Anti-corruption laws and firms behavior : lessons from the FCPA enforcement activity

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ANTI-CORRUPTION LAWS AND FIRM BEHAVIOR:

LESSONS FROM THE FCPA ENFORCEMENT ACTIVITY

THESE

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Par

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« Le monde est dans ma tête, mon corps est dans le monde. »

Paul Auster, La solitude du Labyrinthe

"And if Amsterdam was hell, and if hell was a memory, then he realized that perhaps there was some purpose to his being lost. Cut off from everything that was familiar to him, unable to discover even a single point of reference, he saw that his steps, by taking him nowhere, were taking him nowhere but into himself. He was wandering inside himself, and he was lost. Far from troubling him, this state of being lost became a source of happiness, of exhilaration. He breathed it into his very bones. As if on the brink of some previously hidden knowledge, he breathed it into his very bones and said to himself, almost triumphantly: I am lost."

Paul Auster, The Invention of Solitude

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Résumé

L'impact de la régulation sur le comportement des entreprises est un sujet de débat récurrent où s'opposent les partisans d'une plus grande intervention publique et leurs contradicteurs. Dans cette thèse, j'étudie la réaction des entreprises visées et celle de leurs pairs lorsqu'ils apprennent l'ouverture d'une nouvelle investigation pour motif de paiement de pots-de-vin présumé. Pour ce faire, j'utilise le cas des entreprises poursuivies pour atteinte aux dispositions de la loi anti-corruption nord-américaine, le Foreign Corrupt Practices Act (FCPA). Je fais dans une première partie l'état de l'art des modèles utilisés par la littérature pour lier régulation et qualité de l'information comptable. Puis, dans un deuxième article, j'étudie avec mon co-auteur l'évolution de la qualité de l'information comptable des entreprises visées par une enquête FCPA et des entreprises du même secteur (pairs). Nos résultats suggèrent que les pairs améliorent la qualité de leur information comptable quand ils apprennent l'ouverture d'une investigation FCPA dans leur secteur, mettant en lumière un effet dissuasif de la loi à travers le canal du risque d'information. De manière surprenante, les entreprises visées ne semblent pas, quant à elles, améliorer significativement leur information comptable. Dans un troisième article, je me focalise sur les pairs et les effets économiques réels de l'application de la loi FCPA et j'analyse l'impact de l'ouverture d'une enquête sur le niveau d'investissement des pairs ayant une activité internationale. Les résultats montrent que ceux-ci tendent à diminuer le niveau de leurs investissements quand ils apprennent l'ouverture d'une nouvelle investigation dans leur secteur mais cet effet s'atténue quand le procureur utilise des outils alternatifs de résolution pour clore l'investigation. Ces résultats suggèrent qu'au-delà de l'effet dissuasif sur les pairs de l'annonce d'une investigation dans leur secteur, le mode de résolution de l'enquête utilisé par le procureur peut également influencer le comportement des pairs. En conclusion, cette thèse montre que la loi anti-corruption peut avoir un effet dissuasif sur les pairs, qui tendent à améliorer leur comportement pour répondre à un stimulus règlementaire.

Abstract

The impact of regulation on the behavior of firms is a subject of constant debate between more or less need for public intervention in the decision process of firms. In this thesis, I investigate the direct effect on targeted firms and the indirect effect on peer firms of law enforcement using the cases enforced between 1978 and 2015 under Foreign Corrupt Practices Act (FCPA), the U.S. Anti-Bribery law, as a framework. I firstly review the literature on earnings management, and more specifically on accrual-based models, to analyze the efficiency of accrual-based models to capture changes in regulation. In a second paper, I investigate with my co-author the accrual quality of bribe-paying firms and their competitors and find a positive effect of law enforcement on the accrual quality of bribe-paying firms' competitors, but not the bribe-paying firms. Our results suggest a positive impact of anti-bribery law enforcement that incentivizes other firms to enhance their accounting information once they acknowledge a bribing behavior of a peer following the information risk channel. In a third paper, I focus on the indirect effect of law enforcement on peer firms and investigate the real economic effects of anti-bribery enforcement on the level of investment of peers. I find that peer firms decrease the level of their investment once they acknowledge the opening of a FCPA investigation in their industry. More surprisingly, I find a weakening in the decrease of investment for the cases acknowledged after December 2004, when the prosecutor used for the first time alternative resolution vehicles to conclude a FCPA case. These results suggest that, beyond the impact of law enforcement itself, the prosecution mode also affects the behavior of peer firms. In sum, this thesis shows that anti-bribery law enforcement can have a deterrent effect that impacts peer firms, who tend to adapt their behavior in response to a regulatory stimulus.

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Introduction

L'impact que la régulation peut avoir sur le comportement des entreprises est à la fois une question ancienne et un sujet d'actualité. Les scandales financiers du début du millénaire ont remis en lumière l'importance et la difficulté pour la chose publique d'influer sur les pratiques des entreprises afin d'en améliorer certaines et d'en éviter d'autres (Cohen et al., 2010; Stolowy et al., 2018, 2014). La littérature académique s'est déjà largement penchée sur l'impact que peut avoir la régulation sur les pratiques des entreprises et l'information comptable et financière qu'elles diffusent mais il reste néanmoins beaucoup de domaines à explorer pour mieux appréhender cet impact, que ce soit par une approche empirique ou théorique (Becker, 1968; Leuz and Wysocki, 2016; Rose-Ackerman, 2010). Et puisque la loi s'applique à tous et que nul n'est censé ignorer la loi, l'impact que peut avoir une loi ou son application sur les entreprises peut se concevoir de manière directe ou indirecte. L'influence directe de l'application de la loi a été analysée par la littérature comptable et financière qui a cherché à identifier les conséquences et les déterminants d'un comportement inapproprié ou opportun des entreprises, que ce soit vis-à-vis du vote d'une loi anti-pots-de-vins (Hines, 1995; Zeume, 2017) ou de son application à travers le cas des entreprises poursuivies (Cahan, 1992; Jones, 1991; Karpoff et al., 2017, 2008a, 2008b; Key, 1997).

Beaucoup de ces études se sont concentrées sur l'impact direct que peut avoir la régulation. Pourtant, le régulateur a souvent des moyens limités qui ne lui permettent pas de poursuivre toutes les cibles qu'il a pu identifier (Kedia and Rajgopal, 2011) et il doit espérer que l'application de la loi aura un effet dissuasif sur les entreprises du même secteur (Pairs)[1]. Cet effet dissuasif découle de l'application du modèle économique fondateur sur le crime et les peines théorisé par Becker (1968) selon lequel deux variables essentielles peuvent

[1] Dans un souci de rigueur, le terme « pair » sera souvent utilisé pour la partie de cette thèse qui est rédigée en français afin de rester fidèle au concept de « Peer » utilisé dans la littérature académique anglophone.

influencer le comportement des entreprises : la probabilité que le comportement illégal soit détecté et l'importance (ainsi que la forme) de la sanction.

Cette thèse étudie l'impact positif et l'effet dissuasif que peut avoir la régulation sur le comportement des entreprises dans le contexte d'une augmentation significative du nombre d'actions entreprises par le procureur, pour remédier à des comportements illégaux des entreprises américaines, quand celles-ci cherchent à nouer de nouveaux marchés dans un contexte international. La question de la contribution positive de la régulation et de l'effet dissuasif de la loi et de son application peut s'envisager sous plusieurs angles originaux et complémentaires qui constituent les trois articles de la thèse.

Un premier article fait l'état de l'art sur les modèles utilisés pour mesurer la qualité de l'information comptable, au sens des *Accruals*[2], dans le cadre d'un changement de régulation et contribue à la littérature en identifiant quatre contextes dans lesquels les modèles de gestion de données comptables basés sur les accruals sont liés à ces changements dans la régulation. Un deuxième article, co-écrit avec mon directeur de thèse Pramuan Bunkanwanicha, examine de manière empirique si l'ouverture d'une enquête pour versement présumé de pots-de-vin selon la loi U.S. (Foreign Corrupt Practice Act) a un impact sur la qualité de l'information comptable de l'entreprise visée et sur celle de ses pairs. Les résultats montrent de manière relativement inattendue que seule la qualité d'information comptable des pairs s'améliore après l'ouverture de l'investigation, suggérant un effet dissuasif significatif de l'application de la loi anti-corruption via le canal du risque d'information. Un troisième article se focalise sur l'effet indirect que peut avoir l'annonce de futures poursuites par les agences américaines (Department of Justice, Securities Exchange Commission) sur les pairs en se concentrant cette fois sur le lien entre le niveau des investissements et les outils juridiques utilisés par le procureur américain pour régler le litige. Les résultats montrent un réel effet de contagion

[2] Dans un même souci de rigueur, je conserverai le terme « accruals » dans la partie du manuscrit écrite en français. Ces « accruals » découlent d'une gestion des données comptables en vue de modifier l'opinion que peuvent se faire les investisseurs sur ces données comptables.

chez les pairs avec une baisse significative du niveau des investissements après révélation de l'ouverture d'une investigation dans le secteur. Cet effet est de manière très intéressante atténué sur la dernière décennie par la possibilité d'utiliser le NPA (Non Prosecution Agreement) ou le DPA (Deferred Prosecution Agreement), outils de règlement amiable moins contraignants pour les entreprises visées[3].

Le premier article de la thèse, intitulé *« Do Accrual-Based Earnings Management Models efficiently capture the Impact of Changes in the Regulation? »*, recense dans une première partie les modèles identifiés par la littérature académique, et plus spécifiquement la littérature comptable, qui ont associé les travaux relatifs à la gestion des résultats comptables (*Earnings management*) et la régulation. Depuis les travaux d'Healy (1985), la gestion des données comptables est un concept très développé dans la littérature comptable et financière (Dechow et al., 2010; Healy and Wahlen, 1999; Stolowy and Breton, 2003) qui se focalise notamment sur la mesure des *Accruals* et leur part discrétionnaire, les *Discretionary Accruals* (Dechow et al., 1995; Dechow and Dichev, 2002; Jones, 1991). Les *Discretionary Accruals* peuvent être vus comme des éléments de provision comptable qui ne s'appuient pas sur des faits économiques déjà avérés mais reflètent d'avantage l'opinion discrétionnaire des dirigeants sur les conséquences à venir de certains évènements. L'importance du niveau ces *Discretionary Accruals* (Dechow et al., 1995; Jones, 1991) ou de leur volatilité (Dechow and Dichev, 2002; Francis et al., 2005) est interprétée par la littérature comme une mesure de la qualité de l'information comptable. Dans cette deuxième approche, plus la volatilité est importante, moins l'information comptable est de qualité.

Après avoir dans une deuxième partie recensé la littérature comptable liant la gestion des données comptables et la régulation, j'utilise dans une troisième partie le cadre conceptuel

[3] Le NPA et le DPA sont des conventions transactionnelles entre le procureur et l'entreprise visée par l'enquête permettant de reconnaître les faits et de payer une amende tout en évitant les procédures judiciaires. En France, la loi Sapin 2 a introduit un dispositif proche appelé Convention Judiciaire d'Intérêt Public (CJIP).

préconisé par Whetten (1989) et je mets en évidence que les modèles de gestion de données utilisés par la littérature dans un contexte de régulation sont principalement basés sur le Jones Model (Jones, 1991) et sur les modèles mesurant la qualité des accruals (Dechow and Dichev, 2002), en plus de certains modèles spécifiques à des secteurs d'activité particuliers. J'identifie cinq contextes règlementaires investigués par la littérature que sont le contrôle du respect de la régulation, la mise en œuvre de normes comptables, les nouvelles obligations de publications des faiblesses dans le contrôle interne dans les états financiers, la mise en œuvre de nouvelles régulations dans certains secteurs d'activité, et l'effet dissuasif de la régulation mis en lumière par le canal du risque d'information. J'identifie également, en termes de causalité, que la régulation entraîne généralement la manipulation comptable. Enfin, je contribue à la littérature en mettant en évidence que la gestion des données comptables dans le contexte de la régulation peut se regrouper en quatre catégories distinctes. Premièrement, les dirigeants peuvent manipuler leurs résultats avant le changement de régulation pour bénéficier de la nouvelle régulation à venir ou en éviter les conséquences prévisibles (Cahan, 1992; Jones, 1991; Key, 1997). Deuxièmement, les dirigeants peuvent manipuler les résultats après la mise en œuvre de la régulation pour respecter les exigences de la régulation et éviter ainsi les charges liées à un non-respect de la régulation (Adiel, 1996; Beatty et al., 1995; Collins et al., 1995; Grace, 1990; Moyer, 1990; Petroni, 1992; Scholes et al., 1990) ou profiter de nouvelles possibilités ouvertes par la nouvelle régulation (Miller and Skinner, 1998; Schrand et al., 2003). Troisièmement, les chercheurs utilisent des mesures de la qualité comptable pour évaluer les conséquences de la mise en place de nouvelles normes comptables (Barth et al., 2008) ou la réaction des entreprises après l'ouverture de nouvelles investigations par le procureur dans un secteur d'activité (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011). Quatrièmement, la gestion des données comptables a permis aux chercheurs d'identifier de manière fiable des échantillons d'entreprises à la faible qualité comptable afin

de développer de nouveaux modèles (Beneish, 1997; Dechow et al., 2011, 1995) pour mesurer la gestion des données comptables, de tester les modèles existants, ou de faire émerger de nouvelles causes ou conséquences d'une faible qualité de l'information comptable (Ashbaugh-Skaife et al., 2008; Beneish, 1999; Dechow et al., 1996; Doyle et al., 2007).

Le deuxième article de la thèse, intitulé *« The deterrent effect of anti-bribery law enforcement on the quality of earnings »*, utilise le FCPA, la loi américaine anti-corruption, pour examiner de manière empirique l'impact d'une investigation des procureurs U.S. que sont le Department of Justice (DOJ) et la Securities and Exchange Commission (SEC) sur la qualité de l'information comptable des entreprises visées et celle de leurs pairs. Pourquoi utiliser le FCPA comme cadre d'analyse ? Parce que la loi anti-corruption U.S. existe depuis plusieurs décennies et que le nombre de cas d'entreprises poursuivies est à présent d'une ampleur suffisante pour mener une analyse empirique de qualité et permettre une généralisation des résultats. Les scandales financiers du début des années 2000 ont par ailleurs conduit le législateur à élargir sa palette juridique (Cohen et al., 2010; Stolowy et al., 2018, 2014) et à faire de la poursuite d'entreprises pour faits de corruption une priorité du procureur américain (Karpoff et al., 2017). La qualité de l'information comptable est mesurée par la volatilité des *Discretionary Accruals* (Dechow and Dichev, 2002; Francis et al., 2005; McNichols, 2002). Dans cette acception, une plus grande volatilité est associée à une qualité moindre de l'information comptable. Lorsqu'en 1977, les États-Unis se dotent d'une loi anti-corruption, le FCPA, c'est d'abord pour tempérer le climat domestique délétère lié aux scandales politico-financiers que sont l'affaire Lockheed et le Watergate. Mais dans les discussions du Congrès américain, transpire également une volonté spécifique de pousser les entreprises à enregistrer comptablement tous les échanges financiers qui naissent d'une négociation d'un contrat important en territoire étranger, notamment dans des pays où la corruption est pratique courante. C'est pourquoi le FCPA contient deux dispositions bien

distinctes aux objectifs complémentaires. La première disposition[4] vise à prévenir la corruption d'agents publics étrangers par le paiement de pots-de-vin. La seconde disposition[5] vise à l'amélioration de la transparence comptable et spécifie notamment que toutes les transactions liées à l'événement doivent être enregistrées dans la comptabilité. On peut donc poser l'hypothèse que la qualité de l'information comptable des entreprises entrant dans le périmètre de la loi soit influencée par son application. Le FCPA restera pendant près de deux décennies la seule loi anti-corruption au niveau mondial avant que l'OCDE ne lance à la fin des années 1990 un programme visant à l'adoption de lois similaires par chacune des nations-membres. Le FCPA est donc un dispositif précurseur et ancien qui permet une étude économétrique de qualité. Étant donné que l'article étudie le lien entre le paiement de pots-de-vin et la qualité de l'information comptable, il teste dans une première hypothèse s'il existe une différence fondamentale de comportement entre les entreprises ayant subi une investigation pour le paiement de pots-de-vin à l'étranger et leurs pairs. Puis l'article cherche à cerner plus précisément l'impact de la régulation financière et teste une deuxième hypothèse : la qualité de l'information comptable s'améliore après la révélation de l'investigation. Deux sous-hypothèses distinctes sont testées concernant d'une part les sociétés poursuivies par le DOJ et la SEC et d'autre part les sociétés du même secteur n'ayant pas fait l'objet d'une enquête. Ce cadre d'analyse permet de mettre en lumière l'impact direct de la régulation sur les sociétés condamnées mais aussi l'effet dissuasif sur les entreprises du même secteur qui peuvent se sentir menacées par une prochaine procédure. En utilisant les informations publiées par le DOJ et la SEC, j'ai, avec mon co-auteur, collecté manuellement l'ensemble des actions intentées auprès d'entreprises ou de particuliers qui entraient en violation de la loi anti-corruption U.S. (FCPA). 241 sociétés mères ont été directement ou indirectement poursuivies dans ce cadre sur la période 1978-2015. Après exclusion des

[4] Anti-Bribery provisions, Section 30A du Securities Exchange Act de 1934 – 15 U.S.C. § 78dd-1
[5] Accounting provisions, Section 30A du Securities Exchange Act de 1934 – 15 U.S.C. § 78m(b)(2)(A)) and 15 U.S.C. § 78m(b)(2)(B))

entreprises non-U.S. et des entreprises pour lesquelles les informations comptables et financières nécessaires au travail économétrique ne sont pas disponibles, notre échantillon final est constitué de 80 investigations FCPA sur la période 1978-2015, qui représentent notre groupe de traitement (entreprises ayant reçu le « traitement »). Pour pouvoir comparer la qualité d'information comptable de ces sociétés « traitées » avec leurs pairs, nous construisons un groupe de contrôle composé d'entreprises qui appartiennent au même secteur d'activité qu'une des entreprises traitées, qui existent pendant toute la période d'analyse (3 avant l'investigation, 3 ans après l'investigation). Les pairs doivent également avoir au moins une fois au cours de la période réalisé des ventes à l'étranger, le FCPA concernant uniquement le versement de pots-de-vin dans un contexte international. Nous menons ensuite une étude différentielle (*difference-in-differences*) pour analyser doublement l'évolution de la qualité d'information comptable : temporellement (avant/après l'investigation) et entre les deux groupes (groupe de traitement/groupe de contrôle).

Confirmant l'hypothèse 1, les résultats montrent qu'il existe une différence significative entre la qualité de l'information comptable des entreprises traitées et celle des entreprises de contrôle. Mais de manière relativement surprenante, tout au long de la période d'analyse, la qualité de l'information comptable des entreprises ayant subi une investigation est supérieure à celle de leurs pairs. Cela peut s'expliquer de deux manières. Les entreprises traitées étant d'une taille plus importante, elles ont de fait la possibilité de mettre en place des procédures de conformité plus efficaces que les autres entreprises du secteur. Selon une interprétation plus cynique, les entreprises traitées, se sachant plus exposées au risque d'une procédure anti-corruption ou étant au courant de pratiques internes non éthiques en la matière, améliorent artificiellement la qualité de l'information comptable par des jeux d'écriture. Les résultats de l'analyse différentielle (hypothèse 2) sont aussi surprenants. Seuls les pairs améliorent la qualité de leur information comptable après le déclenchement d'une

investigation par le DOJ et la SEC dans leur secteur d'activité. Les entreprises « investiguées » ne modifient pas de manière significative la qualité de leur information comptable après avoir subi les foudres du procureur.

Après la condamnation, le DOJ et la SEC imposent souvent aux entreprises de mettre en place des procédures de conformité plus pertinentes s'accompagnant parfois d'un contrôle de la conformité *(compliance monitor).* Il est donc logique que la qualité de l'information comptable des entreprises traitées ne se détériore pas après l'investigation. Mais pourquoi n'observe-t-on pas d'amélioration de celle-ci ? Une explication possible est que les entreprises traitées n'ont plus d'intérêt à améliorer la qualité de leur information comptable puisqu'elles ont déjà subi l'investigation. Et si elles utilisaient des artifices comptables pour masquer les pots-de-vin, cette dissimulation est devenue inutile puisque que les versements frauduleux ont été mis à jour par le procureur.

Seuls les pairs améliorent de manière significative la qualité de leur information comptable après la révélation de l'investigation dans leur secteur d'activité. Nous expliquons ce résultat en utilisant le canal du risque d'information (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007). Voyant une entreprise de leur secteur d'activité poursuivie et condamnée, les pairs vont améliorer la qualité de leur information comptable afin de rassurer les investisseurs sur le risque associé à l'augmentation de la probabilité d'être l'objet d'une enquête. En effet, à l'image de ce qui peut se passer en France en matière de contrôle fiscal, les pairs peuvent craindre d'être les prochains à subir une enquête du DOJ et de la SEC, ceux-ci ayant développé un savoir-faire pour repérer les pratiques frauduleuses dans leur secteur d'activité, notamment en utilisant des mesures nées du « Accounting Quality Model »[6], comme le précisait Craig M. Lewis, chef économiste de la SEC dans une interview en Décembre 2012 (Filip et al., 2018).

[6] Aussi appelé par la presse « Robocop », ce modèle permet à la SEC de calculer des données analytiques à partir des états financiers fournis par les entreprises. La SEC calcule notamment le niveau des *Discretionary Accruals* pour identifier à quel point les états financiers des entreprises paraissent anormaux.

Le troisième article de la thèse, intitulé *« The impact of Prosecution on Corporate Investment: Evidence from the Anti-Bribery Enforcement Actions »,* s'appuie sur les résultats du deuxième article et creuse d'avantage la réaction des pairs (*Peer Effect*) après la révélation de l'ouverture d'une investigation FCPA dans leur secteur. Pour élargir notre connaissance sur la réaction des pairs, j'utilise dans ce papier la première disposition de la loi, relative aux paiements de pots-de-vin (*Anti-Bribery provision*) et émet l'hypothèse qu'une nouvelle investigation peut, au-delà des questions de transparence comptable, avoir aussi des effets économiques directs sur les entreprises du même secteur. Le niveau des investissements peut être une bonne mesure pour analyser la réaction des entreprises lorsqu'une nouvelle investigation est révélée mais également lors de changements mis en œuvre par le procureur américain pour régler à l'amiable ces situations. En Décembre 2004, le DOJ a pour la première fois autorisé l'utilisation du NPA (Non Prosecution Agreement) pour régler un litige de versement de pots-de-vin. Ces nouveaux outils de résolution de situations frauduleuses que sont le NPA et le DPA (Deferred Prosecution Agreement) se caractérisent par une analyse moins en profondeur des comportements frauduleux de l'entreprise mais aussi par le versement d'amendes d'un montant plus important par celles-ci. Koehler (2015) l'analyse comme une des causes de l'augmentation en quantité du nombre de cas révélés et ayant conduit au versement d'amendes réparatrices mais aussi une des causes du baisse du niveau de qualité de l'enquête, les entreprises étant investiguées en moindre profondeur.

Jensen (1993, 1986), Shleifer et Vishny (1988) ont montré que le problème lié au free cash-flow (larges excédents de trésorerie combinés à un manque d'opportunités d'investissement satisfaisantes) ne se limite pas à une entreprise prise isolément mais affecte en général le secteur d'activité tout entier. D'autres travaux (Beatty et al., 2013; Durnev and Mangen, 2009; Leuz and Wysocki, 2016) ont montré que les manipulations comptables, une absence de reporting ou un reporting incomplet d'une entreprise peuvent avoir des effets

négatifs sur le niveau des investissements réalisés par les entreprises du même secteur. Enfin, Servaes et Tamayo (2014) ont également observé un effet « pair », en l'occurrence une baisse des investissements des entreprises du même secteur, après la révélation d'OPAs hostiles dans une industrie particulière. Si c'est le cas, une investigation FCPA doit affecter non seulement le niveau d'investissement de l'entreprise ciblée par l'investigation mais également celui des entreprises du même secteur.

Ce troisième article développe cet argument en se focalisant sur la réaction des pairs (*Peer Effect*) et teste plusieurs hypothèses. La régulation financière peut changer les règles du jeu que ce soit dans la manière dont les investigations sont réglées à l'amiable ou par le biais d'une nouvelle loi anti-corruption plus restrictive (Zeume, 2017). Les pairs peuvent donc changer leurs politiques d'investissement car l'annonce de l'investigation va affecter la manière de mener des affaires à l'avenir dans leur secteur d'activité. Et l'évolution des méthodes de règlement amiable peut à son tour affecter cet effet pair.

A l'annonce de l'ouverture d'une nouvelle investigation dans leur secteur, les pairs peuvent réagir en réduisant leurs investissements (hypothèse 1) en révisant à la hausse la probabilité de devenir la prochaine cible du procureur. Et si la possibilité depuis Décembre 2004 d'utiliser le DPA ou le NPA comme véhicule de règlement amiable a conduit à une baisse de la qualité avec laquelle la loi est appliquée, la baisse des investissements après révélation de l'ouverture d'une investigation dans un secteur activité conduira à une moindre baisse du niveau d'investissements des pairs qui craindront moins d'être affectés par une future investigation (hypothèse 2).

En utilisant les informations publiées par le DOJ et la SEC, j'ai recensé 94 investigations concernant des violations du FCPA sur la période 1978-2015 qui peuvent être reliées directement ou indirectement à une société U.S. dont le secteur d'activité est identifié. Outre l'identité de l'entreprise et son secteur d'activité, j'ai également manuellement collecté

les caractéristiques de chacune de ces investigations (montant de l'amende payée, type de véhicule juridique utilisé par le procureur pour régler l'infraction, pays où les pots-de-vin ont été versés, etc.) afin d'enrichir chacun des 94 évènements identifiés. J'ai enfin recensé plusieurs dates susceptibles d'avoir un impact sur les équilibres étudiés (date de révélation interne, date de révélation publique, date de résolution de l'affaire) afin d'analyser plus finement chacun des 94 évènements.

Pour constituer l'échantillon des pairs, je pars de l'ensemble de l'univers de Compustat. Je conserve toutes les entreprises dont le code SIC3 (secteur d'activité) est identique à celui d'un des 94 évènements identifiés, existant pendant toute la période d'analyse (3 avant l'investigation, 3 ans après l'investigation) ayant au moins une fois au cours de la période réalisé des ventes à l'étranger. L'échantillon final est composé de 3 952 pairs (un pair peut se trouver présent dans plusieurs évènements).

Conformément à l'intuition, les résultats montrent une baisse du niveau des investissements des pairs après la révélation de l'ouverture d'une investigation FCPA dans leur secteur alors que les entreprises ciblées par l'investigation ne corrigent pas de manière significative leur niveau d'investissement. Ce résultat s'analyse comme la correction à la hausse de la probabilité d'être la prochaine cible d'une investigation par le procureur. Beaucoup d'entreprises poursuivies dans le cadre du FCPA n'ont pas survécu à l'investigation. On peut donc comprendre cette baisse d'investissement comme la correction à la baisse de leur probabilité de survie par les pairs.

Qu'en est-il pour les évènements révélés après Décembre 2004 et la première utilisation par le procureur du DPA/NPA, outil moins intrusif et permettant d'atténuer l'effet létal d'une investigation FCPA ? De manière intéressante, les résultats de l'hypothèse 2 montrent que la baisse du niveau des investissements chez les pairs est atténuée pour les cas révélés après Décembre 2004. Je l'interprète comme un impact significatif de l'utilisation du

DPA/NPA que les entreprises analysent comme une hausse de leur probabilité de survie à une investigation FCPA.

Cet article apporte trois contributions à la littérature « Droit et Finance ». Il confirme tout d'abord que l'impact négatif sur l'investissement observé lors du passage de loi anti-corruption, que ce soit le FCPA (Hines, 1995) ou le UK Bribery Act (Zeume, 2017), se retrouve aussi au moment de l'application de la loi (*law enforcement*) au niveau du secteur d'activité (*industry level*). Il suggère ensuite que la possibilité d'utiliser de nouveaux véhicules comme le DPA ou le NPA pour régler les cas de corruption à l'amiable atténue la baisse d'investissement des pairs, ceux-ci analysant la possibilité d'utiliser le DPA/NPA comme une augmentation de leur probabilité de survivre à une telle investigation. Cet article contribue en cela à confirmer dans le contexte de la finance empirique les conclusions juridiques de Koehler (2015) selon lesquelles la possibilité d'utiliser le DPA/NPA pour résoudre les cas de corruption entraine une baisse de la qualité de l'application de la loi en même temps qu'une augmentation de la quantité des entreprises poursuivies. Enfin, en identifiant l'impact significatif de la possibilité d'utiliser désormais le NPA ou le DPA pour régler un litige FCPA, je contribue à montrer que l'importance et la forme de la sanction peuvent impacter la réaction des pairs dès qu'ils prennent connaissance de l'ouverture prochaine d'une investigation dans leur secteur d'activité.

La suite de la thèse s'organise comme suit. La partie 1 présente une revue de littérature sur le lien entre les modèles gestion des données comptables basés sur les accruals et un changement dans la régulation. Les parties 2 et 3 correspondent aux articles empiriques utilisant le FCPA, la loi anti-corruption américaine, pour analyser l'impact sur la qualité de l'information comptable et le niveau des investissements réalisés par les entreprises visées par l'investigation ainsi que leurs pairs afin de mettre en lumière l'effet qu'un changement de

régulation peut avoir sur ces aspects du comportement des entreprises. La partie 4 conclut la thèse.

1 - Do Accrual-based Earnings Management Models efficiently capture the Impact of Changes in the Regulation? A Literature Review

1.1 – Introduction

In the accounting literature, the investigation of financial statements has always been a method for understanding the behavior of management, through the analysis of the accounts and their variation from one year to the next. The earnings management literature has focused on how and why managers would interfere in the level of disclosed earnings (Dechow et al., 2010; Healy and Wahlen, 1999; Stolowy and Breton, 2003). A first motivation for managers to impact earnings positively is to influence the level of their bonuses (Healy, 1985; Watts, 1977; Watts and Zimmerman, 1978). A second motivation is to modify the opinion of the users of the financial statements in specific contexts. Investors, for example, may be interested in the financial statements in the context of an IPO (Teoh et al., 1998) or to analyze the level of information risk carried by the company (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007). Another user of the financial information is the regulator. As changes in regulations often lead to an exogenous shock, the context of regulation has been widely addressed by the earnings management literature. Researchers have frequently used abnormal accruals proxies to investigate potential earnings management[7] within the regulatory framework. The regulation event may be a change in the regulator's scrutiny around a new regulation (Adiel, 1996; Ashbaugh-Skaife et al., 2008; Beatty et al., 1995; Cahan, 1992; Collins et al., 1995; Doyle et al., 2007; Grace, 1990; Jones, 1991; Key, 1997; Petroni, 1992; Scholes et al., 1990), or the release by the regulator of information about bad practices that must be avoided following an investigation, as in the SEC's Accounting and Auditing Enforcement Releases (AAERs) (Beneish, 1999, 1997; Dechow et al., 2011, 1996, 1995;

[7] In their literature review about earnings quality, Dechow et al. (2010) note that one hundred papers out of over 300 in their database use "abnormal" accruals as measure of earnings quality

Feroz et al., 1991). The implementation of new accounting standards has also been investigated at country level (Barth et al., 2008; Miller and Skinner, 1998; Schrand et al., 2003) and industry level (Schrand et al., 2003). Finally, SEC enforcement itself and its consequences on both targeted and peer firms, following the deterrent effect of the economics of crime modeled by Becker (1968), have also been investigated (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011), evidencing a potential indirect channel of information risk (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007).

This literature review focuses on how earnings management and more specifically accrual-based models can be linked to changes in the regulation. Some studies that investigate earnings management and regulation but which are not accrual-focused are still kept in the scope of this study because they can help to better understand the link between accrual-based models and regulation. Other studies using accruals quality as a proxy for information risk but not in a regulatory context are also discussed in this study as they are adjacent to studies that explain the indirect (deterrent) effect of regulation on accruals quality using the information risk channel. Real earnings management models are discarded from this study. There are two main reasons for that. The first reason is linked to the traditional objective to avoid reporting annual losses that managers want to reach when they use real earning management models. Real activities manipulation is defined as "management actions that deviate from normal business practices, undertaken with the primary objective of meeting certain earning thresholds" (Roychowdhury, 2006). The author finds that managers discount prices to temporarily increase sales, overproduce to report a lower cost of goods sold, or reduce discretionary expenditures to improve reported margins in order to avoid reporting annual losses and concludes that, if these behaviors are found, with the objective to meet or beat an earnings target, then "real activities manipulation can be considered." For Zhang (2012), "real earning manipulation is a purposeful action to alter reported earnings in a particular

direction." As real earnings management includes mostly manipulation to avoid losses or meet/beat a target, we consider that it cannot enter in the scope of this study. Indeed, when companies want to manipulate their earnings using discretionary accrual models to answer to change in regulation, the earnings manipulation can sometimes lead the company to decrease the level of the earnings in order to benefit from a new regulation (Jones, 1991), or to manipulate the level of the discretionary accruals to improve an unsigned measure of Accrual Quality (Bunkanwanicha and Greusard, 2017). To summarize, there is no specific direction in the manipulation of earnings in the context of a change in the regulation when we consider accrual-based tools where there is one in the real earnings management behavior. The second motivation to discard real earnings management from this study is that the incentive to manipulate earnings in order to avoid losses is mainly to convince stakeholders of firms such as lenders and suppliers of the potential level of performance of the firm (Roychowdhury, 2006) more than the regulator itself. Therefore, earnings management tools appear not to fit well in the scope of our study.

I contribute to the accounting literature by organizing the link between earnings management models and the regulatory contexts developed in the accounting literature in the four main categories that are detailed hereafter. First, firms can manage earnings before the regulatory event in order to benefit from or to avoid the negative consequences of the new regulation. Second, earnings management can follow the new regulation as firms want to respect the new regulation to avoid additional regulatory costs. Third, researchers have been using accruals quality metrics to measure the impact of the regulatory event on the quality of accounting practices of firms, both directly or indirectly through an information risk channel. Finally, in a last category, regulation enables researchers to identify earnings managing firms on a solid ground. They use the sample of enforced firms with low accounting quality to develop new models to measure earnings management and more specifically accrual-based

models, to test the specifications of existing models, or to identify new patterns linked to this sample of low quality firms. This paper is also the first paper, to my knowledge, to use the Whetten approach (1989) to identify which earnings management models are involved in the accounting literature to investigate regulation, in which regulatory contexts and what are the underlying dynamics between them and also to illustrate the contribution using Mind Map approach.

The paper is organized as follows. Section 1.2 starts by defining earnings management and how discretionary accruals have been used in this context, reviewing the main seminal models identified in the literature. Section 1.3 summarizes how accrual-based models have been used in connection with regulation, then explains how the information risk channel could be used to explain the indirect effect of regulation on accrual quality. Section 1.4 details the theoretical contribution of this literature review by presenting an analysis of the link between regulation and earnings management models, and more specifically accrual-based models, using the Whetten framework. Finally, Section 1.5 summarizes and concludes.

1.2 – The nature of accrual-based models

1.2.1 – What is earnings management?

The use of financial statements is one of the pillars of research in the academic accounting literature. Among the topics of interest widely discussed by academia is that of earnings management. Indeed, earnings management proxies can show the influence of management on the financial statements on the one hand, and can be useful to measure the reaction of the company to an external event on the other. Because managers have to follow rules and standards in the preparation of their financial information, earnings management refers to the part of the accounting information that is open to interpretation. Earnings management is therefore the consequence of the use of judgment by managers when altering

the financial reports in order to mislead stakeholders of the company about its economic performance or to influence contractual outcomes that depend on reported information (Healy and Wahlen, 1999). It can occur when the manager has the choices between different processes and different interpretation of the rule (Stolowy and Breton, 2003). Earnings management can be understood as "disclosure management", with the manager's intent to obtain private gain through purposeful intervention in the external financial reporting process (Schipper, 1989). It is a deliberate action that steps out of the constraints of generally accepted accounting principles to disclose the desired level of earnings (Davidson et al., 1987). Earnings management, as a purposeful intervention in the external financial reporting process, can take a number of forms. However, in many empirical studies, what is being "managed" is the accruals, whether all of them or the discretionary portion, and this raises the question of the quality of earnings (Schipper, 1989).

Elaborating a definition of earnings quality that would follow the Statement of Financial Accounting Concept No. 1 (SFAC No 1),[8] Dechow et al. (2010) state that "higher quality earnings provide more information about the features of a firm's financial performance that are relevant to a specific decision made by a specific decision maker". Out of the 300 papers identified in their database, almost one hundred papers use "abnormal" accruals generated from an accruals model as a measure of earnings quality. Among these models, those using residuals from accrual models have become the accepted methodology in accounting to capture discretion (Dechow et al., 2010). As a consequence, in this literature review I will focus on the accrual-based models to analyze earnings quality, which I will first present in a general context, then within the framework of regulation and more specifically after a change in a regulatory situation. Indeed, "if a set of regulations leads to a particular

[8] Replaced in 2010 by Concept Statement n°8

form of earnings management, *changes* in regulations should lead to predictable changes in earnings management behavior" (Schipper, 1989).

1.2.2 – What are accruals?

Following the matching principle, international standards mandate the use of accrual-based accounting to recognize the revenues and expenses during the year they are earned or incurred, regardless of the moment of the actual cash flows related to the operation, so that the profit or loss appearing in the income statement faithfully reflects the wealth creation over the period. It also affects both sides of the balance sheet in which non-cash-based assets and liabilities represent the portion of economic events that occurred but did not yet lead to a cash payment.

As accruals are linked to operations which have outstanding positions, the final amount of the transaction is not always known with certainty at the end of the fiscal year, when the balance sheet is built. This creates room for flexibility for managers, who may be tempted to adapt the level of certain accruals to push the disclosed earnings to a level expected by some stakeholders of the company. As a consequence, accruals can be split into two components which are associated with their uncertain or certain nature. Non-discretionary accruals are made up of obligatory expenses and revenues which are already recorded in the books, have yet to be realized but for which the final amount is known with certainty. No earnings management is possible with non-discretionary accruals. On the contrary, the amount of certain expenses (or revenues) that must be matched to the earnings of the present year, such as management bonuses or the financial consequences of an ongoing trial, is not known with certainty at the date the financial statements are built. Even though the amount of the accruals must be justified, there is still room for maneuver and management can exercise discretion on the final amount registered in the financial statements. This room for maneuver

leads these accruals to be described as discretionary. By nature, the accruals will be reversed in the followings periods and so discretion is ultimately a timing issue, where earnings of the present year will be overvalued (undervalued) because of management discretion and earnings of subsequent years will be undervalued (overvalued) when accruals are reversed. Discretionary accruals therefore enable the manager to transfer earnings between periods (Healy, 1985) following diverse incentives such as tax, regulatory, or political considerations (Watts and Zimmerman, 1978).

Accruals are mainly made up of current assets and current liabilities and the object of analysis is usually their variation over two periods. As a consequence, researchers have often used information from two consecutive balance sheets to calculate them (indirect approach). More recent research has used information directly from the statement of cash flows, when available, to determine the variation in accruals between two periods, which tends to reduce estimation errors linked to mergers and acquisitions, for example (Hribar and Collins, 2002). According to these authors, accruals can be determined directly from the cash flow statement as the difference between earnings before extraordinary items and discontinued operations (item ib in Compustat) and operating cash flows (oancf). In that case, total accruals are calculated as the variation in working capital accounts (current accruals) minus the depreciation expense (dp). The difference between long-term and current accruals is the amount of the amortization and depreciation expenses, impairment expense and changes in provisions for fixed assets and self-produced assets, related to the impact of non-current assets on accruals (Filip et al., 2018; Guenther, 1994). Usually, businesses have more discretion over current than long-term accruals (Teoh et al., 1998).

Focusing on depreciation expense as the impact of non-current assets on accruals, I can set the following definitions, where items listed in parentheses are from Compustat:

Total Accruals = Income before Extraordinary Items (ib) – Net Cash flow from Operating Activities (oancf)

Total Current Accruals = Total Accruals – Depreciation Expense (dp)

Or

Total Current Accruals = Income before Extraordinary Items (ib) – Net Cash flow from Operating Activities (oancf) + Depreciation expense (dp)

And following the determination of operating cash flow in the cash flow statement, we have:

Income before Extraordinary Items (ib) + Depreciation expense (dp) – Total Current Accruals = Net Cash flow from Operating Activities (oancf)

The level of total accruals is higher than the level of current accruals, as I subtract the depreciation expense (impact of long-term accruals) from current accruals to find total accruals. The impact of distinguishing long-term from current accruals depends on the model and the design, where most models finally use a definition which represents current accruals. The separation between non-discretionary and discretionary accruals has a greater impact on the results and their interpretation, which is linked to their nature (one is mandatory, the other is at the discretion of the management).

1.2.3 – The Healy and DeAngelo models: a first approach to the difference in nature between non-discretionary and discretionary accruals

The first study to use a separation between non-discretionary and discretionary accruals is the paper by Healy (1985). This seminal paper proposes to develop a more complete theory about the accounting incentive effects of bonus schemes that had already been studied by Watts (1977) and Watts and Zimmerman (1978), who stated that bonus schemes create an incentive for managers to select accounting procedures, making them a good field of study of the potential discretion in management choices. To better identify this

discretion, Healy suggests splitting Total Accruals (TA_t) into a non-discretionary component and a discretionary component ($TA_t = NDA_t + DA_t$). Total Accruals are estimated as the difference between reported earnings and operating cash flows. Healy uses a partitioning variable to compare total accruals (scaled by total assets) across three groups. For one group, there is a prediction of upwards earnings management, while the earnings are predicted to be managed downwards in the other two groups. The mean total accruals from the estimation period represent his measure of non-discretionary accruals (Dechow et al., 1995), which could be stated as follows:

$$NDA\tau = \frac{\sum_t TAt}{T}$$

Where NDA = Non-Discretionary Accruals

TA = Total Accruals scaled by lagged Total Assets

t = year of subscript for years included in the estimation period

τ = a year subscript indicating a year in the event period

DeAngelo (1986) states that total accruals are normally negative, mainly because the depreciation expense is negative, and are relatively large and non-discretionary, and posits that the Healy model can be pushed further using a first-time difference in order to develop a benchmark for the "normal" or expected total accruals in the period before the analyzed event. As a consequence, her measure of discretionary accruals is linked to the difference in total accruals between two periods, as the average change in non-discretionary accruals is assumed to be zero. The model can be written as follows:

$$(AC_1 - AC_0) = (DA_1 - DA_0) + (NA_1 - NA_0)$$

Where

AC represents total accruals in a given period, which can be 0 (previous period) or 1 (current period),

DA represents the discretionary part of total accruals in a given period,

NA represents the non-discretionary part of total accruals in a given period.

($AC_1 - AC_0$) is the change in accruals between two periods and represents DeAngelo's measure of discretionary accruals.

Both the Healy and the DeAngelo models measure discretionary accruals directly using information from the financial statements. If non-discretionary accruals are not constant over time, then those models tend to measure non-discretionary accruals with errors, generating a need for an alternative measure.

1.2.4 – Using economic determinants to estimate discretionary accruals: The Jones-based models

As discretionary accruals are not observable, research has put forward the two existing models described above, considering that the change in accruals can be linked to economic determinants. The theory behind this states that one can expect a certain level of accruals when considering the level of the economic determinants of the company (or the industry), so non-discretionary accruals can be statistically estimated through OLS regressions where accruals are the dependent variable and economic determinants are the explanatory variables. Discretionary accruals are then estimated as the unexplained part of accruals, through the residuals of those regressions.

1.2.4.1 - The Jones model

In her seminal paper, Jones (1991) uses a cross-sectional analysis for the first time to estimate discretionary accruals as the residuals from expectation models that control for the effect of economic conditions on the level of total accruals, in the context of import relief investigations led by the United States International Trade Commission (ITC). Indeed, to separate non-discretionary from discretionary accruals, the Healy and DeAngelo models use a

restrictive assumption that does not integrate the possibility for the level of working capital accounting to fluctuate depending upon the economic circumstances of the firm (Kaplan, 1985). Using an OLS design, Jones considers that the discretionary part of accruals is the part that cannot be explained by the economic determinants used as explanatory variables in the regressions, where total accruals are the dependent variable. Previous studies (DeAngelo, 1986; Healy, 1985; McNichols and Wilson, 1988) discussed the partitioning of total accruals into discretionary and non-discretionary components.

Total Accruals are calculated using items from the balance sheet (indirect method), as follows:[9]

ΔTA_t = (ΔCurrent Assets$_t$ (act) – ΔCash$_t$ (che)) – (ΔCurrent liabilities$_t$ (lct)) – Depreciation and amortization expense$_t$ (dp)

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

And items indicated parenthetically are Compustat data items.

Jones then uses the following expectation model for total accruals to control for changes in economic circumstances of the firm:

$$TA_{it}/A_{it-1} = \alpha_i (1/A_{it-1}) + \beta_{1i} (\Delta REV_{it}/A_{it-1}) + \beta_{2i}(PPE_{it}/A_{it-1}) + \varepsilon_{it}$$

where

TA_{it} = Total accruals in year t for firm i

ΔREV_{it} = Revenues (sales) in year t less revenues in year t-1 for firm i

PPE_{it} = Gross property, plant and equipment (ppegt) in year t for firm i

A_{it-1} = total assets (at) in year t-1 for firm i

ε_{it} = Error term in year t for firm i

i = firm index (N=23)

[9] Jones uses in a first step a definition of Total Accruals that excludes current maturities of long-term debt and income taxes payable from current liabilities. The final definition of Total Accruals does not adjust for these aspects because of missing Compustat yearly observations.

t = years index with T ranging from 14 to 32

Where $\alpha_{i,}$ $\beta_{1i,}$ β_{2i} denote the OLS estimates of α and/or β and TA is total accruals scaled by lagged total assets,

And items indicated parenthetically are Compustat data items.

Discretionary accruals are the residuals predicted from the model. Jones controls for the change in revenues as, logically, the change in accruals from one year to the next should be proportional to the change in activity of the company, measured as the change in revenues. The underlying assumption is that any change in total accruals which is more than proportional to the change in revenues would be the consequence of a discretionary decision by the management, capturing the discretionary accrual through the residual of the regression (unexplained part). The use of PPE as another explanatory variable is linked to the presence of the depreciation expense in the definition of total accruals. The depreciation expense is the yearly consequence in earnings of the long-term investment policy of the firm. The level of PPE should justify the level of depreciation expense, considered as non-discretionary. And all variables are scaled by lagged assets to reduce heteroscedasticity.

By using an OLS regression model that explains the change in total accruals thanks to the economic fundamentals of the company and captures the non-discretionary part of the accruals in the error term (unexplained part of the variation in total accruals), Jones moves away from a mere determination of discretionary accruals through accounting metrics and relaxes the assumption that non-discretionary accruals are constant (Dechow et al., 1995).

1.2.4.2 - The Modified Jones model by Dechow et al.

Dechow et al. (1995) investigate the existing accruals models to detect earnings management and find that all models generate type I errors (they mistakenly reject the null hypothesis of no earnings management) when samples comprise firms with extreme financial

performances only. As the previous literature often investigated stimuli which are correlated to financial performance, the results demonstrate the need for a more sophisticated model controlling for financial performance. Although the Jones model succeeds in integrating the effect of changes in a firm's economic performance by controlling for the level of change in revenues and PPE, it explains only around one quarter of the variation in total accruals. In addition, the Jones model implicitly considers that revenues are non-discretionary, as the change in revenues is used as an explanatory variable to explain the non-discretionary part of the accruals linked to the change in the level of activity of the firm. Dechow et al. address this limitation by subtracting the change in receivables from the explanatory variable "change in revenues". The authors consider that, if the firm wants to artificially correct the level of revenues by a change in the level of receivables linked to an amount that is very unlikely to be collected in the future, subtracting the change in receivables from the change in revenues would control more efficiently for the non-discretionary part of the change in activity of the firm. As a consequence, Dechow et al. suggest estimating non-discretionary accruals during the event period (i.e. the period in which the earnings management is hypothesized) in a first step, as follows:

$NDAt = \alpha_1 (1/A_{it-1}) + \alpha_2 (\Delta REV_t - \Delta REC_t) + \alpha_3 (PPE_t)$

Where

NDAt = Non-discretionary accruals in year t scaled by total assets at t-1,

ΔREV_t = Revenues (sale) in year t less revenues in year t-1 scaled by total assets at t-1,

ΔREC_t = net receivables (rect) in year t less net receivables in year t-1 scaled by total assets at t-1,

PPE_t = Gross property, plant and equipment (ppegt) in year t scaled by total assets at t-1.

Consistent with previous studies (Healy, 1985; Jones, 1991), Total Accruals are calculated using items from the balance sheet (indirect method), as follows:

ΔTA_t = (ΔCurrent Assets$_t$ (act) – ΔCash$_t$ (che)) – (ΔCurrent liabilities$_t$ (lct)) – Depreciation and amortization expense$_t$ (dp)

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

And items indicated parenthetically are Compustat data items.

In a second step, Dechow et al. estimate discretionary accruals by subtracting the predicted level of non-discretionary accruals from the Total Accruals, as follows:

$DA_{it} = TA_{it} - NDA_{it,}$

Where

DA_{it} is the level of Discretionary Accruals,

TA_{it} represents the level of Total Accruals,

NDA_{it} represents the level of Non-Discretionary Accruals calculated following the modified Jones Model in step 1.

The authors use different earnings management models identified in the literature to test the statistical power of each one in the context of their sample. They contribute to the literature by improving the existing Jones model and find that the modified Jones model appears to reinforce the statistical power of the earnings management test, as their model generates fewer type II errors than previous ones.

1.2.4.3 - Performance-matched discretionary accrual measures by Kothari et al.

Kothari et al. (2005) enhance the traditional discretionary accrual models (Jones and Modified Jones) by using performance-matched measures of discretionary accruals to alleviate the concern that ‘‘all models reject the null hypothesis of no earnings management at rates exceeding the specified test levels when applied to samples of firms with extreme financial performance’’ (Dechow et al., 1995).

The authors follow the previous literature and use Return On Assets (ROA) as their performance-matching measure, since ROA controls for the effect of performance on measured discretionary accruals (Dechow et al., 1998) and enables a fair comparison between firms in a matching context (Barber and Lyon, 1996). Their design tends to remove the part of earnings management which is due to poor or superior performance, and performance-matched discretionary accruals represent only the "abnormal" part of earnings management which is not due to performance. They estimate the performance-matched Jones and Modified Jones discretionary accruals as the difference between the Jones or Modified Jones discretionary accruals and the corresponding discretionary accruals with performance-matched firms and a constant in the model that provides an additional control for heteroscedasticity.

They also test, for comparative purposes, linear regressions that control for performance on discretionary accruals by adding lagged or current ROA[10] to the control variables previously used in the literature. The model to determine discretionary accruals from the Jones model is identical to the Jones model, adding a constant control variable linked to ROA, as follows:

$$TA_{it} = \delta_0 + \delta_1 (1/ASSETS_{it-1}) + \delta_2 (\Delta SALES_{it}) + \delta_{3i}(PPE_{it}) + \delta_4 ROA_{it(or\ it-1)} + \upsilon_{it}$$

Where

TA = Total Accruals calculated as (ΔCurrent Assets$_t$ (act) – ΔCash$_t$ (che)) – (ΔCurrent liabilities$_t$ (lct)) – Depreciation and amortization expense$_t$ (dp)

$ASSETS_{it-1}$ is the level of lagged assets (at),

$\Delta SALES_{it}$ is the change in sales (sale) scaled by lagged total assets,

PPE_{it} is net property, plant and equipment (ppent) scaled by lagged total assets,

[10] The authors find that matching based on ROA_t performs better than matching based on ROA_{t-1}

ROA is equal to income before extraordinary items (ib) scaled by lagged total assets,

δ_0 is the parameter linked to the constant added in the regression,

And items indicated parenthetically are Compustat data items.

Their approach to estimate discretionary accruals linked to the Modified Jones model differs from that of Dechow et al. (1995), as they assume that changes in accounts receivable are unmanaged and therefore they estimate discretionary accruals directly as the residuals of the following regression:

$$TA_{it} = \delta_0 + \delta_1 (1/ASSETS_{it-1}) + \delta_2 (\Delta SALES_{it} - \Delta REC_{it}) + \delta_{3i}(PPE_{it}) + \delta_4 ROA_{it(or\ it-1)} + \upsilon_{it}$$

Where

ΔREC_t is the change in receivables (rect) scaled by lagged total assets,

And items indicated parenthetically are Compustat data items.

The authors find that performance-matched discretionary accruals are well specified and powerful under most circumstances. While these measures are not the best measure in every setting, they are quite useful in mitigating type I errors in cases where the partitioning variable of interest is correlated with performance. In addition, the authors contribute to the literature by providing additional settings (performance-matched measures but also ROA as an additional control variable in a regression setting) to test for earnings management that invite the researcher to think ex-ante about the best-specified model to use in the context of his/her research.

1.2.5 – Accruals quality models (Dechow and Dichev models)

The link between accruals and cash has always been of interest to researchers, and the fact that the cash flow statement in its modern form became mandatory in late 1987[11] provided researchers with addition resources and data to analyze the connection between

[11] In 1987, The Financial Accounting Standards Board (FASB) defined rules that made the cash flow statement mandatory following the FASB Statement No. 95

them. The use of accruals in earnings management has completed the study of information content of cash flows versus accruals (Dechow, 1994; Rayburn, 1986; Wilson, 1987). From that informational perspective, research questions can be posed about the quality of earnings in a context of potential earnings management (Schipper, 1989), and the availability of accurate accruals data in the cash flow statement since 1988 provides an alternative to the indirect balance sheet approach (accruals are calculated using the difference between two balance sheets) to analyze accruals, their quality and potential earnings management (Hribar and Collins, 2002).

1.2.5.1 – The Dechow and Dichev model

Dechow and Dichev (2002) present a new measure of accruals quality that integrates the role of cash flows. For these authors, in an accrual-based accounting where earnings are a primordial measure of a firm's performance, accruals are a way to adjust the present earnings so that those earnings reflect the performance of the company during the present period. Accruals are an indirect way to solve the timing problem of cash flows, namely that an economic event that occurred in a specific year can have an impact on operating cash flow only the following year. Accruals can be more or less accurate, i.e. more or less qualitative, as future cash flows may end up being different from the accrual representing this future cash receipt or disbursement. As a consequence, the quality of accruals and earnings is decreasing with an increase in the magnitude of these differences, representing an estimation error. Dechow and Dichev develop their empirical measure of accrual quality as "the extent to which working capital accruals map into operating cash-flow realizations, where a poor match signifies low accrual quality".

Their model is based on how earnings of the year are linked to past, present and future operating cash flows. Through the time mapping of operating cash flows into earnings, they reconstitute earnings of year t as follows:

$E_t = CF_{t-1}^{t} + CF_t^t + CF_{t+1}^{t} + \varepsilon_{t+1}^{t} + \varepsilon_t^{t-1}$

Where

E_t are the earnings year t,

CF_{t-1}^{t} is the deferral of year t-1 that will be cashed-in in year t (Closing Accrual last year),

CF_t^t is the part of earnings of year t that will be cashed-in in year t,

CF_{t+1}^{t} is the part of the earnings of the year that will be cashed-in next year (Closing Accrual),

ε_{t+1}^{t} is the estimation error between the closing accrual and what will finally be cashed-in next year,

ε_t^{t-1} is the realized error between the accrual of last year and what has been finally cashed-in this year.

To summarize, earnings of one year can be decomposed into past, present, and future cash flows and the estimation errors between accruals and the definitive amount received or paid linked to this accrual. From this statement, Dechow and Dichev derive a model to measure working capital accrual quality, where residuals of the regressions are the accruals that are not related to cash-flow realization. The standard deviation of these residuals is a firm-level measure of accruals quality, where higher volatility of the residuals is associated with lower quality of accruals. To determine the residuals, they use the following firm-level times series regression:

$\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + \varepsilon_t$

Where

ΔWC_t is defined as the change in accounts receivables (recch), the change in inventory (invch), the change in accounts payable (apalch), the change in taxes payable (txach)

and the change in other assets (aoloch),

And CFO is cash from operations (oancf).

The authors follow Hribar and Collins (2002), among others, and use Compustat items linked to cash-flow statements, instead of balance sheet items from two consecutive balance sheets, to calculate the variation in working capital.[12] Their measure of accruals quality is an absolute value, as it is measured through standard deviation, while previous studies used signed measures of discretionary accruals to find out the consequence of earnings management on the level of earnings (earning-increasing or earning-decreasing management). The Dechow Dichev measure of accruals quality is inversely linked to the magnitude of the volatility of estimation errors and does not give information about the positive or negative impact on earnings, only the extent to which accruals are distant from cash realizations.

Consistent with the previous literature (Barth et al., 2001; Dechow et al., 1998), they find that earnings and changes in working capital anticipate future operating cash flows. They also highlight the strong link between their unobservable measure of accrual quality, the standard deviation of the residuals, and selected observable firm characteristics such as the length of the operating cycle, size, the magnitude of sales volatility, cash flow volatility, accruals, accrual volatility and earnings volatility, and the frequency of reporting negative earnings. The Dechow Dichev model marks a new era in the use of accruals to reveal earnings management and has been widely used in different research contexts since 2002. Like other seminal models such as the Jones model, the Dechow Dichev model has been investigated by researchers and amended by some papers to adjust its explanatory power, beginning with a discussion of the original paper by McNichols (2002).

[12] Other studies such as Francis et al. (2005, 2004) later use an indirect approach to calculate accruals when using Dechow Dichev-based models

1.2.5.2 – The modified Dechow Dichev model by McNichols

McNichols (2002) proposes to enhance the power of the Dechow Dichev model by integrating in the original model economic determinants from previous models used in the literature, especially the Jones model (Jones, 1991).

McNichols firstly summarizes the definition of the Accruals of year t as follows:

$A_t = CF_{t-1}^{t} - (CF_t^{t+1} + CF_t^{t-1}) + CF_{t+1}^{t} + \varepsilon_{t+1}^{t} - \varepsilon_t^{t-1}$

Where

CF_{t-1}^{t} represents cash from operations realized in period t-1 and recognized in period t,

CF_t^{t+1} represents cash from operations realized in period t and recognized in period t+1,

CF_t^{t-1} represents cash from operations realized in period t and recognized in period t-1,

CF_{t+1}^{t} represents cash from operations realized in period t+1 and recognized in period t,

ε_{t+1}^{t} represents the estimation error associated with accruals recognized in period t and cash flows realized in period t+1,

ε_t^{t-1} represents the estimation error associated with accruals recognized in period t-1 and cash flows realized in period t.

Recall that recognition of a cash flow stands for the moment when the cash flow is taken into account in earnings (a cash flow recognized in period t affects the level of earnings of period t), while the realization of cash flows stands for the moment when payment is made (a cash flow realized in period t affects the level of cash of period t).

According to this definition, accruals are made up of operating cash flows recognized in period t but realized in a different period, which can be the previous period (CF_{t-1}^{t}) or the next period (CF_{t+1}^{t}), less operating cash flows that are realized in period t but recognized in the previous period (CF_t^{t-1}) or the next period (CF_t^{t+1}). Accruals also include the estimation error of the closing accrual that is linked to the difference between our estimation at the end of period t of what we expect to cash-in in period t+1 and what we will finally cash-in in

period t+1 (ε_{t+1}^{t}). Finally, Accruals in period t also integrate the difference between our estimation at the end of period t-1 of what we expected to cash-in in period t and what we will finally cash-in in period t (ε_{t}^{t-1}), defined as the realization error by Dechow and Dichev.

As cash flows prior to t-1 and subsequent to t-1 are not considered in the model, the key element of the model is the current cash flow, which limits the applicability of the model to companies with short-term operational cycles by nature. McNichols reminds us that the prior literature also suggests that the incorporation of management's incentives to exercise discretion over accruals is linked to motivations which are considered in the original version of the Dechow Dichev model. For McNichols, linking the Dechow Dichev approach to Jones' approach can help strengthen both approaches. According to her, the Dechow Dichev results suggest that including cash flows in the Jones models would reduce the extent to which the model omits variables linked to firms' economic fundamentals, while including sales in the Dechow Dichev model, as per the Jones model, helps control for the influence of growth and long-term earnings growth forecasts on the magnitude of measurement error. This magnitude of measurement error can be associated with the absolute magnitude of accruals, which can also be mechanically correlated to variability in sales, cash flows and earnings (McNichols, 2002).

As a consequence, McNichols proposes this modified version of the original Dechow Dichev model, which integrates Jones' control variables linked to the firm's economic characteristics:

$$\Delta WC_t = b_0 + b_1\, CFO_{t-1} + b_2\, CFO_t + b_3\, CFO_{t+1} + b_4\, \Delta Sales + b_5\, \Delta PPE_t + \varepsilon_t$$

Where ΔWC_t is defined as the change in accounts receivables (recch), the change in inventory (invch), the change in accounts payable (apalch), the change in taxes payable (txach), and the change in other assets (aoloch), using Compustat items from the cash flow statement,

CFO is cash from operations (oancf),

ΔSales is the change in sales (sale),

ΔPPE is Gross Property, Plant and Equipment (ppegt),

And items indicated parenthetically are Compustat data items.

Note that the change in WC is linked to current accruals only and differs from the total accruals scope of the Jones model, as ΔWC does not consider the depreciation expense. It creates a distortion in the scope of the regression setting, as the dependent variable comprises current accruals only while the explanatory variable PPE naturally controls for the level of depreciation expense (and long-term accruals) in the Jones model. As the Dechow Dichev explanatory set of variables excludes cash flow realizations prior to period t-1 and subsequent to period t+1, thereby limiting the applicability to companies with short-term cycles, the inclusion of PPE in the control variables like in the Jones model may help control for longer-term influences on the change in working capital from one year to the next.

McNichols' paper extends the original, and quite novel at the time, Dechow Dichev paper by including additional control linked to firms' fundamental characteristics, in order to "develop more powerful approaches to the estimation of earning quality" (McNichols, 2002).

1.2.5.3 – The discretionary estimation errors model by Francis et al.

Francis et al. (2005) investigate the relation between Accruals Quality and the costs of Debt and Equity capital. They identify Accruals Quality (AQ) as a measure of information risk[13] used by investors, because accruals quality tells investors how faithfully earnings will be mapped into cash flows, and previous theoretical research has shown that information risk is non-diversifiable (Easley et al., 2002; Lambert et al., 2007).

[13] They define information risk as the "likelihood that firm-specific information that is pertinent to investor pricing decisions is of poor quality"

They follow the modified Dechow Dichev model and measure AQ as the measurement errors in current accruals regressions. Instead of using information from the cash-statement to determine the change in current accruals (change in working capital), Francis et al. use the indirect method previously advocated by the literature, as information from cash-flow statements was not available before 1988 and their sample covers the period 1970-2001.[14] They firstly determine the residuals used to determine AQ using cross-sectional regressions as proposed in the modified Dechow Dichev model (McNichols, 2002), as follows:

$$TCA_{j,t} = \beta_{0,j} + \beta_{1,j} CFO_{j,t-1} + \beta_{2,j} CFO_{j,t} + \beta_{3,j} CFO_{j,t+1} + \beta_{4,j} \Delta Rev_{j,t} + \beta_{5,j} \Delta PPE_{j,t} + \nu_{j,t}$$

Where

$TCA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDebt_{j,t}$ = firm j's total current accruals in year t,

$\Delta CA_{j,t}$ is firm j's change in current assets (act) in year t,

$\Delta CL_{j,t}$ is firm j's change in current liabilities (lct) in year t,

$\Delta Cash_{j,t}$ is firm j's change in cash (che) in year t,

$\Delta STDebt_{j,t}$ is firm j's change in debt in current liabilities (dlc) in year t,

$CFO_{j,t}$ = Net Income before extraordinary items (ib) - $TA_{j,t}$ = firm j's cash flow from operations in year t,

$TA_{j,t} = \Delta CA_{j,t} - \Delta CL_{j,t} - \Delta Cash_{j,t} + \Delta STDebt_{j,t} - DEP$ = firm j's total accruals in year t,

DEP = firm j's depreciation and amortization expense (dp) in year t,

ΔRev is firm j's change in sales (sale) in year t,

ΔPPE is firm j's Gross value of Property, Plant and Equipment (ppegt) in year t,

And items indicated parenthetically are Compustat data items.

[14] In previous seminal papers such as Jones (1991) and Dechow et al. (1995), change in accruals was determined by comparing two consecutive balance sheets. This was before Hribar and Collins (2002) argued that a direct approach using cash flow statement information was less noisy, as it avoided the consequences of mergers and acquisitions on the balance sheets considered. Globally, the two approaches are used in the literature (direct and indirect) depending on the context.

AQ is the standard deviation of firm j's residuals, $\nu_{j,t}$, calculated over years t-4 through t, with a higher standard deviation standing for poorer Accrual Quality. Francis et al. determine a standard deviation over a five-year period, using seven-yearly observations as previous and future cash flows are used in the yearly cross-sectional regressions to determine each $\nu_{j,t}$.

In the Dechow Dichev model, the measure of AQ is linked to the estimation errors as a whole. One contribution of Francis et al. is to go further and to investigate the part of estimation errors that could be recognized as innate, i.e. driven by the firm's economic model and environment, and the part that is discretionary, consequent to the management's discretion. Following Dechow and Dichev (2002), they use five indicators to determine the part of AQ which is innate. For the authors, the part of AQ which can be explained includes firm size, volatility of cash flows, volatility of revenues, length of the operating cycle, and the frequency of negative earnings realizations; it is innate and does not depend on the decision by the management to exercise discretion over the level of earnings. The remaining part of AQ, which cannot be explained by the five innate factors listed above, is considered as the consequence of management discretion on the level of earnings.

In a first method, Francis et al. identify the components of accruals quality by running the following regression on a firm-specific basis:

$$AQ_{i,t} = \lambda_0 + \lambda_1 Size_{i,t} + \lambda_2 \sigma(CFO)_{i,t} + \lambda_3 \sigma(Sales)_{i,t} + \lambda_4 OperCycle_{i,t} + \lambda_5 NegEarn_{i,t} + \mu_{i,t}$$

Where

$AQ_{i,t}$ = standard deviation of firm j's residuals from years t-4 to t, from cross-sectional estimations of the modified Dehow Dichev (2002) model,

$Size_{i,t}$ = log of total assets (at),

$\sigma(CFO)_{i,t}$ = standard deviation of firm j's cash flow from operations, calculated over the past 10 years,

$\sigma(Sales)_{i,t}$ = standard deviation of firm j's sales (sale), calculated over the past 10 years,

$OperCycle_{i,t}$ = log of firm j's operating cycle, measured as the sum of days accounts receivable and days inventory, calculated over the past 10 years,

$NegEarn_{i,t}$ = the number of years, out of the past 10 years, where firm j reported a net income before extraordinary items (ib) < 0,

And items indicated parenthetically are Compustat data items.

The innate part of AQ is the predicted value derived from the previous equation and can be determined as follows:

$$InnateAQ_{i,t} = \hat{\lambda}_0 + \hat{\lambda}_1 Size_{i,t} + \hat{\lambda}_2 \sigma(CFO)_{i,t} + \hat{\lambda}_3 \sigma(Sales)_{i,t} + \hat{\lambda}_4 OperCycle_{i,t} + \hat{\lambda}_5 NegEarn_{i,t}$$

The residual from the previous equation is the estimate of the discretionary component of firm j's accrual quality, $DiscAQ_{j,t}=\hat{\mu}_{j,t}$.

Francis et al. use a second method (Method 2) where DiscAQ is the coefficient on (total) AQ, when the innate factors are included as control variables in the regression tests of the cost of capital.

Their design, serving to separate the effect of innate factors from the effect of management discretion on the cost of capital, contributes to the literature by extending the modified Dechow Dichev, which measures the magnitude of discretion as a whole. They find that poorer AQ is associated with larger costs of debt and equity, but the effect of discretionary AQ on both components is smaller than the innate AQ effect.

------- Insert Table 1.1 about here -------

1.3 – The use of discretionary accruals in the context of regulation

1.3.1 – An early awareness of the opportunity to study earnings management in the context of regulation

Schipper (1989) defines earnings management as "a purposeful intervention in the external reporting process, with the intent of obtaining some private gain", and Dechow et al. (2010) state that the quality of earnings will affect the level of information made available by a specific decision maker. Earnings management can therefore be used to influence the opinion of the external investor about the cost of capital of a firm (DeAngelo, 1986; Francis et al., 2005, 2004; Teoh et al., 1998) or to positively influence external investors in the context of a specific event, such as an IPO (Teoh et al., 1998). Within the firm, earnings management can be used by managers whose bonuses are linked to the level of earnings (Healy, 1985). More generally, earnings management means "disclosure management", i.e. accounting numbers viewed as information (Schipper, 1989). This informational perspective provides an opportunity to use earnings management to convince or influence all the stakeholders of the firm. Among other stakeholders, we find the regulator, considered in its widest sense. The approach to studying and identifying the earnings management method, as well as the proxy used to measure it, therefore depends on the institutional setting (Schipper, 1989). It also depends on the user of the information identified by the researcher. Schipper (1989) takes the example of Jones (1991), who uses the action of the International Trade Commission, a regulatory body, to investigate the level of discretionary accruals around an event date, and that of Scholes et al. (1990) who find earnings management in the context of changes in bank taxation rules. As a consequence, a "change in regulations should lead to predictable changes in earning management behavior" (Schipper, 1989) to benefit from or to avoid the consequences of changes in regulations. Factors such as taxes and regulations are expected to

affect a firm's cash flows (Watts and Zimmerman, 1978), and can therefore lead to earnings management.

As a conclusion, a change in regulations can be used as an event around which the behavior of firms towards earnings management may change. And earnings management proxies, such as accruals, can efficiently be used to analyze the impact of a change in the regulation on the behavior of firms, as firms want to disclose a certain level or type of information to the regulator, in order to benefit from the change in regulation or to avoid being the target of the new regulation.

1.3.2 – Earnings management and regulation

1.3.2.1 - Regulation scrutiny

Earnings management has been extensively studied to analyze the impact of a change in regulations and/or a change in the level of scrutiny.

When Jenifer Jones develops the Jones model in her seminal paper (Jones, 1991), she specifies that earnings management studies generally investigate "situations in which all contracting parties have incentives to adjust accounting numbers for manipulation". In her paper, the import relief investigations by the United States International Trade Commission (ITC) is the event that provides a motivation for earnings management, which is linked to a "wealth transfer" from one group to the other. It is therefore a potential response to a stimulus linked to a change in regulations rather than a reaction to a change in market equilibrium. In foreign trade regulation, firms and all related agents such as stockholders, employees and suppliers "cannot be hurt directly by the import protection and instead may benefit" (Jones, 1991). Earnings management would then be the consequence of firms wanting to benefit from regulation or the change in regulation for their own benefit, at the expense of their competitors. Indeed, once the ITC determines that an industry has been injured by imports,

the Department of Commerce increases tariffs for foreign competitors. In that case, the manipulation of accounting figures by U.S. domestic companies does not directly generate a cost for domestic social welfare but influences the regulator to make importations costlier for foreign companies. Nevertheless, earnings management, and more specifically discretionary accruals in the context of Jones' paper, fit with the issue under study, as the "federal government program uses accounting numbers[15] as the basis for wealth transfers (i.e. import reliefs)" (Jones, 1991). Jones finds that "managers decrease earnings through earning management during import relied investigations (…) in order to increase the apparent injury to the firm and, thereby, the industry" using discretionary accruals to reveal earnings management. This shows that a change in regulation or investigations led by the regulator create events that can be incentives for earnings management, and provides a natural field for the study of earnings management. Earnings management, and in this context discretionary accruals, can help to measure the efficiency of regulation or the perverse effect of regulation on the behavior of firms, at the firm or industry levels.

In a longitudinal study of 48 firms over 15 years, Cahan (1992) investigates earnings management using discretionary accruals during monopoly-related antitrust investigations by the Department of Justice (DOJ) and the Federal Trade Commission (FTC). Following the political-cost hypothesis, Cahan states that, as the DOJ and FTC use accounting numbers including income in making their antitrust decisions, managers of investigated firms have an incentive to reduce earnings during the investigation period to reduce the possibility of an unfavorable ruling. Income-reducing discretionary accruals management is here used to increase the probability of dismissal. Using a Jones Model approach to estimate the discretionary accruals, the author confirms that managers in investigated firms produce abnormally low levels of income during investigation years, where the discretionary accruals

[15] Jones specifies that "ITC is interested in earnings before taxes" which creates a natural incentive for accrual manipulation that can be measured through discretionary accruals

of control firms do not change significantly. These results support the political-cost hypothesis and are consistent with managers adjusting earnings in response to monopoly-related antitrust investigations (Cahan, 1992).

Key (1997) uses the implementation of a new regulation in the cable industry led by the U.S. congress in the late eighties and early nineties to test the theory of political costs, whereby firms are hypothesized to adopt accounting procedures that can reduce the wealth transfer linked to the political process (Watts and Zimmerman, 1986). Using a Jones based model (Jones, 1991) to determine discretionary accruals, the author finds that cable TV firms have greater income-decreasing accruals in Congressional scrutiny time periods, whereas on the whole, diversified firms do not exhibit the same pattern.

The three above examples use a similar strategy. A change in the regulation creates the opportunity to analyze firms' behavior, as regulated firms respond to the regulation by managing their earnings to avoid scrutiny or benefit from the regulation. Discretionary accruals measure the discretion used by management to send positive accounting information to the regulator. Discretionary accruals give the researcher a tool to identify a response by firms to the stimulus of regulation. We note that these studies focus on the direct effect of a regulation on regulated firms and do not extend the results to a potential effect of regulation on peers, although they often use a benchmark of unregulated firms to compare the level of discretionary accruals to proxy management discretion on earnings. These papers also share a time analysis where discretionary accruals are measured before, during, and after the regulation scrutiny in order to show a change in behavior over time.

An extensive strand of the accounting literature has used discretionary accruals around Accounting and Auditing Enforcement Releases (AAER) to analyze the impact of enforcement and, as a consequence, the impact of the change in the quantity of scrutiny on the quality of the accounting information disclosed. AAERs were introduced in 1982 by the

SEC[16] and describe the SEC's investigations of alleged violations of accounting provisions of the securities laws (Jones, 1991). They summarize the accounting-based enforcement actions of the SEC and are publicly disclosed to inform and provide incentives for firms to avoid financial reporting misstatements. As a consequence, the publication of AAERs can be expected to have an impact on targeted companies, but also other companies in the same industry. It can also be assumed that companies whose behavior is at the origin of an AAER may share patterns and financial characteristics, among which earnings management proxies can play a role in the identification of the misstating company ex-ante or the measurement of the consequence of the SEC enforcement action for the company ex-post.

The previous literature has used accruals to identify firms that potentially violate Generally Accepted Accounting Principles. For example, Dechow et al. (1996) find that firms that intentionally overstate reported earnings have higher total accruals and higher estimated discretionary accruals during investigation years. Dechow et al. (2011) find that different measures of accrual quality are unusually high in misstating years for those companies compared to the broad population of firms. This is consistent with Feroz et al. (1991), who state that the "SEC often pursued overstatements of accounts receivable and inventories resulting from premature revenue recognition and delayed write-off, respectively", both these items being part of the determination of the firm's accruals and more widely of its working capital.

AAER investigated companies must have an incentive to manage their earnings and discretionary accruals can help the researcher to identify the motivation behind earnings management. Dechow et al. (1996) find that "an important motivation for earnings manipulation is the desire to extract external financing at low cost".

[16] The Securities Exchange Act of 1934 gives authority to the SEC over the form and the content and financial statements (Feroz et al., 1991)

The SEC's enforcement through AAERs can also have consequences for the firm. Feroz et al. (1991) find that disclosures of reporting violations and disclosures of investigations are associated with negative abnormal returns (-13% and -6% respectively).

AAERs are even used as a field to test the power and specification of existing accrual-based models and to propose alternative models in order to improve the existing models used in the accounting literature. Dechow et al. (1995) developed the Modified Jones model using a sample of firms targeted by the SEC for allegedly overstating annual earnings. Beneish (1999, 1997) developed a probit model of earnings manipulation using a sample of firms subject to the SEC's enforcement actions. Though his model is not a discretionary accrual model, it has been used to detect earnings management (Jones et al., 2008). Dechow et al. (2011) find that the modified and performance-matched Jones models have less power to identify manipulation than unadjusted accrual measures linked to working capital or the signed Dechow Dichev model. They use misstating firms linked to AAERs to develop a scaled probability (F-score) that can be "used as a red flag or signal of the likelihood of earning management or misstatement".

AAERs are naturally linked to discretionary accruals studies, as overstatements identified in companies targeted by the SEC's enforcement action under the AAER often influence the level of accruals. Therefore, both causes and consequences of SEC scrutiny can be measured through discretionary accruals proxies to better understand how the level of enforcement and the accrual quality, among others, can interact and provide information to each other.

Other regulatory actions can then be expected to be linked to discretionary accruals models, among which standard setting and changes in audit regulations such as the Sarbanes-Oxley Act.

1.3.2.2 – Accrual-based models and standard setting

Standards are another form of regulation that are a good field for the investigation of accounting quality, in that the level of accounting quality can be used to measure the efficiency of standard setting. Barth et al. (2008) investigate a sample of firms from 21 countries that adopted International Accounting Standards (IAS) between 1994 and 2003 to test whether the implementation of IAS leads to a difference in the accounting quality of information disclosed by firms. They use different earnings management metrics, including an earning smoothing metric based on the Spearman correlation between accruals and cash flows, and find that firms applying IAS generally display less earnings management. While this paper does not use discretionary accruals, the pattern of evolution of accruals compared to cash-flow metrics is of some interest for the authors, as it provides evidence of an increase in the accounting quality of the information disclosed by firms that apply IAS compared to firms that follow domestic standards. Accruals are here (among other metrics) used to demonstrate an increase in accounting quality linked to IAS.

The adoption of the Standard of Financial Accounting Standards No. 109 (SFAS No. 109) "Accounting for Income Taxes" by the FASB in December 1992 has been another opportunity for researchers to investigate the impact of the adoption of a new standard on the behavior of firms in terms of quality of accounting disclosure. SFAS No. 109, codified ASC 740 since 2009, intends to clarify the accounting rules for deferred tax assets.[17] As the recognition of deferred tax assets is linked to future operations in a potential context of changes to tax rates and calculation bases, it allows firms to use their discretion to set arbitrarily high valuation allowances against deferred tax assets (Schrand et al., 2003). Using a sample that represents all U.S. firms, Miller and Skinner (1998) find no evidence that managers use the valuation allowance for earnings management purposes, while Schrand et

[17] In July 2009, the FASB recoded its standards using the Accounting Standards Codification (ASC), in which SFAS No. 109 becomes ASC 740 called "Income Taxes"

al. (2003), focusing on the banking industry, find that banks use the valuation allowance to smooth earnings towards the consensus forecast and historical earnings per share. Those two papers do not directly use discretionary accruals proxies, but do use earnings management tools to analyze the behaviors or firms[18] and tend to show the opportunity provided by the implementation of a standard as an exogenous shock to test the reliability of the disclosed accounting information through the degree of discretion exercised by managers.

1.3.2.3 Accrual Quality and changes in internal control requirements

The Sarbanes Oxley Act (SOX) was implemented in 2002 as a reaction to numerous scandals, such as those involving Enron and Worldcom. SOX added new or enlarged requirements for U.S. public companies' boards and management. Sections 302 and 404 have been investigated by the accounting literature and Accruals Quality was selected as a proxy to measure the impact of these new requirements on the behavior of U.S companies. Section 302 states that principal executive and financial officers are directly responsible for the accuracy and submission of the financial reports. Section 404 sets out the responsibility of management for establishing and maintaining internal controls within the firm.[19] This increase in responsibility for the top management was intended to have a positive impact on the quality of accounting information. Doyle et al. (2007) logically used an Accrual Quality measure developed by Dechow and Dichev (2002), McNichols (2002) and Francis et al. (2005) to investigate the change in the Accrual Quality of companies that disclosed material weaknesses in internal controls under the requirement of Sections 302 and 404 of the Sarbanes-Oxley Act of 2002. They find weak internal controls are associated with relatively low-quality accruals. Ashbaugh-Skaife et al. (2008) also investigate the impact of SOX 302

[18] Schrand et al. (2003) use proxies for management incentives that are linked to capital adequacy requirements, while Miller and Skinner test (1998) leverage and smoothing hypotheses.
[19] See Section 302 of SOX: http://www.sox-online.com/the-sarbanes-oxley-act-full-text/

and 404 on Accrual Quality. They use three measure of accrual quality: a standard deviation of the residual of accruals, absolute and signed values of abnormal total accruals, and working capital accruals. They find that accruals from firms with internal control deficiencies (ICD firms) are less reliable than those of firms with no reported internal control problems, and contribute to showing how internal control affects the quality of accruals and the reliability of financial statements.

In this strand of the literature, the implementation of SOX is used as an exogenous event and Accruals Quality as a measure of the potential improvement in internal control processes linked to the new constraints generated by SOX 302 and 404.

1.3.2.4 – Industry regulation

Some papers use earnings management proxies to investigate the impact of the regulation of a specific industry. In the banking industry, several researchers have analyzed the incentives of managers of commercial banks to exercise accounting discretion over capital adequacy ratio regulations (Beatty et al., 1995; Collins et al., 1995; Moyer, 1990; Scholes et al., 1990). Instead of using accruals as an earnings management tool, Moyer (1990) focuses on the adjustments related to the commercial banking context from 1981-86 and the assumed willingness of banks to reduce regulatory cost, and uses "one accrual (the loan loss provision), one accounting adjustment (loan charges off), and one accounting measure impacting cash flows (securities gains and losses)" to estimate earnings management patterns. Moyer finds that managers adopt ratio-increasing accounting adjustments to reduce the capital adequacy ratio to the regulatory minimum and reduce regulatory costs. Scholes et al. (1990) use the loan-loss provision variable to provide a test of income management and find that "the positive coefficient on the loan-loss provision variable in the regression is consistent with the argument that realized securities gains and losses are chosen strategically" to "smooth" the

level of income reported by offsetting the income effect of the bad debt expense. Collins et al. (1995) offer evidence that loan loss provisions are used to manage earnings using a sample from 1989-91, while Beatty et al. (1995) relax the assumption made in the three previous studies that "when managers make a particular accrual or transaction decision, all other decisions are fixed" and confirm the hypothesis of capital management.

Earnings management is also a concern in the insurance industry, because of the nature of the activity and the necessary adjustments and discretion to estimate the level of risk and therefore the level of expenses and revenues recognized in the income statement of the year. Grace (1990) shows that "property-liability insurers use reserving practices to minimize federal tax payments and managers use reserving practices to minimize federal tax payments". Insurance reserves must include estimates of outstanding losses for all filed cases and cases to be filed for which the amount can be determined, but also for future expenses linked to outstanding claims. As loss reserve calculations are calculated on an individual-case basis, and as the criteria for calculations are numerous and the formula complex, there is obviously a lot of scope for manager discretion in the determination of those reserves (Petroni, 1992). As a consequence, Petroni uses the reserve estimation error to control for earnings management in the context of the insurance industry, and finds that managers of financially weak insurers bias downwards their claim loss reserve compared to financially strong peers, even if this implies more taxation (Petroni, 1992). Adiel (1996) finds that insurers manage earnings through reinsurance transactions to reduce regulatory costs.

Even though these industry-based papers do not strictly use discretionary accruals proxies, they often follow a methodology using one specific accrual related to the regulatory context to detect management that compares an expected performance to the real one, the difference being considered as linked to a discretion choice by the management around the regulatory event.

1.3.3 – The indirect channel of information risk

Some studies do not directly analyze the effect of regulation on the earnings management of targeted firms but more on other firms that may fall within the scope of the law. These papers follow the model of the economics of crime by Becker (1968), which states that firms will respond to two main variables: the probability of getting caught and the level of punishment. In the context of discretionary accruals, this would mean that firms would manage their earnings to avoid being the next target (window dressing hypothesis) or would improve the quality of their accounting practices out of fear of the law (deterrent effect of the law), this increase in quality being measured by a decrease in discretionary accruals, i.e. managerial discretion.

A strand of the literature has used SEC enforcement actions to investigate the direct and indirect effects on firms' earnings quality of SEC enforcement patterns. Kedia and Rajgopal (2011) investigate whether SEC enforcement preferences influence the probability of a firm committing a violation. Following their results, they formulate a "differentially informed criminal" hypothesis that predicts that firms that are well informed about the SEC's enforcement activities are less likely to commit a violation. They also formulate a second hypothesis, the "constrained cop" hypothesis, stating that before deciding to commit a violation, firms consider the SEC's budget and time constraints, as the prosecutor will initiate investigations that are cheaper to implement. These findings confirm the Becker model and the propensity of firms to adapt their behavior to the probability of being the next target. The authors use misreporting deviation for the county (defined as the "difference in the county's share of restating firms relative to the county's share of public firms") and geographical distance from the firm to the SEC as their main measures and two samples of firms, potential violators represented by firms that announced a restatement and SEC targeted firms, using the sample detailed in Karpoff et al. (2008a, 2008b). While this paper does not strictly use

discretionary accruals measures, it shows the potential indirect effect of SEC enforcement actions on the behavior of firms.

Using SEC enforcement actions and class action litigation lawsuits, Jennings et al. (2011) find significant deterrence for both targeted firms and their industry peers, who reduce their abnormal accruals, measured using the performance-matched adjusted Jones model (Kothari et al., 2005) in the aftermath of an investigation. Bunkanwanicha and Greusard (2017) focus on U.S. anti-bribery enforcement actions by both the DOJ and the SEC under the Foreign Corrupt Practice Act (FCPA) and document a positive effect on the Accrual Quality of bribe-paying firms' competitors, but not the bribe-paying firms themselves. The authors use the Accrual Quality measure as developed in Dechow Dichev (2002) and modified by McNichols (2002) and Francis et al. (Francis et al., 2005), which represents the standard deviation of the discretionary accruals, calculated over a 3-year period.[20] These two papers contribute to developing methodologies that evidence an indirect effect of enforcement, qualified as a deterrent effect, using discretionary accruals that reflect a level of transparency of the accounting information.

They follow the interpretation of Rajgopal et al. (2011), who assume that poor earnings quality is consistent with financial statements that are not transparent, using the Dechow Dichev model (2002) and the square abnormal accruals based on Jones (1991) measures to capture the transparency of financial reporting numbers. In this paper, the authors find a strong association between rising stock return volatility, mainly idiosyncratic, and falling earnings quality. This means that earnings quality can be used to demonstrate direct links between earnings quality and stock behavior. Other papers have investigated the indirect effect revealed by Accruals Quality. Francis et al. (2005) associates Accruals Quality (Dechow and Dichev, 2002; McNichols, 2002) with information risk. For the authors,

[20] The increase in Accrual Quality is calculated as the difference between the 3-year AQ before the awareness of the enforcement action and the 3-year AQ after this awareness.

information risk is “the likelihood that firm-specific information that is pertinent to investor pricing decisions is of poor quality”. They find that poorer AQ is associated with larger costs of debt and equity as information risk is a priced risk factor for investors. Indeed, the quality of accounting information can influence the cost of capital, as a portion of the information risk is non-diversifiable (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007). As Bunkanwanicha and Greusard (2017) find that bribe-paying competitors improve their Accrual Quality after they become aware of the opening of a new investigation in their industry, it can be considered that these peer companies improve their accounting quality to reassure investors about the lack of uncertainty of their future cash flows. It can also be said that the increase in the Accruals Quality of peers is the consequence of the improvement in their behavior abroad, because enforcement activity in the industry has increased. The increase in AQ here is evidence of better accounting and business practices, which reduce the information risk to investors. In sum, a large part of the literature on discretionary accruals in the context of SEC enforcement has focused on the direct impact of enforcement on targeted firms. Only a few papers (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011) focus on the indirect effect of SEC enforcement on peer firms, for example Bunkanwanicha and Greusard (2017) who find a deterrent effect on peers only (and no significant impact of targeted firms). This latter study tends to show an information risk channel (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007) as peer firms, responding to the deterrent effect of anti-bribery law enforcement, improve their Accrual Quality through better practices and therefore decrease the information risk that is known to be non-diversifiable and priced by investors. Because they are afraid of being the next target, peer firms improve their practices, which results in an increase in their AQ, leading to a decrease in their information risk towards investors, demonstrating a positive deterrent effect of law enforcement on the business practices of firms, as measured by their AQ.

------- Insert Table 1.2 about here -------

1.4 – Analysis of the Theoretical Links between Accrual-Based Earnings Management Models and Changes in Regulation using the Whetten Framework

To organize the theoretical contribution of this literature review, I follow the recommendation of Nikitin et al. (2010) and use the framework developed by Whetten (1989). According to this framework, the theoretical contribution can be enlightened around four elements that can be summarized as: "What", "How", "Why", and "Who, Where and When". I also present the theoretical contribution in the form of a Mind Map that can be found in Figure 1.1.

"What" must show which factors such as variables, constructs and concepts are used in the different papers identified in the literature review to explain the phenomena of interest. "How" investigates how the factors identified in the previous part are related. "What" and "How" taken together constitutes the domain of the theory explored. "Why" is the "theoretical glue that welds the model together" (Whetten, 1989) and represents the underlying economic dynamics that justifies the selection of factors and the relation between them. Finally, "Who, Where and When" specifies in which context the contribution applies, geographically, culturally and in terms of temporality as well. In summary, "What" and "How" describe, "Why" explains, and "Who, Where and When" set the limitations of the contribution.

In order to apply the Whetten model, I first summarize the papers previously discussed in the literature review in the two first tables of the paper. Table 1.1 recapitulates the seminal papers about accruals and discretionary accruals that I identified in the second section of the literature review and details the methodology used to evaluate earnings management through an accrual-based measure. These papers are not specifically linked to regulation but, as they

are seminal papers in the accrual literature, they testify the measure used and when the method became available for researchers to apply to their own research in earnings management. This is also why the papers are classified in chronological order.

Table 1.2 summarizes papers I identified in the literature that link the use of earnings management proxies and regulation issues. I follow Whetten (1989) and Nikitin et al. (2010) and keep ex-ante the papers that are in the earnings management literature but not specifically linked to accruals. These adjacent models can manifest patterns of the interaction between regulation and earnings management models that can help to better understand the link between accrual-based models and regulation which is the core of the study. I also include the papers by Francis et al. (2005) and Rajgopal and Venkatachalam (2011) which are not directly linked to regulation because they use accruals quality as their proxy for the information risk associated with earnings and show the indirect link that can exist between accrual quality and the behavior of peers. This literature is adjacent to the one using the information risk channel to justify the deterrent effect regulation can have on peers (Bunkanwanicha and Greusard, 2017) and is therefore ex-ante kept in the scope of this study. In summary, in Table 1.2, I specify the regulation that is used by the researcher (e.g. Import relief of the Jones paper) and the institution that regulates (e.g. U.S. International Trade Commission for the Jones paper). I also indicate if the regulation is cross-industry or at the industry level, which is the case for two industries, the insurance and the bank industry. I finally specify "indirect link" for the papers dealing the information risk channel with no direct regulatory institution. Expect for Barth (2008), all regulations are U.S. regulations, which will be reminded as a limitation in the "Who, Where and When" part of the following formalized written contribution using the Whetten Framework.

Using the Whetten framework and the two tables described above, I present below the theoretical contribution of this literature review about accrual-based earnings management

models and changes in the regulation, organizing the discussion into four parts: “What”, “How”, “Why” and “Who, When, Where”. This theoretical can also be found in the form of a Mind Map in Figure 1.1 of this paper.

What

“What” recapitulates which factors are part of the phenomena of interest. I believe there are two main factors which play a role in the link between earnings management, and more specifically accrual-based, models and changes in the regulation. The first factor is the type of earnings management model (and the variables) which is used. The second factor is the regulatory context in which research has been led.

About the first factor, I identify two types of models used to measure accrual-based earnings management in the context of a change in the regulation. All these models are developed in sections 1.2.4 and 1.2.5 of the paper. The first type gathers Jones-based models. Firstly used by Jones (1991) in the context of tariff increases and quota reductions then used by other authors in other regulatory contexts (Cahan, 1992; Key, 1997), the Jones model measures the earnings management as the discretionary part of the accruals of the OLS regression that considers Total Accruals as the dependent variable and the change in revenues and property, plant and equipment as explanatory variables. Discretionary Accruals are the residuals of the OLS regression, representing the part of the variation in accruals which is not due to the economic determinants plugged as independent variables in the regression. A modified version of the Jones model is also used in the context of AAERS (Dechow et al., 1996, 1995) or the implantation of the Sarbanes Oxley Act (Ashbaugh-Skaife et al., 2008). In this model, the change in receivables is added as an additional explanatory variable of the variation in Total Accruals to the previous independent variables used in the Jones model in order to control for the part of revenues that is non-discretionary. Finally some authors use the

performance-matched adjusted Jones model (Kothari et al., 2005) to evidence deterrence of targeted and peer firms in the context of SEC enforcement actions and class action lawsuits (Jennings et al., 2011). The second type gathers Accruals Quality models. These models are mainly based on the Modified Dechow Dichev model (Dechow and Dichev, 2002; McNichols, 2002). In this model, Accruals Quality is measured as the standard deviation of the estimation errors of an OLS regression where the variation of the accruals (or working capital) from one year to the other is explained by the past, present and future operating cash-flow, once added the economic determinants of the Jones Model, i.e. change in revenues and property, plant and equipment. A lower standard deviation of the residuals is associated with a higher Accrual Quality. Ashbaugh-Skaife et al. (2008) use the modified Dechow Dichev model among others to measure the Accrual Quality of firms after the implementation of the Sarbanes-Oxley Act in 2002, Dechow et al. (2011) used a derived version of this model (Allen et al., 2013) in the context of AAERs. Finally, some authors use the information risk channel (Francis et al., 2005; Lambert et al., 2007) to enlighten an indirect effect of regulation on the Accrual Quality on Peers (Bunkanwanicha and Greusard, 2017) using the modified Dechow Dichev model. In this extension of the previous researches, the impact of regulation is not only restricted to firms that are directly affected by the change in regulation but affects also the accrual quality of peer firms of the same industry that can be indirectly affected through a deterrent effect explained by the information risk channel. Other models which are not strictly discretionary accruals models have also been used in the earnings management literature to measure effect of changes in regulation. A model using accruals is identified in the literature as Barth et al. (2008) use among others an accrual metric to test the increase in accounting quality linked to the adoption of the International Accounting Standards at the international level. Beneish (1999, 1997) develops a probit model of earning manipulation in the context of AAERs. Miller and Skinner (1998) test leverage and smoothing hypotheses

around the adoption of the SFAS No. 109 "Accounting for Income Taxes". Kedia and Rajgopal (2011) investigate the efficacy of the SEC's enforcement program using distance proxies. Finally, research at the industry level also investigated the impact of new regulation using earnings management proxies which are not accrual-based but more linked to the patterns of the industry itself. In the banking industry, the capacity for commercial banks to exercise discretion over capital adequacy regulations is tested using especially loan-loss provision (Beatty et al., 1995; Collins et al., 1995; Moyer, 1990; Scholes et al., 1990). In the insurance industry, authors use insurance reserves as earning management tools to react to regulatory constraints in the industry (Adiel, 1996; Grace, 1990; Petroni, 1992).

About the second factor, I identify five different contexts in which research investigates regulatory events and earnings management, and more specifically accrual-based management. All these contexts are detailed in the Section 1.3 of the paper. The first context is regulation scrutiny. The change in regulation scrutiny can be the consequence on directly affected firms of a change in the regulation (Key, 1997) or investigations led by the administration preceding the implementation of a new regulation (Cahan, 1992; Jones, 1991). The publication of AAER, which represents the updating by the prosecutor of good practices to follow in order to create incentives for companies to avoid bad accounting practices, has also been widely investigated by the accounting literature as it provides a natural and reliable set of regulatory events (Beneish, 1999; Dechow et al., 1996, 1995; Feroz et al., 1991). The second context is standard setting. The adoption of a new accounting standard is usually unavoidable for firms and focuses on a change in accounting practices. Therefore, it provides a natural event for academics who investigate the efficiency of standard setting by measuring a change in the level of accounting quality after the implementation of the standard (Barth et al., 2008; Miller and Skinner, 1998; Schrand et al., 2003). A third context is the change in internal control requirements brought by the implementation of the Sarbanes-Oxley Act in

2002 (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007). In a fourth context, academics investigated earnings management related to regulatory issues at the industry level, especially in the banking industry (Beatty et al., 1995; Collins et al., 1995; Moyer, 1990; Scholes et al., 1990) and the insurance industry (Adiel, 1996; Grace, 1990; Petroni, 1992). Finally, in a fifth context, academics used the information risk channel (Francis et al., 2005; Lambert et al., 2007; Rajgopal and Venkatachalam, 2011) to identify the indirect or deterrent effect that regulation can have on the accrual quality (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011).

How

"How" develops how the factors identified in the "What" part are related, and questions the causality. In the context of this literature review, it questions in which case regulation is the cause of earnings management, in which case it is the consequence. Another question would be to wonder if the regulation precedes earnings management or if earnings management precedes the regulation event. Indeed, the quality of earnings will affect the level of information made available by a specific decision maker (Dechow et al., 2010). It implies on the one hand that the quality of accounting information made available for the regulator can be manipulated upriver from the change in regulation. On the other hand, changes in regulations should lead to predictable changes in earnings management behavior (Schipper, 1989) and factors such as taxes and regulations are expected to affect a firm's cash flows (Watts and Zimmerman, 1978). In that case, regulation precedes earnings management and is causal to earnings management.

In the case of Jones (1991), the import relief investigations by the United States International Trade Commission, i.e. the change in regulation event, causes the earnings management by companies who would like to benefit from the new regulation. The earnings

management precedes the regulation, but the regulation remains causal. The same pattern is observed by Cahan (1992) who finds that managers of investigated firms have an incentive to reduce earnings during investigation periods to avoid later unfavorable ruling and Key (1997) who finds more income-decreasing accruals for firms for which proposed regulations are expected to be more harmful. At the industry level, earnings management is aimed at reaching certain ratios set by the regulator both in the insurance industry (Adiel, 1996; Grace, 1990; Petroni, 1992) and the banking industry (Beatty et al., 1995; Collins et al., 1995; Moyer, 1990; Scholes et al., 1990) when firms manage earnings to reduce regulatory costs. In that case, earnings management follows the implementation of the regulation and the regulation remains causal.

Dechow et al. (1996) does not specifically investigate the change in earnings management level around a regulatory event. They use the sample of firms subject to Accounting Enforcement Actions (AAERs) and rely on the assumption that the SEC has on average correctly identified firms that intentionally overstated reported earnings so the sample can be compared to other firms (that were not enforced) and it becomes possible to identify motivation earnings manipulation. They find that an important motivation is the desire to attract external financing at low cost. In this case, regulation is used to develop a model of earnings manipulation thanks to the solid specification of the sample of firms that managed earnings (Beneish, 1997; Dechow et al., 2011, 1995) or simply to qualify a sample of firms that manage earnings in order to analyze other patterns (Beneish, 1999; Dechow et al., 1996). Regulation is causal as the authors consider that firms that are enforced in the context of AAERs are firms with high levels of earning management, without organizing the research around a time event. In the context of the Sarbanes-Oxley Act, regulation is also causal as authors use the disclosures about weaknesses in internal control that become compulsory following the implementation of the law to identify a sample of firms with weak internal

control processes and find that firms reporting internal control deficiencies have lower quality accruals (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007). The implementation of the law is not a time event that changes the quality of accruals, it is just a time event that enables to identify low quality firms. Earnings Management does not precede or follow the new regulation as identified in previous designs.

In the context of the deterrent effect of SEC enforcement, regulation leads to an improvement of the accrual quality targeted and/or peer firms (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011). In that case, regulation is still causal, and it is not earnings management that precedes regulation but improvement in accrual quality (less earning management) that follows regulation (enforcement). In that case, accrual quality becomes a tool to identify the reaction of targeted and peer firms once they become aware of a new enforcement in their industry, i.e. a positive deterrent effect of regulation. The implementation of a new standard is another opportunity for the researcher to identify a positive effect on the accounting quality that follows regulation at an international level (Barth et al., 2008). If a new standard like the SFAS No. 109 about "Accounting for Income Taxes" appears to give an opportunity to the firm for additional earnings management, researchers are also able to evidence that it is not always the case by finding evidence that there is not more earnings management after the implementation of such a standard (Miller and Skinner, 1998; Schrand et al., 2003). Regulation is still causal, and surprisingly no additional earnings management is detected.

In sum, regulation seems to be always causal. Earnings Management can precede the event of regulation in order to avoid suffering from it or to benefit from it. Earnings Management can follow the event of the regulation and usually takes the form of an increase in accrual quality. Or the regulation can give to the researchers the opportunity to develop a

model on a solid ground or to identify in a solid specification a sample of firms that manage their earnings to identify economic patterns.

Why

As the causal relationship discussed in the "How" enlightens that regulation is what causes earnings management (that can precede or follow the regulatory event), the question is how to understand why a specific model of earnings management is used to measure the impact of the regulatory event and what this model is capturing in the context.

For Jones (1991), the use of accounting numbers by the U.S International Trade Commission (ITC) provides an incentive for managers of firms who enter in the scope of potential import relief (tariff increase and quota reductions) to "decrease earnings through earning management (…) in order to increase the likelihood of obtaining import relief and/or increase the amount of relief granted." As ITC monitors the earnings before taxes to determine if an industry is being injured by imports and to figure out the increase in tariffs, Jones considers that firms have an incentive to manipulate accruals to decrease the level of earnings before taxes. Therefore, Jones tests if managers make income-decreasing discretionary accruals during import relief investigations. Cahan (1992) and Key (1997) have similar designs and use the same model Jones model to test a political-cost hypothesis. Cahan states that managers in firms investigated for monopoly-related violations have an incentive to decrease earnings through earnings management to reduce the possibility of an unfavorable ruling related to antitrust laws. Monopoly-related antitrust investigations are led by the Department of Justice and Federal Trade Commission (FTC) who use accounting numbers and more specifically rates of return[21] in prosecuting these cases. Key finds that firms from the cable industry exhibited income-decreasing earnings management during U.S. congress

[21] Cahan reminds us that, in the late 1950s, DOJ and FTC began to rely on relatively high accounting rates or return as evidence of excessive market power (Meehan and Larner, 1989)

scrutiny in 1989-1990 following consumers complaining about excess cable TV rates increases. For these three examples, researchers use the fact that the regulator monitors identified accounting items (Earnings Before Tax, Rates of Return, rates billed to cable TV customers) to justify the use of discretionary accruals (through the Jones model) to test for earnings management as an answer to the regulatory stimulus before the regulation is implemented.

Another category of the literature analyzes earnings management practices after the implementation of a new regulation to avoid negative impact of the new regulation or to benefit from it. A first strand of this literature focuses on one industry and an earnings management measure specific to the industry. In the banking industry, researchers use the loan loss provision, among other measures, to test earnings management consequent to regulatory events. Researchers find that banks manipulate earnings using the loan loss provision, among other measures, to satisfy capital adequacy ratios (minimum capital guidelines) and avoid additional regulatory costs if they do not comply (Beatty et al., 1995; Collins et al., 1995; Moyer, 1990; Scholes et al., 1990). In the insurance industry, the level of loss reserve is subject to earnings management in order to avoid tax (Grace, 1990) but also to avoid regulatory attention (Petroni, 1992) while Adiel (1996) finds that insurers manage earnings through reinsurance transactions to reduce regulatory costs. In this context, a specific industry earnings management tool is used to avoid negative impact of an industry specific regulation, without focusing on a specific time event. A second strand of the literature has been using the adoption of the SFAS No109 "Accounting for Income Taxes" to investigate earnings management. Following that standard, firms can "manage earnings by setting high valuation allowance associated with deferred tax assets and adjusting the valuation allowance in subsequent periods" (Schrand et al., 2003). Miller and Skinner (1998) find "little evidence that managers use the valuation allowance for earnings management purposes" while Schrand

et al. (2003), focusing on the banking industry find that banks smooth earnings towards the consensus forecast. Even if the evidence is mixed, what is interesting here is that regulatory event is suspected to potentially increase-earnings management which is not generally the goal of a new regulation.

Bunkanwanicha et Greusard (2017) use an accrual quality measure (Modified Dechow Dichev) to evidence a positive effect of law enforcement (FCPA enforcement) on peer firms. They argue that peer firms increase their Accrual Quality to react to the enforcement stimulus and to avoid being the next target investigated by the prosecutor. In addition, this effect is indirect as only peers increase their accrual quality. Jennings et al. (2011) also find a reduction of discretionary accruals in the after of SEC enforcement using the performance matched modified Jones model (Kothari et al., 2005). In that context, authors capture an improvement in the earnings quality or a decrease in earnings management posterior to the regulation event. Similarly, the implementation of International Accounting Standards in 21 countries has been considered as a regulatory event that precedes a decrease in earnings management measured, among others, by a smoothing metric based on the Spearman correlation between accruals and cash flows (Barth et al., 2008). In that context also, the authors capture a decrease in earnings management consequent to the regulatory event, but it is not here to avoid being the target of a future investigation. It simply measures the benefit for firms in those countries to apply IAS instead of domestic standards.

New regulation can also be the opportunity to better understand patterns linked to earnings management or to develop models using identified earnings managers. The implementation of the Sarbanes-Oxley Act (SOX) in 2002 constitutes an opportunity for researchers to investigate the link between Accrual Quality and internal controls as firms, following SOX, must disclose material weaknesses in internal controls. In that case, the authors use the disclosure required by SOX to investigate if internal control weaknesses are

associated with low quality accruals (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007) using Jones-based or Modified Dechow Dichev-based models and find that this is the case. In this context, a new regulation gives the opportunity to researchers to identify potential earnings managers (firms that disclose internal control deficiencies) and to evidence a new channel of low accrual quality (internal control deficiencies) but do not directly show that the regulation changes the attitude of firms towards earnings management behaviors. Similarly, the AAERs have been the opportunity for researchers to identify a sample of firms that manage earnings and, by comparison to control firms, to develop a new model to measure earnings management (Beneish, 1997; Dechow et al., 2011, 1995) or to identify additional patterns relative to the desire to attract external financing at low cost (Dechow et al., 1996) or to managers' equity selling during the violation period (Beneish, 1999). In that case, the regulation helps to identify the sample of firms that manage earnings with a reasonable level of certainty but the impact of regulation on the level of earnings management before or after the regulatory event is not the focus of the study.

In sum, the analysis of earnings management tools, and more specifically accrual-based techniques, in the context of regulation can be gathered in four categories. In a first category, earnings management precedes the regulation as the firms want to benefit from or avoid the negative consequences of the new regulation (Cahan, 1992; Jones, 1991; Key, 1997). In a second category, earnings management follows the new regulation as firms want to respect the new regulation to avoid additional regulatory costs for lack of compliance (Adiel, 1996; Beatty et al., 1995; Collins et al., 1995; Grace, 1990; Moyer, 1990; Petroni, 1992; Scholes et al., 1990) or the consequence of a change in regulation that potentially enables more earnings management practices (Miller and Skinner, 1998; Schrand et al., 2003). In both the first and second categories, the authors often use a measure of earnings management that is derived from the use by the regulator of accounting numbers to monitor

the compliance or behavior of firms. In a third category, researchers have been using accruals quality metrics to measure the impact that a change in regulation can have on the quality of accounting practices of firms, that can be implementation of new accounting standards (Barth et al., 2008) or the SEC enforcement actions (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011) for both targeted firms (direct effect of regulation) or peer firms (indirect effect of regulation). Finally, in a fourth category, regulation enables researchers to identify firms who have more earnings management practices to develop and test new models to measure earnings management on a solid ground (Beneish, 1997; Dechow et al., 2011, 1995) or to identify new patterns linked to earnings management, such as weak internal control processes (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007), the desire to attract external financing at low cost (Dechow et al., 1996) or equity selling by the managers during the violation period (Beneish, 1999).

Who, where, when

The fourth part "Who", "Where", "When" sets the "boundaries of generalizability" (Whetten, 1989). About the "Who", we can say that some studies are limited to one specific industry because the regulation is at the industry level or the analyzed sample is at the industry level. Some studies are based of firms that have been identified as earnings managers, in the context of the AAERs mainly, that requires the assumption that the SEC well identifies the earnings managers. Some studies used firms that have been enforced by the SEC in some specific contexts, limiting the analysis to the sample of enforced firms, even if an indirect effect is evidenced by some authors. About the "Where", limitations are mainly due to essential setting of the studies in the U.S. context, expect for the implementation of IAS in 21 countries (Barth et al., 2008). About the "When", the use of accruals models is linked to the moment the paper was written. More ancient papers use the Jones model for example, but

the Modified Jones and the Modified Dechow Dichev models did not exist at the time. Would they have used a different model if they could? Therefore, the justification of the relevance of the use of a specific model in a specific regulatory context is limited by timing issues and especially the fact that authors can only use existing models or at best develop a new one for the context. In addition, the "When" is always an issue as practices, regulations and economic context constantly evolve, permanently challenging the future generalizability of the findings.

The theoretical contribution of the paper using the Whetten Framework is summarized in a Mind Map in Figure 1.1.

------- Insert Figure 1.1 about here -------

1.5 – Conclusion

For decades, the accounting literature has used financial statements to search for evidence of management intervention in disclosed information. Managers may have incentives to manage the firm's level of earnings for personal reasons, for example to increase their bonuses based on the level of earnings. They may also artificially adjust the level of earnings to disclose adjusted information to the readers of the financial statements. For example, they may increase the level of earnings to provide a positive image for investors or other partners, such as lenders. Or they may artificially decrease the level of earnings to diminish the level of taxes to be paid or benefit from higher subsidies from an external partner. The earnings management literature has developed distinct ways to identify intervention from the management on the level of earnings, investigating smoothness, (lack of) persistence, conservatism and manipulation of accruals. Accruals represent an extensive part of the earnings management literature, as almost one third of papers use "abnormal accruals" approaches to measure earnings quality (Dechow et al., 2010). Over several decades, accruals studies have evolved from a simple separation of accruals into their

discretionary and non-discretionary parts (DeAngelo, 1986; Healy, 1985) to a determination of expected accruals using economic determinants (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005). More recent studies have focused on the capacity of accruals to map into cash flows (Dechow and Dichev, 2002; Francis et al., 2005; McNichols, 2002).

Regulation has been a natural field of experimentation, as a new law, a new standard or new enforcement patterns create exogenous shocks around which a change in attitude can be proxied by accruals. A first strand of the literature used a new regulation to show the propensity of firms to manipulate their earnings in order to benefit from the law (Cahan, 1992; Jones, 1991; Key, 1997). Another strand of the literature used AAERs to study the general patterns of investigated companies and find that investigated firms have higher accruals and discretionary accruals during investigation years (Dechow et al., 2011, 1996; Feroz et al., 1991).The study of AAERs has also prompted researchers to develop new models or to test the differential efficiency of accruals-based models to identify earnings management patterns (Beneish, 1999, 1997; Dechow et al., 1995). More rarely, earnings management has been studied around the implementation of new accounting standards (Barth et al., 2008; Miller and Skinner, 1998; Schrand et al., 2003), where the impact of the SOX act has provided a natural field to study the impact of greater responsibility among the management in the internal audit pattern (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007).

Finally, studies have attempted to demonstrate an indirect effect of the law on the behavior of firms by analyzing the reaction of both targeted and peer firms to a new SEC investigation (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011). These studies use discretionary accruals to measure a potential deterrent effect of the law, following the model of the economics of crime and punishment by Becker (1968) according to which the probability of detection and/or the size of the punishment are the two main variables that can influence the behavior of targeted and peer firms. Indeed, the prosecutor has financial

constraints and limited resources and must hope for a deterrent effect (Kedia and Rajgopal, 2011). As they find that the deterrent effect of anti-bribery enforcement leads to an increase in the Accruals Quality of peers only, Bunkanwanicha and Greusard (2017) suggest that the channel of information risk (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007) may be responsible for the improvement among peer firms.

Using the Whetten framework (Whetten, 1989) to enlighten the link and the underlying dynamics between earnings management, and more specifically accrual-based, models, I organize my theoretical contribution around four elements that can be summarized as "What", "How", "Why", and finally "Who, Where and When". In the "What" part, I find that mainly Jones-based models and Accruals Quality Models, in addition to specific industry models, have been used to detect earnings management. I also find that five regulatory contexts have been explored in the literature: regulation scrutiny, standard setting, change in weak internal control disclosure requirements, new regulation in specific industries, indirect or deterrent effect of regulation identified through the information risk channel. In the "How" part, I identify that regulation is usually causal to earnings management. In the "Why" part, I find that the use of accrual-based earnings management tools in the context of regulation can be gathered in four categories. First, earnings management occurs before a regulatory event in order to benefit from it or to avid the negative consequences of the new regulation to come. Second, earnings management can also occur after the implementation of regulation in order to avoid the regulatory cost associated to it. In these two categories, researchers often use a discretionary accrual-based measure as they know that the accounting numbers the regulator uses to monitor firms can be manipulated by accrual-based techniques. Third, researchers also used accruals quality metrics to test if an increase in the quality of accounting is observed after a regulatory event such as the implementation of new accounting standards or SEC enforcement, both on targeted firms and on peer firms for the latter. Finally, in a fourth

category, regulatory events have been also the opportunity for researchers to identify samples of low quality firms on a solid ground, enabling the development of new earnings management models, to test if existing models are well specified or to identify new patterns in low quality firms. The "Who" part enlightens limitations linked to the fact that some studies identify samples of low quality companies using firms that have been enforced in a specific context, which requires the assumption that the prosecutor well identified the earnings managers. The "Where" part shows that geographical scope is nearly limited to the U.S. environment. The "When" part discusses limitations due to the fact that some proxies were not available for more ancient studies and can be challenged by new regulations or changes in the economic context. In addition to the limitations identified in the Whetten framework, this study has some limitations linked to the scope of the study itself. It focuses on the accrual-based earnings management literature that investigated regulation, but other proxies such as smoothing persistence and conservatism, could also have been discussed. By discarding real earnings management models from the scope of the study, we mechanically exclude the potential consequences of managers using accrual-based earnings management and real earnings management as substitutes (Cohen et al., 2008; Cohen and Zarowin, 2010).

2 – The Deterrent Effect of Anti-Bribery Law Enforcement on the Quality of earnings

(this part is co-written with Pramuan Bunkanwanicha)

2.1 - 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[22] and France[23] 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 et al., 2017), following the willingness of the U.S. prosecutor to respond to some high-profile corporate scandals such as Enron, WorldCom, and Tyco Out (Cohen et al., 2010; Stolowy et al., 2018) or, more recently, the Madoff investment scandal (Stolowy et al., 2014). 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

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

calculate the volatility of discretionary accruals over two three-year periods (3 years before the awareness 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 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 information risk in the context of anti-bribery enforcement 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 awareness 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 investigated 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.[24] 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 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."[25]

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."[26] 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,[27] confirming the

[24] Siemens is number one in the Top Ten List of Corporate FCPA Settlements for the period of our study (1978-2015)
[25] See full DOJ Press Release https://www.justice.gov/archive/opa/pr/2008/December/08-crm-1105.html
[26] 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
[27] See http://www.fcpablog.com/blog/2017/9/22/telia-tops-our-new-top-ten-list-after-we-do-some-math.html

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 collapse, the DOJ pressed criminal charges against Arthur Andersen, Enron's long time auditor, for alleged widespread criminal conduct (Koehler, 2015). The auditing firm was found guilty of criminal misconduct. And even if this conviction was reversed in 2005, damage was already done and the company went out of business in 2002. This event, qualified as the perceived "Arthur Andersen effect" (Koehler, 2015), defines in this context the situation when criminal charges alone can be the death sentence of a business organization. It caused the DOJ to reconsider its traditional approach to resolving alleged instances of corporate criminal liability and to enable pretrial agreements as issued in an official DOJ memorandum called the "Thomson Memo"[28] (Koehler, 2015). This memo opened the door to pretrial alternative resolutions vehicles, namely NPAs and DPAs. According to Bryan Blaney[29], former Assistant U.S. Attorney in New Jersey, these vehicles are "certainly not new law" but are "part of the prosecutor's toolkit" to enforce the law that were increasingly used as a "result of increased attention to corporate crime that followed the fraud crisis that occurred in 2001 and 2002 with the Enron and Worldcom collapses". Among the contexts in which the DOJ used NPAs and DPAs is FCPA enforcement. In December 2004, the DOJ used an alternative resolution vehicle for the first in an FCPA action against InVision Technologies, Inc. and General Electric Company and NPAs and DPAs have become the dominant way to resolve FCPA scrutiny since 2005 (Koehler, 2015). The use of these new resolution vehicles as a potential alternative to PAs (Plea Agreements) also accelerated the publicity generated around an FCPA investigation.

[28] See Thomson memo:
https://www.americanbar.org/content/dam/aba/migrated/poladv/priorities/privilegewaiver/2003jan20_privwaiv_dojthomp.authcheckdam.pdf
[29] See interview of Bryan Blany in The Metropolitan Corporate Councel, Inc, May 2008:
https://norrismclaughlin.com/pdf/prosagr.pdf

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.[30] Finally, the study of FCPA enforcement brings an additional possibility to the use of specific legal event, such as the passage of the FCPA itself or the Sarbanes-Oxley Act of 2002, as we study multiple events of enforcement throughout the time instead of the implementation of a law itself. This design is also essential as we want to analyze the incremental effect that the use of alternative resolution vehicles can have on enforcement actions which occurs only at the investigation level and not at the law level. That is also why we chose to use a more ancient law such as FCPA as enforcement of law can take some time, and this is why we chose FCPA instead of SOX as the Public Company Accounting Oversight Board (PCAOB), who is responsible for SOX-linked investigations, is supposed to keep its investigations confidential and nonpublic[31].

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

[30] See FCPA Resource Guide: https://www.justice.gov/sites/default/files/criminal-fraud/legacy/2015/01/16/guide.pdf
[31] See https://pcaobus.org/Enforcement/Pages/default.aspx

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. (2017) 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.

The SEC has limited resources (Dechow et al., 2011) and must hope for a deterrent effect (Jennings et al., 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 awareness 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 companies become aware that a firm's bribing behavior will lead to the opening of a new FCPA investigation by the DOJ and/or the SEC, 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 (Dechow et al., 2011) and uses Accounting Quality Metrics to identify anomalous behavior[32], 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

[32] See Interview of Craig M. Lewis, Chief Economist and Director, Division of Risk, Strategy, and Financial Innovation U.S. Securities & Exchange Commission - https://www.sec.gov/news/speech/2012-spch121312cmlhtm

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 et al., 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 et al., 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. As we want also to analyze the impact of the evolution in the FCPA enforcement patterns with a recent use of alternative resolution vehicles, names DPAs and NPAs, that became the dominant way

to resolve FCPA cases, FCPA enforcement activity provides an ideal field for analysis as the enforcement activity has increased since the new millennium and provides a sample large enough for an acceptable empirical analysis.

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.

In an interview led in December 2012, Craig M. Lewis[33], chief economist at the SEC, reveals that the prosecutor has a project in development called "Accounting Quality Model" (AQM) that is "designed to provide a set of quantitative analytics that could be used across the SEC to assess the degree to which registrants' financial statements appear anomalous". He also admits that "enforcement could use the analytics to focus the investigative process". He

[33] Interview of Craig M. Lewis, Chief Economist and Director, Division of Risk, Strategy, and Financial Innovation U.S. Securities & Exchange Commission - https://www.sec.gov/news/speech/2012-spch121312cmlhtm

finally specifies that the SEC decided to focus on accounting quality to "better understand the discretionary accounting choices that are made when presenting financial statements to the shareholders". The prosecutor uses discretionary accruals models in his AQM and we can assume that it used this approach before generalizing this approach through the AQM and certainly since the 2000s that coincides to the increase in FCPA enforcement activity. We can therefore assume that the respect of the "book and records" provision of FCPA is supervised by the prosecutor through discretionary accruals models and that supervision is applied to investigated firms as well as their peers of the same industry in order to identify the firms that "stick out form the pack" to identify its next targets in a context of limited resources. Among the discretionary accruals, the Dechow and Dichev-based measures have the highest association with fraud (Jones et al., 2008). We also suggest that the channel of information risk is at play when peers want to adapt the level of their accrual quality to reassure both the prosecutors and their investors about their probability to be the next target of a FCPA investigation when a new investigation is opened in their industry. Accrual Quality has been proxied by information risk associated with earnings in previous literature (Francis et al., 2005) where Accrual Quality is measured using the Modified Dechow Dichev model (Dechow and Dichev, 2002; McNichols, 2002).

In the Dechow Dichev (DD) model, Accrual Quality (AQ) is measured as the volatility of the discretionary accruals of a firm (Dechow and 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 information risk (Francis et al., 2005) and we use the Dechow Dichev model augmented by McNichols (McNichols, 2002) to test for a change in the Accrual Quality of investigated firms and their industry peers.

If the awareness 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 a decrease in information risk. As one goal of the FCPA is to address the problem of AQ 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 to fit with the purpose of the law and avoid a future investigation. The awareness 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 2.2 develops the hypotheses. Section 2.3 discusses the sample and the research design. Section 2.4 presents descriptive statistics, reports the main results and additional results, while Section 2.5 provides a supplementary analysis. Section 2.6 concludes.

2.2 – 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 awareness of bribing behavior for investigated firms (Treated Group), but also for their peers (control Group), using a difference-in-differences design around the exogenous shock materialized by an event, namely the awareness of future FCPA enforcement, and a treatment which is the FCPA investigation. 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 investigated

treated firms and peer control firms behaves differently around the event date. In our design, as we analyze the change in Accrual Quality using accounting information that is provided on a yearly basis, the event date is the year of awareness of bribing behavior, i.e. the year firms, both investigated and peer firms, become aware of the bribing behavior. This is also the moment when firms become aware that a FCPA investigation will be opened against the treated firm.

Firstly, we test whether the awareness 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 (Treated Group) increases after awareness of the bribing behavior

Secondly, we test whether the awareness 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., 2017), 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 (Control Group) increases after awareness of the bribing behavior of one firm in the industry

Finally, we investigate whether the change in AQ differs between investigated (treated) firms and peer (control) firms. Our design comprises multiple events. Each awareness of bribing behavior occurs at a different date and numerous different industries are

involved. For each event taken separately, treated and control firms face the same macro-economic conditions. To better analyze the difference in AQ, both for investigated (treated) firms and peer (control) 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 (Treated Group) and Peer firms (Control Group) after awareness of a new bribing behavior 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.[34] 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 treated firms and control firms around the awareness date, we split our main sample into two subsamples and check whether the trend is different for a subsample made up of cases revealed before 2005 and another subsample made up of cases revealed during or after 2005. The revelation of the case must be understood here as the moment when firms become aware of the bribing behavior. Hypotheses 2a (H2a) and H2b are as follows:

H2a: There is a significant difference in the change in AQ between Investigated firms (Treated Group) and Peer firms (Control Group) after awareness of the bribing behavior of one firm in the industry for cases revealed before 2005

[34] 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

H2b: There is a significant difference in the change in AQ between Investigated firms (Treated Group) and Peer firms (Control Group) after awareness of the bribing behavior of one firm in the industry for cases revealed after 2005

2.3 – Sample and Research Design

2.3.1 - 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 awareness of a future 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 main difference-in-differences analysis[35]. As shown in Table 2.1, 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 2.1 about here -------

A summary of the 80 cases classified by year of awareness and SIC2 codes is shown in Appendix 2.1. As shown in Panel A of Appendix 2.1, there is a dramatic increase in enforcement activity since the beginning of the new millennium as 87.50% of the cases were revealed after 2001, which confirms that FCPA recently became a priority of the prosecutor. In Panel B of Appendix 2.1, we can see that some industries are more subject to FCPA investigations: Oil and Gas extraction (8 cases), Chemicals and Allied Products (11 cases), Industrial and Commercial Machinery and Computer Equipment (7 cases), Transportation

[35] Our study is 10-year long as we perform a test for parallel trends from t-6 to t-4. But the main difference-in-differences analysis is made on a 7-year period that goes from t-3 to t+3. That is we add the adjective "main" like in "main study" or "main trigger window" when we refer to the analysis going from t-3 to t+3

Equipment (7 cases). These results are in line with the OECD Foreign Bribery Report that found that two-third of the foreign bribery cases occurred in four sectors: extractive, construction, transportation and storage, and information and communication.[36]

To build the control 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 main trigger event window (t-3 to t+3) and disclosed foreign sales at least once during the 7 years of the main trigger event window.

In the next step, we keep only the control companies with the same SIC3 as one of the investigated treated firms. In the rare cases (3 cases) for which we do not have control 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 23,311 Sic3/year observations for 1,594 unique companies in the control group and 953 sic3/year observations for 74 unique companies and 80 cases in the treated group for the 10 years going from t-6 to t+3 for each event. We then collapse the sic3/year observations to keep 1 information before the event and 1 information after the event (e.g. for the main dependent variable, we generate the standard deviation over 3 years before and after the event). For each firm considered for 1 event, we then have 2 observations, an observation "before" and another observation "after". We keep only firms that have an observation before and an observation after available for the dependent variable. 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 of the main study (t-3 to t+3), belong to the same industry and disclosed foreign sales at least once in the Compustat segment information during the 7-year period. Indeed, FCPA is related

[36] See OECD (2014), OECD Foreign Bribery Report: An Analysis of the Crime of Bribery of Foreign Public Officials - https://www.oecd.org/corruption/oecd-foreign-bribery-report-9789264226616-en.htm

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. After that step, we obtain a sample of 80 investigated firms (Treated group) representing 74 unique companies and 3,444 peer firms (Control group) representing 1,452 unique companies. This specification of the control group is called "SIC3 level" in the rest of the paper and is used as one of the 3 main specifications we disclose for the control group. Indeed, as the main goal of this paper is to examine the deterrent effect of FCPA new investigations on industry peers, we find important to keep for some results all peer firms available at the SIC3 level to enlighten the deterrent effect at the industry level.

In order to get into a more precise analysis of the deterrent effect, we then apply a propensity score matching within common support and a caliper of 0.05 to select the closest neighbors among the control companies identified in the previous step at the SIC3 level. The steps of the propensity score matching are the following. First, we run a probit regression for each subsample identified for each of the 80 events. The dependent variable of these regressions is a dummy that takes the value of 1 if the firm is the firm investigated in this event, and zero otherwise. The control firms that are available for matching are only companies that belong to the same SIC3 than the related treated firm, that existed during the same 7-year period of time (t-3 to t+3) of the main event window, and disclosed foreign sales at least once in the Compustat segment information during the 7-year period of the main window of analysis (t-3 to t+3). We use the main principles of the propensity score matching method first developed by Rosenbaum and Rubin (1985, 1983) and follow Karpoff et al. (2017) in the choice of the additional independent variables used to make control firms look as alike as possible to the treated firms. In detail, we use the following independent variables in the probit regression: a variable called triggernumbersic3 that takes a value from 1 to 80 regarding the event it is linked too, the logarithm of market capitalization, the market-to-book

ratio, current ratio, leverage ratio, return on assets, the ratio of intangible to total assets, the percentage of foreign sales to total sales revenue, and a dummy variable that takes the value of 1 if the auditor of the related firm is of the Big four public accounting companies and zero otherwise (Karpoff et al., 2017). We include logarithm of market capitalization because we believe that size is an important driver when comparing investigated firms with their peers and the market-to-book ratio as a standard financial characteristic. Current ratio, leverage ratios and Profitability (return on assets) are included as firms with higher values of these may be less interested to engage in bribery. Firms with higher ratio of intangible to total assets and higher percentage of foreign sales are more likely to bribe because they are more exposed to foreign markets and/or their operations are more complex, which proxies for opacity. Finally, firms that are audited by a more experienced auditor may be better prepared to avoid bribe payments because their reporting processes are supposed to be more reliable (Karpoff et al., 2017)[37]. All these independent variables are considered in year t-1, the year before the awareness year. Second, we match every treated firm (investigated) with the nearest neighbors using a caliper of 0.05, based on the propensity score obtained from the probit regression.

For three investigated firms, there are no potential neighbors at the SIC3 level. In these three cases, we select the neighbors at the SIC2 level within a caliper of 0.05 of the propensity score. For two investigated firms, there are no neighbors within a caliper of 0.05 and we select the neighbor using a caliper of 0.10 or 0.15 around the propensity score at the SIC3 level. In an undisclosed table, we calculated the results without the five 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

[37] All these variables are used for a propensity score matching performed in an earlier version of the paper by Karpoff et al (Karpoff et al., 2017) but most of these variables are still used in a more recent version of the paper to estimate the likelihood of a bribe to occur.

time, if the peer company meets the criteria developed above. On average, 21.78 neighbors per event are available using the matching method detailed above, with a minimum of 1 neighbor and a maximum of 281 neighbors for 1 event. In the robustness tests, we use an alternative matching method, keeping the 1, 3 or 5 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 80 investigated companies for 74 unique companies in the treated group (Investigated firms) and 1,721 peers for 1,132 unique companies in the control group.

2.3.2 – Research Design

A number of papers have examined whether regulatory scrutiny increases the likelihood of earnings management (Healy and 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 (Dechow et al., 2010). In addition, Francis et al (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; 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. Another justification of the choice of a discretionary accruals model in our case is the recent interview by Craig M. Lewis, chief economist at the SEC, in December 2012 who confirms that the SEC focuses on an Accounting Quality Model "to better understand discretionary accounting choices that are made when presenting financial statement to the shareholders" and "to assess the degree to which registrants' financial statements appear anomalous". He adds that "enforcement could use the analytics to focus the investigative process." A Discretionary Accruals model is therefore adapted to analyze the potential deterrent effect on peers of FCPA enforcement led by the DOJ and the SEC as peers can change the level of their Accounting Quality once they become aware of a new investigation in their industry as they know that the prosecutor will use the AQM to select its next targets. Among Discretionary Accruals models identified in the literature, the Dechow and Dichev-based models are the ones with the highest association with fraud (Jones et al., 2008). We also suggest that peers, following a deterrent effect, will adapt the level of their Accrual Quality to reassure all the users of their financial information that can be the prosecutor on the one hand, but also the investors on the other hand. In that case, peers, once they become aware of the opening of a new investigation in their industry, can increase the level of Accrual Quality to send a positive signal to the prosecutor to avoid to be the next target, but also to reassure the investors that the risk of being the target of a FCPA investigation is low. We suggest that the channel of risk information is at play and follow previous literature that used Accrual Quality as a proxy for information risk associated with earnings (Francis et al., 2005). In that context, Accrual Quality is measured using the Modified Dechow and Dichev Model.

Therefore, to estimate the discretionary accruals, we follow the Dechow Dichev accrual model as modified in McNichols (McNichols, 2002). The original DD model

(Dechow and 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 (Dechow et al., 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) plus Depreciation (dp)

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

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

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)

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:

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

Where:

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

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), Francis et al. (2005), Kothari et al. (2005) and Chaney et al. (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. The definition of all the dependent and independent variables used in this paper are summarized in Appendix 2.

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 also use a 10-year window that includes a 3-year period before the main design to test for the parallel trend assumption (t-6 to t-4) and then, for the main design, we calculate the standard deviation of the discretionary accruals over a 3-year period before the trigger event (t-3 to t-1) and the standard deviation of the discretionary accruals over a 3-year period after the trigger event (t+1 to t+3) to measure the difference-in-differences of Accrual Quality between the two groups of interest. The year of the event, called year 0, is excluded from the calculations. The Treated group is made up of firms that are investigated by the prosecutor. The Control group is made up of peers from the same industry, considered at the SIC3 level, existing during the 7-year period covered by the main analysis (t-3 to t+3, excluding the 3-year period from t-6 to t-4 used to test the parallel trend assumption), with at least one year of foreign sales disclosed during that period.

Our main event date, called awareness date or trigger event date, is the moment when the investigated company becomes aware of the bribing behavior. We consider that investigated and peer firms become aware of the bribing behavior at the same date. The awareness date 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 et al., 2008a). For the bribing firm, it is logical to consider the awareness 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. 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), which justifies our choice of the same awareness date for both investigated and peer firms. To alleviate the concern that considering the awareness year instead of the disclosure year is arguable, we develop the following arguments. First, in our

sample of 80 investigated firms, the year of awareness is the same than the year of disclosure (when the bribing behavior becomes public) in 59 cases out of the 80 cases, and only 7 cases show awareness dates which are more than one accounting year distant from the disclosure dates. It means that there is no difference between the awareness year and the disclosure in 74% of the events considered in our study. Finally, in an undisclosed table, we run the same regressions used for the main results but we separate the main sample of 80 cases into 2 subsamples made of one subsample where the awareness year is the same than the disclosure year (59 cases out of 80) and another subsample where the awareness year is the same is different from the disclosure year (21 cases out of 80). The results of these two subsamples remain unchanged compared to the global sample. As a consequence, we assume that the awareness date is the moment when both bribing firms and their peers will correct their Accrual Quality.

To identify the awareness 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 awareness date we identified, which could be the earliest awareness date mentioned in the 10k filings, or the earliest awareness 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 awareness year, three years after the awareness year). The awareness year 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 treated firms (investigated firms), but also the change in Accrual Quality of control

firms (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 treated and control firms. FCPA law enforcement is the treatment, and the awareness 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 treated investigated firm and build a control peer group that fits with the characteristics of this treated firm. Indeed, a control company will react only to the awareness of a new investigation in its industry only if this control company have characteristics that are similar enough to those of the treated firm to fear to be next target of the prosecutor. For the control firm to be impacted in a similar way by the event of awareness of future FCPA enforcement, allowing us to detect a potential deterrent effect of the enforcement, we consider that the control company must belong to the same industry (same SIC3) as the treated firm, must have existed throughout the same 7-year timespan of the main 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 control groups, each one related to one of the treated 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 and 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 treated and control 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 et al., 2017), and to obtain an appropriate counterfactual to estimate the causal effect.

The main requirement of the DID methodology is that, prior to the treatment, the dependent variable follows a parallel trend both for the treatment and the control group (Heider and Ljungqvist, 2015). It means that a zero correlation is assumed and that, economically, in absence of treatment, the average change in the response variable would have been the same for both the treatment and control groups (Roberts and Whited, 2013).

We assume that, without the awareness 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 awareness of FCPA enforcement. To show evidence that the parallel trend is respected, we determine the value of the dependent variable for the 3-year period anterior to the one considered for the main design, that is we calculate at the firm level the standard deviation of the discretionary accruals for a 3-year period going from t-6 to t-4. We then have 3 values of the AQ for each firm per event: The value of the AQ between t-6 and t-4 (for parallel trend purpose), the AQ for a 3-year period going from t-3 to t-1 (AQ before in the main DID design), the AQ for a 3-year period going from t+1 to t+3 (AQ after in the main DID design). Results of the parallel trends tests for the main dependent variable (ModDD_3y) are shown in Appendix 2.2 and illustrated in Figure 2.1. Results in Appendix 2.2 show that the interaction term, i.e. the difference-in-differences change in AQ is not significant for the 2 values of the 3-year standard deviation that are calculated before the treatment (t-6 to t-4 and t-3 to t-1). It means than before the treatment that occurs in year zero, the parallel trend assumption is respected as the difference in outcome between the treated

and the control group remain nearly identical for the values calculated before the treatment (t-6 to t-4 and t-3 to t-1). And it is only after the treatment that we observe a significant change in the differential AQ between the two groups, that will be developed in the main results of the paper (section 2.4.2). The respect of the parallel trend assumption is robust to several specifications of size of the control group as shown in Appendix 2.2 (PSM with a caliper of 0.05, all control firms at the SIC3 level, PSM with a caliper of 0.1). We can also notice that before the treatment, the AQ of the two groups remain quite stable over time. In an undisclosed table, we investigate the respect of the parallel trend assumption keeping control firms the 5 nearest neighbors, 3 nearest neighbors, and the nearest neighbor to calculate a propensity score using the same independent variables that are used for the caliper approach[38]. Results remain unchanged, i.e. the difference-in-differences change in AQ is not significant for the 2 values of the 3-year standard deviation that are calculated before the treatment (t-6 to t-4 and t-3 to t-1), despite a smaller difference in outcomes between the groups, and the parallel trend assumption is respected.

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.

[38] This alternative specification of the matching using the nearest neighbors and therefore a smaller number of observations is also used as a robustness test to the main results in Table 2.7. As we want to investigate the deterrent effect at the industry level, we keep a specification for the size of the control group that enables a larger a better generalization of the results.

2.4 – Results

2.4.1 – Summary Statistics

Table 2.2 shows summary statistics for investigated firms (Treated Group) and peer firms (Control Group) for the main dependent variable (ModDD_3y) but also for the control variables used in the paper. These control variables are classified in three categories. The first category, called Innate variables, gathers innate factors explaining Accrual Quality (Francis et al., 2005). The second category gathers selected financial variables. The last category contains control variables that are linked to the cases themselves.

According to Dechow Dichev (2002), five innate factors explain Accrual Quality: length of operating cycle, firm size, cash flow variability, sales variability, and incidence of negative earnings realizations. Accrual Quality is linked to the capacity of the firm to transform expected cash-flows stored in the working capital accruals intro real cash-flows. In other words, Accruals Quality reflects the precision by which the firm is able to transform its accruals into cash. The five factors above can play a role in this capacity of the firm to cash the accruals. Longer operating cycles can carry more uncertainty about the capacity of the firm to transform accruals into cash and should lower the Accrual Quality. Large firms are supposed to have more stable and predictable operations and, therefore, estimation errors in large firms should be lower. Cash flow variability is another cause for uncertainty, while sales variability indicates a volatile environment and greater likelihood for approximations and errors in estimations. Finally, as losses can lead to severe shocks in the firm's environment, the frequency of reporting negative earnings can involve more estimation errors. Therefore, we follow Dechow and Dichev (2002), Francis et al (2005) and Chaney et al. (2011) among others and use the following measures to control for the 5 innate factors. We control for the uncertainty linked to the length of the operating cycle by using Operating cycle, defined as the log of the sum of days in receivable and days in inventory, as defined in Dechow Dichev

(2002).We use Ln Mkt Cap, the natural log of the company's 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) and controls for the variability of the operating cash-flows. σ(Sales/AT) × 100, which represents the 7-year standard deviation of cash sales over total assets (*100), controls for the uncertainty linked to the variability in sales from one year to the other. Negative Earnings, which is the frequency of negative earnings realization over the 7-year period of the main study, controls for the changes in accruals made in response of shocks generated by losses.

We also control for some typical financial characteristics that can influence the likelihood of a firm to bribe (Karpoff et al., 2017) or other types of misconduct (Dechow et al., 2011) and use the following additional control variables: Market-to-book, Current ratio, Leverage, Profitability (return on assets), Sales Growth, Percentage of Foreign sales. Market-to-book is included as a standard financial variable. Firms with high values of current, leverage and profitability ratios are more monitored or less motivated to engage in bribery to increases sales or decrease cost. Firms with higher sales growth or percentage of foreign sales are more exposed to bribery. We finally use the intangible asset ratio as a control variable as absence of intangibles, intangibles intensity, and capital intensity are shown by prior research to influence one or more of the other earnings attributes (Dechow and Dichev, 2002).

Finally, we control for variables that are linked to the investigation process itself. We control for the court that handles the case, both at the DOJ and the SEC levels (Court_DOJ and Court_SEC), as prosecutors from different district can have more or less severe attitudes regarding bribing behaviors. Dummy_2005 controls for the fact that, after December 2004, the prosecutor has the ability to use alternative resolution vehicles, NPA and DPA, to resolve FCPA cases. Finally, we use a dummy variable called First case, to control for the fact that it is the first case investigated in the industry or not.

The list and definition of the dependent and independent variables is shown in Appendix 2.2.

Panel A shows the summary statistics for the 7-year period of the main study going from t-3 to t+3. Panel B shows the summary statistics for the 3-year period before (t-3 to t-1) and Panel C shows the summary statistics for the 3-year period after (t+1 to t+3) the awareness year (year 0), i.e. the year investigated and peer firms become aware of the bribing behavior. The peer group with propensity score matching includes the nearest neighbors within a caliper of 0.05,[39] selected from the peer group built at the SIC3 level matched using the propensity score matching method explained in section 3.1. All variables are winsorized at the 1st and 99th percentiles.

Investigated companies (Treated Group) are bigger in size (log of market capitalization) than the peer group (Control Group) 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 value of the main dependent variable ModDD is higher for the control group than the treated group (8.11 vs. 4.14 respectively) but, as we are seeking to show a deterrent effect within an industry, we choose to retain a large control group with different characteristics to see the global effect of the awareness of future investigation. Two arguments are used to attest the validity of that design. First, as shown in section 2.3.2, the parallel trend assumption is respected, therefore, the two groups can be fairly used for a difference-in-differences analysis. Finally, in an undisclosed table, we compare the summary statistics between the treated group and a control group when applying the propensity score matching with 1, 3, and 5 nearest neighbors. For the 1 nearest neighbor matching for example, the sample then contains 80 peers in the control group and 80 investigated firms in the treated

[39] 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.

group. In that case, t-tests of all variables shown in Table 2.2 are insignificant while the results of the main regressions remain significant and the parallel trend assumption respected.

Therefore, the choice of the control variables both for the matching and the control of the results appear justified even if there is a difference in the metrics for the two groups when using the control group at the SIC3 level or caliper specifications for the propensity score matching. Again, in this paper we are attempting to evidence a deterrent effect of law enforcement at the industry level so we must keep a large panel of peer companies that can show different characteristics from those of the related investigated company, but can equally interpret the opening of an investigation in their industry as a real risk of future investigation for themselves.

------- Insert Table 2.2 about here -------

2.4.2 – 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 awareness year, year 0, when firms become aware of the bribing behavior, following the Modified Dechow Dichev Model (Dechow and Dichev, 2002; McNichols, 2002).

Table 2.3 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 treated group is made up of 80 investigated firms identified in our final sample (See Table 1). In panel A, the control 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 2.3.1.

In Panel A, we observe that the coefficient of change in AQ (i.e. the standard deviation of the discretionary accruals over a 3-year period) for the treated group does not vary significantly (t-stat: 1.50), with an insignificant increase of 0.61 (from 3.02 to 3.63). This means that, counterintuitively, the investigated companies do not improve their Accrual Quality after their awareness of a future FCPA enforcement and there is no significant deterrent effect provided by FCPA law enforcement on the sample of investigated firms:

Hypothesis 1a (H1a), "the AQ of investigated firms (Treated Group) increases after awareness of the bribing behavior", is rejected.

On the contrary, for the peer group we observe a large and significant decrease in the standard deviation over 3 years of 0.92, from 7.45 to 6.53 (t-stat: -4.79). This means that the volatility of discretionary accruals decreases for the peer firms after they become aware of potential bribing behavior by a firm in their industry. As a consequence, the awareness 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 (Control Group) increases after awareness of the bribing behavior of one firm in the industry", is confirmed at a 1% significance level.

The interaction term of the difference-in-differences is positive with a value of 1.53 and significant at a 1% level (t-stat: 3.44). This confirms the significant difference in attitude between the groups after the revelation of bribing behavior that we can also visually observe in figure 2.1. 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 (Treated Group) and Peer firms (Control Group) after awareness of a new bribing behavior of one firm in the industry", is confirmed at a 1% significance level.

------- Insert Table 2.3 about here -------

These results are confirmed for the two alternative specifications of the control group in Panel B. This means 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 time span.

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 (awareness 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 2.3 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 as long as the parallel trend assumption is respected. According to our parallel trend analysis, without the awareness of future FCPA enforcement, both investigated and peer companies would keep the same level of Accrual Quality, 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 after the treatment (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. Furthermore, we use as our main dependent variable the standard deviation of the discretionary accruals, which is already the variation in the value of the discretionary accruals 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 et al., 2004). Finally, the interaction term (difference-in-differences) remains significant when we use alternative specifications in the robustness tests (propensity score matching with 5 neighbors, 3 neighbors and 1 neighbor), where the difference in the value of the dependent variable before the awareness year between the two groups is insignificant.

In conclusion, by using the standard deviation of the discretionary accruals over two 3-year periods (before and after the awareness year), 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 which is large enough to evidence this deterrent effect.

2.4.3 - Additional Results

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. This ability to use NPAs and DPAs brings a third possibility for the prosecutor to resolve a FCPA case but can also lead a decrease in the quality of enforcement (Koehler, 2015). We suggest that firms can modify their correction in AQ after 2004 as they know that any future enforcement can now be resolved with an alternative resolution vehicle.

Table 2.4 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 2.4 about here -------

These additional results shed further light on the main results shown in Table 2.3. In both subsamples, the ModDD_3 years increases insignificantly after the awareness year for investigated companies, reflecting the trend highlighted in Table 2.3. For the peer companies, the trend differs between the two subsamples. For cases acknowledged before 2005, the trend is similar to Table 2.3 as peers significantly reduce the standard deviation of their discretionary accruals from 8.62 to 6.77 (t-stat: -5.95). 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 year. The difference between the two 3-year periods in the value of ModDD_3 years is nearly constant, with a value of -0.11 (t-stat: -0.42). 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 with a value of 3.21 (t-stat: 3.55).

Hypothesis 2a, "There is a significant difference in the change in AQ between Investigated firms (Treated Group) and Peer firms (Control Group) after awareness of the bribing behavior of one firm in the industry for cases revealed before 2005", is confirmed at a 1% level.

For the subsample of cases acknowledged in or after 2005, the interaction term of the difference-in-differences shows an increase in AQ of 0.33, which is statistically insignificant (t-stat: 0.70). We interpret this additional finding in the following way. We suggest that since 2005, peers did not correct their Accrual Quality after awareness 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 (Treated Group) and Peer firms (Control Group) after awareness of the bribing behavior of one firm in the industry for cases revealed in or after 2005", is rejected.

One could argue that the large difference in the number of observations between the treated group and the control group can affect the result. In an undisclosed table, we run the same test using an alternative specification for the control group using the nearest neighbor instead of the caliper of 0.05. It means that we have 27 treated companies and 27 control companies for the subsample "Before 2005" and 53 treated companies and 53 control companies for the subsample "In/After 2005". Results of the regressions remain identical to the results disclosed in Table 2.4 and show that interaction term is significant only for cases revealed before 2005.

In Table 2.5, we lead a subsample analysis of the main results developed in Table 2.3 to investigate what is driving the results for the change in AQ by industry, i.e. the interaction term of the difference-in-differences regressions. Panel A shows the change in by group of years. Panel B shows the results per industry (we present the results at the SIC2 level of clarity).

In Panel A, we show the results for 4 periods. The first period gathers the cases revealed before 2001, i.e. before the FCPA enforcement became a priority of the U.S. prosecutor. The second period gathers cases between 2001 and 2004, i.e. a period when FCPA activity increase and before the prosecutor began to use NPAs and DPAs to solve FCPA cases. The third period gathers cases between 2005 and 2009, to study the incremental change in AQ once the prosecutor has the ability to use alternative resolutions vehicles (NPAs and DPAs). Finally, a last period gathers cases that were revealed after 2009. We observe that for the cases acknowledged before 2001, the change in AQ is not significant. The cases are more ancient and, for this first period of analysis that goes from 1980 to 2000, there were zero of one case per year. FCPA enforcement was sporadic and did not generate significant deterrent effect. The period from 2001 to 2004 leads to significant change in AQ. This is the only of the 4 periods for which it is the case. We suggest that, during those years, firms were aware of the change in attitude of the U.S. prosecutors towards bribing behaviors and peer firms improved their AQ to avoid being the next target. We could assume that the implementation of SOX during 2002 can have an impact of those results (Ashbaugh-Skaife et al., 2008). But as we use a DID design, both treated and control firms are affected by the passage of the SOX law and the interaction term should not be influenced by SOX implementation. Interestingly, the change in AQ is not significant anymore for cases revealed after 2004. Knowing that since 2005, the U.S. prosecutor has added the possibility to use NPAs and DPAs to resolve FCPA cases, we suggest that this ability to use NPAs and DPAs and to attenuate the negative effects

(reputational effects, probability to survive the investigation) of FCPA enforcement mitigates the deterrent effect observed before as Peer firms do not correct significantly the level of their AQ anymore. We suggest that this change in the attitude of the peers tends to show that the change in AQ can be linked to the pattern of FCPA enforcement, i.e. the way the prosecutor chooses to resolve the case, and not to the FCPA itself. In an undisclosed table, we study the change in AQ per year for the period 2001-2005. The results seem to confirm this hypothesis. The change in AQ is significant in 2003 and 2004 but becomes insignificant in 2005, indicating that Peer firms at least partially adjust their change in AQ according to the FCPA enforcement patterns.

Panel B shows the change in AQ by industry. Following the distribution of the cases by industry as shown in Appendix 2.1, we show the details of the results for any industry for which at least 5 FCPA cases have been identified. The other cases are aggregated in the column "Other SIC2" and do not exhibit significance. Three SIC2-industries reveal significant change in AQ : Oil and Gas Extraction (SIC2 13), Industrial and Commercial Machinery and Computer Equipment (SIC2 35), Business Services (SIC2 73).

In undisclosed tables, we also find that the fact that the case is the first in the industry or not does not have an impact on the results (Change in AQ remains significant whether it is the first case in the industry or not). More interestingly, when using a dummy variable that takes the value of 1 if the case is enforced following an accounting provision in addition to the anti-bribery provision and zero otherwise, we find that the change in AQ is only significant when there is an accounting provision involved in the enforcement. This result tends to confirm the link between FCPA enforcement and Accrual Quality. Finally, when we use a dummy variable that takes the value of 1 if case is resolved with a NPA or a DPA and zero otherwise, we find that cases resolved with a NPA or a DPA do not lead to a significant change on AQ. This result tends to confirm the importance of separating the results before or

in/after 2005, when the prosecutor used for the first time an alternative resolution vehicle to solve a FCPA case.

------- Insert Table 2.5 about here -------

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

Table 2.6 shows the main results of the difference-in-differences with control variables for three specifications of the control group: control firms matched with a propensity score matching using a caliper of 0.05, all control firms at the SIC3 level, and using an alternative caliper of 0.1. As detailed in Section 2.4.1, we classify our control variables in three distinct categories. The first category includes the five innate factors that have been identified by previous research (Chaney et al., 2011; Dechow and Dichev, 2002; Francis et al., 2005) to have an impact on Accrual quality. Operating cycle controls for the role a longer operating cycle can play in increasing the estimation errors, therefore the Accrual Quality. Ln Mkt Cap controls for size as large firms are supposed to be more stable in their processes and therefore in their Accrual Quality. σ(CFO/AT)*100 integrates the level of uncertainty created by the variability of operating cash-flows that can challenge Accrual Quality, while σ(Sales/AT)*100 controls for the role that volatility in sales can play on Accrual Quality. Finally, Negative Earnings controls for the frequency of losses that can mitigate Accrual Quality. In the second category, we control for firms' characteristics that can increase their likelihood to pay a bribe following Karpoff et al. (2017). We include market-to-book ratio, leverage ratio and profitability (return on assets), as firms with higher values of these ratios may be less interested to engage in bribery. We also include the Intangible assets ratio for two reasons. First, the level of intangibles have be shown by previous literature to play a role in

the level of Accrual Quality (Dechow and Dichev, 2002). Second, companies with high levels of intangibles are more exposed to bribes as their operations are more complex (opaque). We also control for Sales Growth and for the percentage of foreign sales as FCPA applies to bribes paid to obtain new businesses in foreign countries only. Finally, Big 4 auditor is a dummy variable that controls for the identity of the auditor of the firm, with the underlying assumption an experienced auditor may be better prepared to identify bribe payments and to help companies avoid this behavior when doing business abroad. 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 revealed 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 1.5282 (t-stat: 3.40) in the AQ of peers compared to the investigated firm when controlling for the five factors developed by Dechow and Dichev (2002) and the additional control variables developed above. This result is also economically significant as it represents a reduction of 34.53% of the difference in AQ compared to pre-treatment level (the difference in AQ between the 2 groups goes down from 4.43 before to 2.90 after, i.e. an incremental increase in AQ of 1.53, or 34.53% between the two groups). We also present in Table 2.6 the results of the OLS regression for the alternative specifications in the peer group. The results remain significant at a 1% level, with an increase of 1.7132 (t-stat:

3.91) in the AQ of peers compared to investigated firms at the SIC3 level, and an increase of 1.8847 (t-stat: 4.24) using a caliper of 0.10.

Other control variables are also statistically significant in the regressions. Consistent with earlier studies, we find that the size of the company is significantly and negatively correlated to the AQ. The length of operating cycle is positively and significantly correlated to the AQ, as well as the frequency of negative earnings and variability of cash-flows and sales. Among the financial variables, market-to-book, current and intangible ratios are negatively and significantly correlated to AQ, as well as the percentage of foreign sales, which is also consistent with earlier studies. Among all those variables, size, length of operating cycle, frequency of negative earnings and percentage of foreign sales seem to play a bigger role.

------- Insert Table 2.6 about here -------

2.5- Supplementary Analysis

Our main result shows that the increase in Accrual Quality around the awareness date 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 awareness year. It seems logical that the level of AQ does not deteriorate after the awareness year. Indeed, after they discover a bribing behavior, 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 awareness year for investigated firms? One explanation could be that investigated firms do not feel the need to improve their AQ since they already know an investigation is on its way.

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 (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.[40] 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

[40] OECD Foreign bribery Report, 2014

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. In his interview made in December 2012, Craig M. Lewis, chief economist at the SEC[41], admitted that the SEC uses Accounting Quality metrics to "assess the degree to which registrants' financial statement appear anomalous". Even if this Accounting Quality Model, also known as "Robocop", has been generalized in the recent years, it also proves that the SEC and the DOJ have been using these AQ metrics similar to the ones used in the AAERs to target a specific company for a longer time to identify potential targets. In that case, it makes sense that peers would try to improve their AQ once the y become aware of a bribing behavior in their 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.

2.6 – Robustness Tests

2.6.1 – Specifications of the models used for robustness tests

Table 2.7 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 (Dechow and Dichev, 2002). Then we use the Modified Jones Model (Dechow et al., 1995). We finally use the Jones model (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

[41] Interview of Craig M. Lewis, Chief Economist and Director, Division of Risk, Strategy, and Financial Innovation U.S. Securities & Exchange Commission
https://www.sec.gov/news/speech/2012-spch121312cmlhtm

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, INV*AFTER, 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 (Dechow and 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) plus Depreciation (dp)

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 awareness 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 (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) – $\Delta cash_t$ (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

TA_{it} = total accruals as defined above

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

$\Delta SALES_{it}$ = 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 awareness 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 (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 awareness 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.

2.6.2 – Results of the robustness tests using alternative dependent variables

Table 2.7 shows the results of robustness tests of the OLS regressions with control variables using alternative dependent variables. The control 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 control group, as done in Table 2.6 for ModDD-3y: Peer companies using the propensity score matching within common support and a caliper of 0.05,[42] 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 2.6. The interaction term is positive and significant at 1% level for all the specifications of the control group. Using a caliper of 0.05, the differential increase in Accrual Quality is 1.3553 (t-stat: 3.34), and this differential increase remains of the same nature at the SIC3 level

[42] 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 awareness date.

(1.4957 with a t-stat of 3.80) or using a 0.1 caliper (1.6862 with a t-stat of 4.21) respectively. Peer companies significantly improve their AQ comparatively to the investigated companies after awareness of the opening of an FCPA investigation in their industry. This result confirms the robustness of the main result in Table 2.6, as the Dechow and Dichev-based measures have the highest association with fraud and explanatory power for fraud beyond total accruals (Jones et al., 2008).

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 for the 3 specifications of the control group: using a caliper of 0.05 with a differential increase in Accrual Quality of 1.1044 (t-stat:2.04), at the SIC3 level with a differential increase in Accrual Quality of 1.1451 (t-stat :2.18) and using a caliper of 0.1 (Increase in AQ of 1.2864 with a t-stat of 2.40). Results are significant at a 10% level for the Jones model using a caliper of 0.05 with a differential increase in AQ of 1.0022 (t-stat:1.87) and they are significant at a 5% level at the SIC3 level with a differential increase in Accrual Quality of 1.0476 (t-stat:2.01) and using a caliper of 0.1 (Increase in AQ of 1.2033 with a t-stat of 2.27). Results of the regressions are less explanatory when we use total accruals instead of accrual estimation errors, which is in line with Jones et al (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 control group is larger tends to underline the significance of the deterrent effect at the industry level.

------- Insert Table 2.7 about here -------

2.6.3 – 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 2.8 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 5 nearest neighbors, 3 nearest neighbors, and 1 nearest neighbor respectively. The Treated 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 Control Group is made up of 700 observations (350 companies) when using the 5 nearest neighbors, 448 observations (224 companies) when using the 3 nearest neighbors and 160 observations (80 companies) when using 1 nearest neighbor. The matching is done by replacement to have at least 1 neighbor per treated firm. If the number of neighbors is lower than expected for a specific event (e.g. less than 5 neighbors matched for 1 event when using the 5 nearest neighbors), no replacement is made[43]. Observations are clustered at the company level in regressions.

Results in Table 2.8 confirm the main results of the paper in Table 2.6 when using a caliper of 0.05 instead of nearest neighbor matching. The interaction term of the regression is positive and significant at the 5% level when matching 5 neighbors and 1 neighbor. With 5 neighbors, Accrual Quality increases by 1.0167 (t-stat: 2.04), while AQ increases by 0.8226 (t-stat: 1.59) with 3 neighbors and increases by 1.4522 (t-stat: 1.99) with 1 nearest neighbor

[43] When matching with the 5 nearest neighbors, we obtain 700 observations, i.e. 350 control firms for the 80 events. On the average, we have 4.37 neighbors for this matching instead of 5.

for each investigated firm. It shows that even when the size of the peer group is reduced, the main result is confirmed. In an undisclosed table, the parallel trend is also respected when the matching is done with the 5, 3 or 1 nearest neighbors.

In sum, these results are consistent with the previous results developed in Table 2.6 and confirm our main result: peer companies (Control Group) react to the awareness of a bribing behavior of companies in their industry by improving their Accrual Quality, while investigated firms (Treated Group) 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 2.8 about here -------

2.7 – 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 10-year period around the awareness of potential future enforcement by bribing firms (3 years to verify the parallel trend assumption, 7 years for the main period of the study), 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 McNichols (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 awareness of the bribing behavior and 3 years after) to compare the standard deviation of the discretionary accruals between the investigated group (Treated Group), made up of the 80 U.S. investigated firms, and a peer group (Control 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 1.53 for the standard deviation calculated over a 3-year period and is significant at the 1% level (t-stat: 3.44). While the Accrual Quality of the investigated firms does not significantly change, and even deteriorates slightly (+0.61 from 3.02 to 3.63 for the volatility of the discretionary accruals), peers' Accrual Quality significantly increases: the standard deviation of the discretionary accruals decreases by 0.92 (from 7.45 to 6.53). In terms of economic effect, the 1.53 increase in Accrual Quality shown in the interaction term represents 34.53% of the difference in value of the standard deviation between treated and control firms before the trigger event (4.43 in absolute value). 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 2.6), following the 5 main factors explaining Accrual Quality listed in Dechow and Dichev (2002), Francis et al. (2005) and Chaney et al. (2011) and also control variables linked to financial characteristics of firms that could be exposed to bribes (Karpoff et al., 2017), as well as 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 2.7). These results are also robust to alternative choices in the specifications of the control group in our difference-in-differences design (Table 2.8), when we select the 5, 3 or 1 nearest neighbors instead of all available control firms 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 as confirmed in the interview of Craig M. Lewis in an interview led in December 2012. We posit that the SEC is seeking to capitalize on its experience of enforcement in one specific industry and its ability to calculate AQ metrics to assess the degree to which registrants financial statements are anomalous to select its 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. It follows a recent development of these new incentives to reveal cases since the beginning of the new millennium. Before that, whistleblowers, for example, used to be a "rare breed" (Porter, 2003; Stolowy et al., 2018). They have now gained a legitimacy as socially relevant fraud disclosers (Stolowy et al., 2018). 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 assume that the SEC will select future targets in the same industry using, among other indicators, the level of Accrual Quality. 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 improve their Accrual Quality to decrease the probability of being selected as a target by the prosecutor, but also to reassure the investors about the low level of legal risk associated to the firm. In that sense, we suggest that the channel of information risk is at play (Francis et al., 2005). Accrual Quality is a proxy for the information risk associated with earnings. Peers increase their AQ to suggest to their investors a decrease in their probability to be the next target of 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 they become aware that one of their competitors in the same industry is going to face an investigation by the SEC and/or the DOJ under the FCPA, the US Anti-Bribery Law.

3 – The Impact of Prosecution on Corporate Investment: Evidence from the Anti-Bribery Enforcement Actions

3.1 - Introduction

The impact of anti-bribery law enforcement on the behaviors of firms is a matter of much debate. The passage of the law itself can affect the behavior of firms, as they analyze it as a change in their regulatory context. The level of investment can be a good proxy to analyze the reaction of firms to a change in the law enforcement level in the U.S. context. Indeed, the anti-bribery provisions of the Foreign Corrupt Practices Act (FCPA), the U.S. anti-bribery law, prohibits the payment of bribes to obtain or retain business in foreign countries, and greater enforcement may therefore affect the level of foreign investment that firms intend to make. As a consequence, when an investigation is opened for potential violation of anti-bribery provisions, investigated firms, but also industry peers, may change their investment policy as they revise upwards the probability of being the prosecutor's next target. The quantity and quality of law enforcement can also affect the behaviors of firms as they analyze it as a change in the willingness of the prosecutor to engage in more or less scrutiny. In December 2004, the Department of Justice (DOJ) added to FCPA enforcement the possibility of using alternative resolution vehicles, called non-prosecution agreements (NPAs) and deferred prosecution agreements (DPAs). This new option may change the way companies evaluate the consequences of a potential future FCPA investigation.

In this paper, I explore the impact of FCPA prosecution on the level of investment of peer firms and investigate whether the introduction of a third option to resolve FCPA cases using NPAs and DPAs marks a significant evolution in the change in the capital spending, i.e. investment, of firms. I use a hand-collected sample of 92 bribery cases investigated under the FCPA for the period 1978-2015 to analyze the change in investment of targeted firms and peer firms around the awareness date, which is the moment when both investigated firms and

peer firms become aware of the potential bribing behavior by the investigated firm. The U.S. context provides an ideal setting to investigate these issues. FCPA was the first anti-bribery law to be implemented and therefore provides a large timespan, consistent with an empirical analysis. U.S. anti-bribery enforcement activity has increased dramatically since the beginning of the new millennium and makes it an even more important topic to tackle. The two main sets of provisions of the law, anti-bribery provisions and accounting provisions, remained quite stable in terms of content throughout the period of analysis. However, enforcement patterns have evolved significantly since December 2004, with the new possibility of using alternative resolution vehicles to resolve FCPA cases. The use of NPAs and DPAs is associated with larger fines but less in-depth investigations, and may change the way peer firms react to the revelation of a new investigation in their industry, proxied by the level of their investment.

The two following findings have been made: First, I find that peer firms decrease their level of capital spending when they become aware of a new FCPA investigation in their industry, while targeted firms do not significantly correct their capital spending after the same event. Second, I focus on Peers only and find that the first use of alternative resolution vehicles such as NPAs and DPAs in December 2004 significantly changed the reaction of peer firms to FCPA enforcement, as the decrease in their investment level is lower for cases revealed after 2004. From a managerial point of view, I analyze this finding as a correction by peer companies of their level of risk, as they consider that the possibility of resolving FCPA charges with an NPA or a DPA decreases the risk of doing business in bribe-prone countries and enables them to maintain a certain level of investment in these countries.

This paper contributes to the law and finance literature in three ways. First, this paper is one of the first to provide evidence a negative peer effect of FCPA enforcement on investment. Second, I provide empirical evidence to back up previous findings in the law

literature that the introduction of the alternative resolution vehicles (NPAs and DPAs) in December 2004 to resolve FCPA cases seems to mitigate the effect of the law. Third, by identifying the impact of a key event on investment (the first NPA settlement by In Vision and General Electric in December 2004), I consider that expectations of punishment for all posterior events will integrate the possibility of resolution with alternative vehicles. For Becker (1968), the probability of conviction and punishment (size and form) are the two main decision variables. Most papers focus on the impact of the revelation of a new investigation on the probability of enforcement, since the level of punishment and penalties remains unknown at the awareness date. When I split the sample into two subsamples (before 2005 vs in/after 2005), I contribute to the literature by indirectly integrating the level of punishment and more generally the patterns of settlement (higher fines, less in-depth investigation and a lower negative impact on reputation) at the awareness date. I consider that the behavior of peers will be different in or after 2005 when they know that alternative resolution vehicles can be used and will influence the characteristics of that punishment.

The Foreign Corrupt Practices Act, the U.S anti-bribery law, emerged in 1977 after two years of investigation by the U.S. Congress, and governs business practices with foreign government officials in foreign markets (Koehler, 2012). More specifically, this pioneering law addresses the problem of international corruption through two types of provisions that operate in tandem,[44] anti-bribery provisions[45] and accounting provisions.[46] While the accounting provisions focus on the accuracy of corporate books and records, the anti-bribery provision provides a framework for business practices by prohibiting individuals and businesses from bribing foreign government officials in order to obtain or retain business.

[44] See FCPA Resource Guide by the Criminal Division of the U.S. DOJ and the Enforcement division of the U.S. SEC

[45] Section 30A of the Securities Exchange Act of 1934 – 15 U.S.C. §78dd-1

[46] Accounting provisions are made up of two sets of provisions, the Books and Records Provision Section 13(b)(2)(a) of the Securities Exchange Act of 1934 (15 U.S.C § 78m(b)(2)(a)) and the Internal Controls Provision Section 13(b)(2)(b) of the Securities Exchange Act of 1934 (15 U.S.C § 78m(b)(2)(b))

An analysis of the 241 hand-collected bribery cases on the U.S. Securities and Exchanges Commission (SEC) and DOJ websites shows that the business that bribing firms try to obtain or retain depends on the activity of the company, but is nearly always related to a high level of investment to be made. In the Oil and Gas Extraction industry, one of the most famous cases is the "Bonny Island" case, where a four-company joint venture formed in 1990 set up a scheme to bribe Nigerian custom officials to obtain a multi-million-dollar contract to build liquefied natural gas production facilities on Bonny Island, Nigeria.[47] In the Industrial and Commercial Machinery and Computer Equipment industry, which includes the power industry, a French company paid bribes to government officials in Indonesia in exchange for assistance in securing a $118 million contract, known as the Tarahan project, for the company and its consortium partner to provide power-related services for the citizens of Indonesia.[48] In the Transportation Equipment industry, a U.S. company revealed in its SEC filings that employees and agents of its subsidiaries paid kickbacks to the Iraqi government in order to obtain contracts with Iraqi ministries to provide road construction equipment, air compressors and parts, and refrigerated trucks.[49] In the Measuring, Photographic, Medical, and Optical Goods and Clocks industry, the Mexican subsidiary of a medical device company routinely paid bribes, referred to as chocolates, to Mexico's government-owned health care and social services institution officials in order to obtain lucrative sales contracts with government hospitals that yielded nearly $5 million in illegal profits for the company.[50] The motivations of these companies to bribe are diverse but always involve large investments to be made in these foreign countries. There is a natural link between capital spending and bribes. Of course, not all investments are enabled by bribes, but when bribes are paid, it is usually to facilitate an investment in fixed assets in order to develop the "business to obtain or retain"

[47] See TSKJ case related to Technip S.A., Snamprogetti Netherlands B.V., KBR, and JOC corporation on U.S DOJ website (www.justice.gov)
[48] See Alstom case on U.S DOJ website (www.justice.gov)
[49] See Ingersoll-Rand Company ltd case on U.S. DOJ (www.justice.gov) and SEC (www.sec.gov) websites
[50] See Orthofix case on SEC website (www.sec.gov)

mentioned in the anti-bribery provisions. As I investigate the impact of anti-bribery law enforcement on peers, the question arises as to whether the awareness of a bribing behavior prevents peers from investing in long-term assets because they revise upwards the probability of being investigated later by the DOJ and/or the SEC.

Corruption is detrimental to growth and has serious economic and social costs (Rose-Ackerman, 2010). The negative association between corruption and investment, as well as growth, is significant (Mauro, 1995). The World Bank estimates that corruption causes annual costs of approximately $2.6 trillion, with $1 trillion paid in bribes every year (Zeume, 2017). These findings justify the implementation of anti-bribery laws intended to drive firms' behavior, as bribery is always a second-best outcome (Rose-Ackerman, 2010).

Do anti-bribery laws have an impact on the level of investment of firms? Hines (1995) finds that FCPA reduced foreign direct investment for U.S. firms as the law raises the cost of certain foreign business projects, creating a competitive disadvantage for U.S. firms. This result can actually be extended to all companies, U.S. or not, with U.S. activity, as long as they can be considered as an issuer as defined by the anti-bribery provisions.[51] Conversely, Graham (1984) finds no negative effect of FCPA on the export performance of American industry when comparing the market share of U.S. industry in countries where FCPA is reported as an important disincentive with U.S. market share in other countries. Using the passage of the U.K. Bribery Act in 2010, Zeume (2017) finds that regulation alters foreign investment at the firm level and suggests that, if firms use bribes to increase the probability of winning positive net present value contracts, then the U.K. Bribery Act may curtail some profitable business, thereby reducing the value of regulated firms and benefiting their unregulated competitors (Beck and Maher, 1986). What about regulated competitors? As the regulation may affect the profitability of certain projects, it could be interesting to analyze

[51] In practice, any company with a class of securities listed on a national securities exchange in the United Stated, or any company with a class of securities quoted in the over-the-counter market in the United Stated and required to file periodic reports with SEC, is an issuer. See FCPA resource guide.

whether the peers of impacted regulated firms also reduce the level of their investment when they revise downwards the profitability of these projects due to the extra costs generated by the regulation or the inability to use bribes. Anti-bribery laws enable firms to correct their assumptions about the profitability of projects when bribes are no longer a possibility, and ultimately to avoid non-profitable projects.

What about the impact of anti-bribery enforcement activity? Using data on enforcement actions under FCPA, Karpoff et al. (2017) find that bribery is associated with positive Net Present Value (NPV) projects, except for a subset of firms that face comingled charges for financial fraud, for which the direct costs and reputational losses are large, causing the ex-post NPV to be negative. Cheung et al. (2012) analyze 107 bribery cases investigated worldwide over the period 1971-2007 and find that firm market value increases by 11 dollars, on average, for each dollar of bribe they pay.

As complete enforcement is costly (Stigler, 1970) and prosecutors suffer from resource constraints (Jennings et al., 2011; Kedia and Rajgopal, 2011), the DOJ and SEC expect law enforcement to have a deterrent effect. In the USA, where common law is in force, the announcement of the opening of an investigation serves as a way to inform the market that the law will be enforced and that this enforcement may be applied to other firms in a similar situation in the future. The deterrent effect on criminal behavior depends mainly on the probability of detection and punishment and on the penalties imposed (Becker, 1968; Rose-Ackerman, 2010). The revelation of a future FCPA investigation of one firm can create a deterrent effect on peers in the same industry, as they revise upwards their probability of being the next target. Once firms become aware of the future enforcement, they can adapt their practices to fit with the requirements of the law or implement ex-ante tools to avoid unknown bribing behavior within the firm. The awareness of a future investigation of one

company in an industry can go beyond a deterrent effect and also have an impact on the investing policies (among others) of firms of the same industry, following a peer effect.

The peer effect on investment has already been discussed in the literature. Servaes and Tamayo (2014) find that industry peers change their investment and financing policies to diminish the control threat when there is a hostile takeover attempt in the industry. They follow the argument by Jensen (1993, 1986) and Shleifer and Vishny (1988), who noted that the free cash flow problem is not specific to a particular firm, but generally affects an entire industry. As bribing firms usually pay bribes in order to obtain or retain business that requires significant levels of investment, I focus on investment policy and analyze in a first step whether industry peers change their capital spending when they become aware of the opening of an FCPA investigation in their industry, and revise upwards the probability of being the next target.

In December 2004, the DOJ used alternative resolution vehicles for the first time in its FCPA enforcement action against InVision Technologies Inc. and General Electric Company. This case was a milestone, as the prosecutor opened the door to NPAs and DPAs, which brought a third option to FCPA enforcement, in addition to either charging the entity with an FCPA violation or not charging (Koehler, 2015). This evolution was the consequence of the perceived "Arthur Andersen Effect". In 2002, the Enron scandal led to the bankruptcy of Enron Corporation but criminal charges were also announced by the DOJ against Enron's long-time auditor, Arthur Andersen LLP. The criminal indictment charges the Arthur Andersen partnership for "destroying literally tons of paper documents and other electronic information related to the Enron inquiries". The jury trial that followed led to the criminal conviction of Arthur Andersen for obstruction of justice. Following this decision, Arthur Andersen went out of business in 2002. Even if the Supreme Court ultimately reversed its conviction in 2005, the immediate perception of the consequences of the criminal charges, i.e.

a death sentence for the company, were irreversible. The perceived "Arthur Andersen Effect", whereby criminal charges alone can lead to the death sentence of a company as for Arthur Andersen in 2002, caused the DOJ to reconsider its historical way of resolving FCPA cases (Koehler, 2015) and to open the door to alternative resolution vehicles, the NPAs and the DPAs. Under DPAs and NPAs, firms admit to criminal wrongdoing and agree to pay monetary sanctions but avoid formal conviction. As a consequence, the investigation is shorter and less pervasive and leads to pre-trial agreement that usually includes a higher level of fines but less reputational damages. The prosecutor, who is elected and whose results and actions are looked after, find in the NPAs and DPAs a way to punish firms for their illegal behaviors and to show to the public that justice has been served, without facing the same rate of bankruptcies for the investigated companies than with criminal convictions. With the alternative resolution vehicles, the company may also agree to retain a compliance monitor during several years within the firm to look after the real commitment of the company to avoid further criminal behavior. For Arlen (2016), the processes governing prosecutors' use of DPAs and NPAs is inconsistent with the rule of law. By using NPAs and DPAs, the prosecutor can indeed soften the consequences of a conviction while trying to decrease the probability of a company not to survive the investigation. Nevertheless, alternative resolution vehicles have become the dominant way in which the DOJ resolves corporate FCPA cases and are an obvious reason for the general increase in FCPA enforcement since 2005. However, they may result in a lower quality of this enforcement (Koehler, 2015). As a consequence, the question arises as to whether the reaction of firms to the opening of an FCPA investigation in their industry has evolved since the first use of alternative resolution vehicles in December 2004, for the InVision/General Electric case.

In this paper, I investigate the change in investment by targeted firms and their industry peers around the revelation of an FCPA investigation, using a hand-collected sample

of 92 FCPA investigations identified over the period 1978-2015, where the targeted firms are listed firms enabling the identification of industry peers. I follow Servaes and Tamayo (2014) and use capital spending, calculated as capital expenditures over total assets, as my main dependent variable, and find in a first step that peers reduce significantly their capital spending after the revelation of an FCPA investigation in their industry. Surprisingly, in a second step, when the main sample is split into cases revealed before 2005 on the one hand and cases revealed in or after 2005 on the other hand, I find that peers no longer significantly decrease their capital spending after the event. The result for the entire sample (first step) is in line with the literature (Hines, 1995; Zeume, 2017), while that of the subsample for events revealed in or after 2005 tends to show a change in the pattern of peer firms, which do not decrease the level of their capital spending after awareness of an FCPA investigation in their industry, a time period in which prosecutors have used NPAs and DPAs as the dominant tool to resolve FCPA cases. One interpretation of the decrease in capital spending of peers after awareness of future enforcement in the industry is that peers revise upwards the probability that they will be the next target of the prosecutor. As the legal uncertainty increases, firms are more reluctant to invest, because the profitability of investment is more unpredictable. As a consequence, peers cut their investment. Another explanation could be that managers of peer firms could build up fixed asset capacity in anticipation of future growth before the revelation date (Dechow et al., 2011), putting the firm in an overinvestment position that is rectified after the awareness of bribing behavior in the industry.

Surprisingly, targeted firms do not significantly decrease the level of their capital spending after the revelation of the bribing behavior. One possible explanation is that targeted firms do not revise their probability of getting caught, as they have already faced an investigation. Another explanation could be that targeted firms invest in new projects in order to compensate for the decrease in profitability of former projects caused by the fines to be

paid at the settlement date. Finally, the opening of an investigation does not necessarily mean that the company will ultimately be found guilty. As I focus on the awareness date, targeted firms can still hope that they will not be charged at the end of the investigation. Finally, the size of the sample of targeted firms that existed during the 7-year window (68 firms) may limit the interpretation.

When I compare the change in capital spending of peers before and after the first use of alternative resolution vehicles in December 2004, I identify a surprising change in their behavior. Indeed, for cases revealed before 2005, I observe a significant decrease in the capital spending of peer firms, as identified in the first step of the results. Conversely, there is no significant decrease in the capital spending of peer firms for cases revealed in or after 2005. One potential explanation is that peer firms consider that the legal risk of a future enforcement leading to the death of the company is lower, as the use of alternative vehicles is considered as less damaging and was implemented to avoid an "Arthur Andersen" effect, i.e. the death of the company. Another, complementary explanation is that reputation losses may be considered lower, as NPAs or DPAs lead to a less in-depth investigation by the prosecutor. In sum, the use of NPAs and DPAs enabled the development of FCPA enforcement in quantity with larger fines, but led to lower quality of enforcement (Koehler, 2015), which could be reflected in the lower decrease in capital spending for cases revealed in or after 2005, as peer firms revise upwards their probability of surviving a potential FCPA investigation.

The remainder of this paper is organized as follows. I develop my hypotheses in Section 3.2. Section 3.3 contains my data collection procedure and my research design. In Section 3.4, I provide the results and discuss them. Section 3.5 discusses robustness checks. Section 3.6 concludes the paper.

3.2 – Development of Hypotheses

Efficient law enforcement against criminal behavior depends on the responses of offenders to changes in enforcement and the nature of punishment (Becker, 1968). The two main variables that can help the prosecutor achieve efficient deterrence are therefore the probability of detection and punishment, and the penalties themselves, which are directly imposed by the legal system of indirectly impacting the company via a loss of reputation (Becker, 1968; Rose-Ackerman, 2010).

Corruption is detrimental to growth (Mauro, 1995; Shleifer and Vishny, 1993) and has serious economic and social costs (Rose-Ackerman, 2010). Nevertheless, a change in the legal context can have an impact on some policies of firms, like financing and investment policies. Hines (1995) finds that the passage of the FCPA in 1977 reduced U.S. business activity in bribe-prone countries using four indicators, among which the level of foreign direct investment (FDI). This does not mean that U.S. legislation reduced total levels of FDI in these countries, as foreign firms may simply have replaced American firms (Hines, 1995), but tends to show that, if the anti-bribery law does not negatively affect growth overall, a similar anti-bribery legal framework should be developed worldwide, as undertaken by OECD, to generalize the obligations faced by firms when doing business abroad. On the contrary, Graham (1984) finds no negative effect of FCPA on the export performance of American industry, following Richman's (1979) proposition according to which questionable foreign payments by U.S. corporations are often financially self-defeating, but agrees that FCPA itself can and should be improved. Exploiting the passage of the U.K Bribery Act 2010, Zeume (2017) finds that U.K. firms operating in high-corruption countries experience a drop in firm value while their non-U.K. competitors experience an increase, and concludes that imposing unilateral anti-bribery regulations on some firms benefits their unregulated competitors.

What about the impact of anti-bribery enforcement on the behavior of targeted firms? Using a sample of 166 bribery cases that were investigated by authorities worldwide for the period 1971-2007, Cheung et al. (2012) find that firm performance, the rank of the politicians bribed, as well as bribe-paying and bribe-taking country characteristics affect the magnitude of the bribes and the benefits that targeted firms derive from them. Using a sample of firms targeted by FCPA enforcement actions, Karpoff et al. (2017) find that bribery is associated with projects that are valuable, even bearing in mind the expected penalties, except for a subset for firms that face comingled charges of financial fraud.

What about the impact of law enforcement on the behavior of peer firms? Jennings et al. (2011) find a significant deterrent effect in peer firms' behavior associated with SEC enforcement actions for violating Generally Accepted Accounting Practices ("GAAP"), as both target and peer firms reduce their discretionary accruals in the aftermath of such an enforcement. In that context, law enforcement deters aggressive financial reporting behavior among the peers of fraudulent firms. As the prosecutor has limited resources (Kedia and Rajgopal, 2011), the prosecutor must hope for a deterrent effect of the law (Becker, 1968; Rose-Ackerman, 2010) on targeted firms, but also their peers. Prosecutors expect the investigation of the targeted firm to create a deterrent effect that will drive peer firms to comply with the law. In addition to the deterrent effect, law enforcement can also drive peer firms to change their financing and investing policies, among others, creating a peer effect on these important variables. The peer effect has already been evidenced in the literature. Servaes and Tamayo (2014) find that industry peers cut their capital spending, free cash flow and cash holdings, and increase their leverage and payouts to shareholders when another firm in the industry is subject to a hostile takeover attempt. In its anti-bribery provisions, the FCPA prohibits individuals and businesses from bribing foreign government officials in order to obtain or retain business. The business discussed in this anti-bribery provision is linked to

large investments in fixed assets. Therefore, capital spending can be a good proxy to identify whether FCPA enforcement generates a peer effect. I expect peer firms to reduce their capital spending once they become aware of the opening of an FCPA investigation in their industry, as they revise upwards the probability of being the next target and revise downwards the profitability of their long-term projects in foreign countries, as extra costs will have now to be taken into account. Hypothesis 1a is stated as follows:

Hypothesis 1a: Peer firms cut their capital spending when they become aware of a new FCPA investigation in their industry.

I can also put forward a similar hypothesis for targeted firms. Hypothesis 1b is stated as follows:

Hypothesis 1b: Targeted firms cut their capital spending when they become aware the opening of an FCPA investigation against them.

The probability of conviction and punishment are the main decision variables in Becker's model to combat criminal behavior (Becker, 1968). Punishments are not known at the date firms become aware of the opening of an FCPA investigation in their industry. However, a change in the patterns of settlement can have an impact on how firms react to such information. While Rose-Ackerman (2010) thinks that anti-corruption law needs to be redesigned in many jurisdictions as penalties are poorly tied to the marginal benefits or bribery, there has been a significant evolution in FCPA enforcement patterns in the last decade, during which alternative resolution vehicles have become the dominant way for the DOJ to resolve corporate FCPA cases (Koehler, 2015) and have enabled an increase in the number of cases enforced under FCPA. The alternative resolution vehicles, namely NPAs and DPAs, were used for the first time in December 2004 to settle the InVision/General Electric

case. One of the motivations of the prosecutor was to give the enforced company a higher probability of surviving the investigation and to attenuate the "Arthur Andersen effect". Since then, approximately 85% of enforcement actions have involved an alternative resolution vehicle. How does this change in the FCPA enforcement patterns impact the behavior of firms? Koehler (2015) states that this evolution resulted in a higher quantity but a lower quality of FCPA enforcement, symbolized by larger fines, less in-depth investigation, and more corporations and fewer individuals concerned. Under DPAs and NPAs, firms admit to criminal wrongdoing and agree to pay monetary sanctions, but avoid formal conviction (Arlen, 2016; Arlen and Kahan, 2017; Garrett, 2007). The change in enforcement patterns since December 2004 and the first use of alternative resolution vehicles in the enforcement of Invision Technologies Inc. and General Electric Company may modify the peer effect identified in Hypothesis 1. I expect peer firms to reduce their capital spending less sharply for FCPA cases revealed in or after 2005 than for older cases, as they revise upwards their probability of surviving a potential FCPA investigation and may therefore invest in long-term assets related to their foreign activities. Hypothesis 2 is stated as follows.

Hypothesis 2: Peer firms cut their capital spending less for FCPA cases revealed in or after 2005 than for cases revealed earlier.

3.3 – Data Collection and Research Design

3.3.1 – Data Collection

I manually collect all the FCPA enforcement actions from the DOJ site and the SEC site for the period 1978-2015. I gather all the subsidiary, parent or individual cases that were related to the same event under a unique core case. 241 different parent companies were linked directly and/or through an individual to an FCPA enforcement action between 1978 and 2015. As my aim is to analyze the impact of FCPA enforcement on public companies,

cases are removed from my sample if the enforced firm is privately held (68 cases excluded, 173 cases remaining). 23 miscellaneous cases are excluded from the sample because they cannot be linked to a company (anonymous case, individual case in which the individual does not work for an identified company, the individual works for a non-profit institution). 150 cases remain after this step. As this paper focuses on U.S. cases only, 38 cases linked to non-U.S. companies are removed from the sample (remaining=112 cases). For 18 cases, I do not have a match on Compustat or financial data for the enforced firm. 94 cases are left in my sample after this step (88 unique firms and 6 firms with 2 distinct enforcements). For 2 investigated firms, the event is related to the same SIC3 and the same month of awareness of the bribing behavior. My final sample of events (enforcement action awarenesss) numbers 92 (86 unique firms and 6 firms with 2 distinct enforcements).

My main event date, called awareness date, is the moment when both the investigated company and the peers from the same industry become aware of the bribing behavior. As Peers are from the same industry, I consider that they can be informed of the bribing behavior of a competitor as soon as the investigated firm become aware of the bribing behavior. It could be argued that, as the information is not public yet, peer firms become aware of the bribing behavior of their competitor only when the information becomes public, moment that I call the disclosure date. This concern can be alleviated with the two followings arguments. First, as I use yearly financial information, the disclosure year and the awareness year are identical in a large majority of events. More specifically, the awareness year and the disclosure year are identical in 70 cases out of 92 events in my final sample (76% of the events). Second, when I run the main regressions by splitting the sample between events for which the awareness year and the disclosure year are identical on the one hand and events for which the two years are different on the other hand, results remain identical to the main result

of the paper for the two regressions showing that the choice of the awareness date instead of the disclosure date does not impact the results.

To identify the awareness date for each case, I carry out searches in the SEC 10k filings of companies in EDGAR using "FCPA related misbehavior", "Bribery" and "Corruption", among other keywords, to find the first time the bribing behavior was disclosed in the notes. I also use Factiva, the Trace Compendium International database, other public FCPA databases or specialized sites such as Shearman FCPA, FCPA.Stanford, FCPA Professor and the SEC and DOJ sites. Finally, I use Google when necessary. I take the earliest awareness date I identified, which can be the earliest awareness date mentioned in the 10k filings or the earliest awareness date mentioned in a press release, or the date of self-disclosure to the SEC/DOJ.

The list of firms operating in the industry (industry peers) is constructed from the entire universe of companies in Compustat. As the paper focuses on the industry effect of FCPA enforcement, in Compustat I select companies with the same SIC3 as the related investigated firm. Peers are included if they have data available for the three years before the event date and three years after the event date and if they disclosed foreign sales in the segment information of Compustat at least once.[52] Indeed, the anti-bribery provisions of the FCPA include bribes paid in order to obtain or retain business in a foreign country. To react to an enforcement in their industry, peers must have part of their business that comes from foreign countries. I identify 3,952 peers for the 92 events (1,395 distinct peers, each one being used in 2.83 different events on average).[53] The investigated firm is present throughout the seven years of the event window only in 68 cases (63 unique companies) for the 92 events.[54] As these firms are targeted by an FCPA investigation, they must have part of their activity

[52] For 1 case, data are available for only 6 years, since the awareness year is 2014 and the data are considered till the end of 2016. I kept this case in my sample.
[53] For 1 event, the enforced firm is available but no peer is available. I kept this case in the analysis to be able to observe the effect on the investigated firm.
[54] For 1 event, there are 2 investigated firms, so I have an investigated firm for 74 cases out of 92.

abroad. Therefore, I consider all the investigated firms in the analysis, regardless of the information about disclosed foreign sales.

Panel A of Table 3.1 lists the number of enforcement actions by awareness year. In the period 1978-2015, the number of enforcement actions in the sample ranges from zero to 15 (in 2005). Most of the events (awareness of bribing behavior) occur after 2000, with 78 events out of 92 witnessed between 2001 and 2011. This shows the sharp increase in enforcement efforts made by prosecutors in the 2000s compared to previous decades. Only 34.78 % of events were revealed before 2005. This means that more than 65% of events (60 events) occurred after the implementation of alternative vehicles, used for the first time in the resolution of the In Vision/General Electric case in December 2004. For these 60 events, peers and targeted firms know that resolution can be achieved through an alternative vehicle with a higher level of fines and less in-depth investigation than for previous resolutions. The small number of events after 2012 is mainly due to the fact that in my study I consider only cases that were resolved before the end of 2015.

The non-null number of peers per event ranges from 1 to 291.[55] The average number of peers is 42.96, with a median of 16 (not reported in the table). Panel B of Table 3.1 contains the broad industry categories at the SIC2 level (using the SIC2 classification of Compustat). Four industries in my sample experienced at least eight enforcements: Oil and gas Extraction, Chemical and allied products, Industrial and Commercial Machinery and Computer Equipment, Measuring, Photographic, Medical, & Optical Goods, & Clocks, and Business Services.

For each case, I collect information about the investigation, which will be used as additional control variables in the regressions. The information collected includes the FCPA provisions of the case (Anti-bribery provisions and/or accounting provisions), whether the

[55] For 1 event, the investigated firm is available but no peer available. I kept this case in the analysis to be able to observe the effect on the investigated firm. Except for this event, I have at least one peer per case to analyze the peer effect of FCPA enforcement.

case was led by DOJ and/or SEC, whether at least one company was investigated, whether at least one individual was indicted, the district court that handled the case, and the vehicle used for resolution (NPA, DPA, PA).

------- Insert Table 3.1 about here -------

3.3.2 – Research Design

I follow Servaes and Tamayo (2014) and examine the change in the capital expenditures ratios of peers and targets around the awareness year. My main dependent variable, capital spending, is measured as the ratio of capital expenditures (capx in Compustat) to assets (at). The capital spending measure is averaged for the three years before the awareness year and the three years after the awareness year. The awareness year is excluded from the calculations.

To control for the change in capital spending, I focus on four main independent variables linked to the company and calculated using information found in the fundamental annuals of Compustat. I use lagged Tobin's Q as my first independent variable, calculated as book value of assets (at), minus book value of equity (ceq) and deferred taxes (txdb), plus market value of equity (prcc_f *csho), all scaled by book value of assets (at).[56] Tobin's Q is a natural explanatory variable of capital spending, as the optimal rate of investment is an increasing function of the market value of the firm to the replacement cost of the firm's capital (Abel and Eberly, 1993; Tobin, 1969). It can also be used to identify overinvestment situations, as studies which utilize an average q of less than one to identify overinvesting firms appear to be on solid ground (Gordon and Myers, 1998), and managers in misstating firms could build up fixed asset capacity in anticipation of future growth (Dechow et al.,

[56] See Appendix 3.1 for the definition of variables

2011). Then I control for size using the natural logarithm of total assets, as both bribing behavior and the level of investment can be influenced by the size of the firm. Later in this paper I also conduct an analysis of subsamples by size, among others, to investigate whether the change in capital spending affects certain quartiles of firms classified by size more than others. Next, I control for the percentage of foreign sales, as FCPA applies to new businesses developed in foreign countries only. The percentage of foreign sales is calculated using the amount of non-domestic sales, as found in the geographical segments of Compustat, divided by the total amount of sales (sale).[57] Finally, I control for industry concentration using the Herfindahl index calculated as the squared percentage of the assets of the firm scaled by the sum of assets in the industry.

I also use a set of hand-collected independent variables linked to the cases themselves to control for the impact of patterns of enforcement on the change in capital spending. I control for the type of prosecutor (DOJ and/or SEC), the fact that individuals are indicted or not, the district court that handled the case, the fact that it is the first case in the industry or not, the fact that the case was revealed before or in/after 2005, and the presence of an anti-bribery provision.

3.4 – Results

3.4.1 – Summary Statistics

Table 3.2 shows the summary statistics for the main variables used in the regressions, for peer firms on the one hand and targeted firms on the other hand. The sample of industry Peers is made of companies with the same SIC3 than the related targeted firm, existing during the 7-year period covered by the study (3 years before the event date and 3 years after the

[57] The capex by geographical segment is a variable that is also provided by Compustat statements but, as this information does not have to be disclosed compulsory, the information is often missing and the remaining sample would not be unbiased. That is why I decided to approach the level of foreign activity indirectly through the percentage of sales, as this information is globally more often disclosed by Compustat firms.

event date), that disclosed foreign sales in the segment information of Compustat at least once during the 7-year period. In order to have the same observations before and after in my regressions, I keep only companies for which I have an observation for the dependent variable as well as for the main independent variables (Tobin's Q and size) before but also after the event. In undisclosed robustness tests, I run the regressions keeping all observations for which I have capital spending before and after the event, even if Tobin's Q and size over 3 years were not available. The results remain unchanged. I also run the regressions by discarding observations for which the percentage of foreign sales is not available. Results also remain unchanged. The final sample is made of 3,952 peers (1,395 distinct peers, each one being used in 2.83 different events on average) and 68 targeted firms (63 unique companies) for the 92 events.

Results are shown for 3 periods: a 7-year period that covers the whole timespan of the study, a 3-year period before the event, and a 3-year period after the event (year zero, i.e. the awareness year is excluded). The targeted firms are bigger in size (8.44 vs 5.27 over a 7-year period) than the peer firms. They also have a smaller Tobin's Q and a larger percentage of foreign sales than the peers, but the characteristics of the two samples are similar enough to be compared around the event date and do not change when I split my analysis between the events that were revealed before 2005 and those that were revealed in or after 2005. Later in Section 3.4, I disclose additional results that take into account the disparities between the two samples, and I split the peer sample into quartiles for each of the 3 main control variables (size, Tobin's Q, and percentage of foreign sales) to better understand the pattern of the change in capital spending.

------- Insert Table 3.2 about here -------

In addition, Table 2.3 shows that the t-test of capital spending for the 3-year period before the event is not statistically different between the two groups. This means that before the event the two groups have a value of the dependent variable (capital spending) that is similar enough to reasonably compare the impact of the event on the two groups.

Interestingly, the t-test related to the change in capital spending after awareness of future enforcement in the industry is significant only for peer firms, with a decrease in capital spending of 0.005 (t-stat: 6.46). For investigated firms, there is no significant change in capital spending after the event. This surprising result tends to confirm that future enforcement in the industry affects only peers in a significant way. I must now analyze this first finding more precisely and will focus my analysis mainly on the peer effect. In the next section, I develop an OLS model that will take into account control variables relating to size, Tobin's Q and percentage of foreign sales, as well as industry and year fixed effects to confirm the results of the t-test. Then I will consider additional control variables that are related to the FCPA investigation (DOJ and/or SEC prosecutor, does the case involve an individual and/or a company, district court that settled the case). I will also discuss the evolution of FCPA enforcement patterns by separating my sample into two subsamples using a time dummy: cases that were revealed before 2005 on the one hand, cases revealed in or after 2005 on the other hand. In additional results, I will also explore the outcomes when I split the peer samples into 4 quartiles using size, Tobin's Q and percentage of foreign sales as splitting criteria. Finally, I will investigate the results at the intersection of some quartiles and the time dummy variable. In particular, I will explore the results for the upper quartile of peer firms in size using the year 2005 as my time dummy.

------- Insert Table 3.3 about here -------

3.4.2 – Main Results

Table 3.4 shows the results of the OLS regressions for the change in investment (capital spending) around the awareness of FCPA enforcement for peers. Peers are companies that have the same SIC3 as the related investigated firm that existed during the 7-year period (3 years before, the year of awareness and 3 years after the awareness year), and for which the dependent variable and the main independent variables (Size and Tobin's Q) are available before and after the event. The adjusted change in capital spending after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions:

$$Capspend_{it} = bX_{1it} + cX_{2it-1} + d After_{it} + e_{it},$$

where $Capspend_{it}$ is the ratio of capital expenditure (capx) scaled by assets (at) for each firm i at the time t,

X_{1it} and X_{2it-1} are vectors of control variables considered in year t,

b and c are vectors of regression coefficients of the control variables,

and $After_{it}$ is a dummy variable which takes the value of 1 in the years following the awareness year and zero otherwise, and d is the coefficient on the After dummy.

I estimate the above models for the 3 years prior to and the 3 years after the awareness year. Observations are clustered at the company level in the regressions. All variables are winsorized at the 1st and the 99th percentiles. Results are shown for four levels of control. The first level of results considers Tobin's Q as a variable controlling for the level of efficiency in investment (Gordon and Myers, 1998) in addition to year and industry fixed effects. In the second level of results, I add size and percentage of foreign sales as additional explanatory variables of the level of investment in the context of companies investing abroad. I assume that the reaction of peer companies to the news of a future FCPA investigation of a firm in their industry would be driven by the size of the companies (I observed that

investigated firms are bigger on average than their peers) and the degree of their foreign activities (the more activities abroad, the higher the probability of bribing temptation). Then I add in a third set of results control variables that are linked to the event itself: is the company case settled by the DOJ and/or the SEC? Is it linked to individuals only? Is it the first case in the industry (at the SIC3 level)? Was the case revealed before or during/after 2005? Which district court settled the case? Finally, I replace the industry fixed effects by district court fixed effects.

Results are significant at the 1% level and robust to the different specifications of the regressions. I observe a significant decrease in investment, of 0.0049, around the event of a future FCPA investigation of a peer (t-stat: -6.91). This means that peers significantly decrease their level of capital spending when they become aware of the future investigation in their industry.

Hypothesis 1a: Peer firms cut their capital spending when they become aware of a new FCPA investigation in their industry, is confirmed at a 1% level.

The results are in line with Hines (1995) and Zeume (2017), who find that anti-bribery enforcement affects firms' investment in foreign countries, while Graham (1984) finds no effect of FCPA on U.S. firms' market shares. One explanation could be that peer firms negatively revise the profitability of new investments when these new investments might generate extra costs that bribes could have paid for in a different context. Peers may also anticipate the implementation of additional processes in their industry to avoid future bribing behaviors. In a sense, this would mean that peer firms correct their investing policy and avoid projects with negative NPVs. That would be in line with Karpoff et al. (2017) who find that, for a subset of firms that face comingled charges for financial fraud, the NPV of projects linked to the bribing behavior becomes negative. As corruption is detrimental to growth

(Shleifer and Vishny, 1993; Mauro, 1995; Rose-Ackerman, 2010), I consider that the decrease in capital spending is not globally negative for growth. It serves to correct investment policies and abandon negative NPV projects. My research shows this at the company level. The decrease in investment in one company (or even one industry) could be counterbalanced by an increase in investment of other U.S. companies. The investment could also just be postponed. Or the decrease in investment could just correct the overinvestment situation. Managers may build up fixed asset capacity in anticipation of future growth (Dechow et al., 2011). When that growth is not realized and an awareness of future FCPA enforcement in the industry occurs, peer firms resort to a decrease in investment. Capital spending is more a proxy of the reaction of peers to future enforcement than a negative effect of this event on investment at the macroeconomic level. Is the decrease in capital spending of peers persistent and robust? Two additional scenarios deserve to be tackled. The first is linked to the evolution in the patterns of FCPA enforcement. Nearly two-thirds of the FCPA cases in my sample occurred after December 2004 when the prosecutor first used alternative resolution vehicles in the InVision/General Electric case. This milestone case is a key moment in the history of anti-bribery enforcement, prompting an evolution in the characteristics of resolution (vehicle used for resolution, size of the fines, depth of the investigation and consequent press releases with their impact on reputation) and its potential consequences on the reaction of peers, proxied by capital spending in my study. In the next section I compare the change in capital spending for cases that were revealed before 2005 with cases that were revealed in or after 2005.

The same set of regressions is run for the firms targeted by an FCPA investigation. Surprisingly, the change in capital spending after the event is statistically and economically insignificant. The change in capital spending reaches 0.0028 (t-stat: 0.35) when all control variables are included, showing a slight but insignificant increase in capital spending after the event.

Hypothesis 1b: Targeted firms cut their capital spending when they become aware the opening of an FCPA investigation against them, is rejected.

This quasi stagnation confirms the result of the t-test before/after the event for the investment level of investigated firms in Table 3.3. There is no significant change in the level of investment for targeted firms once they become aware of their future anti-bribery investigation. That would mean that enforcement has no impact on the level of investment of targeted firms and therefore no impact on their level of activity. The small size of the sample of investigated firms calls for a cautious interpretation. As my study focuses on the peer effect of anti-bribery law enforcement, I will focus for the rest of the study on the sample of peers. I observe that, among the explanatory variables of the regressions that show a significant coefficient for the enforced firms, size seems to play an important role in explaining the results, as well as some dummy variables linked to the enforcement (DOJ company, individual only, before 2005 or not). This confirms the interest for me of investigating further some patterns of law enforcement and especially the difference between those patterns before and during/after 2005.

------- Insert Table 3.4 about here -------

In December 2004, the prosecutor used an alternative resolution vehicle for the first time, to settle the case involving InVision Technologies, Inc. and General Electric Company. Over the last decade, alternative resolution vehicles, namely NPAs and DPAs, became the dominant way for the DOJ to resolve corporate FCPA cases, are an obvious reason for the general increase in FCPA enforcement over the decade (Koehler, 2015), and dramatically changed the patterns of FCPA resolution. Resolution under these new vehicles can help

preserve the viability of a corporation, as prosecution can be deferred for a year or two. If the company complies with the agreement and publicly admits the facts of its misconduct, the charges are dismissed at the end of the term. It helps avoid an "Arthur Andersen Effect" of enforcement, i.e. the end of the company. It also leads to a lower level of scrutiny, fewer actions against individuals and a higher level of fines. For all those reasons, I suggest that the first use of alternative resolution vehicles in December 2004 has an impact on the degree to which a company may anticipate its probability of continuing to exist in the long term. I proxy this anticipation by the level of capital spending because it materializes the level of confidence that the company has in its capacity to carry out long-term projects. As the use of alternative resolution vehicles was intended to enable more companies to survive the enforcement process, I posit that the decrease in capital spending should be lower for peers in the case of events that were revealed after 2004, as they revise downwards the probability of a future end to their activity. That is, the modernization of FCPA settlement vehicles may have a positive impact on investment by reducing the decrease in investment witnessed after awareness of a future investigation of a company in a specific industry.

To investigate this assumption, I split the sample of peers into two subsamples using a time dummy linked to the year 2005. The first subsample is made up of peers that reacted to events revealed before 2005. The second subsample shows the results of the regressions for the events that peers revealed during or after 2005. These results confirm the positive impact of the use of NPAs and DPAs in FCPA enforcement in terms of investment after the event. While peers encounter a significant decrease, of 0.0094 (t-test: -7.98, pvalue: 0.000) in capital spending for cases revealed before 2005, this change in capital spending becomes statistically insignificant for cases revealed in or after 2005, with a decrease of 0.0016 (t-stat: -1.74).

Hypothesis 2, Peer firms cut their capital spending less for FCPA cases revealed in or after 2005 than for cases revealed earlier, is confirmed at a 1% level.

In summary, the negative peer effect on investment decreases for cases that occur after December 2004 and the first use of alternative resolution vehicles to settle FCPA cases by the DOJ and the SEC. This means that the use of a third option by the prosecutor to settle FCPA cases leads to a lower decrease in investment among peers, as they less negatively revise the prospective profitability of their future investment and positively revise the probability of surviving a potential future FCPA investigation settled with NPAs and DPAs.

------- Insert Table 3.5 about here -------

In an undisclosed table, the results of the regressions for subsamples of investigated firms show no significant change in the capital spending, whether among cases revealed before 2005 or cases revealed in or after 2005, confirming the main result for investigated firms in Panel B of Table 3.4 and my choice to focus on the peer effect. In the next section, for a better understanding of my main results, I investigate in more detail how the firm characteristics of peers could influence these main results. I do so by splitting the sample into four quartiles for each independent variable used in the regressions (Size, Tobin's Q and percentage of foreign sales).

3.4.3 – Additional results

Table 3.6 presents the results by quartile of the OLS regressions for the entire sample of peers. Panel A shows the results for each of the 4 quartiles of size. Interestingly, the change in capital spending remains quite similar between the 3 lowest quartiles, with a decrease varying from 0.0055 to 0.0057, always significant at a 1% level regardless of the quartile. For the upper quartile, i.e. the largest firms (measured as a logarithm of total assets), the decrease

in capital spending is lower, with a change of only -0.0007 after awareness of the opening of an FCPA investigation of a firm of the same industry. It is the only quartile for which the change is not statistically significant (t-stat: -0.53). This means that bigger peer companies tend not to reduce significantly the level of their investment when they revise upwards the probability of future investigation. The results in Panel C on the quartile of Tobin's Q confirm the observations made about size quartiles, as there is a mechanical inverse relationship between Tobin's Q and size. The firms in the lowest quartile of Tobin's Q also experience a lower decrease in capital spending, of -0.0023 (t-stat: -1.42), while the upper quartile shows a significant decrease of -0.0115 (t-stat: -7.20). If I follow the claim according to which an average Q of less than unity is a proxy for overinvesting firms (Gordon and Myers, 1998), one possible interpretation of my results per quartile of Tobin's Q is that the change in capital spending is not a correction of overinvestment, as firms with low Tobin's Q (the lower quartile includes peers with a Tobin's Q of less than 1.32) are the ones with the lowest decrease in capital spending. Projects are more likely to be aborted if profitability becomes negative when the probability of more FCPA enforcement in the industry is revised upwards. Surprisingly, the results related to changes in capital spending for the four quartiles of percentage of foreign sales in Panel B of Table 3.6 do not show a clear link between the level of percentage sales and the value of the decrease in the dependent variable. These results suggest that the percentage of foreign sales does not have a differential impact on the level of correction of capital spending by peer firms, as the decrease in capital spending remains significant for any level of percentage of foreign sales.

In summary, these results suggest that size is an important driver of the level of change in investment around the event date for the global sample. In the next section I investigate the patterns of decreases in investment before 2005 and in/after 2005 for the different quartiles of size to verify whether the main result of this paper, i.e. the lower

decrease in capital spending in/after 2005, is influenced by the size of peer firms, since I identified in Table 3.6 that the upper quartile in size (hereafter big peer firms) already shows a lower decrease in investment than the other three quartiles (hereafter small peer firms).

------- Insert Table 3.6 about here -------

Panel A of Table 3.7 shows the change in capital spending before 2005 on the one hand and during/after 2005 on the other hand, when the total sample of peers is split between small peer firms (3 lowest quartiles) and big peer firms (upper quartile) using the quartiles by size. The results are interesting and confirm the main impact of the InVision/General Electric company settlement in December 2004. For big peer firms, the results are striking. The change in capital spending is only significant before 2005, with a decrease of -0.0066 (t-stat: -2.93). For cases revealed in/after 2005, there is no significant change in the capital spending of peers, with a change of only 0.0012 (t-stat: 0.78). These results tend to confirm that, after December 2004 and the first use of alternative resolution vehicles by the prosecutor and the anticipated commingled impact (lower probability of a death sentence and less scrutiny in the investigation among other aspects), big peer firms no longer negatively correct the level of their long-term investment in a significant way. The negative peer effect on investment is no longer an issue in FCPA enforcement for big peer firms after 2004. The change in capital spending for small peer firms is bigger before 2005, with a decrease of -0.0100 in capital spending (t-stat: -7.18), than in/after 2005 with a decrease of -0.0032 (t-stat: -2.81). Globally, there is a before and an after in the first use of alternative resolution vehicles by the DOJ and the SEC, as I observe a lower decrease in investment for cases revealed after December 2004. The effect is stronger for big peer companies. In Table 3.6, I observed that the change in capital spending was no longer significant for big companies (Upper quartile in size) and this

raises the question of whether the 2005 time effect (before vs in/after 2005) would still hold for these companies. Table 3.7 shows that the observed easing of the decrease in capital spending is greater for the upper quartile in size of peer companies for cases revealed after 2004. For cases revealed in or after 2005, after the implementation of alternative resolution vehicles and their consequences on the level of fines, peer companies do not negatively correct their investment policy in a significant way when they are big.

In Panel B of Table 3.7, I observe the same patterns when I split the main sample between peer firms with low foreign activity (3 lower quartiles of percentage of foreign sales) and peer firms with high foreign activity (upper quartile of percentage of foreign sales). In particular, for peer firms with high foreign activity, the change in capital spending does not significantly change in/after 2005, with a decrease of -0.0002 (t-stat: -0.08).

Panel C of Table 3.7 shows the results for the change in capital spending among peers belonging to the lowest Tobin's Q quartile on the one hand and the top 3 quartiles on the other hand, with the results split using the "2005" time dummy (before 2005 vs in/after 2005). I observe the same patterns as in panels A and B. The decrease in capital spending is lower in/after 2005 than before 2005. The results are even stronger for the lowest quartile of Tobin's Q, as the change in capital spending is insignificant in/after 2005, with an increase of 0.0029 (t-stat: 1.54). To confirm this result, I run in an undisclosed table the same regression for firms with a Tobin's Q of 1 or less, as studies which utilize a Tobin's Q to identify overinvesting firms appear to be on solid ground (Gordon and Myers, 1998). The change in capital spending remains insignificant in/after 2005, with an increase of 0.0005 (t-stat: 0.14), confirming the general trend of my results.

Globally, Table 3.7 shows that the "2005" time effect remains strong when I analyze peer firms by quartile of size, percentage of foreign sales and Tobin's Q. The effect is stronger for bigger peer firms (upper quartile in size measured as the logarithm of total

assets), for peers with a high level of foreign activity (more than 75% of sales) and peers with a low Tobin's Q (lowest quartile).

In an undisclosed table with summary statistics of big peer firms compared to investigated firms for the 3-year period before the event, I observe that big peer firms have characteristics that are close to the investigated ones in terms of size (7.90 vs 8.32 respectively), percentage of foreign sales (43% vs 47%), and Tobin's Q (2.05 vs 1.84). The upper quartile in size of peer firms (big peer firms) seems to be a good benchmark for investigated firms.

------- Insert Table 3.7 about here -------

3.5 – Robustness tests

Tables 3.8 to 3.12 show the results of the regressions using an alternative dependent variable, called investment (Invt). Investment is measured as capital expenditures (capx in Compustat) and is normalized with beginning-of-the-year capital, measured as property, plant and equipment (ppent) following Malmentier and Tate (2005). I identify 3,945 peers (1,392 unique companies used in 2.83 events on average) and 68 targeted firms (63 unique companies). As shown in Table 3.8, the value of the mean of Invt over the 3 years before the event for peer firms is 0.467 instead of 0.040 for Capspend. The value of the dependent variable is around ten times higher than for Capspend as I scale the dependent variable by property, plant and equipment instead of total assets. The value of the dependent variable before and after is significantly different between peer firms and targeted firms, with a value of 0.467 and 0.232 respectively. This difference is due to the difference in size in the sample of peer firms, and will be corrected when the focus is on big peer firms (Tables 3.11 and 3.12).

Results shown in Tables 3.8 to 3.12 with Invt confirm the main result observed with Capspend. In Table 3.8, the t-test of the mean shows a significant decrease in Invt only for peer firms, with a decrease of 0.044 (t-stat: 5.24).

------- Insert Table 3.8 about here ------

Focusing on peers, Table 3.9 shows a significant decrease, of 0.0285 (t-stat: -2.88), in the dependent variable after awareness of future FCPA enforcement in the industry, when I control for a set of independent variables that are explanatory of the potential FCPA investigation (Tobin's Q, size and percentage of foreign sales), then add control variables linked to the cases themselves (DOJ and/or SEC prosecutor, does the case involve an individual and/or a company, district court that settled the case, among others).

------- Insert Table 3.9 about here ------

The decrease in investment as measured by Invt shows that peer firms significantly decrease the level of their investment after the awareness of a FCPA investigation in their industry, revising upwards the probability of being a target of such an investigation in the future. When in Table 3.10, I split the sample of peers between cases revealed before 2005 on the one hand and cases revealed in or after 2005 on the other hand, I observe the same easing of the decrease in Invt for the latter. For cases revealed before 2005, the change in Invt after the event is stronger and more significant, with a decrease of 0.0459 in the value of the dependent variable (t-stat: -2.53), than the change in Invt for cases revealed in or after 2005, with a decrease of 0.0152 (t-stat: -1.17).

------- Insert Table 3.10 about here ------

Results of OLS regressions for Invt when the sample is split by quartiles of size, percentage of foreign sales and Tobin's Q (Table 3.11) confirm the patterns identified for the main dependent variable in Table 3.6. The decrease in Invt is lower for peer firms that belong to the upper quartile in size and the lower quartile in Tobin's Q, with these two variables by definition having an inverse relationship. This means that big peers soften the decrease in their investment level the most when they become aware of the beginning of an FCPA investigation in their industry. In an undisclosed table, comparing the summary statistics for the 3-year period before the event, especially the values of Invt (0.33 vs 0.23), Size (7.90 vs 8.32), percentage of foreign sales (0.43 vs 0.47) and Tobin's Q (2.27 vs 1.84) of big peer firms with those of targeted firms, I observe that these values are close and that big peer firms are a reasonable benchmark for targeted firms. The main difference is that for big peer firms, the decrease in Invt before 2005 is significant and stronger than in/after 2005, while for targeted firms, the decrease is weak and insignificant regardless of the year of awareness (before 2005 vs in/after 2005).

------- Insert Table 3.11 about here ------

Table 3.12 confirms the main result of the paper with a different dependent variable, Invt. When interacting the split between the peer sample by quartiles and by a time dummy (cases revealed before 2005 vs cases revealed in or after 2005), I observe a significant decrease in Invt among big peer firms only for cases revealed before 2005. For both small peer firms and big peer firms, the decrease in Invt is stronger before 2005, but this decrease remains statistically significant for small peer firms in/after 2005 even though its value is

lower, with a decrease of 0.0457 (t-stat: -2.20) before 2005, than the decrease of 0.0298 in/after 2005. For big peer firms, the contrast between the two time periods is more striking. For cases revealed before 2005, the change in Invt is materialized by a strong and significant decrease of 0.0887 (t-stat: -2.19), while I observe an insignificant increase in Invt of 0.0076 (t-stat: 0.59) for cases revealed in/after 2005. These results confirm the main contribution of the paper. The modified patterns of FCPA enforcement following the resolution of the In Vision/General Electric case in December 2004, which intended to increase the probability of companies surviving the consequences of such an enforcement and to avoid an "Arthur Andersen Effect", led to changes in the behavior of peer firms, especially the bigger ones (upper quartile). For cases revealed in or after 2005, big peer firms do not significantly decrease their investment when they become aware of a new FCPA investigation in their industry.

------- Insert Table 3.12 about here ------

Tables 3.13 to 3.17 show the results using a third dependent variable, Total Investment (Itot), following Richardson (2006). Itot is the sum of all outlays on capital expenditures (capx in Compustat), research and development expenditures (xrd), acquisitions (aqc), less receipts from the sale of property, plant and equipment (sppe). Itot can be split into two main components, the required investment expenditure to maintain assets in place (Imaint) measured as amortization and depreciation (dpc), and investment expenditure on new projects (Inew) which is the difference between Itot and Imaint.

As with the other two dependent variables already discussed, I observe a decrease in the value of Itot after the event, but the decrease is not statistically significant. In the t-test of

the mean (Table 3.13), the value of the dependent variable goes from 0.206 to 0.203, i.e. a decrease of 0.003 (t-stat: -2.19).

------- Insert Table 3.13 about here ------

When the control variables are included, the change in the dependent variable remains insignificant, with an increase of 0.0076 (t-stat: 1.36).

------- Insert Table 3.14 about here ------

Table 3.15 displays more interesting results, as in addition to the change in Itot (Panel A), I show the change in Imaint and Inew (Panel B). There is no significant change in the increase in Itot in Panel A when I compare cases revealed before 2005 with cases revealed in/after 2005. Panel B shows the opposite evolution in the change in the dependent variable around the event when I separate Itot into Imaint and Inew, but with a negative value for Imaint and a positive value for Inew. The patterns of Imaint follow the patterns highlighted for Capspend and Invt. There is a significant decrease in Imaint only for cases revealed before 2005, with a decrease of 0.0275 (t-stat: -5.15), compared to an insignificant increase of 0.0004 (t-stat: 0.31) in or after 2005. For Inew, there is a significant increase for cases revealed before 2005 and a relative stagnation in or after 2005.

------- Insert Table 3.15 about here ------

When the results are split by quartile, Table 3.16 confirms the main results per quartile shown in Table 3.6, though the results are less striking. The change in Itot is weaker for the

upper quartile in size than for quartiles 2 and 3, but the lowest quartile is the only one to show a decrease in Itot. The results per quartile of Tobin's Q in Panel C of Table 3.16 are closer to the results per quartile in Tobin's Q of the main dependent variable. Firms that belong to the lowest quartile in Tobin's Q experience a decrease in Itot of 0.0334 (t-stat: -2.11).

------- Insert Table 3.16 about here ------

Table 3.17 confirms the results of Table 3.7, especially for Tobin's Q with a decrease in Itot among peers belonging to the lowest quartile in Tobin's Q, which falls from 0.0575 (t-stat: -1.75) before 2005 to only 0.0196 (t-stat: -2.46) in or after 2005. The results interacting size and the dummy time variable "2005" show the same trend as with the main dependent variable in Table 3.7, but these results are not statistically significant. When the results are split between Imaint and Inew (undisclosed), I find a significant easing of the decrease in Imaint, but also an easing of the increase in Inew among big peer firms. Big peer firms experience a decrease of 0.0274 (t-stat: -2.31) and a stagnation of Imaint in or after 2005, with a value of 0.0003 of the dependent variable (t-stat: 0.23). For Inew, I observe an increase of the dependent variable before, but also in or after 2005. This increase is significant only before 2005, with a value of Inew of 0.0294 (t-stat: 2.27), while the increase in Inew is lower and not significant in or after 2005, with a value of 0.0044. Globally, the results of Table 3.17 confirm the main results of the paper, with an easing of the decrease in total investment for big peer firms or peer firms with a low Tobin's Q, this confirmation being linked more to Imaint than to Inew. For more recent cases (in or after 2005), big peer firms decrease their total investment Itot less when they become aware of a future enforcement in their industry, but when I split Itot into imaint and Inew, I observe that the lower decrease in investment is

linked to investments to maintain the value of assets only (Imaint), while, on the contrary, big peer firms seem to positively correct the level of their investment in new assets (Inew).

------- Insert Table 3.17 about here ------

3.6 – Conclusions

In this paper, I investigate whether FCPA enforcement impacts the capital spending of targeted firms and their industry peers. I use a hand-collected sample of 92 FCPA investigations over the period 1978-2015, where a listed firm is linked to the case and enables the identification of listed industry peers, in order to analyze the impact of awareness of the opening of an FCPA investigation in the industry on the capital spending of targeted firms and their peers. The anti-bribery provisions of FCPA prohibit individuals and businesses from bribing foreign government officials in order to obtain and retain business. Firms will engage in bribery only for sizable business that requires a high level of investment in fixed assets. And while corruption is found to be detrimental to growth (Mauro, 1995; Rose-Ackerman, 2010; Shleifer and Vishny, 1993), anti-bribery law enforcement can still have a negative impact on the level of investment of firms (Hines, 1995; Karpoff et al., 2017; Zeume, 2017). I suggest that the awareness of a new FCPA investigation can have a negative impact on the level of capital spending of firms, as they revise upwards the probability of being the next target, following Becker (1968). The event can affect peers in the same industry. Servaes and Tamayo (2014) find that a takeover attempt for one firm in an industry could affect the behavior of its peers, following Jensen (1993, 1986) and Shleifer and Vishny (1988), who note, in the context of the free cash hypothesis, that the free cash flow problem is not specific to a particular firm, but generally affects the entire industry. In the context of SEC enforcement actions and class action lawsuits, Jennings et al. (Jennings et al., 2011) find that

enforcement deters aggressive financial reporting behavior among the peers of fraudulent firms. In line with the literature, I suggest that FCPA enforcement may have a peer effect on the level of investment and put forward a first hypothesis stating that the awareness of a new FCPA investigation in an industry can lead to a decrease in investment by peers. Using capital spending (Servaes and Tamayo, 2014) as my main dependent variable, I find that my hypothesis is confirmed at a 1% level, as peers reduce their capital spending by 0.0049 (t-stat: -6.91) after they become aware of the opening of a new FCPA investigation in the industry. Targeted firms do not significantly correct their level of investment after this event. As a consequence, I focus on peers for the rest of the study.

In December 2004, the prosecutor used alternative resolution vehicles for the first time to settle the InVision/General Electric FCPA case, opening up a new era in FCPA enforcement (Koehler, 2015). Over the last decade (2005-2015), the use of these alternative resolution vehicles, namely NPAs and DPAs, has become the dominant way to resolve FCPA cases and has contributed to the sharp increase in FCPA enforcement activity. One of the main motivations of the prosecutor was to reduce the "Arthur Andersen effect", i.e. when criminal convictions alone can be the death sentence of a company. As a consequence, the patterns of enforcement have evolved, with higher fines, less in-depth investigations and fewer individuals indicted, reducing the quality of FCPA enforcement while increasing its quantity (Koehler, 2015). Indeed, under NPAs and DPAs, firms admit to criminal wrongdoing and agree to pay monetary sanctions, but avoid formal conviction (Arlen, 2016; Arlen and Kahan, 2017; Garrett, 2007). What is the impact of the evolution of FCPA enforcement patterns over the last decade on the behavior of firms? As the probability of survival increases, I would expect an evolution in the change in capital spending of firms after the awareness of a new FCPA investigation in the industry. I use the event of InVision/General Electric enforcement in December 2004 as a milestone in FCPA enforcement activity and

suggest that the decrease in capital spending among peers may be lower for FCPA cases revealed in or after 2005, as peers revise upwards their probability of surviving and revise downwards the financial damage of potential future enforcement. I also suggest that the peer effect may be stronger if I reduce the sample of peers to the higher quartile in terms of size in order to focus on peers that are similar to targeted firms. I find that this hypothesis is confirmed, as the capital spending of peers decreases by 0.0094 (t-stat: -7.98) for cases revealed before 2005, and decreases only by 0.0016 (t-test: -1.74) for cases revealed in or after 2005. When I focus on big peer firms (higher quartile in size), the lesser decrease in capital spending before or in/after 2005 is even more striking, as this capital spending decreases by 0.0066 (t-stat: -2.93) for cases revealed before 2005, while it does not change significantly, with an increase of 0.0012 (t-stat: 0.78), for cases revealed in or after 2005. This means that there is an easing of the decrease in the capital spending of peer firms for cases that took place over the last decade, with the increase in the use of alternative resolution vehicles. This result can be interpreted in two ways. Peer firms decrease their capital spending less after the awareness date because their probability of surviving an FCPA investigation is perceived as higher with the Andersen effect fading out. Another interpretation is that peer firms fear future enforcement less as the quality of enforcement is lower (less in-depth investigation) and the negative effects on reputation are attenuated, and therefore do not forgo risky projects in bribe-prone countries. From a legal point of view, the use of NPAs and DPAs seems to alleviate the effect of the law in the context of FCPA resolution. These results are robust to the use of alternative dependent variables, as well as alternative specifications of the sample.[58]

[58] When I keep all observations regardless of the fact that some of them do not have non-null values for independent variables such as percentage of foreign sales, size and Tobin's Q for the 3 years before and the 3 years after the awareness year.

These results suffer from certain limitations. The sample is limited to the 92 events I identify for FCPA cases over the period 1978-2015. As my work is based on the reaction of peers to an FCPA investigation of one firm in their industry, the sample could not be extended because I use empirical hand-collected data. I focus my analysis on investing policy because I believe that capital spending is a good proxy for the reaction of peers in the context of FCPA enforcement, but some other variables could have been tackled, among which the change in leverage, payout policy, or free cash-flow levels, in order to analyze the impact of FCPA investigations on the financing policy of peers. In my analysis I focus on the impact of alternative resolution vehicles on external factors and do not take into account the fact that prosecutors use NPAs and DPAs to impose mandates on firms that require them to change their internal governance or business practices (Arlen, 2016). I leave those aspects to future research.

4 – Conclusion

L'impact de la régulation sur le comportement des entreprises a déjà été largement étudié par la littérature mais il reste cependant beaucoup à explorer pour mieux appréhender cet impact et en comprendre les déterminants, les conséquences et les facteurs qui permettent à la régulation d'être plus efficace (Becker, 1968; Leuz and Wysocki, 2016; Rose-Ackerman, 2010). Dans cette thèse, j'utilise le cas des entreprises ayant subi une investigation de la part des procureurs nord-américains, le DOJ et la SEC, pour violation d'une des dispositions du FCPA, la loi anti-corruption U.S., pour étudier si l'application de la loi a des conséquences sur la qualité de l'information comptable des entreprises visées et celle de leurs pairs, d'une part, et si cette application et les nouvelles modalités de résolution de telles affaires jouent sur le niveau d'investissement réalisé par les pairs lorsque ceux-ci apprennent l'ouverture d'une nouvelle enquête dans une entreprise appartenant à leur industrie, d'autre part. Dans une première partie, je fais un état de l'art dans les domaines de la manipulation des résultats et leur interaction avec les évènements de régulation. En utilisant le cadre conceptuel de Whetten (1989), je contribue à la littérature comptable en identifiant quatre situations typiques dans lesquelles les modèles de gestion des données comptables, et plus spécialement ceux basés sur les accruals, et les changements dans la régulation sont liés. Dans un premier cas de figure, la manipulation des données comptables précède le changement dans la régulation. Les entreprises concernées par la régulation à venir manipulent notamment les accruals afin d'ajuster leur résultat comptable ou toute autre métrique suivie par le régulateur afin de bénéficier de la régulation à venir ou d'éviter d'en subir les conséquences négatives (Cahan, 1992; Jones, 1991; Key, 1997). Dans un deuxième cas de figure, la manipulation du résultat comptable intervient après le changement dans la régulation afin pour les entreprises concernées d'éviter de faire face à des charges additionnelles du fait de leur non-respect de cette nouvelle régulation, notamment dans le secteur bancaire avec des ratios minimum de capitaux propres à respecter ou dans les compagnies d'assurances (Adiel, 1996; Beatty et al., 1995; Collins et al., 1995; Grace,

1990; Moyer, 1990; Petroni, 1992; Scholes et al., 1990) ainsi que dans le cadre d'une nouvelle norme qui donne potentiellement plus de marge de manœuvre aux dirigeants d'entreprises quant à l'évaluation de certaines provisions (Miller and Skinner, 1998; Schrand et al., 2003). Dans une troisième catégorie, les auteurs utilisent des mesures basées sur les accruals avant et après un changement dans la régulation pour évaluer si ce changement a amélioré la qualité de l'information comptable diffusée par les entreprises. Cela peut concerner la mise en place des normes internationales comptables (IAS) dans des pays gouvernés jusque-là par des normes comptables locales (Barth et al., 2008), ou la mesure de l'amélioration de la qualité de l'information comptable consécutive à des investigations menées par le procureur américain (Bunkanwanicha and Greusard, 2017; Jennings et al., 2011). Enfin, dans une quatrième catégorie d'études, la régulation a permis à certains auteurs d'identifier les entreprises ayant une faible qualité de leur information comptable car condamnées pour manipulation comptable dans le cadre des *« Accounting and Auditing Enforcement Releases »* (AAERs). L'identification de cet échantillon d'entreprises à faible qualité d'information comptable a permis aux auteurs de développer de nouveaux modèles de mesures de la manipulation comptable (Beneish, 1997; Dechow et al., 2011, 1995), d'identifier des situations à risques liés à la faiblesse du contrôle interne (Ashbaugh-Skaife et al., 2008; Doyle et al., 2007), de nouvelles raisons expliquant la manipulation comme le désir de bénéficier de financement à moindre coût (Dechow et al., 1996), ou de nouveaux comportements des dirigeants durant la période de violation (Beneish, 1999). Dans un deuxième article, j'examine si la révélation de l'ouverture d'une nouvelle investigation entraine un changement dans la qualité de l'information comptable des entreprises ciblées par l'investigation et dans celle de leurs pairs. Avec mon co-auteur, nous observons une amélioration significative de la qualité de l'information comptable, mesurée par la volatilité des accruals discrétionnaires, après la révélation de l'ouverture de l'investigation FCPA pour les pairs mais pas pour les entreprises ciblées. Nous suggérons que le canal ici en œuvre est celui du risque d'information, jugé non diversifiable par la littérature (Easley et al., 2002; Francis et al., 2005; Lambert et al., 2007). Les pairs améliorent la qualité de leur

information comptable pour rassurer les investisseurs, alertés par l'ouverture d'une investigation dans le secteur qui augmente la probabilité que l'entreprise en question soit la prochaine cible du procureur. Elles cherchent ainsi à contrebalancer le risque supplémentaire généré par l'investigation par une information positive qui prend la forme d'une meilleure transparence de l'information comptable. Lorsqu'un secteur d'activité a plus de chances d'être le terrain d'investigations coûteuses, les pairs renvoient aux investisseurs une nouvelle rassurante avec une amélioration de la qualité de l'information comptable qui diminue la probabilité d'être la prochaine cible identifiée par le procureur dont on sait qu'il utilise des mesures de qualité comptable pour repérer les entreprises aux pratiques potentiellement douteuses (Filip et al., 2018). Puisque ce deuxième article souligne que l'effet dissuasif des investigations FCPA concerne d'avantage les pairs que les entreprises visées par les investigations, j'étudie plus en détail l'effet « pair » dans un troisième article dans lequel je me concentre sur les potentiels effets économiques réels et j'examine si l'ouverture d'une investigation impacte le niveau d'investissement des pairs. Mes résultats suggèrent qu'il existe bien un effet « pair » puisque les entreprises du même secteur d'activité que les entreprises ciblées et qui ont une activité à l'international tendent à diminuer le niveau de leurs investissements après révélation de l'ouverture d'une investigation dans leur industrie. Se sachant exposés aux mêmes dangers potentiels dans le cadre de la signature de gros contrats à l'étranger, à savoir la nécessité de verser des pots-de-vin, les entreprises ne prennent pas le risque d'être la prochaine cible d'une enquête et limite donc le risque en réduisant le volume d'affaires à l'étranger. Outre les amendes lourdes et l'émergence d'une mauvaise réputation, les pairs savent qu'il existe un danger de ne pas survivre à l'investigation. Cette interprétation semble confirmée par le fait que l'effet pair négatif sur l'investissement est atténué à partir de Décembre 2004 et la possibilité par le procureur nord-américain d'utiliser des outils de résolution alternatifs pour les cas FCPA qui diminuent le risque de disparition de l'entreprise grâce à la mise en place de procédures suspensives (Koehler, 2015).

En conclusion, ma thèse semble mettre en évidence un effet dissuasif significatif de la régulation anti-corruption sur le comportement des entreprises, tant au niveau de l'amélioration de

la qualité de leur information comptable qu'au niveau des risques pris lors d'opérations d'investissement dans des pays étrangers. L'annonce de nouvelles investigations dans un secteur incite ainsi les entreprises du même secteur à envoyer un message positif au procureur et aux investisseurs quant à la qualité de la gestion de leurs données comptables via le canal du risque d'information. Mais un changement dans la régulation ou dans les méthodes utilisées par le procureur pour parvenir à un règlement amiable avec les entreprises peut aussi influer négativement sur le niveau des investissements des pairs à l'étranger. Puisque cet effet négatif sur l'investissement semble s'atténuer depuis que le procureur a la possibilité de régler les cas de corruption avec des outils de règlement amiable, ma thèse contribue à révéler que l'impact de la régulation anti-corruption sur le comportement des entreprises est à la fois significatif et évolutif. Dans une administration où les conflits sont exacerbés et où la régulation est aussi un thème récurrent de débat, l'évolution de l'impact de la régulation anti-corruption se présente comme un enjeu important pour des recherches à venir.

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Table 1.1 - Seminal papers about accrual-based earnings management (…)

This table summarizes the seminal papers about accrual-based earnings management identified in the second section of the literature review.

Authors	Title	Year	Journal	Model	Methodology
Healy	The effect of bonus schemes on accounting decisions	1985	Journal of Accounting and Economics	Healey Model	DA is the difference between Total Accruals and Non-discretionary Accruals calculated as the mean Total accruals from the estimation period $NDA\tau = \frac{\sum_t TAt}{T}$
DeAngelo	Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders	1986	The Accounting Review	DeAngelo Model	DA are calculated using first-time differences and are equal to the difference in total accruals between two periods, as the average change in non-discretionary accruals is assumed to be zero $(AC_1 - AC_0) = (DA_1 - DA_0) + (NA_1 - NA_0)$
Jones	Earnings Management During Import Relief Investigations	1991	Journal of Accounting Research	Jones Model	DA are the residuals of a model using economic determinants to explain Total Accruals $TA_{it}/A_{it-1} = \alpha_i (1/A_{it-1}) + \beta_{1i} (\Delta REV_{it}/A_{it-1}) + \beta_{2i}(PPE_{it}/A_{it-1}) + \varepsilon_{it}$
Dechow et al.	Detecting Earnings Management	1995	The Accounting Review	Modified Jones Model	DA are the residuals of a model using economic determinants to explain Total Accruals $DA_{it} = TA_{it} - NDA_{it,}$ $NDAt = \alpha_1 (1/A_{it-1}) + \alpha_2 (\Delta REV_t - \Delta REC_t) + \alpha_3 (PPE_t)$

(…) Table 1.1 - Seminal papers about accrual-based earnings management

Authors	Title	Year	Journal	Model	Methodology
Kothari et al.	Performance matched discretionary accrual measures	2005	Journal of Accounting and Economics	Performance-matched Discretionary Accruals Model	DA are the residuals of a model using economic determinants to explain Total Accruals once matched with performance $TA_{it} = \delta_0 + \delta_1 (1/ASSETS_{it-1}) + \delta_2 (\Delta SALES_{it}) + \delta_{3i}(PPE_{it}) + \delta_4 ROA_{it(or\ it-1)} + \upsilon_{it}$ or $TA_{it} = \delta_0 + \delta_1 (1/ASSETS_{it-1}) + \delta_2 (\Delta SALES_{it} - \Delta REC_{it}) + \delta_{3i}(PPE_{it}) + \delta_4 ROA_{it(or\ it-1)} + \upsilon_{it}$
Dechow and Dichev	The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors	2002	The Accounting Review	Dechow Dichev Model	Volatility of the estimation errors representing the extent to which accruals are far from cash flow realizations $\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + \varepsilon_t$
McNichols	Discussion of the Quality of Accruals and Earnings: The Role of Accrual Estimation Errors	2002	The Accounting Review	Modified Dechow Dichev Model	Volatility of the estimation errors representing the extent to which accruals are far from cash flow realizations $\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + b_4 \Delta Sales + b_5 \Delta PPE_t + \varepsilon_t$
Francis et al.	The market pricing of accruals quality	2005	Journal of Accounting and Economics	Modified Dechow Dichev Model	Discretionary Accruals Quality measured are the non-innate part of the estimation errors $InnateAQ_{i,t} = \hat{\lambda}_0 + \hat{\lambda}_1 Size_{i,t} + \hat{\lambda}_2 \sigma(CFO)_{i,t} + \hat{\lambda}_3 \sigma(Sales)_{i,t} + \hat{\lambda}_4 OperCycle_{i,t} + \hat{\lambda}_5 NegEarn_{i,t}$ The residual from the previous equation is the estimate of the discretionary component of firm j's accrual quality, $DiscAQ_{j,t}=\hat{\mu}_{j,t}$.

Table 1.2 - Main papers about accrual-based earnings management and regulation (…)

This table summarizes the papers used in the third section of the literature review to link the use of earning management proxies with regulation issues. As a consequence, the column "regulation" (to be understood in the widest definition) recapitulates the event used by the authors that can be the passage of the law, the implementation of a standard, the type of enforcement and/or investigation. The "institution" is the body responsible for this regulation. For three papers, information in these two columns is called "Information risk channel". This information refers to the fact that these papers do not deal directly with regulation but have been used in the core of the study to enlighten a link between the deterrent effect of SEC Enforcement and the information risk channel.

Authors	Title	Year	Journal	Regulation	Institution
Moyer	Capital adequacy ratio regulations and accounting choices in commercial banks	1990	Journal of Accounting and Economics	Capital Adequacy ratio regulations	Industry regulation - Bank (Ratios to be respected as whole, not usually around an event date)
Scholes et al.	Tax Planning, Regulatory Capital Planning, and Financial Reporting Strategy for Commercial Banks	1990	Review of Financial Studies	Change in Tax rules relating to deductibility of interest expenses	Industry regulation - Bank (Ratios to be respected as whole, not usually around an event date)
Grace	Property-Liability Insurer Reserve Errors: A Theoretical and Empirical Analysis	1990	The Journal of Risk and Insurance	Tax regulation	General government - Industry - Insurance (use of reserve errors to smooth tax payments)
Jones	Earnings Management During Import Relief Investigations	1991	Journal of Accounting Research	Import relief	U.S. International Trade Commission
Feroz et al.	The Financial and Market Effects of the SEC's Accounting and Auditing Enforcement Releases	1991	Journal of Accounting Research	Accounting and Auditing Enforcement Releases	SEC
Cahan	The Effect of Antitrust Investigations on Discretionary Accruals: A Refined Test of the Political-Cost Hypothesis	1992	The Accounting Review	Monopoly-related antitrust investigations	Department of Justice (DOJ) and Federal Trade Commission (FTC)
Petroni	Optimistic reporting in the property- casualty insurance industry	1992	Journal of Accounting and Economics	Insurance Regulatory Information System (IRIS)	Industry regulation - Insurance (Ratios to be respected as whole, not usually around an event date)
Dechow et al.	Detecting Earnings Management	1995	The Accounting Review	Accounting and Auditing Enforcement Releases	SEC

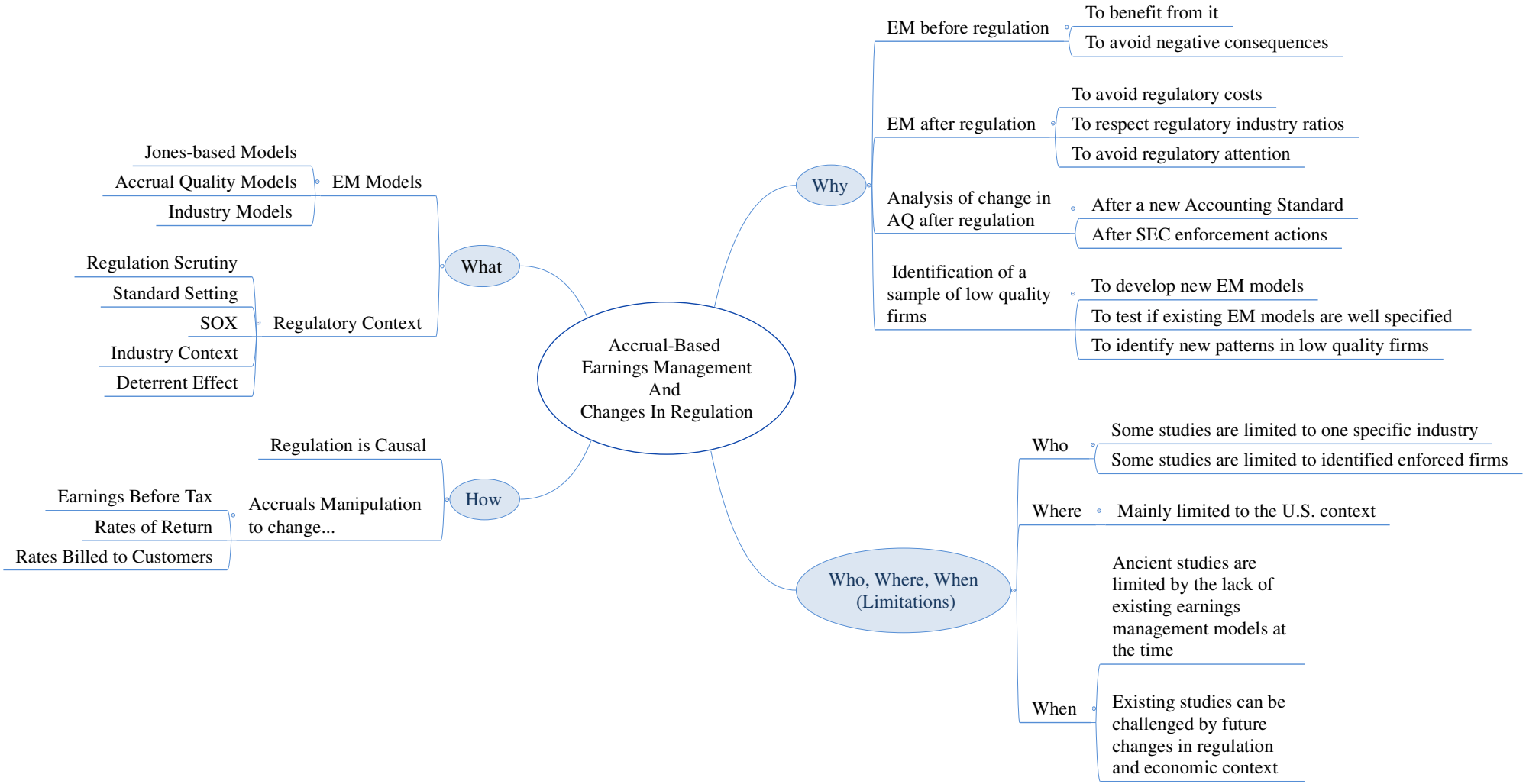
(…) Table 1.2 - Main papers about accrual-based earnings management and regulation (…)

Authors	Title	Year	Journal	Regulation	Institution
Beatty et al.	Managing Financial Reports of Commercial Banks: The Influence of Taxes, Regulatory Capital, and Earnings	1995	Journal of Accounting Research	Regulatory Capital, tax and earnings	Industry regulation - Bank (Ratios to be respected as whole, not usually around an event date)
Collins et al.	Bank Differences in the Coordination of Regulatory Capital, Earnings, and Taxes	1995	Journal of Accounting Research	Regulatory Capital, tax and earnings	Industry regulation - Bank (Ratios to be respected as whole, not usually around an event date)
Dechow et al.	Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC	1996	Contemporary Accounting Research	Accounting and Auditing Enforcement Releases	SEC
Adiel	Reinsurance and the management of regulatory ratios and taxes in the property—casualty insurance industry	1996	Journal of Accounting and Economics	Insurance Regulatory Information System (IRIS)	Industry regulation - Insurance (Ratios to be respected as whole, not usually around an event date)
Key	Political cost incentives for earnings management in the cable television industry	1997	Journal of Accounting and Economics	The 1992 Cable Act (Regulation in the cable industry)	U.S. Congress
Beneish	Detecting GAAP violation: implications for assessing earnings management among firms with extreme financial performance	1997	Journal of Accounting and Public Policy	GAAP violation in AAER sample or publicly admitting to violate GAAP	SEC
Miller and Skinner	Determinants of the valuation allowance for deferred tax assets under SFAS No. 109.	1998	The Accounting Review	SFAS 109	FASB
Beneish	Incentives and Penalties Related to Earnings Overstatements that Violate GAAP	1999	The Accounting Review	GAAP violation in AAER sample or publicly admitting to violate GAAP	SEC
Schrand et al.	Earnings Management Using the Valuation Allowance for Deferred Tax Assets under SFAS No. 109	2003	Contemporary Accounting Research	SFAS 109	FASB - Industry level - Bank

(…) Table 1.2 - Main papers about accrual-based earnings management and regulation

Authors	Title	Year	Journal	Regulation	Institution
Francis et al.	The market pricing of accruals quality	2005	Journal of Accounting and Economics	Information risk channel	indirect link
Doyle et al.	Accruals Quality and Internal Control over Financial Reporting	2007	The Accounting Review	Sections 302 and 404	Sarbanes-Oxley Act
Lambert et al.	Accounting Information, Disclosure, and the Cost of Capital	2007	Journal of Accounting Research	Information risk channel	indirect link
Barth et al.	International Accounting Standards and Accounting Quality	2008	Journal of Accounting Research	Adoption of IAS	IASB
Ashbaugh-Skaife et al.	The Effect of SOX Internal Control Deficiencies and Their Remediation on Accrual Quality	2008	The Accounting Review	Sections 302 and 404	Sarbanes-Oxley Act
Dechow et al.	Predicting Material Accounting Misstatements	2011	Contemporary Accounting Research	Accounting and Auditing Enforcement Releases	SEC
Kedia and Rajgopal	Do the SEC's enforcement preferences affect corporate misconduct?	2011	Journal of Accounting and Economics	SEC enforcement actions for financial misrepresentation (KLM sample)	SEC
Jennings et al.	The Deterrent Effects of SEC Enforcement and Class Action Litigation	2011	Working paper	SEC enforcement actions for violating GAAP or for providing fraudulent, misleading, or inadequate disclosures (KLM sample)	SEC
Rajgopal and Venkatachalam	Financial reporting quality and idiosyncratic return volatility	2011	Journal of Accounting and Economics	Information risk channel	indirect link
Bunakanwanicha, Greusard	The Deterrent Effect of Anti-Bribery Law Enforcement on the Quality of Earnings	2017	Working Paper	Foreign Corrupt Practices Act	SEC

Figure 1.1 – Mind Map of the Theoretical Contribution of the Literature Review using the Whetten Framework



Appendix 2.1 - Description of the sample of FCPA investigations per awareness year and SIC2-industry categories (…)

This appendix reports the details about the 80 events that have been selected in the final sample of the enforced cases under FCPA between 1975 and 2015. The year used to present the cases per year in Panel A is the awareness year, the year the investigated and peer firms become aware of the bribing behavior. The cases reported are made of all the cases that have been enforced at the end of 2015, which explains the low number of cases considered for 2012 and later years. Panel B shows the number of events per industry (SIC2 level for clarity).

Panel A: Number of FCPA investigations per awareness year

Year	Number of Investigations	%	Cum %
1980	1	1.25%	1.25%
1981	0	0.00%	1.25%
1982	0	0.00%	1.25%
1983	0	0.00%	1.25%
1984	0	0.00%	1.25%
1985	1	1.25%	2.50%
1986	0	0.00%	2.50%
1987	0	0.00%	2.50%
1988	0	0.00%	2.50%
1989	1	1.25%	3.75%
1990	1	1.25%	5.00%
1991	1	1.25%	6.25%
1992	1	1.25%	7.50%
1993	1	1.25%	8.75%
1994	0	0.00%	8.75%
1995	1	1.25%	10.00%
1996	0	0.00%	10.00%
1997	1	1.25%	11.25%
1998	0	0.00%	11.25%
1999	0	0.00%	11.25%
2000	0	0.00%	11.25%
2001	1	1.25%	12.50%
2002	4	5.00%	17.50%
2003	6	7.50%	25.00%
2004	7	8.75%	33.75%
2005	14	17.50%	51.25%
2006	6	7.50%	58.75%
2007	10	12.50%	71.25%
2008	4	5.00%	76.25%
2009	6	7.50%	83.75%
2010	10	12.50%	96.25%
2011	2	2.50%	98.75%
2012	1	1.25%	100.00%
2013	0	0.00%	100.00%
2014	0	0.00%	100.00%
2015	0	0.00%	100.00%
Total	**80**	100.00%	

(…) Appendix 2.1 - Description of the sample of FCPA investigations per awareness year and SIC2-industry categories

Panel B: distribution of the final sample of FCPA investigations in SIC2-industry categories

SIC2	Industry	Number of Investigations
01	Agricultural Production - Crops	2
13	Oil and Gas Extraction	8
16	Heavy Construction, Except Building Construction, Contractor	1
20	Food and Kindred Products	2
23	Apparel, Finished Products from Fabrics & Similar Materials	1
25	Furniture and Fixtures	1
26	Paper and Allied Products	1
28	Chemicals and Allied Products	11
29	Petroleum Refining and Related Industries	2
30	Rubber and Miscellaneous Plastic Products	2
34	Fabricated Metal Products	3
35	Industrial and Commercial Machinery and Computer Equipment	7
36	Electronic & Other Electrical Equipment & Components	5
37	Transportation Equipment	7
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	6
42	Motor Freight Transportation	1
44	Water Transportation	1
45	Transportation by Air	1
49	Electric, Gas and Sanitary Services	1
50	Wholesale Trade - Durable Goods	2
51	Wholesale Trade - Nondurable Goods	3
62	Security & Commodity Brokers, Dealers, Exchanges & Services	1
64	Insurance Agents, Brokers and Service	1
73	Business Services	6
80	Health Services	1
87	Engineering, Accounting, Research, and Management Services	1
99	Non-classifiable Establishments	2
	Total	**80**

Appendix 2.2: Dependent and Control Variables

Main Dependent Variable
ModDD_3years, measured as the standard deviation of the Discretionary Accruals over a 3-year period calculated using the Dechow Dichev model modified by McNichols (2002)
Control variables
Operating cycle, measured as the log of the sum of days in receivable and days in inventory in t-1
Ln Mkt Cap, measured as the natural log of the company market capitalization in t-1
σ(CFO/TA) × 100, measured as the 7-year standard deviation of operating cash-flow over total assets (*100)
σ(Sales/AT) × 100, measured as the 7-year standard deviation of cash sales over total assets (*100)
Negative Earnings, measured as the frequency of negative earnings realization over the 7-year period of study
Market-to-book, measured as the ratio of market capitalization to book value of equity in t-1
Current ratio, measured as the ratio of current assets to current liabilities in t-1
Leverage, measured as the percentage of total debt to total assets in t-1
Profitability, measured as the return on assets in t-1
Intangible Assets, measured as the ratio of intangible assets to total assets in t-1
Sales growth, measured as the annual growth of sales in t-1
Percentage Foreign Sales, measured as the percentage of foreign sales using segment information from Compustat to total sales in t-1
Big 4 Auditor is a dummy variable that takes the value of 1 if the investigated firm is audited in t-1 by one of the 4 big auditors and zero otherwise
Court_DOJ is an ordinal variable taking into account the district court that settles the DOJ case
Court_SEC is an ordinal variable taking into account 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
Alternative Dependent variables used in the robustness tests
DD_3years, measured as the standard deviation of the Discretionary Accruals over a 3-year period calculated using the regular Dechow Dichev model (2002)
ModJones_3y, measured as the standard deviation of the Discretionary Accruals over a 3-year period calculated using the Modified Jones Model following Dechow et al (1995)
Jones_3y, measured as the standard deviation of the Discretionary Accruals over a 3-year period calculated using the Jones Model (1991)

Appendix 2.3 - Parallel Trends (…)

This Appendix shows the results of the tests of the parallel trends assumption in the difference-in-differences design for the main dependent variable, ModDD_3y, that represents the standard deviation of the Discretionary Accruals over a 3-year period using the Modified Dechow Dichev model. Two values of ModDD_3years are calculated prior to the treatment, i.e. the awareness of a bribing behavior by both the investigated firm and peer firms. A first value of ModDD_3y is calculated for the 3-year period between year t-6 and year t-4 (Before t-6 to t-4). A second value of ModDD_3y is calculated for the 3-year period between year t-3 and year t-1 (Before t-3 to t-1). Two dummy variables are used as independent variables. The first dummy is called "INV", that takes the value of 1 if the company is a FCPA investigated company (Treatment group) and zero otherwise. The second dummy variable is called "BEFORE" and takes the value of 1 if the related period is year t-3 to year t-1, and zero if the related period is from year t-6 to year t-4. We identify 1,658 control companies for the 80 events (1,054 distinct companies, each one being used in 1.57 events on the average). Results of the trend in outcomes using a difference-in-differences design are shown for the same 3 specifications of the Control Group that are used for the main results of the paper in Table 3. Control group is made of companies with the same SIC3 than the related treated firm, existing during the 7 years of the main event window, with at least once foreign sales disclosed using the propensity score matching within common support and a caliper of 0.05, but also for all the control companies available at the SIC3 level, and for a caliper of 0.1.

PSM with caliper distance 0.05	**Before t-6 to t-4**		**Before t-3 to t-1**		**Difference**	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	73	3.14	80	3.02	153	-0.12
t-stat						*-0.32*
Peer Firms (Control)	1,363	7.53	1,721	7.45	3,084	-0.08
t-stat						*-0.38*
Difference	**1,436**	**-4.39*** **	**1,801**	**-4.43*** **	**3,237**	**-0.04**
t-stat		***-13.20***		***-11.02***		***0.13***

Appendix 2.3 - Parallel Trends (…)

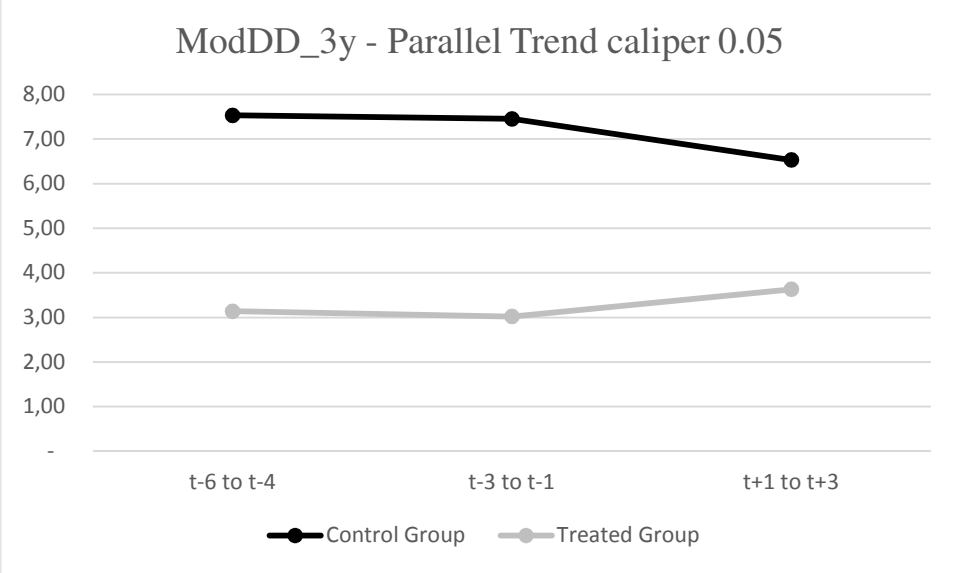
SIC3 level	Before t-6 to t-4		Before t-3 to t-1		Difference	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	74	3.14	80	3.02	154	-0.11
t-stat						*-0.32*
Peer Firms (Control)	2,767	7.93	3,444	8.11	6,211	0.18
t-stat (p value)						*0.95*
Difference	**2,841**	**-4.79*** **	**3,524**	**-5.09*** **	**6,365**	**-0.29**
t-stat		***-15.05***		***-12.87***		***-0.72***

PSM with caliper distance 0.10	Before t-6 to t-4		Before t-3 to t-1		Difference	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	73	3.14	80	3.02	153	-0.12
t-stat						*-0.32*
Peer Firms (Control)	2,031	7.71	2,576	7.85	4,607	0.15
t-stat						*0.70*
Difference	**2,104**	**-4.57*** **	**2,656**	**-4.83*** **	**4,760**	**-0.26**
t-stat		***-13.93***		***-12.01***		***-0.63***

Figure 2.1 - Graphical Results of the Parallel Trends Assumption Test (…)

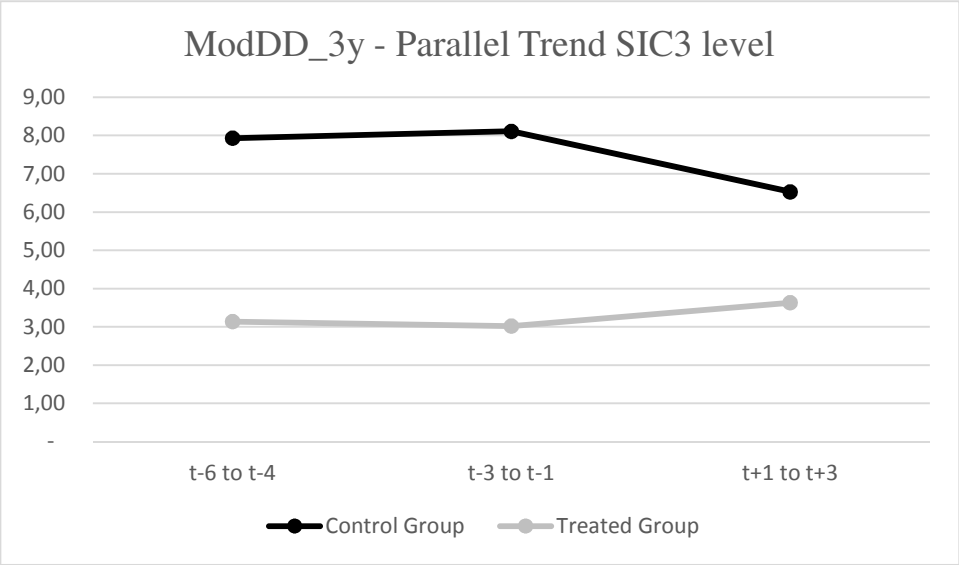
Figure 2.1 shows the graphical results of the tests of the parallel trends assumption for the main dependent variable, ModDD_3y, that represents the standard deviation of the Discretionary Accruals over a 3-year period using the Modified Dechow Dichev model. Two lines are shown, one for the Treated Group and the other for the Control Group. Three values of ModDD_3years are shown. A first point represents the value of ModDD_3y for the 3-year period between year t-6 and year t-4 (Before t-6 to t-4). A second point represents the value of ModDD_3y for the 3-year period between year t-3 and year t-1 (Before t-3 to t-1). A third point represents the value of ModDD_3y for the 3-year period between year t+1 and year t+3 (After t+1 to t+3). We identify 1,658 control companies for the 80 events (1,054 distinct companies, each one being used in 1.57 events on the average). Graphical results of the trend in outcomes are shown for the same 3 specifications of the Control Group that are used for the main results of the paper in Table 3. Control group is made of companies with the same SIC3 than the related treated firm, existing during the 7 years of the main event window, with at least once foreign sales disclosed using the propensity score matching within common support and a caliper of 0.05, but also for all the control companies available at the SIC3 level, and for a caliper of 0.1.

Graphical Results for the Parallel Trend Assumption between Treated Group and Control Group matched using a caliper of 0.05



(…) Figure 2.1 - Graphical Results of the Parallel Trends Assumption Test

Graphical Results for the Parallel Trend Assumption between Treated Group and Control Group with all available companies at SIC3 level



Graphical Results for the Parallel Trend Assumption between Treated Group and Control Group matched using a caliper of 0.1

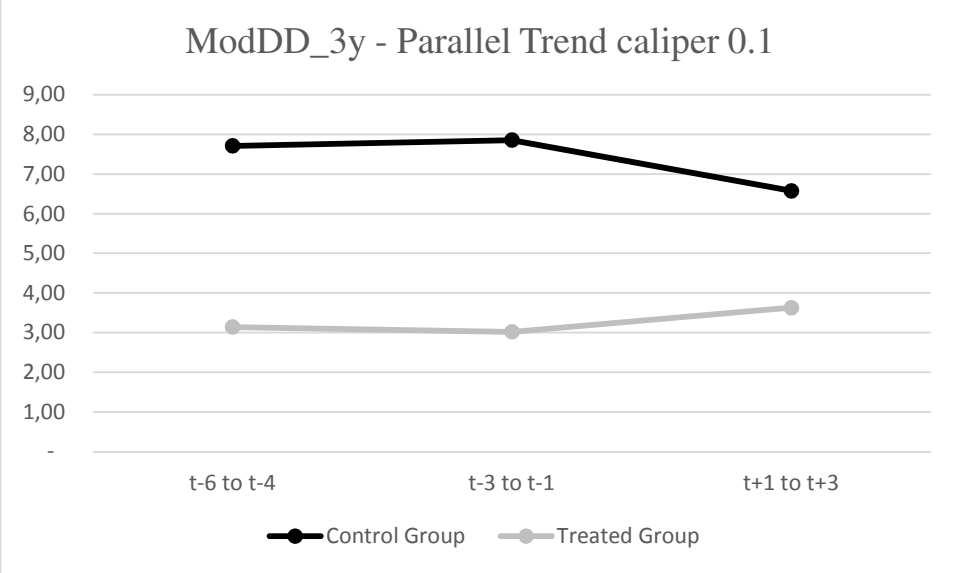


Table 2.1 - Selection of the Final Sample of U.S. FCPA Investigated Firms

Table 2.1 reports how have been selected the 80 U.S. companies investigated under Foreign Corrupt Practice Act (FCPA), the U.S. anti-bribery law for the period 1978-2015, included in our final sample. In this sample, 6 firms are linked to 2 distinct cases, leading the final sample of U.S. Investigated firms to 74 companies 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 enforced under FCPA worldwide	**150**
- Population of Non-US companies linked to a FCPA Enforcement Action	-38
Number of US Firms enforced 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 US FCPA Investigated Firms (Treatment Group)	**80**

Table 2.2 - Summary statistics for main variables for Investigated Firms (Treated Group) and Peer Firms (Control Group) selected using propensity score matching - Winsorized measures (…)

Table 2.2 shows the summary statistics of the main variables for Investigated Firms (Treated Group) and Peer Firms (Control Group). To build the control group, we select control companies that belong to the same SIC3 than the related treated firm, exist during the 7-period of the main 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. PSM Peer Firms are selected using Propensity Score Matching within common support and a caliper of 0.05 in the control group at the SIC3 level[(1)]. After these steps, we identify 1,721 peers in the control group for 1,132 unique companies over a 7-year period. For the treated group, 80 observations are considered for 74 unique companies and 80 cases (6 companies are present twice in the sample). ModDD_7y and ModDD_3y represents the standard deviation of the Discretionary Accruals over a 7-year period or a 3-year period calculated using the Modified Dechow Dichev model. 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. σ(CFO/TA) × 100 is the standard deviation of CFO over total assets (*100). σ(Sales/AT) × 100 is the standard deviation of cash sales over total assets (*100). Negative Earnings is the frequency of negative earnings realization over the 7-year (or 3-year) period of study. Market-to-book is the ratio of market capitalization to book value of equity. Current ratio is the ratio of current assets to current liabilities. Leverage is total debt as percentage of total assets. Profitability is the return on assets. Intangible Assets is the ratio of intangible assets to total assets. Sales growth is the annual growth of sales (*100). Percentage Foreign Sales is the percentage of foreign sales using segment information from Compustat to total sales. All variables are winsorized at the 1st and the 99th percentiles and are lagged by total assets.

(1) For three treated firms, neighbors are selected at the SIC2 level as there are no potential neighbors at the SIC3 level. For two treated firms, we enlarge the caliper at 10% or 15% to find at least one neighbor at the SIC3 level. Results remain unchanged if no neighbor is selected for those cases.

(…) Table 2.2 - Summary statistics for main variables for Investigated Firms (Treated Group) and Peer Firms (Control Group) selected using propensity score matching - Winsorized measures (…)

Panel A - 7-year Period

	Investigated firms (Treated Group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_7y	80	4.14	1.46	2.35	3.59	4.89	7.17	2.80
Innate Factors								
Operating cycle	80	4.92	4.41	4.63	4.84	5.25	5.59	0.46
Ln Market Cap	80	8.45	5.93	7.03	8.80	9.79	10.95	1.90
σ(CFO/AT)*100	80	3.86	0.90	2.05	3.23	5.78	6.99	2.71
σ(Sales/AT)*100	80	13.95	0.00	5.84	11.22	14.95	27.48	14.82
Negative Earnings	80	0.16	0.00	0.00	0.00	0.29	0.43	0.22
Financial Variables								
Market-to-book-ratio	80	3.03	1.17	1.63	2.47	3.98	5.03	2.25
Current ratio	80	1.89	1.19	1.29	1.67	2.10	3.07	0.80
Leverage ratio	80	0.24	0.09	0.16	0.24	0.29	0.38	0.12
Profitability	80	0.04	-0.02	0.02	0.04	0.06	0.11	0.04
Intangible ratio	80	0.16	0.01	0.06	0.17	0.23	0.34	0.12
Sales growth*100	80	15.32	0.00	5.76	10.18	20.23	31.45	17.76
Percentage of Foreign Sales	80	0.43	0.17	0.32	0.41	0.55	0.74	0.20

	PSM Peer Firms (Control group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_7y	1,721	8.11	2.27	3.49	6.19	11.20	17.44	5.99
Innate Factors								
Operating cycle	1,711	4.91	4.20	4.52	4.92	5.29	5.63	0.61
Ln Market Cap	1,709	6.14	3.06	4.51	6.20	7.78	9.14	2.33
σ(CFO/AT)*100	1,721	11.38	2.02	3.31	5.81	11.39	24.22	19.24
σ(Sales/AT)*100	1,721	19.71	5.08	8.17	13.66	23.58	39.08	22.19
Negative Earnings	1,721	0.37	0.00	0.00	0.29	0.71	1.00	0.36
Financial Variables								
Market-to-book-ratio	1,709	2.92	1.10	1.63	2.53	4.13	6.64	11.62
Current ratio	1,721	3.14	1.22	1.66	2.44	3.79	5.90	2.39
Leverage ratio	1,721	0.20	0.00	0.04	0.14	0.26	0.40	0.27
Profitability	1,721	-0.08	-0.36	-0.10	0.02	0.06	0.10	0.31
Intangible ratio	1,716	0.17	0.00	0.04	0.13	0.26	0.41	0.16
Sales growth*100	1,721	21.11	4.95	8.43	14.51	26.24	42.67	23.14
Percentage of Foreign Sales	1,721	0.40	0.06	0.17	0.36	0.57	0.82	0.27

(…) Table 2.2 - Summary statistics for main variables for Investigated Firms (Treated Group) and Peer Firms (Control Group) selected using propensity score matching - Winsorized measures (…)

Panel B - 3-year before Period

	Investigated firms (Treated Group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_3y before	80	3.02	0.78	1.36	2.23	3.58	6.23	2.88
Innate Factors								
Operating cycle	80	4.93	4.43	4.71	4.83	5.25	5.56	0.46
Ln Market Cap	80	8.31	5.73	6.73	8.49	9.88	10.79	1.94
σ(CFO/AT)*100	80	3.32	0.22	1.42	2.40	4.66	7.44	3.11
σ(Sales/AT)*100	80	11.48	0.00	2.51	6.47	12.45	23.67	19.04
Negative Earnings	80	0.15	0.00	0.00	0.00	0.33	0.67	0.28
Financial Variables								
Market-to-book-ratio	80	3.07	0.93	1.36	2.28	3.77	5.98	2.74
Current ratio	80	1.86	1.19	1.22	1.65	2.08	3.03	0.82
Leverage ratio	80	0.24	0.08	0.17	0.23	0.29	0.40	0.12
Profitability	80	0.04	-0.01	0.02	0.05	0.07	0.10	0.05
Intangible ratio	78	0.17	0.01	0.06	0.17	0.24	0.33	0.13
Sales growth*100	80	14.78	0.00	4.39	8.27	16.91	30.83	20.33
Percentage of Foreign Sales	80	0.42	0.12	0.31	0.40	0.54	0.72	0.21

	PSM Peer Firms (Control group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_3y before	1,721	7.45	1.41	2.40	4.77	9.89	18.20	7.25
Innate Factors								
Operating cycle	1,702	4.94	4.21	4.55	4.94	5.32	5.68	0.63
Ln Market Cap	1,703	5.99	2.89	4.32	6.06	7.64	9.01	2.35
σ(CFO/AT)*100	1,721	9.10	1.26	2.33	4.71	9.60	19.14	17.43
σ(Sales/AT)*100	1,721	14.61	2.62	4.72	9.19	17.57	31.73	21.80
Negative Earnings	1,721	0.40	0.00	0.00	0.33	0.67	1.00	0.41
Financial Variables								
Market-to-book-ratio	1,701	2.98	0.96	1.53	2.50	4.15	7.25	15.67
Current ratio	1,721	3.31	1.20	1.61	2.38	3.80	6.44	2.98
Leverage ratio	1,719	0.18	0.00	0.02	0.12	0.27	0.43	0.23
Profitability	1,721	-0.10	-0.42	-0.13	0.02	0.06	0.11	0.40
Intangible ratio	1,682	0.15	0.00	0.02	0.10	0.24	0.41	0.16
Sales growth*100	1,721	19.11	2.55	5.59	11.99	23.16	41.69	24.24
Percentage of Foreign Sales	1,630	0.38	0.03	0.15	0.34	0.56	0.79	0.28

(…) Table 2.2 - Summary statistics for main variables for Investigated Firms (Treated Group) and Peer Firms (Control Group) selected using propensity score matching - Winsorized measures

Panel C - 3-year after Period

	Investigated firms (Treated Group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_3y after	80	3.63	0.81	1.31	2.64	4.86	7.11	3.42
Innate Factors								
Operating cycle	79	4.91	4.38	4.67	4.83	5.26	5.59	0.46
Ln Market Cap	80	8.57	5.99	7.29	8.95	9.84	11.07	1.91
σ(CFO/AT)*100	80	3.13	0.00	1.21	2.33	4.70	6.60	2.84
σ(Sales/AT)*100	80	8.70	0.00	2.78	7.13	11.57	17.62	9.60
Negative Earnings	80	0.14	0.00	0.00	0.00	0.33	0.33	0.25
Financial Variables								
Market-to-book-ratio	80	2.96	1.06	1.51	2.13	4.04	5.77	2.22
Current ratio	80	1.96	1.18	1.19	1.75	2.27	3.05	0.93
Leverage ratio	80	0.23	0.07	0.16	0.23	0.29	0.38	0.14
Profitability	80	0.05	0.00	0.02	0.05	0.08	0.11	0.05
Intangible ratio	80	0.16	0.01	0.05	0.16	0.23	0.33	0.12
Sales growth*100	80	12.69	0.00	2.48	7.78	15.39	29.59	17.49
Percentage of Foreign Sales	80	0.45	0.15	0.32	0.43	0.58	0.79	0.22

	PSM Peer Firms (Control group)							
Variables	Nb Obs	Mean	P10	P25	Median	P75	P90	SD
ModDD_3y after	1,721	6.53	1.22	2.15	4.34	8.46	15.38	6.43
Innate Factors								
Operating cycle	1,704	4.90	4.15	4.50	4.91	5.20	5.64	0.68
Ln Market Cap	1,706	6.27	3.13	4.55	6.33	7.92	9.37	2.39
σ(CFO/AT)*100	1,721	8.88	1.02	2.04	3.84	7.83	16.57	21.29
σ(Sales/AT)*100	1,721	13.36	1.89	3.82	7.95	15.47	28.17	19.70
Negative Earnings	1,721	0.35	0.00	0.00	0.33	0.67	1.00	0.40
Financial Variables								
Market-to-book-ratio	1,705	2.81	0.86	1.49	2.31	3.94	6.43	18.29
Current ratio	1,721	2.97	1.18	1.56	2.29	3.50	5.43	2.54
Leverage ratio	1,719	0.21	0.00	0.02	0.14	0.27	0.40	0.41
Profitability	1,721	0.07	-0.33	-0.06	0.03	0.07	0.12	0.35
Intangible ratio	1,691	0.19	0.00	0.03	0.14	0.30	0.47	0.18
Sales growth*100	1,721	15.60	1.88	4.16	9.39	18.52	34.88	21.39
Percentage of Foreign Sales	1,665	0.42	0.06	0.19	0.39	0.60	0.86	0.28

Table 2.3 - Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals (…)

Table 2.3 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 t-3 to year t-1) and a value After (year t+1 to year t+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 firms become aware of the bribing behavior, i.e. when they are supposed to implement actions to correct the behavior). Two dummy variables are used as independent variables. The first dummy is called "INV", that takes the value of 1 if the company is a 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 t+1 to year t+3, and zero if the related period is from year t-3 to year t-1. INV*AFTER is the interaction variable between the 2 dummy variables defined above. The Treated Group (FCPA Investigated Firms) is made of 80 observations, representing the 80 cases (for 74 unique companies). We identify 1,721 control companies (1,132 distinct companies) for the 80 events. Panel A shows the results for matched control companies with the same SIC3 than one of the treated firms existing during the 7 years of the event window, with at least once foreign sales disclosed, using propensity score matching within common support and a caliper distance of 0.05[(1)]. Panel B shows the results for all control companies at the SIC3 level then for control companies matching using a caliper of 0.1. Observations are clustered at the company level in regressions.

Panel A - PSM with caliper distance 0.05

PSM with caliper distance 0.05	**Before**		**After**		**Difference**	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	80	3.02	80	3.63	160	0.61
t-stat						*1.50*
Peer Firms (Control)[(2)]	1,721	7.45	1,721	6.53	3,442	-0.92***
t-stat						*-4.79*
Difference	**1,801**	**-4.43*** **	**1,801**	**-2.90*** **	**3,602**	**1.53*** **
t-stat		***-11.02***		***-6.84***		***3.44***

[(1)] For three treated firms, neighbors are selected at the SIC2 level as there are no potential neighbors at the SIC3 level. For two treated firms, we enlarge the caliper at 10% or 15% to find at least one neighbor at the SIC3 level. Results remain unchanged if no neighbor is selected for those cases. [(2)] 1,132 unique companies

(…) Table 2.3 - Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals (…)

Panel B - SIC level and PSM with caliper 0.1

SIC3 level	**Before**		**After**		**Difference**	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	80	3.02	80	3.63	160	0.61
t-stat						*1.50*
Peer Firms (Control)	3,444	8.11	3,444	7.00	6,888	-1.11***
t-stat						*6.47*
Difference	**3,524**	**-5.09*** **	**3,524**	**-3.37*** **	**7,048**	**1.72*** **
t-stat		***-12.8***		***-8.01***		***3.93***

PSM with caliper distance 0.10	**Before**		**After**		**Difference**	
	Nb Obs	**Mean**	**Nb Obs**	**Mean**	**Nb Obs**	**Mean**
Investigated Firms (Treated)	80	3.02	80	3.63	160	0.61
t-stat						*1.50*
Peer Firms (Control)	2,576	7.85	2,576	6.58	5,152	-1.28***
t-stat						*-6.94*
Difference	**2,656**	**-4.83*** **	**2,656**	**-2.95*** **	**5,312**	**1.88*** **
t-stat		***-12.01***		***-7.00***		***4.27***

Table 2.4 - 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 2.4 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 firms become aware of the bribing behavior, i.e. when they are supposed to implement actions to correct the behavior). Two dummy variables are used as independent variables. The first dummy is called "INV", that takes the value of 1 if the company is a 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. INV*AFTER is the interaction variable between the 2 dummy variables defined above. The Treated Group (FCPA Investigated Firms) 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. Control Group is made of control companies of the same SIC3 than the related treated 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. Observations are clustered are the company level in regressions.

Psm caliper 0.05 and Dummy 2005	**Before**		**After**		**Difference**	
Before 2005	Nb Obs	Mean	Nb Obs	Mean	Nb Obs	Mean
Investigated Firms (Treated)	27	2.70	27	4.07	54	1.37
t-stat						*1.57*
Peer Firms (Control)[(1)]	806	8.62	806	6.77	1 612	-1.84***
t-stat						*-5.95*
Difference	**833**	**-5.92*** **	**833**	**-2.71*** **	**1 666**	**3.21*** **
t-stat		***-13.7***		***-3.38***		***3.55***
During or after 2005	Nb Obs	Mean	Nb Obs	Mean	Nb Obs	Mean
Investigated Firms (Treated)	53	3.19	53	3.41	106	0.22
t-stat						*0.56*
Peer Firms (Control)[(2)]	915	6.42	915	6.32	1 830	-0.11
t-stat						*-0.42*
Difference	**968**	**-3.24*** **	**968**	**-2.91*** **	**1 936**	**0.33**
t-stat		***-5.98***		***-5.86***		***0.70***

(1) 695 unique companies (2) 576 unique companies

Table 2.5 - Subsample Analysis per year and per industry of Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals with caliper 0.05 (…)

Table 2.5 shows the Difference-in-Differences results for subsamples per year (or groups of years) or per industry 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 results shown represent the difference between the value before and the value after of ModDD_3y for each group (treated and control), then difference-in-differences coefficient, i.e. the interaction term. The Treated Group (FCPA Investigated Firms) is made of 80 investigated firms (for 74 unique companies). Control Group is made of control companies of the same SIC3 than the related treated 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. Panel A shows the results per year or group oy years. Panel B shows the results per industry at the SIC2 level (for clarity purposes). Observations are clustered are the company level in regressions.

Panel A - Subsample analysis per year (or groups of years)

Psm caliper 0.05 by group of years	**Before 2001**		**2001 to 2004**		**2005 to 2009**		**After 2009**	
	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean
Investigated Firms (Treated)	9	1.63	18	1.24	40	0.42	13	-0.40
t-stat		*1.02*		*1.14*		*0.78*		*-0.28*
Peer Firms (Control)	148	0.36	658	-2.34***	642	0.42	273	-1.34***
t-stat		*0.55*		*-6.67*		*1.17*		*-3.48*
Difference (Interaction term)	**157**	**1.27**	**676**	**3.58*** **	**682**	**0.00**	**286**	**0.94**
t-stat		***0.79***		***3.25***		***0.00***		***0.66***

(…) Table 2.5 - Subsample Analysis per year and per industry of Difference-in-Differences Results for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals with caliper 0.05

Panel B - Subsample analysis per industry (SIC2)

Psm caliper 0.05 by SIC2	**SIC2 13**		**SIC2 28**		**SIC2 35**		**SIC2 36**	
	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean
Investigated Firms (Treated)	8	2.62	11	1.24	7	2.02	5	-1.13
t-stat		*1.68*		*1.08*		*2.05*		*-0.52*
Peer Firms (Control)	137	-0.85	403	-0.20	140	-0.30	99	-0.78
t-stat		*-1.61*		*-0.42*		*-0.70*		*-0.79*
Difference (Interaction term)	**145**	**3.46****	**414**	**1.44**	**147**	**2.32****	**104**	**-0.35**
t-stat		***2.27***		***1.22***		***2.35***		***-0.17***

Psm caliper 0.05 by SIC2	**SIC2 37**		**SIC2 38**		**SIC2 73**		**Other SIC2**	
	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean	Nb firms	Mean
Investigated Firms (Treated)	7	1.91	6	-0.75	6	-0.79	30	0.05
t-stat		*1.77*		*-1.12*		*-0.96*		*0.07*
Peer Firms (Control)	45	1.08***	333	-0.17	427	-2.82***	137	-0.41
t-stat		*3.30*		*-0.49*		*-6.30*		*-0.95*
Difference (Interaction term)	**52**	**0.83**	**339**	**-0.58**	**433**	**2.03****	**167**	**0.46**
t-stat		***0.81***		***-0.85***		***2.43***		***0.56***

Table 2.6 - OLS Regressions with Control Variables for Standard Deviation over 3 years of Modified Dechow Dichev Discretionary Accruals (…)

Table 2.6 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 treated 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*AFTER is the interaction variable between the 2 dummy variables defined above. Other general independent variables follow Dechow Dichev (2002), Francis et al (2005) 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). Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. Market-to-book is the ratio of market capitalization to book value of equity in t-1. Current ratio is the ratio of current assets to current liabilities in t-1. Leverage is total debt as percentage of total assets in t-1. Profitability is the return on assets in t-1. Intangible Assets is the ratio of intangible assets to total assets in t-1. Sales growth is the annual growth of sales in t-1. Percentage Foreign Sales is the percentage of foreign sales using segment information from Compustat to total sales in t-1. Big 4 Auditor is a dummy variable that takes the value of 1 if the investigated firm is audited in t-1 by one of the 4 big auditors and zero otherwise. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering 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 Treated Group is made of 160 observations (80 before the event and 80 after the event), representing the 80 investigated firms (for 74 unique companies). We also control for industry and year fixed effects. Results are shown for 3 levels of the Control Group. Control group is made of companies with the same SIC3 than the related treated 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 control companies available at the SIC3 level (2), and for a caliper of 0.1 (3). Observations are clustered are the company level in regressions.

(…) Table 2.6 - 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	1.5282***	1.7132***	1.8847***
t-stat	*3.40*	*3.91*	*4.24*
INV	-1.3137***	-1.3585***	-1.4430***
t-stat	*-3.60*	*-3.72*	*-3.89*
AFTER	-0.9209***	-1.1059***	-1.2775***
t-stat	*-4.74*	*-6.44*	*-6.89*
Operating cycle	0.4541**	0.2707*	0.3694**
t-stat	*2.43*	*1.65*	*2.20*
Ln Mkt Cap	-0.3267***	-0.3934***	-0.3997***
t-stat	*-4.58*	*-6.59*	*-5.95*
σ(CFO/AT)*100	0.0534***	0.0621***	0.0640***
t-stat	*3.90*	*5.65*	*5.09*
σ(Sales/AT)*100	0.0396***	0.0251***	0.0230***
t-stat	*5.06*	*3.18*	*2.62*
Negative Earnings	4.3506***	4.5936***	4.4809***
t-stat	*8.66*	*11.80*	*10.17*
Market-to-book	-0.0085**	-0.0035	-0.0054
t-stat	*-2.28*	*-1.24*	*-1.46*
Current ratio	-0.0916*	-0.1147***	-0.1289***
t-stat	*-1.81*	*-3.33*	*-3.06*
Leverage	0.5931	-0.3507*	-0.3803**
t-stat	*0.87*	*-1.85*	*-2.09*
Profitability	0.0522	0.3276	0.2661
t-stat	*0.09*	*1.22*	*0.92*
Intangible assets	-1.6140**	-1.3023**	-1.2846*
t-stat	*-2.25*	*-2.00*	*-1.77*
Sales growth*100	-0.0001***	-0.0001	-0.0001
t-stat	*-2.80*	*-0.64*	*-1.32*
Percentage Foreign Sales	-0.8456**	-0.6715*	-1.0243**
t-stat	*-2.09*	*-1.79*	*-2.53*
Big 4 Auditor	0.1849	0.0260	0.0532
t-stat	*0.49*	*0.08*	*0.14*
Court_DOJ	0.0022	0.0049	0.0062
t-stat	*0.35*	*1.19*	*1.45*
Court_SEC	0.0128	0.014	0.0000
t-stat	*2.06***	*0.48*	*0.01*
Dummy_2005	-0.0507	4.1114***	1.6360
t-stat	*-0.05*	*2.88*	*1.01*
Dummy_first	-0.6956	-0.6784	-1.0456**
t-stat	*-1.40*	*-1.58*	*-2.48*
Intercept	4.6836***	2.3482	4.7149**
t-stat	*3.36*	*1.46*	*2.50*
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,602	7,048	5,312
Treated firms observations	160	160	160
Control firms observations	3,442	6,888	5,152
R squared	*30.46%*	*28.78%*	*29.55%*

Table 2.7 - Robustness test of OLS Regressions with Control Variables for alternative dependent variables (…)

Table 2.7 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 Investigated Group (Treated Group) is made of 160 observations (80 before the event and 80 after the event), representing the 80 cases (for 74 unique companies). The Peer Group (Control Group) is made of control 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 control 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 been investigated under FCPA and is part of our final sample of treated 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*AFTER is the interaction variable between the 2 dummy variables defined above. Other general independent variables follow Dechow Dichev (2002), Francis et al (2005) 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). Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. Market-to-book is the ratio of market capitalization to book value of equity in t-1. Current ratio is the ratio of current assets to current liabilities in t-1. Leverage is total debt as percentage of total assets in t-1. Profitability is the return on assets in t-1. Intangible Assets is the ratio of intangible assets to total assets in t-1. Sales growth is the annual growth of sales in t-1. Percentage Foreign Sales is the percentage of foreign sales using segment information from Compustat to total sales in t-1. Big 4 Auditor is a dummy variable that takes the value of 1 if the investigated firm is audited in t-1 by one of the 4 big auditors and zero otherwise. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering 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 also control for industry and year fixed effects. Observations are clustered are the company level in regressions.

(…) Table 2.7 - 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	1.3553***	1.4957***	1.6862***
t-stat	*3.34*	*3.80*	*4.21*
INV	-1.2241	-1.3071***	-1.3841***
t-stat	*-3.47*	*-3.79*	*-3.90*
AFTER	-1.0467***	-1.1870***	-1.3775***
t-stat	*-5.29*	*-6.72*	*-7.26*
Intercept	4.2961***	2.3449	3.8324**
t-stat	*3.01*	*1.61*	*1.97*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,620	7,080	5,334
Treated firms observations	160	160	160
Control firms observations	3,460	6,920	5,174
R squared	*31.11%*	*29.38%*	*30.24%*

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	1.1044**	1.1451**	1.2864**
t-stat	*2.04*	*2.18*	*2.40*
INV	-1.4028***	-1.3748***	-1.3500***
t-stat	*-3.96*	*-3.82*	*-3.67*
AFTER	-1.0375***	-1.0782***	-1.2194***
t-stat	*-5.06*	*-6.39*	*-6.28*
Intercept	5.4261***	7.9464***	4.8309**
t-stat	*3.75*	*4.83*	*2.48*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,592	7,022	5,306
Treated firms observations	160	160	160
Control firms observations	3,432	6,862	5,146
R squared	*27.50%*	*25.99%*	*26.48%*

(…) Table 2.7 - 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	1.0022*	1.0476**	1.2033**
t-stat	*1.87*	*2.01*	*2.27*
INV	-1.2885***	-1.2540***	-1.2570***
t-stat	*-3.70*	*-3.52*	*-3.45*
AFTER	-0.9730***	-1.0183***	-1.1741***
t-stat	*-4.85*	*-6.24*	*-6.22*
Intercept	5.4862***	8.0814***	4.5671**
t-stat	*3.56*	*4.79*	*2.28*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	3,634	7,076	5,348
Treated firms observations	160	160	160
Control firms observations	3,474	6,916	5,188
R squared	*26,91%*	*25.58%*	*26.07%*

Table 2.8 - Robustness test of OLS Regressions with Control Variables using Propensity Score Matching with Nearest Neighbors (…)

Table 2.8 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 treated 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*AFTER is the interaction variable between the 2 dummy variables defined above. Other general independent variables follow Dechow Dichev (2002), Francis et al (2005) 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). Negative Earnings is the frequency of negative earnings realization over the 7-year period of study. The following financial control variables are also included. Market-to-book is the ratio of market capitalization to book value of equity in t-1. Current ratio is the ratio of current assets to current liabilities in t-1. Leverage is total debt as percentage of total assets in t-1. Profitability is the return on assets in t-1. Intangible Assets is the ratio of intangible assets to total assets in t-1. Sales growth is the annual growth of sales in t-1. Percentage Foreign Sales is the percentage of foreign sales using segment information from Compustat to total sales in t-1. Big 4 Auditor is a dummy variable that takes the value of 1 if the investigated firm is audited in t-1 by one of the 4 big auditors and zero otherwise. Additional variables linked to the cases themselves are also included as control variables in the regressions. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering 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 Treated 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 the 5 nearest neighbors, 3 nearest neighbors, and 1 nearest neighbor respectively.

(…) Table 2.8 - Robustness test of OLS Regressions with Control Variables using Propensity Score Matching with Nearest Neighbors

Dependent Variable	Mod DD_3y PSM with 5 neighbors	Mod DD_3y PSM with 3 neighbors	Mod DD_3y PSM with 1 neighbor
INV*AFTER	1.0167**	0.8226	1.4522**
t-stat	*2.04*	*1.59*	*1.99*
INV	-0.7544**	-0.5591	-0.5798
t-stat	*-1.99*	*-1.43*	*-1.07*
AFTER	-0.4094	-0.2154	-0.8450
t-stat	*-1.52*	*-0.74*	*-1.50*
Intercept	8.5987***	8.2419***	12.6742***
t-stat	*3.71*	*2.92*	*5.41*
Control Variables	YES	YES	YES
Industry Fixed Effects	YES	YES	YES
Year Fixed Effects	YES	YES	YES
Number of Observations	860	608	320
Treated firms observations	160	160	160
Control firms observations	700	448	160
R squared	*35.17%*	*31.97%*	*48.04%*

Appendix 3.1: Dependent and Control Variables

Main Dependent Variable
Capital Spending (Capspend), measured as Capital expenditures / Assets (Servaes and Tamayo, 2014)
Control variables
Lagged Tobin's q, measured as (book value of assets – book value of equity – deferred taxes – market value of equity) / book value of assets
Lagged Size, measured as natural logarithm of assets
Lagged Percentage of foreign sales, measured as the lagged percentage of non-domestic sales over total sales
Lagged Herfindahl index, measured as (Size/sum of the Size in the industry)^2
DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise.
SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the SEC and zero otherwise
Indonly is a dummy variable that takes the value of 1 if the case is only linked to individuals and zero otherwise.
First Case is a dummy variable that takes the value if 1 if the case is the first one in the industry and zero otherwise.
Dummy_2005 is a dummy variable that takes the value if 1 if the case was revealed in or after 2005 and zero otherwise.
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.
Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise.
Alternative Dependent variables used in the robustness tests
Investment (Invt), measured as Capital Expenditures / lagged Property, Plant and Equipment (Malmendier and Tate, 2005)
Total Investment (Itot), measured as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following (Richardson, 2006)
Investment expenditure to maintain assets in place (Imaint), measured as Amortization and Depreciation Expense scaled by total assets (Richardson, 2006)
Investment in New projects (Inew), measured as Capex, plus R&D, plus acquisition minus sale of ppe, minus Amortization and Depreciation Expense scaled by total assets (Richardson, 2006)

Table 3.1 - Description of the sample of enforced Firms (…)

This table reports the details about the 92 events that have been selected in the final sample of the enforced cases under FCPA between 1975 and 2015. The year used to present the cases per year in Panel A is the awareness year, the year investigated firms and peer firms become aware of the potential bribing behavior. The cases reported are made of all the cases that have been settled at the end of 2015, which explains the low number of cases considered for 2012 and later years. Panel B show the number of events per industry (SIC2 level for clarity).

Panel A: Number of enforcement action revealed by year

Year	Number of events	Cum %	%
1980	1	1,09%	1,09%
1981	0	1,09%	0,00%
1982	0	1,09%	0,00%
1983	0	1,09%	0,00%
1984	0	1,09%	0,00%
1985	1	2,17%	1,09%
1986	0	2,17%	0,00%
1987	0	2,17%	0,00%
1988	0	2,17%	0,00%
1989	2	4,35%	2,17%
1990	1	5,43%	1,09%
1991	1	6,52%	1,09%
1992	1	7,61%	1,09%
1993	2	9,78%	2,17%
1994	0	9,78%	0,00%
1995	1	10,87%	1,09%
1996	0	10,87%	0,00%
1997	1	11,96%	1,09%
1998	0	11,96%	0,00%
1999	0	11,96%	0,00%
2000	0	11,96%	0,00%
2001	1	13,04%	1,09%
2002	4	17,39%	4,35%
2003	7	25,00%	7,61%
2004	9	34,78%	9,78%
2005	15	51,09%	16,30%
2006	6	57,61%	6,52%
2007	10	68,48%	10,87%
2008	5	73,91%	5,43%
2009	8	82,61%	8,70%
2010	11	94,57%	11,96%
2011	2	96,74%	2,17%
2012	1	97,83%	1,09%
2013	1	98,91%	1,09%
2014	1	100,00%	1,09%
2015	0	100,00%	0,00%
Total	**92**		100,00%

(…) Table 3.1 - Description of the sample of enforced Firms

Panel B: distribution of the sample of events in SIC2-industry categories

Industry	Number of events
Agricultural Production - Crops	3
Oil and Gas Extraction	8
Heavy Construction, Except Building Construction, Contractor	2
Food and Kindred Products	3
Apparel, Finished Products from Fabrics & Similar Materials	1
Paper and Allied Products	1
Chemicals and Allied Products	11
Petroleum Refining and Related Industries	2
Rubber and Miscellaneous Plastic Products	2
Stone, Clay, Glass, and Concrete Products	1
Fabricated Metal Products	3
Industrial and Commercial Machinery and Computer Equipment	8
Electronic & Other Electrical Equipment & Components	4
Transportation Equipment	6
Measuring, Photographic, Medical, & Optical Goods, & Clocks	10
Motor Freight Transportation	1
Water Transportation	1
Transportation by Air	1
Communications	1
Electric, Gas and Sanitary Services	1
Wholesale Trade - Durable Goods	2
Wholesale Trade - Nondurable Goods	3
Security & Commodity Brokers, Dealers, Exchanges & Services	1
Insurance Agents, Brokers and Service	1
Holding and Other Investment Offices	1
Business Services	10
Health Services	1
Engineering, Accounting, Research, and Management Services	1
Non-classifiable Establishments	2
Total number of events	**92**

Table 3.2 - Summary Statistics for Main Variables for FCPA Targeted Firms and their Industry Peers (…)

This table shows summary statistics of main variables for FCPA targeted firms and their industry Peers. Targeted companies are made of 94 U.S companies (88 unique firms and 6 firms with 2 distinct enforcements) for the 92 events that have been enforced between 1978-2015 (For 2 events, I have 2 enforced firms with the same sic3/month of awareness). I keep only observations for which the value of the dependent variable and the main independent variables is available before but also after the event. The targeted firm is present throughout the 7 years of the event window only for 68 cases (63 unique companies) out of the 92 events. The sample of industry Peers is made of companies with the same SIC3 than the related targeted firm, existing during the 7-year period covered by the study (3 years before the event date and 3 years after the event date), that disclosed foreign sales in the segment information of Compustat at least once during the 7-year period. I identify 3,952 peers for the 92 events (1,395 distinct Peers, each one being used in 2.83 different events on the average). Capital Spending is the mean of Capital Expenditures scaled by Total Assets. Tobin Q is the mean of the value of lagged Tobin Q. Size if the mean of the logarithm of lagged Total Assets. Percentage of Foreign Sales is the mean of the Foreign sales (Segment information) divided by Total Sales. Details of the calculations of the variables is provided in Appendix 3.1. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.2 - Summary Statistics for Main Variables for FCPA Targeted Firms and their Industry Peers

Panel A - Peer Firms

3-year before Period	Peer Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	3,952	0.040	0.029	0.000	0.241	0.003	0.181	0.016	0.051	0.036
Tobin Q	3,952	2.721	1.973	0.600	17.090	0.676	13.045	1.322	3.096	2.341
Size	3,952	5.108	4.957	0.313	10.183	0.402	10.183	3.635	6.518	2.100
Percentage of Foreign Sales	3,510	0.363	0.314	-	1.000	-	1.000	0.132	0.542	0.284

3-year After Period	Peer Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	3,952	0.035	0.024	0.005	0.178	0.002	0.178	0.013	0.043	0.031
Tobin Q	3,952	2.607	1.974	0.600	17.1	0.764	12.359	1.394	3.034	1.189
Size	3,952	5.427	5.342	0.313	10.764	0.776	10.563	3.819	6.983	1.833
Percentage of Foreign Sales	3,715	0.471	0.360	0.000	1.000	0.000	1.000	0.168	0.589	0.471

7-year Period	Peer Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	3,952	0.037	0.028	0.000	0.241	0.003	0.167	0.016	0.047	0.032
Tobin Q	3,952	2.734	2.144	0.605	17.090	0.842	10.499	1.505	3.328	1.887
Size	3,952	5.266	5.141	0.313	10.764	0.907	10.348	3.715	6.705	2.129
Percentage of Foreign Sales	3,906	0.389	0.338	0.000	1.000	0.000	1.000	0.157	0.567	0.277

Panel B – FCPA Targeted Firms

3-year before Period	FCPA Targeted Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	68	0.046	0.041	0.005	0.178	0.005	0.178	0.026	0.059	0.031
Tobin Q	68	1.844	1.517	0.678	7.161	0.678	7.161	1.110	2.030	1.189
Size	68	8.316	8.238	4.290	10.764	4.290	10.764	6.986	10.090	1.833
Percentage of Foreign Sales	44	0.471	0.471	0.030	1.000	0.030	1.000	0.350	0.641	0.224

3-year After Period	FCPA Targeted Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	68	0.048	0.032	0.006	0.164	0.006	0.164	0.022	0.059	0.039
Tobin Q	68	1.731	1.501	0.714	6.703	0.071	6.703	1.185	1.954	0.976
Size	68	8.553	8.417	4.975	10.764	4.975	10.764	7.371	10.005	1.671
Percentage of Foreign Sales	48	0.454	0.480	-	1.000	-	1.000	0.354	0.624	0.248

7-year Period	FCPA Targeted Firms									
Variables	Nb Obs	Mean	Median	Min	Max	P1	P99	P25	P75	SD
Capital Spending	68	0.047	0.038	0.005	0.165	0.005	0.165	0.025	0.059	0.034
Tobin Q	68	1.776	1.427	0.804	5.718	0.804	5.718	1.200	2.042	0.991
Size	68	8.437	8.449	4.748	10.764	4.748	10.764	7.214	10.117	1.743
Percentage of Foreign Sales	53	0.463	0.455	0.000	1.000	0.000	1.000	0.354	0.620	0.256

Table 3.3 -T test of mean comparison for main variables for FCPA Targeted Firms and Peer Firms

This table shows results of two samples t-test of mean comparison between FCPA Targeted Firms and Peer firms for the main dependent variable, Capital Spending. The results are shown for 2 periods: a 3-year period before the event and a 3-year period after the event. Targeted companies are made of 94 U.S companies (88 unique firms and 6 firms with 2 distinct enforcements) for the 92 events that have been enforced between 1978-2015 (For 2 events, I have 2 enforced firms with the same sic3/month of awareness). The targeted firm is present throughout the 7 years of the event window only for 68 cases (63 unique companies) out of the 92 events. The sample of industry Peers is made of companies with the same SIC3 than the related targeted firm, existing during the 7-year period covered by the study (3 years before the event date and 3 years after the event date), that disclosed foreign sales in the segment information of Compustat at least once during the 7-year period. I identify 3,952 Peers for the 92 events (1,395 distinct Peers, each one being used in 2.83 different events on the average). Capital Spending is the mean of Capital Expenditures scaled by Total Assets. All variables are winsorized at the 1st and the 99th percentiles.

T-test of the change in mean for the variable Capital Spending for the 2 groups	Before		After		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Peer Firms	3,952	0.040	3,952	0.035	- 0.005***	6.46
Targeted firms	68	0.046	68	0.048	0.002	- 0.26

T-test between the Targeted Firms and the Peer Firms for the variable Capital Spending	Peer Firms		Targeted Firms		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Capital Spending 3-years before	3,952	0.040	68	0.046	- 0.006	- 1.45
Capital Spending 3-years after	3,952	0.035	68	0.048	- 0.013**	- 3.07

Table 3.4 - OLS regressions of the change in Investment level around FCPA awareness in the industry (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement without and with control variables. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year) for which the dependent variable and the main independent variables (Size and Tobin Q) are available before and after the event. The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Capspend_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Capspend_{it}$ is the ratio of capital expenditure (capx) scaled by assets (at) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 of the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 of the case is linked to a company and handled by the SEC and zero otherwise. Indonly is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.4 - OLS regressions of the change in Investment level around FCPA awareness in the industry (…)

Panel A: Peer Firms

Dependent Variable: Capspend	With Tobin Q and FE	With additional financial Control Variables	With additional FCPA Control Variables	With additional district court FE
Control variables				
After	**-0.0049*** **	**-0.0049*** **	**-0.0049*** **	**-0.0049*** **
t-stat	***-7.57***	***-6.91***	***-6.91***	***-6.91***
Tobin Q	**0.0019*** **	**0.0020*** **	**0.0020*** **	**0.0019*** **
t-stat	***4.65***	***4.60***	***4.60***	***4.63***
Size		**0.0009*** **	**0.0009*** **	**0.0013*** **
t-stat		***2.68***	***2.68***	***3.80***
Percentage Foreign Sales		**-0.0063** **	**-0.0063** **	**-0.0063** **
t-stat		***-2.20***	***-2.19***	***-2.11***
Herfindahl Index		**-0.7675*** **	**-0.6698** **	-0.0027
t-stat		***-2.82***	***-2.29***	*-0.08*
DojCom			**0.0015***	0.0018
t-stat			***1.88***	*1.30*
SecCom			-0.0019	0.0056
t-stat			*-0.66*	*0.32*
Indonly			**-0.0111** **	0.0188
t-stat			***-2.46***	*0.92*
First Case			0.0010	0.0026
t-stat			*0.47*	*1.02*
Dummy_2005			-0.0133	**-0.0953*** **
t-stat			*-0.63*	***-5.96***
Court_DOJ			0.0000	
t-stat			*1.05*	
Court_SEC			**0.0000***	
t-stat			***1.86***	
Anti-Bribery Provision			0.0001	-0.0029
t-stat			*0.06*	*-1.45*
Intercept	**0.0607*** **	**0.2796*** **	**0.2503*** **	**0.1479*** **
t-stat	***2.85***	***3.57***	***2.98***	***6.20***
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*No*
Time Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*Yes*
Number of Observations	7,904	7,225	7,225	7,225
R squared	*30.23%*	*32.32%*	*32.35%*	*26.37%*

(…) Table 3.4 - OLS regressions of the change in Investment level around FCPA awareness in the industry (…)

Panel B: FCPA Targeted Firms

Dependent Variable: Capspend	With Tobin Q and FE	With additional financial Control Variables	With additional FCPA Control Variables	With additional district court FE
Control variables				
After	0.0019	0.037418	0.0026	0.0028
t-stat	*0.47*	*0.53*	*0.35*	*0.48*
Tobin Q	0.0027	0.0058	0.0037	-0.0031
t-stat	*1.32*	*1.33*	*0.68*	*-0.95*
Size		**-0.0059***	-0.0043	**-0.0106***
t-stat		***-1.78***	*-0.55*	***-2.22***
Percentage Foreign Sales		0.0033	0.0079	-0.0305
t-stat		*0.07*	*0.10*	*-1.07*
Herfindahl Index		0.3972	-0.5896	0.0438
t-stat		*0.14*	*-0.12*	*0.79*
DojCom			0.0057	**-0.0461****
t-stat			*0.08*	***-2.56***
SecCom			-0.1012	-0.0511
t-stat			*-1.00*	*-1.04*
Indonly			-0.0294	**-0.0970*****
t-stat			*-0.28*	***-2.80***
First Case			0.0367	-0.0110
t-stat			*0.89*	*-0.97*
Dummy_2005			0.0082	**-0.0540****
t-stat			*0.12*	***-2.14***
Court_DOJ			0.0021	
t-stat			*1.10*	
Court_SEC			0.0004	
t-stat			*0.38*	
Anti-Bribery Provision			0.0576	**0.0245****
t-stat			*0.80*	***2.37***
Intercept	**0.0353*****	-0.0472	0.0817	**0.1955****
t-stat	***10.29***	*-0.05*	*0.05*	***2.35***
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*Yes*
Number of Observations	136	92	92	92
R squared	*80.04%*	*87.97%*	*89.29%*	*75.65%*

Table 3.5 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement for two subsamples of Peers for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand. Peers are made of companies with the same SIC3 than the related targeted firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Capspend_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Capspend_{it}$ is the ratio of capital expenditure (capx) scaled by assets (at) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.5 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005

Dependent Variable: Capspend	With Financial and FCPA Control Variables	With Financial and FCPA Control Variables	With additional district court FE	With additional district court FE
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0094*** **	**-0.0016***	**-0.0091*** **	**-0.0016***
t-stat	***-7.98***	***-1.74***	***-7.75***	***-1.75***
Tobin Q	**0.0020*** **	**0.0019*** **	**0.0020*** **	**0.0019*** **
t-stat	***3.82***	***3.34***	***3.73***	***3.41***
Size	**0.0011** **	**0.0007***	**0.0011** **	**0.0012*** **
t-stat	***2.37***	***1.85***	***2.44***	***2.90***
Percentage Foreign Sales	**-0.0063***	**-0.0058***	**-0.0065** **	-0.0059
t-stat	***-1.93***	***-1.66***	***-1.97***	*-1.54*
Herfindahl Index	**-1.2948***	**-1.4605*** **	-0.0202	-0.0214
t-stat	***-1.71***	***-3.87***	*-0.27*	*-0.60*
Intercept	**0.4775***	**0.1800*** **	**0.1272*** **	**0.0247*** **
t-stat	***1.93***	***8.08***	***4.48***	***4.39***
Additional FCPA Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	3,162	4,063	3,162	4,063
R squared	*31.59%*	*33.17%*	*30.24%*	*24.47%*

Table 3.6 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry by Quartiles (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement for Subsamples of Peers by quartiles according to the following criteria: Size, Percentage foreign sales, Tobin Q. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a period of 7 years (3 years before, the year of awareness and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Capspend_{it} = bX_{it} + c\ After_{it} + e_{it}$, where $Capspend_{it}$ is the ratio of capital expenditure (capx) scaled by lagged assets (at_{t-1}) for each firm i at the time t, X_{it} is a vector of control variables, b is a vector of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and c is the coefficient on the After Dummy. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Appendix 3.1 contains the list of the control variables employed. Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.6 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry by Quartiles

Panel A: Quartiles by Size

Dependent Variable: Capspend	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	**-0.0055*** **	**-0.0056*** **	**-0.0057*** **	-0.0007
t-stat	***-3.48***	***-3.49***	***-3.90***	*-0.53*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,818	1,810	1,798	1,799
R squared	*19.67%*	*18.65%*	*46.45%*	*57.77%*

Panel B: Quartiles by % Foreign Sales

Dependent Variable: Capspend	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	**-0.0049** **	**-0.0044*** **	**-0.0072*** **	**-0.0040*** **
t-stat	***-2.53***	***-3.46***	***-6.46***	***-2.62***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,712	1,715	1,718	1,689
R squared	*41.09%*	*27.91%*	*35.43%*	*37.50%*

Panel C: Quartiles by Tobin Q

Dependent Variable: Capspend	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	-0.0023	**-0.0024* **	**-0.0082*** **	**-0.0115*** **
t-stat	*-1.42*	***-1.72***	***-5.51***	***-7.20***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,815	1,823	1,802	1,785
R squared	*29.81%*	*42.85%*	*42.09%*	*20.11%*

Table 3.7 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 by Quartiles

This table shows the results of the OLS regressions for the change in investment for Peers around the awareness of FCPA enforcement splitting the results for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand by quartiles of size, percentage of foreign sales and Tobin Q. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before, the year of awareness and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Capspend_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Capspend_{it}$ is the ratio of capital expenditure (capx) scaled by assets (at) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

Panel A: Before 2005 vs in/After 2005 by Quartiles of Size

Dependent Variable: Capspend	Small Peer Firms (3 lowest quartiles in size)		Big Peer Firms (upper quartile in size)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0100*** **	**-0.0032*** **	**-0.0066*** **	0.0012
t-stat	***-7.18***	***-2.81***	***-2.93***	*0.78*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	2,633	2,793	529	1,270
R squared	*29.76%*	*25.31%*	*60.71%*	*59.08%*

Panel B: Before 2005 vs in/After 2005 by Quartiles of % Foreign Sales

Dependent Variable: Capspend	Peer Firms with low Foreign Activity (3 lowest quartiles in % Foreign Sales)		Peer Firms with high foreign activity (upper quartile in % Foreign Sales)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0083*** **	**-0.0030*** **	**-0.0120*** **	-0.0002
t-stat	***-6.02***	***-3.19***	***-4.66***	*-0.08*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	2,414	2,731	594	1,095
R squared	*30.95%*	*35.91%*	*41.50%*	*37.23%*

Panel C: Before 2005 vs in/After 2005 by Quartiles of Tobin Q

Dependent Variable: Capspend	Peer Firms with low Tobin Q (lowest quartile in Tobin Q)		Peer Firms with high Tobin Q (3 upper quartiles in Tobin Q)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0089*** **	0.0029	**-0.0121*** **	**-0.0031*** **
t-stat	***-3.37***	*1.54*	***-9.26***	***-2.96***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	845	970	2,317	3,093
R squared	*44.49%*	*25.07%*	*28.04%*	*37.41%*

Table 3.8 - Robustness test - T test of mean comparison for main variables for Targeted Firms and Peer Firms using Invt, calculated as capex/ppent

This Table shows results of two samples t-test of mean comparison between FCPA Targeted Firms and Peer firms Companies for an alternative dependent variable, Invt, calculated as Capex divided by lagged ppent. The results are shown for 2 periods: a 3-year period before the event and a 3-year period after the event. Targeted companies are made of 94 U.S. companies (88 unique firms and 6 firms with 2 distinct enforcements) for the 92 events that have been enforced between 1978-2015 (For 2 events, I have 2 enforced firms with the same sic3/month of awareness). The targeted firm is present throughout the 7 years of the event window only for 75 cases (69 unique companies) out of the 92 events. The sample of industry Peers is made of companies with the same SIC3 than the related enforced firm, existing during the 7-year period covered by the study (3 years before the event date and 3 years after the event date), that disclosed foreign sales in the segment information of Compustat at least once during the 7-year period. I identify 3,945 peers for the 92 events (1,392 distinct Peers). All variables are winsorized at the 1st and the 99th percentiles.

T-test of the change in mean for the variable Invt for the 2 groups	Before		After		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Peer Firms	3,945	0.467	3,945	0.423	- 0.044***	5.24
Targeted firms	68	0.232	68	0.231	- 0.002	0.06

T-test between the Targeted Firms and the Peer Firms for the variable Invt	Peer Firms		Targeted Firms		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Invt 3-years before	3,945	0.467	68	0.232	0.235***	4.75
Invt 3-years after	3,945	0.423	68	0.231	0.192***	4.66

Table 3.9 - Robustness Test - OLS regressions of the change in Investment level around FCPA awareness for Peers in the industry using Invt, calculated as Capex divided by lagged ppent (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement without and with control variables using Invt, calculated as capex/ppent, following Malmentier and Tate (2005). Peers are made of companies with the same SIC3 than the related targeted firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Invt_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Invt_{it}$ is the ratio of capital expenditure (capx) scaled by property, plant and equipment (ppent) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.9 - Robustness Test - OLS regressions of the change in Investment level around FCPA awareness for Peers in the industry using Invt, calculated as Capex divided by lagged ppent

Dependent Variable: Invt	With Tobin Q and FE	With additional financial Control Variables	With additional FCPA Control Variables	With additional district court FE
Control variables				
After	**-0.038*** **	**-0.0285*** **	**-0.0285*** **	**-0.0282*** **
t-stat	***-3.95***	***-2.87***	***-2.88***	***-2.84***
Tobin Q	**0.0500*** **	**0.0451*** **	**0.0452*** **	**0.0446*** **
t-stat	***11.79***	***10.27***	***10.28***	***10.40***
Size		**-0.0177*** **	**-0.0177*** **	**-0.0182*** **
t-stat		***-5.13***	***-5.14***	***-5.41***
Percentage Foreign Sales		-0.0295	-0.0299	-0.0325
t-stat		*-1.03*	*-1.04*	*-1.16*
Herfindahl Index		-3.6412	-4.1420	**-0.4752** **
t-stat		*-1.29*	*-1.25*	***-2.45***
DojCom			**0.0145** **	**0.0373*** **
t-stat			***2.10***	***2.68***
SecCom			0.0153	**-0.2386*** **
t-stat			*0.48*	***-3.17***
Indonly			-0.0133	-0.0211
t-stat			*-0.26*	*-0.17*
First Case			-0.0321	**-0.0734*** **
t-stat			*-1.46*	***-3.57***
Dummy_2005			-0.0748	0.0308
t-stat			*-0.59*	*0.29*
Court_DOJ			0.0003	
t-stat			*1.47*	
Court_SEC			0.0001	
t-stat			*1.33*	
Anti-Bribery Provision			**-0.0156** *	-0.0178
t-stat			***-1.80***	*-1.10*
Intercept	**0.2144*** **	**1.3826** *	1.5238	**1.0543*** **
t-stat	***4.18***	***1.76***	*1.63*	***6.83***
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*No*
Time Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*Yes*
Number of Observations	7,890	7,215	7,215	7,215
R squared	*18.76%*	*19.27%*	*19.31%*	*17.87%*

Table 3.10 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 using Invt, calculated as Capex divided by lagged ppent (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement for two subsamples of Peers for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand when keeping only observations with information available for all dependent and independent variables used in the regressions. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before, the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Invt_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Invt_{it}$ is the ratio of capital expenditure (capx) scaled by property, plant and equipment (ppent) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.10 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 using Invt, calculated as Capex divided by lagged ppent

Dependent Variable: Invt	With Financial and FCPA Control Variables	With Financial and FCPA Control Variables	With additional district court FE	With additional district court FE
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0459****	-0.0152	**-0.0445****	-0.0148
t-stat	***-2.53***	*-1.17*	***-2.49***	*-1.15*
Tobin Q	**0.0442*****	**0.0465*****	**0.0442*****	**0.0459*****
t-stat	***8.10***	***6.77***	***8.12***	***6.89***
Size	**-0.0146*****	**-0.0201*****	**-0.0147*****	**-0.0193*****
t-stat	***-2.99***	***-4.97***	***-3.02***	***-4.91***
Percentage Foreign Sales	-0.0334	-0.0256	-0.0329	-0.0335
t-stat	*-0.99*	*-0.71*	*-0.97*	*-0.95*
Herfindahl Index	-8.2117	-4.5609	**0.9403****	**-0.9828*****
t-stat	*-0.85*	*-1.36*	***2.13***	***-6.45***
Intercept	2.8314	**0.6001*****	**0.9676*****	**0.4674*****
t-stat	*0.90*	***3.33***	***9.40***	***9.73***
Additional FCPA Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	3,157	4,058	3,157	4,058
R squared	*16.07%*	*19.55%*	*15.97%*	*18.21%*

Table 3.11 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry by quartiles using Invt, calculated as Capex divided by lagged ppent (…)

This table shows the results of the OLS regressions for the change in investment for Peers around the awareness of FCPA enforcement using Invt, calculated as Capex divided by lagged ppent for Subsamples by quartiles according to the following criteria: Size, Percentage foreign sales, Tobin Q. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Invt_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Invt_{it}$ is the ratio of capital expenditure (capx) scaled by property, plant and equipment (ppent) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.11 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry by quartiles using Invt, calculated as Capex divided by lagged ppent

Panel A: Quartiles by Size

Dependent Variable: Invt	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	0.0213	**-0.0766*****	**-0.0748*****	-0.0139
t-stat	*0.89*	***-3.15***	***-3.94***	*-0.98*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,814	1,809	1,794	1,798
R squared	*11.98%*	*21.19%*	*24.40%*	*34.57%*

Panel B: Quartiles by % Foreign Sales

Dependent Variable: Invt	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	-0.0384	**-0.0474****	-0.0201	-0.0289
t-stat	*-1.45*	***-2.33***	*-1.01*	*-1.49*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,712	1,712	1,716	1,685
R squared	*18.69%*	*26.53%*	*22.17%*	*17.56%*

Panel C: Quartiles by Tobin Q

Dependent Variable: Invt	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	-0.0265	-0.0049	**-0.0644*****	**-0.1012*****
t-stat	*-1.44*	*-0.33*	***-3.19***	***-3.78***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,815	1,818	1,797	1,785
R squared	*22.06%*	*22.55%*	*19.42%*	*16.02%*

Table 3.12 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 by quartiles using Invt, calculated as Capex divided by lagged ppent (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement splitting the results for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand by quartiles of size, percentage of foreign sales and Tobin Q. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a period of 7 years (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Invt_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Invt_{it}$ is the ratio of capital expenditure (capx) scaled by property, plant and equipment (ppent) for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.12 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 by quartiles using Invt, calculated as Capex divided by lagged ppent

Panel A: Before 2005 vs in/After 2005 by Quartiles of Size

Dependent Variable: invt	Small Peer Firms (3 lowest quartiles in size)		Big Peer Firms (upper quartile in size)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0457****	**-0.0298***	**-0.0887****	0.0076
t-stat	***-2.20***	***-1.65***	***-2.19***	*0.59*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	2,628	2,789	529	1,269
R squared	*13.72%*	*14.80%*	*31.24%*	*41.36%*

Panel B: Before 2005 vs in/After 2005 by Quartiles of % Foreign Sales

Dependent Variable: invt	Peer Firms with low Foreign Activity (3 lowest quartiles in % Foreign Sales)		Peer Firms with high foreign activity (upper quartile in % Foreign Sales)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0404***	-0.0207	**-0.0974****	0.0042
t-stat	***-1.88***	*-1.32*	***-2.49***	*0.18*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	2,413	2,727	590	1,095
R squared	*16.34%*	*22.21%*	*19.94%*	*15.65%*

Panel C: Before 2005 vs in/After 2005 by Quartiles of Tobin Q

Dependent Variable: invt	Peer Firms with low Tobin Q (lowest quartile in Tobin Q)		Peer Firms with high Tobin Q (3 upper quartiles in Tobin Q)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	-0.0547	-0.0015	**-0.0763*****	-0.0231
t-stat	*-1.47*	*-0.09*	***-3.62***	*-1.46*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	840	975	2,317	3,083
R squared	*23.70%*	*18.51%*	*16.41%*	*18.96%*

Table 3.13 - Robustness test - T test of mean comparison for main variables for FCPA Targeted Firms and Peer Firms using Total Investment (I_{tot})

This Table shows results of two samples t-test of mean comparison between FCPA Targeted Firms and Peer firms Companies for an alternative dependent variable, Total Investment (Itot), calculated as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following Richarson (2006). The results are shown for 2 periods: a 3-year period before the event and a 3-year period after the event. Targeted companies are made of 94 U.S companies (88 unique firms and 6 firms with 2 distinct enforcements) for the 92 events that have been enforced between 1978-2015 (For 2 events, I have 2 enforced firms with the same sic3/month of awareness). The targeted firm is present throughout the 7 years of the event window only for 31 cases (28 unique companies) out of the 92 events. The sample of industry Peers is made of companies with the same SIC3 than the related enforced firm, existing during the 7-year period covered by the study (3 years before the event date and 3 years after the event date), that disclosed foreign sales in the segment information of Compustat at least once during the 7-year period. I identify 2,920 peers for the 92 events (1,005 distinct Peers, each one being used in 2.91 different events on the average). All variables are winsorized at the 1st and the 99th percentiles.

T-test of the change in mean for the variable Itot for the 2 groups	Before		After		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Peer Firms	2,920	0.206	2,920	0.203	- 0.003	0.65
Targeted firms	31	0.086	31	0.082	- 0.005	0.40

T-test between the Targeted Firms and the Peer Firms for the variable Itot	Peer Firms		Targeted Firms		Difference	T-stat
	Nb Obs	Mean	Nb Obs	Mean		
Itot 3-years before	2,920	0.206	31	0.086	0.120***	3.62
Itot 3-years after	2,920	0.203	31	0.082	0.122***	3.29

Table 3.14 - Robustness test - OLS regressions of the change in Investment level for Peers around FCPA awareness in the industry using Total Investment (I_{tot}) (…)

This table shows the results of the OLS regressions for the change in investment for Peers around the awareness of FCPA enforcement without and with control variables for an alternative dependent variable, Adjusted Investment ratio (I_{tot}), calculated as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following Richarson (2006) and Servaes and Tamayo (2014). Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Itot_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Itot_{it}$ is the ratio of Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.14 - Robustness test - OLS regressions of the change in Investment level for Peers around FCPA awareness in the industry using Total Investment (I_{tot})

Dependent Variable: I_{tot}	With Tobin Q and FE	With additional financial Control Variables	With additional FCPA Control Variables	With additional district court FE
Control variables				
After	0.0006	0.0076	0.0076	0.0078
t-stat	*0.11*	*1.36*	*1.36*	*1.38*
Tobin Q	**0.0345*** **	**0.0327*** **	**0.0327*** **	**0.0327*** **
t-stat	***5.69***	***5.27***	***5.29***	***5.35***
Size		**-0.0219*** **	**-0.0219*** **	**-0.0220*** **
t-stat		***-8.33***	***-8.32***	***-8.54***
Percentage Foreign Sales		0.0324	0.0323	0.0335
t-stat		*1.51*	*1.50*	*1.59*
Herfindahl Index		-0.1072	-0.1781	-0.0740
t-stat		*-0.36*	*-0.59*	*-0.77*
DojCom			-0.0018	-0.0033
t-stat			*-0.47*	*-0.41*
SecCom			0.0066	**0.0662***
t-stat			*0.30*	***1.70***
Indonly			-0.0259	**-0.0493***
t-stat			*-0.65*	***-1.69***
First Case			-0.0009	**-0.0339** **
t-stat			*-0.05*	***-2.29***
Dummy_2005			0.0087	**-0.1297*** **
t-stat			*0.54*	***-4.02***
Court_DOJ			-0.0002	
t-stat			*-0.87*	
Court_SEC			0.0000	
t-stat			*0.82*	
Anti-Bribery Provision			0.0045	0.0026
t-stat			*0.60*	*0.21*
Intercept	**0.0657*** **	**0.2796*** **	**0.2180** **	**0.2012*** **
t-stat	***6.81***	***3.57***	***1.99***	***2.99***
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*No*
Time Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*Yes*
Number of Observations	5,840	7,225	5,352	5,352
R squared	*20.04%*	*32.32%*	*25.57%*	*25.33%*

Table 3.15 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 using Total Investment (I_{tot}), Investment expenditure to maintain assets in place (I_{maint}) and Investment in New projects (I_{new}) (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement for two subsamples of Peers for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand for an alternative dependent variable, Total Investment (Itot), calculated as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following Richarson (2006). Then, Total Investment is split into Investment expenditure to maintain assets in place (Imaint), measured as Amortization and Depreciation Expense scaled by total assets on the one hand and Investment in New projects (Inew), measured as Capex, plus R&D, plus acquisition minus sale of ppe, minus Amortization and Depreciation Expense scaled by total assets on the other hand. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before, the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $DepVar_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $DepVar_{it}$ is the dependent variable for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.15 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 using Total Investment (I_{tot}), Investment expenditure to maintain assets in place (I_{maint}) and Investment in New projects (I_{new}) (…)

Panel A: I_{tot}

Dependent Variable: I_{tot}	With Financial and FCPA Control Variables	With Financial and FCPA Control Variables	With additional district court FE	With additional district court FE
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	0.0074	0.0091	0.0075	0.0091
t-stat	*0.85*	*1.29*	*0.87*	*1.29*
Tobin Q	**0.0219*** **	**0.0442*** **	**0.0219*** **	**0.0442*** **
t-stat	***4.40***	***4.40***	***4.41***	***4.42***
Size	**-0.0275*** **	**-0.0168*** **	**-0.0277*** **	**-0.0170*** **
t-stat	***-6.83***	***-6.46***	***-6.88***	***-6.65***
Percentage Foreign Sales	**0.0440***	0.0255	**0.0440***	0.0270
t-stat	***1.71***	*0.90*	***1.72***	*0.98*
Herfindahl Index	-4.6054	-0.1204	**-1.1368***	-0.0963
t-stat	*-1.41*	*-0.27*	***-1.95***	*-0.88*
Intercept	1.7223	0.2440	**0.5724*** **	**0.1122*** **
t-stat	*1.58*	*1.59*	***3.77***	***2.66***
Additional FCPA Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	2,299	3,053	2,299	3,053
R squared	*20.87%*	*30.99%*	*20.66%*	*30.74%*

(…) Table 3.15 - OLS Subsamples regressions of the change in Investment level for Peers around FCPA awareness in the industry before 2005 and in/after 2005 using Total Investment (I_{tot}), Investment expenditure to maintain assets in place (I_{maint}) and Investment in New projects (I_{new})

Panel B: I_{maint} and I_{new}

Dependent Variable: I_{maint} and I_{new}	I_{maint} with Financial and FCPA Control Variables	I_{maint} with Financial and FCPA Control Variables	I_{new} with Financial and FCPA Control Variables	I_{new} with Financial and FCPA Control Variables
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0275*****	0.0004	**0.0337*****	0.0095
t-stat	***-5.15***	*0.31*	***4.55***	*1.31*
Tobin Q	0.0011	0.0019	**0.0193*****	**0.0420*****
t-stat	*0.39*	*1.57*	***5.02***	***4.09***
Size	**-0.0081*****	**-0.0326*****	**-0.0181*****	**-0.0131*****
t-stat	***-4.44***	***-5.16***	***-4.76***	***-4.93***
Percentage Foreign Sales	**-0.0171***	0.0012	**0.0584****	0.0246
t-stat	***-1.74***	*0.30*	***2.45***	*0.86*
Herfindahl Index	**-6.7041***	-0.0823	0.7842	0.0049
t-stat	***-1.76***	*-0.27*	*0.21*	*0.02*
Intercept	**2.2679***	**0.0995*****	-0.1667	0.1237
t-stat	***1.83***	***5.70***	*3-0.13*	*1.03*
Additional FCPA Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	3,129	3,979	2,253	2,988
R squared	*8.05%*	*11.70%*	*16.13%*	*28.17%*

Table 3.16 - OLS Subsamples regressions of the change in Investment level around FCPA awareness in the industry by quartiles using Total Investment (I_{tot}) (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement for an alternative dependent variable, Total Investment (Itot), calculated as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following Richarson (2006) for Subsamples by quartiles according to the following criteria: Size, Percentage foreign sales, Tobin Q. Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Itot_{it} = bX_{it} + c\ After_{it} + e_{it}$, where $Itot_{it}$ is the ratio of Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets for each firm i at the time t, X_{it} is a vector of control variables, b is a vector of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and c is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Dummy_2005 is a dummy variable that takes the value of 1 if the case was revealed in or after 2005 and zero otherwise. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.16 - OLS Subsamples regressions of the change in Investment level around FCPA awareness in the industry by quartiles using Total Investment (I_{tot})

Panel A: Quartiles by Size

Dependent Variable: Itot	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	-0.0222	**0.0268****	**0.0155***	0.0034
t-stat	*-1.20*	***2.02***	***1.96***	*0.84*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,341	1,352	1,337	1,322
R squared	*31.30%*	*24.97%*	*15.29%*	*20.80%*

Panel B: Quartiles by % Foreign Sales

Dependent Variable: Itot	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	0.0081	-0.0089	-0.0081	0.0181
t-stat	*0.84*	*-1.16*	*-0.76*	*1.17*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,268	1,271	1,276	1,252
R squared	*25.80%*	*36.47%*	*26.89%*	*28.62%*

Panel C: Quartiles by Tobin Q

Dependent Variable: Itot	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables	With additional FCPA Control Variables
Control variables	Quartile 1	Quartile 2	Quartile 3	Quartile 4
After	**-0.0334****	-0.0031	0.0025	**0.0564****
t-stat	***-2.11***	*-0.54*	*0.29*	***2.05***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,348	1,335	1,347	1,322
R squared	*25.79%*	*31.36%*	*42.09%*	*28.76%*

Table 3.17 - OLS Subsamples regressions of the change in Investment level around FCPA awareness in the industry before 2005 and in/after 2005 by quartiles using Total Investment (I_{tot}) (…)

This table shows the results of the OLS regressions for the change in investment around the awareness of FCPA enforcement splitting the results for cases revealed before 2005 on the one hand and cases revealed during or after 2005 on the other hand by quartiles of size, percentage of foreign sales and Tobin Q for an alternative dependent variable, Total Investment (I_{tot}), calculated as Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets following Richarson (2006). Peers are made of companies with the same SIC3 than the related enforced firm, existing during a 7-year period (3 years before the awareness year and 3 years after the awareness year). The adjusted change after awareness of future FCPA enforcement is the coefficient on the After dummy in the following panel of regressions: $Itot_{it} = bX_{1it} + cX_{2it-1} + dAfter_{it} + e_{it}$, where $Itot_{it}$ is the ratio of Capex, plus R&D, plus acquisition minus sale of ppe, scaled by total assets for each firm i at the time t, X_{1it} is a vector of control variables considered year t, X_{2it} is a vector of lagged control variables considered year t, b and c are vectors of regression coefficient of the control variables, and $After_{it}$ is a dummy variable which takes on the value of 1 in the years after the awareness year and zero otherwise, and d is the coefficient on the After Dummy. Tobin Q is the mean of the lagged Tobin Q over a 3-year period (3 years before and 3 years after). Size is the logarithm of lagged assets over a 3-year period. Percentage of Foreign Sales is the mean of the lagged percentage of non-domestic sales found in the segment information of Compustat divided total sales over a 3-year period. Herfindahl index controls for the degree of concentration in an industry. The following additional control variables linked to FCPA cases are used in the regressions but not detailed in the table below for clarity reasons. DojCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is linked to a company and handled by the DOJ and zero otherwise. SecCom is a dummy variable that takes the value of 1 if the case is only linked to individuals 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. Court_DOJ is an ordinal variable considering the district court that settles the DOJ case. Court_SEC is an ordinal variable considering the district court that settles the SEC case. Anti-Bribery Provision is a dummy variable that takes the value of 1 if the case is settled under the anti-bribery provision and zero otherwise. Appendix 3.1 contains the list of the control variables employed. I estimate above models for the 3 years prior and 3 years after the awareness year. Observations are clustered are the company level in regressions. All variables are winsorized at the 1st and the 99th percentiles.

(…) Table 3.17 - OLS Subsamples regressions of the change in Investment level around FCPA awareness in the industry before 2005 and in/after 2005 by quartiles using Total Investment (I_{tot})

Panel A: Before 2005 vs in/After 2005 by Quartiles of Size

Dependent Variable: I_{tot}	Small Peer Firms (3 lowest quartiles in size)		Big Peer Firms (upper quartile in size)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	0.0085	0.0078	-0.0029	0.0056
t-stat	*0.82*	*0.80*	*-0.34*	*1.29*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*No*	*No*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District Court Fixed Effects	*No*	*No*	*Yes*	*Yes*
Number of Observations	1,913	2,117	386	936
R squared	*20.39%*	*30.76%*	*17.63%*	*22.55%*

Panel B: Before 2005 vs in/After 2005 by Quartiles of % Foreign Sales

Dependent Variable: I_{tot}	Peer Firms with low Foreign Activity (3 lowest quartiles in % Foreign Sales)		Peer Firms with high foreign activity (upper quartile in % Foreign Sales)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	-0.0039	-0.0021	0.0212	0.0189
t-stat	*-0.45*	*-0.33*	*1.05*	*0.83*
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	1,739	2,076	449	803
R squared	*22.52%*	*31.88%*	*28.36%*	*36.80%*

Panel C: Before 2005 vs in/After 2005 by Quartiles of Tobin Q

Dependent Variable: I_{tot}	Peer Firms with low Tobin Q (lowest quartile in Tobin Q)		Peer Firms with high Tobin Q (3 upper quartiles in Tobin Q)	
Control variables	Before 2005	In/After 2005	Before 2005	In/After 2005
After	**-0.0575***	**-0.0196****	0.0117	**0.0176***
t-stat	***-1.75***	***-2.46***	*1.29*	***1.73***
Control Variables	*Yes*	*Yes*	*Yes*	*Yes*
Industry Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
Year Fixed Effects	*Yes*	*Yes*	*Yes*	*Yes*
District court Fixed Effects	*No*	*No*	*No*	*No*
Number of Observations	577	771	1,722	2,282
R squared	*30.79%*	*21.06%*	*20.20%*	*31.78%*