

Audit fees and corruption: An international analysis of audit rates and audit hours

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Abstract

We expect that country risk affects a country's audit risk. Hence, audit price in a country, represented by average hourly audit fee, should be positively associated with country-specific audit risk. We identify a small sample of companies listed on the Tel Aviv Stock Exchange (Israel) that use auditors in different countries. As these companies must disclose total audit fees and hours of engagement, we compiled a novel dataset that includes both fees and hours in 25 different countries for 10 years in order to compute the average hourly audit fee per country. We use the Corruption Perception Index (CPI), published annually by Transparency International, as the primary measure of country risk for each country. We expect and find a positive association between perceived corruption and average hourly audit fee normalized by a country's per-capita Gross Domestic Product. We use several alternative measures of country risk with similar results. However, we find no association between audit hours and any country-specific risk measures, including corruption. Our results are consistent with the argument that auditors in more corrupt countries charge higher hourly audit rate for their services, but we do not find simultaneously an increase in audit effort in terms of total hours.

Keywords: Audit Risk, Country Risk, Audit Hours, Hourly Fee, Corruption, International Accounting

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1. Introduction

We examine the association between the perceived corruption of a country and both audit pricing and audit effort in an international setting. Using a unique dataset, we measure the average hourly audit fee in a country and measure its association with country corruption. We also examine whether audit effort, measured as audit hours, is associated with country corruption.

The location of a client in a specific country is an important determinant of audit risk because countries have different economic, regulatory, judicial, and cultural environments, as well as different levels of perceived corruption. Corruption is a cause of a weaker institutional environment (Shleifer & Vishny, 1993). Firms operating in corrupt environments have less transparent financial information (Dass et al., 2016) and are more prone to financial frauds (Parsons et al., 2018). Some cases of audit failure have involved accusations that audit firms did not consider or did not adequately address the issue of corruption.¹ Hence, corruption should impact an auditors' assessment of audit risk (Xu et al., 2018; Jha et al., 2021). This impact is relevant as auditors are a key institution for preserving the integrity of financial reports (Blackwell et al., 1998; Lawson & Wang, 2016). In addition, the United States (US) Public Company Accounting Oversight Board (PCAOB) requires auditors to be vigilant regarding illegal and unethical acts related to corruption.

¹ For example, in the case Enron in 2001, the auditors (Arthur Andersen) failed to detect significant accounting fraud, including the misreporting of financial statements and the use of special purpose entities (SPEs) to hide debt. There were also accusations of corruption in the way Enron executives managed financial disclosures. In the case of Wirecard (the German payment processing company), it was discovered, in 2020, that the company had been inflating its balance sheet and profits for years. The auditors of Wirecard (Ernst & Young) faced criticism for failing to detect the fraud, which included corruption within the company's management and falsification of financial records. Satyam, the Indian IT company, was involved in a massive accounting scandal in 2009 where it was revealed that the company had inflated its revenues and profits over several years. The auditors (PricewaterhouseCoopers) were accused of failing to notice the discrepancies and corruption within the company's financial statements.

Extant research shows that external auditors use client risk management strategies when auditing a risky client. In particular, external auditors may adjust the total audit fees in response to increased client-related risk (e.g., Xu et al., 2013; Chung et al., 2015; Lawson & Wang, 2016). Also, auditors may exert more effort and allocate more resources to high-risk clients, and consequently doing so may eventually result in an improvement in the timeliness of audit report issuance (Xu et al., 2018; Jha et al., 2021).

Total audit fees are the product of audit hours and average hourly audit fee. The number of audit hours is a measure of audit effort and hourly audit fee is a direct measure of audit price. Due to data availability, we found no studies that disentangle audit pricing from audit effort in an international setting. Therefore, our study is the first to investigate the effect of country related audit risk on audit hourly fee (pricing of risk) separately from audit effort (audit engagements hours).

To facilitate an analysis of audit hours and hourly fee, we collect data from financial reports of companies that (i) are listed on the Tel Aviv Stock Exchange (TASE), (ii) are included in the list of 125 largest firms, and (iii) engage in multinational operations. Securities regulation in Israel from 2006 through 2020 required listed companies to disclose audit fees and engagement hours in Israel and in countries where they had operations. Using data from these companies, we compute the **average** dollar **hourly** audit **fee** in 25 countries and use this country-specific amount as a measure of audit price. The requirement to disclose audit hours was repealed in 2021 following political pressure by leading accounting firms in Israel.

We estimate the association between the country's average hourly audit fee and the country's perceived corruption index, using the Corruption Perception Index (CPI) published annually by Transparency International since 1995. We find that the country's average hourly audit fee,

adjusted by the country's level of wealth, is strongly and positively associated with the country's perceived corruption. At the same time, however, we find no association between firm-specific audit hours and corruption. Our results are consistent with the argument that when auditors face more country specific audit risk, stemming from country-level corruption, they charge higher adjusted hourly fees but do not necessarily increase their level of effort in terms of engagement hours.

In our empirical analysis, we use eight alternative measures of country risk (Aobdia, 2019; Eierle et al., 2021): control of corruption, government effectiveness, political stability, rule of law, regulatory quality, voice and accountability, ease of doing business, and the democracy index. All these variables, which are highly correlated with each other at the country level, exhibit similar association with average normalized hourly audit fee. More specifically, the average hourly audit fee, when normalized by the per-capita gross domestic product (GDP) per hour, increases as the country exhibits more corruption, lower quality regulation, less political stability, less freedom of speech, and weaker democracy. We complement our country-level analysis with a firm-specific analysis. At the firm-level, we confirm that corruption is positively related to normalized hourly audit fee, but we find no association between corruption and audit hours.

The main contributions of the study are the results related to our compilation of a dataset that decomposes audit fees into engagement hours and hourly fee. Prior studies have already documented a positive association between audit fees and corruption (Xu et al., 2018; Jha et al., 2021; Hu et al., 2023; Mottinger, 2024). We add to the literature by finding that this positive association is due to higher audit rates, not to additional audit hours.

The hourly audit fee represents the marginal cost of the audit, while audit hours is a measure of audit effort. Audit hours vary from one engagement to another, primarily due to the audit

complexity and riskiness. While we are unable to compute average country-specific audit hours, we can estimate the association between audit hours and corruption using firm-specific regressions. We demonstrate that the average hourly audit fee divided by per-capita GDP in the country is positively associated with the country's level of perceived corruption. However, we find no association between firm-specific audit hours and corruption.

Second, we examine the relationship between corruption and hourly audit fees in an international setting. While disclosure of total audit fees is available in many countries (Choi et al., 2009; Eierle et al., 2021), disclosure of audit hours, and hence hourly audit fees, is required by only a small number of countries, including South Korea and Israel. However, unlike Israel, South Korea has a mandatory audit rotation, which is likely to reduce competition in the audit market (Kwon et al., 2014). Thus, using Israel as a test case may be more appropriate due to the more intense competition in the audit market.

In other countries, obtaining data on audit hours depends on the consent of audit firms or regulatory agencies to collect and use the data in research. Such field studies are usually limited to one audit firm in one year (see, for example, Bell et al., 2000; Dekeyser et al., 2019). However, countries differ from each other in their average income. So, it is reasonable to expect audit fees to be positively correlated with national income. Furthermore, Mauro (1995) and Amir et al. (2019A) show that the level of corruption in a country is highly correlated with per-capita GDP. Hence, to control for the average income in a country, we compute a normalized average hourly audit fee as the average hourly audit fee divided by per-capita GDP in the country and examine the association between perceived country corruption and normalized average hourly fees. This differentiates our results from existing studies that, although in an international setting, look at total audit fees and do not normalize them (e.g., Choi et al., 2009). We find that normalized average

hourly audit fees increase with perceived country corruption (or with the weakness of the country's legal regime), suggesting that auditors in more corrupt countries are compensated for country-specific business risk by charging a higher price for their services.

The rest of the paper is organized as follows: Section 2 is the literature review and hypotheses development. Section 3 explains the data and variables, while Section 4 presents the methodology. Section 5 provides descriptive statistics. The country-level results are presented in Section 6 and Section 7 explains the firm-specific results. Section 8 is the summary, implications, and limitations.

2. Literature review and hypotheses

International Standards on Auditing (ISA, 2009) require auditors to consider the audit risk in planning and pricing the audit engagement. The acceptable audit risk, that is the probability of issuing an unqualified opinion on financial statements that contain material misstatement, is a function of three components: inherent risk, control risk and detection risk.² Inherent risk is the probability that the financial statements are materially misstated regardless of the quality of the internal control system. Control risk is the probability that the internal control system fails to detect a material misstatement on a timely basis. Detection risk is the probability that the auditor fails to detect a material misstatement, given the applied audit procedures. According to the audit risk model, if the inherent and/or control risk are high, the auditor will have to expand the scope of the audit, gather more evidence, and conduct more tests. If the quality of the financial statements is low, and if the probability of accounting manipulation is high, the auditor will attempt to reduce the risk by increasing the amount of audit hours and charge higher rates, due to using specialists

² See also American Institute of Certified Public Accountants (AICPA, 1997).

and more senior auditors. These steps are likely to increase the total audit fees, the engagement hours, and the hourly audit rate (Simunic, 1980; Simunic & Stein, 1996; Hill et al. (1994); Elder et al. (2009); Xu et al. (2013); Chung et al. (2015); Lawson & Wang (2016).

When the economy is more corrupt, the inherent risk is higher because the likelihood of accounting manipulation is higher. Xu et al. (2019) find that firms located in corrupt regions are more likely to manage earnings through accruals management and real activities manipulation. Their results also indicate that firms located in corrupt regions have less earnings persistence and are more likely to use positive discretionary accruals to meet or beat the consensus analysts' earnings forecast. Jha et al. (2021) find that firms in corrupt areas are more likely to misreport their earnings and tend to restate earnings more often. Further, corporate frauds and wrongdoings are more common in corrupt environments (Parsons et al., 2018). Mottinger (2024) examines the association between country-level corruption and audit pricing in 27 European Union countries during 2011-2021. He finds that firms headquartered in more corrupt countries pay higher audit fees and have longer reporting lags.

The control risk is also expected to be higher in more corrupt countries as internal control systems, and other corporate governance mechanisms, are often weaker and not independent. Furthermore, capital markets are weaker in corrupt countries and as a result capital market regulation fails to discipline companies when issuing financial statements (Xu et al., 2018; Jha et al., 2021).

The country's level of corruption may also increase the audit fee through the client's business risk, which increases auditor litigation and reputation risk. Fan et al. (2012) and Smith (2016) show that firms in more corrupt areas manage liquidity downward and debt obligations upward to limit expropriation by corrupt local officials. Xie et al. (2023) find that political corruption induces firms

to adopt more conservative reporting strategies to shield their assets from expropriation by corrupt local officials. In addition, Caprio et al. (2013) find that annual investment in property, plant, equipment (PP&E), inventory, and dividends is positively correlated with measures of political corruption, suggesting that firms in corrupt countries channel their cash into activities that make it more difficult to extract assets. Holding less liquid assets and higher debt elevates default risk and the likelihood of financial distress for firms in more corrupt areas, which in turn exposes the auditor to higher litigation risk from stakeholders of failing clients (Huss & Jacobs, 1991; Stice, 1991; Lys & Watts, 1994; Palmrose, 1997). Moreover, there is a significant interactive effect between litigation environment and client business risk (Hwang & Chang, 2010), which may increase the price of the audit. The perception of a client's business risk might increase in more corrupt countries due to reduced interpersonal trust between external auditors and management (Shleifer & Vishny, 1993; Xu et al., 2018), which can also increase the audit fee. Relatedly, Koulikidou et al. (2023) examine the language tone in US Securities and Exchange Commission (SEC) comment letters and find a significantly greater level of language negativity in comment letters addressed to foreign registrants, which reflects the SEC's perception of foreign firms as being riskier. Finally, Smith et al. (2018) find that audit fees are higher for firms headquartered in countries with greater institutional and cultural distance from the US.

Prior literature documents a positive relationship between total audit fees and district-level corruption (Xu et al., 2018; Jha et al., 2021) or firm-level corruption (Hu et al., 2023). Xu et al. (2018) find that US firms headquartered in more corrupt regions pay higher total audit fees and are more likely to receive a going-concern qualification. Hu et al. (2023) reports that an exogenous reduction in firm-level corruption leads to lower future audit fees. Relatedly, Lyon and Maher (2005) find companies that pay bribes to foreign governments' officials pay higher audit fees. Bell,

et al. (2000) find that hourly audit fees are higher when the auditor perceives the client to have higher business risk.

Prior studies have used different observable measures of audit prices, effort, and quality. These measures were based on discretionary accruals, auditor size, total audit fees, total non-audit fees, and outcomes, including restatements, going concern opinions, timeliness of audit report, litigation, actions taken by the US SEC, or inspections by the US PCAOB (Causholli et al., 2010; Lennox & Pittman, 2010; Aobdia, 2019. Many of these studies used audit, non-audit, and total fees (or abnormal fees) as measures of audit effort, although audit fees could proxy for other factors, including audit quality, the auditors' ability to extract rents from clients, auditor's independence, and price-protection against client risk (Chaney et al., 2004; Larcker & Richardson, 2004; Hay et al., 2006; Srinidhi & Gul, 2007; Amir et al., 2019b).³

Audit fees are the product of audit hours and average hourly audit fee. The number of audit hours is a measure of audit effort while hourly audit fee is a direct measure of audit price. Absent data on audit hours, researchers have often used abnormal audit fees – residuals from regressing audit fees on a set of relevant variables designed to capture audit complexity.

However, some studies gained access to data on audit hours. As noted earlier, disclosure of audit hours and hourly audit fees is required by a small number of countries, including Israel and South Korea. Other researchers received permission from an audit firm or a government agency to collect and use the data. These studies used audit hours as a more refined measure of audit effort. Bell et al. (2000) use a proprietary dataset of 422 US audits performed in 1989 and show that audit hours are positively related to business risk. Niemi (2004) uses hourly billing rates combined with

³ This line of research often uses a linear regression where audit fees (or non-audit fees) are the dependent variables, regressed on variables designed to capture audit complexity and riskiness, and use the regression residuals as a measure of effort.

auditor characteristics for 103 small Finnish firms to assess whether larger auditors charge higher rates. The study documents a positive association between audit firm size and both technical capabilities and hourly rates. Caramanis and Lennox (2008) use audit hours worked by auditors on 9,738 audits in Greece between 1994 and 2002 as a measure of effort. They find that when audit hours are lower, companies report more aggressively, abnormal accruals tend to be more positive, and larger companies engage more in earnings management to beat the zero earnings benchmark. Bae et al. (2016) use data on audit hours in South Korea to examine whether higher audit fees charged by industry specialist auditors are associated with more hours or higher hourly fee. They find that the higher fees are associated with more hours rather than with higher hourly rates.

Dekeyser et al., (2019) use a proprietary dataset consisting of audit fees and hours for audits of private firms, performed by one Big-4 firm during 2000. They document efficiency gains by using fewer audit hours when the auditor provides audit services to more clients in the same industry. They attribute this finding to organizational learning from servicing more clients in a specific industry. They also find that audit efficiency gains are passed on to clients as hourly billing rates of industry specialist auditors are not materially different than other auditors.

A specific stream of research looks at international differences in total audit fees. For example, Choi et al. (2008) use data from 15 countries and find that after controlling for client risk, audit fees increase with the strength of a country's legal liability regime. Choi et al. (2009) study the effects of cross-listings on audit fees. They argue and find that auditors charge higher fees for firms that are cross-listed in countries with stronger legal regimes than they do for non-cross listed firms and that the cross-listing audit fee premium increases with the difference in the strength of legal regimes between the cross-listed foreign country and the home country. Their results suggest that audit fees increase with expected legal liability. Srinidhi et al. (2009) study

specialist auditor premium in the US and 12 other countries. Eierle et al. (2021) use a multinational panel dataset involving observations from 27 countries to explain the variation in overall audit fees. Their results suggest that country-level variables increase the explanatory power of audit fees in different countries.

In summary, without data on audit hours, studies have used fee-based measures as proxies of audit effort or audit quality. Among these studies are multinational studies, which use a fee-based measure as the dependent variable and then firm and country specific variables as independent variables. In countries where data on audit hours are available, audit effort was measured as the number of hours in the engagement. Common features in studies that use audit hours is the focus on one specific country (e.g., Finland, Greece, South Korea) and obtaining data from annual reports, from an audit firm, or from the PCAOB.

We argue that the price of audit in a country should increase with audit risk, measured using country-specific corruption indices, after controlling for the income level in the country, measured by GDP. This follows prior studies showing that when auditing a local firm in a more corrupt country, auditors charge higher audit fees - indicating a positive association between total audit fees and corruption. Total audit fees is a product of audit hours and hourly audit fees. Therefore, we examine whether the positive relationship between total audit fees and country corruption is driven by a change in audit hours (effort) or hourly audit fee (audit risk). *Ex ante*, there is no reason to believe that one element (effort or risk) dominates the other. Therefore, we construct the following two hypotheses:

H1: When auditing a local firm in a more corrupt country, auditors increase the number of audit hours (more effort)

H2: When auditing a local firm in a more corrupt country, auditors charge a higher hourly rate for the audit (riskier audit).

3. Data and variables

3.1. Data from Israeli companies

From 2006 through 2020, companies listed on the TASE must disclose in the annual report to the board of directors both the number of engagement hours and the total fees for audit and non-audit services. The annual report to the board of directors is attached to the annual financial statements and is required according to securities regulations, similar to the Management Discussion and Analysis (MD&A) in the US. Audit engagements normally refer to audit services. The requirement to disclose hours of engagement was not popular among audit firms and they have lobbied repeatedly to eliminate it, arguing that this disclosure drives audit fees down and reduces the quality of audits. In December 2021, the Israel Security Authority (ISA) overturned the requirement to disclose engagement hours in the annual report to the board, consequently, audit hours are not available after fiscal year 2020. To justify the cancelation of this disclosure, the ISA stated that disclosing hours drives the hourly fee down due to intense competition.

Companies listed on the TASE that engage in multinational activities use local auditors in different countries and disclose the fees and hours in these countries. Most of the multinational companies in Israel use Big-4 audit firms that have branches in the foreign countries. The audit firm in Israel typically uses an affiliated branch, for example, KPMG Israel will use KPMG Poland. About half of our sample engagements are related to firms in the Real Estate and Construction industries, a quarter of the engagements are related to firms of the Energy industry, and 15% are

associated with the Food and Beverage industries. For these reasons, we include controls for Big-4 audits and for industry fixed effects in the firm-level regressions.

The ISA required disclosure of total fees in each country was attached to the annual financial statements of the parent company in Israel. The fee disclosures are in New Israeli Shekels (NIS), which means that payments to auditors in local currencies were converted into NIS every period using the exchange rate that existed at the time of the payment. Table 1 is an example of the disclosure that contains information on audit and other services. It was released in 2020 by Strauss Group Ltd, one of Israel's largest food companies. The group manufactures dairy goods, imports coffee, and has joint operations in the US with Danone and in Europe with PepsiCo.

(Insert Table 1 about here)

3.2. Audit variables

We use several audit variables in our analysis, and some are in different forms depending on the particular tests. *Audit Fees* are fees paid to the auditor for an audit engagement. *Audit Hours* are the hours of audit services per engagement. *Log Audit Hours* is the natural logarithm of the *Audit Hours* variable. *Nonaudit Hours* are the hours of all non-audit services. *Log Nonaudit Hours* is the natural logarithm of the *Nonaudit Hours* variable. *Hourly Audit Fee* is the average hourly rate for audit services per country in US dollars. *Log Hourly Audit Fee* is the natural logarithm of the *Hourly Audit Fee* variable.

A potential caveat in the measure of hourly fees is the assumption that audit fees are independent of the number of engagement hours. It is possible that firms will quote a lower hourly fee and at the same time increase the number of hours, causing total fees to be higher. It is also possible that such manipulation occurs more often in more corrupt countries. However, since all

subsidiaries in the sample are governed by a parent company in Israel, we expect such manipulations to have a small effect on the average hourly fee measure.

Audit fees are payments for services rendered in a country, and as such are likely to be correlated with average income in that country. In addition, prior research finds a significant association between corruption and economic development, with higher corruption levels associated with lower GDP per capita (Mauro, 1995; Amir et al., 2019A). Using the World Bank data bank (<https://databank.worldbank.org/indicator/>), we obtain data on the GDP per capita in US dollars for our sample countries. We use the data to compute *Normalized Hourly Audit Fee*. *Normalized Hourly Audit Fee* is the country's average *Hourly Audit Fee* divided by the country's GDP per capita expressed in thousands of US dollars. *Log Normalized Hourly Audit Fee* is the natural logarithm of the *Normalized Hourly Audit Fee* variable.

3.3. Transparency International data and variables

The primary measure of country-specific audit risk is the CPI, issued annually by Transparency International (2021). Consistent with academic literature (Shleifer & Vishny, 1993), Transparency International defines corruption “as the abuse of entrusted power for private gain. Corruption erodes trust, weakens democracy, hampers economic development, and further exacerbates inequality, poverty, social division, and the environmental crisis” (Transparency International, 2021). Published annually since 1995, the CPI index evaluates countries by their perceived levels of public sector corruption, based on surveys and assessments by businesspeople, analysts, and institutions, such as the World Bank, the Economist Intelligence Unit, and the African Development Bank. Currently, the CPI assesses 180 countries on a scale from zero (highly corrupt) to 100 (very clean). We use two variables based on the CPI Index. *CPI Score* is the actual score for each country. *CPI Rank* is based on the ranking of each country's *CPI Score*. While the

CPI measures perception of corruption due to the difficulty of measuring absolute levels of corruption, prior research validates the index (see Svensson, 2005; Barr & Serra, 2010).

3.4. Other country level audit risk variables

Country-specific audit risk may be captured by variables other than the CPI (*CPI Score* and *CPI Rank*). Following Aobdia (2019) and Eierle et al. (2021), we collected data on and used the following measures:

1. *Control of Corruption*. A variable capturing perceptions of the extent to which public power is exercised for private gain (including both petty and large forms of corruption), as well as "capture" of the state by elites and private interests (Kaufmann et al., 2010). We expect a negative association between this variable and normalized average hourly audit fees, as better control of corruption should decrease audit risk and should lower audit fees.
2. *Government Effectiveness*. A variable capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Kaufmann et al., 2010). We expect a negative association between this variable and normalized average hourly audit fees, as higher quality government decreases audit risk and should lower audit fees.
3. *Political Stability*. Variable measures perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism (Kaufmann et al., 2010). We expect a negative association between this variable and normalized average hourly audit fees, as political stability decreases audit risk and should lower audit fees.
4. *Rule of Law*. A variable capturing the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the

police, and the courts, as well as the likelihood of crime and violence (Kaufmann et al., 2010).

We expect a negative association between this variable and normalized average hourly audit fees, as a stronger rule of law decreases audit risk and should lower audit fees.

5. *Regulatory Quality*. A variable capturing the ability of a government to formulate and implement sound policies and regulations in a country that permit and promote private sector development (Kaufmann et al., 2010). We expect a negative association between this variable and normalized average hourly audit fees, as higher quality regulation and enforcement decrease audit risk and should lower audit fees.
6. *Voice and Accountability*. A variable capturing perceptions of the extent to which a country's citizens can participate in selecting their government, as well as freedom of expression, freedom of association, and free media (Kaufmann et al., 2010). We expect a negative association between this variable and normalized average hourly audit fees, as more freedom of expression, free media, and transparency decrease audit risk and should lower audit fees.
7. *Doing Bus Score*. A variable capturing regulations that directly affect the ease of doing business in a country. It is based on an average of 10 sub-indices: Starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. We expect a negative association between *Doing Bus Score* and normalized average hourly audit fees, as a higher *Doing Bus Score* means less business bureaucracy, and should lower audit risk, which in turn lowers audit fees.
8. *Democracy Rank*. A variable that measures the strength of democracy in a country. More democratic countries are known to be richer and less corrupt. The democracy index, with scores between 0 and 10, increases with the level of democracy. It is published annually by the

Economist Intelligence Unit (the research division of The Economist Group) and is based on 60 indicators in five different categories, including pluralism, civil liberties, political culture (<https://www.eiu.com/n/campaigns/democracy-index-2020/>). We use the rank of the democracy index. Higher rank means weaker democracy and higher audit risk, which in turn should be associated with higher audit fees.

3.5. Firm level control variables

Following Francis and Simon (1987), DeFond et al. (2002), Choi et al. (2009), Causholli et al. (2010), and others, we use the following six control variables in the firm level analysis of Equations (3) to (5). *Big4 Auditor* is an indicator variable to account for any Big 4 auditor fee premium. *Company size* is the parent's firm size measured as the natural logarithm of the parent's total assets. *Audit complexity* is measured as the sum of the parent's accounts receivable, inventory, and accounts payable, divided by the parent's total assets. *Company risk* is measured as the parent's debt divided by the parent's shareholders' equity. *Company profitability* is measured as the parent's operating profit margin. Governance is measured using *Company board size*, the number of members on the parent's board of directors. The Appendix provides the definitions of all variables.

4. Methodology

We divide our analysis into two parts: Country-level and firm-level analyses. In the country-level analysis, we estimate the association between the country's average hourly audit fee and country-based measures of corruption. We estimate equations (1) and (2):

$$\text{Log Hourly Audit Fee} = \alpha_0 + \alpha_1 \text{Corruption Measure} + \epsilon \quad (1)$$

$$\text{Log Normalized Hourly Audit Fee} = \beta_0 + \beta_1 \text{Corruption Measure} + \rho \quad (2)$$

We expect a high positive correlation between a country's GDP per capita and corruption, thus, the coefficient α_1 in equation (1) is likely to be negative. However, after deflating audit fees by the country's GDP per-capita we expect the coefficient β_1 in equation (2) to be positive; that is, normalized average hourly audit fees increases with country corruption.

Turning to firm-level analysis, we estimate the association between hourly audit fees and corruption measures using equations (3) and (4).

$$\begin{aligned} \text{Log Hourly Audit Fee} = & \alpha_0 + \alpha_1 \text{Corruption Measure} + \alpha_2 \text{Log Audit Hours} + \\ & \alpha_3 \text{Controls} + \text{Fixed Effects} + \mu \end{aligned} \quad (3)$$

$$\begin{aligned} \text{Log Normalized Hourly Audit Fee} = & \beta_0 + \beta_1 \text{Corruption Measure} + \\ & \beta_2 \text{Log Audit Hours} + \beta_3 \text{Controls} + \text{Fixed Effects} + \theta \end{aligned} \quad (4)$$

In addition to the corruption measure, the firm-specific regressions include the logarithm of audit hours for each engagement, because at the firm level we are able to control for audit effort.

Lastly, we examine whether the number of audit hours is associated with country-specific corruption variables. We estimate the following model:

$$\begin{aligned} \text{Log Audit Hours} = & \gamma_0 + \gamma_1 \text{Corruption Measure} + \gamma_2 \text{Log Nonaudit Hours} + \\ & \gamma_3 \text{Controls} + \text{Fixed Effects} + \tau \end{aligned} \quad (5)$$

Also, in equations (3), (4), and (5) we incorporate fixed effects indicators for industries and years. Following Xu et al. (2018) and Jha et al. (2021), this controls for potential variations in the hourly audit fees across industries and over time.

5. Descriptive statistics

Table 2 presents the number of observations per firm by country and year. As can be seen, in many countries we have one observation per year. However, the advantage of our sample is that by obtaining audit fees, audit hours, and audit rates, we can compute per-country audit rates. Table 3 shows the average per-country hourly audit fee in US\$ obtained from Israeli multinational firms.⁴ Table 3 is presented in a similar format to that of Table 2.

(Tables 2 and 3 about here)

Table 4 presents descriptive statistics, by year and for the pooled sample, for four of our key variables: average hourly audit fee (*Hourly Audit Fee*), normalized average hourly audit fee (*Normalized Hourly Audit Fee*), *CPI Score*, and *CPI Rank*. The mean hourly audit fee for the pooled sample is US\$110.90 but decreases over time. The reduction in hourly audit fees could be due to US\$/NIS exchange fluctuations. *Normalized Hourly Audit Fee* has a mean of 5.3, but again has large fluctuations over time. Also, normalized hourly fees are skewed to the right suggesting that this measure is likely to be influenced by extreme observations. *CPI Rank* ranges from 1 to 152, indicating that our sample contains both very clean and very corrupt countries. Unlike the normalized hourly fee measure, *CPI Score* and *CPI Rank* exhibit similar means and medians over time and are not skewed.

(Table 4 about here)

6. Country-level results

Table 5 reports Spearman rank correlations, by year, between normalized average hourly audit fee and the nine country-specific indices we expect to be associated with country-specific

⁴ Table 3 shows that data in China changed substantially from 2014 to 2015. For this reason, we repeated all our analyses excluding Chinese data. Results (not tabulated) are virtually unchanged and are available upon request.

audit risk. The rank correlation between normalized average hourly audit rate and *CPI Rank* is positive in all 10 years reported (higher rank means more corruption). This finding is consistent with the argument that audit fees should increase with country-specific audit risk to compensate the auditors for additional risk that cannot be reduced with additional audit effort. The positive correlation is significant at the 0.10 level or better in seven of the 10 years reported.

(Table 5 about here)

The rank correlation between normalized average hourly audit rate and *Control of Corruption* is negative, as expected (better control means less corruption), in all 10 years reported and significant at the 0.10 level or better in seven of the 10 years reported. The rank correlation between normalized average hourly audit rate and *Government Effectiveness* is also negative, as expected (better control means less corruption), in all 10 years reported and significant at the 0.10 level or better in eight of the 10 years reported. The rank correlation between normalized average hourly audit rate and *Political Stability* is negative, as expected (more stability means less corruption), in all 10 years reported and significant at the 0.10 level or better in only three years reported. The rank correlation between normalized average hourly audit rate and *Rule of Law* is negative, as expected (better rule of law means less corruption), in all 10 years reported and significant at the 0.10 level or better in eight of the 10 years reported. The rank correlation between normalized average hourly audit rate and *Regulatory Quality* is negative, as expected (better regulatory quality means less corruption), in all 10 years reported and significant at the 0.10 level or better in seven of the 10 years reported. The rank correlation between normalized average hourly audit rate and *Voice and Accountability* is negative, as expected (better voice and accountability means less corruption), in all 10 years reported and significant at the 0.10 level or better in seven of the 10 years reported. The rank correlation between *Doing Bus Score* and normalized average

hourly audit fee is negative in all years but is significant at the 0.10 level only in two of the 10 years. Finally, the rank correlation between normalized average hourly audit fee and *Democracy Rank* is positive in all years. These correlations are significant at the 0.10 level or better in six of the 10 years reported.

Overall, all nine indicators are correlated with normalized hourly audit fees in the expected direction. Several of them exhibit significant correlations in 7 or 8 years of the 10 years reported.

Table 6 presents the Pearson correlation matrix of these nine variables. It shows that they are highly correlated with each other at the 1% significance level. Their correlations are generally above 0.70 and occasionally above 0.85.

(Table 6 about here)

Next, we focus on the CPI index and estimate the relationship between the average country hourly audit fee and corruption, and between the average country normalized hourly audit fee and corruption. Table 7 presents regression results where the dependent variable in columns 1 to 3 is *Log Hourly Audit Fee* and in columns 4 to 6 is *Log Normalized Hourly Audit Fee*. Estimates are based on ordinary least squares (OLS) in columns 1 and 4, OLS with time (year) fixed effects in columns 2 and 5, and Fama-MacBeth (1973) regressions in columns 3 and 6. The independent variable is *CPI Rank*.

(Table 7 about here)

As can be seen in columns 1 to 3, the coefficient on *CPI Rank* is negative and significant at the 0.01 level in all three specifications. This result suggests that the hourly audit fees are negatively associated with corruption levels, meaning that audit fees are lower in more corrupt countries. Focusing on columns 4 to 6 with *Log Normalized Hourly Audit Fee* as the dependent variable, the coefficient on *CPI Rank* is positive and significant at the 0.01 level. This result

suggests that the log of normalized average hourly audit fees is positively associated with corruption levels increase. Overall, the results in Table 7 support the argument that hourly audit fees, adjusted for national income, are higher in more corrupt countries. That is, after controlling for national income levels, auditors charge higher fees when auditing companies in more corrupt countries.

Table 8 presents regression results for estimating equations (1) and (2) with the alternative eight country-specific measures of country risk as the independent variables. The left side presents results for equation (1) in two specifications: OLS with time (year) fixed effects and Fama-MacBeth (1973) regressions. The right side presents results for estimating equation (2) in a similar format. To save space, we present only the slope coefficients.

(Table 8 about here)

Looking at the left side, the coefficients on all the variables obtain the expected sign and are significant at the 0.01 level for both specifications. The variable that best explains (in terms of R^2) the log of hourly audit fee is *Control of Corruption*. On the right side with log of normalized audit fees as the dependent variable, the coefficients on all the variables obtain the expected sign and are significant at the 0.01 level for both specifications. Specifically, normalized hourly audit fees decrease with better control of corruption, more effective government, more political stability, better rule of law, higher quality of regulation, more freedom of expression, less restrictions on doing business, and stronger democracy. The variable that best explains (in terms of R^2) the log of normalized hourly audit fee is *Regulatory Quality*.

Overall, the results in Table 8 support the argument that normalized average hourly audit fees are higher in countries with more corruption. If the level of corruption is indeed a proxy for

audit risk, the results support the argument that auditors charge higher audit prices to when taking additional audit risk.

7. Firm-specific results

Table 9 presents pair-wise Pearson correlation matrix for the variables used in the firm-level analysis. In addition to the control variables used in the firm-specific analysis, we include audit fee variables and *CPI Rank*. As Table 9 shows, the correlations between pairs of firm-level control variables are not extreme. The highest correlations among the control variables are between audit complexity and firm size at -.50, between profitability and company size at .40, and between profitability and audit complexity at -.43.

(Table 9 about here)

Table 10 reports the results of estimating equations (3) and (4). The left side is the full sample, including Israeli companies. But due to the relatively large sample size of Israeli observations, the right side excludes Israeli companies. When the dependent variable is log of hourly audit fees in columns 1, 2, 5, and 6, the coefficient on *CPI Rank* is negative and significant at the 0.01 level. In addition, the coefficients on the *Log Audit Hours* are negative, suggesting that lower hourly audit fees are associated with more audit hours. One explanation for this result is that audit firms compensate for lower audit rates by increasing the number of hours. Another explanation is that total audit fees are determined at the beginning of the audit engagement, so working more hours necessarily leads to lower audit hourly rates. We are unable to distinguish between these two explanations.

(Table 10 about here)

When the dependent variable is *Log Normalized Hourly Audit Fee* in columns 3, 4, 7, and 8, as expected the coefficient on *CPI Rank* is positive and significant at the 0.01 level. The coefficients on *Log Audit hours* remain negative. Interestingly, the coefficients on *Big4 Auditor* are positive and statistically significant at the 0.05 level or better, confirming the literature findings on the Big 4 audit premium (De Fond et al., 2000).⁵

In Table 11, we present results for estimating equations (3) and (4) replacing the *CPI Rank* with one of the eight alternative audit risk variables. We report only the coefficients on the audit risk variables. In general, the results are similar to those reported in Table 10 with *CPI Rank*. When the dependent variable is *Log Normalized Hourly Audit Fee* in columns 2 and 4, the coefficients on the country specific audit risk variables are negative, and generally significant at the 0.01 level for all variables except *Democracy Rank*. The coefficient on *Democracy Rank* is positive, as expected, because a higher rank means a weaker democracy.

(Table 11 about here)

Table 12 presents the results of estimating equation (5) in a format like that of Table 10. The coefficient on *CPI Rank* is never significant, thus, there is no association between corruption and audit hours. The coefficients on *Log Nonaudit Hours* are positive and significant at the 0.05 level or better. This result suggests that an increase in audit services is associated with an increase in non-audit services. Overall, we find that country-corruption is not associated with more audit hours.

(Table 12 about here)

We estimated equation (5) replacing *CPI Rank* with each of the alternative measures of country specific audit risk (not reported in a table). When excluding the Israeli companies and

⁵ Several countries in the sample are represented by only one observation. We repeated the analysis without these countries obtaining very similar results

without controlling for *Nonaudit Hours*, none of the coefficients on the audit risk measure (γ_1) are significantly different from zero. This is consistent with the results reported in Table 12. When we control for *Nonaudit Hours* in the model, out of the eight variables, only the coefficient on *Political Stability* is positive and significant at the 0.05 level. However, this result is not robust when we include Israeli companies in the regression. Overall, we find no association between any of the country-specific audit risk variables and audit hours.

Prior studies found a positive association between total audit fees and corruption measures (Xu et al., 2018; Jha et al., 2021; Hu et al., 2023). Our results suggest that this association is due to higher audit rates, not to additional audit hours. While auditors charge higher audit rates in more corrupt countries, they do not adjust the number of audit hours. Perhaps because more audit hours are unlikely to reduce the inherent country risk. An alternative explanation is that while auditors spend a similar number of hours, the higher audit rate could be a result of a more expensive mix of the audit personnel. For example, more partner/specialist hours and fewer junior auditor hours. Consistent with our findings, Abudy et al. (2025) find that family firms pay lower audit rates than non-family firms, but the number of hours is not significantly different. They attribute that to using less expensive audit staff.

8. Summary

Country corruption is associated with audit risk. Therefore, auditors charge higher fees, increase the level of effort, or both (Xu et al., 2018; Jha et al., 2021). Most studies on audit pricing use total audit fees as a measure of price. However, total audit fee, which is a product of hourly audit fee and the number of audit hours, is typically used in studies because the number of audit hours is generally unavailable to the researcher. A better measure of audit price would be the

hourly audit fee, whereas the number of audit hours would be a refined measure of audit effort. Using audit fee and hours disclosed by multinational firms traded in Israel, we obtain average hourly audit fees in 25 different countries. We use hourly audit fees as a measure of audit price and examine whether the pricing of audit services is associated with country-specific audit risk.

As a primary measure of country risk, we use corruption indices, such as the CPI published by Transparency international. The justification for using a country's perceived corruption is that corruption weakens control systems and promotes accounting manipulation, thereby increasing the inherent and control risk of the audit. We find that normalized average hourly audit fee per country (average hourly fee divided by GDP per capita) is positively associated with corruption levels, as well as with other alternative country risk measures. We attribute these results to risk, whereby auditors charge higher hourly fees when the audit is conducted in a riskier country. We also find no association between country-specific corruption and either other risk measures or audit hours, suggesting that auditors react to country-specific audit risk by increasing the audit rate, but not the audit effort. The increase in audit rates may be driven by the inclusion of more senior and more costly professionals in the audit team. The composition of the audit team may be an interesting venue for future research.

Using the unique regulatory setting in Israel allows a decomposition of audit fees to hourly rates and audit hours. While this decomposition is the main contribution of the paper, the fact that the Securities Authority in Israel discontinued the requirement to disclose audit hours, combined with the small sample of companies, limits the generalizability of the findings. Nevertheless, our findings have practical implications. First, discontinuing the disclosure of audit hours was driven primarily by complaints of leading accounting firms in Israel. Normally, regulatory agencies impose new disclosures but rarely discontinue existing disclosures. Hence, it is important to

examine the lobbying power accounting firms have on regulatory agencies. Second, the results of our analysis suggest that disclosing audit hours is useful to stakeholders in assessing the riskiness of the audit, particularly in assessing the reaction of auditors to inherent country risk. Third, international companies may have subsidiaries in riskier countries. While disclosure of audit hours may be less important in less corrupt countries, disclosure of audit hours may be more important when companies engage in doing business in more corrupt countries. Regulatory agencies should consider mandating disclosure about the identity of auditors and audit hours in more corrupt jurisdictions.

The analysis here may suffer from a few limitations. First, country-specific hourly audit fees are compiled from a small sample of companies headquartered in Israel, which raises the question of generalizability. Second, we conduct the analysis under the assumption that the audit market in each country is competitive, and auditors cannot extract (significant) rents from clients. If this assumption is violated, an alternative explanation for our results is that auditors in more corrupt countries extract more rents from clients. Because the auditors in the sample countries are primarily branches of Big-4 audit firms, we consider this alternative explanation as remote. Third, the analysis here is based on association tests and cannot speak to causality.

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Appendix. Definition of variables.

Variable	Definition	Source
Audit Variables		
<i>Audit Fees</i>	Fees paid to the auditor for an audit engagement.	Company financial statements
<i>Audit Hours</i>	Hours of audit services per engagement.	Company financial statements
<i>Log Audit Hours</i>	Natural logarithm of <i>Audit Hours</i> variable.	
<i>Nonaudit Hours</i>	Hours of all non-audit services.	Company financial statements
<i>Log Nonaudit Hours</i>	Natural logarithm of <i>Nonaudit Hours</i> variable.	
<i>Hourly Audit Fee</i>	Average hourly rate for audit services per country in US\$.	Company financial statements
<i>Log Hourly Audit Fee</i>	Natural logarithm of <i>Hourly Audit Fee</i> variable.	
<i>Normalized Hourly Audit Fee</i>	The country's average <i>Hourly Audit Fee</i> divided by the country's GDP per capita (expressed in thousands of USD).	Company financial statement and World Bank
<i>Log Normalized Hourly Audit Fee</i>	Natural logarithm of <i>Normalized Hourly Audit Fee</i> variable.	
Country-specific Corruption Variables		
<i>CPI Score</i>	Corruption Perception Index. Annual score published by Transparency International using a scale from 0 (highly corrupt) to 100 (very clean).	Transparency International
<i>CPI Rank</i>	Corruption Perception Index Rank. The rank of the country in terms of CPI Score. Typically, around 180 countries are included in the ranking.	Transparency International
Country-specific Audit Risk Variables		
<i>Control of Corruption</i>	Control of Corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Ranges from a low of -2.5 to a high of +2.5, with +2.5 being most effective.	World Bank
<i>Government Effectiveness</i>	Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Ranges from a low of -2.5 to a high of +2.5, with +2.5 being most effective.	World Bank
<i>Political Stability</i>	Perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. Ranges from a low of -2.5 to a high of +2.5, with +2.5 being most stable.	World Bank
<i>Rule of Law</i>	Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement,	World Bank

	property rights. Ranges from a low of -2.5 to a high of +2.5, with +2.5 having highest rule of law.	
<i>Regulatory Quality</i>	Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Ranges from a low of -2.5 to a high of +2.5, with +2.5 having the highest regulatory quality.	World Bank
<i>Voice and Accountability</i>	Perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. Ranges from a low of -2.5 to a high of +2.5, with +2.5 being most accountable.	World Bank
<i>Doing Bus Score</i>	Ease of Doing Business. Simple average of the scores for each of the Doing Business topics: starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, paying taxes, trading across borders, enforcing contracts and resolving insolvency. Ranges from a low of 0 to a high of 100. A higher score means less business bureaucracy.	World Bank
<i>Democracy Rank</i>	Strength of democracy. A higher rank means a weaker democracy.	Economist Intelligence Unit
Control Variables		
<i>Big4 Auditor</i>	Dummy variable is equal to 1 if a company is audited by a Big-4 audit company, and 0 otherwise.	Company financial statement
<i>Company size</i>	Log of total assets.	Parent's financial statements
<i>Audit complexity</i>	Total accruals divided by total assets. Total accruals is the sum of accounts receivable, inventory, and accounts payable.	Parent's financial statements
<i>Company risk</i>	Leverage ratio, measured as total debt divided by total stockholders' equity.	Parent's financial statements
<i>Company profitability</i>	Operating profit margin, measured as operating income divided by sales.	Parent's financial statements
<i>Company board size</i>	Number of members in the board of directors.	Parent's financial statements

Table 1

2020 disclosure by Strauss Group Ltd.

Company	Auditor	Audit		Nonaudit Services		Total Fees	
		<i>000 NIS</i>	<i>Hours</i>	<i>000 NIS</i>	<i>Hours</i>	<i>000 NIS</i>	<i>Hours</i>
Strauss Group Israel	KPMG (Israel)	3,727	17,291	577	2,248	4,304	19,539
Sabra Dipping Company LLC	KPMG (USA)	998	1,029	-	-	998	1,029
Tres Coracoes Alimentos SA	KPMG (Brazil)	367	3,778	57	342	424	4,120
Strauss Coffee BV	KPMG Meijburg	2,340	5,328	-	-	2,340	5,328
Strauss Russia LLC	KPMG Russia	547	4,242	-	-	547	4,242

Notes: Fees presented in thousands of New Israeli Shekels. For exchange rates of US Dollars and New Israeli Shekels see <https://www.boi.org.il/en/economic-roles/financial-markets/exchange-rates/>.

Table 2

Sample selection table – Number of firms per country/year

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Brazil	2	2	2	2	2	2	2	2	2	2	20
Canada	2	2	2	2	2	2	2	1	0	0	15
China			1	1	1	1					4
Croatia							2	1	1	1	5
Cyprus					1	1	1	1	1	1	6
Finland	1	1	1	1	1	1	1	1	1	1	10
Georgia									1		1
Germany	3	3	2	2	2	2	2	2	2	2	22
Hungary								1	1	1	3
Ireland							1	1	1	1	4
Israel	35	32	32	30	34	34	29	30	113	110	479
Kosovo									1	1	2
Luxembourg	1	1	1	1	1	1	1	1			8
Netherlands	2	2	2	1	2	2	2	1	1	1	16
Poland	1	2	1	1	2	3	3	2	2	1	18
Romania	1	1	1	1	1	1					6
Russia	1	1	1	1	1	1	1	1	1	1	10
Serbia	1	1	1	1	1	1	1	1	1	1	10
South Africa									1	1	2
Spain										1	1
Sweden									1	1	2
Switzerland	1	1	2	2	2	2					10
Ukraine	1	1	1	1	1						5
United Kingdom	1	1	2	1	1	1	1	2	4	3	17
United States	10	10	8	8	8	7	5	5	6	6	73
Total	63	61	60	56	63	62	54	53	141	136	749

Notes: The sample includes observations in 25 countries during 2011-2020. To be included in the sample for any year, firms must provide sufficient data on audit fees and audit hours in each country with operations in the financial statements of multinational companies listed on the Tel Aviv Stock Exchange (TASE).

Table 3

Average hourly audit fee per country/year in US dollars.

Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Brazil	107.6	114.4	147.6	165.7	80.3	65.6	72.8	63.4	51.1	31.7
Canada	382.6	360.7	107.7	108.7	78.2	110.9	206.1	488.2	297.1	221.1
China			98.3	107.6	259.8	258.8				
Croatia							35.8	51.5	69.0	65.4
Cyprus					47.3	49.2	49.7	54.5	48.0	58.1
Finland	158.7	153.8	141.8	113.8	201.4	90.1	96.4	106.8	106.3	125.8
Georgia									90.6	
Germany	131.6	109.4	118.5	120.2	98.5	99.2	108.6	104.3	112.2	104.6
Hungary								81.8	60.0	58.4
Ireland							76.4	101.3	65.1	215.5
Israel	57.0	50.3	52.3	50.0	45.3	52.3	64.4	57.3	52.7	56.1
Kosovo									32.8	31.1
Luxembourg	115.7	92.1	81.7	86.6	85.7	64.1	100.0	112.9		
Netherlands	124.4	126.8	134.6	90.0	113.7	129.7	126.1	129.1	129.3	127.5
Poland	74.3	70.3	76.7	82.7	66.6	64.8	57.5	87.9	77.7	74.1
Romania	76.3	56.8	64.3	81.1	67.9	42.2				
Russia	119.6	122.4	114.7	31.3	38.8	38.5	35.0	44.2	39.0	37.5
Serbia	109.8	47.7	72.8	60.9	53.8	39.6	30.6	47.0	49.7	50.8
South Africa									114.2	58.7
Spain										50.5
Sweden									211.2	286.1
Switzerland	237.0	250.3	251.2	212.7	316.7	217.9				
Ukraine	58.1	64.1	69.8	176.4	34.5					
United Kingdom	164.9	159.8	151.5	124.9	138.9	134.9	140.0	253.1	197.2	152.5
USA	147.3	133.6	122.7	136.4	110.4	165.6	107.8	125.2	178.1	186.5

Notes: The Average Hourly Audit Fee is the country's average ratio of audit fees divided by audit hours. Data are converted from New Israel Shekels (NIS) to US\$ at the average annual exchange rate.

Table 4
Descriptive statistics of variables.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	All
<i>Hourly Audit Fee</i>											
Mean	137.7	127.5	112.9	109.3	108.1	101.5	87.2	119.3	104.3	104.8	110.9
Median	119.6	114.4	111.2	108.2	80.3	77.9	76.4	94.6	77.7	65.4	98.4
St. Dev.	82.1	83.5	48.5	47.5	80.1	65.9	47.3	110.7	70.8	74.9	72.8
1 st Q	76.3	64.1	74.8	81.9	53.8	50.8	49.7	55.9	51.1	50.8	58.3
3 rd Q	158.7	153.8	138.2	130.7	113.7	132.3	108.6	119.1	129.3	152.5	130.7
Minimum	57.0	47.7	52.3	31.3	34.5	38.5	30.6	44.2	32.8	31.1	30.6
Maximum	382.6	360.7	251.2	212.7	316.7	258.8	206.1	488.2	297.1	286.1	488.2
<i>Normalized Hourly Audit Fee</i>											
Mean	6.0	5.3	5.9	8.0	6.4	5.2	3.0	3.9	5.3	4.1	5.3
Median	3.9	3.7	3.2	2.5	3.7	2.8	2.6	2.9	4.1	3.7	3.3
St. Dev.	4.8	3.9	4.9	13.7	7.8	7.4	1.7	2.7	4.9	2.2	6.3
1 st Q	2.6	2.5	2.4	2.2	2.0	2.2	1.8	1.9	2.4	2.4	2.2
3 rd Q	8.4	7.9	9.0	8.7	7.6	4.8	4.1	5.7	6.4	5.1	6.5
Minimum	1.0	0.8	0.7	0.7	0.8	0.6	0.9	1.0	0.8	1.3	0.6
Maximum	16.1	16.0	16.7	56.8	32.4	32.0	7.3	10.5	19.3	10.4	56.8
<i>CPI Score</i>											
Mean	62.6	63.2	61.6	61.8	62.8	64.8	65.2	63.1	59.7	59.8	62.4
Median	71.0	73.0	67.0	67.5	63.0	69.0	74.0	66.0	58.0	60.0	62.5
St. Dev.	25.9	22.2	21.8	22.5	22.3	19.9	18.9	18.9	18.9	18.3	20.5
1 st Q	36.0	43.0	42.0	42.0	40.0	45.0	49.0	47.0	44.0	44.0	43.0
3 rd Q	87.0	84.0	80.5	81.5	83.0	81.5	82.0	80.5	77.0	77.0	81.0
Minimum	23.0	26.0	25.0	26.0	27.0	29.0	29.0	28.0	28.0	30.0	23.0
Maximum	94.0	90.0	89.0	89.0	90.0	89.0	85.0	85.0	86.0	85.0	94.0
<i>CPI Rank</i>											
Mean	46.5	43.9	45.1	46.6	41.4	37.2	37.1	40.8	46.7	45.6	43.2
Median	24.0	19.0	27.5	26.5	29.0	23.0	19.0	28.0	41.0	35.0	29.0
St. Dev.	49.1	45.9	44.5	47.0	40.9	37.0	38.8	39.9	39.9	38.5	41.1
1 st Q	10.0	9.0	10.0	9.5	10.0	9.5	8.0	10.0	12.0	11.0	10.0
3 rd Q	75.0	69.0	72.0	73.5	71.0	64.5	57.0	62.0	70.0	69.0	70.0
Minimum	2.0	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0
Maximum	152.0	144.0	144.0	142.0	130.0	131.0	135.0	138.0	137.0	129.0	152.0

Note: See Appendix for variable definitions.

Table 5

Yearly Spearman rank correlations.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
CPI Rank	0.622**	0.511*	0.608**	0.627***	0.580***	0.633***	0.359	0.331	0.476**	0.377
<i>p-value</i>	0.03	0.09	0.04	0.01	0.01	0.01	0.19	0.21	0.04	0.11
Control of Corruption	-0.699***	-0.601**	-0.650**	-0.662***	-0.613***	-0.727***	-0.425	-0.415	-0.447**	-0.358
<i>p-value</i>	0.01	0.04	0.02	0.01	0.01	0.00	0.11	0.11	0.05	0.13
Government Effectiveness	-0.587**	-0.504*	-0.580**	-0.606***	-0.569**	-0.635***	-0.411	-0.453*	-0.505**	-0.409*
<i>p-value</i>	0.04	0.10	0.05	0.01	0.02	0.01	0.13	0.08	0.03	0.08
Political Stability	-0.455	-0.350	-0.364	-0.494**	-0.480**	-0.585**	-0.307	-0.285	-0.295	-0.042
<i>p-value</i>	0.14	0.27	0.25	0.05	0.05	0.02	0.27	0.28	0.22	0.86
Rule of Law	-0.664**	-0.573**	-0.650**	-0.653***	-0.608***	-0.674***	-0.368	-0.377	-0.512**	-0.386*
<i>p-value</i>	0.02	0.05	0.02	0.01	0.01	0.00	0.18	0.15	0.02	0.10
Regulatory Quality	-0.678**	-0.587**	-0.643**	-0.574**	-0.571**	-0.618***	-0.300	-0.315	-0.449**	-0.374
<i>p-value</i>	0.02	0.04	0.02	0.02	0.02	0.01	0.28	0.24	0.05	0.12
Voice and Accountability	-0.734***	-0.657**	-0.671**	-0.621***	-0.615***	-0.653***	-0.418	-0.347	-0.500**	-0.344
<i>p-value</i>	0.01	0.02	0.02	0.01	0.01	0.01	0.12	0.19	0.03	0.15
Doing Bus Score	-0.336	-0.315	-0.441	-0.456*	-0.525**	-0.253	-0.161	-0.034	-0.176	-0.271
<i>p-value</i>	0.29	0.32	0.15	0.08	0.03	0.34	0.57	0.90	0.47	0.26
Democracy Rank	0.566**	0.469	0.645**	0.632***	0.642***	0.694***	0.420	0.336	0.519**	0.300
<i>p-value</i>	0.05	0.12	0.02	0.01	0.01	0.00	0.12	0.20	0.02	0.21

Notes: Rank correlations (Spearman) between country-specific *Normalized Hourly Audit Fees* and the independent variables used in the analysis. See Appendix for variable definitions. ***, **, and * denote significance at the 10%, 5%, and 1% levels, respectively.

Table 6

Pearson correlation matrix of the corruption variables

	<i>CPI Rank</i>	<i>Control of Corruption</i>	<i>Government Effectiveness</i>	<i>Political Stability</i>	<i>Rule of Law</i>	<i>Regulatory Quality</i>	<i>Voice and Accountability</i>	<i>Doing Bus Score</i>	<i>Democracy Rank</i>
<i>CPI Rank</i>	1								
<i>Control of Corruption</i>	-0.96	1							
<i>Government Effectiveness</i>	-0.93	0.97	1						
<i>Political Stability</i>	-0.75	0.76	0.69	1					
<i>Rule of Law</i>	-0.96	0.98	0.97	0.75	1				
<i>Regulatory Quality</i>	-0.96	0.97	0.96	0.72	0.98	1			
<i>Voice and Accountability</i>	-0.90	0.89	0.83	0.76	0.91	0.90	1		
<i>Doing Bus Score</i>	-0.67	0.66	0.70	0.41	0.67	0.69	0.50	1	
<i>Democracy Rank</i>	0.90	-0.87	-0.82	-0.70	-0.90	-0.89	-0.98	-0.49	1

Notes: Appendix provides the definition of each variable. All correlations in the table are significant at the 1% level.

Table 7

Country level regressions - hourly fee and corruption.

	Dependent Variable			Dependent Variable		
	<i>Log Hourly Audit Fee</i>			<i>Log Normalized Hourly Audit Fee</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>CPI Rank</i>	-0.008*** (0.001)	-0.008*** (0.001)	-0.008*** (0.001)	0.012*** (0.001)	0.012*** (0.001)	0.011*** (0.001)
Constant	4.864*** (0.053)	5.160*** (0.122)	4.887*** (0.046)	0.791*** (0.069)	0.953*** (0.157)	0.807*** (0.047)
Year FE	N	Y	N	N	Y	N
Observations	164	164	164	164	164	164
Adjusted R ²	0.287	0.314	0.300	0.360	0.348	0.330

Notes: Estimates in columns 1, 2, 4, and 5 are based on OLS regressions. Estimates in columns 3 and 6 are based on Fama-MacBeth (1973) averages. See Appendix for variable definitions. The panel includes data for 2011-2020 (10 periods). Robust standard errors are reported in parenthesis. *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively.

Table 8

Country level regressions - Alternative measures of country risk.

	<i>Log Hourly Audit Fee</i>				<i>Log Normalized Hourly Audit Fee</i>			
	OLS Year Fe	R² N	Fama MacBeth	R² N	OLS Year Fe	R² N	Fama MacBeth	R² N
<i>Control of Corruption</i>	0.322*** (0.035)	0.37 164	0.336*** (0.048)	0.37 164	-0.465*** (0.047)	0.38 164	-0.449*** (0.055)	0.36 164
<i>Government Effectiveness</i>	0.397*** (0.043)	0.34 164	0.423*** (0.063)	0.34 164	-0.623*** (0.053)	0.42 164	-0.604*** (0.058)	0.40 164
<i>Political Stability</i>	0.349*** (0.058)	0.21 164	0.386*** (0.058)	0.20 164	-0.456*** (0.106)	0.17 164	-0.416*** (0.059)	0.12 164
<i>Rule of Law</i>	0.351*** (0.042)	0.34 164	0.370*** (0.057)	0.34 164	-0.553*** (0.056)	0.42 164	-0.531*** (0.055)	0.39 164
<i>Regulatory Quality</i>	0.383*** (0.051)	0.30 164	0.394*** (0.064)	0.30 164	-0.641*** (0.064)	0.43 164	-0.628*** (0.071)	0.41 164
<i>Voice and Accountability</i>	0.328*** (0.078)	0.21 164	0.382*** (0.078)	0.25 164	-0.571*** (0.074)	0.32 164	-0.540*** (0.062)	0.29 164
<i>Doing Bus Score</i>	0.034*** (0.005)	0.18 154	0.036*** (0.007)	0.20 154	-0.045*** (0.007)	0.17 154	-0.042*** (0.006)	0.14 154
<i>Democracy Rank</i>	-0.008*** (0.002)	0.24 164	-0.008*** (0.001)	0.25 164	0.012*** (0.002)	0.31 164	0.012*** (0.001)	0.29 164

Notes: The table presents slope coefficients of OLS with time (year) fixed-effects and Fama-MacBeth (1973) regressions. See Appendix for variable definitions. The panel includes data for 2011-2020 (10 periods). Robust standard errors are reported in parenthesis. *, **, and *** denote p<0.10, p<0.05, and p<0.01, respectively. Regression constants are not reported.

Table 9

Firm level analysis - Pairwise Pearson correlation matrix for firm level variables.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1)	<i>Log Hourly Audit Fee</i>	1.00										
(2)	<i>Log Normalized Hourly Audit Fee</i>	0.65	1.00									
(3)	<i>Log Audit Hours</i>	-0.22	-0.26	1.00								
(4)	<i>Log Nonaudit Hours</i>	-0.20	-0.30	0.72	1.00							
(5)	<i>Big4 Auditor</i>	-0.12	0.10	0.44	0.24	1.00						
(6)	<i>Company size</i>	0.21	0.06	0.34	0.17	0.19	1.00					
(7)	<i>Audit complexity</i>	-0.01	0.07	-0.15	0.14	-0.14	-0.50	1.00				
(8)	<i>Company risk</i>	-0.09	-0.19	0.03	0.05	-0.17	0.24	-0.02	1.00			
(9)	<i>Firm profitability</i>	0.08	-0.03	0.21	-0.10	0.09	0.40	-0.43	-0.16	1.00		
(10)	<i>Firm board size</i>	0.30	0.52	0.04	-0.17	0.30	0.26	0.05	-0.14	0.06	1.00	
(11)	<i>CPI Rank</i>	-0.30	0.40	-0.03	-0.12	0.23	-0.7	0.14	-0.09	-0.09	0.33	1.00

Notes: See Appendix for variable definitions. Pearson Correlations in bold are significantly different from zero at the 0.01 level.

Table 10

Firm level regressions - Hourly fee and country risk.

	Full Sample Including Israeli Companies				Sample Excluding Israeli Companies			
	(1) <i>Log</i> <i>Hourly Audit Fee</i>	(2) <i>Log</i> <i>Hourly Audit Fee</i>	(3) <i>Log</i> <i>Normalized Hourly Audit Fee</i>	(4) <i>Log</i> <i>Normalized Hourly Audit Fee</i>	(5) <i>Log</i> <i>Hourly Audit Fee</i>	(6) <i>Log</i> <i>Hourly Audit Fee</i>	(7) <i>Log</i> <i>Normalized Hourly Audit Fee</i>	(8) <i>Log</i> <i>Normalized Hourly Audit Fee</i>
<i>CPI Rank</i>	-0.010*** (0.003)	-0.008** (0.003)	0.010*** (0.003)	0.009*** (0.002)	-0.008*** (0.001)	-0.006*** (0.001)	0.012*** (0.001)	0.011*** (0.001)
<i>Log Audit Hours</i>	-0.093*** (0.028)	-0.165*** (0.037)	-0.108*** (0.037)	-0.230** (0.060)	-0.095* (0.039)	-0.183*** (0.033)	-0.094 (0.058)	-0.273*** (0.056)
<i>Big4 Auditor</i>		0.026 (0.061)		0.150 (0.101)		-0.022 (0.043)		0.375 (0.208)
<i>Company size</i>		0.293*** (0.061)		0.320** (0.083)		0.193** (0.060)		0.168* (0.080)
<i>Audit complexity</i>		-0.083 (0.192)		-0.449* (0.213)		0.336 (0.394)		-0.035 (0.500)
<i>Company risk</i>		-0.017 (0.015)		-0.017 (0.016)		-0.061 (0.037)		-0.075 (0.051)
<i>Company profitability</i>		-0.401* (0.177)		-0.403 (0.232)		-0.118 (0.080)		-0.015 (0.182)
<i>Company board size</i>		-0.056** (0.020)		-0.068* (0.032)		-0.044 (0.037)		-0.102 (0.056)
Constant	5.388*** (0.126)	1.772** (0.495)	1.268*** (0.164)	-2.214** (0.782)	5.747*** (0.219)	3.602*** (0.689)	1.537** (0.396)	0.912 (1.288)
Year & Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	749	279	749	279	270	141	270	141
Adjusted <i>R</i> ²	0.22	0.36	0.17	0.39	0.25	0.23	0.34	0.51

Notes: See Appendix for variable definitions. Columns 1 to 4 includes data for all companies in our sample. Columns 5 to 8 excludes sample companies based in Israel. Robust standard errors are reported in parenthesis. *, **, and *** denote p<0.10, p<0.05, and p<0.01, respectively.

Table 11

Firm level regressions – Alternative measures of country risk.

	Full Sample Including Israeli Companies				Sample Excluding Israeli companies			
	<i>Log Hourly Audit Fee</i>	<i>Log Hourly Audit Fee</i>	<i>Log Normalized Hourly Audit Fee</i>	<i>Log Normalized Hourly Audit Fee</i>	<i>Log Hourly Audit Fee</i>	<i>Log Hourly Audit Fee</i>	<i>Log Normalized Hourly Audit Fee</i>	<i>Log Normalized Hourly Audit Fee</i>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Control of Corruption</i>	0.457*** (0.10)	0.313*** (0.08)	-0.259 (0.19)	-0.324* (0.13)	0.301*** (0.05)	0.223*** (0.01)	-0.498*** (0.02)	-0.447*** (0.02)
Adjusted R ²	0.30	0.39	0.12	0.39	0.26	0.25	0.38	0.58
<i>Government Effectiveness</i>	0.405*** (0.04)	0.307*** (0.03)	-0.615*** (0.07)	-0.546*** (0.10)	0.385*** (0.07)	0.293*** (0.03)	-0.614*** (0.01)	-0.520*** (0.04)
Adjusted R ²	0.17	0.34	0.26	0.47	0.28	0.28	0.40	0.57
<i>Political Stability</i>	0.450*** (0.04)	0.337*** (0.07)	0.206 (0.15)	0.107 (0.16)	0.309** (0.08)	0.224*** (0.04)	-0.748*** (0.05)	-0.604*** (0.04)
Adjusted R ²	0.42	0.46	0.12	0.31	0.13	0.17	0.36	0.51
<i>Rule of Law</i>	0.477*** (0.12)	0.326** (0.10)	-0.400** (0.17)	-0.423** (0.12)	0.342*** (0.05)	0.244*** (0.019)	-0.577*** (0.01)	-0.515*** (0.024)
Adjusted R ²	0.26	0.37	0.17	0.42	0.27	0.25	0.42	0.59
<i>Regulatory Quality</i>	0.428*** (0.06)	0.301** (0.08)	-0.606*** (0.09)	-0.545*** (0.09)	0.373*** (0.06)	0.254*** (0.025)	-0.636*** (0.02)	-0.570*** (0.029)
Adjusted R ²	0.17	0.33	0.24	0.46	0.25	0.23	0.38	0.59
<i>Voice and Accountability</i>	0.568** (0.25)	0.289 (0.22)	-0.238 (0.29)	-0.324 (0.16)	0.297*** (0.06)	0.127* (0.06)	-0.635*** (0.10)	-0.516*** (0.09)
Adjusted R ²	0.26	0.33	0.09	0.35	0.15	0.14	0.32	0.53
<i>Doing Bus Score</i>	0.046*** (0.01)	0.035** (0.01)	-0.020 (0.03)	-0.030 (0.02)	0.033*** (0.00)	0.026*** (0.00)	-0.038* (0.02)	-0.046** (0.01)
Adjusted R ²	0.24	0.36	0.08	0.31	0.24	0.23	0.18	0.49

<i>Democracy Rank</i>	-0.011 **	-0.006	0.010 ***	0.010 ***	-0.007 ***	-0.004 *	0.013 ***	0.012 ***
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Adjusted R ²	0.19	0.31	0.15	0.39	0.18	0.15	0.30	0.51
Observations	749	279	749	279	270	141	270	141
Year & Industry FE	Y	Y	Y	Y	Y	Y	Y	Y
Firm level controls	N	Y	N	Y	N	Y	N	Y

Notes: The table presents slope coefficients for OLS regression where the dependent variable in columns 1, 2, 5, and 6 is *Log Hourly Audit Fee*, and in columns 3, 4, 7, and 8 is *Log Normalized Hourly Audit Fee*. The main independent variable in each column is one of the alternative variables for country risk as in Table 8. Columns 2, 4, 6, and 8 include firm level controls. Columns 1 to 4 includes data for all the companies in our sample. Columns 5 to 8 excludes sample companies based in Israel. See Appendix for variable definitions. Data are at firm-year level. Robust standard errors are reported in parenthesis. *, **, and *** denote p<0.10, p<0.05, and p<0.01, respectively.

Table 12

Audit hours and corruption - Firm level regressions.

	Including Israeli Companies			Excluding Israeli Companies		
	<i>Dependent Variable: Log Audit Hours</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>CPI Rank</i>	0.000 (0.002)	-0.001 (0.002)	0.004 (0.004)	0.001 (0.001)	-0.001 (0.003)	0.000 (0.003)
<i>Log Nonaudit Hours</i>		0.518*** (0.026)	0.554*** (0.068)		0.495** (0.127)	0.463** (0.117)
<i>Big4 Auditor</i>			0.744* (0.313)			0.545 (0.953)
<i>Company size</i>				0.142*** (0.030)		0.262 (0.325)
<i>Audit complexity</i>				-0.424 (0.433)		0.247 (1.648)
<i>Company risk</i>				-0.013 (0.019)		-0.045 (0.082)
<i>Company profitability</i>				-0.201 (0.101)		0.624 (1.242)
<i>Company board size</i>				-0.117** (0.041)		-0.076 (0.209)
Constant	7.662*** (0.095)	5.026*** (0.122)	2.629** (0.806)	7.133*** (0.131)	4.914*** (0.894)	0.494 (4.610)
Year & Industry FE	Y	Y	Y	Y	Y	Y
Observations	749	346	120	270	100	53
Adjusted <i>R</i> ²	0.00	0.45	0.64	0.00	0.34	0.50

Notes: See Appendix for variable definitions. Columns 1 to 3 includes data for all the companies in our sample. Columns 4 to 6 excludes sample companies based in Israel. Robust standard errors are reported in parenthesis. *, **, and *** denote $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.