

# Bribes and Firm Value

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## Abstract

I exploit the passage of the UK Bribery Act 2010 as an exogenous shock to UK firms' cost of using bribes to study whether the ability to use bribes creates firm value. First, I find that UK firms operating in high corruption regions of the world display negative abnormal returns upon passage of the Act. A firm operating exclusively in the most corrupt regions suffers a 6.2% drop in value compared to a firm operating exclusively in the least corrupt regions. The effect is stronger for firms that are not already subject to US anti-bribery regulation, are not part of corporate social responsibility indices, operate in concentrated industries, and have better governance. Foreign firms subject to the Act because they have a UK subsidiary also exhibit negative abnormal returns. Second, I identify real effects of the Act. Relative to comparable continental European firms, UK firms expand their subsidiary network less into high corruption regions and their sales in these regions grow six percentage points more slowly.

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## 1. Introduction

The use of bribes is pervasive in business. According to a survey of more than 11,000 firms from 125 countries, one third of firms use bribes to secure public procurement contracts, paying 8% of the contract value on average (D'Souza and Kaufmann 2011).<sup>1</sup> Some developed nations have implemented unilateral regulation punishing the use of bribes yet other nations, notably China and India, have not.<sup>2</sup> Opponents of such regulation argue that bribes are indispensable for doing business in certain areas or industries and that unilateral regulation puts affected firms at a competitive disadvantage.

In this paper, I seek to assess whether the ability to use bribes creates firm value. This is challenging because most bribes remain undetected. The empirical literature has studied detected cases, which allows conducting cross-sectional analysis but raises selection concerns. I address the challenge that most bribes remain undetected by exploiting the unexpected passage of the UK Bribery Act 2010 on March 25, 2009. First, I find that UK firms operating in high corruption regions of the world display negative abnormal returns upon passage of the Act. A firm operating exclusively in the most corrupt regions suffers a 6.2% drop in value compared to a firm operating exclusively in the least corrupt regions. The effect is stronger for firms that are not already subject to US anti-bribery regulation, are not part of corporate social responsibility indices, operate in concentrated industries, and have better governance. Foreign firms subject to the Act because they have a UK subsidiary also exhibit negative abnormal returns. Second, I identify real effects of the Act. Relative to comparable continental European firms, UK firms expand their subsidiary network less into high corruption regions and their sales in these regions grow six percentage points more slowly.

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<sup>1</sup> The survey is based on the 2006 Executive Opinion Survey conducted by the World Economic Forum.

<sup>2</sup> For instance, in 1977, the US passed the Foreign Corrupt Practices Act (FCPA) which imposes regulatory fines on firms found having bribed foreign public officials.

The event study methodology requires that the passage of the UK Bribery Act came as a surprise with substantial impact for firms. This is plausibly the case. First, the passage of the Act on March 25, 2009 was not covered in the media during the weeks prior to this date. The media only covered the passage on the event day and the days thereafter. Second, the Act imposes potentially draconian monetary fines on corporations found to have used bribes<sup>3</sup> and individuals responsible for bribery. It applies equally to UK firms and foreign firms with UK operations, and for the use of bribes inside or outside the UK. The monetary and personal fines associated with breaking the Act go well beyond previous UK legislation, requirements of the OECD Anti-Bribery Convention, and comparable US legislation. Also, the Act prohibits the use of facilitation payments<sup>4</sup>, which goes beyond comparable regulation.

I expect firms operating in high corruption regions to be more negatively affected by the UK Bribery Act. My key explanatory variable *Corruption Exposure* measures firms' exposure to high corruption regions. To construct this measure, I combine hand-collected data on the country of location of firms' subsidiaries from Dun&Bradstreet's *Who Owns Whom 2008/2009* book series with Transparency International's Perceived Corruption Index (CPI). I define a firm's *Corruption Exposure* as the weighted average of its subsidiary country CPIs. The weight for each subsidiary country CPI is determined by the number of subsidiaries in that country relative to the total number of subsidiaries. Firms with a large fraction of subsidiaries headquartered in regions with high corruption levels score high on the *Corruption Exposure* measure.<sup>5</sup> The key dependent variable is firms' abnormal stock return around the passage of the Act. My findings are largely based on 645 listed UK firms for which abnormal returns and subsidiary data are available; robustness tests consider 2 791 predominantly European firms.

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<sup>3</sup> The Act comprises active and passive bribery. Active bribery is defined by the Act as offering, giving, or promising to give a financial or other advantage to a person in exchange for that person to improperly perform a relevant function. This includes bribery of foreign public officials and other firms. Passive bribery is defined as receiving or agreeing to receive a financial or other advantage in exchange for improperly performing a relevant function.

<sup>4</sup> Facilitation payments (commonly known as grease payments) are payments that induce government officials to perform tasks they are otherwise obligated to perform anyway.

<sup>5</sup> *Corruption Exposure* weighs each subsidiary equally. Arguably, the probability of bribery activity being detected increases in subsidiary size. For robustness, I collect data on firm sales by geographic region. Results are robust to this alternative measure yet geographic sales data is available only for a small subset of UK firms.

My first main finding is that UK firms with higher corruption exposure are more negatively affected by the UK Bribery Act. Based on abnormal returns around the passage of the Act, a one standard deviation larger exposure to high corruption regions is associated with a 0.48% drop in firm value. In the extreme, a firm operating all its subsidiaries in the country perceived to be most corrupt (Somalia) suffers a 6.2% drop in firm value compared to a firm operating all its subsidiaries in those countries perceived to be least corrupt (Denmark, Sweden and New Zealand). The observed drop in firm value may be because doing business in more corrupt regions requires resorting more to bribes. Alternatively, the observed drop may reflect costs of implementing the Act that are higher for firms with high corruption exposure and are incurred even though firms do not resort to bribes. I study real effects to distinguish between these two explanations. I find that, relative to comparable continental European firms, UK firms expand less into high corruption regions and their sales in these regions grow six percentage points more slowly after enforcement of the Act. This suggests that the drop in firm value is because firms resort to using bribes to create firm value.

One concern is that another event specific to high corruption regions may have occurred at the same time. I tackle this concern by examining the impact of the UK Bribery Act on firms from Europe and India.<sup>6</sup> The Act's jurisdiction comprises foreign firms with UK operations, such as foreign firms with UK subsidiary (*UK-exposed*), but not foreign firms without UK operations. I therefore run an event study distinguishing foreign firms with a UK subsidiary from those without a UK subsidiary. I document that foreign firms operating in high corruption regions experience negative abnormal returns but only if they are UK-exposed. Foreign firms with UK exposure and above-median exposure to high corruption regions are 0.5% more negatively affected than comparable firms without UK exposure. Moreover, while continental European firms increase their exposure to corrupt regions between 2008 and 2013, this trend is more pronounced among continental European firms without UK exposure.

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<sup>6</sup> My analysis involves splitting foreign firms along two dimensions, namely by *Corruption Exposure* and UK exposure. I restrict the sample to countries in Europe (including Russia) and India because I need a sufficient number of firms with subsidiary information for this split to be meaningful. I do not include US firms as they are already subject to the Foreign Corrupt Practices Act 1977; I expect them to be largely unaffected by the UK Act.

To further alleviate the concern, I examine abnormal returns of UK firms around other events related to anti-bribery regulation. On 12 distinct days between 2000 and 2013, the UK government either announced that it would implement tougher anti-bribery regulation or that plans to do so had failed. Stacking all events into one regression, I find that firms with higher exposure to corrupt regions are more negatively affected on event days that suggest a toughening of anti-bribery regulation and vice versa.

I also study which firms benefit more from being able to use bribes. First, some firms may be less affected by the UK Bribery Act because they are already subject to other anti-bribery regulation. I use a Dummy variable equal to one if a firm has an Advanced Depository Receipt (ADR), which implies that it is subject to the US Foreign Corrupt Practices Act 1977 (FCPA). This Act makes bribery of foreign public officials a criminal offence. I find the negative association between exposure to high corruption regions and firm value to be stronger for firms not already subject to the FCPA. A one standard deviation larger exposure to high corruption regions is associated with a 0.55% drop in value for firms that are not subject to the FCPA, compared to a 0.26% drop for firms that are.

Second, some firms may be less affected by the Act because they adhere to Corporate Social Responsibility (CSR) criteria. I use a Dummy equal to one if a firm is part of the *FTSE4Good UK Index*. This index is constructed by FTSE and consists of UK firms that fulfill a range of CSR criteria. I find the negative association between exposure to high corruption regions and firm value to be stronger for firms that are not part of the *FTSE4Good*. A one standard deviation larger exposure to high corruption regions is associated with a 0.59% drop in value for firms that are not part of the *FTSE4Good*, compared to a 0.19% drop for firms that are.

Third, firms operating in more concentrated industries may be more negatively affected by the Act. Bribery has been modeled as a first-price auction with side payments (Beck and Maher 1989). In such auctions, rents increase as the number of participants goes down hence excluding participants has a more

negative impact on participants of auctions with few competitors. I measure industry concentration using a Herfindahl-Hirschman-type index. I find the association between negative abnormal returns and exposure to high corruption regions to be more pronounced for firms operating in concentrated industries. A one standard deviation larger exposure to high corruption regions is associated with a 0.95% drop in firm value for firms in concentrated industries, compared to a 0.36% drop for firms in competitive industries.

Next, I study how governance affects the value of the ability to pay bribes. Theories go in both directions. On the one hand, weakly governed firms may be less negatively affected by anti-bribery regulation because they face lower reputational costs, bribe inefficiently due to agency conflicts, or because the regulation indirectly improves internal monitoring. The latter reduces the extraction of private benefits and benefits minority shareholders (Desai, Dyck and Zingales 2007). On the other hand, weakly governed firms may be more negatively affected because they find it more costly or impossible to implement effective internal anti-bribery controls, resulting in high expected regulatory fines.

Empirically, I establish that UK firms with strong corporate governance, particularly UK firms with independent boards and high foreign institutional ownership, are more negatively affected by the Act. Firms with above-median board independence (institutional ownership) experience a 1.31% (1.02%) larger drop in firm value. This result could be because the UK Bribery Act reduces agency conflicts within the firm or because well-governed firms have higher expected reputation costs. One proxy for agency conflicts is the vote premium of dual class shares; this premium increases as agency conflicts increase. And indeed, around the passage of the Act, the vote premium of dual class shares decreases most for weakly governed firms with high corruption exposure. This indicates that the governance results are driven by a reduction in agency conflicts rather than by reputation costs.

All results survive standard event study robustness tests, such as extended event windows, alternative models to calculate abnormal returns, and removing outliers. The results also carry over to an alternative measure of corruption exposure, namely sales of UK firms outside the EU and the US.

In summary, this paper makes three contributions. The first is to show that firms benefit from the ability to use bribes. Indeed, unilateral anti-bribery regulation destroys value for affected firms and hence hurts their shareholders. The second is to show that certain types of firms benefit more from the ability to pay bribes, namely firms that are not US cross-listed, are not part of the FTSE4Good, and operate in concentrated industries. The third is to show that part of the negative effect of anti-bribery regulation on firm value is offset because regulation improves firm governance, which explains why weakly governed firms are less adversely affected by the Act.

A few papers have linked the use of bribes to firm value using detected cases of bribery. Cheung, Rau and Stouraitis (2012) document a \$1 bribe payment to create \$11 value in a sample of 166 prosecuted international cases. Karpoff, Lee and Martin (2013) study 143 enforcement actions for violations of the FCPA. They document that prosecution costs more than offset the value of contracts obtained through bribe payments but only if prosecution for bribery comes along with fraud charges. Smith, Stettler and Beedles (1984) focus on foreign sensitive payments disclosed voluntarily under the SEC Voluntary Disclosure Act (prior to the passage of the FCPA). They show that firms suffer negative abnormal returns around disclosure. While these studies allow for tests in the cross-section, they are subject to selection and small sample concerns.

Some studies outline the broader economic implications of anti-bribery regulations rather than their firm-level implications. Hines (1995) finds the FCPA to lead to a decline in US Foreign Direct Investment, US aircraft exports, joint venture activity, and capital-labor ratios. Evidence on the impact of the FCPA on US exports is mixed. Graham (1984) finds no negative impact on US exports overall. Beck, Maher and Tschögl (1991) find that US exports to non-Latin American bribe-prone countries are negatively affected.

Another stream of the literature studies self-reported bribes from surveys. Ugandan survey data identifies bribe payers to be firms receiving public services contracts and engaging in trade (Svensson 2003); using

bribes is negatively correlated with firm growth (Svensson and Fisman 2007). Bennesen, Feldmann and Lassen (2013) use the World Bank's WBES survey on Eastern European and Central Asian firms and find large firms to use lobbying while small firms use bribe. Clarke and Xu (2004) find utility firms that use bribes to be more profitable de novo private firms with greater overdue payments. Serafeim (2013) obtains global survey data from PricewaterhouseCoopers' forensic practice. He shows detection of bribery to impact competitiveness, particularly morale, reputation, and regulatory relations. Survey data allows studying characteristics of bribes and parties involved yet raises selection and measurement concerns.<sup>7</sup> Moreover, the anonymity of survey participants reduces available information.

Last but not least, I focus on the firm value implications of bribes and cannot make a statement about the implications of corruption for economic welfare.<sup>8</sup> Notably, the fact that firms benefit from the ability to use bribes does not exclude that they would benefit even more from a global ban of bribes.

The remainder of this paper is organized as follows. Section 2 outlines the UK Bribery Act 2010. Section 3 develops predictions. Section 4 describes data and variable construction. Section 5 presents results for abnormal returns and Section 6 for real implications. Section 7 presents an alternative identification strategy using multiple events. Section 8 offers a battery of robustness checks. Section 9 concludes.

## **2. The UK Bribery Act 2010**

This paper exploits the passage of the UK Bribery Act 2010 as a shock to firms' cost of using bribes. The UK Bribery Act was passed by a government commission and put forward by the Minister of Justice on March 25, 2009 and came into force on July 1, 2011. I describe history and content of the Act, argue why March 25, 2009 constitutes the event date, and outline the severity of the Act, especially compared to anti-bribery regulation outside the UK.

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<sup>7</sup> Svensson (2003) runs robustness tests on firms' self-selection into responding to the survey questions. Another concern is that subjective dependent variables may be biased (their measurement error is likely causally related to independent variables; Bertrand and Mullainathan 2001).

<sup>8</sup> See Bardhan (1997) and Svensson (2005) for reviews.



## 2.1 History

The UK implemented the Bribery Act 2010 after years of ignoring its commitments to reform existing legislation. Prior corruption legislation in the UK dates back to the late 19<sup>th</sup> and early 20<sup>th</sup> century. The *Public Bodies Corrupt Practices Act 1889*, modified by the *Statute Law Revision Act 1908*, the *Criminal Cases Act 1908*, and the *Criminal Justice Act (1967, 1988)*, criminalizes the acts of active and passive bribery of public officials in the UK. This Act defines active bribery as the promising, giving, or offering of gifts, loans, fees, rewards, or advantages to members, officers, or servants of any public body in order to influence decisions within their power. Passive bribery is defined as the receiving of gifts, loans, fees, rewards, or advantages by members, officers, or servants of any public body. Penalties for first offences include fines, imprisonment, and constraints to re-election; second offences involve fines such as incapability of being re-elected along with the loss of pension claims.<sup>9</sup>

The UK had also committed to implement the OECD Anti-Bribery Convention, ratified in 1997 and signed by the UK in 1999. According to the convention, signatory countries agree to put in place legislation that puts under legal punishment the bribing of foreign public officials. The OECD has no enforcement mechanisms but its monitoring process allows highlighting local non-compliance to the governments and, in the case of repeated non-compliance, taking measures such as excluding non-compliant countries. On repeated occasions, the UK had been reported to be non-compliant with the convention, most firmly in a letter by the anti-bribery working group of the OECD delivered to the UK government in June 2008 . This letter attacks the UK of neither having brought to court a single foreign bribery case nor having reformed its anti-corruption laws.<sup>10</sup>

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<sup>9</sup> See for example <http://www.legislation.gov.uk/ukpga/Vict/52-53/69>.

<sup>10</sup> Financial Times, August 17, 2008 and British Business Monitor, August 18, 2008.

## *2.2 Content and event date*

The UK Bribery Act makes it a criminal offence for individuals and corporations to use bribes, as well as for corporations to fail to have in place internal control procedures that prevent associated persons such as employees from acts of bribery. This comprises active bribery and passive bribery. Active bribery is defined by the Act as offering, giving, or promising to give a financial or other advantage to a person in exchange for that person to improperly perform a relevant function. This includes bribery of foreign public officials and other firms. Passive bribery is defined as receiving or agreeing to receive financial or other advantage in exchange for improperly performing a relevant function. Importantly, facilitation payments fall under the Act. Facilitation payments are described as payments that induce government officials to perform tasks that they are otherwise obligated to perform anyway. The Act imposes potentially unlimited monetary fines on firms found guilty of bribery. Individuals, such as managers responsible for breaching the Act, can be charged with monetary fines and prison terms. Both UK firms and non-UK firms with links to the UK fall within the jurisdiction of the Act – regardless where bribery takes place. Organizations can defend against allegations by proving that they have adequate procedures in place to prevent bribery.<sup>11</sup>

The draft of the UK Bribery Act was passed by a government commission and put forward by the Minister of Justice, Jack Straw, on March 25, 2009. Newspapers did not discuss the passage of the Act prior to March 25, 2009. Only on the day of the passage did newspapers start reporting on content and implications of the Act (Figure 1).

--- FIGURE 1 ABOUT HERE ---

March 25, 2009 therefore marks the event date for this event study. Of course, in the UK, there is a formal procedure to turn a draft/bill into an Act of Parliament (i.e. into legislation).<sup>12</sup> Arguably, after the passage

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<sup>11</sup> See [http://www.legislation.gov.uk/ukpga/2010/23/pdfs/ukpga\\_20100023\\_en.pdf](http://www.legislation.gov.uk/ukpga/2010/23/pdfs/ukpga_20100023_en.pdf) (accessed September 16, 2013) for the official text of the Bribery Act 2010 and see <http://www.justice.gov.uk/downloads/legislation/bribery-act-2010-quick-start-guide.pdf> (accessed September 16, 2013) for a quick guide provided by the Ministry of Justice.

<sup>12</sup> An outline of this procedure is presented in the Appendix.

of the UK Bribery Act, the Act could have been watered down or failed. However, in the case of the UK Bribery Act, this legislative procedure was very likely to be successful without major changes to the content of the draft for two reasons. First, the *Labour Party* was in control of drafting the Act and in control of turning it into legislation. The draft of the Act was passed by a government commission, members of which reflect the majority in the *House of Commons*. At the time the draft was passed, the *House of Commons* was dominated by the *Labour Party* (355 of the 646 Seats in Parliament after the 2005 General Election in the UK), and so was the government commission. While both *House of Commons* (lower house) and *House of Lords* (upper house) participate in the process of turning bills into Acts of Parliament, a Bill can be passed by the House of Commons using the Parliament Acts if no agreement is reached between the two parties.

Second, opposed to previous attempts to implement anti-bribery regulation, the *Labour Party* was pressured to act quickly, facing heavy OECD pressure and having at its disposal a relatively short time horizon until the next general elections in 2010. With election outcomes unfavorable or at least uncertain (and eventually indeed unfavorable for Gordon Brown), the only chance to turn the Act into legislation was to act quickly, without time-consuming amendments. Indeed, subsequent amendments focused on wordings of the draft rather than substantial content.

### ***2.3 Comparison***

The UK Bribery Act is considered to “[create] a platform for what could be the toughest [anti-bribery] enforcement regime in any jurisdiction”; some journalists describe the Act as toothless though.<sup>13</sup> I argue in this subsection that the Act does constitute tough regulation with costly implications for non-compliers.

Not only does the Act extend the jurisdiction and the associated fines of prevailing UK legislation considerably, but it also goes well beyond anti-bribery regulation in other countries. Prior UK legislation

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<sup>13</sup> Mondaq Business Briefing, June 21 2010, “The UK Bribery Act 2010 - What US Companies Need to Know”.

does neither explicitly account for corporate offenses nor explicitly address bribery by firms. Also, prior attempts to change UK anti-bribery regulation did not extend to non-UK firms with UK operations.

The severity of the UK Act becomes most apparent in comparison to the Foreign Corrupt Practices Act (FCPA), enacted by the US in 1977. The FCPA forbids the bribery of foreign public officials by US firms and US-listed firms. The UK Bribery Act 2010 differs along several dimensions. First, the UK Bribery Act 2010 makes it a criminal offence to receive bribes (passive bribery) and to give bribes (active bribery), while the FCPA covers active bribery only. Second, while the FCPA focuses on bribing foreign public officials, the UK Bribery Act covers the bribing of private persons, other firms, and their employees, too. Third, both private persons and firms are concerned under the UK Bribery Act, with strict liability assumed for firms that do not have in place procedures meant to prevent bribery, such as internal controls. Fourth, potential firm fines are unlimited under the original draft of the UK Bribery Act, rather than limited by \$2 million under the FCPA.<sup>14</sup> Fifth, facilitation payments are criminalized under the UK draft, while US legislation excludes such payments from the list of punishable offences. Sixth, the jurisdiction of the UK Bribery Act explicitly extends to non-UK firms with UK operations (even bribery on foreign ground). The FCPA is only recently applied to foreign firms and does not explicitly mention foreign firms. In sum, the UK Bribery Act goes well beyond the regulatory punishment and jurisdiction of the FCPA.<sup>15</sup>

### **3. Hypotheses**

I derive hypotheses about the implications of bribery regulation for firm value. The theoretical literature has studied bribes as side payments within Vickrey's (1961, 1962) first price auction framework. Beck and Maher (1986) and Lien (1986) find auctions with side payments (bribes) and without frictions to lead to

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<sup>14</sup> However, US legislation allows for fines up to \$25 million under the Books and Records and Internal Controls provisions.

<sup>15</sup> UK Bribery Act (2010) (see <http://www.legislation.gov.uk/ukpga/2010/23/contents>), Gerrard (2010) "The UK Bribery Act 2010 – What US Companies Need to Know", *Mondaq Business Briefing*, June 21, 2010, Flint (2010) "The UK Bribery Act 2010 v Foreign Corrupt Practices Act Of 1977: How different are they & should your business be Concerned?", *Mondaq Business Briefing*, April 26, 2010.

efficient resource allocation. Beck and Maher (1989) show costly anti-bribery regulation affecting a subset of firms to lead to a decline in competition and to potentially lead to inefficient resource allocation<sup>16</sup>.

With a first price auction with side payments in mind, illustratively consider a government official (agent) tendering a contract on behalf of the government (principal) to firms competing for the contract. The firm winning the contract is assumed to enjoy a rent. Assume imperfect monitoring or some incentive alignment problem between principal and agent so the government agent finds it optimal to award the contract to the firm offering him the largest bribe. In turn, each firm finds it optimal to bribe, i.e. to share its rent with the agent, to maximize firm value because not using bribes leads to zero probability of winning the contract.<sup>17</sup>

In such setting, consider surprisingly implemented local anti-bribery regulation that imposes a cost to the use of bribes on a subset of firms. If such regulation is sufficiently costly, it will force all regulated firms to stop engaging in bribery. For regulated firms, the expected value from competing for the contract drops to zero, given that the probability of winning the contract drops to zero. Non-regulated firms continue to pay bribes in competition for the contract and may see an increase in expected value from using bribes, explained by a drop in competition (Beck and Maher 1986, 1989).

First, consider firms' exposure to corrupt agents. In a region with incorruptible agents where contracts are allocated independently of bribes, firms have no incentive to bribe. Firms enjoy the full expected rent from competing over the contract and are unaffected by anti-bribery regulation. In a region where contracts are allocated only to firms that pay a bribe, however, firms may find it optimal to share part of their rent in form of a bribe. Regulating a subset of firms that operate in such regions reduces their firm value.

***Hypothesis 1 (Corruption Exposure): Firms that operate in regions with high corruption levels experience a larger drop in firm value when anti-bribery regulation is passed.***

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<sup>16</sup> Harstad and Svensson (2011) follow a different modeling approach that focuses on implications of lobbying and bribing for economic development. Firms bribe, which benefits only the firm, or lobby collaboratively, which benefits their entire industry. As country-level development increases, firms switch from the use of bribes to the use of lobbying.

<sup>17</sup> This set-up follows Beck and Maher (1986) and Lien (1986). Firms assign a common value to a contract, draw gross profit from a common, known distribution, and compete for the contract in a first-price auction with side payments.

Second, consider firms that are less likely to bribe, either because they are subject to prior regulation or because they consider themselves ethical. For instance, some firms are subject to non-UK anti-bribery regulation already, such as the US Foreign Corrupt Practices Act 1977 (FCPA). Thusly pre-regulated firms may have decided to comply with pre-existing regulation or may have decided and implemented ways to circumvent such regulation. Pre-regulated firms that decided to comply and no longer pay bribes are then unaffected by the passage of the UK Bribery Act. The same goes for firms that openly disclose not to be bribing if such disclosure is believable.

***Hypothesis 2:** Firms that are less likely to use bribes are less negatively affected by anti-bribery regulation.*

Third, consider competition. In first price auctions and Cournot competitions, expected payoff decreases in competition. This extends to first price auctions with side payments (Beck and Maher 1986, Lien 1986).

***Hypothesis 3 (Competition):** Firms that operate in more concentrated industries experience a larger drop in firm value when anti-bribery regulation is passed.*

Fourth, consider firm governance. Uzun, Szewczyk and Varma (2004) and Crutchley, Jensen and Marshall (2007) document detected cases of corporate fraud to occur more likely within weakly governed firms. This finding may reflect that strongly governed firms have stronger incentives to comply with anti-bribery regulation, e.g. due to a larger loss in reputation if discovered to be using bribes<sup>18</sup> or due to larger personal punishment of managers that are responsible for breaking the law (such as documented by Karpoff, Lee and Martin 2008). Strongly governed firms are then more negatively affected by anti-bribery regulation.

However, weakly governed firms may also be less able to implement regulation effectively or to disguise breaches of the law. By this argument, with considerable regulatory fines, weakly governed firms are more

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<sup>18</sup> For a sample of UK firms, Armour, Mayer and Polo (2012) document abnormal stock market returns associated with the announcement of regulatory enforcement actions to be approximately 9 times higher than the actual regulatory fine, which they interpret as a value loss to corporate reputation.

negatively affected by regulation. A further argument for predicting that strongly governed firms are more negatively affected arises from heterogeneous ability to bribe optimally. Better incentive alignment in strongly governed firms may incentivize managers to bribe optimally in the interest of shareholders prior to anti-bribery regulation, resulting in a more negative impact of anti-bribery regulation on firm value.

Related to this agency argument, anti-bribery regulation can be interpreted as an increase in regulatory enforcement that strengthens internal monitoring. Desai, Dyck and Zingales (2007) formalize this idea and show that weakly governed firms experience a less severe drop in firm value when tax enforcement increases. There are two mechanisms at play. First, a tax crackdown reduces firms' ability to avoid taxes, resulting in a decrease in firm value. Second, a tax crackdown also reduces firms' ability to expropriate minority shareholders, more so in weakly governed firms. This results in an increase in firm value, more so for weakly governed firms. Translated to bribery, regulatory enforcement may cost contracts but may also reduce expropriation if channels used to pay bribes are used to expropriate minority shareholders.

***Hypothesis 4 (Firm Governance):***

*4a: Weakly governed firms are more negatively affected by anti-bribery regulation.*

*4b: Strongly governed firms are more negatively affected by anti-bribery regulation.*

**4. Sample and data**

In order to test my predictions, I use event study techniques linking firm characteristics to firm value measured by abnormal returns around the passage of the UK Bribery Act. In this section, I describe sample selection, data sources, and variable construction.

The main result is based on publicly listed UK firms as UK firms are directly affected by the passage of the UK Bribery Act. I remove firms that do not have daily stock return data on the day of the passage of the UK Bribery Act and the day thereafter, firms that have fewer than 100 daily stock return observations the

year before the passage, and firms that do not have accounting controls and subsidiary data the year before the passage. These criteria leave a sample of 645 UK firms.

The dependent variable is CAR[0;1], firms' cumulative abnormal return on the day of the passage of the UK Bribery Act (March 25, 2009) and one day after the passage. CAR[0;1] are calculated from a Carhart (1997) model estimated for the period starting 294 days before the event and ending 41 days before the event. I obtain stock return data of UK firms, UK stock market returns, UK T-Bill returns, and accounting information for Carhart (1997) local factors (book value, market value) from Datastream.<sup>19</sup> The equally weighted cumulative abnormal return around the event date is -0.85% (Table 1).<sup>20</sup> Prior to the event and after the event, equally-weighted cumulative abnormal returns are economically insignificantly negative at -0.06% for [-20;-1] and -0.06% for [2;20], respectively.

--- TABLE 1 ABOUT HERE ---

The key variable to test Hypothesis 1 is *Corruption Exposure*, measured by UK firms' subsidiaries in regions with high perceived corruption levels. *Corruption Exposure* combines two sources. First, I hand-collect data on headquarter locations of subsidiaries and subsidiaries of subsidiaries using Dun & Bradstreet's *Who Owns Whom 2008/2009 UK & Ireland*. Dun & Bradstreet publishes all subsidiaries, private and public, for ultimate parent firms over various years along with subsidiary headquarter countries. Subsidiaries are defined by ownership exceeding 50%.<sup>21</sup> Second, I obtain the country-specific

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<sup>19</sup> I follow Ince and Porter (2006) in cleaning daily return data. Long-short portfolios on size, book-to-market, and momentum are constructed in line with Kenneth French's Data Library though I split size into top-30% and bottom-70% firms to account for the skewed size distribution in the UK though results are not sensitive to this split. Results are robust to adding global Carhart (1997) factors to construct abnormal returns.

<sup>20</sup> The value-weighted CAR[0;1] is -0.005%.

<sup>21</sup> The average publicly listed UK firm has 59 subsidiaries, 38 thereof in the UK, 11 in continental Europe, 4 in the US, and 6 in the rest of the world. The median UK firm has 16 subsidiaries in Europe and no subsidiary in US/non-US-non-Europe. 40% of the sample firms have fewer than 10 subsidiaries. 17% of the sample firms have more than 100 subsidiaries. A few firms drive up the mean, namely a few banks (Royal Bank of Scotland with 1165 subsidiaries, HSBC with 1036, Barclays with 601) and oil corporations (Royal Dutch Shell with 906, BP with 583). For firms not listed in *Who Owns Whom*, I use *CapitalIQ* subsidiary information. *CapitalIQ*'s ownership information is contemporaneous. All my results hold when restricting the sample to firms identified in Dun&Bradstreet.



Perceived Corruption Index (CPI) for 2008 from Transparency International (TI) for all headquarter countries. I combine both data sources into a measure of corruption exposure for each firm  $i$ :

$$\text{Corruption Exposure}_i = \sum_{c \in C} ((10 - CPI_c) * \# \text{subsidiaries}_{i,c} / \# \text{subsidiaries}_i) \quad (4)$$

where  $CPI_c$  is the Perceived Corruption Index of country  $c$  in 2008,  $\# \text{subsidiaries}_{i,c}$  is the number of subsidiaries of firm  $i$  in country  $c$  in 2008/2009, and  $\# \text{subsidiaries}_i$  is the total number of subsidiaries of firm  $i$  in 2008/2009. By construction, this measure is increasing in firms' exposure to corruption and bounded by [0.7;8.9] given the least corrupt countries Denmark, Sweden, and New Zealand (10-CPI is 10-9.3=0.7) and the most corrupt country Somalia (10-CPI is 10-1.1=8.9). The average sample firm has a *CPI Exposure* of 2.47 (Table 1B). The *Corruption Exposure* measure assumes that all subsidiaries are equally important to a firm. In the robustness section, I construct a measure of relative importance that is based on geographic sales reported by a subset of firms.

Hypothesis 2 relates to firms being more likely to be affected by the UK Bribery Act. First, some firms may have to comply with other regulation, most notably the US Foreign Corrupt Practices Act 1977. I obtain US cross-listings as an indicator of firms having to comply with the US Act from *Bank of New York's* list of ADRs and *Worldscope/Datastream*. 23% of sample firms had an ADR in the 2 years preceding March 25, 2009. Second, some firms have selected to adhere to corporate social responsibility (CSR) standards. Comparable to the *Domini 400 Social Index* for S&P500 firms in the US, FTSE publishes the *FTSE4Good UK Index* for UK FTSE All-Share firms. *FTSE4Good UK Index* constituents are firms identified to be complying with environment, human rights, social, and stakeholder relations criteria. Information is obtained from publicly available sources but also directly from companies. I obtain a list of *FTSE4Good UK* constituents for the end of 2008. 33% of my sample firms are FTSE4Good constituents.

I measure industry concentration (Hypothesis 3) by a Hirschman-Herfindahl Index (HHI) type measure. The HHI of industry  $J$  is given by  $HHI_J = \sum_{i \in J} ((MV_i / \sum_{i \in J} MV_i)^2)$  where  $MV_i$  the market value of

firm  $i$  in industry  $J$  prior to the event date and industry classifications follow Datastream/ Worldscope.<sup>22</sup> The mean (median) HHI is 0.19 (0.03). This skewed distribution of HHI is driven by a few very concentrated industries and discourages from interpreting the economic significance of a shift in HHI by one standard deviation around the mean. Instead, I will group industries by above- and below-median concentration. The most competitive industries (lowest HHI) are Support Services, Travel & Leisure, and Real Estate Investment & Services. The most concentrated industries (highest HHI) are Alternative Energy, Automobiles & Parts, and Mobile Telecommunications.

In order to proxy for firm governance (Hypothesis 4), I suggest three measures. First, I measure governance by institutional ownership which proxies for monitoring. I follow Ferreira and Matos (2007) in constructing institutional ownership as the fraction of a firm's market capitalization held by foreign institutional investors that are not headquartered in the UK. Average institutional ownership is 9.8%. Second, following Aggarwal et al. (2009), I measure firm governance using forty-four governance attributes provided by *RiskMetrics/ISS*<sup>23</sup>. The overall measure reflects the percentage of non-missing governance attributes that a firm satisfies; it increases in firm governance. I can match 317 of the sample firms to ISS. The average UK firm fulfills 85% of the governance criteria. Third, I use detailed governance data from ISS/RiskMetrics to measure firm transparency. I define *Transparency* as the sum of dummies that equal one if a firm has independent *board*, *compensation committee*, *nomination committee*, and *audit committee*, respectively. The median firm fulfills 2 of the 4 criteria.

Control variables include the log of the number of subsidiaries, the log of assets, capital expenditures divided by assets, returns on assets, and the number of as a percentage of assets, respectively. The mean (median) sample firm has a capitalization of \$4,580mn (\$472mn), CAPEX of 4.1%, and ROA of 2.0%

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<sup>22</sup> All results are qualitatively unaffected when I measure competitiveness on the basis of book value, as well as when I measure HHI only for UK firms and when I measure HHI using Fama-French industry classifiers (FF48, FF12, FF10).

<sup>23</sup> ISS obtains information from regulatory filings, annual reports, and company websites. For a more detailed description of the dataset and a list of the 44 attributes, see Aggarwal et al. (2009).

## 5. Results

In this section, I study the implications of the UK Bribery Act for firm value using event study techniques around the passage of the UK Bribery Act. I explain abnormal returns of UK firms and foreign firms using their exposure to high corruption regions and then examine cross-sectional characteristics of UK firms.

### 5.1 UK firms

Step by step, Table 2 develops the full regression specification for UK firms. The dependent variable is  $CAR[0;1]$ , firms' Cumulative Abnormal Returns on the event day March 25, 2009 and the day thereafter. The main control is *Corruption Exposure*, which increases in firms' exposure to corrupt regions.

--- TABLE 2 ABOUT HERE ---

In Column 1,  $CAR[0;1]$  is explained by *Corruption Exposure* on its own. In line with hypothesis 1, *Corruption Exposure* loads significantly negative with a coefficient of -0.657: Firms that are more exposed to high corruption regions are more negatively affected by the passage of the UK Bribery Act. One concern is that this result is be driven by industry-level corruption, a concern supported by Figure 2 which plots average industry cumulative abnormal returns around the event against industry corruption levels.<sup>24</sup> More corrupt industries experience more negative cumulative abnormal returns around the passage of the Act. Therefore, I include industry fixed effects. The main result survives (Column 2).

--- FIGURE 2 ABOUT HERE ---

Extending the analysis to the full set of industry and firm level controls (Column 3), *Corruption Exposure* still significantly explains abnormal returns. A one standard deviation increase in *Corruption Exposure* is

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<sup>24</sup> Industry corruption levels are obtained from the 2009 version of the *EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS)*. This survey was conducted in 2008-2009 among 11,800 firms from 29 Eastern European and Asian countries. By industry, the measure reflects the percentage of firms responding 'major' to question q54q asking 'As I list some factors that can affect the current operations of a business, please look at this card and tell me if you think that each factor is No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment.'; the factor used is 'corruption'.

associated with a  $0.48\% (=0.65 \times 0.745\%)$  drop in firm value, reflecting  $\$2.27\text{mn} (= \$472\text{mn} \times 0.48\%)$  for the median firm and  $\$21.98\text{mn} (= \$4,580\text{mn} \times 0.48\%)$  for the mean firm. To illustrate a one standard deviation difference in *Corruption Exposure*, compare an average sample UK firm with 59 subsidiaries in the UK (*Corruption Exposure* of  $2.3 = 10 - 7.7$ ) to an otherwise comparable UK firm that operates 52 subsidiaries in the UK and 7 in Russia (*Corruption Exposure* of  $2.93 = (52/59) \times (10 - 7.7) + (7/59)(10 - 2.1)$ ).

In the extreme, a UK firm operating all its subsidiaries in the most corrupt country by Transparency International's Perceived Corruption Index (Somalia) suffers a 6.2% drop in firm value compared to a UK firm operating all its subsidiaries in the least corrupt countries (Denmark, Sweden and New Zealand). A UK firm operating all its subsidiaries in Russia experiences a 5.36% drop compared to a UK firm operating all its subsidiaries in the least corrupt countries.<sup>25</sup>

40% of UK firms do not have subsidiaries outside the UK. I re-run all main regressions on the sub-sample of UK firms with at least one foreign subsidiary (Columns 4-6). With all controls, the coefficient on *Corruption Exposure* is significantly negative at  $-0.846$ . Using standard deviation of *Corruption Exposure* and market value conditional on firms being in the sample, a one standard deviation increase in *Corruption Exposure* is associated with a  $0.68\% (=0.80 \times 0.846\%)$  drop in firm value, reflecting  $\$5.68\text{mn} (= \$835\text{mn} \times 0.68\%)$  for the median firm which is larger than the effect for the whole sample.

The results so far go in favor of Hypothesis 1. At the same time, cross-listing and FTSE4Good controls load positively on  $\text{CAR}[0;1]$  with 0.707% and 0.584%, respectively, but insignificantly so. A stronger test of Hypothesis 2 uses interactions with *Corruption Exposure* and is provided below. The number of subsidiaries is negatively associated with  $\text{CAR}[0;1]$ , suggesting that more complex firms find it costlier to comply with anti-bribery regulation; assets are weakly positively associated with abnormal returns.<sup>26</sup>

<sup>25</sup> In 2008, the Perceived Corruption Index was 1.0 for Somalia and 9.3 for Denmark, Sweden and New Zealand:  $(9.3 - 1) \times 0.745\% = 6.2\%$ . The Perceived Corruption Index was 2.1 for Russia:  $(9.3 - 2.1) \times 0.745\% = 5.36\%$ . The effect can also be expressed by country. For instance, on the day of the passage of the UK Bribery Act, a firm operating all its subsidiaries in China suffers a 9.56% drop in firm value compared to a firm operating all its subsidiaries in the least corrupt countries. However, such analysis by country is subject to country-specific shocks.

<sup>26</sup> Assets and the number of subsidiaries are positively correlated with  $\rho = 0.68$  but results unaffected when removing one or both.

## 5.2 Spillovers to foreign firms

The main result so far is that UK firms that are more exposed to high corruption regions have more negative abnormal returns on the day of the passage of the UK Bribery Act. One concern is that this result is driven by a shock specific to high corruption regions on the day of the passage of the Act. In order to alleviate this concern, I study spillovers of the UK Bribery Act to foreign firms. Foreign firms with high corruption exposure and UK operations are subject to the Act (*treated*). Foreign firms with high corruption exposure and no UK operations are not.

Thus, foreign firms with high corruption exposure and UK operations should have negative abnormal returns around the passage of the UK Bribery Act. I test this prediction by collecting subsidiary data on publicly listed continental European firms as well as Russian and Indian firms from Dun&Bradstreet's *Who Owns Whom 2008/2009 Continental Europe* and *Who Owns Whom 2008/2009 Australasia, Asia, Africa & Middle East*.<sup>27</sup> Abnormal returns over the event window [0;1] around the passage of the UK Bribery Act are constructed from parameters of a Carhart 4-factor model estimated over days [-294;-41] using local benchmarks and risk free rates. *Corruption Exposure* is constructed as before. *UK Link* is a Dummy that equals 1 if a foreign firm has at least one subsidiary in the UK and zero otherwise.

For a sample of 2,791 non-UK foreign firms, Table 3 presents summary statistics, abnormal return results for sample splits, and regression results. During the event window [0;1] around the passage of the UK Bribery Act, non-UK firms experience an equally weighted cumulative abnormal return of -0.04% (Panel A). The mean corruption exposure ranges from 1.43 (Swedish firms) to 7.34 (Russian firms). 32% of the sample firms have a UK link. Reflecting geographic proximity or historical ties, 93% of the Irish sample firms have at least one subsidiary in the UK. Only 7% of the Polish firms have a UK link.

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<sup>27</sup> I only include EU countries if I can collect all relevant information (subsidiaries, abnormal returns, accounting controls) for at least 20 publicly listed firms. I do not study US firms (4,500 firms) as they are subject to the US Foreign Corrupt Practices Act of 1977. I expect the effect of the UK Bribery Act on US firms with UK exposure to be close to zero.

--- TABLE 3 ABOUT HERE ---

Panel B reports equally weighted *CAR* for sample splits by (i) firms having above/below country-median *Corruption Exposure*, (ii) firms having/not having a *UK Link*, and (iii) the interaction of the two. First, among the four resulting subsets, foreign firms with UK exposure that operate in regions with high perceived corruption level are most negatively affected around the passage of the UK Bribery Act (-0.31%; sub-Panel (1)). Compared to foreign firms with UK Link but with low corruption exposure, these firms are 0.46% more negatively affected. Compared to foreign firms without UK Link but strong exposure, these firms are 0.39% more negatively affected. The difference in difference shows that non-UK firms with UK Link and strong exposure to corrupt regions are 0.63% more negatively affected.

Not all foreign firms are equally affected by UK regulation, partly due to home country differences in detection probabilities, detection costs, prosecution probabilities, enforcement probabilities, or reputational losses. Splitting the sample of foreign firms into Western European foreign firms (Sub-Panel (2)) and Eastern European and Asian foreign firms (Sub-Panel (3)) illustrates this notion: The previous result is driven by Western European foreign firms which lose 0.49% more in value if exposed to the UK and exposed to regions with high perceived corruption levels. Moreover, the evidence weakly suggests that Eastern European and Asian firms that operate in high corruption regions benefit from the passage of the UK Bribery Act though this result does not carry through to the difference-in-difference.<sup>28</sup> This could hint at the presence of a competition effect: As regulated firms' optimal bribe decreases or regulated firms quit the auction, unregulated firms' expected payoff from paying bribes increases, which is predicted in first price auction models with unilateral regulation (Beck and Maher 1989).

A split by *UK Link* and by *corruption exposure* may reflect a split among another dimension, such as industry or size. If an industry contains many firms with UK link and high corruption exposure and is

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<sup>28</sup> In this subset, merely 7 firms are categorized as 'with UK link and above-median corruption exposure', allowing for the mean  $CAR[0;1]$  to be driven by one outlier.

particularly negatively affected on that day, this might explain the results in Panel B. To alleviate this concern, I provide multivariate analysis in Panel C, controlling for industry and country fixed effects as well as the number of subsidiaries, firm size, %capex, and %roa.

All results are robust in a multivariate setting. Firms with UK link and above-median exposure to corruption have 0.4%pts lower abnormal returns than firms with UK link but below-median corruption exposure; firms without UK link and above-median exposure to corruption have a 0.1%pt higher abnormal return than comparable firms with low exposure (Panel C Column 2). The difference in difference of 0.5%pts is significant. Again, this result is driven by Western European sample firms for which the difference of 0.5% is significant at 1% level. Eastern European and Asian firms do not reveal this pattern.

Overall, this subsection suggests that the results for UK firms are indeed driven by the UK Bribery Act. The spillover results allow excluding alternative explanations such as a global event that negatively affects perceivably corrupt countries on the day of the passage of the UK Act; they therefore lend strong robustness to the finding that the UK Act has negative implications for affected firms.

### ***5.3 Cross-sectional characteristics***

For the sample of UK firms, I now test Hypotheses 2-4. As before, the dependent variable is CAR[0;1].

Table 4 analyzes the role of cross-listings, social responsibility, and industry competition. Columns 1-3 focus on the full sample of UK firms. Columns 4-6 provide robustness tests for the subset of UK firms with at least one foreign subsidiary. The set-up follows exactly Table 2 Column 3 and the focus is on the interaction between *Corruption Exposure* and cross-sectional controls.

--- TABLE 4 ABOUT HERE ---

Supporting Hypothesis 2, *Corruption Exposure* explains abnormal returns more strongly for UK firms that are not already subject to the FCPA 1977 (Column 1). A one standard deviation larger exposure to high

corruption regions is associated with a 0.55% drop in value for firms that are not subject to the FCPA, compared to a 0.26% drop for firms that are. Similarly, *Corruption Exposure* explains abnormal returns more strongly for UK firms that are not identified to be socially responsible by FTSE (Column 2). These results are supported in the subset of UK firms that have at least one foreign subsidiary and give support to Hypothesis 2: Firms that are less likely to bribe are less affected by the UK Bribery Act. A one standard deviation larger exposure to high corruption regions is associated with a 0.59% drop in value for firms that are not part of the *FTSE4Good*, compared to a 0.19% drop for firms that are.

Supporting Hypothesis 3, *Corruption Exposure* explains abnormal returns significantly for UK firms that operate in concentrated industries (Column 3). For firms in concentrated and competitive industries, a one standard deviation increase of *Corruption Exposure* is associated with a .95% and 0.36% reduction in firm value, respectively. Using conditional median firm size, these reflect \$3.50mn and \$1.81mn, respectively.<sup>29</sup>

All results continue to hold in the subset of UK firms with at least one foreign subsidiary (Columns 4-6). In unreported results with double interactions, I document that the association between *Corruption Exposure* and firm value is strongest among (i) firms without cross-listing that are not FTSE4Good constituents, (ii) firms without cross-listing that operate in concentrated industries, and (iii) firms that are not FTSE4Good constituents and operate in concentrated industries.

Table 5 Panel A entertains the role of firm governance following exactly the specification in Table 2, Column 3. Given that governance controls were not included in Table 2 (to keep a large sample), I add governance controls in odd-numbered Columns of Table 5. I interact governance with *Corruption Exposure* in even numbered columns. Columns 1 and 2 focus on institutional ownership, Columns 3 and 4 on the overall ISS/RiskMetrics governance measure, and Columns 5 and 6 on *Transparency*.

--- TABLE 5 ABOUT HERE ---

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<sup>29</sup> For firms in concentrated (competitive) industries, the conditional standard deviations of *Corruption Exposure* is .67(.65) and the median size is \$368mn (\$502mn).



First, I document that better governance is associated with a larger drop in firm value on the day of the passage of the UK Bribery Act and the day thereafter. Firms with above-median institutional ownership experience a 1.02% larger drop in firm value (Column 1). Firms with above-median Transparency experience a 1.31% larger drop in firm value (Column 5). Notice that *Corruption Exposure* coefficients are larger, reflecting a lower standard deviation of corruption exposure in the subset of firms that have governance data. The real implications for firm value are comparable to those reported above.

Second, I document that the association between *Corruption Exposure* and firm value is stronger in strongly governed firms. For instance, among firms with above-median and below-median institutional ownership, a one standard deviation increase in *Corruption Exposure* is associated with a 0.87% and 0.45% reduction in firm value, respectively.<sup>30</sup>

In unreported results, examine a range of individual governance attributes. I find that firms with independent boards are more negatively affected by anti-bribery regulation than firms with dependent board. Having an independent board (nomination committee, compensation committee, audit committee) is associated with a 0.9% (1.3%, 1.2%, 1.2%) more negative abnormal return. While board size does not appear to matter, I find that classified boards (as opposed to annually elected boards) are negatively related to abnormal returns. Moreover, firms with CEOs that report related party transactions and firms with unreasonably risky option grants are less negatively affected.

Why are weakly governed firms less negatively affected by the Act? One possible explanation is that anti-bribery regulation constitutes an increase in regulatory enforcement, strengthening internal monitoring. Following Desai, Dyck, and Zingales (2007), I test this idea on the vote premium of dual class shares around the passage of the Act. If the Act reduces expropriation by minority shareholders, weakly governed firms should see a reduction in the vote premium, more so if operating in corrupt regions. The vote

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<sup>30</sup> The conditional standard deviation of *Corruption Exposure* among firms with above-(below-) median institutional ownership is .53(.42).

premium is the difference in price between voting and non-voting shares times the number of voting shares divided by market value. To avoid the problem that some share classes are not traded daily, I average the vote premium before the passage of the Act (10-day average) and after the passage (10-day average).

Table 5 Panel B shows changes in the vote premium around the passage of the Act for 13 UK firms.<sup>31</sup> Overall, the vote premium of UK firms stays almost constant around the passage of the Act (-0.02%pts). Weakly governed firms see a reduction in the premium by 0.86%pts (strongly governed firms: +0.7%pts). Also, firms with strong corruption exposure see a decrease in the premium by 1.51%pts. Weakly governed firms with strong corruption exposure see the biggest decline in the vote premium. This lends weak support to the potential explanation that anti-bribery regulation constitutes an increase in regulatory enforcement, strengthening internal monitoring and reducing expropriation of minority shareholders.

## **6. Real effects of the UK Bribery Act**

So far, I have documented that firms with high corruption exposure have negative abnormal returns around the passage of the UK Bribery Act. However, do negative abnormal returns reflect real implications for firms' ability to secure contracts by paying bribes? I.e. do negative abnormal returns reflect the value of paying bribes? Or do abnormal returns largely reflect one-off costs of implementing internal anti-bribery controls but do firms in fact maintain their ability to compete? To answer these questions, this section considers two real implications: Firms' subsidiary presence in regions where corruption levels are perceived to be high and firms' sales in such regions. I compare UK firms to continental European firms in order to control for macro-economic trends.

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<sup>31</sup> Dual class shares are not common in the UK (e.g. Guadalupe and Pérez-González 2011). The average vote premium for my sample is 48.0%, which is comparable to the 43.7% reported by Guadalupe and Pérez-González (2011).

### ***6.1 Firm presence in regions where the level of corruption is perceived to be high***

An increase in the cost of paying bribes affects the decision to open (continue) subsidiaries. Consider a subsidiary that generates revenues through paying bribes to local authorities. Anti-bribery regulation increases expected costs of paying bribes which turns the subsidiary less profitable or unprofitable.

To test this idea, I investigate whether UK firms change their physical presence in regions where corruption levels are perceived to be high subsequent to the passage of the UK Bribery Act 2010. I augment the 2008/2009 subsidiary data used before by hand-collected subsidiary data for 2013. I construct firms' *Corruption Exposure* measure for 2013 as before, though I weigh subsidiaries with the *Perceived Corruption Index* for 2008 so that my results are not driven by changes in the perceived corruption index. As before, the measure increases in exposure to corrupt regions. Table 6 reports the results for a balanced Panel of 650 UK firms and 1,526 continental European firms.<sup>32</sup>

--- TABLE 6 ABOUT HERE ---

UK firms increased their exposure to corrupt regions significantly by 0.026, from an average 2.408 in 2008 (prior to the passage of the Act) to an average 2.435 in 2013 (after the Act is enforced; Panel A). Over the same time period, European firms increased their exposure highly significantly by 0.077. The difference between continental European and UK firms is significant. In economic terms, UK firms do not completely follow the general trend to increase exposure to regions with high perceived corruption levels.

This result may be driven by a UK-specific trend. I therefore split continental European firms into firms that are affected by the UK Bribery Act because they have at least one subsidiary in the UK in 2008 (treated) and firms that are not directly affected by the Act. Continental European firms that are affected by

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<sup>32</sup> The results in this Section are based on a slightly different sample than the summary statistics in Table 1; this section contains some firms for which accounting information was unavailable (omitted in Table 1) but discards some firms that could not be identified in 2013. Results of this sub-section are unaffected when constraining the sample to the firms used in Table 1 and 2.

the Act increase their exposure by 0.066 while firms that are not directly affected increase their exposure by 0.086, lending support to the idea that the UK Bribery Act affects geographic presence.

A comment on the magnitude and significance of these effects is in order. The average UK sample firm in this sub-section has 59 subsidiaries and a *Corruption Exposure* of 2.408 in 2008. If such firm opens one additional subsidiary in China (Perceived Corruption Coefficient in 2008 is  $10-3.6=6.4$ ) then *Corruption Exposure* increases by 0.067 to  $2.475(=(2.408*59+6.4)/(59+1))$ . This is more than twice the change observed for UK firms, and reflects roughly the change observed among European firms.

As a robustness test, I restrict the previous analysis to firms that have at least one foreign subsidiary in 2008. Firms that did not have foreign exposure in 2008 may be firms that do not intend to open subsidiaries abroad (biasing the change in exposure downwards), or growing firms that are more likely to soon open a subsidiary (biasing the change in exposure either way). In particular, the subsample of continental European firms with UK subsidiary in 2008 is constructed of firms that operate abroad already, while the subsample of continental European firms without UK exposure in 2008 contains both firms that operate only in their home country and firms that operate abroad. The robustness test supports and strengthens the previous result (Panel B). UK firms with at least one foreign subsidiary in 2008 increase exposure to corrupt regions by an insignificant 0.025, while continental European firms increase exposure by 0.086. Among continental European firms, firms that do not have a UK subsidiary in 2008 increase their exposure more strongly by 0.113 compared to 0.066; the difference is significant.

Overall, this subsection suggests that the UK Bribery Act affects firms' decision to continue and open subsidiaries in corrupt regions; it hampers affected firms' presence in corrupt regions.

## ***6.2 Sales in corrupt regions***

The second test of real implications looks at firm sales in regions where the corruption level is perceived to be high. Firms affected by anti-bribery regulation should suffer a reduction of sales in these regions.

I obtain geographic segment revenues for UK firms and continental European firms from CapitalIQ. Not all firms report geographic revenues, either because they do not have sales outside their home country or because they have only a small fraction of revenues outside their home country. I aggregate quarterly firm sales from non-US non-Europe operations at three points in time: prior to the passage of the Act (*pre-event*; 2<sup>nd</sup> quarter 2008 – 1<sup>st</sup> quarter 2009), after passage but before enforcement of the Act (*mid-event*; II/2009-II/2011), and after the passage of the Act (*post-event*; III/2011-I/2012).<sup>33</sup> Given that reported segments are not standardized, I construct generic categories. For an unbalanced panel, this subsection focuses on sales in corrupt regions, notably in regions outside Europe and outside the US.<sup>34</sup>

In terms of overall sales growth in regions where corruption levels are perceived to be high, UK firms suffer a competitive disadvantage over continental European competitors. Between passage of the Act in March 2009 and enforcement in July 2011, foreign sales of UK firms go up by 0.4% compared to sales prior to passage of the Act, while foreign sales of continental European firms go up by 6.4% over the same period. After enforcement of the Act, foreign sales soar, partly due to a change in reporting standards for geographic segment sales (IFRS 8), but less so for UK firms (Table 7 Panel A).

--- TABLE 7 ABOUT HERE ---

Moreover, UK firms that operate in more corrupt regions are more adversely affected. For a balanced panel of 256 UK firms with geographic sales in perceivably corrupt regions reported at three points in time, I run a panel regression with indicators for the mid-event and post-event period that are then interacted with

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<sup>33</sup> Data availability limits the sample period to the first quarter of 2012. In order to avoid capturing seasonal sales (earnings) effects arising from the fact that the post-event period only covers quarters III, IV, and I, I compute sales and earnings for the pre-event and mid-event periods only on the basis of quarters III, IV, and I. Only few firms make both earnings and sales data available so that I cannot study whether anti-bribery regulation affects return on assets in regions with high perceived corruption levels.

<sup>34</sup> In some cases, firms report very broad geographic segments. Some firms report revenues by country, by precise economic area, or by geographic area in which case I can identify the continent (e.g. revenues exclusively from “*China*”, or revenues exclusively from “*Africa*” all qualify as *geographic revenues outside Europe and outside the US*). Some firms distinguish UK revenues from *worldwide non-UK* revenues in which case I can only categorize the UK revenues as *exclusively Europe* while I cannot split *worldwide non-UK* revenues by *Europe*, *US*, and *rest of the world*. Some firms report revenues from “*Europe, Africa, and Australia*” or, in a rather extreme example, revenues from “*Tanzania, Singapore, and France*” in which case I cannot categorize revenues for the purpose of this analysis. I drop such observations.

*Corruption Exposure* (Table 7 Panel B). These regressions include firm fixed effects and firm-level controls. In all regressions, standard errors are robust.<sup>35</sup>

Both mid-event and post-event dummy load insignificantly positively, in line with the previous result that UK sales go up (Panel B Column 1). However, I find that sales of UK firms that operate in more corrupt regions are negatively affected in the mid-event period already. Post-event, sales of such UK firms are even more affected. Mid-event, a one standard deviation increase in *Corruption Exposure* is associated with a 14.2%pts(=27.4%\*0.52) sales reduction; post-event, a one standard deviation increase in *Corruption Exposure* is associated with a 16.7%pts(=32.2%\*0.52) sales reduction<sup>36</sup>.

Overall, the results of this sub-section show that the UK Bribery Act has real implications for firms.

## **7. Alternative identification: Related events**

I have so far focused on the passage of the UK Bribery Act on March 25, 2009 as a shock to bribery in the UK. In order to alleviate the concern of other non-bribery related events driving the results on that day, I used the jurisdiction of the UK Bribery Act 2010 as a natural experiment: Foreign firms with UK exposure are subject to the Act (treated); foreign firms without UK exposure are not subject to the Act.

An alternative way to exclude other shocks as a potential explanation is to use multiple bribery-related events. The passage of the draft Act on March 25, 2009 is not the only bribery-related event that occurred in the UK during the early 21<sup>st</sup> century. If alternative events are not perfectly correlated with bribery-related events, stacking multiple events into one regression helps exclude alternative explanations.

Problematically, this method requires identifying bribery-related events from the media. This is inherently subjective: Deciding whether announced regulatory action and announced failure of regulatory action are

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<sup>35</sup> I restrain from clustering at the time level given that mid-event and post-event dummies are essentially time fixed effects.

<sup>36</sup> From my source, I can only construct relative firm performance (e.g. earnings/sales) for very few firms because first, not all firms report both geographic sales and geographic earnings in Capital IQ and second, firms that report both sales and earnings do not always report coherent geographic regions. For instance, a firm might report sales in “UK” and “Rest of the World” while reporting earnings in “UK”, “China”, and “Europe and Rest of the World”.

important or not requires judgment. Additionally, this method requires coding of the direction of news, particularly when stacking events into one regression. This again can be subject to judgment.

Based on *Factiva* searches, I identify announcements of attempts to pass anti-bribery regulation in the UK in 2000-2011, as well as failure of such attempts. These events constitute updates of the probability of having anti-bribery regulation in the UK. Events are from *Factiva* via a search for ‘bribery’ in UK newspaper articles between 2000 and 2011. Just as in Figure 1, I remove non-events, i.e. articles that do not constitute news, such as journalistic opinions on events of the past. I also exclude articles linked to bribery regulation elsewhere (the US) and articles related to potential bribery cases as opposed to bribery regulation (e.g. speculation about bribery of the Olympic Committee or bribery in cricket).

Table 8 lists events that indicate that the UK will implement bribery regulation at some point in the early 2000s, as well as reversals of these indications. Table 8 then reports the coefficient on *Corruption Exposure* of a regression that follows exactly the main regression of this paper (Table 2 Column 3) to explain abnormal returns on the respective event date. A negative *Corruption Exposure* coefficient indicates that firms with higher exposure to corruption have more negative abnormal returns on that day.

--- TABLE 8 ABOUT HERE ---

While not statistically significant in most individual cases, the coefficients on *Corruption Exposure* reliably follow the direction of news. In 2000, following OECD pressure to line up UK legislation with the OECD Corruption Directive, the UK government announced a toughening of bribery regulation in May and June 2000, and again in November 2001. The corruption exposure coefficient is insignificantly negative on these days, indicating that firms exposed to regions with high perceived corruption levels are negatively affected. When news that the plans to tighten bribery regulation failed spread on September 2, 2002, the coefficient is positive, reflecting a drop in the probability of UK anti-bribery regulation being passed. In 2003, the UK government issues a draft bill (-0.90%, significant at 10% level) which

subsequently failed (+0.48%, +0.41%). In 2005 and 2008, the government again announced that bribery regulation will be toughened; coefficients are negative but insignificantly so. Subsequent delays of the Act have no notable impact. For comparison, recall that the coefficient on *Corruption Exposure* at the time of the passage of the draft UK Bribery Act is -0.745% (significant at 5% level).

Stacking all events into one regression allows controlling for time fixed effects which I interact with industry fixed effects. I cluster at the firm level given that the key independent variable is assumed constant over events. *Corruption Exposure* does not significantly explain abnormal returns on event days that constitute news in favor of firms that use bribes. However, *Corruption Exposure* significantly explains abnormal returns on event days that constitute adverse news to firms that use bribes (-0.72%). Stacking all events into one regression and multiplying the dependent variable by minus one if events are favorable gives a negative significant coefficient of -0.37%, in line with the main result of this paper.

The results of this subsection confirm the previous main result with an alternative identification strategy.

## **8. Robustness**

I conduct a range of robustness checks. A first concern is that a short event window does not capture the full implications of the event. This would be the case if some information about the passage of the UK Bribery Act had leaked into the market prior to the event without being picked up by major news sources. Similarly, market participants might have been slow to react, e.g. because implications of the regulatory change were unclear initially and became apparent only slowly as more details of the regulatory change became public. I address this concern by running the main regressions for alternative event windows. Table 9 (Panel A) reports the results. I find that *Corruption Exposure* loads negatively only when event date returns are included in cumulative abnormal returns. For 4-week event windows ending before (starting after) the event, the coefficients are insignificant.

--- TABLE 9 ABOUT HERE ---



A related concern is that the main coefficients systematically explain a fraction of returns that is not captured by the Carhart factors. Consider running – on randomly selected days – the main specification with *Corruption Exposure* (from Table 2 Column 1). If *Corruption Exposure* systematically explained abnormal returns, I would find its coefficient to be significantly positive or negative more often than expected by chance. To address this concern, I run the main regressions for each day within four trading weeks around the event. The dependent variable is the abnormal return on each of the trading days. I report significance levels of each *Corruption Exposure* coefficient in Figure 3. The coefficient is significant at 1% level only on the event day but not otherwise, easing the initial concern. In unreported results, I confirm this for interactions of corruption exposure, ADR, and industry concentration

--- FIGURE 3 ABOUT HERE ---

Second, one might argue that the measure of corruption exposure does not account for the importance of individual subsidiaries for firms' operations as the measure is based on subsidiary counts rather than size-related subsidiary characteristics. For robustness, I hand-code self-reported geographic segment sales for 2008 from CapitalIQ in order to explain abnormal returns on the event date. Abnormal returns are a relative measure of firm value; I therefore express a firm's segment sales as a percentage of the firm's overall segment sales such that all segments initially add up to 100%. The majority of segment revenues come exclusively from the EU (46.5%). A small fraction comes exclusively from the US (2.9%) and exclusively from non-EU non-US segments (6.4%), with Asia (2.9%) and non-US America (1.4%) the strongest continents. I cannot categorize 44% of revenues. Using thusly constructed segment sales to explain cumulative abnormal returns on the event day, I confirm the previous results for those 430 firms that report segment sales: Abnormal returns around the event date decrease in non-Europe non-US sales (Table 9 Panel B).

Last but not least, the results are not sensitive to other specifications of the estimation period and outliers. Using a shorter estimation period of 100 days does not affect the results. Removing abnormal returns at the 1<sup>st</sup> and 99<sup>th</sup>, 2<sup>nd</sup> and 98<sup>th</sup>, and 5<sup>th</sup> and 95<sup>th</sup> percentile, respectively, does not affect the results.

## **9. Conclusion**

I show that firms benefit from the ability to use bribes. In a setting where some firms continue to bribe, unilateral anti-bribery regulation destroys firm value of regulated firms and hence hurts shareholders. I also show that certain types of firms benefit more from the ability to pay bribes, namely firms that are not US cross-listed, are not part of the FTSE4Good, and operate in concentrated industries. I document that part of the negative effect of anti-bribery regulation on firm value is offset because regulation improves firm governance, which explains why weakly governed firms are less adversely affected by the Act. It is important to bear in mind that the fact that firms benefit from the ability to use bribes does not exclude that they would benefit even more from a global ban of bribes.

The empirical setting used here allows studying firm value. Future research may be interested in studying implications of unilateral anti-bribery regulation for contract allocation and welfare.

The findings of this paper are important in the debate on unilateral regulation. However, the techniques and data used in this paper are not restricted to studying bribery; they provide potentially fruitful avenues for future research on firms faced with unilateral regulation (e.g. on child labor) and bilateral agreements (e.g. bilateral trade agreements) as well as country-specific shocks such as expropriation of multinationals by local governments or political unrest.

## Appendix: Brief Outline of the Legislative Procedure in the UK

In the UK, a draft (bill) has to go through various formal stages in the *House of Lords* (upper house) and the *House of Commons* (lower house); it has to be passed in the same form by both *Houses* before it receives Royal Assent (a formality) and becomes an Act.<sup>37</sup>

A timeline of events related to the UK Bribery Act is shown in Table A1 below. The UK Bribery Act first went through the House of Lords. 1<sup>st</sup> and 2<sup>nd</sup> Readings in the House of Lords take place in front of the (present) Lords; the 1<sup>st</sup> Reading is without debate and concerns can be raised during the 2<sup>nd</sup> reading. Sittings take place in Committees of interested members of the House of Lords and comprise a detailed line-by-line examination of the bill. Amendments are collected before sittings and discussed/voted during the sitting. In a House of Lord sitting, subjects discussed and time of discussion cannot be restricted by the government. The bill is then printed with all agreed amendments and moved to the report stage during which all members of the Lords can make amendments and vote. The bill is ‘cleaned up’ during the 3<sup>rd</sup> reading and moved to the House of Commons. Here, it follows the same steps though sittings are more restricted by subject and time. One amended and voted during Report Stage, the Bill is cleaned up and moved back to the House of Lords in order to agree on the amendments made by the House of Commons. ‘Ping-Pong’ is the act of moving a bill back and forth between both houses until both houses reach agreement on the exact wording. Royal Assent is when the Monarch formally agrees to turn the bill into an Act. If no agreement is reached in the two Houses, the Bill falls but can be passed by the House of Commons using the Parliament Acts, without receiving the consent of the Lords.

**Table A1: Timeline of the legislative process of the UK bribery Act 2010**

Date	Stage
19/11/2009	1 <sup>st</sup> Reading: House of Lords
09/12/2009	2 <sup>nd</sup> Reading: House of Lords
07/01/2010	1 <sup>st</sup> Sitting: House of Lords
13/01/2010	2 <sup>nd</sup> Sitting: House of Lords
02/02/2010	Report Stage: House of Lords
08/02/2010	3 <sup>rd</sup> Reading: House of Lords
09/02/2010	1 <sup>st</sup> Reading: House of Commons
03/03/2010	2 <sup>nd</sup> Reading: House of Commons Programme Motion: House of Commons
16/03/2010	1 <sup>st</sup> Sitting: House of Commons 2 <sup>nd</sup> Sitting: House of Commons
18/03/2010	3 <sup>rd</sup> Sitting: House of Commons 4 <sup>th</sup> Sitting: House of Commons
23/03/2010	5 <sup>th</sup> Sitting: House of Commons
07/04/2010	Report Stage: House of Commons 3 <sup>rd</sup> Reading: House of Commons
08/04/2010	Ping Pong: House of Lords Royal Assent

<sup>37</sup> See <http://www.parliament.uk/about/how/laws/passage-bill/lords/lrds-lords-first-reading/> (accessed August 15, 2013) for an excellent illustrative description of the process.

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**Table 1: Summary Statistics**

This table provides summary statistics for UK firms. The sample consists of all publicly listed UK firms with non-missing accounting data in 2008, non-missing subsidiary information in 2008, and non-missing abnormal returns on March 25 and 26, 2009. Cumulative Abnormal Returns (CAR) over event windows [-20;-1], [0;1], and [2;20] around the event date are obtained from parameters of a 4-factor Carhart (1997) model estimated over days [-294;-41]. The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. *Corruption Exposure* combines, for each firm, subsidiary data from Dun&Bradstreet's *Who Owns Whom 2008/2009 UK and Ireland* with Transparency International's *Perceived Corruption Index* for the year 2008. For each firm, *Corruption Exposure* is the sum over all *countries* of (percentage of firm's subsidiaries headquartered in *country* in 2008 \* Perceived Corruption Index of *country* in 2008). The resulting sum is subtracted from 10 (the upper limit of the Perceived Corruption Index) so that *Corruption Exposure* increases in firms' exposure to high corruption regions. *US Cross-Listing* is a dummy equal to one if a firm was cross-listed via an ADR in the US in March 2009 or in the prior two years. *FTSE4GOOD Constituent* is a dummy equal to one if a firm was constituent of the FTSE4GOOD UK Index in 2008. *Industry Concentration* is a Herfindahl-Hirschman type measure constructed on the basis of market value of all UK firms in Datastream/Worldscope, using Fama-French 48 industries. Institutional ownership is the fraction of a company's outstanding shares owned by institutional investors obtained from Bureau van Dijk. *ISS Governance* is a measure of corporate governance that denotes the percentage of 44 governance features fulfilled by a firm. Governance data is obtained from ISS/RiskMetrics; the measure increases in governance quality. Transparency is the sum of dummies equal to one if *board*, *compensation committee*, *nomination committee*, and *audit committee* are independent, respectively. Number of subsidiaries gives the number of subsidiaries reported by Dun&Bradstreet's *Who Owns Whom 2008/2009 UK and Ireland*. *Market value* is obtained from Datastream/Worldscope for 2008. *%CAPEX* and *%ROA* are *capital expenditure* and *earnings before interest and taxes* in 2008 scaled by *total assets* in 2008.

Variable	Mean	SD	Median	# Obs
<b>Dependent Variable</b>				
CAR [-20;-1]	-0.06%	0.77%	-0.08%	645
CAR [0;1]	-0.85%	2.60%	-0.96%	645
CAR [2;20]	-0.06%	0.73%	-0.07%	645
<b>Main Controls</b>				
Corruption Exposure	2.47	0.65	2.30	645
US Cross-Listing	23%	42%	0%	645
FTSE4GOOD Constituent	33%	47%	0%	645
Industry Concentration	19%	36%	3%	645
<b>Governance Variables</b>				
Institutional Ownership	9.8%	7.8%	8.2%	464
ISS Governance	85	11	87	317
Transparency	2.2	1.3	2.0	302
<b>Other Controls</b>				
Number Subsidiaries	59	114	19	645
Market Value (\$mn)	4580	17140	472	645
%Capex	4.1%	5.0%	2.3%	645
%ROA	2.0%	11.9%	3.1%	645

**Table 2: Corruption Exposure and Abnormal Returns of UK Firms around the Passage of the UK Bribery Act 2010**

This table relates cumulative abnormal returns of UK firms around the Passage of the UK Bribery Act 2010 to corruption exposure to establish the main result. Columns (1)-(3) consider the whole sample of UK firms; Columns (4)-(6) consider the subsample of UK firms that have at least one subsidiary outside the UK. The dependent variable is *Cumulative Abnormal Returns (CAR)* in % on days [0;1] around the event date. The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. The key explanatory variable is *Corruption Exposure* which increases in firms' exposure to high corruption regions. This and all other variables are constructed as described in Table 1. Columns (2), (3), (5), and (6) include industry fixed effects (Fama-French 48 Industries). *t*-statistics of robust regressions are in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

	All UK Firms			All UK Firms with Foreign Subsidiary		
	(1) CAR[0;1]	(2) CAR[0;1]	(3) CAR[0;1]	(4) CAR[0;1]	(5) CAR[0;1]	(6) CAR[0;1]
Corruption Exposure	-0.657** (-2.28)	-0.729** (-2.27)	-0.745** (-2.33)	-0.670** (-2.24)	-0.853** (-2.35)	-0.846** (-2.24)
ADR			0.707 (1.14)			0.640 (0.80)
FTSE4GOOD Constituent			0.584 (1.14)			0.954 (1.56)
Log(Number Subsidiaries)			-0.598*** (-2.64)			-0.520 (-1.60)
Log(Assets)			0.295 (1.57)			0.277 (1.13)
%CAPEX			-4.379 (-0.89)			-5.910 (-0.85)
%ROA			3.132 (1.56)			4.095 (1.60)
Industry Fixed Effect (48FF)	No	Yes	Yes	No	Yes	Yes
<i>N</i>	645	645	645	416	416	416
Adj. R-square	0.005	0.024	0.038	0.009	0.030	0.043

**Table 3: Corruption Exposure, UK Exposure, and Abnormal Returns of non-UK (*foreign*) Firms**

The UK Bribery Act 2010 applies to non-UK firms with UK operations. This table relates cumulative abnormal returns of non-UK (*foreign*) firms around the Passage of the UK Bribery Act 2010 to corruption exposure and UK exposure. Panel A reports number of observations and means of key variables for publicly listed foreign firms by headquarter country. CAR[0;1] denotes *Cumulative Abnormal Returns (CAR)* in % on days [0;1] around the event date. The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. For each firm, cumulative abnormal returns are obtained from Carhart (1997) models estimated over [-294;-41] using local factors. *Corruption Exposure* increases in firms' exposure to high corruption regions and is constructed as described in Table 1. *UK Link* is a dummy equal to one if a firm has at least one subsidiary in the UK. Panel B splits sample firms by corruption exposure and UK Link and reports equally weighted CAR[0;1] of thusly created portfolios. Sub-Panel (1) is based on all sample firms. Sub-Panel (2) is based on Western European sample firms. Sub-Panel (3) is based on non-Western European sample firms (Hungarian, Indian, Polish, and Russian firms). Each Panel reports CAR for all firms (Field 1i), for firms split by having above/below median corruption exposure within their country (columns ii and iii), for firms split by (not) having a UK link (rows 2 and 3), and for the interaction of the two. Each Panel also reports differences in CAR of subsamples. Panel C extends the analysis of Panel B to a multivariate setting, controlling for log(number of subsidiaries), log(assets), %capex, and %roa as well as Fama-French 48 industry fixed effects (Fama-French 10 for Hungarian, Indian, Polish, and Russian firms) and country fixed effects. *t*-statistics of robust regressions are in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level.

**Panel A: Summary Statistics**

Country	#Obs	CAR[0;1]	Corruption Exposure	UK Link
Austria	47	-0.38%	3.13	49%
Belgium	88	-0.23%	2.74	36%
Denmark	99	-0.29%	1.71	38%
Finland	93	-0.16%	1.92	37%
France	280	0.26%	3.07	49%
Germany	580	-0.20%	2.42	33%
Hungary	20	-0.07%	4.81	20%
India	469	-0.12%	5.74	15%
Ireland	27	0.04%	2.39	93%
Italy	224	0.02%	4.34	29%
Netherlands	101	0.17%	2.00	56%
Norway	118	0.10%	2.28	47%
Poland	214	0.12%	5.31	7%
Portugal	32	0.38%	3.79	25%
Russia	56	0.51%	7.34	16%
Spain	111	-0.01%	3.63	37%
Sweden	232	-0.12%	1.43	42%
<b>Total</b>	<b>2 791</b>	<b>-0.04%</b>	<b>3.47</b>	<b>32%</b>



**Panel B: Sample Split**

**(1) All Sample Firms (2791 observations)**

	All Firms (i)	Corruption Exposure		Difference (High-Low) (iii)-(ii)
		Low (ii)	High (iii)	
(1) All Firms	-0.04%	-0.02%	-0.07%	-0.05%
(2) With UK Link	-0.10%	0.15%	-0.31% ***	-0.46% ***
(3) Without UK Link	-0.01%	-0.08%	0.08%	0.16%
<b>(3)-(2) Difference</b> <i>(Without Link-With Link)</i>	<b>0.09%</b>	<b>-0.23% *</b>	<b>0.39% ***</b>	<b>0.63% ***</b> <i>(Dif-in-Dif)</i>

**(2) Western European Sample Firms (2032 observations)**

	All Firms (i)	Corruption Exposure		Difference (High-Low) (iii)-(ii)
		Low (ii)	High (iii)	
(1) All Firms	-0.08%	0.06%	-0.20% ***	-0.25% **
(2) With UK Link	-0.11%	0.23% *	-0.32% ***	-0.55% ***
(3) Without UK Link	-0.05%	-0.03%	-0.09%	-0.06%
<b>(3)-(2) Difference</b> <i>(Without Link-With Link)</i>	<b>0.05%</b>	<b>-0.26%</b>	<b>0.24%</b>	<b>0.49% **</b> <i>(Dif-in-Dif)</i>

**(3) Indian, Russian, Polish, and Hungarian Sample Firms (759 observations)**

	All Firms (i)	Corruption Exposure		Difference (High-Low) (iii)-(ii)
		Low (ii)	High (iii)	
(1) All Firms	0.05%	-0.15% *	0.54% ***	0.69% ***
(2) With UK Link	-0.05%	-0.10%	1.63%	1.73%
(3) Without UK Link	0.07%	-0.16% *	0.53% ***	0.69% ***
<b>(3)-(2) Difference</b> <i>(Without Link-With Link)</i>	<b>0.11%</b>	<b>-0.06%</b>	<b>-1.10%</b>	<b>-1.04%</b> <i>(Dif-in-Dif)</i>

**Panel C: Multivariate Analysis**

	All non-UK Firms		Western European Firms		Indian, Russian, Polish, and Hungarian Firms	
	(1) CAR[0;1]	(2) CAR[0;1]	(3) CAR[0;1]	(4) CAR[0;1]	(5) CAR[0;1]	(6) CAR[0;1]
UK Link (=1 if firm has UK subsidiary)	0.001 (0.59)	0.003** (2.12)	0.000 (0.18)	0.003 (1.66)	0.006** (2.62)	0.005*** (3.48)
High Corruption Exp.	-0.002 (-1.38)		-0.002 (-1.09)		0.001 (0.42)	
High Corruption Exp. x UK Link (i)		-0.004*** (-3.25)		-0.004** (-2.65)		0.001 (0.32)
High Corruption Exp. x No UK Link (ii)		0.001 (0.53)		0.001 (0.58)		0.001 (0.29)
Constant & Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	48FF Country	48FF Country	48FF Country	48FF Country	10FF Country	10FF Country
<i>N</i>	1680	1680	1426	1426	254	254
Adj. R-square	0.022	0.024	0.027	0.030	0.014	0.009
p-value for (i)=(ii)		0.003		0.003		0.959

**Table 4: Cross Sectional Characteristics and Abnormal Returns of UK Firms around the Passage of the Bribery Act**

This table relates cumulative abnormal returns of UK firms around the Passage of the UK Bribery Act 2010 to corruption exposure and cross-sectional firm characteristics. Columns (1)-(3) consider the whole sample of UK firms; Columns (4)-(6) consider the subsample of UK firms that have at least one subsidiary outside the UK. The dependent variable is *Cumulative Abnormal Returns (CAR)* in % on days [0;1] around the event date. The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. The variable *Corruption Exposure* (increasing in exposure to high corruption regions) is interacted with no ADR and ADR (Columns (1) and (4)), No FTSE4GOOD Constituent and FTSE4GOOD Constituent (Columns (2) and (5)), and Concentrated Industry and Competitive Industry (Columns (3) and (6)), respectively. All variables are constructed as described in Table 1 except Concentrated Industry and Competitive Industry which are dummies equal to one if a firm operates in an industry with above- and below-median industry concentration, respectively. All regressions include controls (constant, ADR, FTSE4GOOD, log(number of subsidiaries), log(assets), %ROA, %CAPEX) and industry fixed effects (Fama-French 48 Industries). *t*-statistics of robust regressions are in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

	All UK Firms			All UK Firms with foreign Subsidiary		
	(1) CAR[0;1]	(2) CAR[0;1]	(3) CAR[0;1]	(4) CAR[0;1]	(5) CAR[0;1]	(6) CAR[0;1]
Corruption Exposure x No ADR	-0.781** (-2.45)			-0.882** (-2.37)		
Corruption Exposure x ADR	-0.584 (-1.46)			-0.745 (-1.50)		
Corruption Exposure x Not FTSE4GOOD		-0.776** (-2.42)			-0.894** (-2.36)	
Corruption Exposure x FTSE4GOOD		-0.544 (-1.44)			-0.554 (-1.28)	
Corruption Exposure x Concentrated Industry			-1.415** (-2.06)			-1.555* (-1.88)
Corruption Exposure x Competitive Industry			-0.556 (-1.53)			-0.648 (-1.56)
Constant & Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	645	645	645	416	416	416
Adj. R-square	0.036	0.037	0.038	0.039	0.043	0.042

**Table 5: Firm Governance around the Passage of the UK Bribery Act 2010**

Panel A relates cumulative abnormal returns of UK firms around the Passage of the UK Bribery Act 2010 to corruption exposure and firm governance. The dependent variable is *Cumulative Abnormal Returns (CAR)* in % on days [0;1] around the event date. The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. In Columns (1) and (2), *Governance Good (Bad)* is a Dummy equal to one if a firm has above (below) median *Institutional Ownership*. In Columns (3) and (4), *Governance Good (Bad)* is a Dummy equal to one if a firm has above (below) median *ISS Governance*. In Columns (5) and (6), *Governance Good (Bad)* is a Dummy equal to one if a firm has above (below) median *Transparency*. All variables are constructed as described in Table 1. All regressions include controls (constant, ADR, FTSE4GOOD, log(number of subsidiaries), log(assets), %ROA, %CAPEX) and industry fixed effects (Fama-French 48 Industries). *t*-statistics of robust regressions are in parentheses. For firms with dual class shares, Panel B relates changes in the vote premium around the Passage of the UK Bribery Act 2010 to corruption exposure and firm governance. Dual class shares are identified from Datastream. The vote premium is the difference in price between voting and non-voting shares times the number of voting shares divided by market value (following Desai, Dyck and Zingales 2007). For each firm, I subtract the vote premium before the passage of the Act (10-day average) from the vote premium after the passage (10-day average). The *governance split* and the *corruption exposure split* are with respect to the sample median. The number of observations is reported in square brackets. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Firm Governance and Abnormal Returns**

	(1)	(2)	(3)	(4)	(5)	(6)
Governance Measure	Institutional Ownership		ISS Governance		Transparency	
	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]
Corruption Exposure	-1.425** (-2.39)		-1.683 (-1.42)		-2.135* (-1.89)	
Corruption Exposure x Governance Good		-1.639** (-2.34)		-1.528 (-1.06)		-2.560** (-2.03)
Corruption Exposure x Governance Bad		-1.070 (-1.05)		-1.785 (-1.24)		-1.434 (-0.78)
Governance Good	-1.016* (-1.77)	0.333 (0.11)	-0.548 (-0.92)	-1.162 (-0.30)	-1.308* (-1.94)	1.356 (0.27)
Constant & Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	464	464	317	317	302	302
Adj. R-square	0.054	0.052	0.064	0.061	0.094	0.091

**Panel B: Firm Governance and Changes in the Voting Premium of Dual Class Shares**

	All Firms	Corruption Exposure		Difference
	(i)	Low (ii)	High (iii)	(High-Low) (iii)-(ii)
(1) All Firms	-0.02% [13]	1.26% [7]	-1.51% [6]	-2.77% *
(2) Good Governance	0.70% [7]	1.15% [5]	-0.43% [2]	-1.58%
(3) Poor Governance	-0.86% [6]	1.54% [2]	-2.06% [4]	-3.60%
(3)-(2) Difference (Without Link-With Link)	-1.56%	0.39%	-1.63%	-2.02% (Dif-in-Dif)

**Table 6: Firms' Corruption Exposure before and after the Passage of the UK Bribery Act**

This table establishes real implications of the UK Bribery Act for firms' exposure to high corruption regions. Reported are the mean *Corruption Exposure* for UK Firms and non-UK European firms in 2008 (before the Act was passed) and 2013 (after the Act was in force). Non-UK European firms are further split into firms that had at least one UK Subsidiary in 2008 (and are therefore subject to the UK Bribery Act) and firms that did not have a UK Subsidiary in 2008. *Corruption Exposure* increases in exposure to high corruption regions and is constructed as described in Table 1. Data for 2013 is obtained from Dun&Bradstreet's 2013/2014 *Who Owns Whom* book series. Panel A reports *Corruption Exposure* for all firms with subsidiary data in both 2008 and 2013 (balanced panel). Panel B reports *Corruption Exposure* for all firms with subsidiary data in both 2008 and 2013 and at least one foreign subsidiary in 2008 (balanced panel). \*, \*\*, and \*\*\* denote significance of differences and difference-in-differences at the 10%, 5%, and 1% level, respectively.

**Panel A: All Firms**

	Corruption Exposure			Difference	Dif-in-Dif
	Pre-Event (2008)	Post-Event (2013)			
<b>UK Firms (650 firms)</b>	2.408	2.435	(i)	0.026**	(ii)-(i)
<b>European Firms (1,526 firms)</b>	2.559	2.636	(ii)	0.077***	0.051**
thereof with UK Subsidiary (678 firms)	2.600	2.666	(iii)	0.066***	(iv)-(iii)
thereof without UK Subsidiary (848 firms)	2.526	2.612	(iv)	0.086***	0.020

**Panel B: Firms with at least one foreign subsidiary in 2008**

	Corruption Exposure			Difference	Dif-in-Dif
	Pre-Event (2008)	Post-Event (2013)			
<b>UK Firms (409 firms)</b>	2.472	2.497	(i)	0.025	(ii)-(i)
<b>European Firms (1,183 firms)</b>	2.592	2.679	(ii)	0.086***	0.061**
thereof with UK Subsidiary (678 firms)	2.600	2.666	(iii)	0.066***	(iv)-(iii)
thereof without UK Subsidiary (505 firms)	2.583	2.695	(iv)	0.113***	0.047*

**Table 7: Sales in High Corruption Regions around the Passage of the UK Bribery Act**

This table establishes real implications of the UK Bribery Act for firms' annual sales outside Europe and outside the US. Panel A reports the evolution of revenues for all sample firms, as well as for firms split by UK firms and non-UK firms. Sales are reported for the *pre-event period* (before the UK Bribery Act is passed; III/2008-I/2009), the *mid-event period* (after the Act is passed and before the Act comes into force; II/2009-II/2011), and the *after-event period* (III/2011-I/2012). The sample is unbalanced and constructed from all listed firms that reported sales by *geographic segments* in CapitalIQ (accessed August 2012) but only if segments could be exclusively categorized as 'outside Europe and outside the US'. As the *after-event period* only contains quarters III, IV and I, sales for pre- and mid-event periods are also constructed only from these quarters. Sales are then annualized. Panels B examines the real implications of the UK Bribery Act for UK firm sales as a function of Corruption Exposure in a multivariate setting. The dependent variable as the log of a firm's mean quarterly sales outside the US and outside Europe in each of the relevant periods for quarters III, IV and I. Thus, each firm is represented by 3 observations. *Mid-event* and *post-event* are dummy variables equal to one if an observation occurs in the respective period. *Corruption Exposure* is constructed as in Table 1 and increases in exposure to high corruption regions. *t*-statistics in parentheses are for robust standard errors. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Evolution of Revenues: UK Firms and non-UK Firms (Unbalanced)**

	Pre-Event (III/08-I/09)	Mid-Event (II/09-II/11)	Post-Event (III/11-I/12)
<b>Sales (in \$000s per annum)</b>			
All Sample Firms	474 451	498 466	695 587
Non-UK Firms	371 178	394 794	556 823
UK Firms	103 273	103 672	138 765
<b>Sales growth</b>			
All Sample Firms		5.1%	39.5%
Non-UK Firms		6.4%	41.0%
UK Firms		0.4%	33.8%

**Panel B: Exposure to High Corruption Regions and Sales**

	(1) Log(Sales)	(2) Log(Sales)
Mid-Event (=1 if II/2009-II/2011)	0.013 (0.21)	0.009 (0.15)
Mid-Event x Corruption Exposure		-0.274** (-2.12)
Post-Event (=1 if III/2011-I/2012)	0.086 (1.27)	0.080 (1.19)
Post-Event x Corruption Exposure		-0.322*** (-2.35)
Fixed Effects	Firm	Firm
<i>N</i>	705	705
Adj. R2	0.950	0.951

**Table 8: Abnormal Returns on Dates of Attempts to Pass Anti-Bribery Regulation**

This table relates cumulative abnormal returns on days with news on bribery regulation to *Corruption Exposure*. Events are from a Factiva search for ‘bribery’ in UK Newspapers. Events that are not related to bribery regulation, as well as non-events (such as journalistic opinions on events of the past), are removed. For each event, the table reports the coefficient on *Corruption Exposure* for a regression that follows exactly Table 2 Column 3. The dependent variable is *Cumulative Abnormal Returns (CAR)* in % on days [0;1] around respective dates. The key explanatory variable *Corruption Exposure* increases in firms’ exposure to high corruption regions. All stacked regressions additionally include *FF48 x Date* fixed effects. For the stacked regression with all events, CAR[0;1] of events with positive predicted direction are multiplied by -1. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level. Standard errors are robust for regressions with only one event and clustered at firm level for stacked regressions.

<b>Date</b>	<b>Headline/Content</b>	<b>Source</b>	<b>Predicted Direction</b>	<b>Corruption Exposure</b>
<b>30/03/2000</b>	OECD urges UK to toughen anti-bribery laws.	The Guardian.	-	-0.06%
<b>23/05/2000</b>	UK government to announce new laws aimed at bribery crackdown.	The Guardian; Financial Times.	-	-0.57%
<b>21/06/2000</b>	UK home secretary announces new anti-bribery law.	The Independent; The Guardian.	-	-0.16%
<b>09/11/2001</b>	UK Government announces measures to tackle international corruption, proposes tightening bribery laws, crack down on bribery by Britons abroad.	Associated Press Newswires; Evening News - Scotland.	-	-0.67%
<b>02/09/2002</b>	British anti-corruption plans branded toothless. Blair proposal wins backing of just five firms.	The Guardian.	+	0.69%
<b>25/03/2003</b>	UK government issues draft corruption bill.	WMRC Daily Analysis.	-	-0.90% *
<b>01/08/2003</b>	Corruption bill faces delay over loopholes.	Financial Times.	+	0.48%
<b>18/02/2004</b>	UK government backtracks over bribery.	Financial Times.	+	0.41%
<b>09/12/2005</b>	Corruption laws to be overhauled in the UK.	Global Insight Daily Analysis.	-	-0.23%
<b>19/11/2008</b>	Bribery law reform plans focus on overseas work of businesses. Managers face jail in bribery cases. (published 20/11/2008)	The Times; Press Association National Newswire; The Guardian; The Daily Telegraph.	-	-0.77%
<b>20/07/2010</b>	Clarke delays enforcement of bribery law.	Financial Times.	+	0.22%
<b>31/01/2011</b>	UK delays enforcement of UK Bribery Act 2010 by 3 months.	The Wall Street Journal; Reuters.	+	-0.20%
<b>Stacked</b>				
	<b>All Positive Events</b>		1	0.16%
	<b>All Negative Events</b>		-1	-0.72% ***
	<b>All Events</b>			-0.37% ***

**Table 9: Robustness: Alternative Event Windows and Alternative Measure of *Corruption Exposure***

This table establishes robustness of the main result for alternative event windows and an alternative measure of corruption exposure. Panel A is a robustness check for the main result using alternative event windows around the event date (Columns 1-2), before the event date (Columns 3-4), and after the event date (Column 5). The set-up follows exactly the original set-up (Table 2 Column 3) except for the dependent variable which is replaced by cumulative abnormal returns for [-1;+1], [-20;-1], [-2;-1], and [+2;+20], respectively. The event date (day 0) is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. For comparison, results of the original set-up are reported in Column 2 (highlighted in grey). For brevity, only the key explanatory variable *Corruption Exposure* (which increases in firms' exposure to high corruption regions) is reported. Panel B is a robustness check for the main result using an alternative measure of *Corruption Exposure*. The set-up follows exactly the original set-up (Table 2 Column 3) except the main control *Corruption Exposure* is now measured by geographic revenues. Geographic revenues are obtained from CapitalIQ but reported only by a subset of firms. *%Revenue US*, *%Revenues Europe non-UK* and *%Revenues nonUS nonEurope* measures the percentage of a firm's overall revenues that come exclusively from the US, exclusively from Europe (excluding the UK), and exclusively from non-US non-Europe, respectively. In both panels, *t*-statistics in parentheses are for robust regressions. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.

**Panel A: Alternative Event Windows**

	CAR Around Event Date		Before Event		After Event
	(1)	(2)	(3)	(4)	(5)
	[-1;+1]	[0;+1]	[-20;-1]	[-2;-1]	[+2;+20]
Corruption Exposure	-0.684*	-0.745**	0.317	0.049	-0.136
	(-1.76)	(-2.33)	(0.34)	(0.14)	(-0.12)
Constant & Controls	Yes	Yes	Yes	Yes	Yes
Fixed Effects	48FF	48FF	48FF	48FF	48FF
<i>N</i>	645	645	645	645	645
R2	0.034	0.038	0.097	0.032	0.017

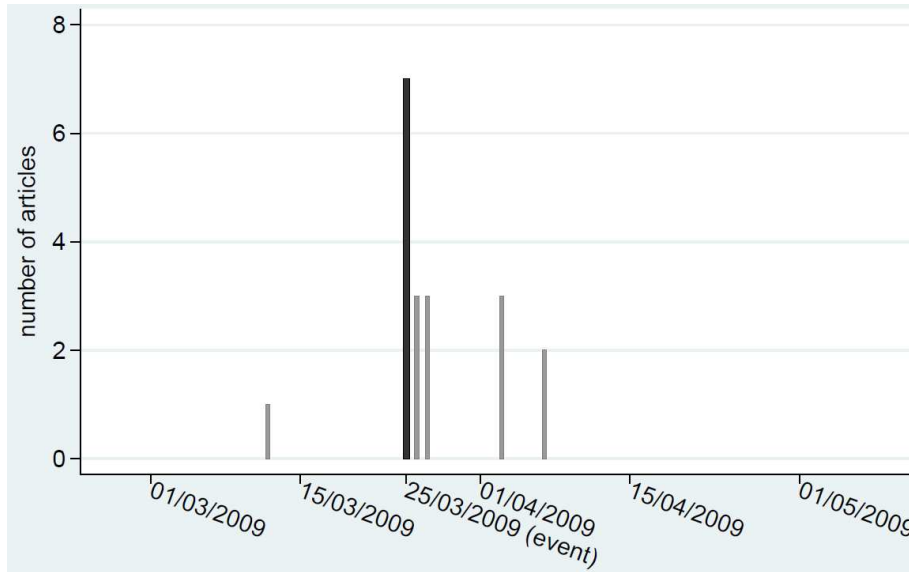
**Panel B: Geographic Revenues as Alternative Measure for *Corruption Exposure***

	(1)
	CAR[0;1]
Split:	All firms
%Revenue US	0.012
	(0.71)
%Revenue Europe non-UK	-0.001
	(-0.18)
%Revenue nonUS nonEurope	-0.029**
	(-2.05)
Controls	Yes
Industry FE	48FF
<i>N</i>	430
R-square	0.078



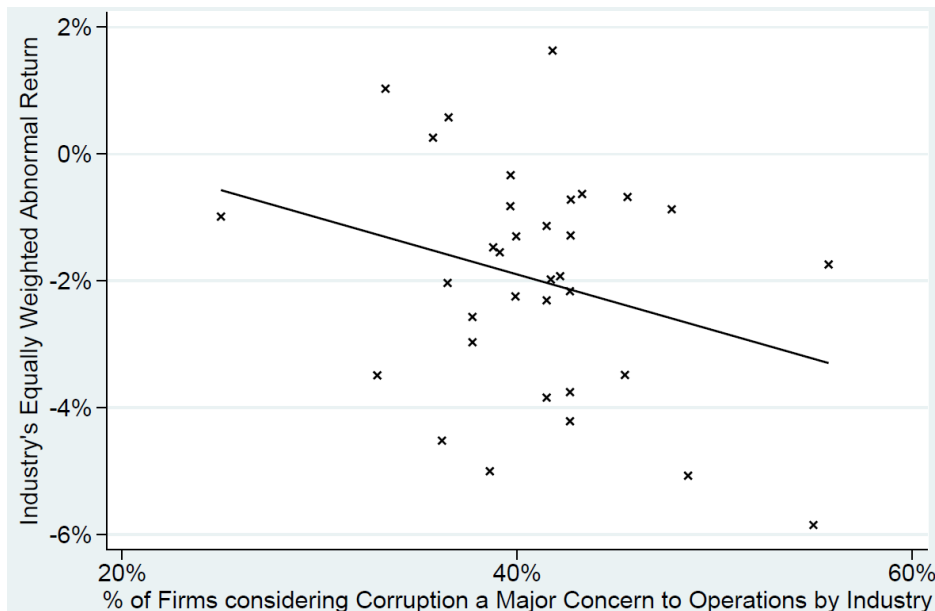
**Figure 1: Number of newspaper articles that cover bribery regulation around the passage of the UK Bribery Act**

This figure shows the number of newspaper articles on bribery regulation published in major UK newspapers around the passage of the draft of the UK Bribery Act 2010 on March 25, 2009. The figure is based on a *Factiva* search in UK newspaper articles that (i) include the term ‘bribery’ and (ii) include the terms ‘United Kingdom’ or ‘Britain’ and (iii) do not include the terms ‘cricket’, ‘Olympic’, ‘football’, or ‘contract notice’. Newspaper articles that were published after 8pm in the online version are dated to the following day; duplicate articles are removed.



**Figure 2: Abnormal Returns**

This figure relates average industry cumulative abnormal returns of UK firms around the Passage of the UK Bribery Act 2010 (y-axis) to industry corruption levels (x-axis). The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice. CAR[0;1] is averaged by Fama-French 48 industry. Industry corruption levels are obtained from the 2009 version of the *EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS)*. This survey was conducted in 2008-2009 among 11,800 firms from 29 Eastern European and Asian countries. By industry, the measure reflects the percentage of firms responding ‘major’ to question q54q asking ‘As I list some factors that can affect the current operations of a business, please look at this card and tell me if you think that each factor is No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment.’; the factor used is ‘corruption’. Respondents provide primary SIC codes which are converted into Fama-French 48 industries.



**Figure 3: Explanatory Power of *Corruption Exposure* around the Passage of the UK Bribery Act 2010**

This figure reports the explanatory power of the *Corruption Exposure* coefficient in OLS regressions for each day within four trading weeks around the event date. The regression set-up follows exactly Table 2 (Column 3), except for the dependent variable which is replaced by firms' daily abnormal returns on trading days -9, -8, ..., 0, ..., 8, and 9 relative to the event date, respectively. Trading days are denoted on the x-axis; t-statistics of the main regression coefficient *Corruption Exposure* (increasing in firms' exposure to high corruption regions) are reported on the y-axis (light grey) and highlighted if significant at 1% level (black; robust cluster). The event date is March 25, 2009 which is when the draft of the UK Bribery Act was passed by the UK government commission and put forward by the Minister of Justice.

