DBJ Discussion Paper Series, No. 1803

The Deterrent Effect of Anti-Bribery Law Enforcement on the Quality of Earnings

Pramuan Bunkanwanicha
(ESCP Europe)
Olivier Greusard
(ESCP Europe)

February 2019

The Deterrent Effect of Anti-Bribery Law Enforcement on the Quality of Earnings

Pramuan Bunkanwanicha[†]
Olivier Greusard[‡]

This version: February 8, 2019

Abstract

This paper studies the effect of anti-bribery enforcement on the accrual quality of investigated firms and their peers. We analyze a hand-collected sample of 241 bribery cases investigated under the US Foreign Corruption Practices Act (FCPA) over the period 1978-2015. Exploiting the disclosure of anti-bribery law enforcement actions, we document a positive effect on the accrual quality of investigated firms' peers, but not the investigated firms themselves. Additional tests document that this positive effect is significant only for cases revealed before 2005, when the prosecutors developed their enforcement activity and the use of alternative resolution vehicles. Our results show a positive impact of anti-bribery law enforcement that incentivizes peer firms to enhance their accrual quality once they acknowledge bribing behavior in their industry.

Keywords: Corruption, Anti-bribery Laws, Accrual Quality, Deterrent Effect

JEL Classification: F23, G30, G38, K42, M41, M48

We thank the Laboratory of Excellence for Financial Regulation (LabEx-ReFi) for financial support. We also thank Edith Ginglinger, Clifford G. Holderness, Seraina C. Anagostopoulou, Shyam Sunder, Gerard Hertig, Léah Ambler (OECD), José Martin Flores, Arthur Petit-Romec, Andrew Zylstra, PhD students from ESCP Europe and Labex ReFi, all Professors from ESCP Europe. We finally thank 13th Annual Conference on Empirical Legal Studies (CELS) in Ann Arbor, Michigan, at the University of Michigan Law School, 35th Annual Conference of the French Finance Association (AFFI) in Paris at ESCP Europe, 41st Annual Congress of European Accounting Association (EAA) in Milan at Bocconi University, and all Public Authority and Finance International Conference 2017 participants in Paris as well as LabEx ReFi PhD seminar participants for their comments. Parts of this paper were written when Pramuan Bunkanwanicha was a Shimomura Fellow at Development Bank of Japan in July-August 2018.

[†] - ESCP Europe – Email: pbunkanwanicha@escpeurope.eu

[‡] - ESCP Europe – Email : olivier.greusard@edu.escpeurope.eu

The Deterrent Effect of Anti-Bribery Law Enforcement on the Quality of Earnings

This version: February 8, 2019

Abstract

This paper studies the effect of anti-bribery enforcement on the accrual quality of investigated firms and their peers. We analyze a hand-collected sample of 241 bribery cases investigated under the US Foreign Corruption Practices Act (FCPA) over the period 1978-2015. Exploiting the disclosure of anti-bribery law enforcement actions, we document a positive effect on the accrual quality of investigated firms' peers, but not the investigated firms themselves. Additional tests document that this positive effect is significant only for cases revealed before 2005, when the prosecutors developed their enforcement activity and the use of alternative resolution vehicles. Our results show a positive impact of anti-bribery law enforcement that incentivizes peer firms to enhance their accrual quality once they acknowledge bribing behavior in their industry.

Keywords: Corruption, Anti-bribery Laws, Accrual Quality, Deterrent Effect

JEL Classification: F23, G30, G38, K42, M41, M48

1 - Introduction

Anti-bribery law enforcement activity is becoming an important parameter for regulators and for companies that do business abroad. Since the OECD Anti-Corruption Convention came into force in 1999, 43 countries have ratified the document. At a national level, several countries like the United Kingdom[1] and France[2] recently passed new laws in order to develop anti-bribery enforcement activity. The USA was a forerunner in the field, as the Foreign Corrupt Practices Act (FCPA), the U.S. anti-bribery law, was passed in 1977 and remained the only anti-bribery law in the world for decades. U.S. anti-bribery enforcement activity remained quite sporadic until it became a priority for the U.S. law enforcement agencies in the 2000s (Karpoff, Lee, & Martin, 2012). Out of 150 enforcement actions in our sample for the period 1978-2015, 78% were enforced after the beginning of 2007. This recent development of anti-bribery enforcement activity over the last decade creates a new field for analysis on whether more activity by the regulator leads to a change in the behavior of targeted firms, but also their peers, due to a deterrent effect of anti-bribery law enforcement.

In this paper, we investigate the quality of the accounting information of bribe-paying firms and their competitors. Using a difference-in-differences approach, we test whether FCPA enforcement generates a deterrent effect and leads to a change in the behavior of firms, proxied by their Accrual Quality. Following the modified Dechow Dichev model, we calculate the volatility of discretionary accruals over two three-year periods (3 years before the acknowledgment year and 3 years after) and use it as our main measure of Accrual Quality. We document a positive effect on the quality of the accounting information of bribe-paying firms' competitors, but not the bribe-paying firms themselves. Additional tests document that this positive effect is stronger for cases revealed in the last decade (in or after

[1] See U.K Bribery Act: https://www.legislation.gov.uk/ukpga/2010/23
[2] See Loi Sapin II: https://www.legifrance.gouv.fr/eli/loi/2016/12/9/ECFM1605542L/jo/texte

2005) when enforcement became a priority of prosecutors, symbolized by a higher number of cases and a broader choice of resolution vehicles, with the possibility to use Non or Deferred Prosecution Agreements (NPAs/DPAs) in addition to the already existing PAs (Plea Agreements).

Our paper is one of the first, to our knowledge, to use the volatility of discretionary accruals as a proxy of materiality to test for a change in the Accrual Quality of bribing firms and their peers. Where other papers integrate different sources from Securities and Exchange Commission (SEC) enforcement and private class actions, this paper focuses on FCPA enforcement and de facto includes Department of Justice (DOJ) enforcement under FCPA and SEC FCPA enforcement, even though the two prosecutors tend to work more and more in collaboration on FCPA cases. This paper also uses an updated database of enforced cases up to 2015, reflecting the increase in enforcement activity over the last decade. Our paper contributes to the literature on the deterrent effect of the law by showing that the acknowledgment of bribing behavior that enters into the scope of FCPA leads to a significant increase in the Accrual Quality of peers, while no significant change is observed for targeted firms. These results suggest a positive deterrent effect of law enforcement for peers only.

The development of anti-bribery enforcement activity in the last decade has been accompanied by more and more publicity on the revelation date by prosecutors, the DOJ and the SEC, and higher levels of fines at the settlement date. The Siemens AG case seems to have been a "catalyst case" in this respect. In 2008, Siemens AG and three subsidiaries pleaded guilty to FCPA violations for what was for a long time the highest penalty paid to the DOJ and SEC in an FCPA case.[3] The coordinated enforcement action by the DOJ, SEC and German authorities resulted in $1.6 billion in fines, penalties and disgorgement of profits. The prosecutor said in the press release: "Today's announcement of the guilty pleas entered by

[3] Siemens is number one in the Top Ten List of Corporate FCPA Settlements for the period of our study (1978-2015)

Siemens AG and several of its regional companies reflects the FBI's dedication to enforce the provisions of the Foreign Corrupt Practices Act. Simply stated, it is a federal crime for U.S. citizens and companies traded on U.S. markets to pay bribes in return for business."[4]

In 2009, Kellogg Brown & Root LLC (KBR) and its former parent company, Halliburton Company, pleaded guilty and agreed to pay $579 million for their decade-long scheme to bribe Nigerian government officials to obtain engineering, procurement and construction contracts. The Acting Assistant Attorney General Rita M. Glavin of the Criminal Division commented that "the successful prosecution of KBR (…) demonstrates that no one is above the law, and that the Department is determined to seek penalties that are commensurate with, and will deter, this kind of serious criminal misconduct". FBI Special Agent Andrew R. Bland III added, "this case, which represents the second largest fine ever in an FCPA prosecution, demonstrates the FBI's continued commitment to aggressively investigate violations of the law. We will continue to investigate these matters (…) to ensure that corporate executives who have been found guilty of bribing foreign officials in return for lucrative business contracts, are punished to the full extent of the law."[5] The updated "Top Ten" enforcement actions of all time, published by the FCPA blog in 2017, reveals that all of the ten highest FCPA settlements occurred between 2008 and 2017,[6] confirming the willingness of the two prosecutors, the DOJ and the SEC, to rise to a new level in FCPA enforcement.

In 2002, in the aftermath of the Enron case, the collapse of Arthur Andersen caused the DOJ to reconsider its traditional approach to resolving alleged instances of corporate criminal liability, as criminal charges alone could be a death sentence for a business organization (Koehler, 2015). The DOJ implemented new vehicles in 2004 for the resolution

[4] See full DOJ Press Release https://www.justice.gov/archive/opa/pr/2008/December/08-crm-1105.html
[5] See full DOJ Press Release https://www.justice.gov/opa/pr/kellogg-brown-root-llc-pleads-guilty-foreign-bribery-charges-and-agrees-pay-402-million
[6] See http://www.fcpablog.com/blog/2017/9/22/telia-tops-our-new-top-ten-list-after-we-do-some-math.html

of enforcement, called NPAs and DPAs. The use of these new resolution vehicles as a potential alternative to PAs (Plea Agreements) also accelerated the publicity generated around an FCPA investigation.

The sharp rise in enforcement cases, the new scale of fines in the last decade, and the use of new vehicles for resolution since December 2004 make the FCPA a useful framework to analyze the impact of law enforcement on the behavior of firms. It is also a stable framework, as the main provisions of the law have remained unchanged since 1978 and no private action is possible, as only the DOJ and the SEC share FCPA enforcement authority.[7]

In the same vein as Shleifer and Vishny (1993) and Rose Ackerman (2010), who suggested that public policy should seek to discourage bribery because it is detrimental to growth, the previous literature has already studied the impact of anti-bribery laws. Hines (1995) states that the passage of FCPA weakened U.S. foreign investment in the absence of effective legal action by other countries, while Graham (1984) finds no negative effect of FCPA on U.S. exports. Zeume (2017) suggests that imposing unilateral anti-bribery regulations on some firms may benefit their unregulated competitors after observing that U.K. companies operating in high-corruption countries experienced a drop in their value following the passage of the U.K. Bribery Act 2010. Using a sample of 107 publicly listed firms worldwide, Cheung et al. (2012) find that firm performance, the rank of the politicians bribed as well as bribe-paying and bribe-taking characteristics affect the magnitude of the bribes and the benefits that firms derive from them. Karpoff et al. (2012) find that the Net Present Value (NPV) of the bribe becomes negative for firms enforced under FCPA if they face comingled charges of financial fraud because of direct and reputational costs, and suggest that prosecutors should increase the probability of bribing firms getting caught or should obtain a high level of penalties to make bribery unattractive on an ex-ante basis.

[7] See FCPA Resource Guide https://www.justice.gov/sites/default/files/criminal-fraud/legacy/2015/01/16/guide.pdf

The SEC has limited resources (P. M. Dechow, Ge, Larson, & Sloan, 2011) and must hope for a deterrent effect (Jennings, Kedia, & Rajgopal, 2011). The deterrence of criminal behavior depends on the probability of detection and punishment and on the penalties imposed by the legal system (Becker, 1968). As penalties are not known at the time the SEC investigation first becomes public, we focus our study on the deterrent effect created by an increase in the probability of detection consequent to the acknowledgement of the investigation of a bribing firm. In a corporate context, the state can deter crime by inducing firms to take optimal prevention and policing measures (Arlen, 2012). When the DOJ and/or the SEC announce the opening of a new FCPA investigation for a firm's bribing behavior, it can create a deterrent effect on the peer firms in the same industry, who revise upwards their probability of being the next target of the prosecutor (Jennings et al., 2011). Through the enforcement process, the SEC develops know-how about how to trace wrongdoing in a specific industry (accounting schemes to dissimulate bribes, bribing patterns that can be similar from one firm in the same industry to the next). As the SEC selects firms for enforcement action where there is strong evidence of manipulation (P. M. Dechow et al., 2011), we assume that peer firms will modify, among other things, the level of their earning manipulation when they become aware of an FCPA investigation in their industry. Firms can intervene to deter (or encourage) crime both ex ante and ex post (Arlen, 2012).

SEC enforcement activity has already been studied in the literature through its accounting-based enforcement actions in the Accounting and Auditing Enforcement Releases (AAERs). AAERs are "designed to anticipate emerging reporting problems and to maintain the credibility of the disclosure system" and the SEC "most often pursued overstatements of accounts receivable and inventories resulting from premature revenue recognition and delayed write-off, respectively" (Feroz, Park, & Pastena, 1991). Using accruals and discretionary

accruals measures, Dechow et al. (1996) find a significant decrease in the accruals of SEC AAER targets after the alleged year of manipulation compared to peer firms.

The link between deterrent effect and earning management has also been tackled in the literature. Analyzing both SEC enforcement actions and class action lawsuits over the years 1996-2006, Jennings et al. (2011) find a significance deterrence associated with both SEC enforcement actions and class action lawsuits in the form of a reduction in performance-matched discretionary accruals (Kothari, Leone, & Wasley, 2005). Using a real earning management (REM) approach, Huang et al. find that litigation deters REM when they conduct a difference-in-differences test centered on class action lawsuits against firms headquartered in the Ninth Circuit (Huang et al. 2017).

The FCPA provides a well-defined scope to analyze a potential deterrent effect of law enforcement on the behavior of firms. Public prosecutors, the DOJ and the SEC share FCPA enforcement authority and no private action is possible. Enforcement actions are identified and publicly available on the SEC and DOJ websites. In addition, the number of sets of provisions is limited to two: anti-bribery provisions and accounting provisions.

When, in the mid-1970s, the U.S. congress became aware of a foreign corporate payments problem revealed by the office of the Watergate Special Prosecutor, the SEC and the Church Committee, a multi-pronged investigation was conducted, from which the FCPA would emerge two years later. One of the investigators was the SEC. In its report on questionable and illegal corporate payments and practices, the SEC states that the focus is "not whether the discovered domestic and foreign payments were or should be illegal, but rather whether such payments were or should be disclosed to investors" (Koehler, 2012).

FCPA integrates this informational preoccupation and addresses the problem of international corruption with two types of provisions: anti-bribery provisions and accounting provisions. While anti-bribery provisions focus on prohibiting "individuals and businesses

from bribing foreign government officials in order to obtain or to retain business" (15 U.S.C. § 78dd-1), accounting provisions impose certain record-keeping (15 U.S.C. § 78m(b)(2)(A)) and internal control requirements (15 U.S.C. § 78m(b)(2)(B)). Under the "books and records" provision, companies must keep books and records that accurately reflect the entity's transactions and dispositions of the assets of the issuer. However, no concrete standard has been set forth to determine what information must be reported in accounting records (Shaw, 1988). Shaw suggests that the concept of materiality should be used.

In accounting and for the SEC, materiality is defined as the "magnitude of an omission or misstatement of accounting information, that in the light of surrounding circumstances, makes it probable that the judgement of a reasonable person relying on the information would have been changed or influenced by the omission or misstatement".[8]

As materiality is linked to the magnitude of an omission or misstatement of accounting information, the volatility of earnings can be a proxy for the change in materiality. In the Dechow Dichev (DD) model, Accrual Quality (AQ) is measured as the volatility of the discretionary accruals of a firm (P. M. Dechow & Dichev, 2002). In this model, the volatility of the discretionary accruals is the variable of interest. A higher volatility of discretionary accruals is associated with a lower quality of earnings. We consider that AQ is a proxy for materiality and we use the Dechow Dichev model augmented by McNichols (McNichols, 2002) to test for a change in the Accrual Quality of bribing firms and their peers.

If the acknowledgment of a future investigation of a firm leads to a decrease in the volatility of earnings, we interpret that as an increase in the quality of the earnings and the level of materiality. As one goal of the FCPA is to address the problem of materiality through accounting provisions, we can assume that an increase in the AQ of a peer is a manifestation of the deterrent effect of FCPA, as companies improve the quality of their earnings and

[8] FASB Concept 2 then 8

therefore their materiality to fit with the purpose of the law and avoid a future investigation. The acknowledgement of an FCPA investigation of a firm can lead a peer firm in the same industry to improve the disclosure of its accounting and financial information to avoid being the next target of the SEC. The improvement in accounting information would be a manifestation of the deterrent effect of law enforcement.

The rest of the paper is organized as follows. Section 2 develops the hypotheses. Section 3 discusses the research design and the sample. Section 4 presents descriptive statistics and reports the main results and additional results, while Section 5 provides a supplementary analysis. Section 6 concludes.

2 – Development of Hypotheses

As we are seeking to show the deterrent effect of anti-bribery enforcement using Accrual Quality following the modified Dechow Dichev model, we test whether the volatility of discretionary accruals is different before and after the acknowledgment of bribing behavior for bribing firms, but also for their peers, using a difference-in-differences design around the exogenous shock materialized by an event, namely the revelation of future FCPA enforcement. In this formulation, higher volatility of discretionary accruals is associated with lower Accrual Quality, and a decrease in volatility after the event is associated with an increase in Accrual Quality. We finally test whether the Accrual Quality of bribing firms and peer firms behaves differently around the event date.

Firstly, we test whether the acknowledgement of future enforcement has an impact on the Accrual Quality of the bribing firms. If bribing firms ex-ante window-dressed their AQ, the trigger event could lead to a decrease in their AQ, as they do not need to show a high level of AQ to the users of the financial statements ex-post, especially the prosecutors in our case. Under this assumption, Accrual Quality would be higher before the event date, as observed

for example by Dechow et al. (2011), for whom firms that have been subject to enforcement action by the SEC for allegedly misstating their financial statements show measures of accruals quality that are unusually high in misstating years relative to the broad population of firms. Conversely, future enforcement can lead companies to enhance the quality of their compliance and accounting processes in order to avoid future bribing behavior within the firm (especially when top management was not aware of the bribing pattern that occurred, for example in a geographically distant subsidiary). In that case, we would observe an increase in Accrual Quality after the event date for the investigated firms where a decrease in the volatility of discretionary accruals would be consistent with a deterrent effect of law enforcement. Hypothesis 1a (H1a) is stated as follows:

H1a: the AQ of investigated firms increases after revelation of a new investigation.

Secondly, we test whether the acknowledgement of future potential enforcement has an impact on the Accrual Quality of non-investigated firms. We can expect peers to react when they become aware of the opening of an investigation of one of their peers. FCPA enforcement is costly for firms, directly through fines, disgorgements and other financial compensations disclosed in the settlements. It can also be indirectly costly through reputation losses (Karpoff et al., 2012), and "observing a public SEC enforcement in its industry against a target firm is likely to increase a peer firm's knowledge about SEC activity and cause it to revise upward its subjective probability of attracting such an action against itself" (Jennings et al., 2011). Therefore, we can expect an increase in the AQ of peers after the revelation of future enforcement against one firm in the same industry. The increase can be positively and negatively stated. Following a positive assumption, i.e. an increase in AQ, peer companies may improve their Accrual Quality because they genuinely and actively implement actions within the firm to reduce bribing behavior. AQ is here a proxy for fair business practices. Or

they may increase the window-dressing of their financial statements to avoid future enforcement by showing a better image to prosecutors. AQ is here a proxy for window-dressing. Under a negative assumption, we assume that AQ would decrease after enforcement. Peer firms could genuinely and actively implement actions within the firm to reduce window-dressing and that would lead to a decrease in AQ. Our hypothesis 1b (H1b) is stated in the null form as follows:

H1b: the AQ of Peer firms increases after revelation of a new investigation

Finally, we investigate whether the change in AQ differs between investigated firms and peer firms. Our design comprises multiple events. Each revelation of future enforcement occurs at a different date and numerous different industries are involved. For each event taken separately, investigated and peer firms face the same macro-economic conditions. To better analyze the difference in AQ, both for investigated firms and peer firms, before and after the bribing pattern is revealed, we perform a difference-in-differences analysis. Hypothesis 1c (H1c) is as follows:

H1c: There is a significant difference in the change in AQ between Investigated firms and Peer firms after revelation of a new investigation of one firm in the industry

FCPA enforcement activity grew stronger in the mid-2000s and a broader range of resolution vehicles became available to prosecutors. Nearly 64% of the enforcement actions in our final sample were initiated after 2004.[9] On December 6th 2004, the DOJ used an alternative vehicle for the first time in the resolution of the enforcement action against InVision Technologies Inc and General Electric Company (Koehler, 2015). To go further in our understanding of the change in the AQ of investigated firms and peer firms around the

[9] In the final sample used in this study, 51 out of 80 cases, that is, 64% of the cases, were acknowledged after the 6th of December 2004

acknowledgment date, we split our main sample into two subsamples and check whether the trend is different for a subsample made up of cases acknowledged before 2005 and another subsample made up of cases acknowledged during or after 2005. Hypotheses 2a (H2a) and H2b are as follows:

H2a: There is a significant difference in the change in AQ between Investigated firms and Peer firms after revelation of an investigation of one firm in the industry for cases that were acknowledged before 2005

H2b: There is a significant difference in the change in AQ between Investigated firms and Peer firms after revelation of an investigation of one firm in the industry for cases that were acknowledged in or after 2005

3 – Research Design and Sample

3.1 – Research Design

A number of papers have examined whether regulatory scrutiny increases the likelihood of earnings management (Healy & Wahlen, 1999). For example, discretionary accruals for firms from the cable television industry are found to be more negative during periods of Congressional scrutiny, according to the political cost hypothesis (Key, 1997). Moreover, high-accruals firms tend to have high discretionary accruals, have less persistent earnings, and be more subject to SEC enforcement action (P. Dechow, Ge, & Schrand, 2010). In addition, Francis et al (Francis, LaFond, Olsson, & Schipper, 2005) remind us that previous research has documented severe economic consequences for earnings of sufficiently low quality as to attract SEC enforcement actions (Beneish, 1999; P. M. Dechow et al., 1996; Feroz et al., 1991). Feroz et al. use the AAERs issued by the SEC to analyze which types of accounting and auditing problems motivate enforcement actions and find that, in their sample, overstatements of accounts receivable and inventories resulting from premature revenue

recognition and delayed write-off represent 70% of investigations. They suggest that the SEC is more likely to pursue alleged disclosure violations dealing with premature revenue recognition or overstatements of current assets. As these two items are part of the accruals, discretionary accruals seem to be the right tool to analyze the change in quality of accounting information of the investigated and peer firms in our sample.

To estimate the discretionary accruals, we follow the Dechow Dichev accrual model as modified in McNichols (McNichols, 2002). The original DD model (P. M. Dechow & Dichev, 2002) views the matching function of accruals to cash flows as being of primary importance and thus models accruals as a function of current, past, and future cash flows. The standard deviation of the residuals from the model is the proxy for earnings quality. McNichols proposed to add the specificities of the Jones model to the DD model because "including sales in the DD model provides a useful specification check on the magnitude of measurement error in their cash-flow variables." The modified DD model is an extended version of the modified Jones model (P. M. Dechow, Sloan, & Sweeney, 1995) that includes as additional independent variables the cash flow from operations (CFO) of last year, the CFO of the current year, and the CFO of next year. McNichols argues that the change in sales revenue and Property, Plant and Equipment (PPE) are important in forming expectations about current accruals, over and above the effects of operating cash flows (McNichols, 2002). Adding these variables to the cross-sectional DD regression significantly increases its explanatory power, thus reducing measurement error. We believe that the use of the modified DD model helps us to obtain a better-specified expectations model that, in turn, should lead to a better-specified stream of residuals.

We follow the Modified Dechow and Dichev model and calculate Discretionary Accruals as the residual of the model taking into account CFO of last year, current year and

next year and also integrate PPE and change in sales, as used in the Jones model and proposed by McNichols in the discussion paper about the DD model:

Accruals = Income Before Extraordinary Items (ib) minus Operating Cash Flows

(oancf after 1988 and ib – Δact + Δ che + Δlct – Δdlc + dp before 1988)

Where ib is Income Before Extraordinary Items (Compustat item 18)

act is Total Current Assets (Item 4)

che is Cash and Short-Term Investments (Item 1)

lct is Total Current Liabilities (Item 5)

dlc is Debt in Current Liabilities (Item 34)

dp is Depreciation and Amortization (Item 14)

oancf is Net Cash Flow from Operating Activities (Item 308)

We calculate the residuals from the annual cross-sectional industry regression models to estimate the discretionary accruals. Technically, we regressed our data for each sic2-year pair. The Discretionary Accruals are the residuals of the following regressions:

$$Accruals_t = \alpha_0 + \alpha_1 CFO_{t-1} + \alpha_2 CFO_t + \alpha_3 CFO_{t+1} + \alpha_4 \Delta Sales + \alpha_5 \Delta PPE_t + \varepsilon_t$$

Where:

$Accruals_t$ = Difference in Total Accruals between two years measured by Income Before Extraordinary Items (ib) minus Operating Cash Flows (CFO)

CFO = oancf after 1988 or ib - Δact + Δche + Δlct – Δdlc +dp before 1988

CFO_{t-1} = Operating Cash Flows of last year

CFO_t = Operating Cash Flows of the current year

CFO_{t+1} = Operating Cash Flows of next year

$\Delta SALES_{it}$ = change in sales (Item 12) scaled by lagged total assets ($ASSETS_{it-1}$)

PPE_{it} = Gross property, plant and equipment (Item 7) scaled by $ASSETS_{it-1}$

In our study, following Dechow and Dichev (2002), Kothari et al (2005) and Chaney Faccio Parsley (2011), the variability of discretionary accruals is the primary object of interest. In this formulation, a higher standard deviation of the discretionary accruals is associated with lower-quality earnings data. Dechow and Dichev use a rolling 10-year window to determine the standard deviation of the residuals. These estimations yield ten firm- and year-specific residuals that form the basis for the accrual quality metric. "Accrual Quality" equals the standard deviation of firm j's estimated residuals. In our study, we calculate the standard deviation of the discretionary accruals over a 3-year period before the trigger event and the standard deviation of the discretionary accruals over a 3-year period after the trigger event to measure the difference-in-differences of Accrual Quality between the two groups of interest. The Investigated group is made up of targeted firms that are investigated by the prosecutor. The peer group is made up of peers from the same industry, considered at the SIC3 level, existing during the 7-year period covered by the analysis, with at least one year of foreign sales disclosed during that period.

Our main event date, called acknowledgment date or trigger event date, is the moment when the investigated company becomes aware of the bribing behavior. It is different from the moment when the information becomes public, which we call disclosure date and which takes the form of a conspicuous announcement related to the firm that draws the SEC's scrutiny, generally firm-initiated disclosures of potential problems (Karpoff, Lee, & Martin, 2008). For the bribing firm, it is logical to consider the acknowledgement date as the main event date, as we can expect the firm to change its Accrual Quality as soon as bribing behavior is internally acknowledged. The question is more prominent for peer firms. And if the disclosure date is sometimes used as the main event date, it could be argued that the SEC's investigation may have been anticipated by peers when the problems at the target firm first surfaced (Jennings et al., 2011). As a consequence, we assume that the acknowledgement

date is the moment when both bribing firms and their peers will correct their Accrual Quality. And to finally alleviate the concern, out of the 80 cases of investigated bribing firms in our final sample, only 7 cases show acknowledgment dates which are more than one accounting year distant from the disclosure dates.

To identify the acknowledgement date for each case, we carried out searches in Factiva, the Trace Compendium International database, other public FCPA databases or specialized sites such as Shearman FCPA, FCPA.Stanford, and FCPA Professor. We also searched for "FCPA related misbehavior", "Bribery" and "Corruption", among other keywords in the SEC 10k filings of companies in EDGAR to identify the first time the bribing behavior was mentioned in the notes. Finally, we used Google when necessary. We took the earliest acknowledgement date we identified, which could be the earliest acknowledgment date mentioned in the 10k filings, or the earliest acknowledgment date mentioned in a press release, or the date of self-disclosure to the SEC/DOJ. We use a 7-year event window (three years before the year of the trigger event, three years after the year of the trigger event). The year of the event is considered as year 0 and is not included in the calculations of AQ.

We perform a difference-in-differences analysis to study the change in Accrual Quality of investigated firms (investigated firms), but also the change in Accrual Quality of peers (peer firms), after the event occurred. We expect the level of Accrual Quality to be significantly higher after the event, as it would represent a positive impact of law enforcement, and therefore a positive deterrent effect, on the behavior of firms. Additionally, the difference-in-differences design enables us to observe whether the trend is significantly different between the investigated and peer firms. FCPA law enforcement is the treatment, and the acknowledgment of potential future FCPA enforcement is an exogenous shock that represents the event. The event occurs at different moments in time for the different investigated firms in our sample. For each of the 80 events in our final sample, we consider one investigated firm

and build a peer group that fits with the characteristics of this investigated firm. For the peer firm to have parallel trends and be impacted in a similar way by the event of acknowledgment of future FCPA enforcement, allowing us to detect a potential deterrent effect of the enforcement, we consider that the peer company must belong to the same industry (same SIC3) as the investigated firm, must have existed throughout the same 7-year timespan of the analysis, and must have disclosed foreign sales in the segment information of Compustat at least once during this 7-year window. Therefore, we build 80 distinct peer groups, each one related to one of the investigated firms. This ensures that we are comparing investigated and peer firms operating in the same industry, allowing us to "difference away" unobserved time-varying industry shocks to post-treatment trends in the variable of interest (Heider & Ljungqvist, 2015). In addition, for each of the 80 peer groups, we keep only firms that are present both before and after the treatment. This means that the firms before and the firms after the treatment are identical, both for investigated and peer firms. The difference-in-differences approach enables us to control for time-invariant, firm-specific omitted variables as well as time-varying industry trends and nationwide shocks (Mukherjee, Singh, & Žaldokas, 2017), and to obtain an appropriate counterfactual to estimate the causal effect. Indeed, the question, as in any difference-in-differences set-up, is whether post-treatment trends would have continued to be parallel had it not been for the disclosure of future enforcement (Heider & Ljungqvist, 2015). We assume that, without the acknowledgement of future FCPA enforcement, both investigated and peer companies would keep the same level of Accrual Quality or would adjust their Accrual Quality in the same way in response to the same industry and/or time events, keeping the difference before and the difference after equal. Therefore, the difference-in-differences design allows us to evidence the differential change in Accrual Quality that is linked to the exogenous shock represented by the acknowledgement of FCPA enforcement. One can argue that other exogenous events could occur during year 0.

It is very unlikely that these events would have an impact on the result, as year zero is different from one case to the next and each case is industry-specific. The fact that the sample is built around 80 distinct event dates dramatically lowers the risk of an aggregated significant effect of an alternative exogenous shock. In addition, following Dechow and Dichev (2002), we control for firm characteristics that are likely to be correlated with the standard deviation of the discretionary accruals.

In this paper, we are seeking to test whether the investigation of a company under FCPA has a deterrent effect on the investigated firm but also on its peers, even if the peer firms do not directly receive the treatment, i.e. an FCPA investigation. Our difference-in-differences design must therefore analyze the differential impact of the treatment, but must also analyze whether this differential impact is due to the change in AQ of the investigated firms, of the peer firms, or both.

3.2 - Sample

We manually collected all the settlements linked to an FCPA enforcement action for the period 1978-2015 on the DOJ site and on the SEC site. The prosecutor does not make all prosecution actions public. Therefore, our sample does not include some cases. We analyze the differential impact of the revelation of an FCPA investigation on the Accrual Quality of both investigated firms and their industry peers; the exclusion of those cases does not constitute a selection bias, as we consider that competitors cannot react if they are not aware of the beginning of an investigation. Some enforcement actions are carried out against individuals and other cases are linked to companies. We gathered all the subsidiary, parent or individual cases that were related to the same scheme under a unique core case at the parent company level. When the individual does not work for the investigated company but is still part of the bribery scheme (the individual is an intermediary, for example), we tried to

identify the individual's company. Indeed, as the company is indicated in the complaint or the settlement, the company of the intermediary could suffer from a decrease or an increase in AQ, in the same way as any defendant company. 241 different parent companies were linked directly and/or through an individual to an FCPA enforcement action between 1978 and 2015.

68 companies are privately held and therefore excluded from the sample. 23 miscellaneous cases are also excluded from the sample for various reasons: for 8 anonymous cases, no name for the company is disclosed in the settlement; 9 cases are linked to individuals working for entities that are not companies (Tourism Authority of Thailand, US Congress, US Army, World Bank, Central Asian American Enterprise Fund, government of Saskatchewan, Minister of Tourism of the Government of Jamaica); and 6 cases are linked to individuals working as an individual intermediary with no corporate structure. 150 cases remain after these two steps.

38 cases are linked to non-U.S. companies. As we use Compustat to collect financial information about the investigated firms in our sample, this paper focuses on U.S. cases only. We discard the 38 non-U.S. cases from our sample. For 18 cases, we do not have financial data for the firm, or no match on Compustat. 94 cases are left in our sample of investigated companies after this step. For 14 cases, the financial data are incomplete and do not enable us to calculate total accruals or to collect the necessary dependent or control variables. In addition, for some cases, we do not have the necessary complete event window of 7 years to perform the difference-in-differences analysis. As shown in Table 1, our final sample of investigated firms is made up of 80 cases, representing 74 unique companies and 6 companies for which we identified 2 distinct enforcement settlements.

------- Insert Table 1 about here -------

To build the peer group, we firstly consider the entire universe of companies in Compustat. Then, in Compustat we select all companies with the same SIC2 as one of the investigated companies; these companies existed throughout the 7 years of the trigger event window and disclosed foreign sales at least once during the 7 years of the trigger event window. In the next step, we keep only the peer companies with the same SIC3 as one of the investigated firms. In the rare cases (4 cases) for which we do not have peer companies at the SIC3 level, we stay at the SIC2 level. After discarding all companies with a SIC3 code for which there is no investigated firm, we obtain a sample of 16,940 Sic3/year observations for 1,587 unique companies in the peer group and 551 sic3/year observations for 74 unique companies and 80 cases in the investigated group.

We then use a propensity score matching within common support and a caliper of 0.05 to select the closest neighbors among the peer companies identified in the previous step. We calculate the propensity matching score in year t-1, the year before the acknowledgment date. For each investigated firm, we select neighbors among the peer companies that belong to the same case, i.e. that existed during the same 7-year period of time, belong to the same industry (SIC3 level) and disclosed foreign sales at least once in the Compustat segment information during the 7-year period. Indeed, FCPA is related to bribes paid to foreign officials, i.e. when companies try to develop their turnover abroad. When selecting nearest neighbors, it is therefore logical to keep only peer firms that have non-U.S. sales.

We use the following 2 criteria to match peer and investigated firms: Size (logarithm of market capitalization) and percentage of foreign sales. We believe that size is an important driver when comparing bribing firms with their peers. Companies of the same size have similar means of action and a similar level of internal processes. We also believe that the percentage of foreign sales enables us to identify similar peers in the context of FCPA enforcement. Indeed, companies with a similar percentage of activity in foreign countries

could have the same ability to potentially pay bribes and face the same conditions when developing business abroad.

In sum, we match peer companies from the same industry, existing during the same 7-year period, and with foreign sales disclosed at least once, using size and percentage of foreign sales in year t-1 (year before the acknowledgment date) as matching criteria to select the closest neighbors within a caliper of 0.05 of the propensity score, when possible.

For four investigated firms, there are no potential neighbors at the SIC3 level. In these four cases, we select the neighbors at the SIC2 level within a caliper of 0.05 of the propensity score. For three investigated firms, there are no neighbors within a caliper of 0.05 and we select the neighbor using a caliper of 0.10 around the propensity score. In an undisclosed table, we calculated the results without the seven cases above. Results remain unchanged. We also disclose results using an alternative caliper of 0.10 and keeping all companies at SIC3 level. Results remain unchanged and significant at the 1% level.

The same peer company can be used in different cases and at different moments of time, if the peer company meets the criteria developed above. On average, 20 neighbors per event are available using the matching method detailed above, with a minimum of 1 neighbor and a maximum of 249 neighbors for 1 event. In the robustness tests, we use an alternative matching method, keeping the 3, 5 or 7 nearest neighbors instead of all available neighbors within a caliper of 0.05 of the propensity score. Results remained unchanged and significant.

After this propensity score matching, we obtain a sample of 1,658 peers for 1,054 unique companies in the peer group and 80 investigated companies for 74 unique companies in the investigated group.

4 – Results

4.1 – Summary Statistics

Table 2 shows summary statistics for the main variables for investigated bribing (Investigated) and non-bribing (peer) companies for the 7-year period of the study, then for the 3-year periods before and after the trigger event. The peer group with propensity score matching includes the nearest neighbors within a caliper of 0.05,[10] selected from the peer group built at the SIC3 level matched using the following two criteria: Size (Log of Market Cap) and Percentage of foreign sales, both considered in year t-1, the year before the acknowledgment date. All variables are winsorized at the 1st and 99th percentiles. The value of accruals is calculated using a direct approach with information from the cash flow statement, and the value of discretionary accruals is equal to the residuals obtained in the regressions using the Modified Dechow Dichev Model.

Investigated companies are bigger in size (market capitalization and total assets) but the percentage of foreign sales between the 2 groups is similar (43% for the investigated firms vs. 40% for the peer firms over the 7-year period). The accruals measures always remain negative. The average value of accruals as a percentage of lagged total assets is lower for the peer group than for the investigated group (-7.41 and -4.97 respectively). The value of discretionary accruals calculated with the Modified Dechow Dichev Model is also higher for the investigated group than the peer group (1.64 vs. 0.61 respectively). Two samples t-tests (undisclosed) for all the variables in Table 2 are significant, but as we are seeking to show a deterrent effect within an industry, we choose to retain a large group with different characteristics to see the global effect of the acknowledgement of future investigation.

In an undisclosed table, we compare the summary statistics between the investigated group and a peer group when applying the propensity score matching with 3, 5, and 7 nearest neighbors. For the 3 nearest neighbors matching, the sample then contains 222 peers in the peer group for 188 unique companies and 80 investigated firms for 74 unique companies in

[10] We consider alternative peer groups (All peers at the SIC3 level or using a caliper of 0.10 instead of 0.05 only in the propensity score matching) in the main results of the paper.

the investigated group. T-tests of all variables shown in Table 2 are insignificant, except for size (logarithm of market capitalization), and the results of the main regressions remain significant and coherent with the matching using calipers. These results suggest that the matching using a caliper of 0.05 or 0.10 is successful as, for each case, we restrict the peer companies to companies from the same industry (SIC3), at the same period of time (7 years around the trigger event), with foreign activity (all companies must disclose foreign sales to be kept in the sample), and the significant difference in the main variables shown in Table 2 does not prevent us from analyzing the difference-in-differences as long as we have parallel trends within the two groups. Again, in this paper we are also attempting to evidence a deterrent effect of law enforcement at the industry level, and must therefore keep a large panel of peer companies that can show different characteristics from those of the related bribing company, but can equally interpret the opening of an investigation in their industry as a real risk of future investigation for themselves.

In sum, the matching within a caliper of 0.05 can reasonably be used for difference-in-differences analysis.

------- Insert Table 2 about here -------

4.2 – Main Result: Difference-in-Differences with Standard Deviation over a 3-year period using the Modified Dechow Dichev Model

We use a difference-in-differences design to analyze the change in Accrual Quality. Our measure of Accrual Quality is the standard deviation of the discretionary accruals over 3-year periods, before (year t-3 to year t-1) and after (year t+1 to year t+3) the year of the trigger event, year 0, when the company becomes aware of the bribing behavior, following the Modified Dechow Dichev Model (P. M. Dechow & Dichev, 2002; McNichols, 2002).

Table 3 shows the results of the difference-in-differences for the standard deviation of the discretionary accruals using the modified Dechow Dichev model over a 3-year period (ModDD_3years). The Investigated group is made up of 80 firms identified in our final sample (See Table 1). The peer group is made up of the nearest neighbors within common support and a caliper of 0.05, from the same industry (SIC3 level), existing during the same 7-year timespan, with at least one year of foreign sales disclosed during the 7-year timespan, matched using the propensity score technique detailed in Section 3.

------- Insert Table 3 about here -------

The results are quite surprising. We observe that the coefficient (i.e. the standard deviation of the discretionary accruals over a 3-year period) for the investigated group does not vary significantly (t-test: 1.26, pvalue: 0.211), with an insignificant increase of 0.47 (from 3.09 to 3.57). This means that, counterintuitively, the investigated bribing companies do not improve their Accrual Quality after their acknowledgement of a future FCPA enforcement and there is no significant deterrent effect provided by FCPA law enforcement on the sample of investigated bribing firms:

Hypothesis 1a (H1a), “the AQ of investigated firms increases after revelation of a new investigation”, is rejected.

On the contrary, for the peer group we observe a large and significant decrease in the standard deviation over 3 years, of 0.93, from 7.04 to 6.11 (t-test: -4.62, pvalue: 0.000). This means that the volatility of discretionary accruals decreases for the peer firms after they acknowledge potential bribing behavior by a firm in their industry. As a consequence, the

acknowledgement of a new investigation of a firm in their industry creates a positive deterrent effect for peers, who significantly increase their Accrual Quality:

Hypothesis 1b (H1b), "the AQ of peer firms increases after revelation of a new investigation", is confirmed at a 1% significance level.

The interaction term of the difference-in-differences is positive with a value of 1.40 and significant at a 1% level (t-test: 3.32, pvalue: 0.0001). This confirms the significant difference in attitude between the groups after the revelation of bribing behavior. While the investigated firms do not significantly adjust their AQ, their peers significantly and positively react to the event and increase their AQ when they become aware of future FCPA enforcement in their industry. There is a positive deterrent effect of FCPA enforcement only on peer firms, as we observe a significant decrease in the 3-year standard deviation of discretionary accruals of peer firms compared to investigated firms in the difference-in-differences interaction term.

Hypothesis 1c (H1c), "There is a significant difference in the change in AQ between investigated firms and peer firms after revelation of the investigation of one firm in the industry", is confirmed at a 1% significance level.

This means, and this is the main contribution of the paper, that the peer firms tend to improve their Accrual Quality when they are informed that an FCPA investigation has been opened against one of their competitors, while investigated firms do not significantly change their Accrual Quality, and even show a slight decrease in AQ over the same timespan.

The two groups show opposite trends throughout the 7-year period under study. In line with the quasi-experimental design of difference-in-differences analysis, there is a change in outcome over time that is due to the treatment (acknowledgement of future FCPA

enforcement in our case) and usually affects the investigated group. What we observe is that there is no intervention effect on investigated firms as the change in outcome affects only peers, suggesting that the deterrent effect of law enforcement impacts only peer firms.

One could argue that the significance of the results in Table 3 could be mitigated by the fact that the value of the dependent variable is significantly different before the trigger event. However, in a difference-in-differences design, the level of the dependent variable can be different between the two groups before the event. According to our assumption, without the acknowledgement of future FCPA enforcement, both investigated and peer companies would keep the same level of Accrual Quality or would adjust their Accrual Quality in the same way in response to the same industry and/or time events, keeping the difference before and the difference after equal. What is important is that the trend of the change in outcome is different between the two groups (insignificant decrease in AQ for the investigated firms, significant increase in AQ for the peer firms), clearly showing that the two groups do not react in the same way to future FCPA enforcement. On the other hand, we use as our main dependent variable the standard deviation of the discretionary accruals, which is already the variation in the value of the dependent variable between years, and we aggregate this standard deviation into two periods of three years: pre- and post-intervention periods. This technique helps to remove the time series correlation problem (Bertrand, Duflo, & Mullainathan, 2004). In addition, the interaction term (difference-in-differences) remains significant when we use alternative specifications in the robustness tests (propensity score matching with 3,5,7 neighbors), where the difference in the value of the dependent variable before the trigger event is smaller between the two groups.

In conclusion, by using the standard deviation of the discretionary accruals over two 3-year periods (before and after the trigger event), and by testing alternative sizes and propensity score matching techniques for the peer group, we alleviate the concern linked to

the difference in the value of the dependent variable before the event and respect the parallel trend assumption of the difference-in-differences design. As our aim is to show the deterrent effect of anti-bribery law enforcement on peers, we also need to retain a peer group of peers which is large enough to observe this deterrent effect.

4.3 - Additional Results

Table 4 shows the results for the difference-in-differences analysis when the investigated group and the peer group comprising companies matched using the propensity score matching within common support and a caliper of 0.05 are split into two subsamples, following a time criterion: companies became aware of the bribing behavior before 2005 on the one hand, and during or after 2005 on the other hand.

------- Insert Table 4 about here -------

These additional results shed further light on the main results shown in Table 3. In both subsamples, the ModDD_3 years increases insignificantly after the trigger event for investigated companies, reflecting the trend highlighted in Table 3. For the peer companies, the trend differs between the two subsamples. For cases acknowledged before 2005, the trend is similar to Table 3 as peers significantly reduce the standard deviation of their discretionary accruals from 8.59 to 6.52 (t-test: -6.35, pvalue: 0.000). For cases acknowledged in or after 2005, there is a change in the trend as peer companies do not significantly correct their Accrual Quality around the event date. The difference between the two periods in the value of ModDD_3 years is nearly constant, with a value of 0.05 (t-test: 0.20, pvalue: 0.843). Accordingly, the difference-in-differences value is significant only in the subsample “before 2005”, meaning that the deterrent effect is stronger for cases acknowledged before 2005 and

still affects only peer firms with a value of 3.07 (t-test: 3.66, pvalue: 0.000). For the subsample of cases acknowledged in or after 2005, the interaction term of the difference-in-differences shows an increase in AQ of 0.16, which is statistically insignificant (t-test: 0.35, pvalue: 0.727).

Hypothesis 2a, "There is a significant difference in the change in AQ between investigated firms and peer firms after revelation of an investigation of one firm in the industry for cases that were acknowledged before 2005", is confirmed at a 1% level.

We interpret this additional finding in the following way. In December 2004, the prosecutor used alternative resolution vehicles for the first time to resolve FCPA cases. These vehicles, namely the DPA and the NPA, led to less in-depth investigations, offset by higher levels of fines. We suggest that since 2005, peers did not correct their Accrual Quality after acknowledgment of the opening of an FCPA investigation in their industry, as they revised downwards the need to improve their Accrual Quality now that alternative resolution vehicles could be used.

Hypothesis 2b, "There is a significant difference in the change in AQ between investigated firms and peer firms after revelation of an investigation of one firm in the industry only for cases that were revealed in or after 2005", is rejected.

4.4 – Difference-in-differences with SD over a 3-year period using Modified Dechow Dichev with Control Variables

According to Dechow Dichev (2002), five factors explain accrual quality (firm size, cash flow variability, sales variability, length of operating cycle, and incidence of negative earnings realizations), with three variables shown by prior research to influence one or more of the other earnings attributes: absence of intangibles, intangibles intensity, and capital intensity. We use the same control variables as Dechow Dichev (2002) and Chaney et al.

(2011), among other things to control for these factors. *Ln Mkt Cap* is the natural log of the company's market capitalization in US dollars, to control for size. $\sigma(CFO/TA) \times 100$ is the 7-year standard deviation of CFO over total assets (*100). $\sigma(Sales/AT) \times 100$ is the 7-year standard deviation of cash sales over total assets (*100). *Operating cycle* is defined as the log of the sum of days in receivable and days in inventory, as defined in Dechow Dichev (2002). *Negative Earnings* is the frequency of negative earnings realization over the 7-year period of study. We also use additional control variables: *Sales growth* is the annual growth of sales, *Market-to-book* is the ratio of market capitalization to book value of equity in t_{-1} and *Leverage* is total debt as a percentage of total assets in t_{-1}. Additional variables linked to the cases themselves are also included as control variables in the regressions. *Court_DOJ* is an ordinal variable which considers the district court that settles the DOJ case. *Court_SEC* is an ordinal variable which considers the district court that settles the SEC case. *Dummy_2005* is a dummy variable that takes the value of 1 if the case was acknowledged in or after 2005 and zero otherwise. *First Case* is a dummy variable that takes the value of 1 if the case is the first one in the industry and zero otherwise. We finally control for industry and year fixed effects. Observations are clustered at the company level in regressions.

The main result of the difference-in-differences using ModDD_3years with a propensity score matching within common support and a caliper of 0.05 remains significant at a 1% level, with a differential increase of 1.3983 in the AQ of peers compared to the investigated bribing firm (t-test: 3.27, pvalue: 0.001) when controlling for the five factors developed by Dechow and Dichev (2002) and the additional control variables developed above. We also present in Table 5 the results of the OLS regression for alternative size in the group with no specified caliper, and all peer companies at the SIC3 level on the one hand and using a caliper of 0.10 instead of 0.05 on the other hand. The results remain significant at a 1% level for these alternative sizes in the peer group, with an increase of 1.71 (t-test: 4.14,

pvalue: 0.000) in the AQ of peers compared to investigated firms at the SIC3 level, and an increase of 1.80 (t-test: 4.27, pvalue: 0.000) using a caliper of 0.10.

------- Insert Table 5 about here -------

5- Supplementary Analysis

Our main result shows that the increase in Accrual Quality around the date of anti-bribery enforcement is significant for peer firms only, following a deterrent effect.

We observe that the level of AQ remains nearly the same for investigated firms before and after the trigger event. It seems logical that the level of AQ does not deteriorate after the trigger event. Indeed, through their settlement, investigated companies have to implement corrective actions in terms of compliance and monitoring that prevent AQ from deteriorating. This is also the case in AAERs, where the targets' AAER managers settle enforcement action by consenting to an injunction that prohibits future violations of the securities laws (Feroz et al., 1991). But why does the level of AQ not increase after the trigger event for investigated firms? One explanation could be that investigated firms do not feel the need to improve their AQ since they have already been caught. Another explanation could be that the ex-ante window-dressing is replaced by a real ex-post improvement in AQ, linked to the implementation of new compliance and monitoring systems.

According to Feroz et al (1991), through the AAERs, the SEC is trying to use one case as a precedent and to spread the word to other companies that the SEC is able to identify (and to investigate) a particular issue, creating a deterrent effect. The SEC's anti-bribery unit, created in 2010, pursues the same goal and uses the same philosophy. By disclosing anti-bribery behaviors of firms, they create a precedent to influence the business practices of companies and create a deterrent effect. In addition, Feroz et al. (1991) point out that since the

SEC has more targets than it can practically pursue, and since formal investigations are both costly and highly visible, the SEC ranks targets according to the probability of success. Thus, it is reasonable to assume that firms facing enforcement actions by the SEC have knowingly and intentionally engaged in earnings manipulation (P. M. Dechow et al., 1996). As a consequence, we think that peer companies may improve their AQ to convince the SEC of their good behavior and avoid investigation. The improvement in AQ may be real or merely window-dressing but, in both cases, it demonstrates the deterrent effect of FCPA enforcement on peer firms.

In anti-bribery enforcement, the revelation of the bribing behavior does not usually occur through SEC surveillance of the AQ level, as with the AAERs, but mainly through other factors. Worldwide, 31% of foreign bribery cases were brought to the attention of the authorities through self-reporting, and the revelation remained unknown in 29% of cases. Law enforcement represents only 13% of the detection pattern.[11] The situation is different for peer companies. They have not been investigated yet. But they just became aware that a company in the same industry is under investigation. Investigation of a company can lead to more investigations of peers in the same industry. Indeed, the administration (SEC and DOJ for anti-bribery enforcement) does not have the time or the means to investigate all companies. When one company in a specific industry has settled, the administration develops greater know-how of the patterns used by the company to pay bribes and to dissimulate them. The SEC and the DOJ can then use indicators similar to the ones used in the AAERs to target a specific company, following a propagation effect. In that case, it makes sense that peers would try to improve their AQ once the trigger event happens to a company in the same industry, because the revelation will no longer be whistleblowing or self-reporting, but could come from low AQ among the peers identified by the prosecutor.

[11] OECD Foreign bribery Report, 2014

6 – Robustness Tests

6.1 – Specifications of the models used for robustness tests

Table 6 shows the results of robustness tests of the OLS regressions with peer variables using alternative dependent variables. We use 3 alternative dependent variables. We firstly use the standard deviation over 3 years of the discretionary accruals obtained with the Dechow Dichev model (P. M. Dechow & Dichev, 2002). Then we use the Modified Jones Model (P. M. Dechow et al., 1995). We finally use the Jones model (J. J. Jones, 1991).

To calculate the discretionary accruals, we follow the same two-step regression principle as the one for our main model. In the first step, we determine the discretionary accruals linked to the model. In the second step, we calculate the standard deviation of the discretionary accruals found in the first step over 3 years (before and after the event) and use them as our main dependent variable of the OLS regressions to determine the coefficient of interest, which is the coefficient of the interaction term of the dummy variable Investigated (INV), set equal to 1 if the company has been investigated under FCPA and is part of our final sample of investigated companies and 0 otherwise, and the time dummy variable (AFTER), set equal to 1 if the 3-year period is after the event and 0 otherwise.

In the first step, the discretionary accruals are determined as the residuals of the regressions, where the accruals are the dependent variables and the independent variables are the explanatory variables, which differ from one model to the next (see details below).

Dechow Dichev model

In the Dechow Dichev model (P. M. Dechow & Dichev, 2002), we use the same methodology as for the modified Dechow Dichev model (McNichols, 2002) to determine the discretionary accruals, except that we do not use the impact of the change in sales and PPE as independent variables. The discretionary accruals are the residuals of the following regression calculated for each sic2/year pair:

$$Accruals_t = \alpha_0 + \alpha_1 CFO_{t-1} + \alpha_2 CFO_t + \alpha_3 CFO_{t+1} + \varepsilon_t$$

Where:

$Accruals_t$ = Difference in Total Accruals between two years measured by Income Before Extraordinary Items (ib) minus Operating Cash Flows (CFO)

CFO = oancf after 1988 or ib - Δact + Δche + Δlct – Δdlc +dp before 1988

CFO_{t-1} = Operating Cash Flows of last year

CFO_t = Operating Cash Flows of the current year

CFO_{t+1} = Operating Cash Flows of next year

Once the discretionary accruals are obtained, we calculate the standard deviation of those residuals over the 3-year periods (DD_3y) before and after the trigger event year and use them as our dependent variable in the OLS regressions to determine the interaction term coefficient of the difference-in-differences estimate, stated as INV*AFTER.

Modified Jones model

We also use the standard deviation of the discretionary accruals calculated with the modified Jones model (P. M. Dechow et al., 1995) as a benchmark. Total Accruals in the Modified Jones model are calculated as follows:

TA = Change in non-cash current assets – change in current liabilities excluding the current portion of long-term debt – depreciation and amortization

For one specific year, TA are calculated as follows in respect to data items present in Compustat:

TA_t = [Δcurrent $Assets_t$ (act) – Δ$cash_t$ (che) – Δcurrent $liabilities_t$ (lct) + Δ Debt in Current liabilities (dlc) – Depreciation and amortization $expense_t$ (dp)] / lagged Total Assets (at)

Where Δ is the difference between t and t-1,

And items indicated parenthetically are Compustat data items.

We then use the following regression linked to the Jones model to obtain the parameters that we will use as a second step in the modified Jones model:

$$TA_{it} = \beta_0 [1/ASSETS_{it-1}] + \beta_1 [\Delta SALES_{it}] + \beta_{2i}[PPE_{it}] + \varepsilon_{it}$$

Where

$ASSETS_{it-1}$ = Lagged total assets (at)

TA_{it} = total accruals as defined above

$\Delta SALES_{it}$ = change in sales (sale) scaled by lagged total assets ($ASSETS_{it-1}$)

PPE_{it} = Gross property, plant and equipment (ppegt) scaled by $ASSETS_{it-1}$

To obtain modified-Jones discretionary accruals, following Dechow et al (1995), we use the parameters from the Jones model, but apply them to a modified sales change variable:

$$TA_{it} = \beta_0 [1/ASSETS_{it-1}] + \beta_1 [\Delta SALES_{it} - \Delta AR_{it}] + \beta_{2i}[PPE_{it}] + \varepsilon_{it}$$

Where

TA_{it} = total accruals as defined above

$\Delta SALES_{it}$ = change in sales (sale) scaled by lagged total assets ($ASSETS_{it-1}$)

ΔAR_{it} = change in accounts receivable (rect) scaled by lagged total assets ($ASSETS_{it-1}$)

PPE_{it} = Gross property, plant and equipment (ppegt) scaled by $ASSETS_{it-1}$

Once the discretionary accruals are obtained, we calculate the standard deviation of those residuals over the 3-year periods (ModJones_3y) before and after the trigger event year and use them as our dependent variable in the OLS regressions to determine the interaction term coefficient of the difference-in-differences estimate, stated as INV*AFTER.

Jones Model

We also use the standard deviation of the discretionary accruals calculated with the Jones model (J. J. Jones, 1991). Total Accruals in the Jones model are calculated as follows:

TA = Change in non-cash current assets – change in current liabilities excluding the current portion of long-term debt – depreciation and amortization

For one specific year, TA are calculated as follows in respect to data items present in Compustat:

TA_t = [Δcurrent $Assets_t$ (act) – $\Delta cash_t$ (che) – Δcurrent $liabilities_t$ (lct) + Δ Debt in Current liabities (dlc) – Depreciation and amortization $expense_t$ (dp)] / lagged Total Assets (at)

Where Δ is the difference between t and t-1,

And Items indicated parenthetically are Compustat data items.

Discretionary accruals are the residuals of the following regressions:

$$TA_{it} = \beta_0 [1/ASSETS_{it-1}] + \beta_1 [\Delta SALES_{it}] + \beta_{2i}[PPE_{it}] + \varepsilon_{it}$$

Where

TA_{it} = total accruals as defined above

$\Delta SALES_{it}$ = change in sales (sale) scaled by lagged total assets ($ASSETS_{it-1}$)

PPE_{it} = Gross property, plant and equipment (ppegt) scaled by $ASSETS_{it-1}$

Once the discretionary accruals are obtained, we calculate the standard deviation of those residuals over the 3-year periods (Jones_3y) before and after the trigger event year and

use them as our dependent variable in the OLS regressions to determine the interaction term coefficient of the difference-in-differences estimate, stated as INV*AFTER.

6.2 – Results of the robustness tests using alternative dependent variables

Table 6 shows the results of robustness tests of the OLS regressions with control variables using alternative dependent variables. The peer group comprises companies with the same SIC3 as the related investigated firm, in existence throughout the 7 years of the event window, and with foreign sales disclosed at least once. For each alternative dependent variable, we show the results for three specifications of the peer group, as done in Table 5 for ModDD-3y: Peer companies using the propensity score matching within common support and a caliper of 0.05,[12] but also for all the peer companies available at the SIC3 level, and finally peer companies within a caliper of 0.1.

The results using the Dechow Dichev model (DD_3y) confirm the main results in Table 5. The interaction term is positive and significant at 1% level for all the specifications of the peer group. Using a caliper of 0.05, the differential increase in Accrual Quality is 1.15 (t-test: 3.02, pvalue:0.003), and this differential increase remains of the same nature at the SIC3 level (1.46 with a t-test of 4.03 and a pvalue of 0.000) or using a 0.1 caliper (1.46 with a t-test of 4.09 and a pvalue of 0.000) respectively. Peer companies significantly improve their accounting comparatively to the investigated companies after acknowledgement of the opening of an FCPA investigation in their industry. This result confirms the robustness of the main result in Table 5, as the Dechow and Dichev-based measures have the highest association with fraud and explanatory power for fraud beyond total accruals (K. L. Jones, Krishnan, & Melendrez, 2008).

[12] The propensity score is calculated using the same process than for the main dependent variable, i.e. using the two following criteria: Size (Log of Market Cap) and Percentage of foreign sales, both considered in year t-1, the year before the acknowledgment date.

The results of the OLS regression variables using the Modified Jones and the Jones models confirm the main trend. Results are significant at a 5% level for the Modified Jones model at the SIC3 level with a differential increase in Accrual Quality of 1.05 (t-test:2.02, pvalue:0.044) and using a caliper of 0.1 (Increase in AQ of 1.12 with a t-test of 2.10 and a pvalue of 0.036). Results are significant at a 10% level for the Jones model at the SIC3 level with a differential increase in Accrual Quality of 0.95 (t-test:1.84, pvalue:0.066) and using a caliper of 0.1 (Increase in AQ of 1.12 with a t-test of 2.10 and a pvalue of 0.036). Results of the regressions are less explanatory when we use total accruals instead of accrual estimation errors, which is in line with Jones, Krishnan and Melendrez (2008). Finally, the explanatory power of total accruals models is lower for a caliper of 0.05, when the size of the peer group is smaller. As our aim is to show the deterrent effect of FCPA law enforcement on peers, the fact that the results are more significant when the size of the peer group is larger tends to underline the significance of the deterrent effect at the industry level.

------- Insert Table 6 about here -------

6.3 – Results of the robustness tests using nearest neighbor matching instead of caliper matching for ModDD_3y

To provide assurances that our results are not driven by the propensity score matching specifications, we repeat the difference-in-differences test using nearest neighbor matching instead of caliper matching as the propensity score matching technique for our main dependent variable ModDD_3years, which represents the standard deviation of the Discretionary Accruals over a 3-year period (actually 6 years divided into 2 periods of 3 years,

one before the event and one after the event) following the modified Dechow Dichev model. Table 7 shows the results of robustness tests of the OLS regressions with peer variables for three specifications of the peer group using nearest neighbor matching with the 7 nearest neighbors, 5 nearest neighbors, and 3 nearest neighbors respectively. The Investigated Bribing Group is made up of 160 observations (80 before the event and 80 after the event), representing the 80 cases (for 74 unique companies). The peer group is made up of 916 observations (for 351 unique companies) when using the 7 nearest neighbors, 684 observations (for 274 unique companies) when using the 5 nearest neighbors and 438 observations (for 186 unique companies) when using the 3 nearest neighbors. If the number of neighbors is lower than expected for a specific event, no replacement is made. Observations are clustered at the company level in regressions.

Results in Table 7 confirm the main results of the paper in Table 5 when using a caliper of 0.05 instead of nearest neighbor matching. Regardless of the number of neighbors disclosed, the interaction term of the regression is positive and significant. With 7 neighbors, Accrual Quality increases by 0.92 (t-test: 1.96, pvalue:0.050), while AQ increases by 1.05 (t-test: 2.13, pvalue:0.034) with 5 neighbors and increases by 1.02 (t-test: 1.94, pvalue:0.053) with the 3 nearest neighbors for each investigated firm. The result in Table 7 is interesting, as it shows that even when the size of the peer group is reduced (for 3 neighbors, the size of the investigated group represents 36.5% of the size of the peer group in terms of observations), the main result is confirmed.

In sum, these results are consistent with the previous results developed in Table 3 and confirm our main result: peer companies react to the revelation of an FCPA investigation of companies in their industry by improving their Accrual Quality, while investigated firms do not significantly correct their AQ. We observe a significant deterrent effect of FCPA law enforcement on the Accrual Quality of peer firms, but not investigated firms.

------- Insert Table 7 about here -------

7 – Conclusions

In this paper we analyze a hand-collected sample of 241 bribery cases investigated under the US Foreign Corruption Practices Act (FCPA) over the period 1978-2015. To be able to investigate the quality of the accounting information of the companies under investigation, we focus on the U.S. companies in our sample that existed during the 7-year period around the acknowledgement of potential future enforcement by bribing firms, for which financial information is available on Compustat, and end up with a sample of 80 cases (74 unique companies).

To measure the quality of accounting information, we follow Dechow and Dichev and Mac Nichols (2002) and use Accrual Quality, measured as the variability of discretionary accruals as our main dependent variable. A higher standard deviation of discretionary accruals is associated with a lower quality of earnings.

We firstly conduct a difference-in-differences analysis over a 7-year period (3 years before acknowledgement of the bribing behavior and 3 years after) to compare the standard deviation of the discretionary accruals between the investigated group, made up of the 80 U.S. cases, and a peer group. We document a positive effect on the Accrual Quality of FCPA investigated firms' competitors, but not the FCPA investigated firms themselves (Hypothesis 1). Using the Modified Dechow Dichev model and a peer group selected thanks to a propensity score matching within common support and a caliper of 0.05 (Table 3), the interaction term shows a difference-in-differences of 1.40 for the standard deviation calculated over a 3-year period and is significant at the 1% level (pvalue: 0.001). While the Accrual Quality of the investigated firms does not significantly change, and even deteriorates

slightly (+0.47 from 3.09 to 3.57 for the volatility of the discretionary accruals), peers' Accrual Quality significantly increases: the standard deviation of the discretionary accruals decreases by 0.93 (from 7.04 to 6.11). In terms of economic effect, the 1.40 increase in Accrual Quality shown in the interaction term represents 45.30% of the value of the standard deviation of the investigated firms before the trigger event (3.09). Additional results tend to show that results are significant only for cases revealed before 2005 (Table 4), when the prosecutor began to use alternative resolution vehicles such as NPAs and DPAs to resolve FCPA cases. Our main result remains consistent when we add control variables in the OLS regressions of the difference-in-differences (Table 5), following the 5 main factors explaining Accrual Quality listed in Dechow Dichev (2002) and additional control variables linked to the cases themselves. These results are robust when we use other dependent variables, from the Dechow Dichev 3-year standard deviation to the Modified Jones or Jones 3-year standard deviation of the discretionary accruals (Table 6). These results are also robust to alternative choices in the specifications of our peer group in our difference-in-differences design (Table 7), when we select the 7, 5 or 3 nearest neighbors instead of neighbors within a caliper of 0.05.

We put forward a deterrent effect hypothesis to explain these results. An investigation of allegedly bribing companies can deter their peers from engaging in bribery. That would show a positive impact of financial regulation on the behavior of firms. But the explanation may also be linked to window-dressing. Feroz et al (1991) showed that the SEC does not have the resources to investigate all companies and must select targets with the highest probability of success. Analyzing the reasons why companies were investigated under AAERs, the authors show that a large portion of AAER enforcement is linked to manipulation of current assets. They also show that the SEC is able to calculate the Accrual Quality of firms using a discretionary accruals approach. We posit that the SEC is seeking to capitalize on its experience of enforcement in one specific industry to select future targets. According to the

OECD Anti-Bribery Report (2014), enforcement under the Anti-Bribery law mainly stems from self-revelation, unknown results or whistleblowing. The event that triggers enforcement is not an ex-ante analysis of the Accrual Quality of firms by the SEC. However, once the prosecutor has identified patterns and developed know-how in one specific industry, we make the assumption that the SEC will select future targets in the same industry using, among other indicators, the level of Accrual Quality, following a propagation effect. Peers are aware of the potential effect of propagation to other companies in the same industry of anti-bribery investigations by the SEC and the DOJ. That is why we assume that they may window-dress their Accrual Quality to decrease the probability of being selected as a target by the prosecutor.

This study has several limitations. The size of the sample of investigated firms is small, but cannot be extended as all the enforced actions are already included. We are not aware of cases that have been settled without publicity between the prosecutor and the investigated company. As we analyze the impact of the revelation of future enforcement on competitors, this is not really a factor limiting the contribution of this paper. Furthermore, other methods for propensity score matching such as Kernel matching could be tested to get a better understanding of the deterrent effect we identified through a significant increase in the Accrual Quality of peer companies when it becomes public that one of their competitors in the same industry is to face an investigation by the SEC and/or the DOJ under the FCPA, the US Anti-Bribery Law.

References

Arlen, J. (2012). Corporate Criminal Liability: Theory and Evidence. *NYU Law and Economics Research Paper No. 11-25*.

Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy*, *76*(2), 169‐217.

Beneish, M. D. (1999). Incentives and Penalties Related to Earnings Overstatements that Violate GAAP. *The Accounting Review*, *74*(4), 425‐457.

Bertrand, M., Duflo, E., & Mullainathan, S. (2004). How Much Should We Trust Differences-In-Differences Estimates? *The Quarterly Journal of Economics*, *119*(1), 249‐275.

Chaney, P. K., Faccio, M., & Parsley, D. (2011). The quality of accounting information in politically connected firms. *Journal of Accounting and Economics*, *51*(1‐2), 58‐76.

Cheung, Y. L., Rau, P. R., & Stouraitis, A. (2012). *How much do firms pay as bribes and what benefits do they get? Evidence from corruption cases worldwide* (No. w17981). Cambridge, MA: National Bureau of Economic Research.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, *50*(2‐3), 344‐401.

Dechow, P. M., & Dichev, I. D. (2002). The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review*, *77*(s-1), 35‐59.

Dechow, P. M., Ge, W., Larson, C. R., & Sloan, R. G. (2011). Predicting Material Accounting Misstatements*: Predicting Material Accounting Misstatements. *Contemporary Accounting Research*, *28*(1), 17‐82.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting Earnings Management. *The Accounting Review*, *70*(2), 193‐225.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC. *Contemporary Accounting Research*, *13*(1), 1‐36.

Feroz, E. H., Park, K., & Pastena, V. S. (1991). The Financial and Market Effects of the SEC's Accounting and Auditing Enforcement Releases. *Journal of Accounting Research*, *29*, 107.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics*, *39*(2), 295‐327.

Graham, J. L. (1984). The Foreign Corrupt Practices Act: A New Perspective. *Journal of International Business Studies*, *15*(3), 107‐121.

Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and

Its Implications for Standard Setting. *Accounting Horizons*, *13*(4), 365‐383.

Heider, F., & Ljungqvist, A. (2015). As certain as debt and taxes: Estimating the tax sensitivity of leverage from state tax changes. *Journal of Financial Economics*, *118*(3),

Hines, J. (1995). *Forbidden Payment: Foreign Bribery and American Business After 1977* (No. w5266). Cambridge, MA: National Bureau of Economic Research.

Huang, S., Sletten, E., & Roychowdhury, S. (2017). Does Litigation Encourage or Deter Real Earnings Management? *SSRN Electronic Journal*.

Jennings, J. N., Kedia, S., & Rajgopal, S. (2011). The Deterrent Effects of SEC Enforcement and Class Action Litigation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1868578

Jones, J. J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research*, *29*(2), 193.

Jones, K. L., Krishnan, G. V., & Melendrez, K. D. (2008). Do Models of Discretionary Accruals Detect Actual Cases of Fraudulent and Restated Earnings? An Empirical Analysis. *Contemporary Accounting Research*, *25*(2), 499‐531.

Karpoff, J. M., Lee, D. S., & Martin, G. S. (2008). The Cost to Firms of Cooking the Books. *Journal of Financial and Quantitative Analysis*, *43*(03), 581.

Karpoff, J. M., Lee, D. S., & Martin, G. S. (2012). The Impact of Anti-Bribery Enforcement Actions on Targeted Firms. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1573222

Key, K. G. (1997). Political cost incentives for earnings management in the cable television industry. *Journal of Accounting and Economics*, *23*(3), 309‐337.

Koehler, M. (2012). The Story of the Foreign Corrupt Practices Act. *Ohio State Law Journal*, *73*(5).

Koehler, M. (2015). Measuring the Impact of Non-Prosecution and Deferred Prosecution Agreements on Foreign Corrupt Practices Act Enforcement. *49 U.C. Law Review*, *497*.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, *39*(1), 163‐197.

McNichols, M. F. (2002). Discussion of the Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *The Accounting Review*, *77*(s-1), 61‐69.

Mukherjee, A., Singh, M., & Žaldokas, A. (2017). Do corporate taxes hinder innovation? *Journal of Financial Economics*, *124*(1), 195‐221.

Rose-Ackerman, S. (2010). The Law and Economics of Bribery and Extortion. *Annual Review of Law and Social Science*, *6*(1), 217‐238.

Shaw, B. (1988). Foreign Corrupt Practices Act: A legal and moral analysis. *Journal of Business Ethics*, *7*(10), 789‐795.

Shleifer, A., & Vishny, R. W. (1993). Corruption. *The Quarterly Journal of Economics*, *108*(3), 599‑617.

Zeume, S. (2017). Bribes and Firm Value. *The Review of Financial Studies*, *30*(5), 1457‑1489.

Table 1 - Selection of the Final Sample of U.S. Firms Investigated under FCPA

Table 1 reports how have been selected the 80 cases included in the final sample of U.S. companies investigated under Foreign Corrupt Practice Act (FCPA), the U.S. anti-bribery law for the period 1978-2015. In this sample, 6 firms are linked to 2 distinct cases, leading the final sample of U.S. Investigated firms to 74 firms and 80 cases.

	Number of Cases
Population of companies linked to a FCPA Enforcement Action	241
- Total Privately-held companies excluded from the Sample	-68
- Total Miscellaneous cases (Anonymous, Individuals, No Company related)	-23
Number of Firms investigated under FCPA worldwide	**150**
- Population of Non-US companies linked to a FCPA Enforcement Action	-38
Number of U.S. Firms investigated under FCPA	**112**
- Total Cases with no match on Compustat or no Financial Data	-18
- Total Cases for which we do not have a complete trigger event window or missing information to calculate the volatility of Accruals	-14
Final Sample of U.S. FCPA Investigated Firms (Treatment Group)	**80**

Table 2 - Summary statistics for main variables for FCPA Investigated firms and FCPA Non Investigated firms (Peer Group) selected using propensity score matching - Winsorized measures (…)

Table 2 shows the summary statistics of the main variables for FCPA Investigated firms and FCPA Non Investigated (Peer Group) companies. To build the peer group, we select peer companies that belong to the same SIC3 than the related investigated firm, exist during the 7-period of the analysis (3 years before and 3 years after the event year) and disclose foreign sales during at least one of the seven years of the trigger event window, using the dispatching between domestic and foreign sales disclosed in the geographical segment data in Compustat. Selected peer companies represent the nearest neighbors within common support and a caliper of 0.05 in the peer group at the SIC3 level matched using the 2 following criteria: Size (Log of Market Cap) and Percentage of foreign sales, both considered in year t-1, the year before the acknowledgment date[(1)]. After these steps, we identify 1,658 peers in the peer group for 1,054 unique companies over a 7-year period (each company is used 1.57 times on the average). For the investigated group, 80 observations are considered for 74 unique companies and 80 cases (6 companies are present twice in the sample). All variables are winsorized at the 1st and the 99th percentiles and are lagged by total assets.

7-year Period

	Investigated Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	80	8.45	8.80	2.21	11.93	2.21	11.93	7.03	9.79	1.89
Percentage of Foreign Sales	80	0.43	0.41	0.01	0.86	0.01	0.86	0.32	0.55	0.20
Market-to-Book-ratio	80	3.02	2.47	-1.41	13.21	-1.41	13.21	1.63	3.97	2.23
Leverage ratio	80	0.24	0.24	0.00	0.76	0.00	0.76	0.16	0.29	0.12
Accruals	80	-4.97	-4.94	-8.60	13.56	-8.60	13.56	-0.40	3.80	3.63
DA Modified DD model	80	1.64	1.28	-8.60	13.56	-8.60	13.56	-0.40	3.80	3.62

	Peer group with Propensity Score Matching									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	1,658	6.34	6.42	-1.98	11.88	1.35	11.50	4.74	7.91	2.30
Percentage of Foreign Sales	1,658	0.40	0.37	0.00	1.00	0.01	0.99	0.18	0.57	0.26
Market-to-Book-ratio	1,658	2.74	2.49	-122.93	133.16	-17.57	15.90	1.60	3.97	9.70
Leverage ratio	1,658	0.18	0.14	0.00	3.47	0.00	1.08	0.04	0.26	0.23
Accruals	1,658	-7.41	-6.42	-46.64	26.48	-27.76	5.29	-10.10	-3.47	6.36
DA Modified DD model	1,658	0.61	1.02	-26.32	22.67	-15.72	12.14	-2.12	3.60	5.20

[(1)] For four investigated firms, neighbors are selected at the SIC2 level as there are no potential neighbors at the SIC3 level. For three investigated firms, we enlarge the caliper at 10% to find at least one neighbor at the SIC3 level. Results remain unchanged if no neighbor is selected for those cases.

(…) Table 2 - Summary statistics for main variables for FCPA Investigated firms and FCPA Non Investigated firms (Peer Group) selected using propensity score matching - Winsorized measures (…)

3-year Period Before

	Investigated Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	80	8.31	8.49	2.55	11.87	2.55	11.87	6.73	9.88	1.94
Percentage of Foreign Sales	80	0.42	0.49	0.00	0.83	0.00	0.83	0.31	0.54	0.21
Market-to-Book-ratio	80	3.07	2.28	-0.60	18.54	-0.60	18.54	1.36	3.77	2.73
Leverage ratio	80	0.24	0.23	0.00	0.54	0.00	0.54	0.17	0.29	0.12
Accruals	80	-4.77	-4.82	-13.32	9.44	-13.32	9.44	-7.68	-2.48	3.98
DA Modified DD model	80	2.02	1.06	-10.62	15.00	-10.62	15.00	-0.41	4.62	4.25

	Peer Firms with Propensity Score Matching									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	1,658	6.21	6.26	-1.01	11.95	1.17	11.46	4.51	7.85	2.31
Percentage of Foreign Sales	1,658	0.38	0.35	0.00	1.00	0.00	0.99	0.15	0.56	0.27
Market-to-Book-ratio	1,658	2.76	2.48	-264.20	181.30	-16.97	20.62	1.52	4.05	13.93
Leverage ratio	1,655	0.17	0.21	0.00	2.89	0.00	0.86	0.02	0.27	0.20
Accruals	1,654	-8.18	-6.55	-60.79	37.54	-38.88	11.65	-11.34	-3.32	9.06
DA Modified DD model	1,658	0.39	1.21	-36.42	29.09	-22.93	17.04	-2.50	4.52	7.42

(…) Table 2 - Summary statistics for main variables for FCPA Investigated firms and FCPA Non Investigated firms (Peer Group) selected using propensity score matching - Winsorized measures

3-year Period After

	Investigated Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	80	8.57	8.95	1.86	12.02	1.86	12.02	7.29	9.84	1.90
Percentage of Foreign Sales	80	0.45	0.43	0.01	0.93	0.01	0.93	0.32	0.58	0.22
Market-to-Book-ratio	80	2.95	2.13	-1.86	11.09	-1.86	11.09	1.51	4.04	2.19
Leverage ratio	80	0.23	0.23	0.00	0.95	0.00	0.95	0.16	0.29	0.14
Accruals	80	-4.81	-4.22	-13.01	5.06	-13.01	5.06	-7.67	-2.73	3.64
DA Modified DD model	80	1.63	1.32	-1.49	14.13	-1.49	14.13	-1.08	4.30	4.14

	Peer Firms with Propensity Score Matching									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Log of Market Cap	1,656	6.46	6.56	-2.40	12.23	1.10	11.65	4.77	8.09	2.36
Percentage of Foreign Sales	1,630	0.43	0.40	0.00	1.00	0.00	0.99	0.20	0.61	0.27
Market-to-Book-ratio	1,654	2.65	2.29	-271.74	308.37	-17.74	15.32	1.46	3.82	13.82
Leverage ratio	1,655	0.20	0.14	0.00	7.00	0.00	1.40	0.02	0.27	0.33
Accruals	1,658	-6.88	-5.74	-62.37	31.16	-36.09	13.88	-10.06	-2.62	8.28
DA Modified DD model	1,658	0.72	1.14	-39.63	32.49	-22.01	17.98	-2.34	4.39	6.89

Table 3 - Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals - PSM nearest neighbors within common support and a caliper distance of 0.05

Table 3 shows the Difference-in-Differences results for the main dependent variable, ModDD_3years, that represents the standard deviation of the Discretionary Accruals over a 3-year period calculated using the Modified Dechow Dichev model. Two values of ModDD_3years have been calculated: A value Before (year -3 to year -1) and a value After (year 1 to year 3). The year 0 is excluded from the calculations, as it represents the year of the trigger event (the year 0 is the year when the bribing behavior becomes public, i.e. when the company is supposed to implement actions to correct the behavior). Two dummy variables are used as independent variables. The first dummy is called "Investigated", that takes the value of 1 if the company is an FCPA investigated company and zero otherwise. The second dummy variable is called "After" and takes the value of 1 if the related period is year 1 to year 3, and zero if the related period is from year -3 to year -1. We identify 1,658 peer companies for the 80 events (1,054 distinct companies, each one being used in 1.57 events on the average). The FCPA Investigated Group is made of 80 observations, representing the 80 cases (for 74 unique companies). Observations are clustered at the company level in regressions. Results are shown for matched peer companies with the same SIC3 than one of the investigated firms existing during the 7 years of the event window, with at least once foreign sales disclosed, using propensity score matching with size and percentage of foreign variables as matching variables, within common support and a caliper distance of 0.05[(1)].

PSM with caliper distance 0.05	**Before**		**After**		**Difference**	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms	80	3.09***	80	3.57***	160	0.47
t-stat		*9.02*		*9.76*		*1.26*
Peer Firms[(2)]	1,658	7.04***	1,658	6.11***	3,316	-0.93***
t-stat		*34.04*		*33.51*		*-4.62*
Difference	**1,738**	**-3.95*** **	**1,738**	**-2.54*** **	**3,476**	**1.40*** **
t-stat		***-9.89***		***-6.26***		***3.32***

(1) For four investigated firms, neighbors are selected at the SIC2 level as there are no potential neighbors at the SIC3 level. For three investigated firms, we enlarge the caliper at 10% to find at least one neighbor at the SIC3 level. Results remain unchanged if no neighbor is selected for those cases.

(2) 1,054 unique companies

Table 4 - Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals with year Dummy 2005 and caliper 0.05

Table 4 shows the Difference-in-Differences results for subsamples in time (before and during/after 2005) for the main dependent variable, ModDD_3years, that represents the standard deviation of the Discretionary Accruals over a 3 years period calculated using the Modified Dechow Dichev model. Two values of ModDD_3years have been calculated: A value Before (year -3 to year -1) and a value After (year 1 to year 3). The year 0 is excluded from the calculations, as it represents the year of the trigger event (the year 0 is the year when the bribing behavior becomes public, i.e. when the company is supposed to implement actions to correct the behavior). Two dummy variables are used as independent variables. The first dummy is called "Investigated", that takes the value of 1 if the company is an FCPA investigated company and zero otherwise. The second dummy variable is called "After" and takes the value of 1 if the related period is year 1 to year 3, and zero if the related period is from year -3 to year -1. The Investigated Group is made of 80 observations, representing the 80 cases (for 74 unique companies). 27 cases have been acknowledged before 2005, 53 cases have been acknowledged in or after 2005. Observations are clustered are the company level in regressions. Peer Firms group is made of peer companies of the same SIC3 than the related investigated company, existing during the 7 years of the event window, with at least once foreign sales disclosed and matched using the propensity score matching within common support and a caliper of 0.05.

Psm caliper 0.05 and Dummy 2005	**Before**		**After**		**Difference**	
Before 2005	Nb Obs	Mean	Nb Obs	Mean	Nb Obs	Mean
Investigated Firms	27	2.77***	27	3.77***	54	1.00
t-stat		*8.29*		*5.50*		*1.26*
Peer Firms[(1)]	765	8.59***	765	6.52***	1,530	-2.07***
t-stat		*27.32*		*25.66*		*-6.35*
Difference	**792**	**-5.82*** **	**792**	**-2.75*** **	**1,584**	**3.07*** **
t-stat		***-12.79***		***-3.81***		***3.66***
During or after 2005	Nb Obs	Mean	Nb Obs	Mean	Nb Obs	Mean
Investigated Firms	53	3.26***	53	3.46***	106	0.21
t-stat		*6.89*		*8.02*		*0.55*
Peer Firms [(2)]	893	5.71***	893	5.76***	1,786	0.05
t-stat		*24.42*		*24.32*		*0.20*
Difference	**946**	**-2.45** **	**946**	**-2.30*** **	**1,892**	**0.16**
t-stat		***-4.68***		***-4.69***		***0.35***

[(1)] 615 unique companies [(2)] 562 unique companies

Table 5 - OLS Regressions with Control Variables for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals (…)

Table 5 shows the results of the OLS regressions for our main dependent variable, ModDD_3years, that represents the standard deviation of the Discretionary Accruals over a 3-year period (actually 6 years divided into 3 periods of 3 years, one before the event and one after the event) calculated using the Modified Dechow Dichev model, with control variables. INV is a dummy variable set equal to 1 if the company has been investigated under FCPA and is part of our final sample of investigated companies and 0 otherwise. AFTER is a dummy variable set equal to 1 if the 3-year period if after the event and 0 otherwise. INV*AFT is the interaction variable between the 2 dummy variables defined above. Other general independent variables follow Dechow Dichev (2002) and Chaney, Faccio, Parsley (2010). Operating cycle is defined as the log of the sum of days in receivable and days in inventory. Ln Mkt Cap is the natural log of the company market capitalization in US dollars, to control for size. σ(CFO/TA) × 100 is the 7-year standard deviation of CFO over total assets (*100). σ(Sales/AT) × 100 is the 7-year standard deviation of cash sales over total assets (*100). Sales growth is the annual growth of sales. Market-to-book is the ratio of market capitalization to book value of equity in year t-1. Leverage is total debt as percentage of total assets in year t-1. Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable that considers the district court that settles the DOJ case. Court_SEC is an ordinal variable that considers the district court that settles the SEC case. Dummy_2005 is a dummy variable that takes the value of 1 if the case was acknowledged in or after 2005 and zero otherwise. First Case is a dummy variable that takes the value of 1 if the case is the first one in the industry and zero otherwise. The FCPA Investigated Group is made of 160 observations (80 before the event and 80 after the event), representing the 80 cases (for 74 unique companies). Results are shown for 3 levels of the Peer Group. Peer group is made of companies with the same SIC3 than the related investigated firm, existing during the 7 years of the event window, with at least once foreign sales disclosed using the propensity score matching within common support and a caliper of 0.05 (1), but also for all the peer companies available at the SIC3 level (2), and for a caliper of 0.1 (3).

(…) Table 5 - OLS Regressions with Control Variables for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals

Dependent Variable	Mod DD_3y PSM with caliper of 0.05	Mod DD_3y at SIC3 level	Mod DD_3y PSM with caliper of 0.1
Control variables	**(1)**	**(2)**	**(3)**
INV*AFTER	1.3983***	1.7090***	1.8038***
t-stat	*3.27*	*4.14*	*4.27*
INV	-1.0906***	-1.2690***	-1.2759***
t-stat	*-3.10*	*-3.49*	*-3.60*
AFTER	-0.9252***	-1.2359***	-1.3307***
t-stat	*-4.55*	*-7.07*	*-6.80*
Operating cycle	0.4103*	0.2798	0.2156
t-stat	*1.83*	*1.51*	*0.94*
Ln Mkt Cap	-0.4298***	-0.4307***	-0.4576***
t-stat	*-5.42*	*-6.49*	*-6.23*
σ(CFO/AT)*100	0.0626***	0.0656***	0.0765***
t-stat	*3.36*	*5.95*	*5.13*
σ(Sales/AT)*100	0.0474***	0.0291***	0.0225*
t-stat	*5.33*	*2.90*	*1.93*
Sales growth*100	-0.0002***	-0.0001	-0.0001
t-stat	*-4.43*	*-0.54*	*-1.06*
Market-to-book	-0.0106***	-0.0060	-0.0080**
t-stat	*-3.10*	*-1.48*	*-2.37*
Leverage	1.2785*	-0.3990**	0.8225
t-stat	*1.81*	*-2.15*	*1.21*
Negative Earnings	3.8924***	4.3805***	3.9074***
t-stat	*7.99*	*11.04*	*8.30*
Court_DOJ	0.0049	0.0062	0.0057
t-stat	*1.14*	*1.48*	*1.30*
Court_SEC	0.0064	0.0012	-0.0006
t-stat	*1.14*	*0.40*	*-0.13*
Dummy_2005	0.6418	4.9371***	1.5171
t-stat	*0.51*	*3.16*	*1.09*
Dummy_first	-0.5132	-0.8870**	-0.9007*
t-stat	*-0.99*	*-2.07*	*-2.03*
Intercept	4.3594***	1.3767	5.1273***
t-stat	*2.75*	*0.80*	*2.91*
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,426	6,856	4,970
Investigated firms observations	160	160	160
Peer firms observations	3,266	6,696	4,810
R squared	*30.97%*	*29.06%*	*29.96%*

Table 6 - Robustness test of OLS Regressions with Control Variables for alternative dependent variables (…)

Table 6 shows the results of robustness tests of the OLS regressions with control variables using alternative dependent variables. We use 3 alternative dependent variables. We firstly use the standard deviation over 3 years of the discretionary accruals obtained with the Dechow Dichev model (DD_3y) following Dechow and Dichev (2002). Then we use the Modified Jones Model following Dechow et al (1995). We finally use the Jones model following Jones (1991). The FCPA Investigated Group is made of 160 observations (80 before the event and 80 after the event), representing the 80 cases (for 74 unique companies). Peer group is made of peer companies existing during the 7 years of the event window, with at least once foreign sales disclosed using the propensity score matching within common support and a caliper of 0.05 (1), but also for all the peer companies available at the SIC3 level (2), and for a caliper of 0.1 (3). INV is a dummy variable set equal to 1 if the company has investigated under FCPA and is part of our final sample of investigated companies and 0 otherwise. AFTER is a dummy variable set equal to 1 if the 3-year period if after the event and 0 otherwise. INV*AFT is the interaction variable between the 2 dummy variables defined above. Other general independent variables follow Dechow Dichev (2002) and Chaney, Faccio, Parsley (2010). Operating cycle is defined as the log of the sum of days in receivable and days in inventory. Ln Mkt Cap is the natural log of the company market capitalization in US dollars, to control for size. σ(CFO/TA) × 100 is the 7-year standard deviation of CFO over total assets (*100). σ(Sales/AT) × 100 is the 7-year standard deviation of cash sales over total assets (*100). Sales growth is the annual growth of sales. Market-to-book is the ratio of market capitalization to book value of equity in year t-1. Leverage is total debt as percentage of total assets in year t-1. Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable that considers the district court that settles the DOJ case. Court_SEC is an ordinal variable that considers the district court that settles the SEC case. Dummy_2005 is a dummy variable that takes the value of 1 if the case was acknowledged in or after 2005 and zero otherwise. First Case is a dummy variable that takes the value of 1 if the case is the first one in the industry and zero otherwise.

(…) Table 6 - Robustness test of OLS Regressions with Control Variables for alternative dependent variables (…)

Dependent Variable: DD_3y	**DD_3y PSM with caliper of 0.05**	**DD_3y at SIC3 level**	**DD_3y PSM with caliper of 0.1**
Control variables	**(1)**	**(2)**	**(3)**
INV*AFTER	1.1524***	1.4691***	1.5352***
t-stat	*3.02*	*4.03*	*4.09*
INV	-1.0377***	-1.2263***	-1.2339***
t-stat	*-3.06*	*-3.51*	*-3.64*
AFTER	-0.9779***	-1.2946***	-1.3607***
t-stat	*-4.72*	*-7.27*	*-6.87*
Intercept	3.9766**	1.0543	4.4580**
t-stat	*2.46*	*0.65*	*2.44*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,446	6,884	4,990
Investigated firms observations	160	160	160
Peer firms observations	3,286	6,724	4,830
R squared	*31.72%*	*31.72%*	*31.09%*

Dependent Variable: ModJones_3y	**ModJones_3y PSM with caliper of 0.05**	**ModJones_3y at SIC3 level**	**ModJones_3y PSM with caliper of 0.1**
Control variables	**(1)**	**(2)**	**(3)**
INV*AFTER	0.8664	1.0529**	1.1167**
t-stat	*1.61*	*2.02*	*2.10*
INV	-0.8890***	-0.9841***	-1.0118***
t-stat	*-2.64*	*-2.78*	*-2.92*
AFTER	-0.8425***	-1.0290***	-1.0929***
t-stat	*-4.15*	*-6.18*	*-5.73*
Intercept	4.1262***	5.0716***	5.9298***
t-stat	*2.71*	*2.67*	*3.69*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,456	6,886	4,980
Investigated firms observations	160	160	160
Peer firms observations	3,296	6,726	4,820
R squared	*27.05%*	*25.76%*	*26.26%*

(…) Table 6 - Robustness test of OLS Regressions with Control Variables for alternative dependent variables

Dependent Variable: Jones_3y	**Jones_3y PSM with caliper of 0.05**	**Jones_3y at SIC3 level**	**Jones_3y PSM with caliper of 0.1**
Control variables	**(1)**	**(2)**	**(3)**
INV*AFTER	0.7903	0.9512*	1.0160*
t-stat	*1.49*	*1.84*	*1.93*
INV	-0.7878**	-0.8469**	-0.9027***
t-stat	*-2.37*	*-2.41*	*-2.64*
AFTER	-0.8197***	-0.9806***	-1.0454***
t-stat	*-4.17*	*-6.07*	*-5.62*
Intercept	4.0396***	5.0528***	5.8353***
t-stat	*2.68*	*2.73*	*3.66*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,464	6,906	4,994
Investigated firms observations	160	160	160
Peer firms observations	3,304	6,746	4,834
R squared	*27.05%*	*25.72%*	*26.26%*

Table 7 - Robustness test of OLS Regressions with Control Variables using Propensity Score Matching with Nearest Neighbors

Table 7 shows the results of robustness tests of the OLS regressions with control variables using nearest neighbor matching instead of caliper matching as a Propensity Score Matching technique for our dependent variable ModDD_3years, that represents the standard deviation of the Discretionary Accruals over a 3-year period (actually 6 years divided into 3 periods of 3 years, one before the event and one after the event) following the modified Dechow Dichev model. INV is a dummy variable set equal to 1 if the company has investigated under FCPA and is part of our final sample of investigated companies and 0 otherwise. AFTER is a dummy variable set equal to 1 if the 3-year period if after the event and 0 otherwise. Other general independent variables follow Dechow Dichev (2002) and Chaney, Faccio, Parsley (2010). Operating cycle is defined as the log of the sum of days in receivable and days in inventory. Ln Mkt Cap is the natural log of the company market capitalization in US dollars, to control for size. σ(CFO/TA) × 100 is the 7-year standard deviation of CFO over total assets (*100). σ(Sales/AT) × 100 is the 7-year standard deviation of cash sales over total assets (*100). Sales growth is the annual growth of sales. Market-to-book is the ratio of market capitalization to book value of equity in year t-1. Leverage is total debt as percentage of total assets in year t-1. Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable that considers the district court that settles the DOJ case. Court_SEC is an ordinal variable that considers the district court that settles the SEC case. Dummy_2005 is a dummy variable that takes the value of 1 if the case was acknowledged in or after 2005 and zero otherwise. First Case is a dummy variable that takes the value of 1 if the case is the first one in the industry and zero otherwise. The FCPA Investigated Group is made of 160 observations (80 before the event and 80 after the event), representing the 80 cases (for 74 unique companies). Peer group is made of companies existing during the 7 years of the event window, with at least once foreign sales disclosed using the propensity score matching within common support nearest neighbors matching. Results are shown for the 7 nearest neighbors, 5 nearest neighbors, and 3 nearest neighbors respectively.

Dependent Variable	**Mod DD_3y PSM with 7 neighbors**	**Mod DD_3y PSM with 5 neighbors**	**Mod DD_3y PSM with 3 neighbors**
INV*AFTER	0.9195*	1.0468**	1.0201*
t-stat	*1.96*	*2.13*	*1.94*
INV	-0.8700**	-0.9558**	-0.9436**
t-stat	*-2.45*	*-2.44*	*-2.34*
AFTER	-0.4464*	-0.5737*	-0.5470
t-stat	*-1.68*	*-1.91*	*-1.59*
Intercept	0.9373	0.3777	0.0576
t-stat	*0.48*	*0.18*	*0.02*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	1,076	844	598
Investigated firms observations	160	160	160
Peer firms observations	916	684	438
R squared	*29.28%*	*26.52%*	*25.97%*