S. markets. On average, 61% of sample firms are audited by BIGN

TABLE 2 (Continued)

Panel B: Country distribution

Country	*N*	%*N*	*LN_AF*	*OC1*	*EPL*	*LNGDP*	*PROTECT*	*LAW*	*ENFORCE*
Canada	5,347	3.66%	5.35	0.20	1.38	10.75	0.64	1	0.80
China	18,992	13.01%	4.79	0.09	-	8.79	0.76	0	-
Denmark	650	0.45%	6.00	0.35	2.14	10.98	0.46	0	0.37
Finland	682	0.47%	5.80	0.47	1.80	10.77	0.46	0	0.32
France	2,727	1.87%	6.40	0.41	3.14	10.62	0.38	0	0.77
Germany	2,840	1.95%	5.97	0.40	2.44	10.69	0.28	0	0.22
Greece	65	0.04%	5.16	0.21	-	10.11	0.22	0	0.32
Hong Kong	8,067	5.53%	5.60	0.18	-	10.48	0.96	1	0.87
India	10,890	7.46%	3.12	0.22	-	7.14	0.58	1	0.67
Indonesia	64	0.04%	5.30	0.15	-	8.04	0.65	0	0.62
Ireland	161	0.11%	5.86	0.21	1.77	10.90	0.79	1	0.37
Israel	94	0.06%	6.81	0.18		10.38	0.73	1	0.63
Italy	911	0.62%	6.16	0.43	2.93	10.45	0.48	0	0.42
Japan	22,674	15.53%	6.04	0.33	1.83	10.62	0.50	0	-
Malaysia	5,568	3.81%	3.92	0.13	-	9.08	0.95	1	0.77
Mexico	62	0.04%	6.48	0.20	-	9.14	0.17	0	0.35
Netherlands	537	0.37%	7.18	0.41	2.27	10.83	0.20	0	0.47
New Zealand	496	0.34%	5.19	0.29	0.84	10.49	0.95	1	0.33
Norway	778	0.53%	5.77	0.28	2.61	11.37	0.42	0	0.32
Pakistan	1,481	1.01%	2.78	0.11	-	7.05	0.41	1	0.58
Philippines	286	0.20%	3.64	0.12	-	7.63	0.22	0	0.83
Poland	1,791	1.23%	3.49	0.21	-	9.48	0.29	0	-
Portugal	160	0.11%	5.72	0.29	2.64	10.00	0.44	0	0.58
Russia	188	0.13%	5.78	0.19	-	9.20	0.44	0	-
Singapore	2,382	1.63%	5.22	0.18	-	10.80	1.00	1	0.87
South Africa	881	0.60%	6.47	0.26	-	8.69	0.81	1	0.25
South Korea	10,480	7.18%	4.29	0.16	-	10.08	0.47	0	0.25
Spain	705	0.48%	6.36	0.25	2.94	10.30	0.37	0	0.33
Sri Lanka	1,052	0.72%	2.71	0.14		8.03	0.39	1	0.43
Sweden	2,009	1.38%	5.63	0.40	2.00	10.90	0.33	0	0.50
Switzerland	805	0.55%	6.65	0.36	2.12	11.29	0.27	0	0.33
Taiwan	5,892	4.04%	4.54	0.13	-	9.94	0.56	0	0.52
Thailand	667	0.46%	4.22	0.16	-	8.51	0.81	1	0.72
Turkey	162	0.11%	5.82	0.16	-	9.26	0.43	0	0.63
United Kingdom	5,969	4.09%	5.56	0.37	1.49	10.64	0.95	1	0.68
United States	22,361	15.32%	6.85	0.34	1.13	10.81	0.65	1	0.90

TABLE 3 Correlation analysis

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]
LN_AF [1]	1.00																		
OC1 [2]	***0.09***	1.00																	
SIZE [3]	***0.72***	***−0.22***	1.00																
LEV [4]	***0.21***	***0.09***	***0.29***	1.00															
INVREC [5]	***−0.11***	***0.07***	***−0.05***	***0.25***	1.00														
ROA [6]	***0.04***	***−0.15***	***0.24***	***−0.09***	***0.18***	1.00													
MTB [7]	***0.05***	***0.06***	−0.01	***0.04***	***−0.05***	***0.02***	1.00												
CR [8]	***−0.16***	***−0.08***	***−0.23***	***−0.54***	***−0.19***	***−0.09***	***0.02***	1.00											
CFO [9]	***0.13***	***−0.04***	***0.24***	0.00	0.01	***0.65***	***0.03***	***−0.17***	1.00										
NBS [10]	***0.38***	***0.06***	***0.36***	***0.14***	***0.02***	***0.07***	***−0.06***	***−0.13***	***0.09***	1.00									
NGS [11]	***0.38***	***0.06***	***0.30***	***0.07***	***−0.02***	***0.04***	−0.01	***−0.05***	***0.09***	***0.21***	1.00								
SPECIAL [12]	***0.03***	***−0.07***	***0.13***	***0.09***	***0.02***	***0.02***	***−0.08***	***−0.11***	***0.03***	***0.05***	***−0.02***	1.00							
LOSS [13]	***−0.07***	***0.10***	***−0.25***	***0.03***	***−0.20***	***−0.65***	***−0.02***	***0.13***	***−0.44***	***−0.10***	***−0.03***	***−0.04***	1.00						
CROSS [14]	***0.07***	−0.01	***0.05***	***−0.05***	***−0.11***	***−0.07***	0.00	***0.06***	***−0.04***	***−0.03***	***0.06***	−0.01	***0.08***	1.00					
AO [15]	***−0.05***	***0.05***	***−0.10***	***0.02***	***−0.05***	***−0.14***	−0.01	0.01	***−0.11***	***−0.03***	0.00	−0.01	***0.12***	***0.03***	1.00				
BUSY [16]	***−0.09***	***−0.16***	***0.06***	***0.05***	***0.02***	0.00	0.01	***−0.03***	***−0.03***	***−0.07***	***−0.09***	***0.03***	***−0.02***	0.01	***−0.02***	1.00			
BIGN [17]	***0.46***	***0.07***	***0.31***	***0.06***	***−0.09***	***0.06***	***−0.08***	***−0.07***	***0.13***	***0.20***	***0.24***	***−0.02***	***−0.04***	***0.04***	***−0.06***	***−0.11***	1.00		
LNGDP [18]	***0.57***	***0.21***	***0.14***	***−0.06***	***−0.20***	***−0.16***	***−0.04***	***0.05***	***−0.04***	***0.18***	***0.21***	***−0.08***	***0.15***	***0.11***	***0.02***	***−0.17***	***0.44***	1.00	
PROTECT [19]	***−0.03***	***−0.12***	***−0.02***	***−0.12***	***−0.09***	***−0.04***	***0.09***	***0.09***	***−0.07***	***−0.03***	***0.07***	***0.04***	***0.04***	***0.04***	***0.06***	***−0.14***	***−0.16***	0.00	1.00
LAW [20]	−0.00	***0.05***	***−0.11***	***−0.04***	***−0.14***	***−0.11***	0.00	***0.11***	***−0.04***	***−0.07***	***0.23***	***−0.14***	***0.16***	***0.09***	***0.10***	***−0.21***	0.00	***0.16***	***0.55***

Note. Italicized and bold-faced correlations are significant at $p < 0.01$. Variables are defined in the Appendix.
This table reports the correlations between the variables used in the main regression.

firms and only 1% of the sample firms receive qualified audit opinions (*AO*). About 80% of the firm-year observations have their fiscal year-end during the auditors' busy season. In terms of firm-level corporate governance, we find that average board size (*BSIZE*) is 9.78. In addition, 55% of board members are independent (*BIND*) and 42% of sample firms have CEO duality (*CEODUAL*).

Table 2, Panel B reports the mean values of the main variables (i.e., *LN_AF* and *OC1*) and country-level control variables for each of the 40 countries included in our sample. None of these countries dominates the entire sample, suggesting that sample concentration may not be a problem in this study. Specifically, firms from Japan represent the largest proportion of the sample (i.e., 15.53%), followed by U.S. firms (15.32%) and Chinese firms (13.01%). However, firms from Brazil, Greece, Indonesia, Israel, and Mexico represent only about 0.2% of the sample. Firms from European countries (i.e., Finland, France, Germany, Italy, the Netherlands, and Sweden) have relatively higher organization capital (i.e., more than 0.40) compared with other countries. Finally, audit fees are highest in the Netherlands, but lowest in India.

Table 3 presents the correlation matrix between main variables included in our baseline model. Consistent with H1, the *LN_AF* is significantly and positively correlated with *OC1* (correlation coefficient 0.09, $p < 0.01$). The pairwise correlation between *LN_AF* and *OC2* is 0.08 ($p < 0.01$), and that between *LN_AF* and *OC3* is 0.37 ($p < 0.01$) (untabulated). This provides univariate support for our argument that auditors charge higher fees for firms with higher organization capital. Audit fees (*LN_AF*) are higher for larger firms (*SIZE*; coefficient 0.72),

TABLE 4 Baseline regression: Organization capital and audit fees

	(1)	(2)	(3)	(4)	(5)
Variables	**DV = LN_AF**	**DV = LN_AF**	**DV = LN_AF**	**DV = LN_AF**	**DV = LN_AF**
OC1	0.543*** [25.83]	0.373*** [20.86]	0.394*** [20.63]	-	-
OC2	-	-	-	0.287*** [14.21]	-
OC3	-	-	-	-	0.021*** [2.89]
SIZE	0.587*** [158.47]	0.515*** [138.56]	0.516*** [121.41]	0.483*** [110.87]	0.548*** [38.61]
LEV	0.032 [1.30]	0.039* [1.90]	0.096*** [3.86]	0.216*** [8.38]	0.451*** [6.15]
INVREC	0.190*** [6.39]	0.164*** [6.47]	0.175*** [5.51]	0.169*** [5.11]	0.269* [1.96]
ROA	−0.643*** [−21.12]	−0.378*** [−14.57]	−0.331*** [−10.19]	−0.346*** [−10.33]	−0.520*** [−4.29]
MTB	0.037*** [27.91]	0.018*** [15.82]	0.016*** [11.13]	0.009*** [6.47]	0.008*** [2.82]
CR	−0.004*** [−3.23]	−0.012*** [−10.04]	−0.011*** [−6.54]	−0.006*** [−3.32]	−0.010 [−1.53]
CFO	0.066** [2.01]	0.097*** [3.44]	−0.039 [−1.07]	−0.095** [−2.44]	−0.059 [−0.40]
NBS	0.115*** [14.66]	0.038*** [5.66]	0.055*** [6.61]	0.050*** [6.02]	0.092*** [3.19]
NGS	0.113*** [16.03]	0.137*** [21.67]	0.102*** [13.70]	0.115*** [14.57]	0.105*** [5.59]
SPECIAL	0.046*** [3.92]	0.138*** [12.73]	0.105*** [8.95]	0.096*** [7.55]	0.096*** [2.76]
LOSS	−0.016* [−1.83]	0.036*** [4.70]	0.051*** [5.32]	0.052*** [5.22]	0.064** [2.31]
CROSS	−0.109*** [−3.44]	0.135*** [4.20]	0.148*** [4.30]	0.237*** [5.48]	0.002 [0.02]
M&A	-	-	0.182*** [22.08]	0.166*** [19.01]	0.183*** [7.81]
FOR_SALE	-	-	0.389*** [22.97]	0.313*** [17.90]	0.559*** [10.87]
AO	−0.017 [−0.51]	−0.012 [−0.43]	0.007 [0.21]	−0.019 [−0.47]	0.066 [0.72]
BUSY	−0.062*** [−4.80]	0.017 [1.54]	0.019 [1.64]	0.026** [2.14]	0.122*** [3.73]
BIGN	0.177*** [15.88]	0.317*** [31.53]	0.309*** [24.78]	0.304*** [23.50]	0.122** [2.54]
LNGDP	0.565*** [94.92]	0.401*** [23.98]	0.460*** [13.91]	0.483*** [12.89]	−0.032 [−0.26]
PROTECT	−0.141*** [−4.21]	−8.373*** [−34.68]	−8.381*** [−31.85]	−8.747*** [−26.59]	−3.914*** [−2.87]
LAW	0.309*** [23.49]	1.315*** [6.51]	3.033*** [11.11]	3.269*** [10.58]	2.631* [1.66]
ENFORCE	-	-	−7.878*** [−22.13]	−8.155*** [−17.09]	−2.043 [−1.11]
Constant	−8.771*** [−107.61]	−1.594*** [−6.04]	2.986*** [6.37]	3.357*** [5.94]	−0.221 [−0.16]
Industry	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes
Country	No	Yes	Yes	Yes	Yes
Adjusted R^2	0.80	0.85	0.86	0.84	0.91
Observations	145,979	145,979	89,731	68,574	8,955

Note. This table reports the ordinary least squares (OLS) regression results of the relationship between organization capital and audit fees. Robust *t*-statistics (clustered at the firm level) are reported in parentheses.

*, **, *** denote a two-tailed *p*-value of less than 0.10, 0.05, and 0.01, respectively. Variable definitions are provided in the Appendix.

TABLE 5 Other robustness tests

Panel A: Inclusion of additional firm-level control variables and corporate governance variables

	Control for SG&A and accruals variables			Control for CG, accruals, and CSR variables			Control for SG&A, CG, and CSR variables		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF	DV = LN_AF
OC1	0.080*** [3.09]	-	-	0.476*** [8.80]	-	-	0.227*** [3.00]	-	-
OC2	-	0.051** [2.40]	-	-	0.284*** [5.65]	-	-	0.063** [1.99]	-
OC3	-	-	0.015** [2.21]	-		0.011* [1.95]	-	-	0.020* [1.83]
SGA/AT	1.952*** [13.73]	1.806*** [14.59]	2.224*** [7.56]	-	-	-	1.322*** [3.56]	2.127*** [7.26]	0.921* [1.86]
ACCRUALS	−0.009 [−0.10]	−0.025 [−0.27]	−0.012 [−0.03]	0.218 [0.90]	0.199 [0.79]	0.444 [0.42]	0.22 [0.90]	0.266 [1.05]	−0.399 [−0.42]
BSIZE	-	-	-	0.014*** [3.33]	0.015*** [3.56]	0.026*** [5.98]	0.013*** [3.26]	0.015*** [3.50]	0.044*** [4.51]
BIND	-	-	-	0.322*** [6.10]	0.314*** [5.77]	0.223*** [3.20]	0.321*** [6.06]	0.303*** [5.53]	0.263** [2.06]
ACM	-	-	-	−0.020 [−0.56]	−0.028 [−0.76]	−0.098 [−1.52]	−0.018 [−0.51]	−0.030 [−0.83]	−0.049 [−0.68]
CEODUAL	-	-	-	0.007 [0.35]	0.023 [1.10]	−0.020 [−1.04]	0.006 [0.32]	0.017 [0.79]	−0.039 [−0.96]
CSR	-	-	-	0.107*** [2.97]	0.239*** [3.33]	0.192*** [3.03]	0.114* [1.66]	0.215*** [2.97]	0.551*** [3.16]
Other control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	3.242*** [6.91]	3.372*** [6.02]	−0.725 [−0.52]	−1.20 [−1.34]	−0.957 [−0.92]	−5.016*** [−2.98]	−1.002 [−1.12]	−0.939 [−0.89]	−2.876 [−1.27]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.86	0.84	0.91	0.79	0.74	0.82	0.79	0.79	0.78
Observations	89,731	68,574	8,955	17,466	14,377	5,029	17,466	14,185	5,029

Panel B: Regression results for U.S. and non-U.S. subsamples

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	US	Japan	Rest of the world[a]	US	Japan	Rest of the world
OC1	0.281*** [9.06]	0.420*** [12.52]	0.479*** [17.36]	-	-	-
OC2	-	-	-	0.307*** [7.84]	0.374*** [8.76]	0.387*** [10.16]
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	−25.85*** [−25.89]	−169.93*** [−3.91]	1.64 [1.47]	−25.995*** [−25.80]	−173.719*** [−4.09]	0.855 [0.71]
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Country	No	No	Yes	No	No	Yes

TABLE 5 (Continued)

Panel B: Regression results for U.S. and non-U.S. subsamples

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**US**	**Japan**	**Rest of the world[a]**	**US**	**Japan**	**Rest of the world**
Adjusted R^2	0.82	0.77	0.84	0.82	0.77	0.80
Observations	20,448	14,445	52,832	20,214	14,354	33,900

[a] Rest of the world sample excludes observations from the US, Japan, Russia, and France.

Panel C: High-tech and non-high-tech subsample

	(1)	(2)	(3)	(4)
Variables	**High tech industries**	**Non High-tech industries**	**Intangible/AT>Median**	**Intangible/AT<=Median**
OC1	0.444*** [8.73]	0.389*** [19.23]	0.393*** [13.66]	0.346*** [14.33]
Other control variables	Yes	Yes	Yes	Yes
Constant	1.583 [1.02]	3.059*** [6.08]	−6.081*** [−8.31]	−2.161*** [−4.57]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Adjusted R^2	0.87	0.84	0.87	0.84
Observations	8,900	80,831	32,761	35,199
Test of difference in coefficients (Chi2) (column 1 versus 2)	8.04 (p-value 0.0046)		-3.75 (p-value 0.053)	
Test of difference in coefficients (Chi2) (column 3 versus 4)	-			

Note. This table reports the sensitivity analysis of the relationship between organization capital and audit fees after including additional controls. Robust t-statistics (clustered at the firm level) are reported in parentheses. *,**,*** denote a two-tailed *p*-value of less than 0.10, 0.05, and 0.01, respectively. Variable definitions are provided in the Appendix.

risker firms (*LEV*; coefficient 0.21), and more complex firms (both coefficients are 0.38 for *NBS* and *NGS*, respectively), but lower for firms with more inventories and receivables (*INVREC*; coefficient − 0.11) and a higher current ratio (*CR*; coefficient − 0.16). Finally, firms audited by *BIGN* audit firms and firms from countries with better economic conditions (*LNGDP*) tend to pay higher audit fees (the coefficients are 0.46 and 0.57, respectively).

4.2 | Regression Results: Organization Capital and Audit Fees (H1)

We report our baseline results on the relation between organization capital and audit fees in Table 4. We use OLS regression estimates and report *t*-statistics in parentheses that are computed using heteroscedasticity-robust standard errors clustered by firm.[8] We use several specifications across Columns (1) to (5). In Column (1), we present regression results of Equation 3 that include firm- and country-level basic controls, and industry and year fixed effects, while in Column (2), we add country fixed effects. Column (3) reports the results with additional control variables (*M&A*, *FOR_SALE*, and *ENFORCE*). We find that, the coefficients on organization capital (i.e., *OC1*) are positive and statistically significant at the 1% level in all three columns (coefficients = 0.543, 0.373 and 0.394 in Columns (1)–(3), respectively), suggesting that firms with higher organization capital pay more audit fees. Our regression estimates are also economically meaningful. For example, the coefficient on *OC1* (=0.373) reported in Column (2) suggests that a one standard deviation increase in *OC1* (=0.29) results in a 10.82% increase (i.e., 0.29*0.373) in audit fees for average firms. Given the unlogged average audit fees of $0.91 million (untabulated), this translates into an average increase in audit fees of about $0.083 million. In Column (4), we report results for organization capital measure of Enache and Srivastava (2018) and continue to find qualitatively similar result (coefficient for *OC2* = 0.287; $p < 0.01$). Finally, in Column (5), we employ organization capital measure of Corrado et al. (2005) and obtain positive and significant coefficient for *OC3* (coefficient = 0.021; $p < 0.01$). The adjusted *R*-squared from regression estimates is similar to that of other international audit fee research (e.g., Zhang, Xu, Tong, & Ye, 2018), indicating that our model is well specified.[9] We also find that, the coefficients on most control variables are consistent with our expectations and previous literature (e.g., Hay et al., 2006). The coefficients on *SIZE*, *LEV*, *NGS*, *CROSS*, *BIGN*, and *LNGDP* are generally positive and highly significant, suggesting that larger, riskier, and more complex firms, and firms audited by big auditors and located in richer countries tend to pay higher audit fees.

4.3 | Sensitivity Analysis

4.3.1 | Inclusion of Additional Controls

In Panel A, Table 5, we examine the sensitivity of our findings after including additional controls. Given that our organization capital measure is constructed based on SG&A expenses, one may argue that our results are driven by SG&A expenses and not by organization capital. In addition, the total accruals reported by firms may proxy for the cash flow risk associated with earnings and, hence, could be priced by auditors (Cho, Ki, & Kwon, 2017). Therefore, in Columns (1) to (3) we include SG&A expenses scaled by total assets (*SGA/AT*), and total accruals (net income minus operating cash flows) scaled by total assets (*ACCRUALS*), as additional controls. Results show that the coefficients on organization capital remain positive and significant (i.e., coefficient on *OC1* is 0.080, $p < 0.01$; coefficient on *OC2* is 0.051, $p < 0.05$; and coefficient on *OC3* is 0.015, $p < 0.05$). Prior studies show that the corporate governance structure has important implications for audit pricing (e.g., Carcello, Hermanson, Neal, & Riley, 2002; Hay, Knechel, & Ling, 2008; LópezPuertas-Lamy, Desender, & Epure, 2017; Zaman, Hudaib, & Haniffa, 2011). Therefore, in Columns (4) to (6), we control for the following variables: *BSIZE*, *BIND*, *ACM*, *CEODUAL*,, and *CSR* (net CSR score of the firms).[10] The coefficient on organization capital remains positive and significant at the conventional level, corroborating our earlier findings. We continue to find consistent results when we include all the additional variables together in Columns (7) to (9), supporting our hypothesis that auditors will charge more fees when firms' organization capital increases. Overall, the results of these sensitivity tests are consistent with our main evidence.

4.3.2 | U.S. versus Non-U.S. Subsample

We further test the robustness of our findings using subsample analyses and report them in Panel B. In Columns (1) and (4), we rerun the baseline regression for the U.S. sample only. We find that coefficients on organization capital remain positive and highly significant (coefficient = 0.281, $p < 0.01$ for *OC1* and coefficient = 0.307, $p < 0.01$ for *OC2*). Results in Columns (2) and (5) show that the relation between organization capital and audit fees is positive and significant for the subsample of firms in Japan. Finally, when we rerun the baseline regression for countries other than the United States, Japan, Russia, and France (Columns 3 and 6), we continue to find that the relation between organization capital and audit fees is positive and significant ($p < 0.01$).[11] Untabulated results show the relation between organization capital and audit fees remains positive and significant for the United States (coefficient 0.039, $p < 0.05$) and the rest of the world (coefficient 0.038, $p < 0.01$) subsamples when the compensation-based organization capital measure (i.e., *OC3*) is used in the regression model.[12] Overall, we provide evidence that the positive relationship between organization capital and audit fees is *not* confined to any specific country.

4.3.3 | High-tech versus Non-high-tech Subsample

We further attempt to investigate whether the relation between organization capital and audit fees varies between high-tech and non-

high-tech firms. The motivation for this analysis stems from evidence that firms belonging to the high-tech industry group have higher intangible assets, but lower physical assets (Carpenter & Petersen, 2002). These firms are risky, and they also have higher information asymmetry (Aboody & Lev, 2000). Therefore, there may be a concern that our documented positive relation between organization capital and audit fees is driven by the high-tech subsample.[13] To mitigate this concern, we re-run the regression for both high-tech and non-high-tech subsamples and report the results from this analysis in Panel C of Table 5. We find that the positive relation between organization capital and audit fees remains robust for both high-tech and non-high-tech subsamples (Columns 1–2). However, a comparison of coefficients reveals that this positive relation is stronger for the high-tech sub-sample relative to its non-high-tech counterpart (*Chi-square statistic* is 8.04, significant at $p < 0.01$). To further alleviate the concern with the intangibles associated with high organization capital firms, we classify the sample into high vs. low intangible assets, expressed as a percentage of total assets, and rerun the baseline regression. Results reported in Columns (3) and (4) show that the positive relation between organization capital and audit fees remains robust for both subsamples. A comparison of coefficients reveals that this positive relation is stronger for the high-intangibles subsample relative to its low-intangibles counterpart (*Chi-square statistic* is 3.75; $p < 0.10$).

4.4 | Additional sensitivity tests

i We chose 2001 as the beginning year for the sample because of the subsequent growing coverage of firms in the databases. However, there are two important exogenous shocks that might have affected audit fees significantly, namely, 2002 Sarbanes-Oxley Act (SOX) and the adoption of the IFRS in 2005 by a large number of our sample countries. We therefore reran our baseline regression using data from 2006 to rule out the possible confounding effect of these changes to the audit market on our regression result. Our results, however, remain unaffected. For example, the coefficient on *OC1* is 0.396 (*t*-stat 20.95, $p < 0.001$) for the Column (3), Table 4, specification. The corresponding coefficients for *OC2* and *OC3*, too, continued to be positive and significant (coefficients 0.341 and 0.022, respectively, both significant at $p < 0.001$) (untabulated).

ii We further included *BIGNSHARE* (the ratio of the sum of assets audited by Big N over sum of assets of all sample firms within the country); *SPECIALIST* (each auditor's industry market share in a specific year, based on the percentage of companies audited in that industry); *AUDIT_CHANGE* (auditor change, a dummy variable coded 1 if auditor change took place, and 0 otherwise); *AUDIT_TENURE* (number of years the incumbent auditor has audited the client); and *CROSS_ALT* (coded 1 if the firms are cross-listed on the US *or* UK markets, and 0 otherwise), as alternative proxies for the auditor characteristics and cross-listing features. Our results remain qualitatively unchanged. For example, the coefficients on *OC1* (0.358, $p < 0.01$) and *OC2* (0.362, $p < 0.01$) continue to be positive and significant. We find the coefficients on *BIGNSHARE* and *CROSS_ALT* to be positive and significant, while that on *AUDIT_CHANGE* is negative and significant (untabulated).

4.5 | Endogeneity Tests

In our main analysis, we show that our results are not driven by omitted variable bias. In this section, to further mitigate the endogeneity concerns, we use two-stage-least-squares regression (2SLS), propensity score matching (PSM), and a change analysis.

4.5.1 | Two-Stage Least Squares (2SLSL) Analysis

We apply two-stage-least-squares (2SLS) regression with an instrumental variable (IV) approach. Following prior studies (Li et al., 2018), we use the industry-level growth uncertainty (*GRW_UNC*) as our instrument. In particular, we first calculate firm-level standard deviations of asset growth rates over the prior 5 years, and then take the *industry-median* of firm-level growth uncertainty (*GRW_UNC*) for each country in each year. We use this instrument, as prior studies (e.g., Carlin, Chowdhry, & Garmaise, 2012) suggest that firms in volatile industries are less likely to invest in organization capital, because uncertainties surrounding these industries reduce the future usefulness of a firm's organization capital. Therefore, we expect firm-level organization capital to be negatively correlated with our instrument (*GRW_UNC*). However, it is unlikely that the industry-level asset uncertainty affects firms' audit fees other than through the firm-level organization capital. Thus, we argue that our IV satisfies the exclusion criterion. We report the results from this analysis in Panel A of Table 6.

The first stage regression results reported in Columns (1) and (3) show that our instrument (*GRW_UNC*) is strongly ($p < 0.01$) negatively associated with organization capital (both *OC1* and *OC2*), confirming that firms belonging to volatile industries tend to invest less in organization capital. To ensure the validity of our instruments, we perform several post-estimation tests. First, we perform the under-identification test by calculating the Kleibergen-Paap rk LM statistic (Kleibergen & Paap, 2006), and find that our IV is relevant as the statistic is significant at the less than 1% level. Second, the results of the weak identification test suggest that our model does not suffer from weak identification, because the Cragg-Donald Wald *F* statistic is far greater than the Stock and Yogo (2005) critical value (16.38).

Second-stage regression results are reported in Columns (2) and (4). We find that coefficients on the fitted value of organization capital (both *OC1* and *OC2*) remain positive and highly significant ($p < 0.01$), confirming that firms with higher organization capital pay significantly higher fees to their auditors. These results thus corroborate our main findings and suggest that results from our main analysis are not driven by an endogeneity problem.

TABLE 6 Endogeneity tests

Panel A: Two-stage-least-squares (2SLS) regression results				
	(1)	**(2)**	**(3)**	**(4)**
	1st stage	**2nd stage**	**1st stage**	**2nd stage**
Variables	**OC1**	**DV = LN_AF**	**OC2**	**DV = LN_AF**
GRW_UNC	−0.066*** [−17.27]	-	−0.071*** [−22.41]	-
OC1	-	0.744*** [4.84]	-	-
OC2	-	-	-	1.792*** [12.19]
Other controls	Yes	Yes	Yes	
Constant	0.644*** [21.75]	1.613*** [9.99]	0.411*** [12.64]	2.631*** [16.55]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Observations	145,932	145,932	113,943	113,943
Under-identification test:		-		-
Kleibergen-Paap rk LM statistic	253.26	-	556.994	-
P-value	0.0000	-	0.0000	-
Weak identification test		-		-
Cragg-Donald Wald F statistic	326.15	-	816.080	-
Stock-Yogo (2005) critical value	16.38	-	16.38	-
Adjusted R^2	-	0.84		0.81

Panel B: Propensity score matching test			
Section I: Covariate matching			
	(1)	**(2)**	**(3)**
	Nearest neighbor (NN)	**Nearest neighbor (NN)**	**Nearest neighbor (NN)**
Variable	**Treated**	**Control**	**t-statistic**
SIZE	12.11	12.11	−0.06
LEV	0.50	0.50	0.08
INVREC	0.32	0.33	−1.00
ROA	−0.01	0.00	−1.18
MTB	2.73	2.96	−6.16***
CFO	0.05	0.05	−0.26
NGS	0.74	0.73	1.48
CROSS	0.02	0.02	0.62
LNGDP	10.31	10.25	1.62
PROTECT	0.60	0.60	−0.03
LAW	0.52	0.52	−0.37

Section II: Regression results using propensity score matching (PSM) sample				
	NN	**ATE**	**NN**	**ATE**
	DV = Ln_AF	**DV = Ln_AF**	**DV = Ln_AF**	**DV = Ln_AF**
Variables	**(1)**	**(2)**	**(3)**	**(4)**
OC1	0.388*** [30.98]	0.394*** [11.76]	-	-
OC2	-	-	0.314*** [21.02]	0.266*** [12.37]
SIZE	0.531*** [140.58]	0.523*** [51.62]	0.483*** [161.21]	0.477*** [132.06]
LEV	0.104*** [4.04]	0.160*** [3.40]	0.235*** [12.21]	0.246*** [10.27]

TABLE 6 (Continued)

Section II: Regression results using propensity score matching (PSM) sample				
	NN	ATE	NN	ATE
	DV = Ln_AF	DV = Ln_AF	DV = Ln_AF	DV = Ln_AF
Variables	(1)	(2)	(3)	(4)
INVREC	0.015 [0.51]	−0.000 [−0.01]	0.060*** [2.82]	0.076*** [2.83]
ROA	−0.256*** [−5.11]	−0.152 [−1.64]	−0.296*** [−7.53]	−0.254*** [−5.18]
MTB	0.010*** [6.48]	0.012*** [4.68]	0.008*** [7.18]	0.009*** [5.52]
CR	−0.010*** [−4.66]	−0.007** [−2.10]	−0.005*** [−3.52]	−0.007*** [−3.41]
CFO	−0.067 [−1.13]	−0.204* [−1.73]	−0.127*** [−3.03]	−0.215*** [−4.10]
NBS	0.044*** [6.27]	0.075*** [3.45]	0.057*** [10.61]	0.065*** [9.89]
NGS	0.084*** [11.20]	0.079*** [5.52]	0.101*** [16.16]	0.100*** [13.44]
SPECIAL	0.085*** [6.23]	0.116*** [5.40]	0.103*** [10.24]	0.086*** [6.73]
LOSS	0.083*** [6.29]	0.037* [1.75]	0.055*** [5.16]	0.066*** [4.99]
CROSS	0.165*** [5.77]	0.226*** [5.47]	0.299*** [9.98]	0.323*** [9.35]
M&A	0.164*** [15.90]	0.190*** [9.21]	0.166*** [20.68]	0.169*** [17.32]
FOR_SALE	0.400*** [21.38]	0.517*** [16.80]	0.315*** [25.19]	0.303*** [19.57]
AO	−0.014 [−0.38]	−0.083 [−0.81]	−0.012 [−0.28]	−0.093* [−1.84]
BUSY	−0.002 [−0.26]	−0.045** [−2.48]	0.004 [0.47]	0.016* [1.75]
BIGN	0.299*** [25.74]	0.303*** [13.24]	0.284*** [31.22]	0.317*** [27.50]
LNGDP	0.505*** [11.77]	0.525*** [5.79]	0.510*** [12.77]	0.439*** [8.50]
PROTECT	−7.465*** [−31.55]	−7.200*** [−16.54]	−7.889*** [−36.08]	−8.152*** [−27.73]
LAW	2.479*** [9.37]	1.501*** [4.25]	2.815*** [15.15]	3.328*** [13.10]
ENFORCE	−6.618*** [−22.04]	−6.474*** [−12.72]	−7.177*** [−22.53]	−7.385*** [−17.55]
Constant	1.329*** [2.63]	1.918* [1.93]	2.262*** [5.10]	2.920*** [5.11]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Adjusted R^2	0.85	0.86	0.85	0.84
Observations	50,027	31,824	50,659	35,897

Note. This table reports the endogeneity tests results of the relationship between organization capital and audit fees. Panel A presents 2SLS regression results and Panel B presents PSM analysis. Robust *t*-statistics (clustered at the firm level) are reported in parentheses.
*, **, *** denote a two-tailed p-value of less than 0.10, 0.05, and 0.01, respectively. Variable definitions are provided in the Appendix.

4.5.2 | Propensity Score Matching Analysis

Firms may nonrandomly choose the level of organization capital, and the factors affecting firms' choice of organization capital may also influence audit fees. Stated another way, there is a possibility that certain innate features of firms may lead to an increase in both organization capital and audit fees. We use PSM methodology (Rosenbaum & Rubin, 1983, 1985) to mitigate this concern. In particular, we match treated firms with control firms having similar characteristics according to a function of covariates. We select the optimal match based on the nearest neighbor (NN) and the average treatment effect (ATE) techniques as part of the propensity score matching procedure. We report the results in Table 6, Panel B.

In our setting, the basic approach to PSM is to first model the variation of organization capital on the underlying firm-specific determinants.[14] We divide our sample into two groups, based on the mean levels of organization capital. We consider the groups with the above (below) the mean organization capital as the treated (control) group. In this way, we match the firms from a treatment group having a high value of organization capital, with firms from a control group having a low value of organization capital. Importantly, the inclusion of the firm-specific determinants in footnote 11 ensures a proper balance between treated and untreated subjects in the matched sample, which is a key criterion for PSM (Austin, 2011). One important aspect of propensity score matching is to examine the distribution of measured baseline covariates between treated and untreated subjects within

TABLE 7 Moderation tests.

Panel A: Moderating effects of business risk				
	(1)	(2)	(3)	(4)
Variables	**OC1**	**OC2**	**OC1**	**OC2**
OC	0.384*** [13.75]	0.239*** [13.38]	0.374*** [13.39]	0.383*** [15.03]
CFVOL	−0.302** [−2.40]	−0.082 [−1.31]	-	-
*OC*CFVOL*	0.519** [2.17]	0.392* [1.72]	-	-
SDRET	-	-	0.146*** [3.19]	0.201*** [3.73]
*OC*SDRET*	-	-	0.270** [2.23]	0.880*** [5.63]
Other control variables	Yes	Yes	Yes	Yes
Constant	7.529*** [16.75]	2.373*** [6.26]	−2.414*** [−8.40]	0.838 [1.30]
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Adjusted R^2	0.87	0.86	0.82	0.81
Observations	68,732	53,160	67,574	48,004

Panel B: Moderating effects of agency problems								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	**OC1**	**OC2**	**OC1**	**OC2**	**OC1**	**OC2**	**OC1**	**OC2**
OC	0.709*** [6.46]	0.688*** [5.95]	0.409*** [20.14]	0.361*** [25.11]	0.455*** [13.35]	0.545*** [9.65]	0.190*** [9.96]	0.326*** [28.81]
CSR	0.312*** [3.61]	0.331*** [4.64]	-	-	-	-	-	-
*OC*CSR*	−0.414** [−2.02]	−0.722*** [−3.45]	-	-	-	-	-	-
DIV	-	-	0.977*** [4.28]	0.383*** [3.58]	-	-	-	-
*OC*DIV*	-	-	−1.254*** [−3.21]	−0.844*** [−2.79]	-	-	-	-
LEV	-	-	-	-	0.134*** [4.20]	0.211*** [6.71]	-	-
*OC*LEV*	-	-	-	-	−0.109** [−2.24]	−0.364*** [−3.82]	-	-
FCF	-	-	-	-	-	-	0.867*** [11.69]	0.291*** [9.37]
*OC*FCF*	-	-	-	-	-	-	0.328*** [4.35]	−0.168** [−2.53]
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	6.087*** [9.45]	0.563 [0.56]	3.031*** [6.46]	2.867*** [8.59]	2.962*** [6.32]	3.072*** [5.44]	3.213*** [6.24]	−1.627*** [−9.02]
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.79	0.78	0.86	0.85	0.86	0.84	0.84	0.84
Observations	18,938	15,680	89,731	67,794	89,731	67,800	89,731	66,959

TABLE 7 (Continued)

Panel C: Moderating effects of country-level institutional variable (employment protection legislation)		
	(1)	(2)
variables	Sample period 2002–2013	
Panel C: Moderating effects of country-level institutional variable (employment protection legislation)		
	(1)	(2)
variables	Sample period 2002–2013	
OC1	0.469*** [6.92]	0.366** [2.35]
EPL	−0.165 [−1.34]	0.514*** [3.84]
LNGDP	0.314*** [5.28]	0.311*** [5.84]
PROTECT	−6.275*** [−7.89]	−12.527*** [−14.57]
LAW	5.980*** [6.52]	12.858*** [12.83]
ENFORCE	−5.356*** [−6.03]	−11.703*** [−12.33]
*OC1*EPL*	−0.088** [−2.20]	−0.178*** [−3.14]
*OC1*LNGDP*	-	−0.026 [−1.47]
*OC1*PROTECT*	-	0.498** [2.51]
*OC1*LAW*	-	−0.145 [−0.82]
*OC1*ENFORCE*	-	−0.232* [−1.73]
Other control variables	Yes	Yes
CG variables (firm-level)	No	No
Constant	−2.363*** [−3.22]	2.682*** [9.59]
Industry	Yes	Yes
Year	Yes	Yes
Country	Yes	Yes
Adjusted R^2	0.82	0.78
Observations	33,363	33,363
Number of countries	20	20

Note. This table reports the moderation test results for the relationship between organization capital and audit fees. Panel A shows the moderating role of business risk, Panel B shows the moderating role of agency problems, and Panel C shows the moderating role of employment protection legislation (EPL). Robust *t*-statistics (clustered at the firm level) are reported in parentheses.
*, **, *** denote a two-tailed *p*-value of less than 0.10, 0.05, and 0.01, respectively. Variable definitions are provided in the Appendix.

the propensity score–matched sample. If, after conditioning on the propensity score, no systematic differences exist in baseline covariates between treated and untreated subjects, the propensity score model has been correctly specified (Austin, 2011).

In Section I of Table 6, Panel B, none of the included covariates, except for *MTB*, is significantly different between the treated and the control subgroups. Section II of Panel B, Table 6, shows the regression results from the PSM analysis. We find that coefficients on *OC1* are positive and significant across both PSM techniques. For example, the coefficient on *OC1* is 0.388 ($p < 0.01$) when we match the samples based on the nearest neighbor (NN) technique. Our inferences remain the same when we use *OC2* as the independent variable in Columns (3) and (4). In sum, the results of the PSM analysis further support our main findings.

4.5.3 | Change analysis

As a final approach to address the endogeneity concern, we rerun a change model of our baseline regression. In particular, we regress change in audit fees on change in organization capital along with change in controls, industry, and year- and country-fixed effects. In untabulated results, we find that coefficients on change in OC are positive and significant. For example, the coefficients on $\Delta OC1$ and $\Delta OC2$ are 0.160 ($p < 0.01$) and 0.060 ($p < 0.05$), respectively.

4.6 | Moderation Tests

In this section, we examine whether business risk, agency problems, and employment protection legislation moderate the documented positive relationship between organization capital and audit fees.

4.6.1 | Organization Capital and Audit Fees: Moderating Effects of Business Risk (H2A)

We hypothesized in H2A that the positive relationship between organization capital and audit fees will be more pronounced for firms with high business risks. We use the rolling standard deviation of operating cash flows scaled by total assets over the prior three years (*CFVOL*), and the standard deviation of monthly stock returns for the fiscal year (*SDRET*) to proxy for business risks. In Equation 4.1, we include the business risk proxies (i.e., *CFVOL* and *SDRET*) and their interactions with *OC* to test our hypothesis. A positive and significant coefficient on interaction term will support our hypothesis. We report the results from this analysis in Panel A of Table 7. We find that the coefficient on organization capital remains positive and significant ($p < 0.01$), which supports our main evidence. Importantly, the coefficients on *OC*CFVOL* and *OC*SDRET* are positive and significant ($p < 0.05$), implying that the positive relation between organization capital and audit fees is magnified for firms with high business risks. Thus, this result lends support to our H2A.

4.6.2 | Organization Capital and Audit Fees: Moderating Effects of Agency Problems (H2B)

Our H2B predicts that the relationship between organization capital and audit fees is more pronounced for firms with marked agency problems. We use *CSR*, dividends (*DIV*), leverage (*LEV*), and free cash flow (*FCF*) to proxy for agency problems. We include the proxy for agency problems and the interaction term (i.e., *OC*agency proxy) individually in Equation 4.2 to test our hypothesis. We report results from this analysis in Panel B of Table 7. We find that the positive relationship between organization capital and audit fees remains positive and significant ($p < 0.01$). Importantly, the coefficient on the interaction variable is negative and significant (mostly at $p < 0.01$) when *CSR*, *DIV*, and *LEV* are interacted with OC. Given that firms with high CSR, dividends, and leverage are associated with fewer agency problems, the negative and significant interactive coefficients indicate that the positive relationship between organization capital and audit fees is weakened for firms with fewer agency problems. We also find that the interactive coefficient is positive and significant ($p < 0.01$) when *FCF* is used as the agency problem measure. Since firms with more free cash flows are exposed to more agency problems, this interactive coefficient suggests that the positive relationship between organization capital and audit fees is magnified for firms having more agency problems. Overall, our results in Panel B of Table 7 support the argument that the positive relationship between organization capital and audit fees is more pronounced in the presence of agency problems.

4.6.3 | Organization Capital and Audit Fees: Moderating Effects of Employment Protection Legislation (H3)

While developing H3, we argued that since employment protection legislation reduces labor mobility, it also reduces the loss of key talents and business secrets. Therefore, auditors' concerns with firms' continued survival and well-being will be lower for firms located in countries with strong employment protection legislation. Therefore, we hypothesized that the positive relationship between organization capital and audit fees will be less pronounced for firms headquartered in countries with strong employment protection legislation (H3). We use country-level *EPL* as the moderating variable and include the interaction between *OC* and *EPL* to test the hypothesis. Table 7, Panel C, presents the results of Equation 5.[15] A negative and significant coefficient on the interaction term (*OC*EPL*) will support H3. In Column (1), our variable of interest, *OC1*EPL*, is associated negatively and significantly with *LN_AF* (coefficient of −0.088, $p < 0.05$), supporting the prediction that country-level labor protection regulation moderates the relationship between organization capital and audit fees. In Column (2), following Leung et al. (2018), we also control for the interactions between *OC* and four other country-level variables (i.e., *LNGDP*, *PROTECT*, *LAW*, and *ENFORCE*) to isolate the effect of *EPL* from other potential confounding country factors. We continue to find that the coefficient on *OC1*EPL* is negative and significant

(coefficient = −0.178, $p < 0.01$). Overall, the results support our H3: that auditors consider firms with high organization capital to be less risky in countries with highly protective employment regulations and, therefore, the positive relationship between organization capital and audit fees is less pronounced for firms headquartered in countries with strong employment protection legislation.

5 | CONCLUSION

We examine the relationship between organization capital and audit fees around the world. Prior studies show that firms with high levels of organization capital are exposed to considerable business risks (e.g., cashflow risk, and the risk of the loss of key personnel and invaluable information to rival firms), and to agency problems (Eisfeldt & Papanikolaou, 2013). Therefore, we predict that auditors will charge higher audit fees for servicing firms with high organization capital. Using a large international sample from 40 countries spanning from 2001 to 2017, we find support for our hypothesis. In particular, we find that there is a positive and significant relationship between organization capital and audit fees. We show that our results remain robust when alternative measures of organization capital are used in the estimation. We further show that our documented results are not driven by omitted variable bias and endogeneity problems. Our analysis also reveals that the positive relation between organization capital and audit fees holds for both U.S. and non-U.S. samples and for both high-tech and non-high-tech samples.

When testing the moderating role of firm-level and country level factors, we find that the positive relation between organization capital and audit fees is stronger for firms with marked business risks and agency problems. In addition, this relationship is less pronounced for firms headquartered in countries with protective employment legislation. Findings from our analyses contribute to both the audit fees and the organization capital literature.

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ENDNOTES

[1]Despite considerable evidence that organization capital improves the productivity, efficiency, and performance of the firm (Hasan & Cheung, 2018; Lev et al., 2009), there remains a clear divergence of opinion about the adhesiveness of organization capital. One stream of research argues that organization capital is firm-specific as it is rooted in business practice, process, and culture (e.g., Atkeson & Kehoe, 2005; Lev et al., 2009); another stream of research argues that organization capital is embodied in an organization's employees and their social networks (e.g., Jovanovic, 1979; Prescott & Visscher, 1980). Some studies, however, suggest that organization capital is embodied in the firm's key talent, and its efficiency is firm-specific (Brynjolfsson, Hitt, & Yang, 2002; Eisfeldt & Papanikolaou, 2013). Following recent studies, we take the view that organization capital is embodied in the firm's key talent and, since its efficiency is firm-specific, part of the organization capital is moveable across firms.

[2]Prior studies document that institutional factors, such as legal environment, play a vital role in determining audit fees (e.g., Choi et al., 2008; Kuo & Lee, 2016; Taylor & Simon, 1999). Studies also find that firms need to pay higher audit fees when they cross-list in countries with stronger legal environments compared to that of their home country (Bronson, Ghosh, & Hogan, 2017; Choi et al., 2009). Kuo and Lee (2018) document that the positive relationship between potential earnings management (via capitalizing development costs) and audit fees is mitigated by stronger investor protection.

[3]However, a meta-analysis by Hay (2013) on the corporate governance and audit fees association finds that most of the commonly used corporate governance variables are positively associated with audit fees. This is consistent with the notion that firms with strong corporate governance tools are more concerned about the quality of the financial statements: a notion that can be captured through increased audit fees (e.g., Carcello et al., 2002; Knechel & Willekens, 2006; O'Sullivan, 2000).

[4]The most common measure of audit fees in international audit fee research is "total fees paid to auditor" that includes audit, audit-related fees, tax services fees, and other nonaudit services fees (e.g., Kim et al., 2012). Given that regulations permitting or prohibiting the provision of nonaudit services vary widely across jurisdictions, we use the sum of audit and audit-related fees to measure audit fees.

[5]In an additional sensitivity test, we redefined *CROSS*, coded 1 if the firms cross-listed on the US *or* UK markets, and 0 otherwise. Our results remain unchanged.

[6]In this study, we define the busy season as the month in which the biggest proportion of sample firms end their fiscal year for each country, leading to different busy seasons across countries. For most countries, the busy season is in December. However, March (June) is the busiest month in India, Japan, Sri Lanka, and New Zealand (Australia, Malaysia, Pakistan, and South Africa).

[7]OECD website: http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm

[8]Our inference remains unchanged if we cluster standard errors by country. For example, the coefficient on *OC1* in column (3) is 0.47 ($p < 0.01$).

[9]The untabulated results show that none of the variance inflation factors (VIFs) is more than 2.71, indicating that multicollinearity is not a concern for our study.

[10]The sample size reduces to only 17,466 firm-year observations when firm-level governance variables are included in the regression model.

[11]Following the suggestion of an anonymous reviewer, we excluded France and Russia from the "rest of the world" sample because their auditing environment is quite unique. France mandates joint auditing, while Russia has a regulatory environment in which public companies receive two separate audits: one on financial statements prepared in accordance with local Russian Accounting Standards, and the other in accordance with the International Financial Reporting Standards (IFRS). We could not estimate the regression model for France and Russia separately because of their smaller sample sizes.

[12]Because of lack of compensation data, we were unable to estimate the regression results for Japan.

[13]Barton and Waymire (2004) define high-technology firms as those belonging to the following 3-digit SIC codes: aircraft (372), automotive (371), communications (481, 482, 489), electronics (363, 366, 369), film and entertainment (781, 783, 791), industrial machinery (351–356), office equipment (357), photography (381, 383, 384, 387), and electrical utilities (491, 493).

[14]We include following determinants of OC in the first stage model for PSM procedures: *SIZE*, *LEV*, *INVREC*, *ROA*, *MTB*, *CFO*, *NGS*, *CROSS*, *LNGDP*, *PROTECT*, and *LAW*.

[15]Since country-level *EPL* is only available to 2013, our sample size reduces to 33,363 observations from 20 countries.

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APPENDIX: Variable Definitions

Variables	Definitions	Sources
Dependent variables		
LN_AF	Natural logarithm of audit and audit-related fees.	Thomson Reuters (TR) Fundamentals
Independent variables		
OC1	Organization capital measured as the stock of organization capital based on selling, general and administrative expenses using perpetual inventory method (Peters & Taylor, 2017). We scale organization capital by total assets.	TR Fundamentals; Authors' calculation
OC2	Organization capital measured as the investment portion of the selling, general, and administrative expenses (SG&A) aimed at improving organizational knowledge and capabilities (Enache & Srivastava, 2018). We scale organization capital by total assets.	TR Fundamentals; Authors' calculation
OC3	Organization capital measured as the 20% of managerial compensation (Corrado et al., 2005).	BoardEx
Firm-level control variables		
SIZE	Natural logarithm of total assets.	TR Fundamentals
LEV	The leverage ratio, defined as the sum of short and long-term debts 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
MTB	Market to book ratio, defined as firm market value divided by common shareholder equity.	TR Fundamentals
CR	Current ratio, defined as current assets divided by current liabilities.	TR Fundamentals
CFO	Operating cash flow 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
SPECIAL	Dummy variable, coded 1 for reporting special items, and 0 otherwise.	TR Fundamentals
LOSS	Dummy variable, coded 1 for reporting negative incomes, and 0 otherwise	TR Fundamentals
CROSS	Dummy variable, coded 1 for cross-listing in the US, and 0 otherwise	Worldscope
M&A	Dummy variable, coded 1 for firms have merge and acquisition activities in the current year, and 0 otherwise.	Worldscope
FOR_SALE	International operation, measured as the proportion of foreign sales on total sales.	Worldscope
SG&A/TA	Selling, general and administrative expense scaled by total assets.	TR Fundamentals
ACCRUALS	Net income minus cash flows from operating activities scaled by total assets.	TR Fundamentals

(Continues)

Variables	Definitions	Sources
AO	Audit opinion, coded 1 for qualified audit opinions, and 0 otherwise.	Worldscope
BUSY	Dummy variable, coded 1 for firms has fiscal year-end at auditor busy season, and 0 otherwise.	Worldscope
BIGN	Dummy variable, coded 1 for firms audited by one of the Big 5 firms (i.e., Arthur Andersen, PricewaterhouseCoopers, Deloitte Touche Tohmatsu, KPMG, and Ernst & Young)	TR Eikon
Firm-level corporate governance variables		
BSIZE	The total number of board members.	TR ESG database
BIND	The percentage of independent members in the board of directors	TR ESG database
ACM	Dummy variable, coded 1 for firms has an audit committee, and 0 otherwise.	TR ESG database
CEODUAL	Dummy variable, coded 1 for firms whose CEO and the chairman of the board are the same person, and 0 otherwise.	TR ESG database
Firm-level moderating variables		
CFVOL	Rolling standard deviation of operating cash flows scaled by total assets (*CFO*) over the prior three years.	TR Fundamentals
SDRET	Standard deviation of monthly stock return over 12 months.	Datastream
CSR	Corporate social responsibility score, which ranges from 0 to 100.	TR ESG database
DIV	Dividend payout, defined as common dividends scaled by total assets. We replace missing dividend with zero.	TR Fundamentals
FCF	Free cash flow, defined as (operating cash flow-capital expenditures-common dividends) scaled by total assets. We replace missing dividend with zero.	TR Fundamentals
Country-level moderating variable		
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 of EPR, EPC, and EPT.	OECD website
Country-level control variables		
LNGDP	Natural log of gross domestic production per capita.	International Monetary Fund
PROTECT	Investor protection, proxied by anti-self-dealing index.	Djankov et al. (2008)
LAW	Legal origin, coded 1 for Common law, 0 for Code law.	La Porta et al. (2008)
ENFORCE	Public enforcement index, measured as the average of the supervisor characteristics index, the rule-making power index, the investigative powers index, the orders index, and the criminal index.	La Porta et al. (2006)