Working Paper

Bribes and Firm Value

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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 doing business in corrupt regions 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 a drop in firm value after the Act's passage. Foreign firms subject to the Act because they (i) have a UK subsidiary and (ii) operate in high-corruption regions also exhibit negative abnormal returns. Second, relative to comparable continental European firms, UK firms expand their network of subsidiaries less into high-corruption regions and their sales in such regions grow six percentage points more slowly. Third, non-UK industry peers competing directly with UK firms in specific corrupt countries experience positive spillovers from the passage of the Act. Taken together, these results suggest that bribes are indispensable for doing business in certain regions. The consequences of unilateral anti-bribery regulation for the competitiveness of affected firms warrant attention from policy makers.

Keywords: valuation, regulation, corruption, bribes

JEL classification: G30, G34, G38, K22

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1. Introduction

Corruption reduces levels of investment and ultimately economic growth (Mauro 1995). Indeed, the World Bank estimates that corruption costs $2.6 trillion (5% of global GDP) per year, with $1 trillion paid in bribes every year. In an attempt to fight the economic consequences of corruption, some developed nations have implemented unilateral regulation punishing the use of bribes; other nations—most notably, China and India—have not.[1] Opponents of anti-bribery regulation argue that unilateral regulation puts affected firms at a competitive disadvantage on the grounds of bribes being indispensable for doing business in certain regions or industries.

The aim of this paper is to study whether the ability to use bribes is, indeed, indispensable for doing business. This research agenda is challenging because bribes are largely unobserved: From 1978 to early 2013—i.e. over more than three decades—only 143 bribery-related enforcement actions were initiated against publicly listed firms by the SEC or the Department of Justice for violations of the US Foreign Corrupt Practices Act (FCPA) (Karpoff, Lee and Martin 2013). However, according to a survey of more than 11,000 firms from 125 countries, one in three firms believes competitors to use bribes to secure public procurement contracts, suggesting that many cases go undetected (D'Souza and Kaufmann 2011).[2]

To deal with the observability problem associated with bribery, I employ a quasi-experimental design that allows me to study how firms respond to a plausibly exogenous increase in their cost of doing business in perceivably corrupt regions. Specifically, I exploit the passage of the draft of the UK Bribery Act 2010 on 25 March, 2009. The UK Bribery Act, in force since 1 July 2011, requires firms to implement internal controls aimed at preventing the use of bribes. Exploiting this event is appropriate only if it came as a surprise and had a substantial effect on firms. One can plausibly argue that these

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[1] For instance, in 1977 the United States passed the Foreign Corrupt Practices Act (FCPA), which imposes regulatory fines on firms that are found to have bribed foreign public officials.
[2] On average, firms pay 8% of the contract value in bribes. These statistics are based on the 2006 Executive Opinion Survey conducted by the World Economic Forum.

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conditions are met. In the first place, the Act's passage on 25 March 2009 was not covered by the media during prior weeks; the passage was not actually covered until that day (and in the days thereafter). Second, the Act imposes potentially unlimited fines on corporations found not to have implemented internal anti-bribery controls, as well as on firms found to have paid bribes and on the individuals responsible for bribery, both inside and outside the United Kingdom.[3] The fines assessed for violating the Act are much higher than the fines stipulated in previous UK legislation, by the OECD Anti-Bribery Convention, and by comparable US legislation. Third, the Act unexpectedly ran counter to precedent in applying also to foreign firms with UK operations.[4] These provisions made it harder for UK industry lobbyists to argue that the Act placed UK firms at a disadvantage vis-à-vis foreign competitors. Importantly, the UK Bribery Act 2010 is not applied in retro perspective: Firms will not be charged under the UK Bribery Act's provisions if bribery occurred before the Act came into force in July 2011.[5]

I measure firms' propensity to engage in bribery by *Corruption exposure*, a variable that combines hand-collected firm-level subsidiary locations with Transparency International's Corruption Perception Index to measure firms' exposure to high-corruption regions. The findings of this paper are based primarily on 645 listed UK firms and 2,791 listed (predominantly European) non-UK firms for whom subsidiary data is available for 2008/2009.

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[3] The UK Bribery Act encompasses both active and passive bribery. In the Act, *active* bribery is defined as offering, giving, or promising to give a financial or other advantage to a person in exchange for that person's improper performance of a relevant function; this includes the bribery of foreign public officials and other firms. Conversely, *passive* bribery is defined as receiving or agreeing to receive a financial or other advantage in exchange for improperly performing a relevant function. The Act also prohibits the use of so-called facilitation payments, a stipulation that is more stringent than previous regulation in this field. Facilitation payments are those made with the aim of inducing government officials to perform tasks that they are already obligated to perform.

[4] This feature enables me to perform a robustness test on non-UK firms that are exposed to both the UK and perceivably corrupt countries. In and additional test, I study other event days with news on attempts to pass anti-bribery regulation in the UK and failures of these attempts over the past decade. Using multiple event days is a more standard robustness test yet it relies on bribery news being uncorrelated with other news specific to the UK.

[5] For instance, in July 2014, criminal proceedings started against Alstom Network UK Ltd, a UK subsidiary of Alstom, for alleged bribery in India, Poland and Tunisia. In this case, bribery occurred between 2000 and 2006– which is why charges were made under the much more lenient provisions of the *Prevention of Corruption Act 1906* and the *Criminal Law Act 1977*. Similarly, investigations into allegations of bribery against Rolls-Royce for bribery in the early 2000s do not fall under the UK Bribery Act 2010. The first prosecution under the UK Bribery Act 2010 is against four former employees of Sustainable AgroEnergy plc, a firm that promotes biofuel investment. Here, bribery occurred between April 2011 and February 2012, i.e. largely under the jurisdiction of the UK Bribery Act. While the four employees await trial in November 2014, the firm is in administration (Serious Fraud Office 2014).

My analysis delivers three key results. First, I provide evidence that the passage of the UK Bribery Act destroys firm value of affected firms. Specifically, UK firms operating in high-corruption regions exhibit negative abnormal returns on the day of the passage of the draft of the Act and on twelve days with news concerning anti-bribery regulation.[6] Substantiating this result, I document that non-UK firms that are subject to the UK Bribery Act because they have operations in both the UK and in corrupt regions exhibit negative abnormal returns on the day of the passage of the Act relative to other non-UK firms. This effect is more pronounced for non-UK firms headquartered in countries with strong regulatory enforcement, suggestive of higher expected detection costs.

Abnormal returns observed around the passage of the Act might revert. Yet, relative to continental European firms operating in corrupt regions, UK firms suffer a drop in Tobin's Q in the years after the passage of the Act. Firms that are one standard deviation more exposed to perceivably corrupt regions suffer a considerable drop in Tobin's Q of 1.8% after the Act is passed in 2009 and 3.1% by the time the Act is enforced in July 2011.[7] Economically, 1.8% and 3.1% of firm value reflect $82.4mn ($8.5mn) and $142mn ($14.6mn) for the mean (median) sample firm.

The observed decline in firm value could have two competing but not mutually exclusive explanations. On the one hand, bribes may be required when doing business in corrupt regions—in this case, the observed drop in firm value reflects reduced competitiveness as firms decide to no longer pay bribes. On the other hand, the costs of implementing effective internal anti-bribery controls to adhere to the Act's provisions might be very substantial—in this case, firms withdraw from perceivably corrupt regions regardless of having used bribes in these regions or not. Both explanations may partly explain the

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[6] These are days during the period 2000–2013 when the UK government either announced that it would implement tougher anti-bribery regulation or that its plans to do so had failed. Stacking all such event days into one regression, I find that firms with higher exposure to corrupt regions are more negatively (resp., positively) affected on event days that are (resp., are not) associated with a toughening of anti-bribery regulation.

[7] One example illustrating a one–standard deviation difference in *Corruption exposure* is given by the comparison between a UK firm with 9 subsidiaries in the United Kingdom and an otherwise comparable UK firm that operates 8 subsidiaries in the United Kingdom and 1 subsidiary in Russia. Assuming that the effect of the UK Bribery Act on firm value is entirely driven by the Russian subsidiary and not by the UK subsidiaries, the effect on just that Russian subsidiary is 16.2%(=9*1.8%) after passage and 27.9%(=9*3.1%) after enforcement of the Act.

drop in UK firms' value but it is difficult to quantify to what extent. Non-UK firms, however, are exempted from the internal control requirement spelled out in Section 7 of the UK Bribery Act. Even so, non-UK firms with UK operations and operations in corrupt regions exhibit negative abnormal returns. This suggests that the drop in firm value is mostly driven by firms' inability to pay bribes.[8]

My second key result is that the passage of the UK Bribery Act affects operations. I document that UK firms' sales outside Europe and outside the US grow 6 percentage points less in comparison to continental European firms. Moreover, I document that UK firms expand less into perceivably corrupt regions after the passage of the Act: The trend of increasingly engaging into such region in the 1998 to 2008 period slows down after 2008, particularly when compared to continental European firms. Similarly, non-UK firms with UK operations slow down their engagement relative to other non-UK firms.

Third, the passage of the Act has unintended positive effects on competitors. Some non-UK sample firms compete directly with UK firms in corrupt regions in the sense that they (i) operate in the same industry as a UK firm and (ii) have at least one subsidiary in the same perceivably corrupt country as that UK firm. I find that abnormal returns of such non-UK industry peers are 1.3%pts higher at the time of the passage of the Act than those of comparable UK firms. Moreover, their abnormal returns are 0.7%pts higher than those of non-UK firms operating in perceivably corrupt countries but not directly competing with UK firms.

Why do direct competitors benefit from the UK Bribery Act? On the one hand, some direct competitors are not subject to any anti-bribery regulation; they now face weaker competition from UK firms.[9] On the other hand, some direct competitors may not have used bribes prior to the passage of the

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[8] To further alleviate the concern that all results reflect firms completely withdrawing operations from perceivably corrupt regions, I hand-collect a small sample of Financial Reports for the years 2012 and 2013. Firms state in their reports that they have implemented or updated necessary control systems in accordance with the UK Bribery Act. (Of course, no firm states that a reduction in foreign activity is in any way linked to high costs of implementing anti-bribery controls.) For instance, Rolls-Royce states in its 2012 annual report that GBP 6mn were spent on a review of the firm's anti-bribery and corruption program, followed by an update effective December 2010 with respect to grease payments, gifts, sponsorship, and donations. An independent review on the effectiveness of these systems was commissioned (http://www.rolls-royce.com/Images/rolls_royce_annual_report_2012_tcm92-44211.pdf).

[9] Such competition effect is, for instance, predicted by first-price auction models with side payments and unilateral

UK Act because they were subject to other anti-bribery regulation already. For such competitors, the UK Bribery Act creates a level playing field. To proxy for firms subject to other anti-bribery regulation prior to the UK Bribery Act, I distinguish non-UK firms with US subsidiary from non-UK firms without US subsidiary: Firms with US subsidiary are subject to the US Foreign Corrupt Practices Act of 1977, considered the toughest anti-bribery regulation until the passage of the UK Act.[10] I find that both types of competitors benefit from the UK Act. In sum, some unregulated firms benefit from unilateral regulation.

My results are robust to standard event study robustness tests. Such tests include extended event windows, alternative models of calculating abnormal returns, removal of outliers, median regressions, using non-UK indices as benchmarks when calculating abnormal returns, and weighting observations by firm size. Furthermore, there is no qualitative change in the results when *Corruption exposure* is measured by sales outside the European Union and the United States rather than by subsidiary counts.[11]

It is not ex-ante clear whether the ability to use bribes when doing business in corrupt regions creates firm value or not. On the one hand, if firms use bribes as an investment to increase the probability of winning contracts then the passage of costly anti-bribery regulation should reduce firm value. This is the case for instance in Beck and Maher (1986) and Lien (1986), who model bribes as a side payment within Vickrey's (1961, 1962) first-price auction framework.[12] On the other hand, managers might use bribes for their personal benefits; in this case, anti-bribery regulation that punishes individual managers for bribe activity should increase firm value.[13] I provide evidence strongly suggestive of the former. In

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regulation (Beck and Maher 1989).

[10] Some non-UK firms may be subject to their home country anti-bribery regulation yet most such regulation is considered relatively weak.

[11] The nature of the geographic sales data allows me to study sales by *continent* and sales *outside the European Union and the United States* but does not allow analysis by country.

[12] A corruptible government official (agent) tenders a contract on behalf of the government (principal) to firms competing for the contract; this agent allocates the contract to the firm offering the highest bribe. Firms assign a common value to the contract, draw gross profits from a common and known distribution, and compete for the contract in a first-price auction with side payments (bribes). Beck and Maher (1989) show how costly anti-bribery regulation imposed on a subset of firms may lead to a decline in competition and to inefficient resource allocation. See also Harstad and Svensson (2011) for an alternative modelling approach whereby firms bribe (for their own benefit) or lobby (in collaboration with industry peers).

[13] Consider a firm that incentivizes country managers on the basis of sales growth (rather than profit) in certain regions; these managers might overinvest in bribery so as to increase sales. An alternative example is provided by

line with first price auction theory, I also show that unregulated competitors benefit from unilateral regulation.[14]

Due to the observability problem associated with bribery, perhaps unsurprisingly few papers have studied bribery empirically. By and large, these papers study characteristics of bribe givers and bribe takers using detected bribery cases or survey data. In a sample of 166 prosecuted international bribery cases, Cheung, Rau, and Stouraitis (2012) document that, on average, a bribe of $1 returns $11 of contract value. Karpoff, Lee, and Martin (2013) study 143 enforcement actions for violations of the FCPA; they find that prosecution costs more than offset the value of contracts obtained through bribe payments—but only if prosecution for bribery is accompanied by charges of fraud. This paper contributes to the literature by showing that bribery pays if bribery remains undetected and no charges are made.

Smith, Stettler, and Beedles (1984) find that voluntary disclosure of sensitive foreign payments under the SEC Voluntary Disclosure Act (passed prior to the FCPA) comes with negative abnormal returns. A related stream of the literature studies self-reported bribes from surveys. Ugandan survey data shows that using bribes is negatively correlated with firm growth (Svensson 2003, Fisman and Svensson 2007). Bennedsen, Feldmann, and Lassen (2013) find large firms to be more inclined to lobby whereas small firms tend to use bribes. Clarke and Xu (2004) find that bribe-paying utility firms are more profitable than de novo private firms and Serafeim (2013) studies the detection of bribery within the firm.

Exploiting the passage of the UK Bribery Act allows me to address concerns about selection, sample size, measurement error, and limited participant information inherent in studying detected cases and survey data. Moreover, my empirical strategy provides new insights into the long-run implications of being restricted in one's use of bribes and into the spillovers on competitors.

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passive bribery (which is covered by the UK Bribery Act). Consider a potential subcontractor offering bribes to a manager in charge of contracting a firm. Again, this manager's decision might depend more on his own interest (highest bribe) than on the firm's interest (optimal subcontractor).

[14] Beck and Maher (1989) show how costly anti-bribery regulation imposed on a subset of firms may lead to a decline in competition and to inefficient resource allocation. It immediately follows that unregulated competitors benefit from unilateral regulation of some competitors.

A few papers have studied macro effects of anti-bribery regulation. Hines (1995) finds that the FCPA led to declines in US foreign direct investment, aircraft exports, joint venture activity, and the capital/labor ratio. Evidence concerning the FCPA's effect on overall US exports is mixed. Beck, Maher, and Tschoegl (1991) report that US exports to (non–Latin American) bribe-prone countries were negatively affected, but Graham (1984) finds no negative impact on US exports overall. This paper provides firm level evidence, complementing these results based on macro and sector data.

Last but not least, this study relates to a large body of literature that studies the relation between corruption and growth. Mauro (1995) establishes that corruption lowers investment and so reduces growth. Shleifer and Vishny (1993) argue that the need for secrecy renders corruption costlier than taxation.[15] My scope is narrower in that I study firms making decisions with respect to shareholders' wealth rather than social welfare. Notably, the literature on corruption and growth links corruption in developing countries to growth in those countries while this paper offers insights into the role played by multinational firms in propagating corruption in developing countries.

Section 2 discusses methodology and data. Section 3 examines the effect of anti-bribery regulation on firm value. Section 4 investigates channels through which firm value is affected. Section 5 studies spillovers on competitors. Section 6 concludes.

2. Empirical methodology and data

Bribes are largely unobserved. I address this partial observability problem by employing a quasi-experimental design that allows me to study how firms respond to an increase in their cost of doing business in corrupt regions. Here, I describe event, empirical methodology, sample, and data.

2.1 Event

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[15] For reviews of the vast literature on this topic, see Bardhan (1997) and Svensson (2005).

The draft of the UK Bribery Act was passed by a government commission and put forward by the Secretary of State for Justice on 25 March 2009 and came into force on 1 July 2011. This sub-section summarizes the Act's history and content, and explains why the Act came as a surprise.

History of anti-bribery regulation in the UK and passage of the UK Bribery Act 2010

The United Kingdom passed the Bribery Act 2010 after years of ignoring its promises to reform existing legislation. Prior corruption legislation in the United Kingdom dates back to the late 19th and early 20th centuries. The Public Bodies Corrupt Practices Act of 1889 (modified by the Statute Law Revision Act of 1908), the Criminal Cases Act of 1908, and the Criminal Justice Act of 1967 (reenacted in 1988) all criminalize the active and passive bribery of UK public officials (see Footnote 4 for the distinction between active and passive bribery). Penalties for first offenses included fines, imprisonment, and constraints on reelection; second offenses incur punishments such as prohibition against running for office as well as loss of pension claims.[16] Prior UK regulation did not explicitly address bribery by corporations and operations abroad.

The recent history of UK anti-bribery regulation is summarized in Figure I. The United Kingdom committed to implementing the OECD Anti-Bribery Convention, which was ratified in 1997 and signed by the United Kingdom in 1999. According to the convention, signatory countries agree to enact legislation that penalizes the bribing of foreign public officials. The OECD has no enforcement mechanisms, but its monitoring process enables it to alert governments about local noncompliance and, in cases of continued noncompliance, to take measures that include banishing noncompliant countries from the OECD. The UK was repeatedly reported to be not in compliance with the convention, most firmly in a letter sent in June 2008 from the OECD's anti-bribery working group to the UK government. This letter accuses the United Kingdom of not bringing to court a single foreign bribery case and of not reforming its

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[16] See for example http://www.legislation.gov.uk/ukpga/Vict/52-53/69.

anti-corruption laws.[17] Indeed, attempts initiated by the UK government in 2001 and 2003 to fight corruption failed in 2002 and 2004, respectively.

[[INSERT Figure I about Here]]

The draft of the UK Bribery Act 2010 was passed by a government commission and put forward by Jack Straw, the Secretary of State for Justice, on 25 March 2009.[18] Importantly, news about the passage did not leak prior to that date: It was only on 25 March 2009 that newspapers began to report on content and implications of the UK Bribery Act 2010 (see Figure II).

[[INSERT Figure II about Here]]

Content of the UK Bribery Act 2010

The UK Bribery Act makes it a criminal offense not only for individuals and corporations to engage in either active or passive bribery but also for corporations to have no internal control procedures designed to prevent associated persons from acts of bribery. Furthermore, the Act prohibits facilitation payments: payments meant to induce government officials to perform tasks that they are obligated to perform in any case. Corporate fines for violating the Act are potentially unlimited; individuals—such as managers who violate the Act—can be fined and imprisoned. Organizations can defend against allegations by proving that they have adequate anti-bribery controls in place. Both UK firms and non-UK firms with links to the United Kingdom fall within the Act's jurisdiction, irrespective of where violations occur, yet non-UK firms are exempted from the requirement to implement firm-wide internal anti-bribery controls.[19]

Did the passage of the UK Bribery Act come unexpectedly?

As mentioned previously, event study methodology requires that the passage of the draft of the UK Bribery Act on 25 March 2009 be unexpected. The Act's passage after numerous failed attempts (see

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[17] *Financial Times* (17 August 2008); *British Business Monitor* (18 August 2008).
[18] See Appendix for a description of the UK legislative process and for a timeline of procedural events related to the Act.

Figure I) is surprising in its own right. However, I shall argue that the following developments were also unexpected: (i) special interests were unable to lobby successfully against the passage of the Act's draft; (ii) the Act was likely to be enacted without its provisions being watered down subsequent to its passage; and (iii) the penalties stipulated by the Act were more severe than anticipated. These aspects will be discussed in turn.

First, prior attempts to pass anti-bribery regulation were aimed solely at UK firms, which made such regulation a target for industry lobbyists. These lobbyists argued that enforcing any such anti-bribery regulation would be at the expense of UK firms because it would benefit non-UK competitors. A distinct and decisive feature of the UK Bribery Act 2010 is that it applies also to non-UK firms with UK operations (such as subsidiaries), which addresses lobbyists' concerns.

Second, although there is a formal procedure for turning a bill into an Act of Parliament (i.e., into legislation),[20] and although drafts can fail to survive that procedure, the draft of this Act was likely to go through. The Labour Party was in charge not only of drafting the Act but also of turning it into legislation. The draft was passed by a government commission, the members of which reflected the majority in the House of Commons. When the draft was passed, the House was dominated by the Labour Party (whose members occupied 355 of the 646 seats in Parliament after the 2005 general election); as a result, the commission was likewise dominated by the Labour Party.[21] It is noteworthy that—unlike previous attempts to implement anti-bribery regulation—in this case there was considerable pressure to act quickly: OECD sanctions were looming and there was also a relatively short time until the next general elections. With election outcomes predicted to be unfavorable for the Labour Party (and accurately so, as it turned out), the Labour Party was highly pressured to turn the Act into legislation quickly so as to avoid

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[19] See http://www.legislation.gov.uk/ukpga/2010/23/pdfs/ukpga_20100023_en.pdf (accessed 16 September 2013) for the Act's official text; see http://www.justice.gov.uk/downloads/legislation/bribery-act-2010-quick-start-guide.pdf (accessed 16 September 2013) for a quick guide provided by the Ministry of Justice.

[20] An outline of this procedure is presented in the Appendix.

[21] Both the House of Commons (lower house) and the House of Lords (upper house) participate in the process of turning bills into Acts of Parliament. However, it is possible for a bill to be passed by the House of Commons (via the Parliament Acts) if no agreement is reached between the upper and lower houses.

time-consuming amendments. Indeed, amendments to the draft focused on marginal wording and not on substantive content.

Third, the potentially unlimited fines outlined in the provisions of the Act led to its reputation as "a platform for what could be the toughest [anti-bribery] enforcement regime in any jurisdiction".[22] While evident when comparing the provisions of the UK Bribery Act to jurisdiction and penalties of preceding UK anti-bribery legislation, this becomes more apparent in comparison to the Foreign Corrupt Practices Act (FCPA), which the United States enacted in 1977. The FCPA forbids the bribery of foreign public officials by US and US-listed firms.

The UK Bribery Act 2010 differs from the FCPA along several dimensions. First, the UK Bribery Act (unlike the FCPA) stipulates that a firm is strictly liable if it fails to implement anti-bribery controls. Second, whereas the FCPA was initially interpreted to prohibit only active bribery, the UK Bribery Act proscribes both active bribery (offering a bribe) and passive bribery (accepting a bribe). Third, the FCPA focuses on bribing foreign public officials; in contrast, the UK Bribery Act covers the bribing of private persons as well as other firms and also the employees of those firms. Fourth, there is no upper limit to the amount a firm can be penalized under the UK Bribery Act; under the FCPA, the maximum fine is $2mn.[23] Fifth, of the two Acts, only the UK one criminalizes facilitation payments. Sixth, the UK Bribery Act's jurisdiction explicitly extends to non-UK firms with UK operations, regardless of where the bribery occurs. The FCPA initially applied solely to US firms and has only recently been interpreted as applying to foreign firms with US operations. In sum, the UK Bribery Act is more extensive and more punitive than is the FCPA.[24]

2.2 Empirical methodology

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[22] "The UK Bribery Act 2010 – What US Companies Need to Know," *Mondaq Business Briefing* (21 June 2010).
[23] That being said, the FCPA (under its provisions related to "Books and Records and Internal Controls") does stipulate fines ranging as high as $25 million for firms that are found to have manipulated their earnings statements.
[24] UK Bribery Act 2010 (see http://www.legislation.gov.uk/ukpga/2010/23/contents); "The UK Bribery Act 2010 – What US Companies Need to Know," *Mondaq Business Briefing* (21 June 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* (26 April 2010).

To empirically test whether the passage of the UK Bribery Act affects firm value, I use event study methodology by running the regression

$$CAR_i = \alpha + \beta_1 CE_i + \gamma' \mathbf{X_i} + \varepsilon_i \qquad (1)$$

where CAR_i denotes cumulative abnormal returns of firm i around the day of the passage of the UK Bribery Act, CE_i denotes a firm's exposure to corrupt regions, and $\mathbf{X_i}$ is a vector of controls including industry fixed effects. The coefficient of interest is β_1. This coefficient captures whether the passage of the UK Bribery Act explains firm value of firms with exposure to corrupt regions. In a key robustness test on non-UK firms, I augment (1) to the DiD regression

$$CAR_i = \alpha + \beta_1 UK\_LINK_i + \beta_2 CE\_UP_i + \beta_3 CE\_UP_i \times UK\_LINK_i + \gamma' \mathbf{X_i} + \varepsilon_i \quad (2)$$

where UK_LINK_i is a Dummy that equals one if a non-UK firm has operations in the UK and CE_UP_i a Dummy equal to one if a firm operates in corrupt regions, measured before the passage of the UK Bribery Act. Of particular interest is β_3 i.e. whether firms exposed to the UK Bribery Act (by having a UK subsidiary) and to corrupt regions are differentially affected. I estimate equations (1) and (2) using heteroskedasticity-robust standard errors that are clustered at the industry level.

To test whether the Act had long-run effects, I run a pooled panel regression

$$\begin{aligned} Y_{i,t} = \alpha &+ \beta_1 MID\_EVENT_t + \beta_2 MID\_EVENT_t \times CE\_UP_i \\ &+ \beta_3 POST\_EVENT_t + \beta_4 POST\_EVENT_t \times CE\_UP_i + \gamma' \mathbf{X_{i,t}} + \varepsilon_{i,t} \quad (3) \end{aligned}$$

where $Y_{i,t}$ an outcome variable (such as firm value) of firm i at time t, MID_EVENT_t a Dummy equal to one if an observation occurs between passage of the Act and the Act being in force, and $POST\_EVENT_t$ a Dummy equal to one if an observation occurs after the Act is in force. $\mathbf{X_{i,t}}$ contains firm fixed effects. Of particular interest are coefficients β_2 and β_4, denoting whether firms with high corruption exposure are differentially affected. Again, in robustness tests, I augment this set-up to a DiD regression, comparing UK to non-UK firms. I estimate equation (3) using heteroskedasticity-robust standard errors that are clustered at the year and country level (two-way clusters).

2.3 Sample

The main result is based on publicly listed UK firms for which I can construct daily abnormal returns on 25 March and 26 March 2009, which have non-missing controls, and for which I have subsidiary data. These criteria yield a sample of 645 publicly listed UK firms.

I start with all 2,302 UK-headquartered firms in Datastream/Worldscope that exist in 2008. Datastream/Worldscope keeps records of firms that are no longer active or that have been delisted: I remove 755 such firms, leaving 1,547 firms. In order to construct Fama-French factors, I then remove firms with missing total assets or missing market capitalization (218 firms). Of the remaining 1,329 firms, I remove 580 firms with missing daily stock returns on the draft's passage date (25 March) and the day thereafter (26 March), firms that have fewer than 100 daily stock return observations during the year prior to passage (the estimation period), and firms with fewer than five non-zero returns in March 2009.[25] This leaves 749 firms with abnormal returns, 707 of which I can link to subsidiary data from *Dun&Bradstreet's Who Owns Whom 2008/2009*.[26] Of these remaining firms, 14 are discarded when winsorizing at 1% and 99% level and a further 48 have missing data for my control variables %ROA and %CAPEX, yielding 645 sample firms.[27]

2.4 Data

Firm-level outcomes

In the first part of my analysis, I use event study techniques to test whether bribes affect firm value. In calculating abnormal returns to capture changes in firm values, I follow the early work of Ball and Brown

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[25] This drop in sample size is largely due to firms not being covered by Datastream's daily return dataset or stocks being illiquid. Changing the non-zero-return requirement to zero days without returns (resp., less than 10 days without returns) reduces by 2 firms (resp. increases by 3 firms) the sample and does not affect the results. Including lags of returns to account for illiquid stocks in my estimation regressions does not affect results.

[26] Some of the 42 firms that cannot be matched to the subsidiary data are firms without subsidiaries: *Dun&Bradstreet's Who Owns Whom* only lists firms with at least one subsidiary. Using Capital IQ, I verify for 10 unmatched firms that they do indeed not have subsidiaries in 2013. However, Capital IQ does not provide historic subsidiary data which is why I cannot distinguish between unmatched firms and firms without subsidiary. Adding these 10 firms to the sample and assuming that they are only exposed to the UK does not affect my results.

[27] Replacing these missing controls with sample or industry means does not affect the results. Removing the controls

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(1968) and of Fama et al. (1969); however, I use daily returns data and extend the explanatory variables employed to estimate abnormal returns by using firm size and the book/market ratio (Fama and French 1993) as well as momentum (Carhart 1997). The key dependent variable is *CAR*[0; 1], firms' cumulative abnormal return (CAR) on the day of the passage of the UK Bribery Act (25 March 2009) and one day after. *CAR*[0; 1] are calculated using a Carhart (1997) model estimated for the period starting 294 days before the event and ending 41 days before the event. In robustness tests, I also consider cumulative abnormal returns up to four weeks before and after the passage of the Act. I use Datastream as the source for stock return data, stock market returns, T-Bill returns, and accounting information for the Carhart local factors of book value and market value.[28] The equally weighted CAR for UK firms on 25 and 26 March 2009 is −0.85% (Table I Panel A).[29] Both prior to and after the event, equally weighted cumulative abnormal returns are negative and economically insignificant: −0.06% for (respectively) both [−20; −1] and [2; 20].

[[INSERT Table I about Here]]

In the second part of my analysis, I consider long-term outcomes using accounting data obtained from Datastream/Worldscope. Tobin's Q is (Equity Market Value + Market Value of Liabilities)/(Equity book value + Book value of liabilities) though I take the natural logarithm to facilitate interpretation of results. *Gross margin* is gross profit over operating revenues (in %) where gross profit is net sales plus other revenues minus cost of goods sold. *Profit margin* is profit/loss before taxes divided by operating revenues (in %). Table I Panel A summarizes these variables for UK firms in 2008.

Measuring corruption exposure

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from the key regressions does not affect results either.

[28] I follow Ince and Porter (2006) in "cleaning" daily returns data. Long–short portfolios based on size, book/market, and momentum are constructed in accordance with Kenneth French's data library, but for UK firms, I split size into top-30% and bottom-70% firms in order to account for the skewed size distribution in the UK (results are not affected by this split). Results are robust to the inclusion of global returns and global Carhart (1997) factors.

[29] The value-weighted *CAR*[0; 1] is −0.005%.

The key control variable is *Corruption exposure*, a measure of firms' exposure to regions with high levels of perceived corruption. This variable is based on two sources. First, I hand-collect data on headquarter locations of subsidiaries (and of subsidiaries' subsidiaries) using Dun & Bradstreet's *Who Owns Whom 2008/2009*. For public and private ultimate parent firms, Dun & Bradstreet publishes the names of all subsidiaries along with the subsidiary headquarter countries; a firm is considered to be a "subsidiary" if a parent firm owns more than half of its shares.[30] Second, for each headquarter country, I obtain its Corruption Perception Index (CPI) for 2008 from Transparency International. To obtain the corruption exposure measure for each firm *i*, I combine these data as follows:

$$Corruption\ exposure_i = \sum_{c \in C} \left((10 - CPI_c) \times \frac{\#Subsidiaries_{i,c}}{\#Subsidiaries_i} \right),$$

where CPI_c is the Corruption Perceptions Index of country *c* in 2008, $\#Subsidiaries_{i,c}$ is the number of subsidiaries of firm *i* in country *c* in 2008/2009, and $\#Subsidiaries_i$ is the total number of subsidiaries of firm *i* in 2008/2009. By construction, this measure is increasing in firms' exposure to corruption. It is bounded by [0.7; 8.9] because $10 - CPI$ is $10 - 9.3 = 0.7$ for the least corrupt countries (Denmark, Sweden, and New Zealand) and is $10 - 1.1 = 8.9$ for the most corrupt country (Somalia). The average UK sample firm has a *Corruption exposure* of 2.47 (Table I Panel A). The *Corruption exposure* measure assumes that all subsidiaries are equally important to a firm. In a robustness test I construct a measure of relative importance based on geographic sales though this measure is restricted to a smaller subset of firms due to limited data availability.

Additional Controls

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[30] The average publicly listed UK firm has 59 subsidiaries, of which 38 are located in the United Kingdom, 11 in continental Europe, 4 in the United States, and 6 in the rest of the world. The median UK firm has 16 subsidiaries in Europe but none in the United States or in non-European countries. Of all the sample firms, 40% have fewer than 10 subsidiaries but 17% have more than 100. A few firms have a strong effect on the mean: for instance, three banks (Royal Bank of Scotland with 1,165 subsidiaries, HSBC with 1,036, and Barclays with 601) and two oil corporations (Royal Dutch Shell with 906 subsidiaries and BP with 583).

Control variables include the (logged) number of subsidiaries, the log of assets, capital expenditures (CAPEX) divided by assets, and return on assets (ROA). The mean (resp., median) UK sample firm has a capitalization of $4,580mn (resp., $472mn), a CAPEX/assets ratio of 4.1% (2.3%), and ROA of 2.0% (3.1%).

Some UK firms are more likely than others to be affected by the UK Bribery Act. First, a number of firms must comply also with other anti-bribery regulations—most notably, the US Foreign Corrupt Practices Act of 1977. Sample firms subject to the FCPA are inferred in two ways, first from the Bank of New York's list of ADRs in combination with Worldscope, second from subsidiary data. 23% of the sample firms held an ADR at some time in the two years preceding 25 March 2009 and 35% had at least one subsidiary in the US in 2008. Second, some firms voluntarily adhere to corporate social responsibility (CSR) standards. Much like the Domini 400 Social Index for S&P 500 firms in the United States, FTSE Group publishes the FTSE4Good UK Index for firms in the United Kingdom. Firms listed in this index are those that comply with certain environmental, human rights, social, and stakeholder relations criteria, where information on compliance is obtained from publicly available sources and also directly from the companies. 33% of sample firms were constituents of the FTSE4Good UK index at the end of 2008.

Non-UK firms

In order to study spill-over effects of the UK Bribery Act on non-UK firms, I construct abnormal returns for publicly listed firms using local benchmarks and risk-free rates.[31] I also collect subsidiary data on publicly listed continental European firms—and on 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* and construct *Corruption exposure* as defined above.[32] I define *UK link* as a dummy variable set equal to 1 if a foreign firm has at least one subsidiary in the United Kingdom (and set to 0

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[31] Again, results are robust to including global factors and lagged returns in the estimation regressions.

[32] I include only those EU countries for which I can collect all relevant information (subsidiaries, abnormal returns, accounting controls) on at least 20 publicly listed firms. I do not study US firms ($N = 4,500$) because they are already subject to the US Foreign Corrupt Practices Act of 1977. It is hard to predict the effect of the UK Bribery

otherwise). For a sample of 2,791 non-UK foreign firms, Panel B of Table I presents summary statistics. During the [0; 1] event window, non-UK firms experience an equally weighted cumulative abnormal return of −0.04%. The mean corruption exposure ranges from 1.43 (Swedish firms) to 7.34 (Russian firms). Among all the sample firms, 32% have a UK link. Of the Irish sample firms, 93% have at least one subsidiary in the United Kingdom (this high proportion reflects geographic proximity and/or historical ties). In contrast, only 7% of the Polish sample firms have a UK link.

3. Firm value results

In this section, I study changes in firm value associated with the passage of the UK Bribery Act. I start by examining abnormal returns and Tobin's Q of UK firms. I then consider abnormal returns of non-UK firms. I conclude with a series of robustness tests.

3.1 Abnormal returns of UK firms

Table II specifies, step by step, the full regression (1) for UK firms. The dependent variable is *CAR*[0; 1]—that is, firms' cumulative abnormal returns on the event day (25 March 2009) and the day thereafter. The main control variable is *Corruption exposure*, a measure that increases in firms' exposure to corrupt regions.

[[INSERT Table II about Here]]

In column [1] of the table, *CAR*[0; 1] is explained solely by *Corruption exposure. Corruption exposure* loads significantly negatively on cumulative abnormal returns and exposure to corruption with a coefficient of −0.657. Thus, firms that are more exposed to high-corruption regions have more negative abnormal returns around the passage of the UK Bribery Act. Yet this result might actually be driven by industry-level corruption—as suggested by Figure III, which plots average industry CARs around the

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Act on these firms: They might be positively affected because competition moves closer to a level playing field or negatively affected because the US might follow the draconian punishment possible under the UK Bribery Act.

event against industry corruption levels.[33] Industries that are more corrupt experience more negative cumulative abnormal returns around the Act's passage. I address this concern by including industry fixed effects in column [2], which shows that the main result still holds.

[[INSERT Figure III about Here]]

When the full set of industry- and firm-level controls is included (column [3]), the relation between *Corruption exposure* and *CAR*[0; 1] is still significant. An increase of one standard deviation in *Corruption exposure* is associated with an 0.48% ($= 0.65 \times 0.731\%$) decline in firm value, which is equivalent to \$2.27mn ($= \$472\text{mn} \times 0.48\%$) for the median firm and \$21.98mn ($= \$4,580\text{mn} \times 0.48\%$) for the mean firm. One example illustrating a one–standard deviation (hereafter, 1-S.D.) difference in *Corruption exposure* is given by the comparison between an average sample UK firm with 59 subsidiaries in the United Kingdom, with a *Corruption exposure* of 2.3 ($= 10 - 7.7$) and an otherwise comparable UK firm that operates 52 subsidiaries in the United Kingdom and 7 subsidiaries in Russia; this latter firm's *Corruption exposure* is $2.93 = (10 - 7.7)(52/59) + (10 - 2.1)(7/59))$. A UK firm operating all its subsidiaries in Russia would experience a 5.26% decline compared with a UK firm operating all its subsidiaries in the least corrupt countries.[34]

Of the sample UK firms, 40% do not have subsidiaries outside the United Kingdom. Hence I rerun all main regressions on the subsample of UK firms with at least one foreign subsidiary (columns [4]–[6] in Table II). With all controls, the coefficient for *Corruption exposure* is significantly negative (−0.829). Conditional on firms being in the sample, a 1-S.D. increase in *Corruption exposure* is associated with an 0.66% ($= 0.80 \times 0.829\%$) drop in firm value, which is equivalent to \$5.51mn ($= \$835\text{mn} \times 0.66\%$) for the median firm.

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[33] 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. The corruption measure tabulates, by industry, the percentage of firms responding "major" (i.e., 4 on a 5-point scale) to this question: "please … [indicate whether this] 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" when the factor in question is "corruption".

The number of subsidiaries loads negatively, which suggests that more complex firms find it costlier to comply with anti-bribery regulation; the value of assets loads weakly.[35] Controls for US cross-listing, US subsidiary and for FTSE4Good load insignificantly; the interaction of these factors with *Corruption exposure* is tested in the robustness section.

3.2 Alternative identification: Related events

In this sub-section, I consider events related to the passage of anti-bribery regulation in the UK—attempts to pass anti-bribery regulation and failures to do so. While the focus of this paper is on 25 March 2009, the day of the passage of the UK Bribery Act, such related events contain information about expected costs of using bribes, too. Additionally, using related events alleviates concerns that other events drive the results on 25 March, 2009.

One problem with using related events is that it requires using media reports to identify bribery-related events. This is inherently subjective, since judgment is required when assessing whether or not announced (failure of) regulatory action constitutes news. In addition, this method requires that the "direction" of news be coded, especially when stacking events into a single regression. This process, too, is subject to judgment.

I use Factiva searches to identify announcements of attempts to pass anti-bribery regulation (and the failure of such attempts) in the United Kingdom during the period 2000–2011. These events constitute updates of the probability that the United Kingdom will implement anti-bribery regulation. The Factiva searches are based on the keyword "bribery" in the UK newspaper articles of this period. Just as in Figure II, I remove "non-events"—that is, articles that do not constitute news, such as journalistic opinions on past events. I also exclude articles linked to bribery regulation elsewhere (e.g., in the United

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[34] In 2008, the Corruption Perceptions Index was 9.3 for Denmark, Sweden, and New Zealand and 2.1 for Russia: $(9.3 - 2.1) \times 0.731 = 5.26\%$.

[35] Value of assets and number of subsidiaries are positively correlated (rho = 0.68). The results are not affected by removing either (or both) of these controls.

States) and those related to potential bribery *cases* as opposed to bribery *regulation*; examples include speculation about bribery of the Olympic Committee or bribery in cricket.

Table III lists events indicating that the United Kingdom will implement bribery regulation at some point in the early 2000s, as well as reversals of these indications. It then reports the coefficient for *Corruption exposure* from a regression structured exactly as the main regression of this paper (see column [3] in Table II) in order to explain abnormal returns on the respective event date. As before, a negative *Corruption exposure* coefficient indicates that firms that are more exposed to corruption have more negative abnormal returns on the focal day.

[[INSERT Table III about Here]]

The reported coefficients are not statistically significant in most individual cases, but they do reliably follow the direction of news. In 2000, following OECD pressure on the United Kingdom to enact legislation in line 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 negative (albeit not statistically significant) on these days, which suggests that high-exposure firms were negatively affected. In concert with the news (of 2 September 2002) that these bribery regulation plans had failed, the coefficient for *Corruption exposure* is positive; this result reflects a decline in the likelihood of UK anti-bribery regulation being passed. In 2003, the UK government issued a draft bill (−0.90%, significant at the 10% level) that subsequently failed (+0.48% on 1 August 2003, +0.41% on 18 February 2004). In 2005 and 2008, the government again announced that bribery regulation would be toughened; in these cases also, the coefficients are negative (but again, insignificantly so). Subsequent delays in passage of anti-bribery legislation had no notable impact. Recall for comparison that, around passage of the UK Bribery Act's draft, the *Corruption exposure* coefficient is −0.731% (significant at the 5% level).

Stacking all events into a single regression allows one to control for time fixed effects, which I interact with industry fixed effects. I cluster at the firm level because the key independent variable is assumed to

be constant over events. I find that *Corruption exposure* does not significantly explain abnormal returns on event days that bear news in favor of firms that use bribes, but it does significantly explain abnormal returns on event days bearing news that is adverse to firms that use bribes (−0.72%). Stacking all events into one regression and then multiplying the dependent variable by −1 if events are favorable yields a negative and significant coefficient of −0.37%, which is in accordance with the main result of this paper. In short, these results confirm the previous main result even when an alternative identification strategy is used.

3.3 Negative spillovers on foreign firms with UK exposure and enforcement across borders

So far I have shown that UK firms which are more exposed to corrupt regions have more negative abnormal returns on the day of the UK Bribery Act's passage and on days with news on anti-bribery regulation. One specific feature of the draft of the UK Bribery Act 2010 is that it affects foreign firms with UK operations through potential fines. On the one hand, this allows for an additional robustness test, using the DiD regression given by Equation (2). On the other hand, this allows studying regulatory enforcement across borders.

Recall that foreign firms with UK operations are subject to the Act's provisions, whereas foreign firms with *no* UK operations are not. I posit that foreign firms with UK operations and high corruption exposure should, like UK firms that are similarly exposed, have negative abnormal returns around passage of the UK Bribery Act. Panel A of Table IV reports equally weighted cumulative abnormal returns for sample splits by (i) firms with above versus below the median *Corruption exposure*, (ii) firms with versus without a *UK link*, and (iii) the interaction between these two. First, among the four resulting subsets, foreign firms with UK exposure that operate in regions perceived to have high levels of corruption are the ones most negatively affected by passage of the UK Bribery Act (−0.31%). In comparison to foreign firms with a UK link but with low corruption exposure, these firms are 0.46% more negatively affected; in comparison to foreign firms without a UK link but with high corruption exposure,

these firms are 0.39% more negatively affected. The difference-in-differences (DID) value shows that non-UK firms with a UK link and high exposure to corrupt regions are 0.63% more negatively affected.

[[INSERT Table IV about Here]]

One problem with the analysis is that a split of foreign firms by *UK link* and by *Corruption exposure* may reflect also a split along some other dimension, such as industry or size. If a particular industry contains many firms with a UK link or high corruption exposure and suffers a strong negative effect on the day the Act is passed, these circumstances might explain the results reported above. To address this concern, I conduct a multivariate analysis (Panel B) that controls for industry and country fixed effects as well as for number of subsidiaries, firm size, capital expenditures, and return on assets. While losing observations due to limited availability of accounting controls, the results reported previously hold also in this multivariate setting. The CARs of firms with a UK subsidiary are not different from zero and neither are the CARs of firms with corruption exposure (Column 1). Interacting UK exposure with corruption exposure, returns of firms with UK subsidiary and above-median exposure to corruption are significantly lower than those of firms with high corruption exposure but no UK subsidiary.

Not all foreign firms are equally affected by UK regulation, in part because of differences in detection probabilities and costs, prosecution and enforcement probabilities, and reputational losses. Splitting the sample of foreign firms into Western European foreign firms (Columns (3) and (4) of Table IV Panel B) and Eastern European and Asian foreign firms (Columns (5) and (6)) illustrates this notion: the previous result is driven by corruption-exposed Western European foreign firms, which lose 0.422%(=0.343%-(-0.079%)) more in value if linked to the United Kingdom than if not. Eastern European and Asian firms do not show this pattern.

A natural extension to the split into Western European versus other firms is to calculate the difference-in-differences presented in Panel A of Table IV country by country. Figure IV plots DID values for countries with at least two firms in each of the DID portfolios against the level of *Regulatory*

enforcement in firms' headquarter country. *Regulatory enforcement* is a submeasure of the WJP Rule of Law Index compiled by the World Justice Project. This submeasure is, in turn, the equally weighted mean of assessing five criteria: (i) government regulations are effectively enforced; (ii) government regulations are applied and enforced without improper influence; (iii) administrative proceedings are conducted without unreasonable delay; (iv) due process is respected in administrative proceedings; and (v) the government does not expropriate without adequate compensation. Indeed, the negative effect of the UK Bribery Act on non-UK firms with a UK subsidiary and high exposure to corrupt regions is *greater* for firms from countries characterized by strong regulatory enforcement.[36]

[[INSERT Figure IV about Here]]

3.4 Tobin's Q

In order to test whether the UK Bribery Act had long-run implications, I estimate in Table V the pooled panel regression specified in Equation (3) using firm-level accounting data. The sample is unbalanced and comprises all publicly listed UK firms with available data. All regressions include mid-event dummies equal to 1 for accounting data reported from III/2009 until II/2011 and post-event dummies equal to 1 for accounting data reported after II/2011, the interaction of *Corruption exposure* and these event period dummies, log of assets, and firm fixed effects.

[[INSERT Table V about Here]]

Tobin's Q drops during the mid- and post-event period (at least partly reflecting the crisis), more so for UK firms with high Corruption exposure (Columns 1 and 2). Being 1-S.D. more exposed to perceivably corrupt regions is associated with a 1.6%(=0.65 x 0.024%) and 2.8%(=0.65 x 0.043%) drop in Tobin's Q in the mid- and post-event period, respectively. This confirms the event study results above and highlights that the effect is long-run rather than reverses. These results are slightly stronger for the subset of firms with foreign subsidiaries (Columns 3 and 4).

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[36] It would be ideal to plot abnormal returns of affected firms against a measure of "enforcement across borders", for

In order to alleviate the concern that trends specific to corrupt regions drive my results, I augment the previous analysis by continental European firms. In Panel B, for a sample of continental European and UK firms, Mid Event and Post Event are interacted with *UK firm* (a dummy set equal to 1 if a firm is headquartered in the UK) and with both *UK firm* and *Corruption exposure*. The previous results are confirmed in terms of economic magnitude and statistical significance. Compared to a continental European firm with 1-S.D. greater exposure to perceivably corrupt regions, a UK firm with 1-S.D. greater exposure to perceivably corrupt regions suffers a drop in Tobin's Q of 1.8%(=0.65*0.028%) after the Act is passed in 2009 and 3.1%(=0.65*0.047%) after the Act is enforced in July 2011.

3.5 Robustness

The findings of this section so far indicate that the passage of the UK Bribery Act had negative implications for UK firms. In this section, I report results of a range of robustness tests.

Some firms may be less affected by the UK Bribery Act because they are already subject to other anti-bribery regulation, e.g. because they are cross-listed in the US and therefore subject to the US Foreign Corrupt Practices Act (FCPA) of 1977. Some firms may be less affected by the Act because they adhere to corporate social responsibility (CSR) criteria, e.g. indicated by being a FTSE4GOOD constituent. Last but not least, auction theory with bribes as side payments suggests that bribing in more concentrated industries is more profitable (Beck and Maher 1986, 1989) – I measure industry concentration using a global Herfindahl-type measure. Indeed, I find that *Corruption exposure* only loads significantly negatively on *CAR[0;1]* of UK firms that have a US Cross-listing, that are FTSE4GOOD constituents, or that operate in industries with above-median industry concentration (Table VI Panel A).

[[INSERT Table VI about Here]]

I conduct several standard robustness checks for the main event day. First, it might be that a short event window (such as the one employed here) cannot capture the full implications of the event. In this

the Act is costly to foreign firms only to the extent that the United Kingdom can punish non-UK violators. In this

case that deficiency would be applicable from a pre-event standpoint if, for example, some information about passage of the UK Bribery Act had leaked into the market prior to the event but without being picked up by major news sources. Post-event, market participants might have been slow to react—perhaps because implications of the regulatory change were unclear initially and did not become apparent until more details of the new regime became known. I address this concern by rerunning the main regressions for alternative event windows. The results are reported in Panel B of Table VI. I find that *Corruption exposure* loads negatively only when event date returns are included in cumulative abnormal returns. When four-week event windows ending before the event are used instead, the coefficients are insignificant, and the same is true for four-week event windows starting after the event.

Second, event-time clustering could bias the coefficient found for *Corruption exposure*. To alleviate this concern, I follow Karpoff and Malatesta (1995) in using seemingly unrelated regressions to calculate cumulative abnormal returns on portfolios with above- and below-median exposure to corruption. A portfolio of firms with above-median exposure to corrupt regions underperforms one with below-median exposure at the 5% significance level.[37] Also, results on related events (Table III) are robust when I allow slopes on *Corruption exposure* to shift on event days (Schipper and Thompson 1983) and when I use non-UK indices to calculate abnormal returns (Zhang 2007).[38]

Third, one might argue that my measure of corruption exposure does not account for the importance of individual subsidiaries in the parent firms' operations, since the measure is based on a count of subsidiaries and not on size-related subsidiary characteristics. Therefore, as an additional

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paper I simply assume that a country's enforcement is positively correlated with enforcement across borders.

[37] Rather than constructing abnormal returns based on the coefficients for each firm and estimation period, I follow the approach of Karpoff and Malatesta (1995) and regress stock returns from 27 March 2008 to 26 March 2009 on a constant, the market return, the Fama-French and Carhart factors, and event-day dummy variables for 25 March 2009 and 26 March 2009. I then calculate equally weighted returns for one portfolio of stocks issued by companies characterized by above-median corruption exposure and another portfolio for below-median corruption exposure. A Wald test for the difference in returns on these two portfolios is significant at the 5% level—and at the 1% level for the subset of firms with at least one non-UK subsidiary.

[38] Other authors have argued that non-local indices should always be used to calculate abnormal returns. While my results are unaffected, I restrain from using non-local indices throughout because, in a competitive setting with unilateral regulation, non-UK indices will reflect negative spillovers (Section 3.2) and competition effects (Section 3.3). In a non-competitive setting without spillovers, non-local indices are preferable.

robustness test I hand-code self-reported geographic segment sales for 2008 from Capital IQ as a measure of corruption exposure. Abnormal returns are a relative measure of firm value; therefore, for this test I 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%. Most of these "segment revenues" come exclusively from the European Union (46.5%). Relatively little revenue comes exclusively from the United States (2.9%). Given that reported segments are not standardized, I construct the generic category *non-US non-European Sales*. This category accounts for 6.4% of sales. However, 44% of firm revenues cannot be reliably categorized.[39] Using the segment sales so constructed to explain cumulative abnormal returns on the event day confirms my previous results for those 430 firms that report segment sales. Abnormal returns around the event date are decreasing in non-European, non-US sales (Table VI Panel C).

Finally, the results reported in this paper are not sensitive either to other specifications of the estimation period or to outliers. Using a shorter estimation period of 100 days does not affect my findings. Neither are they changed by winsorizing abnormal returns at the 2nd and 98th, or the 5th and 95th percentiles.[40]

4. Channels

In the preceding section I documented that firms with high exposure to corrupt regions exhibit a drop in firm value around the passage of the UK Bribery Act. However, is this indicative of real effects for firms' ability to do business in corrupt regions? Or does the drop in firm value instead reflect one-off costs of implementing internal anti-bribery controls that do not, for the most part, inhibit firms' ability to

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[39] In some cases, firms report extremely broad geographic segments. Firms may report sales by country, by precise economic area, or by geographic area; in these cases, I can fit the data into categories (e.g., sales from China or from Africa all qualify as sales from non-US, non-European geographic segments). Some firms distinguish UK sales from "worldwide non-UK" sales; in this case I can categorize the former as European but, with regard to the latter, I cannot distinguish between sales attributable to Europe, the United States, and the rest of the world. Some firms report sales from "Europe, Africa, and Australia" or, in an extreme example, sales from "Tanzania, Singapore, and France"; in these cases I cannot categorize sales, so such observations are omitted. Some firms do not report geographic sales—because nondomestic sales account for none (or only a small fraction of) their sales.

[40] Results are also unaffected when not removing any observations.

compete? To answer these questions, I study whether the implications of the UK Bribery Act are reflected in firm-level performance and cost measures, as well as in operations in corrupt regions.

4.1 Firm-level performance and cost structure

In order to test whether the UK Bribery Act had firm-level implications for performance and cost structure, I estimate the pooled panel regression specified in Equation (3), following Table V [Panel A] above, for a range of measures. Results are reported in Table VII.

[[INSERT Table VII about Here]]

I find no evidence that the UK Bribery Act reduces sales or cost of goods sold. If bribes were expensed, the UK Bribery Act could result in a reduction of costs of goods sold though some of these costs may be substituted by other means of creating sales, such as marketing expenses. In practice, however, bribes are likely off-balance sheet items (e.g., they are paid through direct kick-backs or unreported income), suggesting that the Act might have no direct implications for the levels costs of goods sold. Similarly, a drop in sales in corrupt regions may be substituted by sales elsewhere, as evident in the analysis of sales outside Europe and outside the US in Section 4.3.

While firms with high corruption exposure are not differentially affected in terms of their gross margin (equal to gross profit divided by operating revenues), they are negatively affected in terms of their profit margin (equal to profit/loss before taxes divided by operating revenues), providing some explanation for the drop in Tobin's Q. Being 1-S.D. more exposed to perceivably corrupt regions is associated with a 1.62%pts(=0.65 x 2.496%) drop in the profit margin in the post-event period.

To further understand implications of the UK Bribery Act, I study sub-components of gross margin and profit margin. In Columns (1) and (2) of Table VII (Panel B), I break down the gross margin into two sub-components provided by *Worldscope*: *Cost of goods sold less R&D* and *R&D*. UK firms increase their R&D expenses though this has no impact on the gross margin because R&D expenses constitute a negligible fraction of sales. In order to further understand the drop in the profit margin, I

examine depreciation as a fraction of assets (Column 3): Indeed, the drop in profit margin is at least partially explained by an increase in depreciation. At the same time, there is no effect on capital expenditure (Column 4), suggesting that the effect on depreciation is not driven by new acquisitions with exceptional early depreciations. Part of this effect may come from exceptional depreciation of assets including assets in corrupt regions though the data limits such more detailed analysis.

Adding European firms as controls does not affect these results (Table VIII). This alleviates the concern that the previous results of this sub-section are driven by developments specific to firms operating in corrupt regions.

[[INSERT Table VIII about Here]]

4.2 Firm presence in regions perceived to be corrupt

An increase in the cost of doing business affects the decision to open new subsidiaries or to continue operating existing ones. Consider a subsidiary whose revenues depend on paying bribes to local authorities. Anti-bribery regulation increases the expected costs of paying bribes, which makes the subsidiary less profitable, perhaps even unprofitable. Similarly, a subsidiary that has to implement costly internal anti-bribery controls may become unprofitable.

To test this idea, I investigate whether—subsequent to passage of the UK Bribery Act 2010—UK firms make any changes to their presence in regions where corruption levels are perceived to be high. I augment the 2008/2009 subsidiary data used in previous sections by hand-collected subsidiary data for 1998 and 2013. I construct firms' *Corruption exposure* measure for 1998 and 2013 as before, though I still weigh subsidiary countries with the 2008 Corruption Perceptions Index so that my results are not driven by changes in the CPI. I focus on firms that have at least one subsidiary outside their headquarter country in 2008 and exclude firms with observable Corruption exposure in only one sample year.

Table IX reports the results for a panel of 545 UK firms and 1,201 continental European firms.[41] Panel A reports levels of *Corruption exposure* in 1998, 2008, and 2013 for UK firms, EU firms, EU firms with at least one UK subsidiary in 2008, and EU firms with no UK subsidiary in 2008. Panel B reports changes in *Corruption exposure* from 1998 to 2008 (prior to the Act's passage) and 2008 to 2013 (after the Act was being passed and enforced) along with significance levels. Panel C compares changes in Corruption exposure of different groups to changes in Corruption exposure of UK firms. Panel D reports the difference in trends.

[[INSERT Table IX about Here]]

UK firms significantly increased their exposure to corrupt regions by 0.475 between 1998 and 2008 (prior to the Act's passage) but this trend slowed down to an increase by 0.094 from 2008 to 2013 (when the Act was being enforced). Over the same time period, European firms increased their exposure significantly by 0.344 and 0.219, respectively. While European firms increased their exposure to corrupt regions slightly less than UK firms from 1998 to 2008, they increased their exposure slightly more from 2008 to 2013 (Panel C). The difference in difference is significant at 10% level.

As noted earlier, this result may be explained by some UK-specific trend. I therefore split continental European firms into firms that are subject to the UK Bribery Act—because in 2008 they had at least one subsidiary in the United Kingdom—and firms that are not subject to the Act. Both non-UK firms with and without at least one UK subsidiary increase their exposure between 1998 and 2008. However, only non-UK firms without UK subsidiary continue this trend from 2008 to 2013 while non-UK firms with UK subsidiary even slow down their expansion.

It is worth remarking on the magnitude and significance of these effects. In 2008, the average UK sample firm (in this Section) had 59 subsidiaries and a *Corruption exposure* of 2.832. If such a firm

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[41]This sample is slightly different from the sample described by the summary statistics given in Table I; in particular, this section incorporates some firms for which accounting information was unavailable (which thus were omitted in Table I). However, the results presented here are not qualitatively affected if instead the sample contains the same firms referenced in Table I.

opened one additional subsidiary in Russia (for which the CPI in 2008 was $10 - 2.1 = 7.9$), then that firm's *Corruption exposure* increases by 0.084 to 2.916 (= $[(2.832 \times 59) + 7.9]/(59 + 1)$). This is close to the change observed for UK firms between 2008 and 2013 and roughly 40% of the change observed for European firms.

Overall, the results in this sub-section suggest that the UK Bribery Act affected firms' decisions to open (and continue operating) subsidiaries in corrupt regions.

4.3 Firm sales in regions perceived to be corrupt

My test of real effects looks at firm sales in regions where the corruption level is perceived to be high. Firms affected by anti-bribery regulation are expected to experience reduced sales in these regions subsequent to passage of the UK Bribery Act.

For UK firms and continental European firms, I obtain quarterly sales by geographic segment from Capital IQ. As firms do not report segments in a standardized way, I aggregate sales from *non-US, non-European* operations (see Footnote 39). I aggregate quarterly sales from non-US, non-European operations for three separate periods: prior to the Bribery Act's passage (*pre-event*, 2008Q2–2009Q1), after the Act's passage but before its enforcement (*mid-event*, 2009Q2–2011Q2), and subsequent to enforcement of the Act (*post-event*, 2011Q3–2012Q1).[42]

In terms of overall sales growth in high-corruption regions, UK firms suffer a competitive disadvantage with respect to their continental European counterparts. Between passage of the Act in March 2009 and its enforcement beginning July 2011, the foreign sales of UK firms increase by 0.4% (compared with pre-passage sales) whereas foreign sales of continental European firms increase by 6.4% over the same period. Once the Act is enforced, foreign sales soar for all firms (due in part to a change in

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[42] Data availability dictated that the post-event period not extend past 2012Q1 (i.e., the first quarter of 2012). In order to avoid capturing seasonal sales (earnings) effects arising from the inclusion of only three quarters in this period, I compute sales and earnings for the pre-event and mid-event periods based on the same three quarters (3rd, 4th, and 1st). There are few firms that make available both earnings and sales data, so it is not possible to determine whether anti-bribery regulation affects return on assets in regions perceived to have high levels of corruption.

International Financial Reporting Standards, IFRS 8, for geographic segment sales) but less so for those headquartered in the United Kingdom (Table X, Panel A).

[[INSERT Table X about Here]]

Moreover, UK firms that operate in more corrupt regions are more adversely affected post-event. For a balanced panel of 235 UK firms with geographic sales in corrupt regions reported over three periods, I run a panel regression with indicators for the mid-event and post-event period that are also interacted with *Corruption exposure* (Table X Panel B). These regressions include firm fixed effects as well as firm-level controls.

Both the *Mid-event* and *Post-event* dummy variables exhibit a positive but insignificant correlation with sales, in line with the previous result that UK sales increase (column [1] in Panel B). Yet I find that, already by the mid-event period, the sales of UK firms that operate in more corrupt regions are declining. Post-event, sales of these UK firms are even more affected. Mid-event, an increase of one standard deviation in *Corruption exposure* is associated with a sales reduction of 17.8pp ($= 27.4\% \times 0.65$); post-event, a 1-S.D. increase in *Corruption exposure* is associated with a 20.9pp ($= 32.2\% \times 0.65$) sales reduction.[43] Overall, the results in this section show that the UK Bribery Act has real effects on firms.

5. Spillovers on direct competitors in corrupt regions

Two types of competitors may be positively affected by the UK Bribery Act. First, as regulated firms decide to quit bribing or to quit perceivably corrupt regions, unregulated competitors' expected payoff from offering bribes may actually increase. Such competition effect is, for instance, predicted by first-price auction models with side payments and unilateral regulation (Beck and Maher 1989). Similarly, unregulated competitors that are subject to anti-bribery regulation already (e.g. through having US

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[43] There are only a few firms for which I can construct performance metrics (e.g., earnings/sales) for comparative purposes. This is because (i) not all firms report both geographic sales and geographic earnings in Capital IQ and (ii) firms that report both sales and earnings do not always report coherent geographic regions. For instance, a firm

operations) but nevertheless compete in corrupt regions may benefit because the UK Bribery Act moves competition closer to a level playing field. Thus, direct competitors of UK firms may be positively affected by the passage of the UK Bribery Act.

I test this prediction by focusing on all firms that have at least one subsidiary outside Western Europe, the US and Canada, Australia, New Zealand, and their respective home country.[44] 112 of the 645 UK firms and 523 of the 2,791 non-UK sample firms fulfill this criterion. Among non-UK firms, some compete directly with UK firms in corrupt regions in the sense that they (i) operate in the same industry as a UK firm and (ii) have at least one subsidiary in the same perceivably corrupt country as that same-industry UK firm. Of the 523 non-UK firms, 314 compete directly with UK firms by that definition. These firms should benefit more from the passage of the UK Bribery Act.

Table XI analyzes abnormal returns of direct competitors of UK firms around the passage of the Act and tests for differences. First, UK firms operating in corrupt regions experience negative abnormal returns of 1.40%, while their non-UK counterparts experience negative abnormal returns of just 0.38%. The difference is significant. Second, non-UK firms competing directly with UK firms experience negative abnormal returns of -.09%, significantly less than UK firms. Third, non-UK firms competing directly with UK firms are also less negatively affected than non-UK firms not competing directly with UK firms (-0.72%pts = -0.83%-(-0.09%)); the difference is significant at 10% level. Taken together, this suggests that direct competitors of regulated firms benefit from anti-bribery regulation. To verify that these results are not driven by outliers, I additionally test for differences in median.

[[INSERT Table XI about Here]]

As outlined above, two types of direct competitors may benefit from unilateral regulation: unregulated competitors and competitors that are subject to other anti-bribery regulation. I distinguish these types of competitors by identifying firms that are subject to the US Foreign Corrupt Practices Act, which was

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might report its sales in "UK" and in "Rest of the World" while reporting its earnings in "UK", "China", and "Europe and Rest of the World".

implemented in 1977 and has been enforced more recently over the past eight years. Sub-dividing my sample of direct competitors of UK firms into firms with at least one US subsidiary and firms without US subsidiary, I find that both types benefit from the UK Bribery Act relative to non-UK firms not directly competing with UK firms (Rows (v)-(x)).

6. Conclusion

It has been shown in the economics literature that corruption reduces growth in developing nations. In this paper, I study the supply side of bribes—specifically, the need of bribes for doing business. As a result of the passage of the UK Bribery Act, UK firms suffer a drop in firm value, which is driven by expanding their network of subsidiaries less into high-corruption regions than continental European competitors and suffering a reduction in sales growth in such regions. Firms that compete directly with UK firms by operating in the same industry and in the same specific perceivably corrupt country benefit from the Act's passage, warranting attention from policy makers and regulators.

The passage of the UK Bribery Act provides an empirical setting in which to study the effect of bribes on firm value as well as a range of related questions. First, unilateral anti-bribery regulation should affect contract allocation and, ultimately, welfare. Second, the potentially unlimited regulatory punishments that can be meted out under the UK Bribery Act should have implications for firm boundaries, such as decisions about whether or not to internalize customers and/or suppliers. I leave these questions for future research. The techniques and subsidiary data used in this paper are not limited to studying bribery; they can be readily applied to settings in which firms face unilateral regulation (e.g., on child labor), bilateral agreements (e.g., trade agreements), or other country-specific shocks (e.g., expropriation of multinational firms by local governments).

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[44] Removing tax havens and countries such as Singapore and Hong Kong does not affect my results.

Appendix: Brief Outline of UK Legislative Procedure

In the United Kingdom, a draft (bill) must go through various formal stages in the House of Lords (upper house of Parliament) and the House of Commons (lower house). Once the draft is passed in the same form by both houses, it receives Royal Assent (a formality) and becomes an official Act.[45] A timeline of events related to the UK Bribery Act 2010 is given in Table A1.

Table A1: Timeline of the Legislative Process of the UK Bribery Act 2010

Date	Stage
19 Nov. 2009	1st reading: House of Lords
9 Dec. 2009	2nd reading: House of Lords
7 Jan. 2010	1st sitting: House of Lords
13 Jan. 2010	2nd sitting: House of Lords
2 Feb. 2010	Report stage: House of Lords
8 Feb. 2010	3rd reading: House of Lords
9 Feb. 2010	1st reading: House of Commons
3 Mar. 2010	2nd reading: House of Commons Programme motion: House of Commons
16 Mar. 2010	1st sitting: House of Commons 2nd sitting: House of Commons
18 Mar. 2010	3rd sitting: House of Commons 4th sitting: House of Commons
23 Mar. 2010	5th sitting: House of Commons
7 Apr. 2010	Report stage: House of Commons 3rd reading: House of Commons
8 Apr. 2010	Ping pong: House of Lords/Commons Royal Assent

Legislation typically begins in the House of Lords. The 1st and 2nd readings in the House of Lords transpire in front of the (present) Lords; the 1st reading is without debate, but concerns can be raised during the 2nd reading. "Sittings" take place in committees of interested members of the House of Lords and are responsible for a detailed, line-by-line examination of the bill. Amendments are collected before sittings and are discussed and voted upon during the sitting. In a House of Lords sitting, the government is not allowed to restrict either the subjects discussed or the time spent in discussion. After sittings, the bill is printed with all agreed amendments and is moved to the report stage, during which any member of the House Lords can make further amendments and vote. The bill is "cleaned up" during the 3rd reading, whereafter it moves to the House of Commons. Here it follows the same steps, although sittings can face both subject and time restrictions. Once amended and voted on during the report stage, the bill is cleaned up and moves back to the House of Lords to ensure that its members agree on the amendments made by the House of Commons. "Ping-pong" is the procedure of moving a bill back and forth between both houses until they reach agreement on the exact wording. Royal Assent consists of the Monarch formally agreeing to turn the bill into an Act. If no agreement is reached between the two houses then the bill fails; however, it can be passed by the House of Commons using the Parliament Acts—that is, without consent of the House of Lords.

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

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Table I
Summary Statistics

This table provides summary statistics for UK firms and non-UK firms. In panel A, the sample consists of all publicly listed UK firms for which there is 2008 accounting data (*Worldscope*), 2008 subsidiary information (*Dun & Bradstreet's Who Owns Whom*), and return data (*Datastream*) such that abnormal returns on 25 and 26 March 2009 can be constructed. Cumulative abnormal returns (CAR) for firms over event windows [−20; −1], [0; 1], and [2; 20] around the event date are obtained from parameters of a four-factor Carhart (1997) model estimated over days [−294; −41]. CAR are winsorized at 1% and 99% level. The event date is 25 March 2009, which is when the draft of the UK Bribery Act was passed by the government commission and put forward by the Minister of Justice. *Sales outside Europe & the US* are annualized sales of all listed firms that reported sales by geographic segments in Capital IQ (accessed August 2012)—but only if segments could be unambiguously categorized as "outside Europe and outside the United States". *Ln(Tobin's Q)* is the natural logarithm of (1+(Equity Market Value + Market Value of Liabilities)/(Equity book value + Book value of liabilities)). *Gross margin* is gross profit over operating revenues (in %) where gross profit is net sales plus other revenues minus cost of goods sold. *Profit margin* is profit/loss before taxes divided by operating revenues (in %). *Corruption exposure* combines, for each firm, subsidiary data from Dun & Bradstreet's *Who Owns Whom 2008/2009 UK and Ireland* with Transparency International's Corruption Perceptions Index (CPI) for the year 2008. For each firm, *Corruption exposure* is the sum—over all countries—of the percentage of the firm's subsidiaries headquartered in the focal country in 2008 *multiplied by* the CPI of that country in 2008. The resulting sum is subtracted from 10 (the upper limit of the CPI) so that *Corruption exposure* will be increasing in firms' exposure to high-corruption regions. The count variable *#Subsidiaries* gives the number of subsidiaries reported by Dun & Bradstreet's *Who Owns Whom 2008/2009 UK and Ireland*. The *Market value* for 2008 is obtained from Datastream/Worldscope. Both *%CAPEX* and *%ROA* are for year 2008 and are scaled by total assets; these variables denote (respectively) capital expenditures and return on assets (i.e., earnings before interest and taxes). *US subsidiary* is a dummy variable set equal to 1 if a firm has at least one subsidiary on the US in 2008. *US cross-listing (ADR)* is a dummy variable set equal to 1 only if a firm was cross-listed (via an ADR) in the United States in March 2009 or in the prior two years. *FTSE4Good constituent* is a dummy set equal to 1 only if a firm was part of the FTSE4Good UK Index in 2008. Panel B shows summary statistics of non-UK firms by country. *CAR*[0; 1] are constructed as for UK firms but using local factors. *UK subsidiary* is a dummy set equal to 1 only if a firm has at least one subsidiary in the United Kingdom.

Panel A: UK firms

Variable	Mean	SD	Median	# Obs
Abnormal returns				
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
Accounting effects				
Tobin's Q	1.26	0.42	1.17	576
Gross Margin (%)	48.9%	23.6%	47.4%	529
Profit Margin (%)	7.3%	16.4%	7.4%	645
Corruption Exposure	2.47	0.65	2.30	645
Other Controls				
#Subsidiaries	59	114	19	645
Market Value ($mn)	4,580	17,140	472	645
CAPEX (% of Assets)	4.1%	5.0%	2.3%	645
%ROA	2.0%	11.9%	3.1%	645
US subsidiary	35%	48%	0%	645
US cross-listing (ADR)	23%	42%	0%	645
FTSE4GOOD constituent	33%	47%	0%	645

Panel B: Non-UK firms

Country	#Obs	CAR[0;1]	Corruption exposure	UK Subsidiary
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%
Total	**2 791**	**-0.04%**	**3.47**	**32%**

Table II
Corruption exposure and abnormal returns of UK Firms around passage of the UK Bribery Act

This table provides event study results for UK firms. Cumulative abnormal returns (*CAR [0; 1]*) for UK firms over event windows [0; 1] around the event date are regressed on *Corruption exposure* and controls to establish the main result. CAR[0;1] are obtained from parameters of a four-factor Carhart (1997) model estimated over days [−294; −41]. CAR are winsorized at 1% and 99% level. The event date is 25 March 2009, which is when the draft of the UK Bribery Act was passed by the 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 Corruption Perceptions Index (CPI) for the year 2008. For each firm, *Corruption exposure* is the sum—over all countries—of the percentage of the firm's subsidiaries headquartered in the focal country in 2008 *multiplied by* the CPI of that country in 2008. The resulting sum is subtracted from 10 (the upper limit of the CPI) so that *Corruption exposure* will be increasing in firms' exposure to high-corruption regions. *Log(#Subsidiaries)* is the log of the number of subsidiaries reported by Dun & Bradstreet's *Who Owns Whom 2008/2009 UK and Ireland*. Log(assets) is the logarithm of total assets in 2008. Both *%CAPEX* and *%ROA* are for year 2008 and are scaled by total assets. *US subsidiary* is a dummy variable set equal to 1 if a firm has at least one subsidiary on the US in 2008. *US cross-listing (ADR)* is a dummy variable set equal to 1 only if a firm was cross-listed (via an ADR) in the United States in March 2009 or in the prior two years. *FTSE4Good constituent* is a dummy set equal to 1 only if a firm was part of the FTSE4Good UK Index in 2008. The sample consists of all publicly listed UK firms for which there is 2008 accounting data (*Datastream/Worldscope*), 2008 subsidiary information (*Dun & Bradstreet's Who Owns Whom*), and return data (*Datastream*) such that abnormal returns on 25 and 26 March 2009 can be constructed. 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 United Kingdom. Columns [2], [3], [5], and [6] include industry fixed effects (Fama–French 48 industries). Standard errors are clustered at the industry level. *t*-statistics are given in parentheses. *, ** and *** denote significance at (respectively) the 10%, 5% and 1% level.

	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)	-0.731** (-2.29)	-0.670** (-2.24)	-0.853** (-2.35)	-0.829** (-2.22)
log(#Subsidiaries)			-0.564** (-2.37)			-0.431 (-1.30)
log(Assets)			0.304 (1.59)			0.296 (1.20)
%CAPEX			-4.399 (-0.89)			-5.894 (-0.86)
%ROA			3.197 (1.58)			4.248 (1.65)
US subsidiary			-0.284 (-0.49)			-0.710 (-1.08)
US cross-listing (ADR)			0.720 (1.16)			0.640 (0.81)
FTSE4GOOD constituent			0.567 (1.10)			0.876 (1.45)
Industry fixed effect (48FF)	No	Yes	Yes	No	Yes	Yes
N	645	645	645	416	416	416
Adj. R-square	0.005	0.024	0.038	0.009	0.030	0.043

Table III
Corruption exposure and abnormal returns of UK Firms around days with news on bribery

This table provides event study results for UK firms. Each row replicates the main specification of Table II (Column [3]) on a day with news concerning bribery regulation and the day thereafter. The left-hand side variable CAR is constructed as before and winsorized at 1% and 99% level on each event day. Events are derived from a Factiva search for "bribery" in UK newspapers; see text for exclusions. For each event, the table reports the coefficient for *Corruption exposure*. Besides the controls used in Table II Column [3], the stacked regressions also contain *FF48* fixed effects interacted with *Date* fixed effects. For the stacked regression with all events, values for *CAR*[0; 1] of events with the predicted positive direction are multiplied by −1. Standard errors are clustered at the firm level. *t*-statistics are given in parentheses. *, ** and *** denote significance at (respectively) the 10%, 5% and 1% level.

Date	Headline/Content	Source	Predicted Direction	Corruption Exposure
30/03/2000	OECD urges UK to toughen anti-bribery laws	The Guardian.	-	-0.06%
23/05/2000	UK government to announce new laws aimed at bribery crackdown	The Guardian; Financial Times.	-	-0.57%
21/06/2000	UK home secretary announces new anti-bribery law	The Independent; The Guardian.	-	-0.16%
09/11/2001	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%
02/09/2002	British anti-corruption plans branded toothless. Blair proposal wins backing of just five firms	The Guardian.	+	0.69%
25/03/2003	UK government issues draft corruption bill	WMRC Daily Analysis.	-	-0.90%*
01/08/2003	Corruption bill faces delay over loopholes	Financial Times.	+	0.48%
18/02/2004	UK government backtracks over bribery	Financial Times.	+	0.41%
09/12/2005	Corruption laws to be overhauled in the UK	Global Insight Daily Analysis.	-	-0.23%
19/11/2008	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%
20/07/2010	Clarke delays enforcement of bribery law	Financial Times.	+	0.22%
31/01/2011	UK delays enforcement of UK Bribery Act 2010 by 3 more months	The Wall Street Journal; Reuters.	+	-0.20%

Stacked Regressions

All events with positive direction			1	0.16%
All events with negative direction			-1	-0.72%***
All events				-0.37%***

Table IV
Spillovers of the UK Bribery Act 2010 on non-UK firms

The UK Bribery Act 2010 applies to non-UK firms with UK operations. This table relates cumulative abnormal returns of non-UK firms around passage of the Act to corruption exposure and UK subsidiaries. Panel A splits sample firms in terms of *Corruption exposure* and *UK subsidiary* and reports the *CAR*[0; 1] values of the equally weighted portfolios that are so created. *CAR*[0; 1] denotes cumulative abnormal returns (in %) on days [0; 1] around the event date of 25 March 2009, which is when the draft of the UK Bribery Act was passed by the government commission and put forward by the Minister of Justice. For each firm, CARs are obtained from Carhart (1997) models estimated over days [−294; −41] using local factors. CAR are winsorized at 1% and 99% level by country. *Corruption exposure* is increasing in firms' exposure to high-corruption regions and is constructed as described in Table I. *UK subsidiary* is a dummy set equal to 1 only if a firm has at least one subsidiary in the United Kingdom. *CAR[0;1]* are for all firms in column (i), for firms characterized by above- and below-median exposure to corruption in columns (ii) and (iii), for firms with and without a UK subsidiary in rows (2) and (3), and for the interaction of the two. Differences in CAR between subsamples are reported as well. Panels C extends the analysis of Panel B to a multivariate setting, additionally analyzing subsamples of firms from Western European countries and firms from Hungary, India, Poland, and Russia while controlling for log(#Subsidiaries), log(Assets), %CAPEX, and %ROA as well as for FF48 industry fixed effects (FF10 for Hungarian, Indian, Polish, and Russian firms) and country fixed effects. Standard errors are clustered at the industry and country level; *t*-statistics are given in parentheses. *, **, and *** denote significance at (respectively) the 10%, 5%, and 1% level.

Panel A: Sample split

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

Panel B: Multivariate analysis by region

	All non-UK Firms		Western European Firms		Indian, Russian, Polish, and Hungarian Firms	
	(1)	(2)	(3)	(4)	(5)	(6)
	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]
UK Subsidiary	-0.006	0.187*	-0.020	0.171	0.124	0.141
(=1 if firm has UK subsidiary)	(-0.08)	(1.74)	(-0.22)	(1.43)	(0.43)	(0.40)
High Corruption Exp.	-0.099		-0.135		0.179	
	(-1.26)		(-1.39)		(0.54)	
High Corr.Exp. x UK Subs. (i)		-0.313***		-0.343***		0.156
		(-3.17)		(-2.89)		(0.40)
High Corr.Exp. x No UK Subs. (ii)		0.110		0.079		0.194
		(1.05)		(0.64)		(0.51)
Constant & Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	48FF	48FF	48FF	48FF	10FF	10FF
	Country	Country	Country	Country	Country	Country
N	1392	1392	1187	1187	205	205
Adj. R-square	0.066	0.070	0.072	0.076	0.021	0.014
p-value for (i)=(ii)		0.002		0.005		0.925

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Table V
Corruption exposure and Tobin's Q around passage of the UK Bribery Act 2010

This table establishes whether the UK Bribery Act had long-run firm value implications. Firm value is measured using Tobin's Q, the natural logarithm of (1+(Equity Market Value + Market Value of Liabilities)/(Equity book value + Book value of liabilities)). In Panel A, the sample is unbalanced and comprises all publicly listed UK firms for which respective accounting items are available in Worldscope. All regressions include mid-event dummies equal to 1 for accounting data reported from III/2009 until II/2011 and post-event dummies equal to 1 for accounting data reported after II/2011, the interaction of Corruption Exposure (constructed as in Table I) and these event period dummies, log of assets, and firm fixed effects. Standard errors are clustered at the year level. Panel B follows Panel A but compares UK firms to continental European firms. In addition to the previous controls, Mid Event and Post Event are interacted with UK firm (a dummy set equal to 1 if a firm is headquartered in the UK) and with both UK firm and Corruption exposure. Standard errors are clustered at the year and country level. In both panels, *t*-statistics are given in parentheses. *, ** and *** denote significance at (respectively) the 10%, 5% and 1% level.

Panel A: UK firms

	All UK Firms		**All UK Firms with Foreign Subsidiary**	
	(1) Ln(Tobin's Q)	(2) Ln(Tobin's Q)	(3) Ln(Tobin's Q)	(4) Ln(Tobin's Q)
Mid-Event	-0.064	-0.005	-0.059	0.018
(=1 if 2009-2010)	(-1.17)	(-0.08)	(-1.02)	(0.29)
Mid-Event		-0.024**		-0.030***
x Corruption Exposure		(-2.68)		(-3.25)
Post-Event	-0.038	0.067	-0.020	0.120
(=1 if 2011-2012)	(-0.58)	(0.92)	(-0.31)	(1.74)
Post-Event		-0.043***		-0.055***
x Corruption Exposure		(-3.76)		(-5.20)
Ln(Assets)	-0.019	-0.016	-0.005	-0.003
	(-0.75)	(-0.68)	(-0.17)	(-0.09)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	4968	4968	3074	3074
Adj. R2	0.681	0.682	0.684	0.686

Panel B: UK firms and continental European firms

	All Firms		All Firms with Foreign Subsidiary	
	(1) Ln(Tobin's Q)	(2) Ln(Tobin's Q)	(3) Ln(Tobin's Q)	(4) Ln(Tobin's Q)
Mid-Event	-0.056	-0.059	-0.048	-0.065
(=1 if 2009-2010)	(-1.16)	(-1.08)	(-0.95)	(-1.50)
Mid-Event x UK Firm	-0.019	0.051	-0.018	0.081**
	(-1.14)	(1.60)	(-1.08)	(2.85)
Mid Event		0.001		0.006
x Corruption Exposure		(0.25)		(1.03)
Mid Event x UK Firm		-0.028**		-0.038***
x Corruption Exposure		(-2.79)		(-5.41)
Post-Event	-0.082	-0.089	-0.081	-0.060
(=1 if 2009-2010)	(-1.60)	(-1.58)	(-1.51)	(-1.30)
Post-Event x UK Firm	0.027	0.144***	0.051**	0.175***
	(1.16)	(3.30)	(2.63)	(5.60)
Post Event		0.003		-0.007
x Corruption Exposure		(0.56)		(-1.16)
Post Event x UK Firm		-0.047***		-0.049***
x Corruption Exposure		(-3.52)		(-6.22)
Ln(Assets)	0.017	0.018	0.018	0.018
	(0.73)	(0.74)	(0.64)	(0.66)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	26089	26089	20314	20314
Adj. R2	0.694	0.694	0.702	0.702

Table VI
Robustness tests of event study results

This table presents a range of robustness tests. Panel A relates cumulative abnormal returns of UK firms, around passage of the Act, 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 with at least one subsidiary outside the United Kingdom. The setup matches the one in column [3] of Table II. *Corruption exposure* is interacted with the presence or absence of a *US cross-listing* in columns [1] and [4], with a dummy equal to one if a firm is a *FTSE4Good constituent* in columns [2] and [4], and with a firm operating in an industry that is concentrated as defined by having a Herfindahl index above median. Panel B constitutes a robustness check for the main result using alternative event windows around the event date (columns [1] and [2]), before the event date (columns [3] and [4]), and after the event date (column [5]). The setup matches the original one (see column [3] of Table II) except for the dependent variable, which now becomes the cumulative abnormal returns for the windows [−1; +1], [−20; −1], [−2; −1], and [+2; +20]. The event date (day 0) is 25 March 2009, which is when the draft of the UK Bribery Act was passed by the government commission and put forward by the Minister of Justice. For comparison, results of the original setup are shaded (column [2]). For brevity, only the key explanatory variable, *Corruption exposure*, is reported. Panel C is a robustness check for the main result for *CAR*[0; 1] using an alternative measure of *Corruption exposure*. The setup matches the original one (Table II, column [3]) except that the control variable, *Corruption exposure* is now measured in terms of geographic revenues (obtained from Capital IQ but reported by only a subset of the sample firms). The variables *%Revenue US*, *%Revenue Europe, non-UK*, and *%Revenue non-US, non-Europe* measure the percentage of a firm's overall revenues that come (respectively) from the United States, from Europe (excluding the United Kingdom), and from non-US, non-European countries. Standard errors are clustered at the industry level; *t*-statistics are given in parentheses. Panel D extends the analysis of non-UK firms (Table III) to a sample split into firms with US subsidiary and firms without US subsidiary, respectively, while controlling for log(#Subsidiaries), log(Assets), *%CAPEX*, and *%ROA* as well as for FF48 industry fixed effects and country fixed effects. Standard errors are clustered at the industry and country level; *t*-statistics are given in parentheses. In all panels, CAR are winsorized at 1% and 99% level. *, **, and *** denote significance at (respectively) the 10%, 5%, and 1% level.

Panel A: Cross-sectional characteristics

	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 US Cross-listing (ADR)	-0.781** (-2.45)			-0.882** (-2.37)		
Corruption Exposure x US Cross-listing (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
N	645	645	645	416	416	416
Adj. R-square	0.036	0.037	0.038	0.039	0.043	0.042

Panel B: 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
N	645	645	645	645	645
R2	0.034	0.038	0.097	0.032	0.017

Panel C: 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
N	430
R-square	0.078

Panel D: Multivariate analysis by US subsidiary

	Non-UK Firms with US Subsidiary		Non-UK Firms without US Subsidiary	
	(1)	(2)	(3)	(4)
	CAR[0;1]	CAR[0;1]	CAR[0;1]	CAR[0;1]
UK Subsidiary	0.107	0.218	0.052	0.260**
(=1 if firm has UK subsidiary)	(0.45)	(0.89)	(0.91)	(2.31)
High Corruption Exp.	-0.199*		0.012	
	(-1.89)		(0.14)	
High Corr. Exp. x UK Subs. (i)		-0.252*		-0.346**
		(-1.81)		(-2.51)
High Corr. Exp. x No UK Subs. (ii)		-0.066		0.206*
		(-0.36)		(1.91)
Constant & Controls	Yes	Yes	Yes	Yes
Fixed Effects	48FF	48FF	48FF	48FF
	Country	Country	Country	Country
N	555	555	837	837
Adj. R-square	0.108	0.107	0.040	0.046
p-value for (i)=(ii)		0.437		0.021

Table VII
Long-run implications of the UK Bribery Act for UK firms

This table establishes whether the UK Bribery Act had long-run implications using firm-level accounting data. The sample is unbalanced and comprises all publicly listed UK firms that report respective accounting items in Datastream/Worldscope. All regressions include mid-event dummies equal to 1 for accounting data reported from III/2009 until II/2011 and post-event dummies equal to 1 for accounting data reported after II/2011, the interaction of Corruption Exposure (constructed as in Table I) and these event period dummies, log of assets, and firm fixed effects. In Panel A, the dependent variable ln(Sales) is the natural logarithm of sales and ln(Cost of Goods Sold) is the natural logarithm of costs of goods sold. *Gross margin(%)* is gross profit over operating revenues where gross profit is net sales plus other revenues minus cost of goods sold. *Profit margin(%)* is profit/loss before taxes divided by operating revenues. In Panel B, *Net cost of goods sold(%)* and *R&D(%)* are scaled by operating revenues (these two items are a breakdown of changes in the gross margin hence expressed as a fraction of operating revenues). *Depreciation over assets(%)* and *Capex over assets(%)* are depreciation, amortization & depletion and net additions to fixed assets over total assets. Standard errors are clustered at the year level, and *t*-statistics are given in parentheses. *, ** and *** denote significance at (respectively) the 10%, 5% and 1% level.

Panel A: Sales, cost of goods sold and performance ratios

	(1) Ln(Sales)	(2) Ln(Cost of Goods Sold)	(3) Gross margin (%)	(4) Profit margin (%)
Mid-Event (=1 if 2009-2010)	0.001 (0.03)	-0.254 (-1.25)	-0.463 (-0.41)	0.036 (0.01)
Mid-Event x Corruption Exposure	0.007 (1.07)	0.080 (0.96)	0.121 (0.28)	-0.763 (-0.93)
Post-Event (=1 if 2011-2012)	0.061 (1.25)	-0.084 (-0.59)	0.965 (0.46)	4.926* (1.74)
Post-Event x Corruption Exposure	0.008 (1.17)	0.041 (0.67)	-0.443 (-0.55)	-2.496* (-1.95)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	8236	7200	6834	7074
Adj. R2	0.854	0.828	0.817	0.477

Panel B: Cost structure

	(1) Cost of goods sold (% of sales)	(2) R&D (% of sales)	(3) Depreciation (% of assets)	(4) Capex (% of assets)
Mid-Event (=1 if 2009-2010)	0.144 (0.11)	-0.371 (-1.27)	(-0.30)	-0.888* (-1.83)
Mid-Event x Corruption Exposure	0.080 (0.17)	0.186* (1.86)	0.155 (1.67)	-0.114 (-0.48)
Post-Event (=1 if 2011-2012)	-1.308 (-0.64)	-0.766** (-2.53)	-0.482 (-0.88)	-0.356 (-0.53)
Post-Event x Corruption Exposure	0.634 (0.79)	0.301** (2.73)	0.374* (1.92)	-0.260 (-1.00)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	6862	7812	7926	4795
Adj. R2	0.794	0.716	0.573	0.648

Table VIII
Robustness to long-run implications: UK firms and continental European firms

This table follows Table VII in establishing whether the UK Bribery Act had long-run implications using firm-level accounting data. The sample is unbalanced and constructed from all publicly listed continental European and UK firms that report respective accounting items in Datastream/Worldscope. In addition to the controls in Table VII, Mid Event and Post Event are interacted with UK firm (a dummy set equal to 1 if a firm is headquartered in the UK) and with both UK firm and Corruption exposure. All regressions include firm fixed effects. Standard errors are clustered at the year and country level, and *t*-statistics are given in parentheses. *, ** and *** denote significance at (respectively) the 10%, 5% and 1% level.

Panel A: Sales, cost of goods sold and performance ratios

	(1) Ln(Sales)	(2) Ln(Cost of Goods Sold)	(3) Gross margin (%)	(4) Profit margin (%)
Mid-Event	0.162**	-0.013	2.318***	-2.522*
(=1 if 2009-2010)	(2.87)	(-0.42)	(3.56)	(-2.13)
Mid-Event x UK Firm	-0.195***	-0.266	-1.960	3.265
	(-8.20)	(-1.34)	(-1.41)	(1.71)
Mid Event	0.005	0.009	-0.543**	0.121
x Corruption Exposure	(0.98)	(1.16)	(-2.39)	(1.11)
Mid Event x UK Firm	-0.002	0.063	0.384	-1.237
x Corruption Exposure	(-0.25)	(0.76)	(0.77)	(-1.63)
Post-Event	0.188***	-0.032	3.040***	-1.299
(=1 if 2009-2010)	(3.26)	(-1.10)	(7.10)	(-1.45)
Post-Event x UK Firm	-0.173***	-0.080	-1.451	6.846**
	(-6.95)	(-0.56)	(-0.67)	(2.23)
Post Event	-0.000	0.027***	-0.901***	-0.463***
x Corruption Exposure	(-0.01)	(3.18)	(-5.90)	(-4.68)
Post Event x UK Firm	0.004	0.002	0.267	-2.424*
x Corruption Exposure	(0.54)	(0.03)	(0.35)	(-1.94)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	41470	37514	35863	36863
Adj. R2	0.991	0.890	0.826	0.491

Panel B: Cost structure

	(1) Cost of goods sold (% of sales)	(2) R&D (% of sales)	(3) Depreciation (% of assets)	(4) Capex (% of assets)
Mid-Event	-2.422***	-0.062	0.659**	-1.015***
(=1 if 2009-2010)	(-3.71)	(-0.64)	(2.55)	(-9.18)
Mid-Event x UK Firm	1.662	-0.485	-0.709***	0.145
	(1.13)	(-1.36)	(-3.07)	(0.26)
Mid Event	0.631**	0.032	-0.109***	-0.121*
x Corruption Exposure	(2.83)	(1.58)	(-3.96)	(-2.07)
Mid Event x UK Firm	-0.228	0.173	0.267***	-0.013
x Corruption Exposure	(-0.43)	(1.41)	(3.58)	(-0.06)
Post-Event	-3.185***	-0.094	0.618**	-0.538***
(=1 if 2009-2010)	(-8.60)	(-0.98)	(2.65)	(-5.09)
Post-Event x UK Firm	1.142	-0.890**	-0.994	0.168
	(0.55)	(-2.71)	(-1.76)	(0.25)
Post Event	0.950***	0.033	-0.082***	-0.274***
x Corruption Exposure	(6.87)	(1.56)	(-4.28)	(-4.01)
Post Event x UK Firm	-0.067	0.294**	0.457**	-0.005
x Corruption Exposure	(-0.09)	(2.56)	(2.25)	(-0.02)
Firm Fixed Effects	Yes	Yes	Yes	Yes
N	35839	39645	39515	26515
Adj. R2	0.822	0.763	0.584	0.597

Table IX
Table IX
Implications of the Act for subsidiaries in corrupt regions

This table shows the evolution of firms' exposure to corrupt regions around the passage of the UK Bribery Act. Panel A reports the mean *Corruption exposure* for UK Firms and continental European firms in 1998, 2008 (before the Act was passed), and in 2013 (once the Act was in force). Continental European firms are further split into firms with and without UK subsidiary (defined as firms with at least one and no subsidiary in the UK in 1998, respectively), firms with and without US subsidiary (defined as firms with at least one and no subsidiary in the US in 1998, respectively), and firms with neither UK nor US subsidiary in 1998. Panel B reports changes in corruption exposure from 1998 to 2008 (i.e. the time period before the passage of the UK Bribery Act) and from 2008 to 2013 (i.e. the time period after the passage of the UK Bribery Act) for each group of firms. A positive value indicates that a group of firms has become more exposed to corrupt regions on average. Panel C compares the changes in corruption exposure of each group of firms to the changes in corruption exposure of UK firms before the passage of the Act (1998-2008) and after the passage of the Act (2008-2013), respectively. A positive value indicates that a group of continental European firms has become more exposed than UK firms over the respective time period. Panel D reports whether the difference in difference. *, **, and *** denote significance at (respectively) the 10%, 5%, and 1% level.

	Panel A Corruption Exposure Levels over Time			Panel B Difference within Groups across Time		Panel C Difference between UK firms and non-UK firms across Time			Panel D Diff-in-Diff
	1998	2008	2013	1998-2008	2008-2013		1998-2008	2008-2013	(b)-(a)
(i) UK Firms	2.357	2.832	2.926	0.475***	0.094		(a)	(b)	
(ii) EU Firms	2.517	2.861	3.080	0.344***	0.219***	(ii)-(i)	-0.131	0.126	0.257*
EU Firms…									
(iii) without UK subsidiary	2.515	2.800	3.229	0.285***	0.428***	(iii)-(i)	-0.190*	0.335**	0.525***
(iv) with UK subsidiary	2.520	2.918	2.801	0.399***	-0.110**	(iv)-(i)	-0.076	-0.204**	-0.128**

Table X

Implications of the Act for Sales outside Europe and outside the US

This table establishes real effects of the Act for firms' annual sales outside Europe and outside the United States. Panel A reports the evolution of sales for all sample firms as well as for firms split into UK and non-UK groups. Annualized sales are reported for three distinct periods as described in the text. The sample is unbalanced and constructed from all listed firms that reported sales by geographic segments in Capital IQ (accessed August 2012)—but only if segments could be unambiguously categorized as "outside Europe and outside the United States". Panel B examines implications of the Act for UK firm sales as a function of *Corruption exposure* in a multivariate setting. The dependent variable is the log of the focal firm's mean sales outside the United States and outside Europe, constructed as the quarterly mean in each of the indicated periods. Each firm is thus represented by three observations. *Mid-event* and *Post-event* are dummy variables set equal to 1 only if an observation occurs in the respective period; *Corruption exposure* is constructed as in Table I and is increasing in firms' exposure to high-corruption regions. Standard errors are clustered at the firm level, and *t*-statistics are given in parentheses. ** and *** denote significance at (respectively) the 5% and 1% level.

Panel A: Evolution of sales over time

	Pre-Event (III/08-I/09)	Mid-Event (II/09-II/11)	Post-Event (III/11-I/12)
Sales outside Europe and outside the US (in $mn per annum)			
All Sample Firms	474.5	498.5	695.6
Non-UK Firms	371.2	394.8	556.8
UK Firms	103.3	103.7	138.8
Sales growth			
All Sample Firms		5.1%	39.5%
Non-UK Firms		6.4%	41.0%
UK Firms		0.4%	33.8%

Panel B: Corruption exposure and sales of UK Firms

	(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
N	705	705
Adj. R2	0.950	0.951

Table XI
Spillovers of the UK Bribery Act on direct competitors of UK firms

This table analyzes cumulative abnormal returns of firms operating in corrupt regions. The sample consists of all UK and non-UK firms used in Tables II and III with the restriction that they have to have at least one subsidiary outside Western Europe, the US, Canada, Australia, New Zealand, and their respective headquarter country. The dependent variable is cumulative abnormal return *CAR*[0; 1] calculated on days [0; 1] around the event date of 25 March 2009 on the bases of Carhart (1997) models estimated over days [−294; −41] using local factors. CAR are winsorized at 1% and 99% level. Reported are summary statistics of CAR[0;1] for firms headquartered in the UK and firms headquartered outside the UK. Firms headquartered outside the UK are split further into firms that compete directly with UK firms in corrupt regions and those that do not. Non-UK firms that compete directly with UK firms in corrupt regions are defined as firms (i) operating in the same industry as a UK firm <u>and</u> (ii) having at least one subsidiary in the same perceivably corrupt country as a UK firm. Perceivably corrupt countries are countries excluding Western European countries, the US, Canada, Australia, New Zealand, and firms' respective headquarter countries. Non-UK firms are further split into firms with at least one US subsidiary (a proxy for being subject to the US Foreign Corrupt Practices Act) and firms with no US subsidiary. Also reported are differences in mean (with significance of t-test) and median (with significance of Pearson's chi-squared test) for various groups compared to UK firms. *, **, and *** denote significance at (respectively) the 10%, 5%, and 1% level.

	Mean	Median	SD	Obs	Diff	Mean		Median	
(i) UK firms	-1.40%	-1.46%	5.20%	110					
(ii) non-UK firms	-0.38%	-0.42%	4.90%	523	(ii)-(i)	1.02%	*	1.04%	**
(iii) thereof direct competitors of UK firms	-0.09%	-0.21%	4.77%	314	(iii)-(i)	1.31%	**	1.25%	***
(iv) thereof not direct competitors of UK firms	-0.83%	-0.93%	5.08%	209	(iv)-(i)	0.57%		0.53%	
(v) non-UK firms with US subsidiary	-0.36%	-0.49%	4.70%	338	(v)-(i)	1.04%	*	0.97%	**
(vi) thereof direct competitors of UK firms	-0.12%	-0.27%	4.57%	226	(vi)-(i)	1.28%	**	1.19%	**
(vii) thereof not direct competitors of UK firms	-0.83%	-1.29%	4.93%	112	(vii)-(i)	0.57%		0.17%	
(viii) non-UK firms without US subsidiary	-0.43%	-0.28%	5.27%	185	(viii)-(i)	0.97%		1.18%	
(ix) thereof direct competitors of UK firms	-0.01%	0.30%	5.26%	88	(ix)-(i)	1.39%	*	1.76%	**
(x) thereof not direct competitors of UK firms	-0.82%	-0.73%	5.27%	97	(x)-(i)	0.58%		0.73%	

Figure I
Recent history of UK anti-bribery regulation

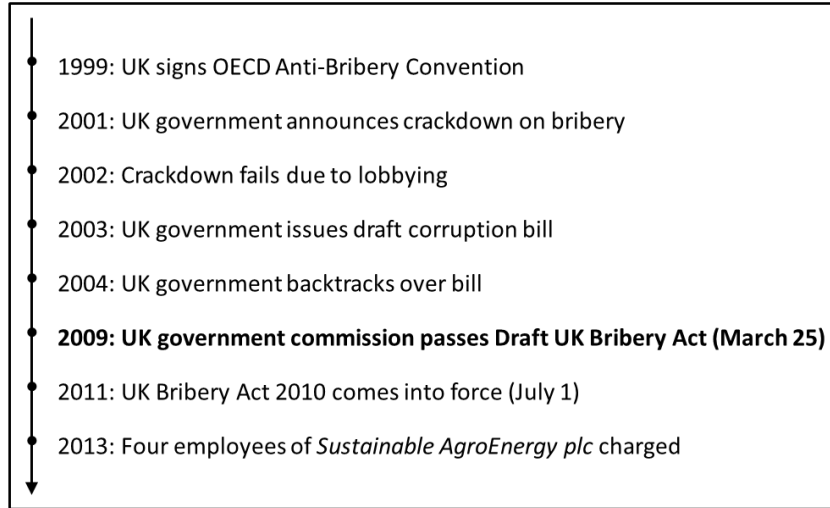This figure shows the timing of recent events associated with anti-bribery regulation in the United Kingdom.

1999: UK signs OECD Anti-Bribery Convention

2001: UK government announces crackdown on bribery

2002: Crackdown fails due to lobbying

2003: UK government issues draft corruption bill

2004: UK government backtracks over bill

2009: UK government commission passes Draft UK Bribery Act (March 25)

2011: UK Bribery Act 2010 comes into force (July 1)

2013: Four employees of *Sustainable AgroEnergy plc* charged

Figure II

Number of newspaper articles addressing bribery regulation around passage of the UK Bribery Act 2010

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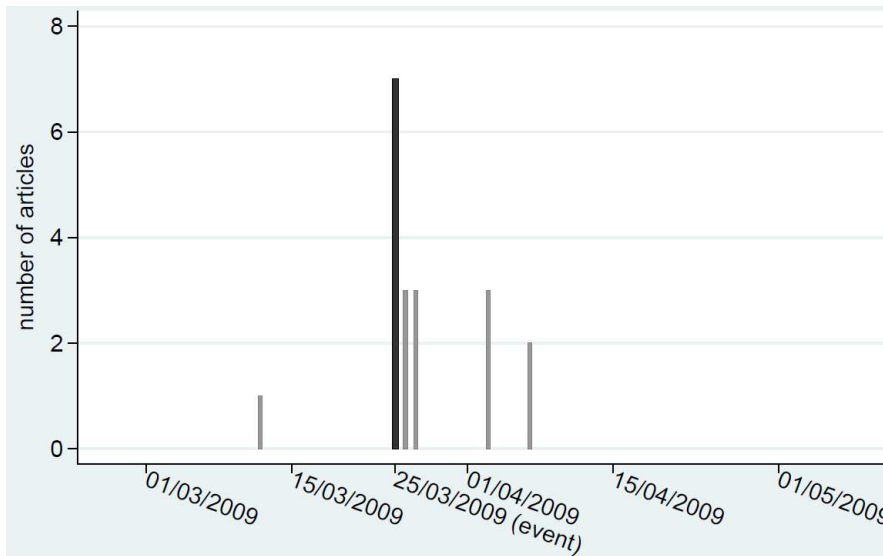
Figure III

Abnormal returns by industry around passage of the UK Bribery Act 2010

This figure plots the average industry cumulative abnormal returns of UK firms around passage of the UK Bribery Act (*y*-axis) against industry corruption levels (*x*-axis). The event date is 25 March 2009, which is when the draft of the Act was passed by the government commission and put forward by the Minister of Justice. The variable *CAR*[0; 1] is averaged by (FF48) industry. Industry corruption levels are obtained from the 2009 edition of the EBRD–World Bank *Business Environment and Enterprise Performance Survey* (BEEPS), which was conducted in 2008–2009 among 11,800 firms from 29 Eastern European and Asian countries. See text for additional survey details. Respondents provide primary SIC codes, which are converted into the Fama–French industry classifiers.

Figure IV

Regulatory enforcement and effect of the UK Bribery Act 2010 on non-UK firms

This figure plots the level of regulatory enforcement in the headquarter country of non-UK firms (*x*-axis) against the effect of the Act on non-UK firms in that country (*y*-axis). The figure augments Panel B of Table III by calculating, country by country, the difference-in-differences in cumulative abnormal returns (CARs) between non-UK firms with and without a UK subsidiary and with high versus low exposure to corruption. Thus, the *y*-axis reflects CAR (in %) of a portfolio of non-UK firms with at least one UK subsidiary and with high exposure to corrupt regions relative to a portfolio of similar firms but with low exposure to corrupt regions; deducted from this difference in CAR is the difference in CAR between a portfolio of firms *without* a UK subsidiary and with high corruption exposure and a portfolio of similar firms but low corruption exposure. The CAR values are calculated on days [0; 1] around the event date of 25 March 2009, which is when the draft of the UK Bribery Act was passed by the government commission and put forward by the Minister of Justice. For each firm, cumulative abnormal returns are obtained from Carhart (1997) models estimated over days [−294; –41] using local factors. The *Corruption exposure* variable is constructed as described in Table I. The *Regulatory enforcement* variable is a sub-measure of the WJP Rule of Law Index provided by the World Justice Project; the components of this index are spelled out in the text.

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