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Bribes and Audit Fees

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Abstract

We exploit the UK Bribery Act 2010 to test whether the pricing of audit services changes with the risk of the client-firm engaging in bribery. Adopting a triple-difference design, we show that subject firms operating in countries perceived as more corrupt, where bribery may be necessary to get contracts, pay higher audit fees following the law enforcement. Moreover, we show that the increase in audit fees is neither due to higher compliance costs nor due to a change in the financial reporting quality. The results indicate that the increase in audit fees after the passage of the UK BA for subject firms operating in high corruption environments is a compensation for the higher potential litigation and reputation costs for the auditors working with these client firms.

Keywords: Audit Fees; Audit quality; Corruption; Bribes; UK Bribery Act 2010.

JEL Classifications: K420, M4, M410, M420, M480, M140

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Bribes and Audit Fees

ABSTRACT

We exploit the UK Bribery Act 2010 to test whether the pricing of audit services changes with the risk of the client-firm engaging in bribery. Adopting a triple-difference design, we show that subject firms operating in countries perceived as more corrupt, where bribery may be necessary to get contracts, pay higher audit fees following the law enforcement. Moreover, we show that the increase in audit fees is neither due to higher compliance costs nor due to a change in the financial reporting quality. The results indicate that the increase in audit fees after the passage of the UK BA for subject firms operating in high corruption environments is a compensation for the higher potential litigation and reputation costs for the auditors working with these client firms.

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JEL codes: K420, M4, M410, M420, M480, M140

Data availability: Upon request

I. INTRODUCTION

Bribery is a major form of corruption and represents not only an ethical concern but also an important economic problem for external auditors if they fail in its detection. An external auditor's audit and business risk increases when client-firms pay bribes to obtain public contracts and this should be reflected in higher audit fees. First, auditors may need to exert higher effort when auditing these clients. Second, in case of detection and litigation against the firm, the auditor of the corrupt firm is very likely to suffer a loss of reputation irrespective of the final verdict. Specifically, after Rolls-Royce admitted bribing, the company's auditors were criticized for not revealing it as this "gets to the heart of what an auditor is supposed to do".[1] Third, the auditor itself may also be involved in litigation, even if there is no audit failure (AICPA 1993).[2] Specifically, the Audit Analytics database reports that auditors faced litigation in 404 of the 596 cases that were brought to

[1] The Financial Times, May 4, 2017, "Investigation launched into KPMG audit of Rolls-Royce" by Tim Bush. Available at https://www.ft.com/content/b95bfe1a-309a-11e7-9555-23ef563ecf9a

[2] AICPA. 1993. Audit Risk Alerts. Available at https://egrove.olemiss.edu/cgi/viewcontent.cgi?article=1628context=aicpa_indev, accessed January 11, 2021.

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court under the US Foreign Corrupt Practices Act (FCPA) during the 2001–2019 period.[3] Moreover, although in some cases the amount of bribes a client firm pays may be qualified as immaterial in accounting terms, the legal and reputational penalties for client firms and auditors and loses for shareholders when bribery is discovered are likely to be very material.

Our paper contributes to the auditing literature by providing causal evidence on the impact that illegal activities at the firm level have in the audit fees that it must pay. In particular, we test the hypothesis that, because auditors are generally expected to act as anti-bribery gatekeepers at the firm level, they will charge higher audit fees to firms they perceive as potentially corrupt.

Given the severe endogeneity challenges that we face in testing this idea, our identification strategy follows Zeume 2017.[4] Specifically, we use the passage of the UK Bribery Act (hereafter UK BA) in 2010 as a quasi-natural experiment in the form of an exogenous shock to the costs of bribery that should be impounded into audit fees. The UK BA prohibits bribing a national or foreign business person or public official and creates a strict liability offence if businesses fail to prevent bribery, and it is generally considered the harshest anti-bribery law internationally.[5] Interestingly, the act has an extraterritorial reach, applying not only to UK firms but also to overseas firms with a UK subsidiary.[6]

For our identification strategy, we measure the change in audit fees before and after the passage of the law for the firms which are subject to the Act and for the firms beyond the reach of the new

[3] The US Foreign Corrupt Practices Act, enacted in 1977 prohibits US citizens and entities from bribing foreign government officials to benefit their business interests and it is applicable worldwide.

[4] Zeume 2017 conducts an event study finding a negative market reaction to the passage of the UK Bribery Act 2010 and showing that subject firms operating in high corruption environments experienced significant market price drops, which indicates that the new law represented an important exogenous shock to the costs of doing business in corrupt environments.

[5] Transparency International, 'The Bribery Act', available at http://www.transparency.org.uk/ourwork/businessintegrity/bribery-act/

[6] Two high profile cases that have been prosecuted under the UK BA to date are the Airbus case, where the Dutch company paid nearly $4 billion to settle bribery charges involving Airbus' managers bribing to secure deals with the Malaysian, SriLankan and Chinese airlines; and the Rolls-Royce case, where the company was accused of bribing top managers and government officials to sell turbines and engines for passenger jets and military aircraft in Indonesia, Thailand, India, Russia, Nigeria, China and Malaysia.

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regulation. We proceed to further separate these groups on the basis of the perceived exposure to corruption in the firms' business environment – which depends on the location of their subsidiaries – using the Corruption Perceptions Index of Transparency International.

The main result from this triple difference identification strategy is that, after the passage of the UK BA, subject firms that operate in high corruption-exposure environments experience an 8.5% increase in their audit fees compared to non-subject firms operating in high corruption-exposure environments.

Interestingly, these higher audit fees may be reflecting either higher verification costs, higher audit risk or higher business risk. Firstly, verification costs increase with the UK BA because the auditor has to verify that subject firms are complying with all the anti-bribery procedures in the new regulation. Nevertheless, we rule out this explanation as the driver of the substantial increase in fees because, if these costs were substantial, they should also affect auditors of subject firms in low corruption environments, and we do not find any statistically significant changes in their audit fees. Moreover, the increase in fees is unrelated to the number of subsidiaries of the firm operating in corrupt countries. Secondly, audit risk could increase because of a higher need of secrecy for the firms and higher monitoring efforts on the part of the auditors to detect bribery after the passage of the act. Higher monitoring efforts should be reflected in higher audit quality. However, we do not find any change in audit quality (proxied by discretionary accruals and abnormal operating expenses). All these results are consistent with the increase in audit fees for firms operating in high corruption environments corresponding to higher perceived reputational costs for the auditors, rather than to significant increases in compliance costs or monitoring efforts.

Our paper contributes directly to the literature on the impact of bribery on audit fees. Recent studies have found that US firms operating in countries with higher levels of political corruption (Jha,

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Kulchania, and Smith 2014; Xu, Dao, and Petkevich 2019) or higher country-level corruption (Houqe, Van, Waresul, and Mahoney 2019) pay higher audit fees. Also, for the US, Lyon, and Maher (2005), relying on the voluntary disclosure of bribe-related activities, show that audit fees are higher for client firms that disclosed paying bribes in the period prior to the US FCPA enactment; and Lawson, Martin, Muriel, and Wilkins (2019) find that audit fees are higher for FCPA violators. Nevertheless, firms that operate in corrupt environments and firms that confess to, or are convicted of bribery, differ in many respects from other firms. Therefore, while these studies show a positive correlation between bribery and audit fees, they are unable to solve these endogeneity issues that may be biasing the results.[7] As noted in Amiram et al. (2018), an important challenge in the accounting literature is to solve the problem of partial observability which is acknowledged as a caveat in the literature. An ideal setting to capture the audit fees differential between bribe paying and non-bribe paying firms would be to compare the audit fees between firms that are randomly assigned to paying and not-paying bribes, since randomization can eliminate selection biases (Angrist and Pischke 2009). However, such experimental setting does not exist in reality. Nevertheless, the passage of the UK BA provides us with a quasi-experimental setting. Our study is, to the best of our knowledge, the first to show a causal relationship between audit fees and audit-client business risk stemming from illegal activities by exploring an exogenous shock to the cost of bribing. Moreover, given the extraterritorial reach of the UK Bribery Act, our results have a strong international validity. We also contribute to the small but growing literature on the impact of the UK BA. After Zeume (2017), some studies have shown that the passage of the law has increased the amount of disclosures (Islam et al. 2021) and reduced the cost of equity amongst UK firms with high bribery exposure (Kim, Rees, and Sila 2020). Moreover, there is also evidence that

[7] In particular, Lawson et al. (2019) find that FCPA violators differ from their counterparts in many firm characteristics such as size, profitability, and the probability of being audited by a Big 4 auditing firm.

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US multinationals rearranged their international operations and closed subsidiaries in highly corrupt countries after the passage of the UK BA (Sanseverino 2021).

Finally, we contribute to the more general literature on corruption by proposing the use of audit fees as a measure of the costs of hiding bribery at the firm level. Because of the difficulty in observing the illegal activities of firms, empirical results on corruption have mainly focused on direct field studies (Olken and Barron 2009), lab experiments (Abbink, Irlenbusch, and Renner 2002) and questionnaires (D'Souza and Kaufmann 2013). As Burguet, Ganuza, and García-Montalvo (2016) discuss, each of these measures has problems of its own. Our paper contributes to this literature by providing a causal estimate that has international validity and is based on an objective and commonly reported measure of fees.

The rest of the paper proceeds as follows. In the next section, we discuss the main differences between the UK BA and previous anti-bribery legislations and the expected impact that these characteristics may have on client firms and their auditors. This analysis leads us to derive our main testable hypothesis. Section 3 explains in detail our quasi-experimental research design, presenting the empirical methods and the variables we use to identify changes in the audit pricing and in financial reporting quality after the law. In Section 4 we discuss the main results. Robustness checks are presented in Section 5. Finally, in Section 6 we conclude.

II. THE INSTITUTIONAL SETTING AND DEVELOPMENT OF HYPOTHESES

The UK Bribery Act 2010

Fighting corruption has been a main concern for many nations, with most applying anti-corruption laws to discourage fraudulent activities.[8] However, companies that are subject to anti-bribery

[8] The Wordbank explains measures adopted by different countries as of 2020 in https://www.worldbank.org/en/topic/governance/brief/anti-corruption

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regulations argue that these regulations place them in an unfavorable position compared to their unregulated competitors (Zeume 2017). In an attempt to address the issue, the Bribery Act of 2010, unlike any previous legislation, imposed strict liabilities upon both UK and non-UK firms with a UK subsidiary for failing to impede bribes, either received or given. The charges may include unlimited fines and imprisonment. The peculiarity of this legislation is that the prosecution can be applied to any UK-associated person; regardless of the place where the bribery takes place. "Associated person" could be the company's employees, agents, joint venture partners or subsidiaries established in the UK. For example, a non-UK firm with a UK subsidiary is liable under the Act even if the bribery takes place outside the UK by a non-UK subsidiary or by the non-UK parent (e.g., the Airbus prosecution case). The UK BA also improves detection of the crime by providing guidance for companies on how to protect whistleblowers. The enforcement agencies responsible for investigating and prosecuting the cases under the UK Bribery Act are the Serious Fraud Office for the UK and the Director of Public Prosecutions for extraterritorial prosecutions cooperating through mutual legal assistance with other countries.

Increase in Client's Business Risk

Client business risk is associated with the survival and profitability of the company. The UK BA increased the business risk of the subject firms because of higher litigation costs and higher compliance costs.

Increase in litigation risk.

For a given level of bribery, litigation risk is a function of both the probability of detection and expected sanctions in case of detection. Both parameters were higher for bribe paying firms under UK jurisdiction after the passage of the UK BA.

For non-UK firms, the probability of detection increases because they are now subject to an

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additional anti-bribery law, and can be prosecuted by UK authorities, irrespective of any previous regulation enforced in their countries of incorporation.[9] For UK firms, prior anti-bribery laws[10] had been enacted in the late 1800s and early 1900s and were considered outdated and inadequate for detecting the bribery of foreign officials in international business transactions.[11] This is in sharp contrast to the number and prominence of the 99 cases prosecuted after a decade of the passage of the UK BA (information about some of the cases can be found in Appendix B). Although this number may seem small, it can be put into perspective considering that the US FCPA only had 21 convictions in the first 10 years of its enforcement.[12]

Regarding potential sanctions associated with bribery, the UK BA imposes unlimited fines and a maximum of 10 years of imprisonment. [13] This represents a sharp increase in comparison to both

[9] Of course, the increase in litigation risk, especially for firms not incorporated in the UK, will depend on cooperation among countries to facilitate international prosecution. International prosecution can be achieved through the mutual legal assistance between countries. This also helps firms to obtain assistance during the investigation procedures. Foreign law enforcement agencies therefore cooperate with each other to provide anti-corruption enforcement. This was highly encouraged following the OECD Anti-Bribery Convention (1997) according to which, OECD countries are required to cooperate in anti-corruption investigations. In the majority of the FCPA enforcement actions, foreign authorities provide their assistance (Christensen, Maffett, and Rauter 2020) which makes the international prosecution under the UK BA easier. According to the director of the Serious Fraud Office in the UK "The growing collaboration among the international law enforcement community is inspiring… Prosecutors, regulators and law enforcement around the world are working more closely together than we ever have before."

[10] Prior to the UK BA, 2010, the main anti-corruption laws in the UK were the Public Bodies Corrupt Practices Act 1889 and the Prevention of Corruption Act 1906, as amended by the Prevention of Corruption Act 1916 and the Anti-Terrorism, Crime and Security Act 2001. The most important international anti-corruption laws are the US Foreign Corrupt Practices Act (FCPA) (1977) and the OECD Anti-Bribery Convention (1997).

[11] The OECD working group specified: "The absence of specific case law on the bribery of foreign officials in a common law country makes it difficult to evaluate how effectively the current system works (with regards for instance to the scope of application, relevance and clarity of the terms used, efficiency of sanctions, etc.)." OECD, Directorate for Financial and Enterprise Affairs, United Kingdom: Phase 2 – Report on the Application of the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions and the 1997 Recommendation on Combating Bribery in International Business Transactions para. 248 (March 17, 2005), available at: http://www.oecd.org/dataoecd/62/32/34599062.pdf

[12] Moreover, the director of the UK Serious Fraud Office (SFO), Lisa Osofksy, speaking at the 35th International Conference on the Foreign Corrupt Practices Act in 2018 in Washington DC stated that there were at the time 70–75 cases pending trial for investigations relating to bribery and "dozens of bribery cases in the investigation pipeline—just over half of our docket".
https://www.sfo.gov.uk/2018/12/04/keynote-address-fcpa-conference-washington-dc/, accessed January 11, 2021.

[13] The severity of the penalties is corroborated by the details of the cases prosecuted by the UK BA that can be found in Appendix B. The fines imposed in these cases amount to a very large percentage of the average net income of the fined company during the three years prior to the time of the sanction.

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previous legislations held in the UK (maximum fine of £500 and imprisonment of two years), and legislations in other jurisdictions, such as the US Foreign Corrupt Practices Act (FCPA) (1977) and the OECD Anti-Bribery Convention (1997). A detailed comparison of the UK BA and the FCPA, showing the relative severity of the UK BA is provided in Appendix C.

Increase in compliance costs.

The UK BA applies a strict corporate liability criterion if a firm did not implement anti-bribery procedures to prevent bribery. Specifically, the UK Ministry of Justice issued a detailed guideline of procedures, the "UK Bribery Act 2010, guidance."[14] It states that the adequate procedures depend on the risks of bribery and on the nature and complexity of the organization's activities. Accordingly, all firms under UK jurisdiction have higher compliance requirements after the UK BA but firms that operate in riskier environments characterized by a higher probability of bribing, will face greater obligations. Internal audit procedures are crucial for reinforcing the application and effectiveness of the anti-bribery process. Important aspects of these procedures should be bribery risk assessment, due diligence, and checks on third business parties (especially with regard to public procurement), auditing, and approval of hospitality and promotional expenditures and disclosure of bribery-related policies within the organization and to the public. Top management and boards of directors are made responsible for implementing the procedures.

Increase in auditor's risks.

So far, we know that all firms subject to the new legislation face higher compliance costs and that, for bribe-paying firms, there is a substantial increase in litigation risks. However, this will only affect audit fees if it represents higher costs for the auditor. Simunic (1980) uses the following model to explain how the costs and risk of a period's audit impact audit fees.

[14] A complete analysis of the role of internal auditing in the UK Bribery Act published by the Ministry of Justice can be found in the following link: http://www.justice.gov.uk/downloads/legislation/bribery-act-2010-guidance.pdf.

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$$E(C) = cq + E(d) * E(\theta) \qquad (1)$$

E(C) equals the audit fees, *c* equals the factor cost of the external audit resources, including the opportunity costs and *q* is the quantity of resources that an auditor uses during the audit. E(d) is the expected present value of the future losses an auditor may bear from a period's audited financial statements, and E(θ) is the likelihood that the auditor will have to cover for these losses (Seetharaman, Gul, and Lynn 2002). The most obvious effect of the passage of the UK BA for the auditors relates to the additional compliance obligations for the subject firms.[15] According to Pacini, Swingen, and Rogers (2002), auditors are responsible for verifying that the firm complies with the procedures that relate to bribery. They are also generally responsible for ensuring compliance with the regulatory framework which applies to their client (AU-C 250). Therefore, the passage of the UK BA should generally imply a higher cost of the audit for all subject firms (an increase in *cq*). However, it is unclear if this impact can be significant in the context of the audit of the large international firms in our sample. Although the firm may need to make a large investment in anti-bribery procedures, the auditor only needs to verify these procedures are in place.

The UK BA will also affect audit fees for potentially corrupt firms because of (i) increased *audit business risk*, which corresponds to an increase in $E(d) * E(\theta)$ reflecting the higher reputation and litigation losses an auditor might suffer from having bribe paying client firms, even if there is no audit failure; and (ii) increased *audit risk*, that will result in an increase in cq reflecting additional monitoring costs that the auditor may need to incur to identify material misstatements and provide

[15] A detailed explanation of compliance costs related to bribery is found in Maher (1981), who discusses how auditors should deal with the compliance costs triggered by the introduction of the U.S. FCPA. Moreover, Bronson, Ghosh, and Hogan (2017) and Minutti-Meza (2014) show that increases in audit requirements (i.e., increases in compliance costs for auditors of US cross-listed firms, contribute to higher audit fees).

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a correct audit opinion (AICPA 1993).

Increase in auditors' business risk.

Auditors are subject to engagement risk defined as "the loss or injury from litigation, adverse publicity, or other events arising in connection with the audited financial statements" (Statements of Auditing Standards, SAS 106). Therefore, as the risk of litigation increased for bribe-paying firms subject to the UK BA, the auditors' business risk arising from engaging with these firms also increased.

In particular, even if auditors comply with all anti-bribery procedures and auditing standards, they can still face a lawsuit (AICPA Statements of Auditing Standards 107, footnote 2). This is true even when auditors provide correct audit opinions (AICPA 1993). Thus, bribe-paying clients expose auditors to potential shareholder litigation (Lyon and Maher 2005). Litigation threats can have a detrimental effect even for the largest auditing firms because, although these firms are better prepared to deal with the fixed costs of litigation, financial penalties usually increase with size (DeFond and Zhang 2014).

Moreover, auditors will also bear the direct costs from adverse publicity from a lawsuit against the client-firm irrespectively of the verdict.[16] This is because, if the market suspects that the client engages in illegal activities, there will be a spillover effect on the market's perception of the audit quality (Lyon and Maher 2005). In particular, previous academic literature has shown that reputation damage is detrimental for the auditors and their clients (Chaney and Philipich 2002; Cahan, Emanuel, and Sun 2009; Krishnamurthy, Zhou, and Zhou 2006; Venkataraman, Weber, and Willenborg 2008; Skinner, and Srinivasan 2012).

[16] For example, Congressman John E. Moss highly criticized the auditor of Ashland Oil after it was revealed that the company was engaged in bribe-relating activities (US House of Representatives 1976). It can be found in the following link: https://www.justice.gov/sites/default/files/criminal-fraud/legacy/2010/04/11/houseprt-95-640.pdf.

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Increase in auditors' audit risk.

The effort necessary to ensure there are no material misstatements in the accounts may increase when bribe-paying firms face higher litigation risks. According to auditing standards, auditors are responsible for identifying any fraudulent activities (Cuervo-Cazurra 2008). Moreover, auditing standards provide the auditors with guidance for identifying alarming factors that increase the likelihood of fraud or bribes, such as large or unexplained payments to government officials (PCAOB AS 2405). Furthermore, the OECD's Anti-Bribery Convention (2017) requires external auditors to "report suspected acts of foreign bribery internally to management or corporate monitoring bodies and consider requiring them to report to competent external authorities." But, when client firms pay bribes, they try to conceal them in the accounts through schemes such as failure to record a transaction, intentional misrepresentations or omissions which make their detection more difficult. And the need for secrecy and concealment will increase with the potential litigation costs for the firm. According to ISA 240, these schemes are intended to make the auditor believe that the evidence is persuasive enough and free of material misstatements, which might be wrong (IFA 2010). Consequently, when a client-firms has higher litigation risk the auditor might decide to exert additional testing, such as investigating the bidding process of public sector contracts and reviewing unusually large payments in the banking records or those made through offshore companies. In summary, we conclude that there may be an upward shift of audit risk for those auditors whose potentially corrupt clients are subject to the UK BA.

Overall Impact of the UK BA on the Audit Fees of the Subject Firms

We have already established that, after the passage of the UK BA, the cost of verifying compliance with the law will imply extra work for the auditor and this could imply an increase in audit fees (an increase in *cq*) for all subject firms relative to non-subject firms. However, it is unclear whether

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these extra verification costs are large enough to justify an increase in fees.

On the other hand, the rest of the potential effects depend on the auditor's expectations of the probability that the firm engages in bribery. If the auditor suspects the firm of bribery, one could expect substantial increase in audit fees because of both an increase in the auditor's business risk (increasing $E(d) * E(\theta)$) and an increase of audit risk (increasing cq). Nevertheless, the objective of the UK BA is to curb bribery at the firm level. An effective anti-bribery legislation produces a spike in the costs of bribery, therefore discouraging corruption. And, if the act had a significant deterrence effect, it would reduce the probability of bribery and result in a drop in the audit fees. Moreover, a third possibility would be a weak enforcement of the UK BA that would not change the probability of bribery or the expected costs of engaging in corruption neither for the firm nor the auditor.

Therefore, to derive clear testable hypothesis as to the effect of the UK BA on audit fees we need to identify groups of firms according to their probability of engaging in bribery. Specifically, what we need is to identify firms with a higher relative probability of engaging in bribery before the passage of the UK BA.

Testable Hypothesis Depending on Exposure to Corruption

Prior literature has shown that firms' bribery levels differ across countries for both moral and legal reasons, which are likely to be interrelated. In particular, the legal environment can be seen as the image of the ethical and moral standards of society (Gago-Rodríguez, Márquez-Illescas, and Núñez-Nickel 2020). Focusing on the impact of regulation on firm incentives, Shleifer and Vishny (1993) argue that firms operating in less developed countries are more likely to engage in bribery because of the lack of strong institutional and legal environments. According to Bond (2008), Brunetti and Weder (2003), and Wu (2009), this happens because in weak regulatory environments

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firms are encouraged by the lower probability of prosecution, implying lower litigation risk. But, it may also happen because "corruption corrupts" and weaker institutions lead to higher expectations of bribes by corrupt officials (Andvig and Moene 1990; Brooks and Dunn 2004). These ideas are confirmed by D'Souza and Kaufmann (2013), showing that strong legal institutions are associated with lower bribery at the firm level. This suggests, first, that the strengthening of the regulatory environment associated with the UK BA should reduce bribery. Secondly, it indicates that bribes paid are expected to be positively associated with the country's corruption level, as measured by the Corruption Perceptions Index (CPI) compiled by Transparency International (Christensen, Maffett, and Rauter 2020).

Taking all of this into account, to formulate our hypothesis we will distinguish between firms that operate in business environments with high versus low exposure to corrupt practices as a proxy for the a priori probability that the firm used bribes before the passage of the law.

We can now formulate our first testable hypothesis for firms operating in low exposure environments. Low exposure firms, irrespectively of whether they are subject to the new law, did not pose significant risks for the auditor neither before, nor after the passage of the UK BA. Therefore, when dealing with these firms, the only significant change for the auditor is the additional cost of ensuring that subject firms have in place the anti-bribery procedures required to comply with the new regulation. Therefore, the impact of the act on their audit fees allows us to the verification costs for the auditor.

H1*: For firms operating in low-exposure environments, the UK BA should increase audit fees of the subject firms proportionally to the increase in the auditor's cost of verifying firms' compliance with the new law.*

Our second testable hypothesis refers to differences in the impact of the law for high-exposure

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versus low exposure firms. High exposure firms are expected to pay higher audit fees relative to low exposure firms before the passage of the law. But after the passage of the new law, the auditor's risks from dealing with subject high exposure firms changes. If these firms continue paying bribes after the passage of the law, the auditor's risks increase and the fee differential with subject low exposure firms should increase. However, if the deterrence effect of the law is large, auditor's risks from dealing with subject high exposure firms decrease and the fee differential with subject low exposure firms should decrease.

H2: *For subject firms, the UK BA should increase the difference between the audit fees of high-exposure firms and low-exposure firms in proportion to the change in the auditor's business and audit risk.*

Finally, our last hypothesis refers to the additional monitoring efforts that the auditor may undertake to reduce the risk when dealing with high-exposure firms. If subject companies continue using bribes after the passage of the UK BA with anti-bribery procedures in place, discovering illegal activities may require more resources and effort on the part of the auditor and this would increase audit risk. To determine to what extent the increase in audit fees is due to higher auditor effort we will look for changes in audit quality. Our basic assumption is that higher audit effort should be reflected in an increased audit quality.

H3: *For subject firms, if the change in audit fees after the passage of the UK BA is caused by an increase in auditors' monitoring efforts, we should observe an increase in the audit quality of high-exposure firms relative to low-exposure firms.*

III. RESEARCH DESIGN

Data, Variables and Empirical Model

To test the hypotheses developed in Section 2 we use a panel data set of international firms with

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annual information on audit fees for the years 2006 to 2012. To determine whether a firm is subject to the UK BA we need data on its subsidiaries.[17] Therefore, we start our data collection procedure by gathering subsidiary information from the Orbis database. We commenced with 18,207 unique listed and major un-listed/delisted industrial companies around the world that had at least one subsidiary in which the parent company had direct ownership above 50% in 2018. After obtaining the incorporation date of the subsidiaries, our sample amounted to 6,363 publicly listed firms that had their subsidiaries incorporated in 2006 or prior to that year.[18] We removed financial and insurance firms from our sample.

In the second step, we collected information on audit fees from Thomson Reuters Worldscope and consolidated financial statements from the Osiris database. After merging Thomson Reuters Worldscope with Osiris, and after deleting firms with missing information our final sample of firms includes 2,559 firm-year observations.[19]

We use this sample to estimate the following triple-difference regression model in equation (2):

$$Audit\ fees_{i,t} = \alpha_i + \beta_1 Exposed_{i,t} + \beta_2 Subject_i + \beta_3\ Exposed_{i,t} \times Subject_i + \gamma_0 Post_t + \gamma_1 Post_t \times Exposed_{i,t} + \gamma_2 Post_t \times Subject_i + \gamma_3 Post_t \times Exposed_{i,t} \times Subject_i + \delta Controls_{i,t} + \varphi Industry_{i,t} + \xi_{i,t} \qquad (2)$$

Our main independent variable *"Audit fees"* is measured as the natural logarithmic of audit fees

[17] The UK Bribery Act states that "the offence can be committed in the UK or Overseas and is a strict liability offence even if improper payment has no connection of any kind to the UK" and "failure to prevent bribery in the course of business applies to any overseas entity that carries on a business or part of a business in the United Kingdom." "Part of a business" is understood to refer to a subsidiary. Therefore, for ownership to be established, it must be the case that the company has more than 50% of shares in the subsidiary. This information can be accessed in Transparency International UK with the following link: https://www.transparency.org.uk/our-work/businessintegrity/bribery-act/

[18] A limitation of our study is that our Orbis and Osiris database only includes large and very large firms. Hence, the final sample of firms that had subsidiaries comprises only those large or very large firms that had large or very large subsidiaries. Thus, our results may not be generalized to smaller sized firms.

[19] The reason for such a low number of observations is that there are many missing observations on audit fees. Further, we had to merge the information from Thomson Reuters Worldscope with Osiris by name since there is no common firm identification code. We merged based on name requiring a 97% similarity for the firms from Thomson Reuters to have the respective matched firm in Osiris. We hand crossed the merging and we deleted observations that were not correctly matched.

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in US dollars for each firm *i* in each year *t*.[20] To measure the impact of the UK BA on audit fees we construct three indicator variables: Post, Subject and Exposure. The variable *Post* is a binary indicator that takes the value one after the passage of the BA and zero before. The UK BA, passed on March 25, 2009, but received its Royal Assent on April 8, 2010.[21] Even though it was initially scheduled that its enforcement would have started in April 2010, eventually, the enforcement of the law started on July 1, 2011. However, companies had expected its enforcement in June or July 2010. To the extent that in 2009 it was not certain whether the law would be enacted, we delete it from our regression analysis and we consider 2010 as our event year. We thus determine a three-year pre- and post-UK BA period considering the years 2006–2008 as our pre-period, and 2010–2012 as our post-period. Hence, our *Post* variable is a dummy that takes the value of one if the firm-year accounting information is in 2010–2012 and zero otherwise.

We introduce the variable *Subject* to identify the firms that were subject to the UK BA. *Subject* takes the value one for company *i* if company *i* is either incorporated in the UK or had a UK subsidiary prior to the passage of the Act, and zero otherwise. A possible consideration is that firms could respond to the Act by closing their subsidiaries in countries perceived as corrupt or even in the UK.[22] To eliminate such concern, our subject sample consists of firms that were incorporated in the UK or had a UK subsidiary both before and after the passage of the UK BA.[23] We expect firms to be differently affected depending on the level of corruption in the business

[20] We use the natural logarithm of audit fees as it provides a convenient (elasticity based) interpretation (Venkataraman, J. P. Weber, and Willenborg 2008). We use exchange rates for each of the years of interest from the World Bank Database to convert all audit fees into United States dollars (USD), since all other firm accounting-information is directly downloaded in USD.

[21] In a monarchy, for a law to be enacted and enforced, the monarch should approve it first.

[22] Sanseverino (2020) finds that US multinationals were likely to discontinue operations in high corruption countries after the passage of the UK BA.

[23] This restriction biases our results in that it makes it less likely that we find any impact of the passage of the UK BA on audit fees, because the firms for which the new law was costlier are more likely to be the ones that either changed their country of incorporation or closed their UK subsidiaries following the passage of the law.

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environment where they operate. *Exposed* measures firm's *i* exposure to corrupt practices in the business environment where it operates in year *t*. To build this variable we follow Zeume (2017) and estimate the overall exposure of the firm as the sum of all its subsidiaries' exposure to corruption according to the country where each of them operates. Specifically, we use the Corruption Perceptions Index to obtain the corruption level of each country and the Orbis database to derive subsidiary information and compute the exposure measure as follows:

$$Exposure_{i,t} = \sum_{c=1}^{N} \left(10 - CPI_{c,t}\right) \frac{\#Subsidiaries_{i,c,t}}{\#Subsidiaries_{i,t}} \quad (3)$$

where $CPI_{c,t}$ is the Corruption Perceptions Index (CPI) of country c in year t. $\#Subsidiaries_{i,c,t}$ is the number of subsidiaries incorporated in country c and owned by firm i in year t. The total exposure of a firm is the summation of all of its exposures coming from all of its subsidiaries.[24] The CPI takes values from 0 to 10, with 0 indicating higher levels of corruption. Thus, by construction, an increase in our measure indicates higher exposure to corrupt countries. Then, we finally define our *Exposed* variable as an indicator variable that takes the value one if the CPI for firm *i* is above or equal to the median sample in year *t* and zero otherwise.[25] It is important to note though, that to use the exposure measure, we need to assume that the subsidiaries do business in the countries where they operate.

Controls denotes an extensive set of control variables taken from previous studies to capture firm characteristics that may have an impact on audit fees. We include *Size*, measured as the log of total assets, since larger firms usually pay higher audit fees (Bell, Landsman, and Shackelford 2001).

[24] This measure assumes that each subsidiary is equally important to the firm. An alternative measure would consider the revenues generated by each subsidiary. Untabulated analysis give similar results.

[25] In untabulated analysis, we used alternative dummy specifications, assigning the value of one to "Exposure" if the corruption exposure of the firm is in the 8th, 9th or 10th quartile and zero if it is in the 1st, 2nd or 3rd quartile. The main results remain the same. Additionally, we introduced the exposure measure as a continuous variable with no significant changes in results. For easier interpretation, we present our results taking exposure as a zero/one dummy variable relative to the median value of the sample.

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We include *Leverage, Quick ratio, Losses,* and *ROA* to control for cross-sectional differences in the financial condition of the firm (Seetharaman et al. 2002). We expect *Quick ratio* and *ROA* to have a negative impact on audit fees, since low values of these ratios may indicate problems in the company and thus higher business risk. We also anticipate a positive coefficient for *Leverage* and *Losses* because higher values of these variables indicate problems of financial distress. Higher business risk should also be associated with higher audit fees. We also include *Big 4* because the biggest auditing firms are expected to provide better audit quality and to demand a higher fee premium (DeFond and Zhang 2014). Moreover, we use *Tenure* to account for the fact that the audit quality is lower in the initial years of the firm-auditor match and to control for the fact that auditors may practice lowballing activities in the early years of the match (Huang, Raghunandan, Huang, and Chiou 2015). Finally, *Inventory receivables* are included to control the complexity of auditing inventories and receivables, and *Book to Market* and *Asset growth* to control for current and future growth prospects (Bronson et al. 2017). Detailed variable definitions and data sources for each of them are presented in Appendix A.[26]

To control for time-invariant unobserved heterogeneity at the firm level, we include (α_i) firm fixed effects in all of the regressions. We also account for the factors that are common within each industry and year using year-industry fixed effects ($Industry_{i,t}$). [27] Finally, in all the regressions in this paper, we cluster the standard errors at country level.

Interpretation of the Triple Difference

The interpretation of the triple difference requires some care. We interact our *Post* variable with

[26] All continuous variables are winsorized at the 1% and 99% level.

[27] All regressions in our paper also include year fixed effects (not interacted with industry dummies) to capture the shocks that may affect firms similarly within a specific year. We have also tried using country-year fixed effects and the results remain the same.

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Subject and *Exposed* to take advantage of the fact that the UK BA targets UK firms (or foreign firms with a UK subsidiary) that are likely to use bribes, while allowing the other groups (non-subject firms with high and low exposure to corruption and subject firms with low exposure to corruption) to potentially serve as controls. Consequently, the γ's in equation 2 enable us to construct "differenced" estimates. For example, to calculate the full effect of the passage of the UK BA on subject firms with high exposure to corruption, we would sum γ_0, γ_1, γ_2, and γ_3. Coefficient γ_2 estimates the average differential change in audit fees from the pre- to the post-UK BA period for the subject firms that have low exposure compared to the non-subject firms that also have low exposure. The sum of γ_2 and γ_3 provides the difference in effects between subject and non-subject firms with high exposure. Similarly, the sum of γ_1 and γ_3 estimates the effect on the high-low exposure difference for subject firms. Finally, γ_3 taken alone provides an estimate of the "triple difference," which describes the effect of the passage of the UK BA on the high-low exposure difference in audit fees for subject firms relative to the high-low exposure difference in the audit fees of non-subject firms.

It is also important to notice that, coupled with our differencing strategy, the fixed-effects approach implies that any alternative explanation for our findings must rely on within-industry variation that affected only subject firms with high exposure to corruption and happened to coincide with the passage of the UK BA.

Identifying Changes in Auditors' Monitoring Efforts

We have argued that a potential increase in audit fees in reaction to the passage of the UK BA may correspond to either an insurance premium for the additional reputational/litigation costs borne by the auditor or to higher monitoring effort on the part of the auditors. And we expect any additional monitoring efforts to have a reflection in higher audit quality.

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The big challenge in this case is how to proxy for audit quality in relationship to bribes. Although not directly related to bribes, accounting restatements and/or the likelihood of a qualified audit opinion are commonly used in the audit literature as a measure of audit quality (DeFond and Zhang 2014). However, these variables are not available at the international level.

Bribe-related payments may take different forms such as unusual fines or penalties, unspecified services to consultants, affiliates or employees, excessive sales' commissions or agents' fees, large payments in cash, bank cashiers' checks, bank accounts, and similar, unexplained payments made to government officials or employees, failure to file tax returns or pay government duties or similar fees, etc. Most of these items would usually be book-recorded as operating expenses, so one could expect companies that engage in bribery to have higher abnormal operating expenses. Of course, recording any bribes directly as expenses is typified as illegal by SAS 54, but anecdotal evidence indicates that bribes are usually hidden in different disguises in the operating expenses component of the income statement.[28] Therefore, a good proxy for an increase in audit quality caused by higher perceived costs of bribery would be a reduction in abnormal operating expenses.

Taking this into account, we repeat our main analysis changing the dependent variable to "*Abnormal operating expenses*", which we measure following the Dechow, Kothari, and Watts (1998) model, as modified by Roychowdhury (2006). Specifically, we build our abnormal operating expenses variable running the following regression for every industry and year.[29]

$$\frac{OPEX_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \qquad (4)$$

[28] A number of prosecutions under both the UK BA and FCPA lead to that conclusion. For example, the Braid Group's employees, in an attempt to hide bribes, created an expenses account funded by dishonest invoices. Sweet Group Company, used a fake fees account as a way of covering up bribe activities. Avon Products Inc. (FCPA prosecution) was found guilty of bribing Chinese officials hiding payments in the "meal and entertainment expenses," "gifts," and "travelling expenses." Another example is the Goodyear company (FCPA prosecution) where bribes were hidden through "freight expenses." Bio-Rad (FCPA prosecution) classified bribe activities as advertising fees, commissions, or training fees.

[29] All equations are estimated per industry and year and we require at least 10 observations in a given industry-year group.

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Where, OPEX stands for operating expenses at the end of the period, $A_{i,t-1}$ is total assets at the end of the previous period, $S_{i,t-1}$ is total sales at the end of the previous period. For every firm-year, the abnormal operating expenses is the actual operating expenses minus the "normal" operating expenses derived from equation (4) using the estimated coefficients from this industry-year model, the lagged sales, and lagged assets of the firm.[30]

IV. RESULTS

Summary Statistics and Correlations

Summary Statistics are presented in Table 1. Panel A shows the summary statistics of the whole sample for the pre-BA period relating to the years 2006–2008 and the post-BA period covering 2010–2012. Panel A shows that our overall sample consists of large firms that, on average, have good growth prospects but low performance. In general, our variables are in accordance with the previous literature that has studied international firms (Lawson et al. 2009).

In Panel B, we see the summary statistics of the firms that are under the jurisdiction of UK courts (Subject) compared to the group of firms that are not (Non-Subject) prior to the passage of the Act (years 2006–2008). On average, subject firms exhibit higher audit fees, lower exposure, and are more likely to be audited by a Big 4 auditor. Both sets of firms have similar abnormal operating expenses. The two groups, though, are quite different as they differ in most of the variables. For this reason, in our main analysis, we will perform entropy balancing as explained below.

Table 2 shows the correlations between our main dependent variables and control variables. The bottom-left corner shows the Pearson correlation coefficients and the top-right corner the

[30] Following Roychowdhury (2006), we use lagged sales rather than sales at the end of the current period. This is because, in case managers follow sales-increasing policies, the residuals of equation (4) could be low even if operating expenses are not reduced. If sales during the current year increase, then "normal" operating expenses increase, which in turn decreases abnormal operating expenses. But this decrease would not be due to an actual decrease in the operating expenses component but due to the management of sales upwards. To solve this problem, we use the lagged sales component to estimate normal operating expenses.

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Spearman correlations. We observe that audit fees are significantly and positively correlated with our exposure measure, which is consistent with the assumption that auditors perceive firms that operate in highly corrupt environments as riskier.

Testing for Identification Assumptions

Our identification strategy is based on measuring the changes in the audit fees that firms must pay after a shock to the cost of bribery in the form of the passage of the UK BA. This identification strategy is appropriate only if our legal shock meets certain conditions.

Unanticipated and exogenous shock.

Zeume (2017) offers an extensive discussion showing that the Act and its provisions were unanticipated. This is mainly because the media did not cover it up until the day of the draft announcement.[31] The passage of the Act is also likely to be exogenous with respect to the audit fees, i.e. audit fees are unlikely to be the reason for the introduction of the new legislation. Proponents of the UK BA suggested that the main purpose of the Act was to improve previous obsolete regulation and to extend the reach of the regulation to non-UK firms so as to avoid placing domestic companies in a competitive disadvantage relative to foreign firms with weak anti-bribery institutions.

Covariate balance between groups prior to the shock.

Our sample may include firms that were different in many observable characteristics prior to the enforcement of the UK BA. To address this issue and eliminate any possible bias, we perform entropy balancing to create similar subject and non-subject groups prior to the passage of the law (Hainmueller 2012; Quinn 2018).[32] We apply entropy balancing in the years prior to the law

[31] Interestingly, contrary to the UK BA, the US FCPA enforcement in 1977 does not offer such an exogenous shock to the costs of corruption. The enforcement of the act was well known and revealed by the SEC´s initiative from the voluntary disclosure program. Further, for the first three decades of its enforcement, prosecutions at international environment were very limited (Christensen et al., 2020).

[32] Following Roychowdhury (2006), we use lagged sales rather than sales at the end of the current period. This is because, in case managers follow sales-increasing policies, the residuals of equation (4) could be low even if operating expenses are not reduced. If sales during the current year increase, then "normal" operating expenses increase, which in turn

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enactment, excluding 2009. We thus take the average of the observable characteristics (our control variables) of the years 2006–2008 and we assign weights to the subject and non-subject groups so as to achieve perfect equality with regards to the first and second moments (Hainmueller 2012). We also match on industry to decrease as much as possible the bias in our results.

Table 3 shows the covariate adjustments of the control variables that affect audit fees before (Panel A) and after (Panel B) the entropy balancing process. Panel A shows some notable differences in the observable characteristics of companies that fall under UK jurisdiction and for those that do not. The matching method is successful because in Panel B we have identical means and variances for both groups. We therefore perform our analysis on the sample created from the entropy balancing method. The main results hold even if the entropy balancing is not applied (untabulated).

Substantial effect on firms.

Zeume (2017) identifies that the passage of the Act causes a significant decline in the share price of the companies that were subject to the Act. Additionally, Sanseverino (2020) offers evidence that US multinationals rearranged their international operations and closed subsidiaries in highly corrupt countries after the passage of the UK BA. There is also evidence that the passage of the act resulted in an increase in the amount of disclosures (Islam et al. 2021) and a reduction in the cost of equity (Kim, Rees, and Sila 2020) amongst UK firms with high corruption exposure.

Absence of other confounding effects at the time of the shock.

The advantage of our triple difference identification strategy is that the potential impact of almost all common factors that may be correlated with the passage of the UK BA is removed. This design accounts for factors, such as a negative shock to the UK economy, that affected both high and low

decreases abnormal operating expenses. But this decrease would not be due to an actual decrease in the operating expenses component but due to the management of sales upwards. To solve this problem, we use the lagged sales component to estimate normal operating expenses.

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exposure UK firms and may have also been correlated with the passage of the UK BA. Similarly, it can account for changes in characteristics of firms that have high exposure to corruption if these characteristics are common for firms with and without a UK subsidiary. Our identification rests on the assumption that there are no unobservable factors that are correlated with the passage of the UK BA that affect only UK firms or firms with a UK subsidiary doing business in high corruption exposure countries.

Interestingly there were important changes in the UK's generally accepted accounting practice (GAAP) in year 2012 and the EU made audit rotation mandatory in 2012. To the extent that these changes affected all UK or EU firms in our subject and non-subject groups, irrespectively of their exposure to corruption they should affect our results.[33] In addition, in the period covering the years 2011 to 2014, there were new regimes relating to firms and auditors. Companies started replacing auditors' work with some new forms of assurance services, including anti-bribery procedures. Interestingly this would go against finding an increase in audit fees after the UK BA. Finally, the most important event to consider is the financial crisis of 2008, according to which audit fees in the US went down during 2008 and were then restored to normal levels in 2009. This may have had a negative impact on the audit quality (Ettredge, Li, and Emeigh 2017; Chen, Krishnan, and Yu 2018). However, as an alternative explanation for our findings, the financial crisis should have induced some variation that had no effect on low-exposure subject firms or on non-subject high-exposure firms, which seems unlikely. Nonetheless, we check for any potential impact of the financial crisis in our results in the robustness checks section.

Parallel trends.

[33] Untabulated analysis, after excluding 2012 shows that the results still hold. Further, the final sample of subject firms, comprises 200 firms that are incorporated in the UK and of 148 firms that are incorporated in other countries but are liable under the UK BA because they have a UK subsidiary.

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The triple difference estimator requires a parallel trend assumption for the estimated effect to have a causal interpretation (Atanasov and Black 2016; Christensen, Floyd, Liu, and Maffett 2017). In our case the requirement is that, before the UK BA, the difference in audit fees between high-exposure and low-exposure firms in the group of subject firms was trending (i.e. moving) the same way as the difference in audit fees between high-exposure and low-exposure firms in the group of non-subject firms. This implies that, in the absence of the UK BA, the relative changes to audit fees of high-exposure firms would have been the same for the subject and the non-subject groups of firms.

To assess the validity of the parallel trends' assumption, we perform entropy balancing and run an OLS regression where we interact our Subject and Exposure variables with year dummies for the years before and after the enforcement of the act (excluding year 2009 because of a potential expectations bias in that year). The equation is as follows:

$$Audit\ fees_{i,t} = \alpha_0 + \sum_{t=2006}^{2014} \beta_{1,t} T_t + \beta_{2,t} T_t \times Exposed_{i,t} + \beta_{3,t} T_t \times Subject_{i,t} + \beta_{4,t} T_t \times Exposed_{i,t} \times Subject_{i,t} + \varepsilon i_{,}\, t \quad (5)$$

Figure 1 shows the counterfactual effects for the triple interaction (DiDiD). The counterfactual effects in the three years prior to the BA are insignificant, which indicates that there is no significant trend in audit fee differentials (high versus low exposure) between the subject and non-subject firms. Moreover, any firm-related differences between the high- and low-exposure firms will be eliminated after the inclusion of firm fixed effects in our main regression.

The Effect of the UK Bribery Act on Audit Fees

To test our first and second hypothesis we run equation (2). Table 4 columns (1) to (3) present the results of this DiDiD analysis for the whole sample of firms. Hypothesis 1 refers to differences between subject and non-subject firms that operate with low exposure. We do not observe any

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differences between these two groups, which indicates that the additional compliance costs for subject firms did not translate into significant verification costs for the auditors.

The results in Table 4 also confirm Hypothesis 2 because for subject firms (but not for non- subject firms) we observe an important increase in the difference in audit fees between high-exposure and low exposure-firms. Specifically, there is a 0.8 standard deviation [(exp(-0.168+0.381)/ $\sqrt{2.42}$] increase or an approximate 8.5 percentage-point [(exp(-0.168+0.381)/14.56] increase in the audit fees of high-exposure firms subject to the UK BA compared to the high-exposure non-subject firms. We also observe a 0.9 standard deviation [(exp(0.381)/ $\sqrt{2.42}$]] increase or an approximate 10 percentage-point [(exp(0.381)/14.56] increase in the difference in audit fees for high- and low-exposure subject firms relative to the high-low exposure non-subject firms.

Unfortunately, this indicates that auditors did not perceive a significant deterrence effect of the UK BA in high-exposure environments. This would be consistent with the idea that in corrupt environments paying bribes may be a necessary cost of doing business and, therefore, even after the passage of the UK BA the subject firms need to engage in bribery to obtain contracts and compete effectively in these countries. For these firms the UK BA represents an increase in the cost of doing business and, in turn, the auditors of these firms demand higher audit fees to compensate for the extra perceived risks they are assuming.

Overall, our evidence regarding Hypothesis 2 shows a causal impact of corruption on audit fees since the UK BA provoked an increase in the audit fees of high-exposure subject firms relative to low-exposure subject firms, while for non-subject firms there is no impact on the difference in fees between high and low exposure firms. Our results for Hypothesis 1 allow us to rule out the increase in verification costs of compliance as the driver of this increase. Still the increase may be due to an increase in business risk or/and an increase in audit risk arising from higher monitoring costs.

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Our next tests address this issue.

Measuring Potential Changes in Auditors' Monitoring Efforts

To test Hypothesis 3 we use abnormal operating expenses derived from equation (4) as the accounting outcome variable that should be more closely related to bribe payments at the firm level and should decrease with additional monitoring efforts on the part of the auditor. The results in Table 5 show no change in abnormal operating expenses for firms subject to the UK BA following its enforcement. We believe this is because it is very difficult for auditors to effectively monitor bribery at the firm level for two reasons. First, bribe payments are made "under the table" during a shady transaction and the firm will try to make the payment as opaque as possible[34]. Operating expenses is a broad category that should include most ways of hiding bribes, but bribery could also be hidden by using third parties as intermediaries and reflecting this in the price paid for fixed assets. This makes their detection difficult at the aggregate level through accounting information. Second, especially for large firms, such as the ones we have in our sample, the amount of the bribery related expenses may be immaterial for the firm, even if the bribes imply large amounts for the corrupt officials that receive them. For these two reasons we doubt that the observed increase in audit fees can be attributed to an increase in the monitoring effort of the auditors. Our results for Hypothesis 1 and 3 rule out increases in either verification costs or monitoring costs as the reason for the increase in audit fees. Thus, our analysis indicates that bribery has a causal effect on audit fees because audit firms charge a business risk premium to the firms likely to be paying bribes.

V. ROBUSTNESS CHECKS

[34] Transparency International UK indicates that many bribing activities are registered in offshore arrangements and off balance-sheet payments. Information about these operations can be found in this link: https://www.transparency.org.uk › plugins › includes › download

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Alternative sample periods

In our primary analysis, we use a three-year period both pre-UK BA (2006-2008) and post-UK BA (2010-2012). We also performed the analysis for both the four-year and five-year periods pre- and post- UK BA. The four-year (five-year) pre-UK BA period covers 2005–2008 (2004–2008) and the post-UK BA covers 2010–2013 (2010–2014). Table 6 panel A shows the results. The main results remain robust for both the four- and five-year pre-and post-UK BA, which indicate longer lasting effects of the passage of the UK BA on audit fees. Moreover, in untabulated analysis, we repeated our main analysis dropping year 2010 and the results do not change.

Results for Subsamples: The Effect of FCPS and OECD Regulation

We further create two subsamples. The first one excludes US firms and firms cross-listed in a US stock market because these firms were already subject to the FCPA, which, at the time of the enactment of the UK BA, was considered the most effective anti-bribery law and had been enforced over many years. These firms may not have been affected by the UK BA, and their inclusion in the sample may be generating noise. We can see in Table 6 panel B that once we eliminate these firms (columns (1) and (2)), our results are maintained. In the second subsample we eliminate both US firms and non-OECD firms. Before the passage of the UK BA, firms incorporated in the OECD were already subject to the OECD Anti-Bribery Convention of 1997. This law was not enforced to the same extent as the UK BA, but at the time of approval of the new Act, firms may have felt that it was not going to be more effective than the OECD Convention. Moreover, to the extent that this pre-existing regulation was effective in curbing bribery, we expect to see smaller effects for this subsample. In columns (3) and (4) we keep only non-US OECD firms subject to the new law in both our subject and not subject samples. We still find similar results, indicating that the UK BA is a much harder anti-bribery law than the OECD Anti-Bribery Convention.

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Alternative Indicators of Exposure to Corruption

The Corruption Perceptions Index, published annually by Transparency International, measures bribery at the country level together with other types of corruption like extortion, cronyism or nepotism. Even though in our study we are only concerned with bribery, different measures of corruption at country level are usually highly correlated. We therefore believe that its inclusion does not cause a material error in our analysis. Nevertheless, to rule out the possibility of measurement errors or biases in our country level measurement for exposure to corrupt practices, we re-calculate our exposure measure using the Bribe Payers Index (BPI) and the World Governance Indicators (WGI) alternatively.

The BPI, taken from Transparency International, measures the likelihood of a company paying bribes at the country level. This measure is directly correlated with the bribery level of each country. The most recent indexes are published for the years 2008 and 2011. For this reason, we use the BPI of 2008 (2011) to construct the exposure measure for the years prior to (after) the UK BA. The exposure measure using BPI is constructed in the same way as our main measure of exposure where we used the CPI. It takes values from 0 to 10 with 0 (10) being a country whose business' sector is most (less) likely to bribe. The results presented in Table 8 in columns (1) and (2) remain the same as the main ones using the CPI.

The WGI, taken from the World Bank, assigns a number to each country, every year, based on aggregate and individual governance indicators. The indicators are variables that measure the quality of the country's institutions in protecting individual freedom such as voice and accountability, political stability, and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. Therefore, we expect this aggregate measure to be highly correlated with the level of bribery of each country. Results for this indicator are presented

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in Table 7 panel A. The main results remain unchanged.

Potential Confounding Effect of the Financial Crisis

Changes in audit fees caused by the great financial crisis could be a plausible alternative explanation for our results only if they impacted differently subject high exposure firms, which is highly unlikely. Nevertheless, we also test the robustness of our results to this alternative explanation.

First, previous literature finds that the financial crisis put downward pressure in audit fees in year 2008 and that by 2009 audit fees were back to normal levels (Ettredge et al. 2014; Ettredge, Fuerherm, Guo, and Li 2017). In untabulated analysis we exclude year 2008 and results remain the same.

Second, the financial crisis may have had differential effects on developing and developed countries but, when we separate the sample between developing and developed countries, results are the same for both samples.

Third, we construct a financial exposure index. Our index measures the influence of the financial crisis on each company using the percentage change of the gross domestic product (GDP) per capita from 2008 to 2009.

$$GDP_{i,} = \sum_{c=1}^{N} \left(1 - \Delta GDP_{c,}\right) \frac{\#Subsidiaries_{i,c}}{\#Subsidiaries_{i}} \qquad (6)$$

Where ΔGDP_c is the percentage change in GDP of country c from 2008 to 2009. $\#Subsidiaries_{i,c}$. is the number of subsidiaries incorporated in country c and owned by firm i in 2008 and $\#Subsidiaries_i$ is the total number of subsidiaries owned by firm i in year 2008.

We then construct a dummy variable out of the continuous GDP_i that takes the value of one if the GDP change is higher than the sample median, and zero otherwise. We then repeat the same analysis using this exposure to the great financial crises as our exposure variable. The results in Table

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7 panel B show no change in audit fees after 2010 for the firms that were more heavily affected by the financial crisis through their subsidiaries. This confirms that the higher audit fees for subject high corruption exposure firms was caused by the UK BA and not by the great financial crisis.

Alternative Matching Procedure

The entropy balancing method is closely related to the propensity score matching (PSM) method. The advantage of entropy balancing over PSM is that it designates weights for the groups to be matched, achieving not only an identical covariate balance before the treatment but also similar higher-order moments of the covariate distribution between the two samples (Quinn 2018). To evaluate how sensitive our results are to our matching procedure we re-run the analysis using propensity score matching (PSM) procedure to match the observable characteristics prior to the treatment for subject and non-subject firms. We use the caliper method at 0.01, no replacement, and we require each subject observation to be matched to the closest neighbor non-subject observation. We match the variables that relate to audit fees (controls) between the subject and non-subject group prior to the law enforcement (2006–2008). We also match on industry, year, and country.

Figure 2 displays the results from the PSM. The standardized bias of the covariates across the two groups are close or equal to zero, which indicates that PSM has been successful. Table 8 panel A shows the re-estimation of the main results using PSM, which are similar to the entropy balancing results.

Placebo tests to the law

To further confirm that the cause of our results is the passage of the law and not some random effect or some specific characteristics of our sample, we perform placebo regressions. In particular, we run regression (2) 3,000 times, randomly assigning the law to different countries and firms. The

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results of these estimations should be insignificant. Therefore, we should observe a distribution of the coefficients derived from the placebo regression centered around zero. Moreover, the main coefficient of our results should be situated at the tail of the distribution. The placebo regressions are executed without applying any matching method. In Figure 3 we can see the histogram of the placebo estimates of the γ_3 coefficient in equation (2). In Figure 3, the DiDiD placebo estimates have a mean of -0.0048, a standard deviation of 0.177, and a minimum and maximum value of -0.867 and 0.585, respectively. Since we perform the placebo regression on the unmatched sample analysis, we take the coefficient of the DiDiD variable before applying any matching. Our main coefficient of the DiDiD is 0.455 (untabulated). It is situated in the right tail of the placebo distribution. This indicates that the results of both of the DiDiD coefficients are neither derived by pure randomness nor are affected by the differences between the two samples.

Controls for Auditors Tenure

A potential alternative explanation of the results would be that subject firms operating in high-exposure environment changed their auditors after the passage of the law. One might argue that when they are first hired auditors apply a fee discount for the initial year and then charge higher audit fees. In fact, this explanation would not invalidate our results because it would still imply that when the cost of bribery goes up firms may be more likely to change auditors and the impact on audit fees would arise through this change in auditors. We account for this possibility by including the auditor's tenure as a control variable which turns out to be statistically insignificant in all the regressions.

Potentially Higher Verification Costs for the Auditors of High-Exposure Firms

The UK BA asks for the anti-bribery procedures to be proportionate to the business risk, complexity, and nature of the organization's activities. This implies that, among subject firms,

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compliance costs after the UK BA should be higher for high-exposure firms relative to low-exposure firms. Our analysis of Hypothesis 1 allowed us to verify that, for low-exposure firms these compliance costs do not cause a significant increase in verification costs for the auditors. An alternative explanation for our results could be that the verification costs are much higher for the auditors of high-exposure firms.

To rule out this alternative explanation we search for a measure directly related to verification costs independently of exposure to corruption. We hypothesize that, other things equal, if verification costs are important for the auditors of subject high-exposure firms, they should charge higher audit fees to more complex subject high-exposure firms relative to less complex subject high-exposure firms. We measure complexity with the number of subsidiaries of the firm and split the sample between firms with a high and a low number of subsidiaries using the median value. The results in Table 8 panel B in columns (1) and (2) are inconsistent with this alternative explanation because audit fees of subject high-exposure firms increase both for high complexity and low complexity firms. In fact, they seem to increase more for the low-complexity firms. Furthermore, the result is maintained in the subsamples. Costs related to verification of compliance with the UK BA are unlikely to be the main determinants of the increase the audit fees for subject high-exposure firms.

Alternative Measures of Audit Quality

In our main analysis we used changes in abnormal operating expenses to proxy for changes in audit quality. In our robustness checks we use alternative proxies.

First, we use abnormal discretionary accruals as an alternative quality measure using the Dechow and Dichev (2002) model as further modified by Francis et al. (2005) and McNichols (2002), and the modified Jones model (1991), as used by Kothari et al. (2005). We also employ Leuz, Nanda,

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and Wysocki (2003),[35] earnings quality proxies. Our results in Table 8 panel B in columns (3) - (5) show no changes to the earnings quality[36]. This result indicates that the increase in fees is not due to higher audit risk and monitoring efforts.

Second, we try to identify switches to Big 4 auditors. If the increase in fees is due to an increased monitoring effort, we could expect high-exposure subject client firms to switch to higher quality monitors after the UK BA. We test this by estimating the probability of switching to Big 4 auditors. Unfortunately, the sample size is significantly reduced because the name of the auditor is missing for many observations. However, our (untabulated) results still do not show any evidence of changes to the probability of subject high-exposure firms employing a Big 4 auditor after the act.

VI. CONCLUSION

Corruption imposes high costs on the economy.[37] At the firm level, bribery seems to be worryingly common. World Bank (2014) surveys show that 20% of firms anticipate they may have to offer bribes in order to achieve a construction permit. But, because bribery is an illegal activity, almost all data estimating the extent of these practices at the firm level are indirect, and empirical researchers have usually relied on country-level estimates from surveys.[38] This is also a problem for those researchers concerned with the role that auditors and accountants can play in preventing

[35] Leuz et al. (2003) employ four different measures of earnings management at the country level. However, because our analysis is at the firm level, we construct the earnings management measures at industry and year level to make them more comparable to the accruals measures of Dechow & Dichev (2002) and of the modified Jones model (1991).

[36] We calculate all five measures employed by Leuz et al (2003) but we only present the aggregate measure of the four measures. The results remain the same for each separated measure (untabulated).

[37] It has been shown shown that corruption increases income inequality and decreases growth and investment (Burguet, Ganuza, & Montalvo, 2016; Mauro, 1995; Mo, 2001).

[38] D'Souza & Kaufmann (2013), surveying 11,000 companies in over 125 countries, show that one third of managers are willing to pay bribes to obtain public contracts. Direct estimates can be obtained in field studies such as Olken and Barron (2009) and Sequeira and Djankov (2014) but they are difficult to generalize.

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bribery (Cooper, Dacin, and Palmer 2013).

In this paper we prove audit fees increase with the likelihood of bribery at the individual firm level. To prove the causal relationship between bribery and audit fees we use a triple-difference design, exploiting the enactment of the UK Bribery Act in 2010 as a shock to the costs of engaging in bribery activities for firms under UK jurisdiction and their auditors. Our main result shows that, for firms operating in corrupt environments, there is substantial increase in the audit fees of the firms subject to the UK BA.

We run different tests to tease out the different potential reasons that can explain this causal relationship between the passage of the UK BA and the increase in audit fees of firms operating in corrupt environments. First, we show that for firms operating in low corruption-exposure environments, firms which are subject to the UK BA experience no change in audit fees relative to non-subject firms. This indicates the increase in audit fees is not due to an increase in verification costs for auditors that must ensure that subject firms comply with the anti-bribery procedures required by the UK BA. Second, our results indicate that the quality of financial reporting does not change after the passage of the UK BA. This suggests that it is difficult for auditors to reduce bribery at the firm level through their monitoring processes and that the increase in audit fees cannot be attributed to more careful auditing of these firms after the passage of the UK BA. Therefore, the increase in audit fees must be explained by the increase in reputational costs for the auditor. For firms operating in high-corruption and bribery-risk environments, bribes seem to be a necessary cost of doing business. When the passage of the UK BA increases this cost for subject firms, their auditors perceive higher reputational risks from engaging with these firms and demand a premium for bearing it.

Overall, our research design allows us to contribute to the literature on audit fees by showing a

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causal relationship between an increase in the reputational costs perceived by the auditor and an increase in the audit fees for the client firms. This result, unfortunately, is not surprising, but its economic significance – which amounts to an average increase of 8.5% in audit fees – highlights the widespread occurrence and importance of a first-order social and economic problem that we find easier to ignore when we cannot measure it.

Our research design has some limitations that should be taken into consideration for the evaluation of the results. First, we only use companies that do not change their country of incorporation or its subsidiaries after the enactment of the UK BA, which are probably less affected by the Act. Moreover, audit firms will react more when the auditor expects more stringent enforcement, which is less likely in high-corruption exposure countries. Additionally, our sample is biased toward large firms incorporated in developed countries, which probably had better anti-bribery procedures and more control mechanisms both before and after the enactment of the UK BA. Furthermore, to construct our main corruption-exposure measure we rely on the assumption that subsidiaries operate mainly in their country of incorporation. All of these imply that we are very likely to underestimate the impact of corruption on audit fees. Finally, on a more positive note, the evidence in the paper also shows that regulatory attempts to reduce bribery can have a significant impact.

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Appendix A: Variables Definitions

Dependent Variables:

Log (Audit Fees): It is the natural logarithm of audit fees. Data source: Thompson Reuters Worldscope

ABS(DA) DD: The absolute value of discretionary accruals calculated using the Dechow and Dichev (2002) model further modified by McNichols (2002) and Francis et al. (2005). Data source: Osiris

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ABS(DA) Jones. The absolute value of discretionary accruals calculated using the modified Jones model (1991) as modified by Kothari et al. (2005). Data source: Osiris

Abnormal OPEX. The actual operating expenses minus the normal operating expenses following Dechow et al. (1998) as it was further modified by Roychowdhury (2006). Data source: Osiris

Exposure Measures:

Main measure CPI: Measure of exposure using the Corruption Perception Index following Zeume (2017) and as it is indicated in the paper. Data source: Orbis, Osiris, Transparency International (TI)

BPI: Measure of exposure using the Bribery Perception Index calculated as the main exposure measure but substituting the CPI with the BPI and as it is indicated in the paper. Data source: Orbis, Osiris, Transparency International (TI)

WGI: Measure of exposure using the World Governance Indicators calculated as the main exposure measure but substituting the CPI with the WGI and as it is indicated in the paper. Data source: Orbis, Osiris, World Bank

GDP: Dummy variable showing the financial crisis effect based on the percentage change in GDP per capita per country from 2008 to 2009. It takes the value of 1 if the GDP change is higher than the sample median, and zero otherwise. Calculated as in equation (6). Data source: Orbis, Osiris, World Bank

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Subject: Dummy variable that takes the value of one if the company is either UK-incorporated or has at least oneUK subsidiary prior to the UK Bribery Act, 2010, (i.e. in 2007) and continues having the subsidiaries up until 2013, and zero otherwise. Data source: Orbis, Osiris

Post: Dummy variable that takes the value of one if the firm-year observation is in 2010, 2011

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or 2012, and zero otherwise. Data source: Osiris

Firms Controls:

Leverage: Total debt divided by total equity. Data source: Osiris

Loss: Dummy variable that takes the value of one if the company has a net loss in the year, and zero otherwise. Data source: Osiris

Asset Growth: The year change of total assets. Data source: Osiris

ROA: Net profit divided by total assets. Data source: Osiris

Size: The natural logarithm of total assets. Data source: Osiris

Tenure: The difference between the date an auditor was appointed in the company and the date the auditor was dismissed. Data source: Osiris

BIG4: Dummy variable that takes the value of one if the company is audited by a Big-4 auditing company in a particular year, and zero otherwise. Data source: Osiris

BM: Book value of equity divided by the market value of equity. Data source: Osiris

Inventory Receivables: Accounts receivables plus inventory divided by total assets. This variable is used only in the regressions where the Log (Audit Fees) is the dependent variable. Data source: Osiris

Quick: Total current asset minus inventory, divided by total current liabilities. This variable is used only in the regressions where the Log (Audit Fees) is the dependent variable. Data source: Osiris

ROI: Earnins Before Interest and Taxes divided by previous year' total assets. This variable is used only in the regressions where the Log (Audit Fees) is the dependent variable. Data source: Osiris

CFO: Cash Flow from operations divide by the previous year's total assets. This variable is used

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only in the regressions where the Abnormal OPEX and accrual measures are the dependent variable. Data source: Osiris

Revenue Growth: The year change of total revenues. This variable is used only in the regressions where the Abnormal OPEX and accrual measures are the dependent variable. Data source: Osiris

Appendix B: Examples of Some Cases Prosecuted Under UK Bribery Act, 2010

Airbus: In January, 2020 the giant manufacturer of airplanes is fined a record £820 millionfor UK Bribery Act charges after admitting of bribing agents across 20 countries to achieve high-value contracts. The penalties account for almost 60% of its average net income in the last three years prior to the sanction. The bribe took place outside UK (specifically in Asia), but the company was prosecuted under section 7 of the UK Bribery act, which creates an offence if organizations fail to prevent bribery.

Skansen Interiors Ltd: In March, 2018, Skansen Interiors was found guilty of violating section 7 of the UK BA. The Skansen Interiors Ltd self-reported a bribery made by two of its employees. The company argued that it had all anti-corruption procedures in place, but the court ruled that it had not been the case. The former managing director was sentenced to 12 months of imprisonment and disqualified from its profession for six years. The person who received the bribe was imprisoned for 20 months and paid an additional £10,697 as penalties.

Rolls Royce: On January, 17th 2017 Rolls Royce was found guilty under the UK Bribery Act 2010, section 17(1) violation. The company was penalized with the highest enforcement action for criminal conduct in the UK. In total, they were charged with £497 million and Serious Fraud Office (SFO) costs of 13 million to settle charges with the UK BA representing almost 50% of its average net loss in the years 2015-2017.

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Sweett Group: On February, 19th, 2016, Sweet Group failed to comply with section 7 of the UK BA. The costs of the prosecution reached £1.4m plus £800.000 in confiscation plus £95.000 in costs. The penalties account for around 9% of its average net income in 2015 and 2014.

Appendix C: Main differences between the UK BA and the US FCPA[39]

- The FCPA prohibits the payment of bribes to foreign public officials, whereas the UK BA makes an offence the act of bribing not only foreign public officials, but also any other private businessperson (commercial bribery).
- The FCPA considers a liability the offering of a bribe whereas the UK BA prohibits not only the offering, but also the acceptance of bribing.
  The FCPA considers a US company, or a company acting within the US, liable if it fails to maintain "books
- and records" and "internal controls" provisions. The UK BA creates a strictcorporate liability if an organization, either incorporated in the UK or not has not implemented all the necessary anti-bribery procedures, to prevent the bribe from happening.
- A special form of facilitation payments are allowed under the FCPA but not under the UK BA.
- FCPA penalties: up to $250.000 and five years of imprisonment for individuals and a maximum of $2 million fines for entities. UK BA: unlimited fines for both entities and individuals and imprisonment of up to ten years of imprisonment.
- FCPA: bribery is prosecuted if it is made with the intention to obtain or retain business, whereas the UK BA considers an offence any act of bribery regardless of the intention.
- Under the FCPA (i) all US companies, US citizens, any other foreign company that files with the

[39] Detailed information on the differences between the two legislations can be found in the following links of the FCPA compliance report and of the ministry of justice in the UK: http://fcpacompliancereport.com/2011/03/what-are-the- differences-in-the-fcpa-and-bribery-act/, http://www.justice.gov.uk/downloads/legislation/bribery-act-2010-guidance.pdf. It can also be found in the following website of the international law firm White Case LLP based in the US: https://www.whitecase.com

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SEC or has any transaction going action going through the US banking system, are liable whilst acting inside or outside the US; (ii) any non-US entity or person who acted illegally whilst on US territory; (iii) US subsidiaries bribing outside the US are also within the FCPA's reach. Under the UK BA, all UK entities, UK citizens as well as any other non-UK company that is associated with the UK are liable under UK jurisdiction regardless of the place where the bribe took place.[40]

[40] Airbus, (Netherlands registrant with headquarters in France) was found guilty under the UK Bribery Act on January, 2020. The company admitted offering bribes across 20 different countries (all outside the UK) but still the judge indicated that the entity is subject to prosecution due to the existence of two UK subsidiaries. The judgement made no reference neither to the bribery being associated to the UK subsidiaries nor to the turnover of the Group derived by the UK subsidiaries. This is a strong example of the extraterritorial reach of section 7 of the UK BA.

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Figure. 1: Difference in trends in Audit Fees Pre- and Post-Regulation for high and low exposed (subject and non-subject) groups

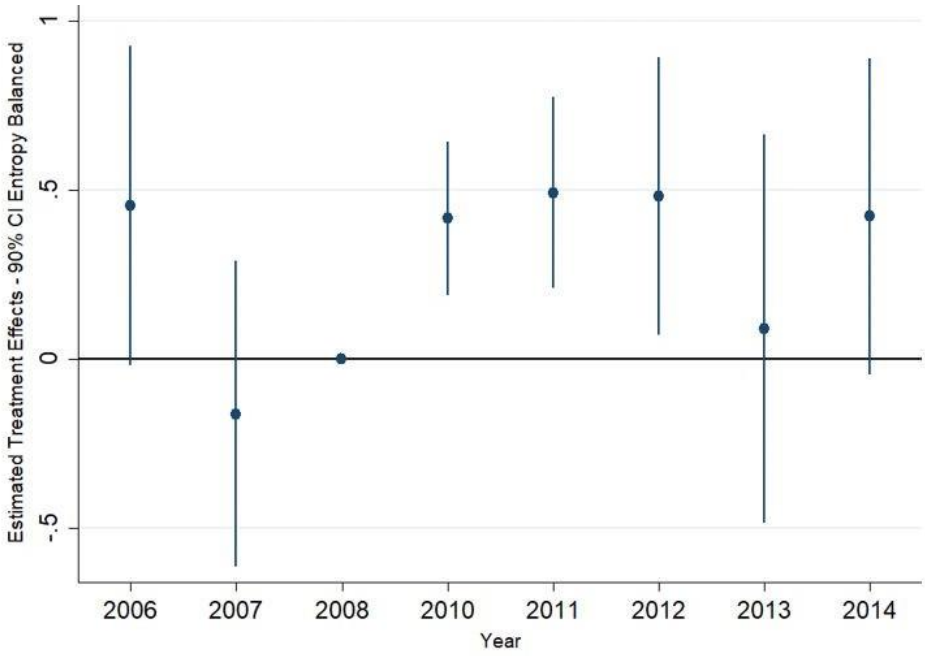

Figure 1 plots the differences in audit fees of high corruption exposure firms subject versus non-subject group as compared to low corruption exposure subject versus non-subject group in the pre- and post-UK BA period at 90% confidence interval. We estimate Audit fees as the natural logarithm of audit fees. Subject (Non-subject) firms are indicated by one (zero). We set the year prior tothe UK BA enforcement (2008) as the base year, after deleting 2009 because it is considered of high uncertainty. The event yearis set to be 2010 and we run regression (6).

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Figure 2: Sample Matching after Propensity Score Matching

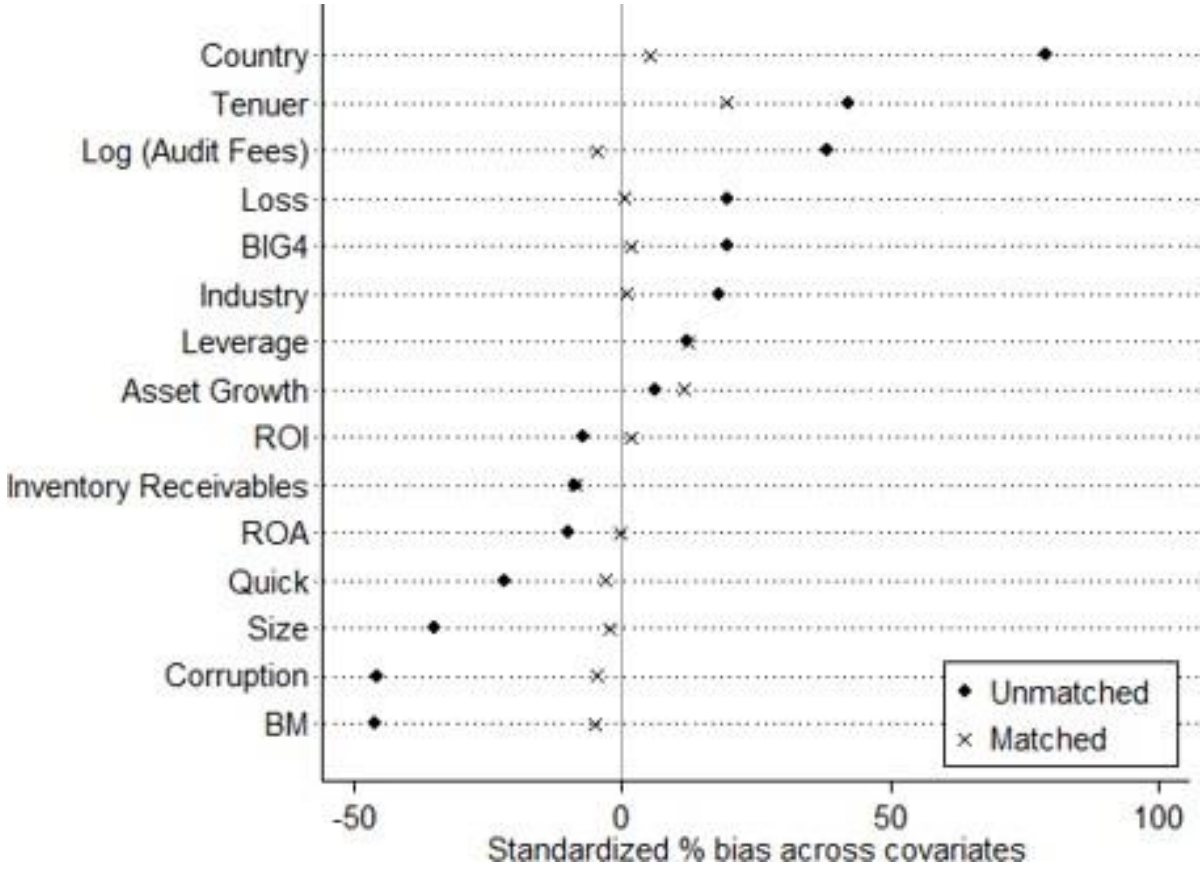

Figure 2 displays the effectiveness of the propensity score matching in the two-year pre-BA period (2006-2008) based on all the firm control variables that could relate to audit fees and audit fees itself. Audit fees is calculated as the natural logarithm ofaudit fees. We match based on all the control variables as well the country and industry the firm operates in. We match on no replacement, and we require each observation of the firms affected by the act (subject) to be matched to the closest neighbor among the firms not affected by the act (non-subject). The standardized bias between subject and non-subject groups is close to zero achieving a similarity between the two groups before the passage of the UK BA in 2010.

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Figure 3: Placebo Estimates of the DiDiD

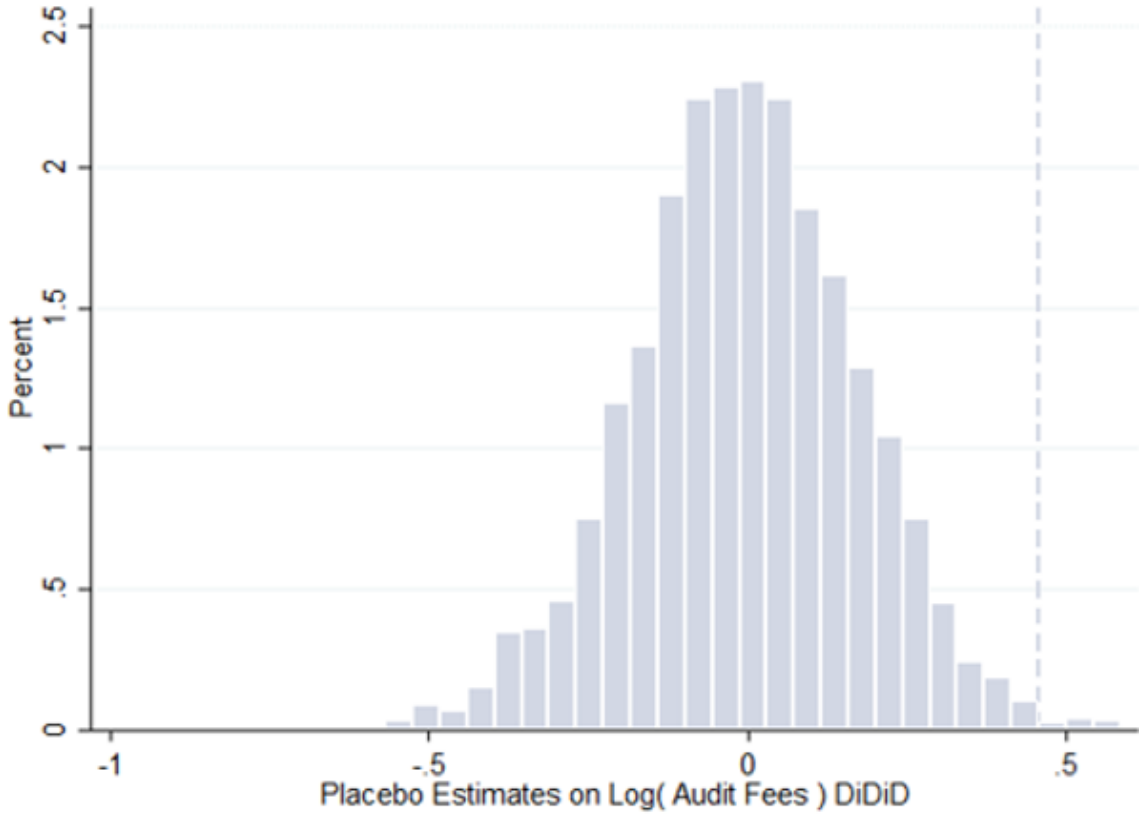

Figure 3 displays histograms on coefficients of the placebo regressions of the triple difference (Subject X Post X Exposed) variable. The coefficients are derived after estimating regression (2) 3000 times assigning the law to different firms and years. The histogram displays the placebo estimates on the triple difference coefficient. The dash line indicates the coefficient of Subject X Post X Exposed (0.455) variable obtained before performing any matching (untabulated). This is the actual coefficient obtained from the real UK BA event before applying any matching method and not the one obtained randomly.

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Table 1: Summary Statistics

Panel A:

	Obs	mean	sd	min	e(p25)	e(p50)	e(p75)	max
Exposed	7822	0.508	0.500	0.000	0.000	1.000	1.000	1.000
Audit Fees ($ millions)	7435	3.741	8.733	0.015	0.252	0.700	2.800	55.100
Log(Audit fees)	7431	13.623	1.760	9.659	12437	13.461	14.845	17.837
Abnormal OPEX	3113	-0.016	0.171	-494	0.103	-0.025	0.054	0.646
Abs(DA)-Modified	3113	0.040	0.039	0.000	0.013	0.028	0.054	0.198
Abs(DA)-DD	3113	0.049	0.049	0.001	0.015	0.034	0.067	0.240
Inventory Receivables	6772	0.295	0.169	0.008	0.166	0.283	0.403	0.756
BIG4	5263	0.524	0.499	0.000	0.000	1.000	1.000	1.000
Leverage	4950	0.616	0.809	0.000	0.113	0.387	0.767	5.039
CFO	6051	0.074	0.096	-328	0.034	0.074	0.117	0.359
ATURN	7709	1.028	0.652	0.043	0.598	0.917	1.312	3.540
Loss	7780	0.150	0.357	0.000	0.000	0.000	0.000	1.000
ROA	7779	0.038	0.102	-564	0.015	0.043	0.079	0.271
Asset Growth	7712	0.117	0.291	-374	0.012	0.055	0.153	1.776
Revenue Growth	7618	0.122	0.297	-555	0.007	0.075	0.181	1.715
Tenure	7780	3.846	3.558	0.000	1000	3.000	6.000	13.000
BM	6746	28.016	50.996	0.000	0.457	1.284	36.664	247.119
Size	7780	14.991	3.025	8.566	12.653	14.812	17.248	21.937
CATA	7780	0.492	0.209	0.045	0.341	0.495	0.641	0.944
Quick	6997	1.468	1.124	0.275	0.832	1.135	1.685	7.347
ROI	7712	0.078	0.114	-0.422	0.032	0.072	0.128	0.427

Panel B:

	Subject			Non-Subject			
	Obs	**mean**	**sd**	**Obs**	**mean**	**sd**	**T-test**
Exposed	1027	0.327	0.469	2834	0.538	0.499	-0.2111***
Audit Fees ($ millions)	979	5.204	10.700	2571	3.229	8.193	1.975***
Log(Audit fees)	979	13.967	1.788	2569	13.316	1.834	0.651***
Abnormal OPEX	298	-0.022	0.177	819	-0.017	0.180	-0.004
Abs(DA)-Modified	298	0.038	0.036	819	0.041	0.038	-0.003
Abs(DA)-DD	298	0.042	0.041	819	0.053	0.052	-0.011***
Inventory Receivables	836	0.294	0.162	2531	0.308	0.175	-0.013**

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BIG4	700	0.593	0.492	1432	0.506	0.500	0.087***
Leverage	488	0.713	0.869	1973	0.606	0.831	0.107**
CFO	884	0.082	0.115	2057	0.072	0.096	0.011**
ATURN	1008	1.097	0.671	2815	1.037	0.659	0.060**
Loss	1027	0.180	0.384	2834	0.124	0.329	0.056***
ROA	1026	0.035	0.129	2834	0.045	0.097	-0.010**
Asset Growth	1011	0.169	0.354	2798	0.156	0.340	0.014
Revenue Growth	985	0.158	0.296	2771	0.163	0.327	-0.005
Tenure	1027	4.959	4.270	2834	3.441	3.183	1.518***
BM	752	12.577	30.231	2249	29.329	45.887	-16.752***
Size	1027	14.080	3.398	2834	15.186	2.876	-1.106***
CATA	1027	0.486	0.208	2834	0.503	0.211	-0.018**
Quick	870	1.266	0.953	2599	1.503	1.167	-0.237***
ROI	1011	0.081	0.143	2798	0.090	0.114	-0.009*

This table provides summary statistics for all the variables used in this analysis. Appendix A provides detailed information onthe variables used and how they were constructed. “Log (Audit Fees)” is the natural logarithm of audit fees. “ABS(DA)Jones”is the absolute value of discretionary accruals derived from the modified Jones model (1991) as it was further modified byKothari et al. (2005) and “ABS(DA) DD” is the absolute value of discretionary accruals derived from the Dechow and Dichev (2002) model and as it was further modified by Francis et al. (2005) and McNichols (2002). “Exposed” is the measure ofexposure to corrupt activities we calculated following Zeume (2017). It is an indicator variable that takes the value of one ifthe corruption exposure of the firm in a particular year is above or equal to the median and zero otherwise. Panel A showsthe summary statistics of the whole sample for the years covering the period from 2006-2008 and 2010-2012. Panel B shows the summary statistics for the pre -UK BA period (2006-2008) of the treated and control group. The treated group includes all UK incorporated firms and also all the firms that have a UK subsidiary. The control group includes all the rest of the firms (i.e firms not incorporated in the UK which do not have a UK subsidiary). The t-test indicates whether the difference in means betweenthe treated and control group is significant in the pre-BA period for each of the observable characteristics. An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the 1% level.

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Table 2: Pearson (Spearman) Correlations left (right) Corner

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Exposed	1	**0.060**	**0.061**	-0.043	0.026	**0.157**	-0.026	0.015	**0.096**	**0.094**	-0.048	0.002	0.031	0.033	0.006	-0.020	**0.097**	**0.084**	**-0.065**	0.010
(2) Log(Audit fees)	**0.138**	1	**0.070**	**-0.072**	**-0.082**	**-0.202**	**0.081**	**0.281**	**0.189**	**0.058**	-0.017	-0.003	0.002	-0.033	-0.002	**-0.136**	**0.395**	**-0.286**	**-0.236**	0.013
(3) Abnormal OPEX	**0.058**	**0.051**	1	**0.061**	-0.031	**0.059**	-0.006	**0.165**	-0.022	**0.166**	-0.015	-0.040	**0.256**	**0.683**	-0.003	**-0.082**	0.003	-0.056	**-0.203**	-0.014
(4) Abs(DA)-Modified	**-0.042**	**-0.136**	**0.111**	1	**0.126**	**0.062**	**-0.057**	-0.017	0.027	**0.057**	**0.122**	0.041	0.046	0.027	-0.018	**-0.078**	**-0.150**	**0.098**	0.003	0.036
(5) Abs(DA)-DD	0.024	**-0.120**	**0.051**	**0.231**	1	**0.161**	0.002	**-0.078**	0.004	**0.097**	**0.064**	0.036	0.025	-0.005	-0.019	0.012	**-0.174**	**0.218**	0.036	0.021
(6) Inventory Receivables	**0.084**	**-0.159**	**0.076**	**0.058**	**0.195**	1	0.023	**-0.154**	**-0.189**	**0.520**	-0.028	-0.009	0.001	**0.071**	**0.116**	**0.183**	-0.041	**0.668**	**-0.077**	-0.014
(7) BIG4	**-0.029**	**0.046**	0.014	-0.038	-0.004	-0.021	1	0.005	0.023	-0.010	**-0.065**	0.028	0.012	0.022	**0.112**	0.012	**0.066**	-0.011	0.016	**0.058**
(8) Leverage	**-0.069**	**0.193**	0.029	-0.021	**-0.076**	**-0.174**	**0.050**	1	**-0.063**	**-0.077**	**0.122**	**-0.249**	0.021	0.000	-0.010	**-0.203**	**0.108**	**-0.375**	**-0.623**	**-0.167**
(9) CFO	0.011	**0.141**	**-0.052**	**-0.060**	-0.002	**-0.136**	**0.039**	**-0.049**	1	**0.109**	**-0.266**	**0.512**	**0.176**	**0.174**	**-0.066**	**-0.174**	**0.088**	**-0.135**	**0.062**	**0.517**
(10) ATURN	-0.011	**0.030**	**0.215**	**0.043**	**0.149**	**0.577**	-0.002	**-0.109**	**0.103**	1	**-0.138**	**0.115**	0.043	**0.124**	0.047	0.022	**0.074**	**0.400**	**-0.166**	**0.130**
(11) Loss	**-0.059**	**-0.078**	0.021	**0.149**	**0.045**	**-0.029**	-0.003	**0.100**	**-0.353**	**-0.077**	1	**-0.571**	**-0.293**	**-0.254**	0.009	**0.057**	**-0.116**	**-0.082**	**-0.108**	**-0.534**
(12) ROA	**0.048**	**0.094**	**-0.133**	**-0.071**	0.017	0.003	0.003	**-0.125**	**0.570**	**0.086**	**-0.641**	1	**0.379**	**0.366**	-0.027	**-0.348**	**-0.118**	**0.119**	**0.208**	**0.918**
(13) Asset Growth	**-0.039**	**-0.070**	**0.299**	**0.115**	**0.137**	**-0.062**	**0.024**	**0.046**	**0.052**	**-0.106**	**-0.081**	**0.120**	1	**0.447**	-0.022	**-0.203**	**-0.063**	**0.104**	-0.002	**0.450**
(14) Revenue Growth	**-0.027**	**-0.068**	**0.653**	**0.089**	**0.088**	**-0.035**	0.019	**0.038**	**0.092**	**-0.033**	**-0.051**	**0.069**	**0.490**	1	0.017	**-0.220**	**-0.069**	0.052	-0.049	**0.416**
(15) Tenure	**-0.089**	**0.034**	**-0.051**	-0.010	-0.034	**0.045**	**0.182**	**0.057**	0.009	**0.053**	0.008	-0.013	0.000	-0.009	1	**0.075**	**0.069**	**0.058**	0.014	-0.027
(16) BM	**0.096**	**-0.131**	**-0.050**	**-0.150**	-0.001	**0.127**	-0.019	**-0.138**	**-0.106**	-0.015	-0.009	**-0.098**	**-0.112**	**-0.125**	**-0.072**	1	**0.472**	**0.182**	**0.243**	**-0.394**
(17) Size	**0.255**	**0.430**	0.025	**-0.224**	**-0.145**	**-0.088**	-0.014	**0.046**	**0.067**	**-0.080**	**-0.180**	**0.104**	**-0.104**	**-0.103**	**-0.074**	**0.564**	1	**-0.134**	**-0.075**	**-0.114**
(18) CATA	**0.062**	**-0.207**	0.015	**0.138**	**0.258**	**0.693**	-0.026	**-0.274**	**-0.090**	**0.447**	0.007	-0.014	0.012	0.004	**0.024**	**0.128**	**-0.121**	1	**0.388**	**0.107**
(19) Quick	**-0.026**	**-0.194**	**-0.146**	0.017	0.005	**-0.150**	**-0.060**	**-0.278**	-0.010	**-0.225**	-0.010	**0.088**	**0.071**	0.017	**-0.040**	**0.077**	**-0.076**	**0.282**	1	**0.155**
(20) ROI	**0.042**	**0.086**	**-0.083**	0.015	**0.064**	0.018	0.005	**-0.082**	**0.644**	**0.136**	**-0.578**	**0.861**	**0.201**	**0.174**	-0.002	**-0.171**	**0.042**	0.005	**0.054**	1

This table provides the correlation coefficient for all the variables used in this analysis during the two year pre- and two year post-UK BA period. The pre-period includes years 2006-2008 and the post-period includes years 2010-2012. "Exposed" is the measure of exposure to corrupt activities we calculated following Zeume (2017). It is an indicator variable that takes the value of one if the corruption exposure of the firm in a particular year is above or equal to the median and zero otherwise. The left corner shows the Pearson correlation matrix whereas the right corner shows the Spearman correlation matrix. Bold correlation coefficients represent two-tailed significance at the 0.05 level. All variables arewinsorized at the top and bottom percentiles of the distribution. All variables are as defined in Appendix A.

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Table 3: Entropy Balancing: Descriptive Statistics

Panel A: Before Balancing	**Subject**		**Non-Subject**	
	mean	variance	mean	variance
Log (Audit Fees)	14.56	2.42	13.45	2.57
Exposed	2.80	0.80	3.28	1.74
Leverage	0.73	0.77	0.54	0.52
Inventory Receivables	0.30	0.02	0.32	0.03
Quick	1.13	0.33	1.41	1.02
ROI	0.10	0.01	0.08	0.01
Loss	0.10	0.06	0.10	0.05
Big 4	0.56	0.24	0.49	0.24
Asset Growth	0.14	0.04	0.11	0.03
ROA	0.05	0.01	0.04	0.00
Size	16.04	10.18	16.61	8.37
Tenure	5.13	18.98	3.66	10.77
BM	20.48	1117.00	46.37	2660.00
Industry	37.95	138.00	37.08	104.60
Country	26.22	108.50	20.58	82.24
Panel B: After Balancing	**Subject**		**Non-Subject**	
	mean	variance	mean	variance
Log (Audit Fees)	14.56	2.42	14.56	2.42
Exposed	2.80	0.80	2.80	0.80
Leverage	0.73	0.77	0.73	0.77
Inventory Receivables	0.30	0.02	0.30	0.02
Quick	1.13	0.33	1.13	0.33
ROI	0.10	0.01	0.10	0.01
Loss	0.10	0.06	0.10	0.06
Big 4	0.56	0.24	0.56	0.24
Asset Growth	0.14	0.04	0.14	0.04
ROA	0.05	0.01	0.05	0.01
Size	16.04	10.18	16.04	10.18
Tenure	5.13	18.98	5.13	18.98
BM	20.48	1117.00	20.48	1118.00
Industry	37.95	138.00	37.95	138.00
Country	26.22	108.50	26.22	108.50

Panel A of this table shows the descriptive statistics for both subject and non-subject groups before the entropy balancing procedure. The entropy balancing method balances the covariates that relate to audit fees in our setting. Panel B shows the descriptive statistics for both subject and non-subject groups after the entropy balancing, where identical means and variances are achieved forall relevant characteristics relative to the treatment except from the treatment itself. The subject group includes all firms that are incorporated in the UK or have a UK subsidiary. The non-subject group includes all the rest of the firms (i.e. firms not incorporatedin the UK which do not have a UK subsidiary).

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Table 4: Effect of Exposure to Corruption on Audit Fees after Entropy Balancing

Dependent Variable: Log (Audit Fees)	**All sample**		
	(1)	(2)	(3)
Subject	0.155		
	(0.425)		
Post	0.356		
	(0.967)		
Subject X Post	-0.172	-0.168	-0.256
	(-0.567)	(-0.769)	(-1.411)
Subject X Post X Exposed	0.455**	0.381**	0.403**
	-2.166	-2.323	-2.777
Exposed	0.495**	-0.047	-0.082
	-2.207	(-0.416)	(-1.122)
Subject X Exposed	-0.424	-0.391***	-0.391***
	(-1.211)	(-4.212)	(-4.254)
Post Period X Exposed	-0.067	-0.007	-0.020
	(-0.550)	(-0.124)	(-0.260)
Leverage	0.193**	0.032	0.035
	-2.067	-1.268	-1.058
Inventory Receivables	-1.757***	-0.406	-0.054
	(-5.906)	(-0.881)	(-0.095)
Quick	-0.106	0.061	0.077**
	(-1.378)	(0.961)	-2.193
ROI	1.112**	-1.604**	-1.666**
	-2.404	(-2.280)	(-2.100)
Loss	0.465***	0.078	0.064
	-3.933	(0.815)	(0.835)
BIG4	0.185	-0.061	-0.122
	-1.168	(-0.738)	(-0.961)
Asset Growth	-0.374*	0.021	0.067
	(-1.816)	(0.213)	(0.590)
ROA	2.053*	0.723	0.841
	-1.808	-1.286	-1.370
Size	0.252***	0.281	0.216
	-3.098	-1.110	(0.803)
Tenure	0.027	-0.008	0.002
	-1.528	(-1.194)	(0.194)
BM	-0.019***	0.007***	0.007***
	(-3.904)	-3.616	-3.965
Year FE	N	Y	N
Firm FE	N	Y	Y
Year-Industry FE	N	N	Y
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.283	0.213	0.147
F-test	2.05	2.19	4.29**
Observations	1,943	1,902	1,884
Adjusted R-squared	0.424	0.917	0.923

This table shows the effect of the UK Bribery Act on audit fees in the post-BA period, 2010-2012, compared to the pre-BAperiod, after performing the entropy balancing method. The dependent variable is the logarithmof audit fees paid by the parent company. “Exposed” is the measure of exposure to corrupt activities we calculated following Zeume (2017). It is an indicator variable that takes the value of one if the corruption exposure of the firm in a particular yearis above or equal to the median and zero otherwise. “Post” takes the value of one for the three-ear period after the UK BA.The variable “Subject” is an indicator variable that takes the value of one if the firm is UK incorporated or if the firm has aUK subsidiary and zero otherwise. The first column shows the results for the simple difference-in-difference without taking corruption exposure into consideration. Fixed Effects are as indicated. Clustering of standard errors is at country level. T-statistics are reported in parentheses.An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the1% level.

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Table 5: Effect of Exposure to Corruption on Abnormal OPEX after Entropy Balancing

Dependent Variable: Abnormal OPEX	**All sample**	
	(1)	(2)
Subject X Post	-0.020	-0.009
	(-0.835)	(-0.510)
Subject X Post X Exposed	0.025	0.022
	(0.860)	-1.048
Controls	Y	Y
Year FE	Y	N
Firm FE	Y	Y
Year-Industry FE	N	Y
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.005	0.013
F-test	0.79	0.71
Observations	1,795	1,791
Adjusted R-squared	0.666	0.696

This table shows the effect of the UK Bribery Act and corruption exposure in the operating expenses component. "Exposed" is the measure of exposure to corrupt activities we calculated following Zeume (2017). It is an indicator variable that takes the value of one if the corruption exposure of the firm in a particular year is above or equal to the median and zero otherwise. "Post" takes the value of one for the three-year period after the UK BA. The variable "Subject" is an indicator variable that takes the value of one if the firm is UK incorporated or if the firm has a UK subsidiary and zero otherwise. The results are calculated after performing entropy balancing. Fixed Effects are as indicated. Clustering of standard errors is at country level. T-statistics are reported in parentheses. An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the 1% level.

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Table 6: Effect of Exposure to Corruption on Audit Fees for Alternative Sample Periods and Alternative Samples

Panel A: Alternative sample periods
Dependent variable: Log (Audit Fees)

	(1)	(2)
Subject X Post	-0.316*	-0.300
	(-1.811)	(-1.558)
Subject X Post X Exposed	0.395***	0.367**
	-3.119	-2.777
Controls	Y	Y
Firm FE	Y	Y
Year-Industry FE	Y	Y
Sample	+/- 4	+/- 5
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.079	0.067
F-test	5.93**	4.45**
Observations	2,227	2,301
Adjusted R-squared	0.908	0.904

Panel B: Alternative samples
Dependent Variable: Log (Audit Fees)

	Non-FCPA		**Non-US OECD**	
	(1)	(2)	(3)	(4)
Subject X Post	-0.187	-0.212	-0.177	-0.207
	(-0.873)	(-1.104)	(-0.776)	(-1.012)
Subject X Post X Exposed	0.545**	0.529**	0.535**	0.513**
	-2.545	-2.559	-2.324	-2.331
Controls	Y	Y	Y	Y
Year FE	Y	N	Y	N
Firm FE	Y	Y	Y	Y
Year-Industry FE	N	Y	N	Y
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.358	0.317	0.358	0.306
F-test	3.10*	3.69*	2.51	3.03*
Observations	1,66	1,638	1,465	1,443
Adjusted R-squared	0.912	0.916	0.909	0.914

Panel A of this table shows the effect of the UK Bribery Act and corruption exposure on audit fees on alternative sample periods. The dependent variable is the natural logarithm of audit fees paid by the parent company. "Exposed" is the measure of exposure to corrupt activities we calculated following Zeume (2017). Columns (1) and (2) show the results of a four-year and a five-year pre-and post-BA period respectively. "Post" in column (1) takes the value of one for the four-year period after the UK BA (2010-2013) and zero otherwise (2005-2008) and in column (2) it takes the value of one for the five-year period after the UK BA (2010-2014) and zero otherwise (2004-2008). Panel B shows the effect of the UK Bribery Act and corruption exposure on audit fees on alternative samples. Columns (1)-(2) show the results of the non-FCPA sample and columns (3)-(4) the analysis for the non-US OECD sample. Fixed Effects are as indicated. Clustering of standard errors is at country level. T-statistics are reported in parentheses. An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the 1% level.

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Table 7: Alternative measurement of Exposure to Corruption – Bribe Payers Index (BPI) and World Governance Indicators (WGI) & Effect of the financial crisis.

Panel A: BPI and WGO as alternative measurements to corruption

Dependent variable: Log (Audit Fees)	**BPI**		**WGI**	
	(1)	(2)	(3)	(4)
Subject X Post	-0.270	-0.356*	-0.175	-0.238
	(-1.196)	(-2.051)	(-0.783)	(-1.547)
Subject X Post X Exposed	0.603**	0.594***	0.379*	0.462***
	-2.708	-3.772	-1.825	-3.756
Controls	Y	Y	Y	Y
Year FE	Y	N	Y	N
Firm FE	Y	Y	Y	Y
Year-Industry FE	N	Y	N	Y
Sum of Coefficients	0.333	0.229	0.204	0.224
F-test	3.96*	8.63***	1.71	7.04**
Observations	1,938	1,92	1,947	1,932
Adjusted R-squared	0.927	0.932	0.947	0.951

Panel B: The effect of the financial crisis

Dependent variable: Log (Audit Fees)	**GDP-Crisis**	**Financial**
	(1)	(2)
Subject X Post	-0.011	-0.026
	(-0.069)	(-0.344)
Subject X Post X Exposed	0.264	0.180
	-1.212	-1.078
Controls	Y	Y
Year FE	Y	N
Firm FE	Y	Y
Year-Industry FE	N	Y
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.253	0.15
F-test	0.51	1.00
Observations	2,275	2,257
Adjusted R-squared	0.943	0.948

Panel A of the table shows the effect of the UK Bribery Act and corruption exposure on audit fees in the post-BA period, 2010-2012, compared to the pre-BA period, 2006-2008, using the Bribe Payers Index and the World Governance Indicators (WGI) as alternative measures for capturing corruption. The results are after applying entropy matching. The dependent variable is the logarithm of audit fees paid by the parent company. "Exposed" is calculated as our main measure of exposure to corruption using, instead of the CPI, the BPI in columns (1)-(2) and the WGO in columns (3)-(4). "Post" takes the value of one for the three-year period after the UK BA. Panel B of the table shows the effect of the financial crisis on the results. "GDP" is the measure of the impact of the financial crisis, calculated as shown in equation (6). It is an indicator variable that takes the value of one if the GDP change per capita of a particular country from 2008 to 2009 is aboveor equal to the median and zero otherwise. Fixed Effects are as indicated. Clustering of standard errors is at country level. T-statistics are reported in parentheses. An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the 1% level.

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Table 8: Effects of Exposure to Corruption on Audit Fees after Propensity Score Matching

Panel A: PSM

Dependent Variable: Log (Audit Fees)	**PSM**	
	(1)	(2)
Subject X Post	-0.194	-0.178
	(-0.881)	(-0.920)
Subject X Post X Exposed	0.462*	0.442**
	(1.751)	(2.167)
Controls	Y	Y
Year FE	Y	N
Firm FE	Y	Y
Year-Industry FE	N	Y
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.268	0.264
F-test	2.00	2.73
Observations	855	847
Adjusted R-squared	0.925	0.929

Panel B: Identifying potential changes in compliance and monitoring efforts.

Dependent variable:	**Log (Audit fees)**		**ABS(DA) DD**	**ABS(DA) Jones**	**Aggregate Measure**
	(1)	(2)	(3)	(4)	(5)
Subject X Post	-0.371	0.260	0.004	-0.007	-5.625
	(-1.604)	(0.957)	(0.650)	(-1.121)	(-0.474)
Subject X Post X Exposed	0.379*	0.929***	-0.005	0.011	-18.411
	-1.869	-3.794	(-0.588)	-1.344	(-1.411)
Control	Y	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y	N
Year-Industry FE	Y	Y	Y	Y	Y
Sample	High #	Low #	-	-	-
Sum of Coeff: Subject X Post + Subject X Post X Exposed	0.008	1.189	-0.001	0.004	-24.036
F-test	3.07*	7.73	0.4	1.7	0.3
Observations	1,103	764	1,045	1,045	4,491
Adjusted R-squared	0.913	0.952	0.273	0.419	0.684

Panel A of the table shows the effect of the UK Bribery Act on audit pricing in the post-BA period, 2010-2012, compared to the pre- BA period, 2006-2008, after performing propensity score matching. We match on no replacement and we require each treated observation to be matched to the closest neighbor control observation. The dependent variable is the natural logarithm of audit fees paid by the parent company. "Exposed" is the measure of exposure to corrupt activities we calculated following Zeume (2017). "Post" takes the value of one for the three-year period after the UK BA. Panel B shows the effect of the UK Bribery Act and corruption exposure on audit fees according to the firm complexity and on the earnings quality measures. The results are after applying entropy matching. Columns (1) and (2) of the table show the effect on audit fees after splitting the sample between those firms that have a high- or low- number of subsidiaries. "High" means that the firms in this sample have a number of subsidiaries that is above the sample median and "Low" means that the firms in this sample have a number of subsidiaries that is below or equal the sample median. Fixed Effects are as indicated. Clustering of standard errors is at country level. T-statistics are reported in parentheses. An asterisk indicates significance at the 10% level; two indicate significance at the 5% level; three indicate significance at the 1% level.

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