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# The Consequences of Involvement in Foreign Bribery Cases

*An Empirical Study of the Profitability of Firms Sanctioned for FCPA Violations*

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# Executive Summary

Since the turn of the century, U.S. authorities have sanctioned more than a hundred firms for foreign bribery. The fines and other monetary penalties resulting from these cases have exceeded ten billion U.S. dollars in total. Individual cases have involved fines in the hundreds of millions. One could imagine that such large direct sanctions, combined with damage to the firms' reputations, might cause worsened financial performance.

Using a fixed effects model, we perform an empirical analysis of the profitability of 107 firms sanctioned between 2000 and 2016 for violations of the U.S. Foreign Corrupt Practices Act (FCPA). Our choice of model ensures robust estimates and mitigates the risk of bias due to omitted variables, enabling us to reach reliable results on a complicated topic. We establish how the sanctions affect firms' financial performance over time, measured as return on assets. Additionally, we analyze profitability during the period when the U.S. Securities and Exchange Commission has identified involvement in foreign bribery.

We find no significant adverse effect of being sanctioned for foreign corruption on long-time financial performance. Profitability does not seem to be influenced by an FCPA investigation, nor does it seem to be affected following the final sanction. This could be attributed to foreign bribery cases not causing significant reputational damage. A potential explanation is that FCPA cases are most commonly resolved through negotiated settlements, rather than through criminal convictions. However, we do find that the companies subject to the largest monetary sanctions perform worse than usual around the time of the sanctioning.

Furthermore, we identify that firms generally perform worse during the period when they engage in corruption. We consider this somewhat surprising, as one would expect companies to commit illegal acts with the expectation of achieving superior profits. We hypothesize that the pressures of bad performances may instead lead firms to pay bribes. It could nevertheless be that the corrupt acts do not generate net profits, for instance due to extortion or distortive meddling.

# Preface

This master thesis marks the completion of our respective Masters of Science in Economics and Business Administration at NHH Norwegian School of Economics.

The decision to write about corruption was motivated by the course BUS452 Corruption – Incentives, Disclosure and Liability, held by our supervisor Professor Tina Søreide, and especially the memorable study trip to Ukraine in March 2017. Our thesis is inspired by the 2016 master thesis of Stian Nalum Tvetene and Kasper Vagle, who compared the stock performance of firms sanctioned for FCPA violations to the S&P 500. We saw the opportunity to study the subject in further detail, and identify how firms perform when engaging in foreign corruption, and how performance is affected by the sanction itself. The topic has required us to expand the limits of our knowledge, both about corruption, economics, and law. Working with this thesis has been a demanding, but also rewarding and exciting experience.

For their help and assistance along the way, there are several people whose contributions we would like to acknowledge. In particular, we would like to thank our exceptional supervisor, Professor Tina Søreide for relentless support and constructive criticism throughout the writing process. We also appreciate the advice of PhD Candidate Kasper Vagle, who has made himself and the knowledge he obtained from working on his thesis available to us. Furthermore, we extend our thanks to Professor Jarle Møen for econometric feedback. Finally, we would like to thank the Norwegian Centre for Taxation (NoCeT) and the Norwegian Tax Administration for accepting us for their grant.

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# 1. Introduction

## 1.1. Motivation

The adverse effects of corruption on society are well documented. Corruption hinders development and economic growth, undermines judicial systems, deters foreign investment, weakens competition, distorts political decisions, and funds criminal activity (OECD, 2011).

The last two decades have seen a number of the world's largest and most well-known companies involved in corruption scandals. The U.S. has taken the lead in global anti-corruption enforcement, applying the full force of their Foreign Corrupt Practices Act (FCPA). The list of companies sanctioned for FCPA violations includes technology giants Siemens, VimpelCom (currently VEON), and IBM, as well as international oil majors such as Total and Statoil (currently Equinor). Penalties have been ranging up to ten-digit dollar figures. The extensive U.S. prosecution of foreign bribery cases has been controversial, with current President Donald Trump stating in 2012 about the FCPA that "it is a horrible law and should be changed" (CNBC.com, 2012). While the present U.S. administration has publicly committed to enforcing the act, there has indeed been a reduction in FCPA enforcement actions since President Trump's inauguration (Witzel & Kutoroff, 2017).

Elsewhere, the infamous Petrobras case has shown how corporate corruption has undermined the whole Brazilian economy and led to political instability (Segal, 2015). In South Korea, technology conglomerate Samsung has been involved in a recent corruption scandal leading to the dismissal of President Park Geun-hye (Hanssen & Lohne, 2018). Corporate corruption remains a global concern, and more cases will undoubtedly be discovered in the future.

In our thesis, we study the consequences for firms involved in foreign corruption through analyzing their financial performance from the period they first violated the FCPA until after the resolution of the case. The expected profitability of bribery and corrupt acts is quite obviously a factor in the decision to partake in the illegal activities, and knowing more about the financial repercussions, if any, of being caught may be of help to regulatory authorities in designing sanctions. Additionally, managers may themselves be unsure of what might happen to their firms in the event of an FCPA violation. The literature on the subject is divided (Serafeim, 2013; Sampath, Gardberg, & Rahman, 2016; Karpoff, Lee, & Martin, 2017), and we aim to provide better empirical insight than has previously been available.

## 1.2. Research Question

Our research question is:

*Are companies more profitable than usual when engaging in foreign corruption, and do they perform differently as a result of being sanctioned?*

### 1.2.1. Specification of research question

To answer our research question we empirically analyze the financial performance of companies sanctioned for FCPA violations by the U.S. Securities and Exchange Commission (SEC) since the turn of the century. Financial performance, or profitability, is measured as return on assets (ROA), a choice which is discussed more thoroughly in section 4.3.1. By the phrasing "perform differently" in the research question we refer to a statistically significant increase or decrease in ROA compared to the firms' "usual" performance; that is, the expected performance when not involved in an FCPA case. We identify abnormal profits using fixed effects methodology, presented in chapter 4.

We include a large selection of similar "clean" firms in the econometric analysis to obtain more precise estimates of the control variables. We use the term "clean" to refer to firms which have not been on the receiving end of FCPA enforcement actions; even as we acknowledge that some of these firms may also have been involved in corruption, and have simply evaded detection. Likewise, we refer to firms as "corrupt" if they have been sanctioned by the SEC as result of violating the FCPA between 2000 and 2016. This term is used for simplicity, and does not suggest that the firms referred to as corrupt are currently involved in any illegal activities.

### 1.2.2. Scope

We study FCPA enforcement actions where action is taken against a firm as a legal entity. We only include firms listed in the Compustat North America database, and consider only firms which are not subsidiaries of other firms. If an FCPA enforcement action is taken against a subsidiary we study the consolidated performance of the concern. This is in accordance with the "core" approach of FCPA enforcement statistics as described by Koehler (2013). Case selection is covered in more detail in chapter 5.

## 1.3. Purpose

The purpose of our study is to contribute to the literature about the consequences of corruption for the firms evidently involved, and gain more knowledge about how sanctions for foreign bribery impact firms' financial performance. Through our research we seek to obtain new insight into how corrupt actions affect companies' profitability, both during the period when corrupt acts are committed, between ceasing the involvement and being sanctioned, and after being sanctioned. We thus study whether foreign bribery and subsequent penalties have a significant impact on companies' operations and profitability over time. This is valuable information both for regulatory agencies and private firms.

## 1.4. Structure

Having presented the background for our study, the next chapter considers the concept of corruption in general, and the relevant laws and regulations. Chapter 3 discusses theory about corruption and financial crime. Sections 3.1 to 3.3 examine the incentives firms have to commit corrupt acts as well as literature on sanctioning principles. Thereafter, section 3.4 reviews empirical studies covering similar subjects as our analysis. This includes studies dedicated specifically to corruption, and literature on the impact of ethics and corporate crime on profitability on a more general level. Section 3.5 revisits the research question and presents our hypotheses. Chapter 4 covers the empirical methodology for our study, including the model we use and the assumptions it is built on. Chapter 5 presents the dataset, with sections 5.1 to 5.3 outlining our selection, collection, and cleaning of data, section 5.4 displaying descriptive statistics, and section 5.5 covering statistical inference. Chapter 6 contains our econometric analysis and presents the findings, as well as various robustness checks. These results are discussed in chapter 7. Section 7.1 reviews our hypotheses in light of the empirical findings. In section 7.2 implications for firms, investors, and regulators are considered, and section 7.3 contains a discussion of potential limitations of our study. Concluding remarks and suggestions for further research are made in chapter 8.

# 2. Corruption: Definition and Enforcement

## 2.1. Definition and Terminology

The dictionary definition of the word corruption is “dishonest or illegal behavior especially by powerful people” or “inducement to wrong by improper or unlawful means (such as bribery)” (Merriam-Webster Dictionary, 2018). These descriptions do give us an impression of what corruption entails, but they are not very useful as a starting point for discussing the problem. Corruption is a trade, with both parties involved receiving benefits (or avoiding harm) usually at the cost of society as a whole. The criminal act is the deal itself. Thus, one can consider corruption as a “trade in decisions that should not be for sale” (Søreide, 2016, p. 13). This is a definition that acknowledges the collusive and compensational nature of corruption, while also hinting at its negative consequences. When a decision should not be for sale, it is because it should not be based on what most benefits the decision-maker; instead, it should be based on some specific rules or virtues that, if followed, would lead to the greatest gain for society (Søreide, 2016, pp. 12-13).

The corruption literature often distinguishes between *active* and *passive* bribery. The concept is particularly common in the legal literature (Søreide, 2006, p. 387). Active bribery refers to the party that offers the bribe (the briber), whereas passive bribery refers to the recipient of the bribe (the bribee). The distinction between the two is often unclear. As a corrupt deal requires the agreement of both parties, none of the two can be considered truly passive (Rose-Ackerman, 2010). The so-called “passive” party receiving the bribe may in many cases be the one to propose the corrupt agreement and actively initiate the corruption. Due to this possible confusion we abstain from using these terms further on in this thesis.

Another, more useful, distinction with regard to forms of corruption is the difference between extortive and collusive corruption (Søreide, 2016, pp. 14-15). Extortive bribery refers to situations where the briber is subject to pressure to pay a bribe in order to receive some kind of benefit. Typically, extortive bribery takes the form of a government representative demanding a bribe in order to perform a service or award a license or approval that would otherwise be available for free or at a low cost. This means that the party paying the bribe would in many cases of extortive bribery be better off if there were no corruption involved. In a case of collusive bribery, the two parties collaborate for their joint benefit.

This happens at the expense of some other party, such as the employer or principal of the recipient of the bribe, or society as a whole (Søreide, 2016, pp. 14-15).

## 2.2. Corruption-Like Circumstances

Corruption is a collective term, encompassing many forms of bribe-paying, abuse of power, and misuse of influence. Determining where to draw the line between legal and illegal is often challenging. It is argued that the definitions of corruption may skew cross-country comparisons, for instance by leaving out lobbying and campaign contributions, which are more common in industrialized countries, while leaving in overt bribes and grease payments, which are more common in developing countries (Collins, Uhlenbruck, & Rodriguez, 2009). Lobbying, of course, is both legal and legitimate, but the distinction between lobbying and corruption may be unclear (Søreide, 2016, p. 16). Other gray areas, or "corruption-like circumstances", can be mutually beneficial agreements between politicians and private players where more or less legitimate decisions are made in return for more or less legitimate favors. Compensations for providing favorable business conditions can be disguised as appointments to board positions, employment of family members, or donations to civil society organizations under the control of the one providing the favor (Søreide, 2016, p. 87).

It is also worth noting that in some cases the line between legal and illegal can be so unclear that one or more of the parties involved do not realize that they may be involved in corruption. One such example is that of Trude Drevland, then mayor of Bergen, Norway. While the case against her was eventually dropped, she was charged with corruption in conjunction with favors received from the cruise line Viking Cruises (Løland, 2016). She was the godmother when the company's newest cruise ship was christened in Bergen in 2015, and a year before the ceremonial launch, she received a private flight and a stay at a luxury hotel in Venice as a gift from the cruise line. She was also to get a free stay with the cruise after the christening. Between the stay in Venice and the launch of the ship, the cruise line's owner asked Drevland to exert her influence for the sake of a modification of the rules of the Norwegian International Ship register to allow the new ship to be registered in Bergen. Drevland contacted the Norwegian Minister of Trade and Industry about the matter. Two months later the rules were changed. When the case was uncovered, Drevland admitted to bad judgement, but maintained that she had no criminal intent. The charges were finally

dropped due to insufficient evidence, but the case illustrates how blurred the line between lobbying and corruption can be.

## 2.3. Firms' Reasons for Paying Bribes

Firms can have many reasons for paying bribes. Ultimately, it is usually a question of profits. One high-profile example is the case of VimpelCom (currently VEON). In their complaint against the company, the U.S. Securities and Exchange Commission (SEC) estimated that revenue from projects in Uzbekistan obtained through corruption were in excess of 2.5 billion USD (SEC v. Vimpelcom Ltd, 2016). VimpelCom won licenses through bribing a high ranking government official. The firm reached a global settlement to end the case in 2016.

Corruption could lead to profits in numerous ways. A typical example is a firm bribing a government official to secure a project or to gain a contract they might not otherwise have won, such as VimpelCom's Uzbek operations or Qualcomm in China (SEC, 2016a). Furthermore, a firm might bribe officials to avoid or ignore health and safety regulations, or other regulations that would be costly for the firm to abide by. Sometimes, bribes are paid simply to speed up bureaucratic processes, even where the outcome of the process is a legitimate decision. An example can be to pay off the person responsible for handling an application for a building permit; a customs official dealing with an import application, such as in the Ralph Lauren case (SEC, 2013a); or a tax official responsible for securing value-added tax refunds (SEC v. Archer-Daniels-Midland Company, 2013). In many cases like this, the briber may argue that the payment was necessary to get the service at all. Such corruption usually involves someone in power withholding something crucial for operations from the firm. It could be anything from refusing to grant a legitimate permit or confiscating equipment to harassing or imprisoning workers. This would often be regarded as extortive corruption.

Other reasons for paying bribes might be to get access to new markets, gain the favor of the rulers, make sales, get favorable prices when purchasing, et cetera. In the end, if there is an advantage to be gained by paying someone off, that is a reason for firms to pay bribes, and for officials and others who give out those advantages to accept them.

## 2.4. Enforcement

### 2.4.1. Foreign Corrupt Practices Act

The political pressure to enact anti-bribery legislation in the U.S. dates back to the Watergate investigation (Brewster & Buell, 2017). In the early 1970s it was uncovered that firms had not only made illicit payments to Richard Nixon's presidential campaign, but also to foreign government officials (Cragg & Woof, 2001). This led the U.S. Department of Justice (DOJ) to instigate an amnesty period in order to make firms disclose sensitive payments to foreign officials. More than 400 firms, including 100 firms in the Fortune 500, subsequently disclosed sensitive payments (Smith, Stettler, & Beedles, 1984).

These events motivated the U.S. Congress to pass the Foreign Corrupt Practices Act in 1977 (Cragg & Woof, 2001). The FCPA prohibits payments to foreign government officials for the purpose of obtaining or retaining business and applies to all U.S. nationals and certain foreign issuers of securities. In 1998, the FCPA was amended so that it also applies to foreign firms and persons who, directly or through agents, cause a corrupt payment to take place within U.S. territory. Historically, U.S. enforcement practice has shown that this interpretation of American territory includes firms which have used the U.S. financial system when committing breaches of the FCPA (DOJ & SEC, 2012). This broadening of the scope of the FCPA has meant that also non-U.S. firms have been investigated and sanctioned by U.S. regulators for bribery of public officials from other countries than the U.S. (Koehler, 2010). In addition to prohibiting payments to foreign government officials, the FCPA also requires companies to keep books and records that fairly and accurately reflect the transactions of the corporation, and to maintain a system of adequate internal controls (DOJ, 2017).

Before the introduction of the FCPA, U.S. authorities relied mainly upon the anti-fraud and money-laundering provisions of the Currency and Foreign Transactions Reporting Act, and the Travel Act (Karpoff, Lee, & Martin, 2017). Enforcing these older acts proved difficult, because they required either proof of intent, racketeering, or failure to report foreign currency transactions, and were rarely used to prosecute bribery cases. The introduction of the FCPA enabled U.S. regulators to enforce civil and criminal penalties for bribery in and of itself. Laws and regulations regarding competition oversight, financial oversight and money laundering still contribute indirectly to the prevention and detection of corruption.

### 2.4.2. U.S. Securities and Exchange Commission

There are two U.S. regulatory agencies responsible for enforcing the Foreign Corrupt Practices Act: the Department of Justice and the Securities and Exchange Commission (Koehler, 2010). The DOJ is responsible for the criminal and civil enforcement of the anti-bribery provisions of the FCPA, as well as willful violations of the accounting provisions (DOJ & SEC, 2012). The SEC has a narrower mandate than the DOJ, and it has the authority to impose civil penalties. More generally, the main responsibility of the SEC is to protect investors, maintain fair, orderly, and efficient markets, and facilitate capital formation (SEC, 2013b). The SEC's jurisdiction is limited to issuers in U.S. securities markets, and employees, directors, or agents of issuers.

The dual responsibility of the two agencies implies that many FCPA-related cases involve investigation and sanctions from both of the two. Our analysis is limited to the firms that have been sanctioned by the SEC for FCPA violations. This is due to the Commission's specific mandate, which only encompasses firms of public interest, ensuring better comparability and availability of data. These firms are required to report their financial statements to the SEC, and to follow certain accounting standards. These financial statements are publicly available. However, as the DOJ and the SEC often collaborate, some of the cases included in the study involve sanctions from both agencies. Most of the firms that have been sanctioned by the DOJ for FCPA violations have also been punished by the SEC, while a significant share of the firms that have been sanctioned by the SEC have not been punished by the DOJ. Case selection is covered in more detail in section 5.1.

### 2.4.3. Enforcement history

Even though the FCPA was introduced as early as 1977, U.S. regulators have enforced FCPA regulations much more vigorously since around year 2000. After enforcing only two FCPA-related cases against firms in the 1990s, the number of such enforcement actions increased to 49 in the first ten years following the turn of the millennium, in addition to a number of actions against individuals (SEC, 2018). The development has continued into the current decade.

Outside of the U.S., an important legal development within the field of corruption has been the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, which was signed in 1997 and entered force in 1999 (OECD, 2018).

In recent years there has also been a development in several countries towards a more comprehensive and consistent regulatory framework regarding corruption. Following the legal developments, there has been an increase in corruption-related enforcement actions in several parts of the world (OECD Working Group on Bribery, 2014).

One particular difficulty in the enforcement of anti-corruption regulations has been the treatment of legal persons (firms). The FCPA applies both to legal and natural persons (DOJ & SEC, 2012). In a number of cases enforced by the SEC, both the corporation and responsible managers or employees have been subject to sanctions. The possibility of the corporation being punished for violations committed by individual employees gives management and owners incentive to install preventive measures and ensure that subordinates and agents operate within the limits of the law. As corporations can also be sanctioned for neglect or for failing to prevent bribery, there are incentives for leadership not to turn a blind eye to suspected wrongdoing (Arlen, 2012).

In most cases where companies are sanctioned for violations of the FCPA, they are not convicted in court (Koehler, 2013). More commonly, firms are subject to negotiated settlements; typically non-prosecution agreements (NPAs) or deferred prosecution agreements (DPAs). Under a non-prosecution agreement, criminal charges are not filed against a company, whereas under a deferred prosecution agreement, charges are filed but not actually prosecuted. The distinction is usually not of much importance to the firms, as the authorities typically retain the right to file charges in the event of a breach of the agreement in either case (Aguilar, 2009; Alexander & Cohen, 2015). As opposed to being convicted by a judge in court, firms negotiate settlements with prosecutors. In the U.S., the prosecutors are the SEC or the DOJ. Non-prosecution and deferred prosecution agreements were introduced to FCPA enforcement in 2004, and in recent years the large majority of FCPA enforcement actions have come in the form of non-trial resolutions (Koehler, 2013). These negotiated settlements involve that firms are given incentives to self-report and collaborate with prosecutors in exchange for leniency. Thus, firms which cooperate and provide information for investigators are rewarded with a lower sanction. As highlighted in the OECD's Foreign Bribery Report (2014), a significant share of foreign bribery cases have indeed been brought to light through firms self-reporting. A concern with self-reporting and negotiated settlements is that firms and regulators have asymmetric information, with the firms having access to more information about the facts of the case than the authorities. Even

when firms self-report and seemingly cooperate, the true scope of the case might not be revealed.

When sanctioning firms for foreign bribery offences, prosecutors have an array of different possible sanctions at their disposal. This includes fines and disgorgement of illicit profits, as well as penalties and possibly even prison sentences for involved individuals (DOJ & SEC, 2012). In order to prevent future violations, companies can also be ordered to retain an independent corporate monitor for a number of years, or to introduce an effective compliance program, in cases where the firm has failed to do so previously.

The FCPA is enforced both through civil and criminal law. As mentioned, the DOJ are responsible for both criminal and civil enforcement of the FCPA, while the SEC only has the opportunity to bring civil charges for violations of anti-bribery and accounting provisions (DOJ & SEC, 2012). Criminal law regulation, in which imprisonment is a possible sanction, is reserved for the most serious forms of undesired acts, and compared to non-criminal law, it conveys a clearer message about what is intolerable (Søreide & Rose-Ackerman, 2018). Hence, the standard of proof is higher under criminal than under civil law.

In the U.S., one specialized government unit has the responsibility to investigate, prosecute and possibly also settle cases of crime committed by firms to secure profits, typically the SEC in close cooperation with the DOJ (Auriol, Hjelmeng, & Søreide, 2016). This is not the case in many other countries, where investigation, prosecution and sentencing authority in corruption cases often is divided between different government branches. As many countries have introduced anti-corruption legislation inspired by the U.S., this means that there often is a mismatch between the legal framework and the institutional background. This leads to deviations between *de jure* and *de facto* enforcement (IBA Anti-Corruption Committee: Structured Criminal Settlements Sub-Committee, 2018). In a number of countries firms are given incentives to self-report in exchange for leniency, inspired by the U.S. settlement system. The use of leniency mechanisms entails that similar sets of facts could lead to significantly different outcomes for the firms, depending on whether they self-report, and their cooperation with authorities. Outside of the U.S., however, the use of leniency mechanisms is unpredictable, and the frameworks regulating settlements vary significantly across countries (Hjelmeng & Søreide, 2017). Both the differing treatment of corruption cases and differences in the cases themselves make cross-country studies of the effects of sanctions difficult, and is among the reasons why we choose to focus on the U.S.

# 3. Literature

## 3.1. Corruption and Economic Theory

Economic theory makes it easier to understand a firm's propensity to engage in corruption. This section discusses corruption in the light of economic theory in part 3.1.1, before considering the more complex aspects of the phenomenon in part 3.1.2.

### 3.1.1. Economic theory on corporate crime

In neoclassical economic theory, it is assumed that firms make choices for profit maximization. Firms want to maximize profits as a function of total revenue less total costs. We would therefore predict a profit-maximizing firm to pay bribes if the expected net gain of corruption is positive (Becker, 1968).

Two common assumptions behind the profit function are that firms are rational and risk neutral. Rationality is a standard assumption in economic theory, and the assumption of risk neutrality is a sensible simplification in this case, as the effect of risk aversion with regards to financial crime is not straightforward. While it is easy to imagine that the fear of punishment would lead a risk-averse firm to avoid corruption, it is also possible that the fear of losing out on a profitable project by not paying bribes would be of greater importance (Søreide, 2009).

Based on this, the expected gains from bribery have to exceed the expected costs for corruption to take place. The expected costs of corruption are a function of the chance of detection and the consequences that detection would lead to. We can divide the consequences when caught into two different categories: direct sanctions and indirect sanctions. Direct sanctions are those imposed on the firm by the regulatory authorities, while indirect sanctions are those that occur as a result of authorities' indictment, but are not imposed by them.

The direct sanctions include monetary penalties, imprisonment of involved employees and managers, forced compliance programs, and independent monitoring. Monetary penalties include fines and disgorgements paid to the authorities. Prison sentences for management and staff involved in the crime are not necessarily significant costs for the firm as such, although the incarceration of personnel can have costs related to replacing them, and

potentially hiring less competent replacements. Still, the risk of a prison sentence can provide a significant deterrent effect for those involved in bribery, as the personal cost is huge. The forced introduction of a compliance program is also an injunction frequently used by the authorities (Garrett, 2018). A compliance program involves costs associated with maintaining a functioning system, hiring compliance officers, et cetera. Additionally, a functioning compliance program may inhibit future opportunities for profitable crime. Another way to prevent future offences and to ensure that the compliance program is working as intended is the compulsory retention of an independent corporate monitor. This is a less common sanction, which we have identified the use of in about a quarter of the FCPA enforcement actions from the SEC during the sample period.

Indirect sanctions include the costs of investigation, debarment, investment arbitration, and reputational penalties. Investigation costs include legal fees, costs of conducting internal investigations, costs of any halt of operations due to the investigation, and so on. Debarment in this context entails being excluded from bidding on government contracts. For instance, the World Bank debars firms they deem to have participated in "fraudulent, corrupt, collusive, coercive or obstructive practices" (World Bank, 2012, p. 4). For firms with significant income from government contracts, debarment may be the most devastating consequence of getting caught in corruption. Investment arbitration may also follow a corruption sanction, although it rather uncommon (Llamzon, 2014). Arbitration may occur when there is a dispute between a firm entering a country and the host government about the terms the firm and the government has reached for the investment. It involves arbitrators representing each party together with a neutral institution considering the matter and reaching a conclusion outside the formal legal system (Søreide, 2016, p. 229). Say, for instance, that a company is sanctioned by the SEC for bribing government officials in a foreign country in order to obtain a contract. The foreign authorities might then want to cancel or renegotiate the contract, arguing that the contract was not negotiated fairly to begin with. Likewise, firms run the risk of being sued by subcontractors or other partners if projects are cancelled due to the detection of corruption in the bidding process (Portnoy & Murino, 2009).

The last, and perhaps most uncertain, cost of getting caught in corruption, is the reputational penalty[1]. A reputational penalty would come as a result of the stigma of being associated

[1] We discuss literature on this subject in section 3.4.

with a firm operating unethically, and could have several consequences. There might be a loss of customers who do not want to buy from a corrupt firm, and suppliers might be lost or demand stricter credit terms. Contracts may have to be renegotiated because associates consider it a reputational burden to be connected to the firm. Lenders may likewise consider the firm as riskier than before and thus raise borrowing rates, increasing their cost of capital. Moreover, the firm risks losing employees who do not want to tarnish their personal reputation, or it could find it harder to attract new staff members. General employee morale could fall, leading to lowered productivity. There could also be costs associated with a worsened relationship to regulatory authorities, as a firm with a history of irregularities could for instance find it harder to obtain necessary licenses or permits.

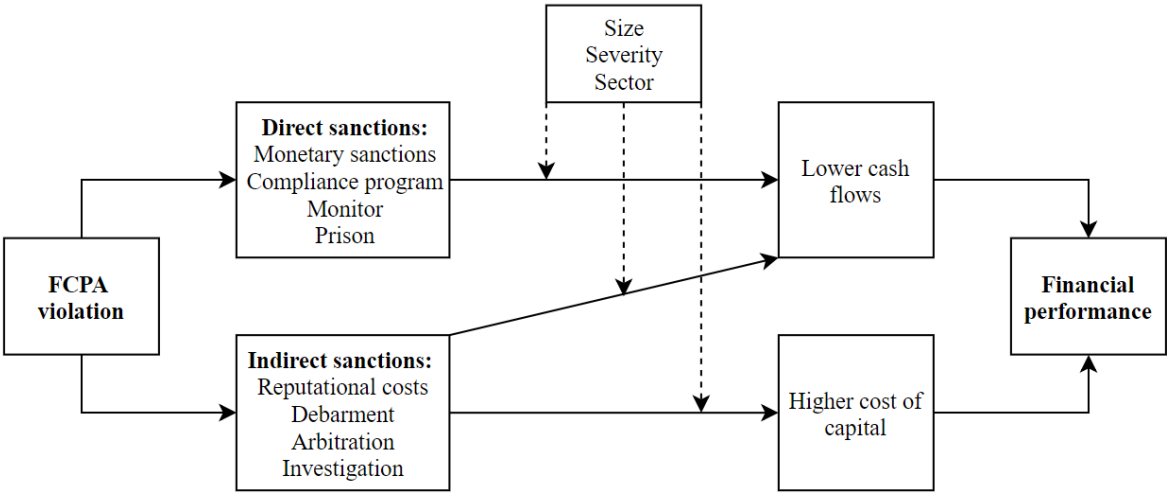


*Figure 1: How an FCPA violation may affect performance. Based on Zeidan (2013).*

Figure 1 summarizes how an FCPA-related enforcement action may affect a firm's financial performance. The impact of sanctions may be influenced by various factors, such as the size of the company, the severity of the violation, and the sector the firm operates in. The costs of direct sanctions could reduce the company's profits through lowered cash flows. Indirect sanctions, on the other hand, could lead to lowered cash flows through for instance reduced sales, while a higher perceived risk among banks and investors could lead to a higher cost of capital.

### 3.1.2. Nuancing the economic analysis

We would expect corporations to make choices that increase their profits, and to perform calculations of net present value before making a decision. Still, there are limitations to what any economic analysis can say about a complex reality, and determining the expected gains and losses of corruption is difficult in practice. Certain intricacies make it more challenging

to ascertain the consequences of corruption on financial performance and to establish the correct form and magnitude of sanctions.

One important aspect is that when deciding to pay bribes to obtain a profit, the counterfactual would not necessarily be no profits at all. Typically, a large corporation has many projects to choose from, and due to limited capacity has to select only a few of the options available. The alternative to pursuing a project where the risk of corruption is looming often is to invest somewhere else, not to leave the capital idle. Then again, when faced with a demand for bribes, the alternative to paying bribes may be anything from a slight delay in the transport of crucial equipment to abandoning the project altogether. Thus, the alternative revenues are relevant when determining the sum that is actually gained through corruption.

Also, for many, a consideration of expected gains relative to expected costs does not steer their choices. Individuals will often opt to remain honest without even considering the tradeoff between expected monetary gains and losses. The expected penalties would only be relevant for those that are "on the margin" (Søreide & Rose-Ackerman, 2018). That is, those that are indifferent between remaining honest or committing the corrupt act. Laws also play a role in determining the norms and values in society, and their effect depends partly on the ability to add to potential offenders' "moral burden" of committing a crime. As per Søreide (2016, p. 172): "If their moral burden is sufficiently heavy, no benefit can tempt them to commit crime". This is supported by Paternoster and Simpson (1996), who test a rational choice model of corporate crime. In their study, they present executives and MBA students with a number of scenarios with various pressures and incentives to commit corporate crime. More than one fourth of respondents report that there is no chance that they would perform criminal acts in any of the scenarios presented. These indirect effects of laws, penalties, norms, and morals make an economic consideration of gains and losses increasingly difficult. The decision of whether to engage in corruption can still be considered a cost-benefit analysis, but in the case of crime, moral costs will be an important and complicating part of the calculation.

Moreover, it is argued that actual behavior frequently deviates from what would be considered a rational choice (Tversky & Kahneman, 1986). An individual is not fully rational all the time, and when making decisions under conditions of uncertainty one might end up drawing a conclusion based on incorrect assumptions. Nevertheless, firms are likely

more rational than an independent individual. A project in a large organization is subject to multiple rounds of evaluations before a decision is made. Even when it comes to crime, it is thus reasonable to presume that economic incentives matter. As put by Søreide & Rose-Ackerman (2018): "Of course, not all potential criminals react to economic incentives, but it seems plausible that most of those engaging in 'grand' corruption are making profit and loss calculations."

## 3.2. Designing Sanctions for Corruption

Corruption is in itself different from most other types of crime, as corruption is an illegitimate deal between several parties. A bribe involves two or more participants who negotiate a price for a decision, with all sides being part of the corrupt deal. In order to understand corruption, it is necessary to recognize its collusive nature, which has significant implications when designing an enforcement system.

### 3.2.1. The collusive nature of corruption

The outcome of a corrupt agreement depends on the expected penalty functions faced by the participants (Rose-Ackerman, 2010). The expected penalty functions depend both on the probability of detection and the expected penalty imposed if discovered. Thus, the design of the enforcement system affects the division of gains from the corrupt deal. If the penalties faced or the probability of detection differs between the sides, it has consequences for the size of the bribes the parties are willing to pay or accept. A result of this is that a firm's expected gain from participating in a corrupt deal varies depending on the enforcement system and the bargaining position of the company. Thus, the financial outcomes of corrupt agreements may vary significantly for otherwise similar deals.

Collusive corruption is in most cases mutually beneficial, and the deal itself is the crime (Søreide, 2016, p. 144). As both sides of the table are part of the corruption, none of those who know about the illegality has necessarily suffered a loss due to the crime. If the corrupt deal leads to a different outcome than had otherwise been the case, the corruption is costly, and society as a whole would be the victim (Søreide, 2016, pp. 41-44). The injured party will often be unaware of the crime, and may not recognize their harm and pursue the case. As a result, corruption becomes especially difficult to detect.

### 3.2.2. Determining the size of the sanction

The traditional literature on the economics of crime argues that the expected penalty should equal the expected harm to society divided by the probability of detection, so that potential offenders are induced to take the consequences of their act into account (Becker, 1968). This corresponds to the widespread economic reasoning that for economically optimal decisions to be made, market players should internalize all externalities. One obvious problem with this approach is the difficulty of determining the harm to society (Søreide & Rose-Ackerman, 2018). Quantifying the exact consequences of corruption is difficult, especially as there are both direct and indirect effects to consider, and they may take a long time to materialize.

A second concern is related to the fact that corruption is a case of a deal between several parties. A sanction based on the level of harm may not have the intended effect on the potential perpetrator's incentives, as noted by Søreide and Rose-Ackerman (2018). This concern is particularly relevant in the case of corruption because the parties have the opportunity to increase the bribe as the sanction rises, while the decision in question continues to be traded. A higher sanction or a higher probability of detection may simply lead to an official receiving a higher bribe in order to be compensated for the increase in risk, as long as the benefit received by the bribe payer still outweighs their expected costs. Higher sanctions will deter crime, but those who continue may gain larger benefits. Thus, if the benefit to be gained is sufficiently high, a sanction based on the level of harm may not provide incentives not to trade the decision. Instead, it is argued, the penalty should reflect the perpetrators' gains from the crime. In order to be deterred from entering a corrupt deal, at least one of the parties should face expected penalties that exceed his or her expected gains. Thus, the penalty should be tied to both the expected gain from the crime and the probability of detection (Rose-Ackerman, 2010).

However, simply setting the penalty as a function of the gain from the crime divided by the chance of being caught may be too simplistic. It seems sensible from a purely economic perspective, but Søreide and Rose-Ackerman (2018) point at three specific problems with the approach. The first is that without rewards for self-reporting, the chance of detection is so low that in order to set the expected penalty high enough, the actual penalty has to be disproportionately large relative to the severity and gain of the crime committed. Next, there is always a chance that police and courts make mistakes. If a mistake is made, wrongly

imposing a massive penalty on someone innocent is worse than imposing a lesser sanction. Finally, imprisoning people who could otherwise be productive members of society is inefficient. Likewise, in the case of companies, it is inefficient to hamper the operations of firms that create value and jobs through excessive penalties. Penalties that seem overly harsh may also affect public perception negatively. As noted in the aforementioned article:

> The harsh penalties that seem needed to deter ex ante, may delegitimize the state when they are imposed, making it seem brutal and repressive. Corruption may then seem a justifiable response to the illegitimacy of the state. Very severe penalties may also demotivate both potential whistle-blowers from reacting against a colleague and juries from delivering a guilty verdict. They may easily feel empathy despite the person's involvement in corruption. (Søreide & Rose-Ackerman, 2018, p. 208).

These concerns emphasize the importance of authorities having a wider range of enforcement instruments at their disposal, and not be limited to just fines and prison sentences.

### 3.2.3. Features of an effective anti-corruption sanctioning regime

In a 2012 article, Jennifer Arlen describes the design of an enforcement system meant to efficiently deter corporate crime. The way to go, according to Arlen, is to introduce a duty-based sanctioning regime, where a corporation is treated more leniently, and may potentially escape most sanctions, upon compliance. In order to do so, companies need prevention schemes, compliance officers monitoring operations, and they need to self-report if they detect misconduct.

A potential problem with such a system is so-called "window dressing". This entails that a company might have introduced what looks like an effective compliance system on paper, while it is not used in reality. Thus, sanctions should not be completely escaped even with a compliance system in place (Arlen, 2012). This concept is referred to as "strict residual liability". The minimum sanction when found guilty of a corrupt act should be high enough that the company actually wishes to avoid it, and make sure that the compliance system works, meaning the fine must exceed the cost of the compliance system. This enforcement system also recognizes that firms do not completely control their agents. Individuals may commit crimes without the knowledge of their employer. A duty-based system with strict residual liability encourages firms to self-report instead of covering up the crime, to monitor

their agents to avoid corruption in the first place, and to sanction wrongdoers within their own ranks (Arlen & Kraakman, 1997).

### 3.2.4. Individual versus corporate sanctions

Another concern when designing sanctions is the choice between sanctioning individuals and sanctioning corporations. Both choices have their advantages and disadvantages, and what to choose and when is not always straightforward. Sanctioning individuals ensures that markets and innocent employees are protected, as sanctioning an entire firm may affect its competitiveness and salaries. Moreover, if there were no liability for individuals the decision-makers would have little to fear if the only sanctions were fines to the company. The firm would likely have sanctioned the wrongdoer instead, but getting fired is less of a deterrent than prison (Arlen, 2012). On the other hand, having only individual liability may cause firms to find scapegoats in order to avoid sanctioning of managers or owners. This is less of a concern when employing corporate sanctions, as it encourages firms to police their employees. In practice, individual and corporate liability often go hand in hand, as evidenced in cases such as the enforcement actions against Och-Ziff, Analogic, Nordion, Siemens, and more (SEC, 2018).

### 3.2.5. The relevance of the financial perspective

The discussion above highlights the complexities and difficulties of developing effective sanctioning principles for deterring corruption. The optimal enforcement system depends on a number of factors, including the institutional structure, but this nevertheless does not render the financial perspective irrelevant. Increasing profits is still the main motivation for engaging in corruption (Becker, 1968; Rose-Ackerman, 1975; Søreide, 2006; Lambsdorff, 2009). If getting caught in corruption has long-term effects on performance, firms have stronger incentives to install proper compliance programs and perform self-policing. Moreover, Paternoster and Simpson's (1996) findings suggest that individuals take the financial prospects of the firm into account when evaluating whether to commit crimes on behalf of the company. This means that knowledge of how corruption affects the company can have an effect on its agents' decision-making. If there are major consequences for firms involved in corruption, it might help deter wrongdoers and encourage self-policing. On the other hand, if the consequences are minor, regulatory authorities must take this into account when working to minimize corrupt behavior.

## 3.3. Why Sanctions May Not Impact Performance

Even if a company is sanctioned for violations of the FCPA, the sanction may not necessarily have a major impact on the company and its financial performance. There are various features of the way the FCPA is enforced and sanctions are determined which could lessen the consequences of the penalties.

### 3.3.1. Opportunities for continued corruption

One major concern is whether the enforcement action leads to actual changes in the operating methods on ground level where the corruption has occurred. That is, whether the sanction prevents future corruption. The underlying incentives that led to bribery are not altered by the sanction, and there is always a chance that the corruption may continue. One reason why the sanction may not necessarily prevent future FCPA violations is that the enforcement action is one-sided. Typically, the enforcement action from U.S. regulators only affects one side of the corrupt agreement – the company that has bribed a government official (Spahn, 2013). The foreign government or government-controlled entity on the other side of the table is usually not affected directly by the FCPA case. Hence, firms wanting to enter a country or a specific market may still face demand for bribes in exchange for necessary licenses, permits or other prerequisites for market access. Even if there is not an extortive demand for bribes, there may still be a continued opportunity for using bribes as a mean to obtaining an advantage relative to competitors.

### 3.3.2. Asymmetric information about the facts of the case

Another challenge surrounding sanctioning for foreign bribery violations is that enforcement hinges on corporations self-reporting. Because bribery is usually treated as a criminal offence, the standards for evidence are high. However, the global financial infrastructure of complicated corporate structures, tax havens and widespread secrecy means that information on illicit transactions is hard to come by. In most cases, investigators are dependent on collaboration and information from the suspected firms in order to be able to prosecute the cases (Søreide, 2018). Naturally, firms have many incentives not to tell investigators the whole story. Firms may desire to come across as more compliant than they truly are, and thus may not provide accurate and exhaustive information even if they self-report.

One can imagine that in the bargain between company and prosecutors, firms may be able to provide information regarding the offence in exchange for the prosecutors not looking into something else. Companies have a great deal of leverage in the negotiations with prosecutors. For example, U.S. corporations can decide to waive attorney-client privilege for employees (Garrett, 2018). It is important for prosecutors to get access to this information or correspondence to build a case. If a firm is able to use the information as leverage in a negotiation, this would strengthen its bargaining position. In countries with stronger employee protection, it may be harder for companies to encourage or pressure employees to cooperate with law enforcement. If a company is forced to retain an independent monitor or report their compliance efforts as part of the sanction, there is always a chance that firms may give misleading information in reports or to the monitor. There is an inherent risk that some elements of corporate misconduct may not be discovered, or sanctioned according to the applicable laws and regulations. Thus, asymmetric information could cause sanctions to be lower than they would have been had the full scale of the violations been known. Correspondingly, any adverse effects on performance might be less severe.

### 3.3.3. Difficulties in determining ill-gotten gains

It is difficult to identify the exact gains obtained from foreign bribery. If a company obtains a market benefit partly through bribery and partly through legal measures, it is typically challenging to determine how much of the gains from a business transaction that stem from corruption, and how much from legal methods (Søreide, 2018). In addition, there are strict demands for evidence in criminal cases, and it is naturally difficult to prove criminal intent. Even though the laws in principle give regulators the opportunity to both impose large fines and reclaim illicit gains through asset recovery, the risk of losing all the benefits that were gathered through the corrupt act is believed to be low (Søreide, 2018).

### 3.3.4. Uncertain impact of settlements on reputation

Most FCPA-related cases are resolved through various forms of non-prosecution or deferred prosecution agreements, and not through convictions in court (Garrett, 2018). Court cases are typically lengthy, open to the public, and subject to significant media attention. With the court process comes the risk of a drawn-out period of negative publicity. In contrast, non-prosecution and deferred prosecution agreements are the result of closed negotiations between prosecutors and companies. The full content of the agreements are not always public, and external stakeholders do not necessarily get exhaustive information about the

negotiations. Firms are sometimes able to negotiate so that the public releases do not provide a full description of the facts of the case (Garrett, 2018).

Outside of the U.S., Norway is one of the countries that have introduced out-of-court settlements in cases of corporate liability (IBA Anti-Corruption Committee: Structured Criminal Settlements Sub-Committee, 2018). The Norwegian prosecutorial unit for economic and environmental cases, Økokrim, explained to the OECD in 2011 that: "[...] representatives of companies sometimes also prefer a swifter conclusion to a case, to minimise the reputational risks to their corporation which prolonged media exposure may cause" (OECD Working Group on Bribery, 2011, p. 22). This raises the question of whether a sanction imposed through a negotiated settlement has a significant impact on the sanctioned company and its financial performance. The use of settlements may limit the public attention to the case and provide less information to stakeholders. This could lead to the reputational penalty firms endure due to FCPA violations being smaller than it otherwise would have been.

Another reason why negotiated settlements may have a lesser impact on reputation than a court case is that cooperation could be rewarded by stakeholders. If a firm self-reports its crimes, is seen to be cooperating with authorities, and exhibits a genuine interest in improving compliance, the reputational effects of the case may be less severe. A lower reputational penalty would mean that the effects of the sanction on financial performance are reduced.

### 3.3.5. Doubts surrounding legitimacy

U.S. prosecutors have been criticized for lack of criteria for when to use non-trial solutions. Moreover, the widespread use of leniency mechanisms in corruption cases has been criticized for giving prosecutors too much authority while limiting the opportunities for external oversight. Academics, including Arlen (2016), have argued that this broad grant of discretion to individual prosecutor's offices is inconsistent with the rule of law. Another potential legitimacy concern is that in the U.S., firms may get sanctioned in civil settlements while neither confirming nor denying the allegations that are made. In criminal settlements, it is routine that defendants admit guilt (Garrett, 2018). If a company were to be sanctioned while still pleading its innocence to the public, without the sanctioning process being subject to sufficient judicial oversight, this might weaken the legitimacy and influence of the sanctions and the law enforcement efforts. Whether a company admits guilt or not may also

have practical implications. If a company settles without admitting guilt, it may avoid private legal action from other stakeholders, which it could have been subject to had it admitted to committing illegal acts (Khuzami, 2012).

The lack of judicial oversight may also mean that the public interest is neglected on a more general level, and that prosecutors have too much authority. The large degree of discretion gives rise to the risk that in order to reach a settlement and resolve a case prosecutors may not sufficiently punish the corrupt act in accordance with laws and regulations. Paradoxically, a lack of transparency may give the impression that prosecutors are unrestricted with regard to enforcing the regulations too rigidly, or to exceed their jurisdiction. Under regimes where judges can review the cases and determine whether charges are appropriately brought against a defendant, this significantly limits prosecutorial discretion (Garrett, 2018). In the U.S., DPAs are subject to judicial review, whereas NPAs are not (IBA Anti-Corruption Committee: Structured Criminal Settlements Sub-Committee, 2018).

A lack of transparency surrounding the facts of the case, a lack of admission of guilt, and a more general lack of trust in the fairness of the system could lead to a lower perceived legitimacy of the enforcement system among the broader public. A resolution through a settlement could thus make the violation come across as less severe than if the case had been resolved in a trial in court. As a consequence, business relations and other stakeholders may view sanctions related to foreign bribery as less serious and more forgivable than what would have been the case, had the sanction stemmed from a more open and traditional legal process. Thus, weaknesses or flaws in the current legal enforcement system could mean that the sanctions matter less for financial performance than they otherwise would have done.

### 3.3.6. Inadequate assessment and supervision

A negotiated settlement typically features several non-financial sanctions, in addition to the fine and other monetary elements. However, a lack of external or judicial review may make it harder to determine whether companies are complying with these non-financial terms of the agreement. As per Garrett (2018, p. 17): “In the past, many agreements had stated that a company should adopt best practices or a compliance program, but without specifying how it should do so or how compliance efforts should be assessed”. There may not be a universal understanding surrounding what constitutes a best practice compliance system, or how to assess the effectiveness of such a system. An absence of detected violations may indicate

that the compliance system is functioning perfectly, but it could also imply that there is no system in place to detect wrongdoing. This concern may in part be alleviated by the forced retention of an independent monitor, as is done in some cases, but this too is imperfect.

### 3.3.7. Lack of consequences for individuals

When prosecutors settle with corporations, they may be unable to prosecute or deter executives or other individual culprits. A review of U.S. deferred prosecution agreements from 2001 through 2012 showed that individuals were prosecuted in only 34 per cent of the cases (Garrett, 2018). Few of those who were prosecuted were executives or high up in the hierarchy. If the probability of sanctions or other negative consequences for involved managers, owners or agents is low, the deterrent effect of sanctions towards individuals is lower. It seems likely that managers and agents would have less incentive to avoid violations if sanctions did not affect them personally. Even if there is a possibility of individual managers being sanctioned for involvement in foreign bribery, the deterrent effect would be much smaller for owners, the management group as a whole and the board. In case of an enforcement action against the company, there is a chance that a few executives could be sacrificed as scapegoats, with few or no consequences for other involved persons. Hence, firm strategies could remain the same, and corruption might continue (Søreide, 2018).

## 3.4. Empirical Studies

In the following section we present a number of empirical studies on topics relevant to our thesis. In combination with the research already covered, the purpose of this literature review is to provide a summary of related studies and to serve as a basis for our hypotheses.

### 3.4.1. How reputation and ethics impact financial performance

Reputation in a corporate context can be considered as "[…] a global perception of the extent to which an organisation is held in high esteem or regard" (Weiss, Anderson, & MacInnis, 1999, p. 75). Thus, the reputation of a company can be viewed as a general characteristic that reflects the degree of whether external stakeholders view the company as "good" and not "bad" (Roberts & Dowling, 2002). More specifically, following Fombrun (1996, p. 72), reputation can be defined as "a perceptual representation of a company's past actions and future prospects that describe the firm's overall appeal to all its key constituents when compared to other leading rivals". A number of factors are likely to affect a company's

reputation, including past financial results, various corporate social responsibility (CSR) initiatives and the absence of problematic cases such as illegality.

There are several reasons why a strengthened reputation may improve a company's financial performance. Customers value associations and transactions with firms of high reputation (Roberts & Dowling, 2002). Also, as a high reputation provides an indication of superior underlying quality of a company's products and services, customers are willing to pay a premium for the offerings of high reputational firms, especially in markets where the uncertainty is significant (Shapiro, 1983). Employees also prefer to work for high-reputation firms, everything else held equal (Roberts & Dowling, 2002). This preference could lead employees of high-reputation firms to work harder, or to perform the same work for less remuneration. Having a strong reputation should therefore lead to a cost advantage. Moreover, a strong reputation would lead to a firm being perceived as less risky by potential trade partners, and suppliers would be less concerned about potential contractual hazards. Thus, a high reputation could lead to lower contracting and monitoring costs. Dowling (2001) also finds that a good reputation supports and enhances the effectiveness of a company's sales force, boosts new product introductions, and strengthens recovery strategies in the event of a crisis.

Roberts and Dowling (2002) find empirical support for the notion that the financial effects of reputation are persistent over time. They find that firms with relatively good reputations are better able to sustain superior profit outcomes over time, and that firms with relatively good reputations are more likely to return to profitability and exit from a situation of below-average financial performance. The impact of the financial reputation, that is the share of reputation that stems from previous financial performances, is found to be the most pronounced. Still, the residual nonfinancial component of reputation also significantly improves the persistence of superior profits. Reputation differences also seem to be relatively stable over time (Roberts & Dowling, 2002).

The difficulty of accurately measuring the effect of reputation on performance, however, is that the effect may operate in both directions; a company's financial performance affects its reputation, and its reputation affects its performance (McGuire, Schneeweis, & Branch, 1990). This problem is evident in a number of studies, such as the meta-analysis performed by Harter, Schmidt and Hayes (2002). The study is based on surveys asking employees various questions about their work environment, which aggregated is considered a good

instrument for overall satisfaction. Employee satisfaction is impacted by a firm's reputation (Roberts & Dowling, 2002), and is positively correlated with profitability and productivity, in addition to lower employee turnover and higher customer satisfaction (Harter, Schmidt, & Hayes, 2002). While the positive correlation between employee satisfaction and financial performance is consistent, the authors are unable to make any claims as to the direction of the causality (Harter, Schmidt, & Hayes, 2002).

A meta-analysis by Orlitzky, Schmidt, and Rynes (2003) finds that the effect of corporate social performance (CSP) likely can be interpreted as a "virtuous cycle", with prior CSP correlating positively with subsequent financial performance, and prior financial performance being positively correlated with subsequent CSP. This implies that corporate social responsibility positively impacts financial performance, but that already well performing companies are more likely to put effort into corporate social responsibility. The analysis includes both internal and external views on the firms' levels of CSP. It shows that both measures are positively correlated with financial performance, but external measures such as reputation indices more so. Also, corporate social responsibility indicators seem to be more highly correlated with accounting-based measures of financial performance than market-based indicators. These findings suggest that reputation is important for performance, but also that high CSP may lead to higher employee morale and affect financial performance that way.

In sum, studies seem to indicate that reputation has a positive impact on financial performance, both through increased revenue and through cost advantages. If a foreign bribery case involves a significant reputational penalty, this may lead to a notable financial disadvantage for the company in question.

### 3.4.2. How firms are affected by sanctions for financial crimes

As discussed in section 3.1.1, the involvement in foreign bribery or other types of crime poses the risk of various types of consequences for the implicated firms. Firms may face direct costs of sanctions, legal costs, have less funds available for strategic investments, experience worsened reputation with stakeholders, or reduced sales volumes. Increased perceived risk may result in higher capital costs. However, the timing and impact could differ between firms, and consequences may be drawn out. The effects of illegality on profits may be alleviated short-term, and management may attempt to smooth earnings. In addition, reputational effects may be persistent over time. As stated by Marcus and Goodman (1991,

p. 300): “it may take many years before the true impact of managerial actions can be understood.”

Baucus and Baucus (1997) find that corporate convictions for a variety of different crimes have a negative and significant long-term effect on return on assets and return on sales, but that the convictions do not have a significant long-term impact on stock returns. Repeat offenders seem to suffer more severe consequences than one-time culprits. The insignificant stock market reaction leads Baucus and Baucus to question whether investors sufficiently grasp the full implications of a conviction. This may suggest that the market underestimates the financial consequences of firms getting convicted for corporate illegality. It seems that the initial short term market reaction to corporate convictions, found by for instance Davidson, Worrell, and Lee (1994), may not necessarily lead to a weaker stock development in the long run. More serious violations are more likely to result in heavier fines and other sanctions, loss of reputation and negative publicity. Baucus and Baucus, however, do not find evidence supporting that firms guilty of more serious crimes perform worse than others, suggesting that stakeholders do not distinguish among different levels of seriousness.

The consequences of illegality may also be different depending on the type of crime, and the form of sanction. Baucus and Baucus limit their study to firms that have been convicted in court. This contrasts from most FCPA-related cases, which are usually closed through negotiated settlements. Baucus and Baucus’ study also involves a variety of different violations, and results may not be representative for the consequences of FCPA violations. The fact that all firms in the study have been convicted in court may also entail that all of the firms have engaged in activities that stakeholders view as serious, relative to other more dubious or questionable acts. This could be the reason why the authors fail to find a significant link between seriousness and longer-term performance.

In a study of the effects of corporate fraud cases, the results of Karpoff and Lott (1993) indicate that on average earnings growth is more positive prior to an announcement of involvement in a fraud case compared to after, although these results have weak statistical significance. In the case of corporate fraud, the reputational penalty seems to constitute most of the cost incurred by firms that have been accused or convicted. Karpoff and Lott find that fines and legal fees only make up 1.4 percent of the total cost firms endure when considering the loss of market value at the time of the announcement of a fraud case. The authors attribute this to reputational effects. Hence, there is an argument that firms suffer a

significant loss in reputation when subject to sanctions for fraud. Other studies also find a negative and significant stock price reaction to news of corporate illegalities in the days directly surrounding the announcements (Davidson & Worrell, 1988; Davidson, Worrell, & Lee, 1994; Zeidan, 2013).

### 3.4.3. How the involvement in bribery affects a company

The so-called "efficient grease" hypothesis suggests that it might be economically efficient for society to allow bribes (Lui, 1985; Kaufmann & Wei, 2000). The basis for this hypothesis is that bribes might allow firms to cut through red tape, reducing wasted time. This would suggest that the opportunity for bribe-paying could be beneficial for the individual firms, as well as society as a whole. One study supporting this view is Wang and You (2012), who study the effect of corruption on firm growth in China. They observe that firm growth in the country is positively impacted by corruption. According to the study, corruption can act as a substitute for general financial development for the growth of firms. However, they emphasize that their findings are context-specific, and cannot be generalized outside the specific economic conditions of contemporary East-Asia. They also argue that as Chinese institutions improve, the benefits of corruption will be eradicated. On the other hand, Kaufmann and Wei (2000) do not find any support for the efficient grease hypothesis. They use data from three worldwide firm-level surveys, and instead identify a positive correlation between the level of bribery and time wasted through bureaucracy. Moreover, bribe-paying firms are likely to have a higher cost of capital. Their evidence also strongly rejects the hypothesis of Asian exceptionalism, which states that the "grease" argument has more validity and impact in East Asian countries than elsewhere.

Fisman and Svensson (2007) reach similar conclusions to Kaufmann and Wei in a study examining how the growth of Ugandan companies is affected by the level of taxation and corruption using self-reported data on how much the firms spend on bribes. Their results indicate that corruption has a three times more negative impact than taxation on growth, and that an increase in the bribery rate of one percentage point leads to a decrease in growth of three percentage points. A similar study by Kimuyu (2007) performed in Kenya yields results akin to those of Fisman and Svensson, and also indicates that corruption hinders the expansion to external markets. Like those of Kaufmann and Wei, these findings are valuable in the context of corruption as a macro level problem. The firms studied operate in a market with entrenched corruption, and often face a choice between bribery and doing no business

as all. As such, one can imagine that those firms that can somehow avoid extortion are more likely to do well. This is supported by Svensson (2003) in study attempting to identify the characteristics of firms that have to pay bribes. He finds that firms receiving public services, firms engaging in trade, and firms paying a larger number of different taxes face a higher probability of being subject to extortive bribery. Public officials use their discretionary power to price discriminate depending on the power balance in the bribe negotiation. Lower bribes are paid by firms with refusal power, that is, those with higher alternative return on capital. Svensson also finds that more profitable firms must pay more in bribes, presumably because they have the ability to so.

While being subject to business conditions where corruption is prevalent seems to be harmful for firm growth, it is nevertheless not necessarily irrational for individual firms to pay bribes (Kaufmann & Wei, 2000). This can be interpreted as a type of "prisoner's dilemma". The best outcome as a whole is that no one pays bribes, but it could be better for the individual firm to do so (Lambsdorff, 1999). When one firm pays bribes to gain an advantage, other firms join in, and everyone is worse off than when no one participated in corruption. It is also difficult to separate the adverse effects of involvement in bribery from the effects caused by unfavorable business conditions, even when controlling for geographic factors.

### 3.4.4. How an FCPA violation affects a company

As described earlier, the detection of foreign bribery could potentially involve significant consequences for an implicated company. In addition to the direct consequences in terms of monetary penalties, imprisonment of involved employees, forced compliance programs, and independent monitors, there are possible indirect consequences such as costs related to internal investigations, arbitration, debarment, in addition to the reputational damage. Firms involved in foreign bribery thus risk sanctions both from regulatory bodies and business relations.

In one of the first empirical studies conducted on the topic of sensitive payments and foreign bribery, Smith, Stettler and Beedles (1984) find that stock markets react negatively to the news that a corporation has made sensitive payments to foreign government officials. Firms that have made larger payments suffer more severe consequences. The authors argue that the negative stock market reaction to the illicit payments could be due to two main mechanisms; that the firms risk sanctions from regulatory agencies, and the risk of the firms losing out on

future profitable projects as these contracts had previously been dependent on the bribery of foreign officials. This result is in line with that of Davidson, Worrell and Lee (1994), who find that alleged bribery is among the forms of corporate illegality that cause a negative market reaction upon announcement.

Sampath, Gardberg and Rahman (2016) investigate the stock market reaction to companies being investigated for FCPA-related violations. Using an event study methodology, they identify multiple investigation related events. Such events include the time when the potential violation becomes publicly known, the time when regulatory authorities open an investigation, and the final resolution of the case. They observe significant decreases in stock price in connection with these events, with the first revelation of the case having the largest effect. The decrease in market capitalization as a result of FCPA violations far exceeds the direct costs of the fine. As a result, the authors conclude that there is a significant reputational penalty associated with involvement in corruption. They also find that the market value loss is larger when senior management is involved, when there have been committed accounting violations in connection with the bribery, and when the acts have taken place in a country where perceived levels of corruption are lower.

However, various rigidities could mean that the consequences of the penalties imposed on the corporations are not as severe as indicated by Sampath, Gardberg and Rahman (2016). Serafeim (2013) does find that the detection of bribery has a significant negative effect on employee morale, and that the bribery cases have a negative effect on both business relations, reputation and regulatory relations. The study does not, however, indicate that the bribery cases have a significant impact on stock prices. Hence, the author argues that detected bribery does affect firm competitiveness negatively, but that it does not significantly affect stock prices. A possible explanation of these results presented by the author is that the impact on employee morale and business relations does not significantly affect a firm's future profitability and risk because of frictions in labor and product markets.

In a current working paper, Karpoff, Lee and Martin (2017) estimate that based on the gains from corrupt projects, the losses suffered when caught, and the probability of detection, the net present value of paying bribes to obtain projects is positive. As long as the FCPA violations are not commingled with fraud charges, the loss in market value associated with the foreign bribery case does not even outweigh the increase in market value that occurred when the corrupt project was first announced. Hence they argue that there is no significant

downside associated with foreign bribery, even if the company should get caught. These results indicate that the reputational penalty resulting from foreign bribery cases seems to be negligible. This contrasts significantly with the conclusions of Sampath, Gardberg and Rahman (2016). Karpoff, Lee and Martin argue that the reason why their results differ from other studies is that the assumed large reputational damage from FCPA cases stems from a small number of cases where foreign bribery is commingled with fraud charges. As the reputational damage associated with fraud is believed to be very large (Karpoff & Lott, 1993), this could lead to an overestimation of the reputational damage from foreign bribery cases if the different charges are combined. Other forms of corporate illegality, such as environmental violations, are associated with a much lower reputational penalty than fraud cases (Karpoff, Lee, & Martin, 2017). Karpoff, Lee, and Martin argue that the market treatment of foreign bribery cases is more similar to that of environmental violations than that of fraud. Their conclusions are, however, based on the hypothesis of perfectly efficient markets. While this is a common assumption, irregularities exist (e.g. Jegadeesh & Titman, 1993; Malkiel, 2003). One can imagine that the market initially struggles to correctly price more indirect effects of the sanction, such as potentially reduced employee morale and other longer-term effects outside the scope of the specific project. Moreover, Karpoff, Lee, and Martin only study the short-term stock price developments in the period surrounding major announcements. It is possible that more information about the cases reach the market outside these specific days, and thus is not considered in their study.

In their master's thesis, Tvetene and Vagle (2016) study how corrupt companies perform compared to non-corrupt companies. They do this by comparing the stock price development of firms sanctioned by the SEC for FCPA violations from 2000 to 2015 to the S&P 500 over the same period. They find no statistically significant difference between the two groups. If anything, the corrupt companies perform slightly better than the companies that have not been sanctioned. Hence, they conclude that there is no significant downside to performing corrupt acts, even when caught. This result appears to be in line with the aforementioned conclusions of Karpoff, Lee and Martin (2017), as it indicates that firms suffer no prolonged damage following an FCPA sanction. Tvetene and Vagle, however, treat the corrupt characteristic as time invariant, and do not distinguish between observations from before and after the companies were sanctioned. Many of the firms in question were sanctioned relatively late in the time window that was studied, meaning that there are relatively few observations of several companies from after they were sanctioned. Thus, one cannot

necessarily rule out the possibility that the long-term effects of sanctioning make up for the gains obtained through corruption.

### 3.4.5. Summary of empirical studies

Studies indicate that firms with a strong reputation and corporate social performance reap financial benefits. As involvement in corruption may harm a firm's reputation, an FCPA case could cause financial disadvantages. Various types of corporate crime do indeed seem to have this effect. Results regarding the effects of corruption on firm performance are mixed. The existing literature on the impact of corruption seems to indicate that firms that dedicate more resources to paying bribes perform worse. This, however, does not necessarily mean that bribes cannot be profitable for certain firms in certain situations, and it could be that firms that pay large amounts in bribes are subject to more red tape and extortive corruption than others. It seems as if firms suffer a loss of market value in the days directly surrounding the announcement of an FCPA case. The literature is divided, however, regarding whether a foreign bribery case and a resulting sanctioning lead to a significant reputational penalty and subsequent weaker financial performance over time.

## 3.5. Hypotheses

On the basis of the above review of corruption theory and relevant empirical studies we examine our research question, as originally presented in section 1.2:

*Are companies more profitable than usual when engaging in foreign corruption, and do they perform differently as a result of being sanctioned?*

To answer the question we have formulated three hypotheses based on previous empirical studies and theory on corporate crime. These are presented below.

*(1) Corrupt firms perform better than usual when engaging in foreign corruption.*

We would expect firms to commit corruption if the gains outweigh the expected costs. Based on this, we expect sanctioned firms to achieve a higher return on assets in the period when the SEC has identified that the firm engaged in corruption than when not involved in an FCPA case.

*(2) Firms perform worse as a result of being sanctioned for an FCPA violation.*

Having been detected and sanctioned, we expect the reputational costs and other potential negative effects of a sanction to cause reduced profitability for the firms. In addition, the firms should ostensibly no longer be able to reap the benefits of corruption. Thus, we expect sanctioned firms to have a lower return on assets after being the target of an FCPA enforcement action. This effect might arise before the enforcement process is finished, as the case could be publicly known before then.

*(3) Firms receiving a higher monetary sanction perform worse as a result of the sanction than those receiving a lower sanction.*

Firms that receive higher fines and/or other monetary sanctions (such as disgorgements) have presumably been involved in more serious offences. Additionally, firms that cooperate with authorities will receive reduced sanctions due to the widespread use of leniency mechanisms in FCPA cases. We would expect more serious crimes to be subject to harsher reputational penalties, while firms that cooperate may experience less reputational damage. Thus, we predict the firms that have been subject to higher monetary sanctions to face tougher business conditions compared to those that have received lower monetary sanctions. There may also be more direct consequences of harder sanctions, as the direct costs may make it more difficult for the firms to conduct business.

# 4. Empirical Methodology

The purpose of our study is to examine the profitability of firms sanctioned for foreign bribery. To analyze this, we use least squares regression with firm fixed effects. We implement our analysis using the statistical software package Stata. The concrete model specification is presented at the end of the chapter.

We are of the opinion that fixed effects regression is the most appropriate method for examining our hypotheses and answering the research question. As opposed to for instance a difference-in-differences approach, it allows us to control for unobserved firm-level heterogeneity. Because profitability is likely to be influenced by a number of unobserved factors, it is important to control for these in order to obtain robust estimates. Corrupt firms may be systematically different from other firms on several such factors, and comparing corrupt firms to non-corrupt firms directly is deeply vulnerable to choices of sample restrictions. A difference-in-differences approach would deal with systematic differences between the two groups, but this requires an assumption of parallel trends; that is, absent of corruption the corrupt firms and the group they are compared to would perform the same. We have no guarantee that such an assumption would hold. An alternative would be a matched-pair study, which matches very similar firms, corrupt and clean, and compares them. However, this requires a model which can explain almost the entire variation in ROA in order to be able to match the firms.

## 4.1. Ordinary Least Squares

To test our hypotheses, we employ a fixed effects (FE) model. To obtain the FE estimates we use the ordinary least squares (OLS) estimator. OLS is used to determine the relationship between a dependent variable and one or more explanatory (independent) variables. OLS is a type of linear regression which estimates coefficients by minimizing the square of the difference between the model's estimate of the dependent variable and the observed variable. This difference is referred to as the errors or residuals of the model. A typical multiple regression model with two explanatory variables looks like this:

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + u_i \quad (1)$$

In equation (1), $y$ is the dependent variable, $\beta_0$ is the constant term, and $\beta_1$ and $\beta_2$ are coefficients describing the expected change in $y$ as a result of a one unit change in $X_1$ and $X_2$, respectively. The residual, or error, is given by $u$. The subscript $i$ indicates the cross-sectional unit.

### 4.1.1. OLS Assumptions

To be efficient and unbiased, OLS estimation is reliant on a number of assumptions regarding both the variables included in the model and the residuals. If these assumptions hold, then OLS is the Best Linear Unbiased Estimator (BLUE), as described by the Gauss-Markov theorem (Wonnacott & Wonnacott, 1990, pp. 752-753). An estimator that is BLUE is, as the name implies, unbiased, and provides the lowest variance of the estimate compared to other unbiased linear estimators. In this section we present the OLS assumptions, while we discuss how our model satisfies these assumptions in section 5.5.

The first assumption behind OLS regressions relates to the relationship between the dependent and the independent variables. As OLS presents the dependent variable as a linear function of the explanatory variables, the relationship between the dependent and independent variables must be linear, as opposed to for instance a U-shape (Montgomery, Peck, & Vining, 2012, p. 67). This means that a one unit increase of an explanatory variable must lead to the same expected increase (or decrease) in the dependent variable for all values of the explanatory variable.

Next, the independent variables should be exogenous, meaning that the expected mean of the error term should always be zero (Gujarati, 2014, p. 359). This means that for any given value of an explanatory variable $X$, the expectation for the error term does not change, and is always zero. The value of the error term should not depend in any way on the value of the independent variables. If this condition does not hold there is endogeneity, and one risks bias in the estimates. Endogeneity can be caused by reverse causality, omitted variables, or measurement errors.

Another assumption is that the residuals should be homoscedastic. This means that the variance of the residuals should be constant, and not depend on the values of the explanatory variables (Gujarati, 2014, p. 96). If this does not hold, we have heteroscedasticity. Moreover, the error term should not be correlated with the errors of previous observations; there should be no autocorrelation. Both heteroscedasticity and autocorrelation may cause misleading

conclusions. In practice, however, we avoid such problems by implementing cluster-robust estimates of the standard error.

Furthermore, the residuals of a regression should be normally distributed. This assumption is not necessary for the OLS estimator to be BLUE, but has consequences for the interpretation of test statistics and *p* values. As the test statistics are based on this assumption, non-normal residuals may lead to wrongful rejection or support of the null hypothesis. However, the central limit theorem states that as long as the sample size is sufficiently large, the distribution of the t-observer approaches the normal distribution (Hopland, 2017). What is considered "sufficiently large" is dependent on the data, although 25 or 30 observations is often given as a general rule of thumb (Hogg, Tanis, & Zimmerman, 2014, p. 202). The practical implication of this is that we can consider the test statistics valid even when the error terms are not normally distributed, as long as the rest of the OLS assumptions hold (Hopland, 2017).

Multicollinearity should also be avoided. If two or more explanatory variables are perfectly linearly correlated, the model is unable to identify which variable has what effect. In practice, Stata leaves out a variable if it is perfectly correlated with another. However, if two explanatory variables are highly, but not perfectly, correlated, it still reduces the efficiency of the model. Correlation between the explanatory variables increases the variance of the estimators, leading to reduced statistical significance (Gujarati, 2014, p. 81).

### 4.1.2. Omitted variable bias

Even if the basic OLS assumptions hold, a badly specified model may cause the OLS estimator to be biased. Omitting relevant variables can create such bias (Hopland, 2017). As an example, consider a simple regression model

$$y_i = \beta_0 + \beta_1 X_{1i} + u_i$$

when the correct model is given by

$$y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + u_i$$

with

$$cov(X_1, X_2) \neq 0$$

Estimating the first model would then give an estimate of $\beta_1$ influenced by $X_2$, as the correlation between $X_1$ and $X_2$ would cause part of the effect of $X_2$ to be included in the estimate of $X_1$'s coefficient. The estimated $\beta_1$ would then be a "gross" coefficient containing other effects than that caused directly by $X_1$. If the two explanatory variables in the true model are positively correlated, then $\beta_1$ would be overestimated in absolute terms. If the two are negatively correlated $\beta_1$ would be underestimated. In either case we get an incorrectly estimated coefficient. As a result, it is crucial to include all relevant explanatory variables that correlate with independent variables in the regression.

## 4.2. Panel Study

Our particular implementation of OLS is through a panel study, or longitudinal study. A panel study uses panel data; a dataset which follows several cross-sectional units over time. The units may for instance be individual people, or in our case, firms. Having panel data makes it possible to employ a broader range of econometric techniques than what would have been the case for cross-sectional or time series data, as we can utilize the variation both across individuals and over time. With panel data one can split the residual of a regression into three, exemplified by the following simple regression equation:

$$y_{it} = \beta X_{it} + \alpha_i + \delta_t + \varepsilon_{it} \tag{2}$$

$\delta_t$ is an error term which only varies over time, and not across cross-sectional units. $\alpha_i$, on the other hand, varies only across units, and is time invariant. $\varepsilon_{it}$ is an observation-specific error term, and varies both across time and across units. The explanatory variable $X_{it}$ also varies across both time and units.

### 4.2.1. Pooled OLS

To estimate equation (2) directly using OLS the expected value of the error term has to equal zero regardless of the size of the explanatory variables. Having decomposed the error term into three, each individual error term now has to have that same conditional mean. That is,

$$E(\alpha_i|X_{it}) = E(\delta_t|X_{it}) = E(\varepsilon_{it}|X_{it}) = 0$$

If this and the rest of the OLS assumptions hold, then estimating equation (2) directly will provide unbiased estimates. This method is called pooled OLS. For this condition to hold, it

is necessary to include all relevant control variables to avoid omitted variable bias. However, when using panel data this is considerably more difficult than when using only cross-sectional data. In the case of a dataset such as ours, with observations of firms over time, there will be both firm-specific and time-specific effects that are practically impossible to include when using pooled OLS. Anything from business strategy, to employee morale, to the location of their headquarters, may affect firms' performance, and are intrinsic to each firm. Correspondingly, time-specific factor such as interest level, inflation, and economic cycles, will influence observations. This is referred to as "unobserved heterogeneity". Controlling for these variables individually is time consuming and likely to be futile, as many cannot be observed directly.

### 4.2.2. Fixed effects

To deal with unobserved heterogeneity in panel data we use the fixed effects (FE) method. This method takes the innate differences between units into account when performing the regression. One way to apply fixed effects is to use the "within groups" transformation (Hopland, 2017). We have a panel data model given by

$$y_{it} = \beta X_{it} + \gamma z_i + \alpha_i + \varepsilon_{it} \tag{3}$$

$z_i$ is a time invariant variable that only varies across units, with the coefficient $\gamma$. For the purposes of demonstration we leave out time-specific effects for now. If we take the average of each variable across all observations of a unit, we get

$$\bar{y}_i = \beta \bar{X}_i + \gamma z_i + \alpha_i + \bar{\varepsilon}_i \tag{4}$$

If we then subtract (4) from (3) we get

$$y_{it} - \bar{y}_i = \beta (X_{it} - \bar{X}_i) + \varepsilon_{it} - \bar{\varepsilon}_i \tag{5}$$

Estimating (5) gives us the within groups, or fixed effects, estimator. As we can see from the equation, time-invariant variables and errors are eliminated. The estimate would be the same as if we included dummy variables in the regression for each unit. In practice we use the option for applying fixed effects in Stata. We include dummies indicating the year to control for time effects.

The fixed effects method allows for, or rather requires, the exclusion of all variables that do not both vary across time and across units (Chamberlain, 1978). We thus solve a number of

potential concerns regarding omitted variables. As remarked earlier, there are unobserved variables that may affect the estimate when trying to identify the effect of a specific variable on firm performance. A firm's performance can be affected by where it operates geographically, the sector it operates in, who the managers are, the business strategy, the motivation or ability of the employees, and so on. These factors may also affect the firm's propensity to engage in corruption, and might therefore lead to bias in the estimator. To control for each and every such factor individually is practically impossible. Assuming these factors are stable over time, FE estimation eliminates this bias. In practice, some of these variables might not be completely time invariant, but bias is still significantly reduced as long as they are relatively stable.

As the firm fixed effects control for underlying systematic differences in profitability between firms, the model also controls for underlying time invariant differences between the corrupt firms and the clean firms. If the two groups then are fundamentally different due to unobserved heterogeneity, the fixed effects model controls for it. Had we found the average of the firm fixed effects for the two groups, we would have found the magnitude of this difference.

## 4.3. Description of Variables

This section describes the variables used for our econometric analysis. We explain the choice of variables, and how they are measured.

### 4.3.1. Financial performance

There are many ways to measure financial performance, both using stock market data and financial statement data. We have opted to use an accounting based measure as opposed to stock returns, as we wish to best be able to examine the long-term effects of corruption and sanctions. This choice is supported by Baucus and Baucus (1997, p. 131): "Longer-term performance measures better capture conviction-performance relationships since firms suffer prolonged damage from illegality". We therefore measure financial performance as return on assets (ROA). We calculate it as net income over total assets. ROA is commonly used as a measure of profitability or performance in the literature (e.g. Baucus & Baucus, 1997; Zeidan, 2012). Hagel, Brown, and Davison (2013, p. 4) argue that "[ROA] is the most effective, broadly available financial measure to assess company performance".

There are many alternative measures of profitability. Among accounting based measures one can consider return on sales (ROS, calculated as net operating profits over total sales), return on capital employed (ROCE, net income over capital employed), return on equity (ROE, net income over equity), earnings growth, et cetera. We check the robustness of our results by considering return on sales in section 6.2.1.

### 4.3.2. Case-related periods

We identify three periods of interest in which we analyze the performances of the sanctioned companies. Performance is evaluated in different periods both before and after the confirmation of the final sanction, as it is unlikely that the full effect on performance materializes in the same year as the SEC communicated the sanction. The case is often known well beforehand, and if there is reputational damage it might start to affect the company as soon as the case becomes public knowledge. A review of a limited sample of annual reports of sanctioned companies indicates that most companies disclose information about the case a number of years before the final resolution. Generally, the annual report informs that the company is subject to an investigation related to possible FCPA violations, and this disclosure typically occurs one or two years after the discontinuation of the alleged corrupt practices. In situations where the company does not disclose any information regarding an investigation, the case still often becomes known through the media or other unofficial channels within a similar time frame.

If a firm considers it probable to be sanctioned, and can reliably estimate the size of the monetary sanction, a provision should be recognized in the financial statements before the enforcement action is finalized. This could also influence their accounting performance. On the other hand, if the firm's operations are in fact affected by the FCPA case, the firm could use smoothing measures in the financial statements to lessen its immediate impact. This could for instance involve shifting income and/or expenditures between years or adjusting bad debt provisions. If management employs such smoothing measures, the effects of the sanction on operating performance might not be observed immediately after the enforcement action, but instead as a change in long-term performance.

The three periods we identify are:

The *corruption period* is the years in which the SEC has identified that the company committed the corrupt acts for which it was eventually sanctioned. The length of the

*corruption period* varies between companies, depending on how many years the SEC alleges that a company was involved in foreign corruption.

The *between period* is the years between the year in which the company, according to the SEC, ended its alleged corrupt activities, and the year it was sanctioned. The length of the *between period* varies between companies, depending on the timespan from the cessation of the illegality to the resolution of the case.

The *sanction period* refers to the year in which the SEC communicated its sanction against the company, and the three years immediately following the sanction year. Thus, the *sanction period* is four years for the sanctioned companies where we have enough observations, but shorter for firms sanctioned late in the sample or where observations are missing for other reasons.

The three periods are included in the model by dichotomous variables that are equal to one if an observation stems from the period in question. We choose this division of periods as we consider it is the best option for identifying any effects of corruption and related enforcement actions on performance. The *corruption period* identifies how firms perform when involved in corruption. In the *between period*, investigations will typically start to take place, corrupt revenues might run out, and reputational effects might develop if the case breaks. Thus, any negative consequences may start to manifest. However, residual corrupt revenues and potential smoothing measures could confound the effect on performance. Reaching the *sanction period* any detrimental effects should materialize, and if there are long-term consequences it will be captured by the estimate for this period. We assume that after this period the repercussions from the case will abate.

### 4.3.3. Monetary sanction

Hypothesis (3) states that we expect that firms receiving a higher monetary sanction perform worse after the sanctioning than those receiving a lower monetary penalty. In order to test this hypothesis, we analyze the effects of both relative and absolute monetary sanctions.

What we refer to as “relative monetary sanctions” is the sum of the monetary sanctions (fines, disgorgements, asset recovery, etc.) imposed on a firm in relation with an FCPA enforcement action as a share of the firm’s total revenue. For the relative sanction to be as representative as possible, we calculate the relative monetary sanction by dividing the

monetary sanction by the firm's revenue at the time of the sanctioning. The absolute sanction, on the other hand, is the unadjusted dollar sum imposed on the firms as part of the punishment.

For both the relative and the absolute sanctions, we divide the firms into three groups based on the size of the sanctions. *low fine* encompasses the companies up to the 25th percentile, that is the 25% of companies receiving the lowest sanctions. *mid fine* refers to the companies from the 25th to the 75th percentile, whereas *high fine* refers to the companies from the 75th percentile upwards. Note that the constituents of the groups are not the same for absolute and relative sanctions.

### 4.3.4. Control variables

Our selection of control variables is similar to that of Bakke, Hopland and Møen (2016), and in line with previous literature using financial statement data (e.g. Grubert, Goodspeed, & Swenson, 1993; Blouin, Collins, & Shackelford, 2005; Dyreng, Hanlon, Maydew, & Thornock, 2017).[2] The model includes the natural logarithm of revenue as a measure of firm size. The log-transformation is performed to normalize the variable, in accordance with principles laid out by Osborne (2002). Tests (not reported) show that the log-transformed variable has much higher explanatory power than the absolute value. The next control variable is debt ratio, measured as long-term debt divided by total assets. As a higher share of long-term debt relative to equity would lead to higher interest payments, we expect the coefficient of the debt ratio to be negative. We also control for property, plant and equipment (PPE) as a share of total assets. The overall sign of this coefficient is uncertain, as the effect could go in both directions. A higher share of fixed assets would mean that a company has more assets suitable for use as collateral. This could lead to lower cost of capital when borrowing money. On the other hand, having more property, plant and equipment causes higher depreciation costs.

In addition to the aforementioned control variables, we control for time trends and macro variables by implementing time fixed effects. We also include interactions between industry and year in order to capture sector-specific cyclical trends, and industry differences in how firms react to macro variables.

[2] The Compustat database does not feature information about companies' year of incorporation, or firm age. For that reason, firm age is not a control variable in our study, even though it is often included in similar studies.

## 4.4. Model Specification

The main model specification is as follows:

$$ROA_{it} = \beta_0 + \beta_1 corruption\_period_{it} + \beta_2 between\_period_{it} + \beta_3 sanction\_period_{it} + x'_{it}\beta_x + \varepsilon_{it} \quad (6)$$

This model provides three coefficients of interest, $\beta_1$, $\beta_2$, and $\beta_3$, which present the effect of the *corruption period*, the *between period*, and the *sanction period* respectively. The coefficients can be interpreted as the change in ROA a firm experiences when being in one of these periods, compared to the profitability it would expect if not involved in an FCPA case. We employ firm fixed effects in Stata and include year indicators among the controls to eliminate the unit- and time-specific errors. $x'_{it}$ is a vector of control variables, as described in section 4.3.4. To eliminate heteroscedasticity and autocorrelation concerns, we also implement cluster-robust estimates of the standard error.

# 5. Data

This section presents the data material used in our analysis. Section 5.1 outlines which foreign bribery cases are included in the study, and the data used for our "control" group.[3] The sources and methods we have used to gather the necessary data are described in section 5.2. Section 5.3 presents the sample restrictions we have introduced. In section 5.4, we present descriptive statistics for the data included in the study, whereas in section 5.5 we discuss statistical inference.

## 5.1. Selection of Data

Our study is based on an empirical analysis of the financial performance of companies sanctioned for foreign bribery. We include a control group, which is used to ensure robust estimates for the control variables. It consists of all the firms in the Compustat database that we consider sufficiently similar to the corrupt firms. The dataset is a panel dataset consisting of observations of different firms spanning several years.

### 5.1.1. Selection of cases

Our study analyses the financial performance of firms that have been subject to FCPA-related enforcement actions by the U.S. Securities and Exchange Commission in the period from 2000 through 2016. Firms that were sanctioned in 2017 or 2018, or before 2000, are not included in the study. The reason for this is that financial data for 2017 and 2018 is not available at the time of writing, meaning it is not yet possible to examine the longer-term financial consequences of these sanctions. FCPA-related cases prior to 2000 were few and far between, and happened during a significantly different enforcement regime than the current one. To obtain more data on the profitability of these firms, we analyze their financial statements from 1995 to 2016.

The analysis is limited to cases of corporate liability. The study does not include cases where sanctions have only been imposed on natural persons, such as in the case against officers of American Rice in 2002 (SEC, 2002). Cases where several affiliated firms have been sanctioned in the same enforcement action are treated as one case. The parent firm is

[3] We refer to the group of clean firms as our control group, even though we do not directly compare them to the corrupt firms. We get back to this in section 5.1.2.

included in the analysis. This also applies to cases where only a subsidiary is directly involved in the legal proceedings. Usually, the parent firm is the entity targeted by the enforcement action, even if the illegal acts have been committed by a subsidiary. Our approach is in line with the "core" approach to FCPA cases, as presented by Koehler (2013), barring that DOJ-only enforcement actions are not included in this study. A case where the SEC imposes sanctions on a company and several individuals is treated as one case, with the timing of the sanction set at the time where the sanction was imposed on the firm.

Our study includes 136 cases of sanctions against 132 different companies in the period from 2000 through 2016. Four companies were sanctioned twice for FCPA violations within the time frame, namely ABB, Baker Hughes, IBM, and Tyco. Due to data limitations, described in section 5.3, we conduct the econometric analysis using 111 cases against 107 companies. A full list of the companies and cases included can be found in the appendix, section A.4.

The financial data that our empirical analysis builds upon is extracted from the Compustat database. The Compustat North America database lists almost all firms that are publicly traded in the U.S., and thus features most firms that are within the jurisdictions of the SEC. Only three firms that have been subject to sanctions from the SEC within the time frame studied are not part of the database. These three firms are the Indonesian public accounting firm KPMG Siddharta Siddharta & Harsono (KPMG-SSH)[4], the Swiss logistics provider Panalpina, and the U.S. engineering firm PBSJ Corporation. The three companies were sanctioned in 2001, 2010 and 2015, respectively. Because these three companies do not feature in the database, they are not included in the study. The data in Compustat has been standardized and organized to ensure internal comparability (Chychyla & Kogan, 2014), and if financial data from other sources were to be included, this information may not be directly comparable to the data in the database. The three firms differ significantly in terms of the timing of the sanctions, operations, size and home country. Excluding these three cases is unlikely to have any significant or systematic effects on our results.

One Norwegian firm is included in the case selection. The government-controlled oil and gas company Statoil (currently Equinor) were sanctioned in 2006 for the alleged bribery of a government official in Iran in 2002 and 2003 (SEC, 2006). In addition to the Statoil case, the

[4] KPMG is organized as a network of independent member firms, and KPMG-SSH is thus a separate financial entity from other national KPMG firms. As such, it is not considered a "KPMG subsidiary", and no branch of the KPMG network is included in this study.

Netherlands-based telecommunications provider VimpelCom (currently VEON) were punished in 2016 for bribery related to their business in Uzbekistan (SEC, 2016b). VimpelCom was, and still is, part-owned by the Norwegian telecommunications firm Telenor (VEON, 2017). The Norwegian state has a 54.5% ownership share in Telenor through the Ministry of Trade, Industry and Fisheries (Telenor, 2018).

### 5.1.2. Control group

To improve the estimates of the control variables, we include a large sample of clean firms in our analysis. We refer to these firms as the control group. By including these firms, we seek to obtain more precise estimates of the effects of macro variables, firm size, debt ratio, and share of fixed assets. To ensure that the firms in the control group are as similar as possible to the corrupt firms, we introduce a number of sample restrictions. These restrictions are described in further detail in section 5.3. In total, the control group consists of 79 878 observations of 7 137 firms. The financial data for the control group covers the same time frame as for the corrupt firms, namely 1995 through 2016. We also perform a regression with the control group excluded as a robustness check, reported in section 6.2.3.

## 5.2. Data Collection

### 5.2.1. SEC enforcement information

The Securities and Exchange Commission publishes information about all their FCPA-related enforcement actions on their website. For every action, there is a press release summarizing the case, which is usually supplemented by a formal complaint or cease-and-desist order. From these documents we have created a structured summary of every case to use for our analysis. The summary includes identifying information about the firm used to merge the case-related data to the Compustat data, the date of the SEC enforcement action, the start and end years of the corruption as identified by the SEC, and the size of the monetary penalty imposed on the company. This figure is the sum of the fines paid to the SEC, the DOJ, and any non-American authorities involved, as well as any disgorgements, as disclosed in press release or formal complaint. In addition, we have included information on whether the firms are repeat offenders, if an independent monitor was imposed on them as part of the enforcement, and whether the corruption occured in conjunction with the UN's Oil-for-Food Programme in Iraq during the early 2000s. Finally, we have also noted cases

where the FCPA violations are commingled with financial fraud, as other studies suggest that the market displays a harsher reaction to fraud cases than foreign bribery (Karpoff, Lee, & Martin, 2017). We have not included information about investigations, prosecutions or sanctions against the corrupt firms by authorities in other countries, in cases where this has not happened as part of the same legal process as the U.S. prosecution and sanctioning.

### 5.2.2. Financial statement data

To obtain financial statement data for both the corrupt firms and the control group, we download the annual fundamentals of all firms included in the "Compustat North America – Fundamentals Annual" database between 1995 and 2016. This database was chosen mainly because it includes information for as many companies as possible. The dataset includes detailed financial statement data, stock data, and organizational information on a very large number of companies. Moreover, the information in the database is standardized in order to ensure comparability between items (Chychyla & Kogan, 2014). This could mitigate potential problems of differing accounting standards and valuation methods. Before introducing sample restrictions, the dataset includes 129 corrupt firms with 2 488 firm-year observations, and 23 733 clean firms with 206 009 firm-year observations.

## 5.3. Sample Restrictions

In order to make the dataset suitable for our econometric analysis, we have introduced a number of sample restrictions which remove some of the observations in the original database. Table 1 shows the amount of observations remaining after the introduction of each restriction.

*Removal of firms where we have no observations of sanction year or later*

13 of the sanctioned firms merged with other firms or were acquired by another company before the time of the sanctioning.[5] These firms are excluded from the analysis. We wish to measure the effect of an FCPA sanction over time, and for the 13 companies in question we do not have financial data for the sanction year or any later years. Thus, we cannot observe financial performance for all of the three periods of interest.

[5] The firms where we have no observations of sanction year or later are Armor Holdings, Delta & Pine, GE InVision, GlobalSantaFe, Lucent Technologies, NATCO Group, Nordion, Nortek, Syncor International, Titan, United Industrial Corp, Veraz Networks, and York International.

*Removal of post-2016 repeat offenders*[6]

Three of the companies that were sanctioned in the period from 2000 to 2016 were sanctioned for the second time in 2017. These three firms are Biomet, Halliburton, and Orthofix. As these three were sanctioned after the period where there is available data, we cannot observe the last *sanction period*. As a result, these three repeat offenders are excluded from the analysis.

*Table 1: Remaining observations after each restriction.*

| Restriction | Clean firm obs. | Clean firm-year obs. | Corrupt firm obs. | Corrupt firm-year obs. |
|---|---|---|---|---|
| Original | 23 733 | 206 009 | 129 | 2 483 |
| No obs. of sanction year | 23 733 | 206 009 | 116 | 2 344 |
| Post-2016 repeat offenders | 23 733 | 206 009 | 113 | 2 281 |
| Subsidiaries | 23 343 | 201 196 | 112 | 2 270 |
| Firm-year obs. < 5 | 15 289 | 179 772 | 112 | 2 270 |
| Negative sales | 15 289 | 179 593 | 112 | 2 270 |
| Negative equity | 15 269 | 176 124 | 112 | 2 260 |
| Industries with no sanctioned firms | 13 288 | 151 796 | 112 | 2 260 |
| Financial sector | 11 040 | 125 296 | 107 | 2 169 |
| No foreign sales | 9 412 | 111 231 | 107 | 2 169 |
| Max employees < 100 | 7 869 | 95 596 | 107 | 2 169 |
| Assets < $1 million | 7 833 | 93 876 | 107 | 2 169 |
| Revenue < $10 million | 7 154 | 80 699 | 107 | 2 159 |
| +/- 3 SDs of ROA | 7 137 | 79 878 | 107 | 2 158 |

*Remove subsidiaries*[7]

We remove companies that are registered as subsidiaries of publicly traded companies to avoid the risk of double-counting. This includes the removal of KBR, which was a

[6] Four companies were sanctioned twice for FCPA violations in the period from 2000 to 2016: ABB, Baker Hughes, IBM, and Tyco. These firms are included in the main regression in section 6.1. For these four firms, we include dummies for observations of each period relative to both sanctions.

[7] Immucor Inc. is listed in the Compustat database as a subsidiary of a publicly traded company. Immucor was, however, an independent, publicly traded company at the time of the alleged corruption, and at the time of the sanctioning. Immucor was sanctioned in 2007 for bribery which allegedly occurred in 2004. The company was not acquired until 2011. As it was not a subsidiary in the period of interest, we have not removed it from the dataset.

subsidiary of Halliburton at the time of the alleged corruption, even though it is an independent firm today.

*Removal of firms with few observations*

The aim of the study is to observe longer-term variations in financial performance. Thus, we have removed firms that are only present in the dataset for a small part of the time window studied. Specifically, we remove firms with fewer than five observations. This reduces the noise from firm-level heterogeneity when estimating the control variables. None of the corrupt firms have fewer than five observations.

*Removal of firm-year observations of negative sales*

We remove firm-year observations where the net sales are negative. This removes outliers that might skew the results while providing little economic insight. There are no observations where any of the corrupt companies report negative net sales.

*Removal of firms with negative equity*

We remove observations where the degree of leverage is larger than one hundred percent. A leverage ratio larger than one hundred percent would mean that the value of the company's debt exceeds the value of its assets, meaning that the company has a negative equity. This would indicate that the company is in a financially troubled position that is unsustainable over time. As these firms are in an extreme position, their returns may be driven by factors that are not relevant for the study. This step involves the removal of ten firm-year observations of corrupt companies.

*Removal of industries where there are no observations of sanctioned firms*

The companies studied are divided into different industries based on the first two digits of their North American Industry Classification System (NAICS) code. We remove all observations of firms that belong to an industry which does not include corrupt firms. The industries that are removed are: Utilities; Retail Trade; Real Estate and Rental and Leasing; Administrative and Support and Waste Management and Remediation Services; Educational Services; Health Care and Social Assistance; Arts, Entertainment and Recreation; and Other Services.

*Removal of companies in the financial sector*

We remove all observations of firms that are in the Finance and Insurance sector (NAICS code 52). This is due to these industries having different financial reporting rules and

regulations from other industries. Also, firms in this industry do not report foreign operations in the filings used for the Compustat databases. Thus, we do not know which companies in this sector that have operations outside of the U.S. Finally, a number of financial institutions and insurance companies reported extraordinary losses during the financial crisis a decade ago. By removing these firms, we somewhat reduce the number of extreme observations in the dataset. This restriction means that we lose five of the companies that have been sanctioned for foreign bribery.[8]

*Removal of firms with no foreign sales*

As the FCPA relates to bribery of foreign officials, it is only relevant for firms that have activities outside of their home countries. All the corrupt firms are classified as having foreign operations.[9] By removing firms that have no foreign activities in any of the years studied, we make the firms in the control group more similar to the corrupt firms. For determining foreign operations, we combine the Compustat North America database with information from the Compustat Segments database. Companies that have reported foreign income that is neither missing nor zero are treated as having foreign activity. Also, all firms that report having a foreign segment in the Compustat Segments database are treated as having overseas operations. Finally, all firms that are incorporated outside of the U.S. are treated as having foreign operations. Thus, firms that do not report any foreign income in any year, nor that they have a foreign business segment, and that are not incorporated abroad, are excluded.

*Observations of assets less than $1 million*

We remove observations where the inflation adjusted value of total assets is below $1 million (1995 dollars). The sanctioned firms generally are relatively large, whereas the Compustat includes a large number of smaller firms. In order for the control group to be as similar as possible to the corrupt group, we remove the smallest firms. None of the corrupt firms have assets of less than $1 million in any year. In addition to increasing similarity, this

[8] The five sanctioned firms in the financial sector are Allianz, Aon, Bank of New York Mellon, JPMorgan, and Och-Ziff.

[9] Smith & Wesson (currently American Outdoor Brands Corporation), which was sanctioned for FCPA violations in 2014, is not classified as having foreign operations based on the criteria described above. However, Smith & Wesson products are available worldwide (American Outdoor Brands Corporation, 2018), and the company was involved in FCPA-related cases in a number of Asian countries. Thus, it is clear that Smith & Wesson did and still does have operations abroad. The company is thus not removed from the study. Another company in the arms industry, Remington, is also not removed from the dataset despite not reporting their foreign income in the numbers available through Compustat. Like Smith & Wesson, Remington has been an international operator, selling their products both in the U.S. and abroad (Remington Arms Company, 2013). Remington, however, has not been subject to FCPA-related enforcement actions from the SEC.

step makes it easier to perform logarithmic transformations of the total assets variable (Osborne, 2002), while also limits noise stemming from firms reporting unusual ROA levels due to having few or no assets.

*Observations of revenue less than $10 million*

There are ten remaining observations of the corrupt firms where inflation adjusted revenue is less than $10 million. These observations are almost all in the 90s, while the earliest sanction of a firm which got an observation removed was in 2005. We therefore consider these observations less relevant. By doing this we also cut two significant outlying observations of the dependent variable; the only two where ROA is less than -100%. This step also makes the clean group and the corrupt group considerably more similar.

*Removal of observations of ROA outside of three standard deviations from the mean*

A common rule of thumb is to consider observations that are more than three standard deviations from the mean as extreme values (Osborne & Overbay, 2004). The removal of outliers could reduce error variance and improve accuracy of the estimates, as well as reducing the probability of errors of inference. This reduces the risk that the results are driven by a small number of extreme observations. One observation of a corrupt firm is deleted based on this criterion.

*Other cleaning measures*

Prior to the sample restrictions reported here, we have also performed a number of initial basic cleaning procedures. Those include removing duplicate observations of firms and firm-years, observations where there is not sufficient data to calculate ROA, observations with missing observations of control variables, and observations from outside the relevant time window. We have also removed six[10] firms that were sanctioned for FCPA violations for the first time in 2017-2018 as per March 31, 2018, so that they are not part of the econometric analysis. The same has been done to the two firms in the database that were subject to sanctions from the DOJ only, namely AGA Medical and Micrus Corporation.

[10] The firms sanctioned for the first time during this period are Elbit Imaging, Kinross Gold, Kraft Foods, Mondelez, SQM, and Telia. Kraft Foods and Mondelez were involved in the same case.

# 5.4. Descriptive Statistics

## 5.4.1. Enforcement action history

The number of FCPA-related cases enforced by the SEC against corporations has increased significantly since 2000. Figure 2 shows this development. 2016 saw the largest number of corporate sanctions of any year thus far. The graph shows, however, that there has not been stable growth year by year, even though the general trend has been an increase in the number of sanctions. There were no FCPA-related sanctions imposed on corporations by the SEC in 2003.

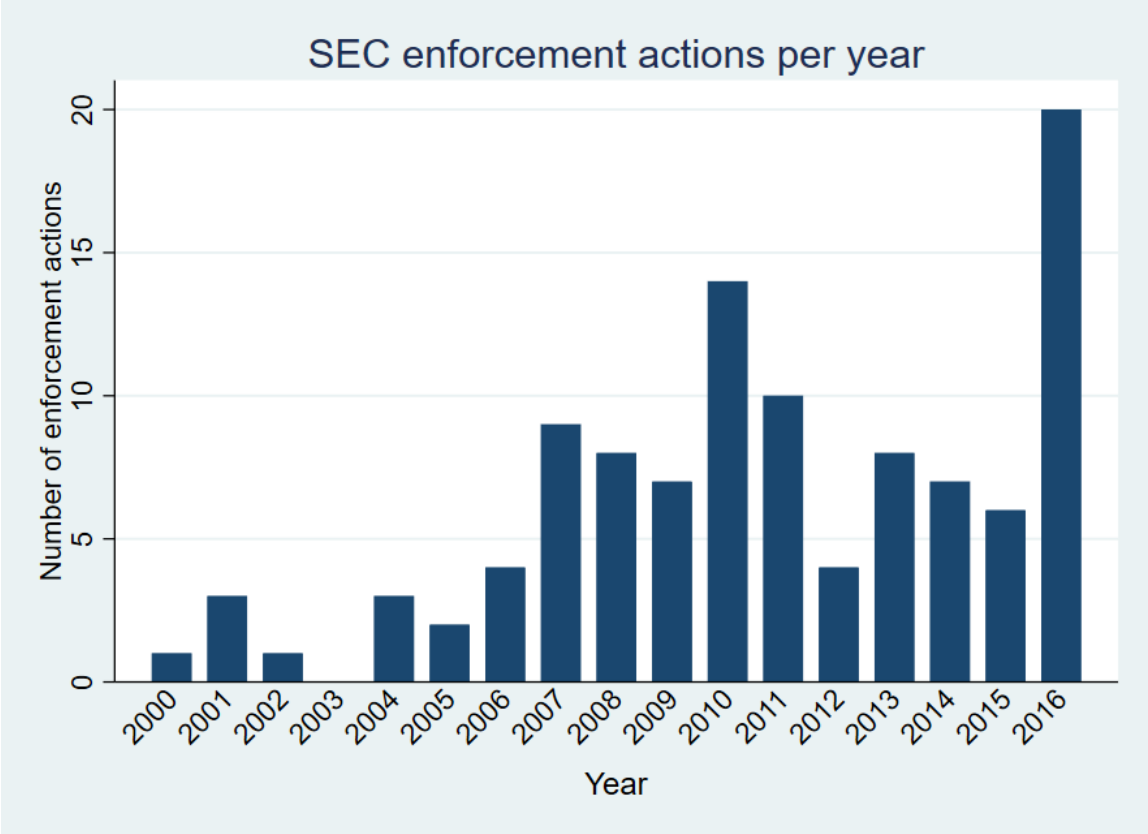


*Figure 2: Number of FCPA-related SEC enforcement actions against firms per year. The figure only includes cases that are included in the econometric analysis.*

## 5.4.2. Industry distribution

Figure 3 shows the relative distribution of both the corrupt and the clean companies across industries before introducing sample restrictions. The sectors are identified by two-digit North American Industry Classification System (NAICS) codes. The graph shows the percentage of companies in each of the two groups in each industry. For instance, about seven percent of the corrupt firms belong to the Information industry, while around 11% of the clean firms belong to that same industry. Notably, there are no companies sanctioned for

corruption in a number of the industries. These sectors are not included in the final sample, as described in section 5.3. We note that about four percent of the corrupt firms and about 15% of the control group are in the Finance and Insurance industry, which is excluded from the econometric analysis.

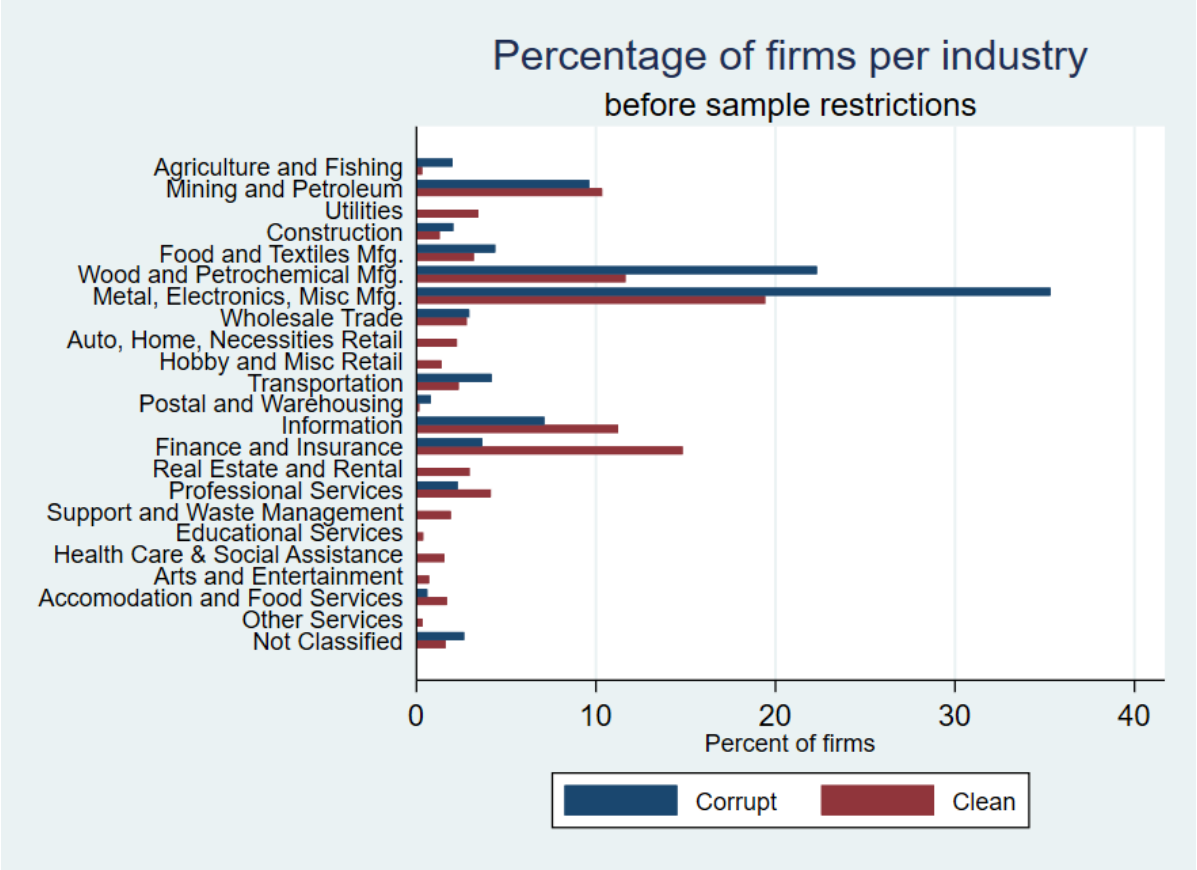


*Figure 3: Distribution of companies across industries before sample restrictions.*[11] [12]

After we remove industries containing no firms sanctioned for foreign bribery, the relative distribution of companies across industries seems to be fairly similar across the two groups, as seen in Figure 4. In terms of industry distribution, the corrupt and clean firms generally seem to be similar. However, the corrupt firms are distinctly overrepresented in the Wood and Petrochemical Manufacturing industry, whereas they are underrepresented in the Wholesale Trade, Information, and Professional Services industries.

[11] These are not the official NAICS industry names, but descriptive and shortened versions made to fit into the visual presentation. See NAICS classifications in appendix section A.1. "Mfg." is an abbreviation of "manufacturing".

[12] Companies with a NAICS code starting with 99 are firms which cannot be classified into any other NAICS industry group.

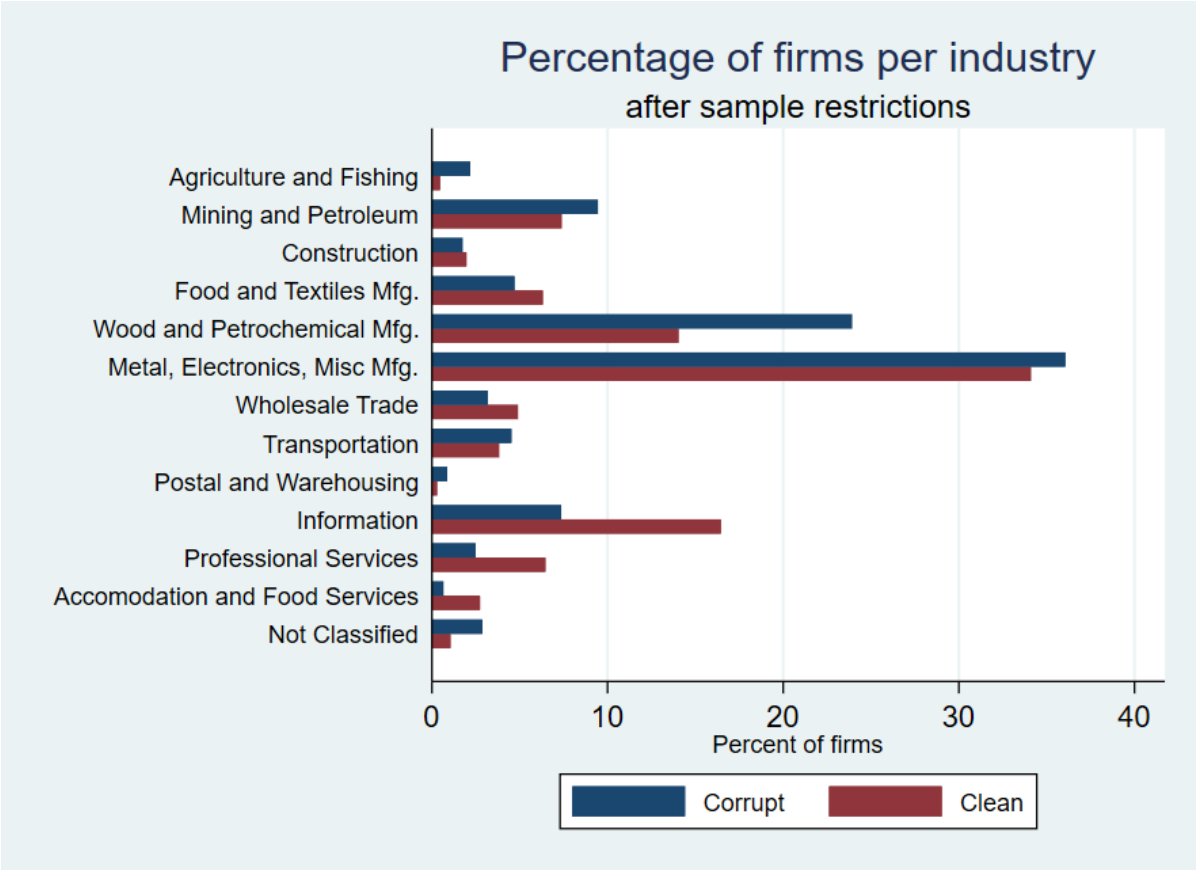


*Figure 4: Distribution of companies across industries after sample restrictions.*

### 5.4.3. Summary statistics

Table 2 presents summary statistics for the corrupt and the clean firms. The group of clean firms is significantly larger than the corrupt group in terms of number of firms and firm-year observations. The dataset is unbalanced, as it does not include observations of all companies for all years. On average, the dataset consists of more firm-year observations of each of the corrupt firms than of those in the control group. The firms sanctioned for corruption have a higher ROA on average than the clean firms. This is reflected both by the mean and the median. The low average ROA of the control group is related to the fact that a portion of these companies report very low ROA levels. Notably, five percent of the observations of the clean firms are of ROA lower than -32.59%. The table also shows that the firms sanctioned for foreign bribery on average are considerably larger than those in the control group. For the other control variables, the two groups are similar. It is worth noting that differences between the two groups are dependent on the sample restrictions we implement, and we cannot draw any general conclusions regarding the profitability of corrupt firms compared to clean firms based on these numbers.

*Table 2: Summary statistics.*

| | Corrupt | Clean |
|---|---|---|
| Number of firms | 107 | 7 137 |
| Number of firm-year observations | 2 158 | 79 878 |
| Average number of observations per firm | 20.17 | 11.19 |
| Mean ROA | 5.35% | -0.03% |
| Median ROA | 5.38% | 3.36% |
| 5th percentile ROA | -7.30% | -32.59% |
| 95th percentile ROA | 17.76% | 17.10% |
| Average total revenue (million USD) | 22 991 | 2 947 |
| Median total revenue (million USD) | 5 691 | 285 |
| Average debt ratio | 18.48% | 17.74% |
| Average fixed assets ratio | 28.07% | 27.88% |

### 5.4.4. Financial performance development

Figure 5 presents the average ROA for the groups of corrupt and clean firms for each year from 1995 to 2016. The mean ROA is higher for the firms sanctioned for foreign bribery than for the control group for each year of the time window studied. The mean ROA is positive for the corrupt firms for all years, whereas it is negative for a number of years for the control group. Even though the levels of ROA are different, the means of the returns are following a relatively similar pattern for both groups. As expected, there is a dip in ROA following the financial crisis in 2008. Both groups, however, experience an even larger decline in ROA around 2001-2002.

That the average ROA is higher for the corrupt group than for the clean group does not necessarily mean that the net effect of engaging in foreign bribery on ROA is positive. Although the graph shows that on average, the firms sanctioned for corruption are more profitable than those not sanctioned, this could be due to other factors than corruption, such as the industry distribution of each of the groups, or simply size. Figure 4 shows that the corrupt firms are overrepresented in some industries, such as Wood and Petrochemical Manufacturing. Meanwhile, they are underrepresented in others, such as Information and Wholesale Trade. The profitability differences could partly be due to the industries in which

the corrupt firms are overrepresented being more profitable than the industries in which they are underrepresented. On average, the companies sanctioned for foreign bribery are notably larger than the firms in the control group, which could also affect profitability. We control for these factors in the econometric analysis.

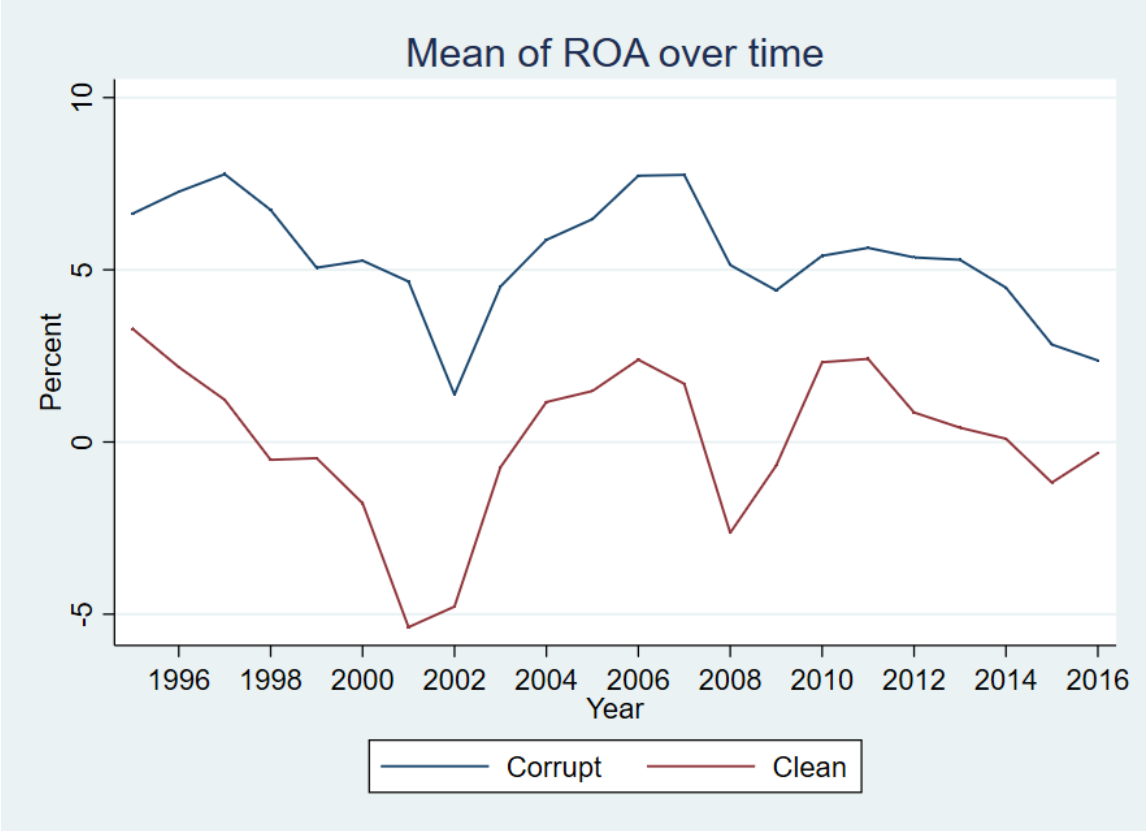


*Figure 5: Mean of ROA over time.*

Figure 6 shows the mean and the median of the ROA for the firms that have been sanctioned by the SEC for FCPA violations. Year zero on the x-axis corresponds to the year in which the sanction was imposed. Years with negative values are years prior to the announcement of the sanction, whereas the positive years are years after the sanction was imposed.

The figure shows that both the mean and the median of the ROA are slightly lower after the sanction than before, suggesting that firms may actually perform worse after being sanctioned. However, this is not conclusive. One important aspect to consider is that ROA may have decreased for all firms towards the later years up towards 2016, regardless of whether a company was sanctioned or not. We note that Figure 5 does indicate a slight downward trend in the years from around 2010, both for the corrupt and the clean firms. Figure 6 does not control for differences in the general economic conditions between years. Also, as many of the corrupt firms were sanctioned relatively late in the time window

studied, there are fewer observations for the last years. The limited sample size means that there is uncertainty surrounding the trend several years after a sanctioning. Hence we cannot draw any conclusions based on this graph alone.

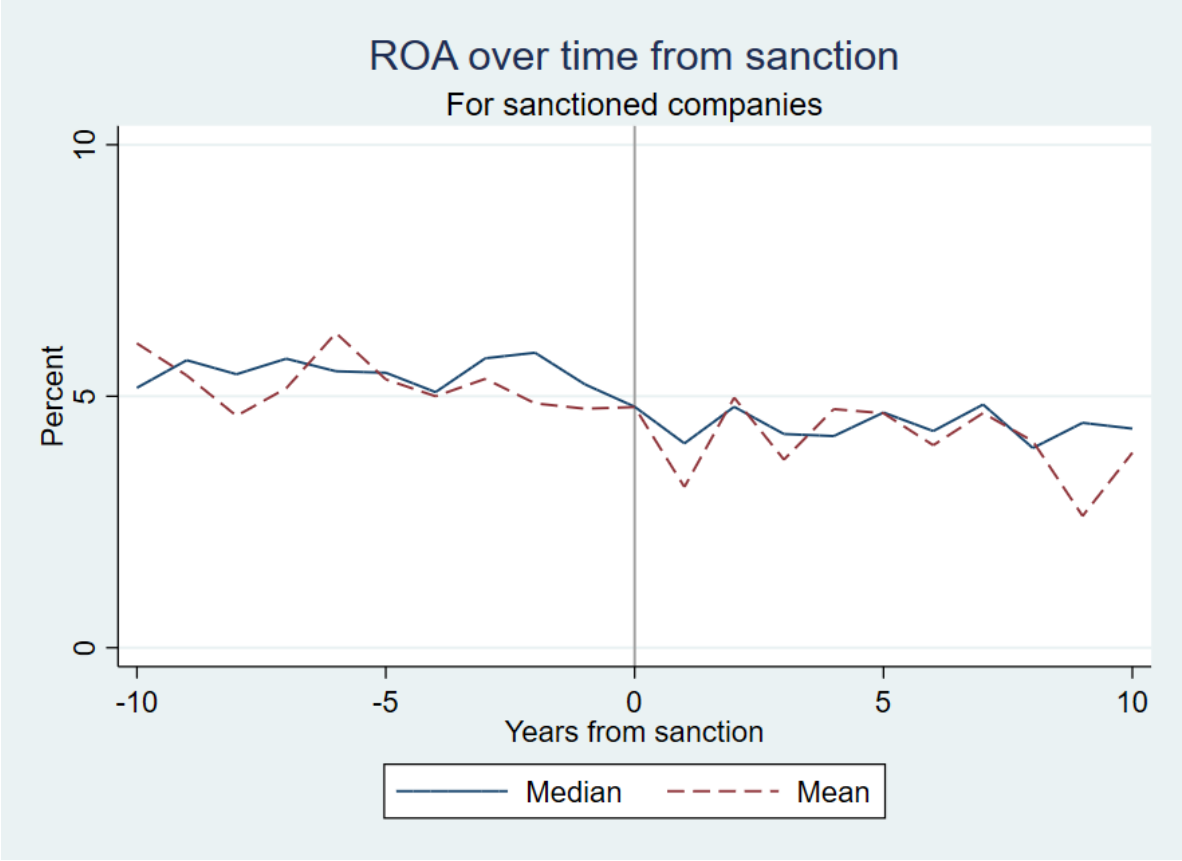


*Figure 6: Mean and median of ROA for the corrupt firms relative to the year the companies were sanctioned by the SEC.*

### 5.4.5. Period summary

Table 3 compares the three case-related periods, as described in section 4.3.2. We have the most observations during the *corruption period*, and correspondingly, it is the longest period on average. The *between period* is typically shorter, and we see that it typically takes just over three years from the cessation of the identified corrupt practices until a firm is sanctioned. For the *sanction period* we have on average 3.26 observations per firm. As the period is defined as four years from the sanction, including the sanction year, we are missing some observations. This is a consequence of quite a few firms being sanctioned after 2013. Additionally, some observations may have been lost from the sample restrictions or because of mergers or delistings.

*Table 3: Summary statistics for case-related periods.*

| | Corruption period | Between period | Sanction period |
|---|---|---|---|
| Number of observations | 595 | 328 | 349 |
| Average length (years) | 5.56 | 3.07 | 3.26 |
| Mean ROA | 5.15 % | 5.49 % | 4.43 % |

The observations of average ROA in each period fits well with what is suggested by Figure 6. Among the case-related periods, profitability is lowest in the *sanction period*. It is highest during the *between period*, and somewhat lower in the period when corrupt practices have been identified. However, as remarked, this is without controlling for other factors. In particular, the averages are sensitive to time effects, as can be seen from Figure 7. The observations of *corruption period* are most frequent in the earlier years of the sample, with *sanction period* more frequent towards the end.

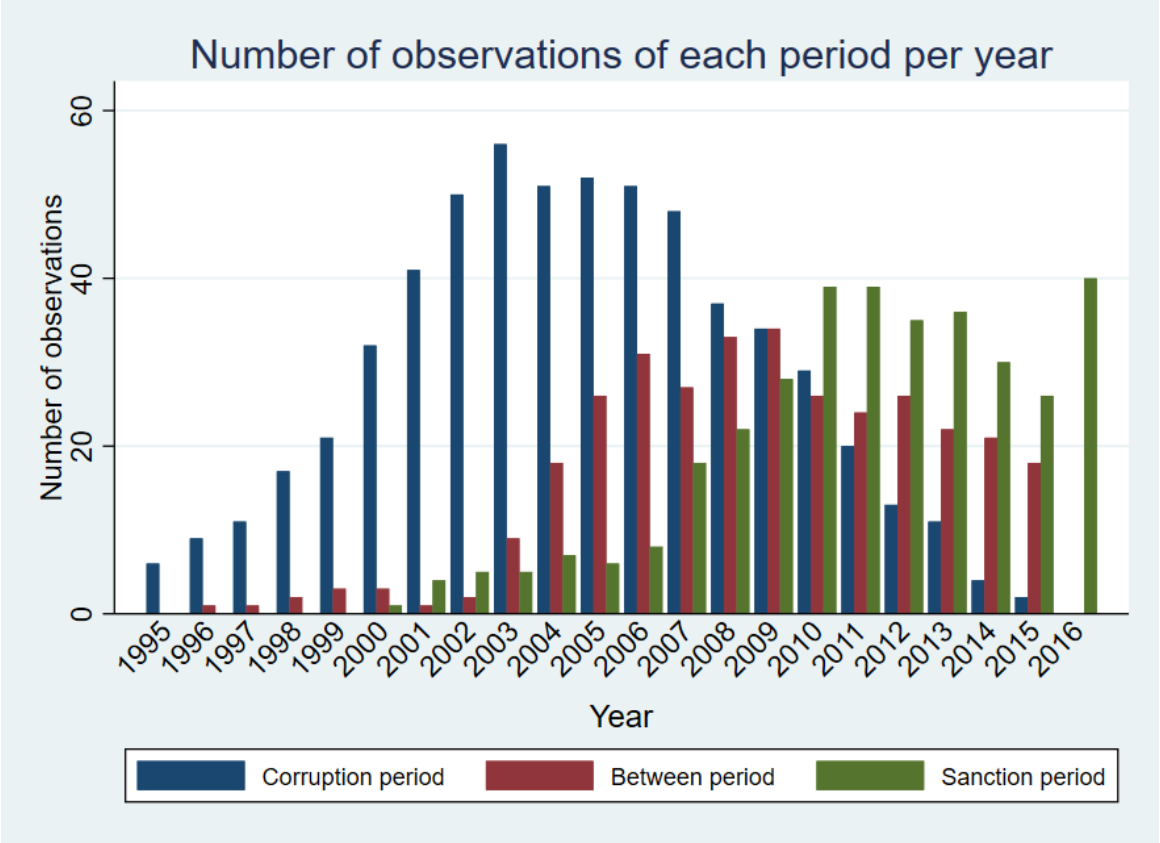


*Figure 7: Distribution of observations of the case-related periods.*

## 5.5. Statistical Inference

To be able to draw conclusions based on our econometric analysis, our model should satisfy the conditions laid out in section 4.1. Heteroscedasticity and autocorrelation are of little concern in practice, as we apply cluster-robust standard errors in the analysis (Hansen, 2007). We study regression diagnostic plots to identify potential concerns regarding the normality assumption.[13] The normal Q-Q plot and histogram suggest that the residuals have long tails (high kurtosis), and are slightly skewed. A formal skewness-kurtosis test as per D'Agostino, Belanger and D'Agostino Jr. (1990) and Royston (1991) rejects the null hypothesis of normally distributed residuals.[14] However, inference is valid as per the central limit theorem due to our large amount of observations (Hopland, 2017). The use of fixed effects considerably reduces concerns regarding omitted variable bias, compared to a regular OLS estimation. Thus, as we employ a fixed effects specification, implement cluster-robust standard errors, and have a large number of observations, the diagnostics do not give us reason to believe that the model is biased, and we consider it adequately efficient. We also have no multicollinearity problems, as can be seen from the correlation matrix in the appendix section A.2. As such, we consider the formal OLS requirements to be in place.

[13] Reported in appendix section A.3.1.

[14] Reported in appendix section A.3.2.

# 6. Empirical Findings

## 6.1. Regressions

This section presents the regressions we have performed to test our hypotheses. Section 6.1.1 presents our findings relating to hypothesis (1) and (2), while hypothesis (3) is tested in section 6.1.2. We also examine the effect of firm size, with the findings presented in section 6.1.3.

### 6.1.1. Main specification

Table 4 presents four different regressions, with the dependent variable in all regressions being return on assets (ROA). Each column introduces more controls, and column (4) is the implementation of our model as presented in section 4.4.

*Table 4: Main regressions.*

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| VARIABLES | ROA | ROA | ROA | ROA |
| corruption period | 5.028*** | -0.168 | -0.918* | -0.999* |
| | (0.684) | (0.533) | (0.536) | (0.518) |
| between period | 4.954*** | 0.297 | -0.419 | -0.420 |
| | (0.663) | (0.744) | (0.741) | (0.738) |
| sanction period | 3.880*** | -0.194 | -0.268 | -0.191 |
| | (0.634) | (0.704) | (0.683) | (0.656) |
| ln revenue | | | 3.442*** | 3.666*** |
| | | | (0.166) | (0.167) |
| debt ratio | | | | -13.61*** |
| | | | | (0.653) |
| PPE share | | | | -17.81*** |
| | | | | (1.045) |
| Constant | -0.565 | 3.806*** | -13.68*** | -7.052*** |
| | (5.428) | (0.230) | (0.853) | (0.892) |
| Observations | 82,036 | 82,036 | 82,036 | 82,036 |
| R-squared | 0.050 | 0.049 | 0.066 | 0.093 |
| Number of firms | | 7,244 | 7,244 | 7,244 |
| Method | OLS | FE | FE | FE |

*All regressions include year dummies and an interaction term between year and industry. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Column (1) presents a regular OLS regression without firm fixed effects, with *corruption period*, *between period*, and *sanction period* being the only independent variables, except for year dummies and interactions between year and industry. We see that when not controlling

for firm fixed effects, nor firm size, leverage (debt ratio), or ratio of fixed assets to total assets, all periods have significantly positive coefficients. Taking this at face value, it suggests that firms have an increased ROA both when committing corruption, when presumably being under investigation for corruption, and after being sanctioned for it. However, this model does not ensure that firms are comparable, as no control variables are included, nor does it take into account underlying profitability differences between the firms engaging in corruption and others. As such, the only thing column (1) tells us is what Figure 5 suggests; that on average, the sanctioned firms are more profitable than the non-sanctioned firms, and that this also holds true in the periods of interest. However, as previously noted, this does not imply that a corrupt firm is more profitable than an otherwise equal clean one.

Column (2) introduces firm fixed effects, while otherwise being the same as (1). As explained in section 4.2.2, the firm fixed effects control for underlying systematic differences in profitability between firms. By doing so, the model also controls for underlying time invariant differences between the corrupt and the clean firms. This entails that if there exist unobserved attributes that are the same for all the corrupt companies, but are not present for the clean ones, the model implicitly controls for them. We see that in this model, the coefficient for *between period* remains positive, while the coefficients for *corruption period* and *sanction period* turn negative. However, none of them are statistically significant at any conventional confidence level. In fact, the standard errors of all three coefficients are larger than the absolute values of the coefficients themselves.

In column (3) we control for firm size by including the natural logarithm of revenue in the model. The coefficient of revenue is positive, suggesting that larger firms have a higher return on assets. This fits well with what we know about the corrupt firms relative to the clean firms. On average, the corrupt firms are both larger and have higher ROA. We observe that when controlling for firm size, the coefficients of all the corruption related periods are negative, with *corruption period* being significant at the 10%-level. This indicates that in the period when the firms engage in corruption, they are actually less profitable than usual; ROA is estimated to be slightly more than one percentage point lower.

Column (4) contains our complete model. Here we introduce the firms' ratio of long-term debt to total assets (debt ratio) and ratio of fixed assets to total assets (PPE share) as controls. We see that debt ratio is significantly negative, meaning that a higher leverage leads to lower profitability, all else equal. The coefficient can be interpreted as firms that are completely

debt funded having an ROA 13.61 percentage points lower than an equal firm with no debt. The coefficient for fixed assets as a share of total assets is negative. The negative coefficient suggests that firms with a higher share of property, plant and equipment are less profitable, everything else held equal. Thus, the negative effect of higher depreciations appears to outweigh the positive effect of potentially lower capital costs. This is consistent with the results of Bakke, Hopland and Møen (2016), who also report a negative coefficient for the share of fixed assets in a similar model.

The coefficients for the variables of interest are largely unaffected going from (3) to (4). However, the *corruption period* coefficient is slightly more negative, going from approximately -0.918 to -0.999. Its standard error is also slightly reduced, as are those of *between period* and *sanction period*. These last two are still not significant at any meaningful confidence level. This suggests that profitability is not significantly lower than usual during these periods. This is in contrast to Figure 6 showing the development of mean and median of ROA relative to the time of the sanctioning, which indicates that firms perform worse in the years following the sanctioning, compared to the years before. It would seem that the observed decrease in Figure 6 is due to the timing of the sanctioning of the firms, and that the decrease in profitability is caused by worsened overall macroeconomic conditions in the later years. On the other hand, the coefficient of *corruption period* is now significant at the 10% level, suggesting that ROA is lower in the years when firms are engaging in foreign corruption. Correspondingly, a one-sided test with the null hypothesis that ROA is *higher* during the *corruption period* would be rejected with 95% confidence. The $R^2$ of our main model is 0.093, meaning that the model explains 9.3% of the observed variance in ROA. This is on par with similar studies.

### 6.1.2. The effect of fine size

To test hypothesis (3), that we expect larger sanctions to affect performance more severely than smaller sanctions, we divide the corrupt companies into three groups based on the size of the monetary sanctions they received. We define the fines from the 25th to the 75th percentile to be average sized, and the firms that have received a fine of that size are placed in the *medium fine* group. The firms that have received a smaller fine are placed in the *low fine* group and the ones that have received a larger fine are placed in the *high fine* group.

*Table 5: Main specification with firms grouped by fine size.*

| | (1) Relative fine size | (2) Absolute fine size |
|---|---|---|
| VARIABLES | ROA | ROA |
| low fine corruption period | -0.720 | -2.344* |
| | (1.004) | (1.326) |
| medium fine corruption period | -0.122 | 0.573 |
| | (0.755) | (0.694) |
| high fine corruption period | -2.218** | -2.426*** |
| | (1.029) | (0.885) |
| low fine between period | 0.444 | -1.228 |
| | (1.317) | (1.972) |
| medium fine between period | -0.301 | 1.074 |
| | (0.989) | (0.944) |
| high fine between period | -1.355 | -2.901** |
| | (1.924) | (1.368) |
| low fine sanction period | -0.529 | -1.632 |
| | (1.374) | (1.372) |
| medium fine sanction period | 0.179 | 1.443 |
| | (0.822) | (0.910) |
| high fine sanction period | -0.919 | -2.536* |
| | (1.859) | (1.390) |
| Observations | 81,951 | 81,951 |
| R-squared | 0.093 | 0.093 |
| Number of firms | 7,240 | 7,240 |
| Method | FE | FE |

*Controls and constant term not reported. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

We use two different measures, as described in section 4.3.3. We examine both the relative fine size, which is the size of the fine divided by the firm's total revenues at the time of the sanctioning; and absolute fine size, the actual dollar value[15] of the monetary sanctions. In column (1) in Table 5 the firms are grouped based on the first measure, in column (2) they are grouped using the second. Having split the firms into three groups, we study the performance of each group in each of the three periods. The variables in Table 5 are thus interactions between groups and time period. For instance, *low fine corruption period* is a dummy that takes the value 1 when the observation is of a firm that eventually received a low sanction, and the observation is from one of the years the SEC has identified that the firm violated the FCPA. This gives us nine coefficients of interest in each column.

[15] Not adjusted for inflation. Adjusting for inflation does not affect the division into groups.

In Table 5, column (1) we find that only the coefficient of *high fine corruption period* is significant at any conventional confidence level. Its coefficient is -2.218. When using a continuous variable to divide observations into groups, the absolute size of the coefficient is not particularly useful. Its interesting attributes are its relative size compared to other groups, and whether it is positive or negative. The coefficient of *high fine corruption period* then suggests that firms that received a high sanction as share of their revenue for the FCPA violation perform significantly worse during the period when they engaged in corruption. The coefficients for the other groups during the *corruption period* are both negative as well, consistent with the findings from Table 4, but they are not statistically significant. For the other periods the coefficients are generally negative, except for *low fine between period* and *medium fine sanction period*, but none achieve significance.

Dividing the firms into groups based on absolute fine size yields a higher amount of significant estimates, as seen in column (2). The results in column (2) support the finding that the firms that received high sanctions are significantly less profitable during the period when the corrupt acts are committed. In addition, the coefficients for the other periods for the firms that received large sanctions are also significantly negative; at the 5% level for *between period* and at the 10% level for *sanction period*. Those that receive a high fine are thus less profitable than usual in all of the three periods, but the coefficient is reduced and the significance diminishes from each period to the next. Performance is worst for these companies during the *corruption period*, is slightly better during the *between period*, and better still during the *sanction period*, but always worse than during the baseline. The only other statistically significant coefficient is that of *low fine corruption period*. This suggests that those that receive a low absolute fine for their violations also perform badly in the period they performed the corrupt acts. We note that this effect is not statistically significant for the firms which receive a low relative fine. The recipients of low absolute fines have negative coefficients in the other periods as well, but these are not statistically significant. We further note that the coefficients for those that receive a medium fine are positive but not significant in all periods.

### 6.1.3. The effect of firm size

We further analyze the effect of firm size to determine whether size impacts the effect of the foreign bribery sanctions. As presented in Table 5, the firms that receive a large monetary sanction in absolute terms seem to perform worse, while this effect is much less pronounced

when studying relative fines. It is reasonable to assume that large firms will generally have larger absolute sanctions imposed on them, as they have the means to pay. The correlation between fine size and revenue in the year the sanction is imposed is indeed positive[16], and the negative effect of large fines might then really be a consequence of larger firms involved in corruption performing worse than smaller firms. To study this further, Table 6 presents the effect of firm size on profitability in each of the three time periods.[17]

*Table 6: Main specification with firms grouped by firm size.*

| VARIABLES | (1)<br>ROA |
|---|---|
| small firm corruption period | -0.537 |
| | (1.330) |
| medium firm corruption period | -1.920*** |
| | (0.688) |
| large firm corruption period | 0.559 |
| | (0.717) |
| small firm between period | -0.729 |
| | (2.131) |
| medium firm between period | -1.121 |
| | (0.924) |
| large firm between period | 1.267 |
| | (0.913) |
| small firm sanction period | 0.748 |
| | (1.486) |
| medium firm sanction period | -1.374 |
| | (0.932) |
| large firm sanction period | 1.412 |
| | (0.927) |
| Observations | 82,036 |
| Number of firms | 7,244 |
| R-squared | 0.093 |
| Method | FE |

*Controls and constant term not reported. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

In Table 6, the firms are divided into three groups based on total revenue. The groups are indicated by dummy variables. The group of small firms consists of the 25% of firms with the lowest revenue. Firms from the 25th to the 75th percentile are denoted as medium sized, whereas the 25% of firms with the highest revenue constitute the large firms. The variables in the table are interactions between size group and time period, similar to the method used

[16] Correlation = 0.199

[17] We group the firms that are sanctioned twice based on size at the time of the first sanctioning.

for comparing firms receiving differently sized sanctions in Table 5. Using size dummies makes the model specification more suitable for comparison of firms with very different sizes.

Table 6 suggests that it is not the case that large firms experience harsher consequences from being sanctioned than other firms, nor do they perform worse than smaller firms in the period when corruption is committed. Large firms have positive coefficients in all periods, but none of the estimates are significant. Medium sized firms perform significantly worse during the *corruption period*, with the negative estimate significant at the 1% level, consistent with the overall estimates in Table 4. Medium sized firms also seem to perform worse in the *between period* and the *sanction period*, but these effects are not statistically significant. For the smallest firms, the coefficients go from negative in the *corruption period* and the *between period* to positive in the *sanction period*. However, none of the estimates for the smaller firms are significantly different from zero.

## 6.2. Robustness Checks

In order to examine whether our results are a consequence of the chosen specifications and assumptions we perform a number of robustness checks. Specifically, we perform our main regression with other dependent variables, and we study whether particular features of some of the FCPA cases drive our results. Finally, we perform the regression analysis including only the sanctioned firms.

### 6.2.1. Return on sales as measure of performance

To ensure that our results are robust to other measures of financial performance, we perform our main regression with return on sales (ROS) as the dependent variable instead of return on assets, as reported in Table 7. ROS is calculated as net operating profits divided by net sales. Operating profits leave out financial gains and costs, and thus also any effect of different capital costs.

We find that our findings are not particularly sensitive to this change of performance measure. The coefficients of *between period* and *sanction period* are still far from achieving significance. *Corruption period* is also insignificant in this model. However, its coefficient is still negative, with a $p$ value of 0.140. While this is not significant at any conventional

confidence level, the *p* value is relatively small. We are therefore of the opinion that this does not contradict the results presented in section 6.1.1.

*Table 7: Main specification with return on sales as dependent variable.*

| VARIABLES | (1)<br>ROS |
|---|---|
| corruption period | -1.910 |
| | (1.353) |
| between period | -1.019 |
| | (1.503) |
| sanction period | 0.292 |
| | (1.466) |
| ln revenue | 13.69*** |
| | (0.771) |
| debt ratio | -11.72*** |
| | (1.920) |
| PPE share | -6.228** |
| | (2.978) |
| Constant | -61.45*** |
| | (4.087) |
| Observations | 82,033 |
| Number of firms | 7,244 |
| R-squared | 0.087 |
| Method | FE |

*The regression includes year dummies and an interaction term between year and industry. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

## 6.2.2. Excluding cases related to Oil-for-Food

Oil-for-Food was a UN program started in 1996, designed to allow Iraq to export oil in order to pay for necessities as they were suffering from sanctions imposed on them after the first Gulf War (Otterman, 2005). The program was discontinued in 2003 after the U.S. invasion of Iraq. The program was heavily abused by members of the Iraqi government and the participating companies, and Iraqi officials received more than $1.5 billion in illegal kickbacks from foreign firms. According to the Independent Inquiry Committee investigating the program, more than 2000 companies participated in the kickback scheme (Volcker, Goldstone, & Pieth, 2005).

14 of the firms studied were sanctioned by the SEC as a result of their involvement in the program.[18] Because a relatively large part of our sample have been sanctioned in conjunction

[18] The firms are Johnson & Johnson, General Electric, Daimler AG, Innospec, AGCO Corp, Novo Nordisk AS, FIAT, AB Volvo, Flowserve, Akzo Nobel, Chevron, Ingersoll-Rand Company, Textron Inc, and El Paso Corp.

with this particular scheme, it is relevant to ensure that our findings are not driven by these cases. Most companies involved in the Oil-for-Food scandal engaged in corruption in the early 2000s, which also are some of the least profitable years in our sample. As such, the negative coefficient of *corruption period* could in part be caused by the relatively large number of cases in these bad years, even if we control for time effects in our model. Also, because of the nature of the cases, there is a chance that market players may have reacted differently to involvement in the Oil-for-Food scandal than other corruption cases. For instance, the media attention may have led to larger scrutiny and worse performance afterwards. On the other hand, the huge amount of companies involved could mean that those sanctioned may have been regarded more favorably, as "everyone else was doing it".

*Table 8: Main specification with Oil-for-Food-related cases left out.*

| VARIABLES | (1)<br>ROA |
|---|---|
| corruption period | -1.166** |
| | (0.573) |
| between period | -0.548 |
| | (0.852) |
| sanction period | -0.874 |
| | (0.733) |
| Observations | 81,734 |
| Number of firms | 7,230 |
| R-squared | 0.093 |
| Method | FE |

*Controls and constant term not reported. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

We ultimately find that when leaving out all 14 firms sanctioned for violations committed as part of the Oil-for-Food program, the original results are supported, as seen in Table 8. In fact, the significance of *corruption period* is now at the 5% level. Our findings are thus not sensitive to the exclusion of these cases. This is consistent with the findings of Karpoff, Lee, and Martin (2017), who perform the same robustness check in their study.

### 6.2.3. Other controls for robustness

We use net income when calculating ROA, meaning that we measure after-tax profitability. Due to different tax systems across countries, for instance, this could affect our estimates. However, results are robust to using pretax income instead of net income when calculating ROA, as we see from Table 9, column (1).

*Table 9: Various robustness checks*

| | (1) Pre-tax ROA as dependent variable | (2) No repeat offenders | (3) No fraud cases | (4) Only corrupt firms |
|---|---|---|---|---|
| VARIABLES | Pre-tax ROA | ROA | ROA | ROA |
| corruption period | -1.204* | -0.826 | -0.822 | -1.491*** |
| | (0.618) | (0.541) | (0.525) | (0.562) |
| between period | -0.202 | -0.398 | -0.0343 | -1.307 |
| | (0.911) | (0.775) | (0.734) | (0.885) |
| sanction period | -0.0486 | -0.290 | 0.0478 | -0.711 |
| | (0.794) | (0.701) | (0.663) | (0.699) |
| ln revenue | 4.497*** | 3.674*** | 3.665*** | 2.354*** |
| | (0.180) | (0.167) | (0.167) | (0.667) |
| debt ratio | -16.25*** | -13.60*** | -13.59*** | -21.55*** |
| | (0.690) | (0.653) | (0.653) | (3.702) |
| PPE share | -17.72*** | -17.80*** | -17.82*** | -5.797 |
| | (1.116) | (1.046) | (1.046) | (4.130) |
| Constant | -7.959*** | -7.077*** | -7.045*** | -6.200 |
| | (0.960) | (0.893) | (0.893) | (5.229) |
| Observations | 82,034 | 81,951 | 81,960 | 2,158 |
| R-squared | 0.112 | 0.093 | 0.093 | 0.287 |
| Number of firms | 7,244 | 7,240 | 7,240 | 107 |
| Method | FE | FE | FE | FE |

*All regressions include year dummies and an interaction term between year and industry. Robust standard errors (clustered on firm level) in parentheses. *** p<0.01, ** p<0.05, * p<0.1*

Column (2) in Table 9 leaves out repeat offenders from the regression. We have already left out all firms sanctioned in 2017 and 2018, regardless of whether they had been sanctioned earlier as well, but here we also exclude those sanctioned more than once from 2000 to 2016.[19] We do this because repeat offenders could affect the results by receiving more scrutiny after a second violation, and because periods from the two cases may overlap and cause confounding effects. Leaving out repeat offenders, we lose the significance of *corruption period.* Repeat offenders thus seem to perform particularly poorly during the period they engage in foreign corruption. However, the coefficient of *corruption period* is still negative, and the *p* value is rather low even as significance is not achieved, at 0.127. This suggests that the repeat offenders contribute to our results, but are not solely responsible. As it is far from certain that the effects of corruption for repeat offenders are driven by other mechanisms than in other cases, is it not necessarily more correct to exclude them.

[19] The firms sanctioned twice are ABB, Baker Hughes, IBM, and Tyco.

For some firms, fraud charges are commingled with the FCPA violations. As described in the literature review, fraud is considered a serious crime, with considerable effects on reputation and stock prices (Karpoff & Lott, 1993; Davidson, Worrell, & Lee, 1994; Karpoff, Lee, & Martin, 2017). As such, it could be that fraud cases bias the estimates of profitability in conjunction with foreign corruption. We have identified four cases among those included in our analysis where fraud charges not directly related to the FCPA violations are included in the same SEC statement.[20] Leaving out these cases gives us the same general results, as reported in column (3) of Table 9. However, the estimates for *between period* and *sanction period* are even less negative than before, and are for all intents and purposes zero. This substantiates the result that there is no significant effect in any period except the years when corruption is committed. The estimate for *corruption period* is slightly affected, and the *p* value increases to 0.117. The effect of *corruption period* is thus somewhat weakened by leaving out fraud cases, but they do not seem to drive the results.

In our main model specification we include a control group to improve the estimates of the control variables. However, the control group is not identical in attributes to the group of corrupt firms, and they might therefore be affected differently by the control variables than the corrupt firms are. To examine this, we perform the regression with only the corrupt firms included in column (4) of Table 9.[21] [22] We now find significance of the *corruption period* at the 1% level, and the size of the coefficient has increased to -1.491. No significance is found for the other coefficients. This supports the results from the main specification.

[20] We have identified fraud charges included in the cases against American Banknote Holographics, Nature's Sunshine Products, Tyco, and Willbros Group.

[21] The regression in Table 9, column (4), as before, includes an interaction term between industry and year. Because there are few observations of some of the industries, we have checked whether the results are affected by removing this interaction term, and instead controlling only for time effects (in addition to the reported control variables). Leaving out the interaction term does not significantly impact the results.

[22] Table 9, column (4), as before, does not include firms in the financial sector. When leaving out the control group, it would be possible to include the firms in the financial sector without encountering problems regarding comparability with the control group (although problems regarding different reporting rules remain). We have confirmed that the estimates in Table 9, column (4) would not be significantly affected by the inclusion of the five firms within the financial sector sanctioned for FCPA violations.

# 7. Discussion

This chapter discusses the findings presented in chapter 6 in light of the hypotheses presented in chapter 3. We further review the implications of our results for firms and regulators, and present limitations of the analysis.

## 7.1. Discussion of Hypotheses

### 7.1.1. Hypothesis 1

Hypothesis (1) states that we would expect corrupt firms to perform better than usual when engaging in foreign corruption. This hypothesis is clearly not supported by our findings. In the period when the SEC has identified that a firm has violated the FCPA, firms perform worse than usual. The effect is significant both statistically (at the 10% level) and economically, with an approximately one percentage point reduction in ROA during the *corruption period* compared to before and after the corruption related periods.

This finding seems intuitively hard to explain. If corruption leads to reduced profitability, firms would have little incentive to engage in it. However, we cannot draw the conclusion that corruption in itself leads to reduced performance. Instead, it might be a case of reverse causality. Two-way causality is a common problem in studies of corruption, as remarked by Lambsdorff (1999). It could be that the bad performances lead to corruption, and not that corruption leads to bad performances. Opportunity, rationalization, and pressure are the three factors that need to be in place for people to commit fraud (Albrecht, Albrecht, Albrecht, & Zimbelman, 2016, pp. 34-35), and the same holds true for corruption. If profitability is subpar, that might provide the necessary pressure for managers to cross the line and pay bribes to cut costs or increase revenue. Whether the bribery pays off is not something we can determine from our results. It does seem that profits obtained through corruption are not enough to get the firms back to pre-corruption performance. It might nevertheless be that results in the *corruption period* had been even worse for these firms had they not committed the violations. As such, corruption may have lead the firms to perform better than they otherwise would have done, but the situation they found themselves in that lead them to corruption was so poor that illegality was not sufficient to get them back to “normal”.

If many of the corruption cases are of an extortive nature that might also explain the subpar results during the *corruption period*. Firms may have committed corruption because they otherwise would have faced interference from public officials or authorities which would have brought business to a standstill. That is, they may be subject to distortive meddling and opt to bribe their way out of a situation that would end badly for them in any case. Bribes are then paid as the result of a perceived need, and profitability is reduced compared to when the demand for bribes is not present. There might still be gains from the corruption, as the sums paid in bribes are likely smaller than the profits obtained from keeping business running. Nevertheless, profitability is worse than it would be if they could perform their operations unencumbered. As remarked in the literature review, Svensson (2003) finds that firms that receive more public services, engage in trade, and pay a larger number of different taxes are more likely to have to pay bribes. These are attributes that most of the corrupt firms are likely to have. This suggests that they are likely subject to extortive demands, which supports the argument that bribes paid out of perceived necessity may not have a net positive effect on performance.

Continuing this argument, one may postulate that profit-motivated bribery could lead to future extortion. To provide a stylized example, consider a firm that pays a bribe to establish a factory in a country with high levels of corruption. The firm is promised beneficial business conditions as a result of the bribe. However, having established the factory, the country's authorities demand more bribes to access necessary infrastructure. The firm has had considerable expenses building the factory, and pulling out of the country would mean realizing large losses. They therefore decide to pay the bribes, as they have little leverage in negotiations. Investment arbitration is not an option, as they obtained the permits for the factory through corruption in the first place.[23] However, the demand for bribes does not let up, and bribes turn out to make up a significant part of the factory's operating expenses. Firm performance is negatively affected as a whole. What seemed like a profitable opportunity then instead ends up being a vicious cycle of increased costs to keep operations running; a veritable "bog" of corruption. Had the firm avoided original bribes to obtain the permits for the factory, they might have been able to avoid sinking into this quagmire. This argument is similar to one presented by Argandoña (2001), who among other things

[23] See for instance World Duty Free Company Limited v. The Republic of Kenya (2006).

discusses how benefits from corruption may often be temporary, while the costs are more permanent.

We do, however, find it somewhat unlikely that the relatively worse financial performances during the *corruption period* are driven by the companies being subject to systematic extortion. Notably, one is not liable under the FCPA in cases of duress or extortion, although this is limited to payments made in response to imminent threats to health and safety (DOJ & SEC, 2012). Extortion may occur, but it seems implausible that large international companies are exploited to such a degree that we can observe economically significant effects in their consolidated financial statements. It could be that extortive corruption factors into our results, but it seems more likely that it is only one of multiple mechanisms affecting the estimate.

Another potential aspect that could contribute to explaining the negative coefficient of *corruption period* is that performance may be reduced because of worsened employee morale. This would be in accordance with findings on the correlation between employee morale and financial performance by Harter, Schmidt and Hayes (2002) and Serafeim (2013). If the corruption was known or rumored internally, it could affect how employees view their own company. A worsened reputation could lead to the loss of employees and lower productivity. There is widespread agreement that employee satisfaction is important to maintain high financial performance, and if engaging in corruption affects this satisfaction it could have adverse consequences. However, the lack of a significantly negative relative ROA in the *between period* and *sanction period* is an argument against employee morale causing the relatively poor performance in the *corruption period*. Had employee morale been the sole cause of the profitability difference between the *corruption period* and the baseline, we would have expected the effect to be persistent over time. Instead, we do not observe a significantly negative effect in the following periods. There is the possibility that corruption leads to a different selection of employees, causing ones with strong ethical sense to leave, while those with less scruples are directly or indirectly selected for. This could cause the effect to be temporary; when the ethical employees are replaced by less ethically conscious ones, employee morale would no longer be affected. If this is the case, it would explain the results. It nonetheless seems implausible that employee morale is the cause of the observed effect, although it might contribute. It is unlikely that illegal practices would be widely known throughout the company, especially as foreign bribery occurs at locations far from the company's main operations. Indeed, if employee morale was severely damaged by the

corruption, and this caused a drop in performance, we would have expected the effect to be most pronounced *after* the case became public knowledge.

On the whole, hypothesis (1) is thus unsupported. Instead of the expected increase in performance during the period when corrupt acts are committed, we observe worsened profitability. It might nonetheless be the case that corruption has a positive effect on performance as opposed to abstaining, given the situations the firms find themselves in. If causality is reversed, and corruption to some degree is caused by poor performance, it will obscure the actual effect of corruption on profitability. Still, there is some theoretical support for corruption actually impairing performance. It might also be the case that extortive, and thus potentially unprofitable, corruption contributes to our results.

### 7.1.2. Hypothesis 2

Hypothesis (2) states that we would expect companies which are subject to sanctions for foreign bribery to suffer negative consequences in terms of worsened financial performance. As the corruption case is often known well before the final resolution of the enforcement process, there is reason to believe that these negative consequences may arise both before and after the official sanctioning. Hence we could expect to observe lower profitability both during the *between period* and the *sanction period*. The results presented in section 6.1, however, do not indicate that companies perform worse in any of the two periods after the assumed discontinuance of the corrupt activities. The regression analysis does not suggest that firms perform worse as a result of the sanctions. On the contrary, the significantly negative coefficient for the *corruption period* indicates that the companies on average performed better after the alleged corruption ended, compared to when they committed the illegalities. Thus, we find no empirical support for hypothesis (2).

First and foremost, the results seem to suggest that the detection of the corruption cases and the following investigation and sanctions have a negligible financial impact. As discussed in section 3.3, there are many reasons why the cases may not be of large importance for the financial performances. Firms' incentives for self-reporting means that companies do get a degree of leniency in exchange for cooperation with the prosecution. Often, direct sanctions might therefore not be large enough to have a notable impact on profitability. In addition to the direct sanctions, we would expect companies to experience indirect consequences over time, such as reputational damage. However, the results do not indicate that companies suffer reputational damage through for instance worsened relationships to stakeholders and

business relations to a degree that significantly impacts their overall financial performances. One of the reasons for this could be that FCPA cases are usually resolved through settlements. As discussed, the widespread use of settlements could lead to less media scrutiny and less attention to the case in general. It could also be that self-reporting lessens the case's impact on reputation. Moreover, the way prosecution and settlements are carried out may result in the enforcement system being viewed as less legitimate. All of these factors could lead to a lower reputational penalty. This seems to be in line with the findings of Karpoff, Lee and Martin (2017), but contrasts with those of Sampath, Gardberg and Rahman (2016).

It is also possible that the size of the companies obscure the effects of a single corruption case, even if the amounts involved add up to the hundreds of millions. In the study, we observe only the consolidated financial statements for large multinational corporations. Even though the negative consequences of the corruption case may be severe for the affiliate which directly committed the illegal acts, these effects may be concealed in the noise of thousands of other events which also affect the concern throughout the year. This may be amplified by the periods analyzed in the study lasting over several years. If there is only a significant one-time impact in a single year, that effect may be harder to observe using time intervals that last for three or four years. However, we consider it unlikely that the cases would only affect companies in one single year. Even if the consequences of the cases were limited to a one-time effect, this would be difficult to identify because the timing would likely vary across companies. Other sources of noise, such as inconsistencies in fiscal years across different companies, could add to this effect. As such, we cannot rule out that there are negative consequences following the enforcement process and the sanctioning that are not pronounced enough to have a statistically significant impact on the consolidated financial performance. Still, if the consequences are not serious enough to be statistically significant, they are unlikely to be of substantial economic significance. That we are able to consistently observe worse than usual financial performances during the *corruption period* also suggests that the model would have detected a significant negative effect in later periods, had it been there.

As mentioned, our results indicate that firms on average perform worse during the years when they commit the illegal acts than after the assumed cessation of the illegality. A possible interpretation of what appears to be a positive effect of ceasing to pay bribes may be that the conclusion of the illegality is due to an improvement in the business conditions. That

is, the company may no longer be subject to extortive demands for bribes, as a government or a bureaucratic institution is replaced by another less prone to generating red tape. Reduced meddling from government officials and fewer demands for bribes may lead to both the end of the corrupt scheme and to higher profitability in general. That improved business conditions lead to better profitability and less corruption would be in accordance with the findings of for instance Kaufmann and Wei (2000), Svensson (2003), and Fisman and Svensson (2007).

A different explanation of the apparent absence of negative consequences is that the corrupt activities are indeed profitable and lead to the company achieving higher profits than it otherwise would have done. The observed improvement in financial performances in the *between* and *sanction* periods relative to the *corruption period* could be due to delays in the payoffs from the activities related to the illegality. It may take several years from the initial go-ahead of a major project until the cash flows have an impact on the profit and loss statement. For instance, if a company bribes a public official to get access to an offshore oil license, several years could pass before the field is operational and generates revenues. Thus, there is a chance that our results to some degree reflect a delay in the transmission of the gains from the corrupt activities to the financial statements. As the financial performances in *between period* and *sanction period* are better than in the *corruption period*, this could potentially indicate that the corrupt practices play a part in bringing the company out of a low performance period.

Moreover, the possibility remains that the corrupt practices continue after they are assumed to have ceased. As noted in section 3.3.1, the opportunity for corruption is often still present even following the sanctioning. The situation in the country where the corruption was committed may not have changed, and the same players could still be there. As of the time of writing, the SEC has sanctioned seven companies for FCPA violations more than once, highlighting that the sanctioning does not necessarily bring the corruption to an end. For instance, Baker Hughes has been sanctioned for foreign bribery in Indonesia twice, both in 2001 and 2007.

As discussed above, we cannot rule out two-way causation. If companies are more likely to commit illegal acts if they experience a slump in financial performance, with subsequent pressure to improve the situation, managers could be more willing to abstain from illegality if performances improve. Therefore, one could perhaps argue that the performances do not

necessarily improve because the company ceases to bribe foreign officials, but that the company ceases to bribe foreign officials because performances improve. However, a large share of the foreign bribery schemes end as they are detected by either internal or external control mechanisms. In many cases it seems somewhat unlikely that the corrupt practices ceased as a direct or indirect consequence of stronger financial performances.

To summarize, we find no support of hypothesis (2). Our analysis does not indicate that firms perform worse as a result of being sanctioned for FCPA violations. This suggests that the sanctions in themselves are not large enough to have a significant impact on financial performance, and that the enforcement process does not have a noticeable impact on profitability through reputational or other effects. Still, we cannot conclude with absolute certainty that the observed better performances after the conclusion of the corruption are not related to other effects, such as an improvement in the business conditions the companies are facing.

### 7.1.3. Hypothesis 3

Hypothesis (3) states that we expect firms that have received large sanctions to perform worse as a result of the enforcement action than those receiving a lower sanction. As described in section 6.1.2, we classify "large" sanctions as the 25% highest fines, measured both relative to firm size and in absolute terms. While we found no support for the hypothesis that firms in general perform worse following an FCPA sanction, our findings do suggest that this could be different for the firms that have received the highest sanctions in absolute terms.

Table 6 establishes that large firms do not perform significantly different than smaller firms in the *between period* and *sanction period*. This indicates that the result in Table 5 column (2) is not driven by the larger firms performing worse following an enforcement action than others. Even though those receiving large fines as a share of revenue do not perform significantly differently from the others, the lack of a connection between firm size and fine size suggests that absolute fine size is a better measure of severity. It appears that the size of the fine is determined by the severity of the crime and the degree of compliance; firms are not simply fined based on their ability to pay. Thus the results suggest that firms receiving larger sanctions do perform relatively worse, and there may be some hold to hypothesis (3).

It remains true that even for those receiving large fines, performance is at its worst in the period when corrupt acts are committed, and then seems to improve. While performance is significantly worse than the baseline for the subsequent periods as well (at the 5% and 10% levels for *between period* and *sanction period* respectively), there is a gradual improvement following the cessation of the illegalities. If causality is reversed and low profitability leads to corruption, as discussed earlier, the large negative coefficient of *high fine corruption period* could imply that the firms in the most dire straits also commit the most serious crimes. Alternatively, they are the firms that have been extorted the most, meaning they have paid large sums in bribes and therefore are punished severely, although this seems unlikely. As they perform particularly poorly during the *corruption period*, it might be more challenging to get back to the baseline, explaining the negative coefficients of the following periods.

Another reason why improvement seems to be slower for recipients of large fines could be that these, at least, experience a reputational effect. Assuming that fine size is a good proxy for the severity of the crime, this could mean that worse crimes have larger implications for reputation and subsequent performance. This fits well with the findings of Smith, Stettler, and Beedles (1984) and Karpoff and Lott (1993) among others. The significantly negative coefficients of *high fine between period* and *high fine sanction period* suggest that the quick return to normal performance that the rest of the companies experience may be withheld from those that have committed the most serious crimes.

It could also be that self-reporting and compliance is rewarded not only by regulators, but that is also helps for avoiding reputational costs. The firms that self-report and cooperate with regulators receive reduced sanctions, meaning that those that received the largest sanctions likely were less cooperative. The market might consider a firm that self-reports to be more trustworthy than those which are exposed by whistleblowers or authorities, which could lead them to avoid reputational damage.

A further explanation of the potential effect on performance of large fines is that being fined hundreds of millions is likely to draw more media scrutiny than a slap on the wrist. A reputational effect might materialize simply because of more attention, regardless of the severity of the violation. As discussed, one of the reasons why FCPA sanctions may not affect performance is that the way cases are treated, with most resolved through negotiated settlements, could mean that they go under the radar for many. With larger sums involved,

this may no longer hold true. For large cases with large fines there could thus be a reputational effect which other sanctioned firms are spared from.

Hypothesis (3) is thus somewhat supported. The firms receiving high sanctions are the only ones where we observe abnormally low performance in the *between period* and *sanction period*. However, we cannot conclude that this is because of a more substantial fallout from being involved in corruption for these firms than for others. It seems likely that there is a reputational effect present, but if the firms committed more serious crimes because of worse profitability or more far-reaching extortion, then the underlying reasons for the magnitude of crime might better explain the reduced performance than the repercussions from being caught.

## 7.2. Implications for Firms and Regulators

Our findings suggest that FCPA sanctions are not particularly damaging for the profitability of firms. With the exception of those receiving the most severe punishments, firms sanctioned for corruption perform at their ordinary level both when under investigation and after settling charges of foreign bribery. As such, it does not seem that firms have to fear severe threats to operations and overall profitability if they are caught. If corruption leads to profits, firms seem to have little incentive not to engage in it, especially when taking into account the relatively small chance of getting detected. However, while we cannot make explicit claims with regards to causation in our study, the significantly lower return on assets when engaging in foreign bribery, relative to other periods, entails that corruption might not result in a net profit. On account of this, firms should be wary of getting involved in corruption; not just because of ethics or the potential repercussions if caught, but because the involvement could be damaging to the company's bottom line. Moreover, our findings indicate that it may not be too damaging for firms entangled in corruption to self-report their crimes, as the fallout seems to be minor. It might be that self-reporting reduces the consequences compared to if the corruption is discovered in other ways, not just because of a more lenient treatment by authorities, but also because of a smaller impact on reputation.

For an investor, our findings imply that there is little financial reason to avoid investment in firms entangled in FCPA cases. The main reason for investors to avoid such companies, based on our findings, would be strong preferences regarding ethical investments. However, we have not studied how stock returns are affected directly by the cases, and we cannot rule

out that FCPA sanctions affect stock prices to a larger degree than the financial statements would suggest. In addition, the findings regarding lower profitability during the period foreign corruption is committed may suggest that investors should avoid firms subject to a high corruption risk.

The results also have implications for regulators who determine sanctions in potential future cases. As remarked, one main inference to draw from the analysis is that the FCPA-related sanctions that have been imposed thus far do not seem to have had a profound effect on firms' profitability. We do not observe that firms suffer a financial downturn following FCPA cases. As sanctions do not appear to impact performance, the sanctions should have other consequences to have a deterrent effect. Moreover, this result suggests that previous sanctions in general have probably not been too severe for the perpetrators. Nevertheless, the results do indicate that the firms receiving the heaviest sanctions may possibly experience a reduction in profitability as a consequence of the enforcement action. Neither result, however, necessarily means that current sanctions are not at an appropriate level. The discussion of what would constitute a correct sanctioning level depends on a number of factors, such as resulting externalities and the targets of regulators, which are outside of the scope of this thesis. If regulatory authorities expect that firms will have reduced profitability after being sanctioned, our study suggests that this is not valid assumption. Authorities may in that case wish to increase FCPA-related sanctions. Still, we do not make any claims regarding whether it would be desirable to observe a significant deterioration of profitability related to the cases. As firms are rewarded for cooperation, small financial consequences of sanctions could be a desirable effect of the use of leniency mechanisms.

## 7.3. Limitations

Arguably the most important limitation of our analysis is that we cannot draw conclusions on causality regarding foreign bribery and profitability, as discussed earlier. We cannot rule out that firms are more likely to commit corruption if they are performing poorly. The results indicate that firms experience lower profitability in the period when they commit the corrupt acts, but we cannot conclude that this is a causal effect of the corruption. Just as ROA can be considered as a function of being involved in corruption, among other things, the probability of being involved in corruption could be considered as a function of profitability. This possibility of reverse or two-way causation may lead to over- or underestimation of the true

effect of corruption on profitability. Problems regarding reverse causality can be mitigated using instrument variables. The instrument would have to be a variable highly correlated with corruption that is not correlated with ROA, except through the correlation with corruption. We are of the opinion that finding suitable instruments for corruption would prove challenging in practice.

Another possible source of uncertainty is that the consequences of foreign bribery and subsequent sanctions may have changed over time. The attitude among stakeholders and business relations towards corruption and the involved culprits might have developed since the turn of the century. Monetary sanctions have increased notably throughout the years studied, which could suggest that FCPA violations have been considered relatively more serious in recent years. The FCPA has also been subject to several minor revisions and guideline updates throughout the time frame studied. This could mean that the effects have become more or less severe for companies sanctioned in the most recent years, compared to firms that were punished relatively early. On the other hand, all cases included in the study were enforced after the last major amendment of the FCPA in 1998, and almost all of the enforcement actions relate to situations continuing until after 1998.

A separate source of uncertainty is that the companies that have been sanctioned by the SEC may not be a representative sample of firms guilty of foreign bribery. There may be many companies that are corrupt that are not caught. Karpoff, Lee and Martin (2017) suggest that 22.9% of Compustat-listed firms with foreign sales have been involved in foreign bribery since the introduction of the FCPA in 1977, while the share of companies that have been subject to enforcement actions is considerably smaller than that. There may be systematic differences between firms that are caught and those that are not. For instance could firms whose foreign bribery schemes are more lucrative have less incentive to self-report or cooperate with prosecutors, and may thus be less likely to get caught and sanctioned. This could potentially affect the estimates of how firms perform during the period when they commit the illegal acts. Also, firms that are profiting more from foreign bribery may also experience a more severe deterioration of financial performance following an enforcement action and a forced end to a lucrative bribery scheme.

Furthermore, financial statements may not give a perfect picture of company profitability. The accounting standards leave some room for judgement, and there is always the possibility that the accounts may be manipulated. As the companies in the study have been subject to

sanctions for breaches of U.S. law, they may be more likely to alter their financial statements than the average firm. Even in cases where everything is done in perfect accordance with all regulations, the financial statement remains an imperfect measure of profitability. However, as all the companies have listed securities, they are subject to significant scrutiny by investors and other stakeholders, and all the financial statements included in the analysis have been subject to audit.

This study only includes firms related to the U.S. that have been sanctioned in the U.S. for violations of the U.S. FCPA. We may expect different the sanctions and consequences of those to be different in other jurisdictions. There are many reasons why the effects could vary across countries. For instance, there are considerable cross-country differences in business culture and how corruption cases traditionally have been treated in the legislations in different parts of the world. The results cannot necessarily be generalized to other contexts and jurisdictions.

The econometric analysis is conducted upon a sample of 107 companies sanctioned for FCPA violations. There is a possibility that one may not be able to observe weak effects due to the limited sample size. We do not, however, believe this to be of major importance. If an effect is not large enough to be observed using a sample size of 107 companies, it is less likely to be of large economic significance.

Finally, there is always a risk of noise in the data due to human error. When constructing the dataset, we may have made mistakes collecting information from the SEC statements, despite our best efforts. There is also a chance that the statements may be incomplete. Such noise is expected to be of limited importance for the interpretation of results as long as the errors are not systematically correlated with the variables included in the econometric analysis (Hopland, 2017). Random noise and unsystematic errors would not cause bias in the estimates. There may also be discrepancies between the calendar year in which a sanction was communicated by the SEC and the fiscal year of the company. Unless these differences are systematic across companies, they are unlikely to cause bias. Moreover, as the periods used in the analysis generally last for several years, the estimates are less sensitive to the consequences of timing inaccuracies.

# 8. Conclusion

## 8.1. Summary of Findings

We originally presented three hypotheses regarding firm performance in conjunction with cases violating the U.S. Foreign Corrupt Practices Act. We expected (1) that firms would perform better than usual when engaging in corruption, (2) that firms would perform worse as a result of the FCPA-related enforcement action, and (3) that performance would be most affected for the firms receiving large sanctions. No empirical support is found for hypotheses (1) and (2), while we find some support for hypothesis (3).

During the period when the U.S. Securities and Exchange Commission has identified that a firm engaged in foreign corruption, we find that profitability, measured as return on assets, is around one percentage point lower than the firm's usual profitability. The result has relatively weak statistical significance, but various tests indicate that it is robust. However, we are unable to identify the direction of the causality, and it might be that firms are more likely to pay bribes if performance is weak. If that is the case, the net effect of corruption might be positive, the sanction notwithstanding. Other factors may nevertheless explain our results, such as extortive corruption or worsened employee morale.

We find no indication that firms perform worse when under investigation or after being sanctioned for FCPA violations. Profitability in these periods is not significantly different from how the firms usually perform, and is better than during the period when it is established that corruption has been committed. FCPA sanctions therefore do not seem to have significant adverse effects on company performance. The exception is the firms that have received the largest sanctions, measured in absolute dollar value. While they, like the rest of the firms, perform relatively better after ending the observed corrupt practices, profitability is still significantly worse than usual in the years surrounding the sanctioning. We discuss different factors which could cause this, among them worse relative performance during the period of corruption, which could result in a longer path back to normal performance. On the other hand, it could be that these firms experience repercussions from damaged reputation that other firms are spared from.

For firms, our findings seem to imply that the financial consequences of being sanctioned for breaches of the FCPA are minor. Unless sanctions are particularly severe, performance

appears to be relatively unaffected. This could mean that firms have little financial incentive to avoid foreign bribery. Still, as we do find that firms are less profitable when engaging in corruption, it could be that the net effect of being involved in cases such as these is negative, regardless of sanctioning. This means that even without taking ethical concerns into account, managers should be careful of getting their firm involved in corruption. Our findings do not indicate that firms currently suffer severe indirect negative consequences on top of the direct sanctions they are subject to, and regulators may wish to consider this when determining sanctions in future FCPA cases. However, we do not make any claims with regards to whether or not current sanctions are in fact at an appropriate level.

## 8.2. Suggestions for Further Research

The scope of the thesis entails that not all aspects relating to the profitability of corporate corruption can be covered. Expanding the study to examine the effects of market structure and competition intensity would add valuable insight on how such factors influence foreign bribery and its consequences. Firms in different industries and market structures may have different propensities to engage in corrupt activities, and they may suffer different repercussions of enforcement actions, as proposed in Figure 1 (section 3.1.1). It would also be interesting to compare the consequences of FCPA violations in cases where firms self-report their crimes compared to cases where the illegalities are uncovered in other ways. Moreover, this thesis is limited to the companies that have been sanctioned by the U.S. Securities and Exchange Commission. The study could be expanded to other jurisdictions, such as Germany or the U.K., where enforcement intensity has increased significantly in recent years. In the future, as the number of cases goes up and more data becomes available, one could also revisit the topic and possibly adjust for time effects. This would enable researchers to determine whether consequences of sanctions have become more or less serious over time.

If possible, an aim for future studies could be to determine causal effects of corruption on profitability with greater certainty. Using instrument variables is one option to achieve this, if suitable instruments are found. Another suggestion for further research is to study the financial consequences of corruption cases at a more detailed level. By analyzing how the cases affect certain key parts of companies' financials, such as capital costs, sales, and

procurement, we would understand more of how and if the enforcement actions influence operations and financing.

Finally, it would be interesting to study the experiences of managers and employees of firms sanctioned for FCPA violations using a more qualitative approach. The cases could affect motivation, work environment, and overall employee well-being in the organization, even as we are unable to identify effects on profitability.

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# Appendix

## A.1. NAICS Codes

*Table 10: North American Industry Classification System (NAICS) codes.*

| NAICS code | Description in bar charts | Official description |
|---|---|---|
| 11 | Agriculture and Fishing | Agriculture, Forestry, Fishing and Hunting |
| 21 | Mining and Petroleum | Mining, Quarrying, and Oil and Gas Extraction |
| 22 | Utilities | Utilities |
| 23 | Construction | Construction |
| 31 | Food and Textiles Mfg. | Manufacturing |
| 32 | Wood and Petrochemical Mfg. | Manufacturing |
| 33 | Metal, Electronics, Misc. Mfg. | Manufacturing |
| 42 | Wholesale Trade | Wholesale Trade |
| 44 | Auto, Home, Necessities Retail | Retail Trade |
| 45 | Hobby and Misc. Retail | Retail Trade |
| 48 | Transportation | Transportation and Warehousing |
| 49 | Postal and Warehousing | Transportation and Warehousing |
| 51 | Information | Information |
| 52 | Finance and Insurance | Finance and Insurance |
| 53 | Real Estate and Rental | Real Estate and Rental and Leasing |
| 54 | Professional Services | Professional, Scientific, and Technical Services |
| 55 | Management | Management of Companies and Enterprises |
| 56 | Support and Waste Management | Administrative and Support and Waste Management and Remediation Services |
| 61 | Educational Services | Educational Services |
| 62 | Health Care & Social Assistance | Health Care and Social Assistance |
| 71 | Arts and Entertainment | Arts, Entertainment, and Recreation |
| 72 | Accomodation and Food Services | Accomodation and Food Services |
| 81 | Other Services | Other Services (except Public Administration) |
| 92 | Public Administration | Public Administration |
| 99 | Not Classified | Not Classified |

*Source: Executive Office of the President, Office of Management and Budget (2017)*

# A.2. Correlation Matrix

*Table 11: Correlation matrix of variables included in main regression.*

| | ROA | corruption period | between period | sanction period | ln revenue | debt ratio | PPE share |
|---|---|---|---|---|---|---|---|
| ROA | 1.0000 | | | | | | |
| corruption period | 0.0264 | 1.0000 | | | | | |
| between period | 0.0209 | 0.0014 | 1.0000 | | | | |
| sanction period | 0.0173 | 0.0231 | 0.0048 | 1.0000 | | | |
| ln revenue | 0.2660 | 0.1205 | 0.0976 | 0.0955 | 1.0000 | | |
| debt ratio | -0.0578 | -0.0009 | 0.0058 | 0.0056 | 0.2429 | 1.0000 | |
| PPE share | 0.0404 | -0.0092 | -0.0013 | -0.0056 | 0.1487 | 0.2743 | 1.0000 |

# A.3. Regression Diagnostics

## A.3.1. Normality plots

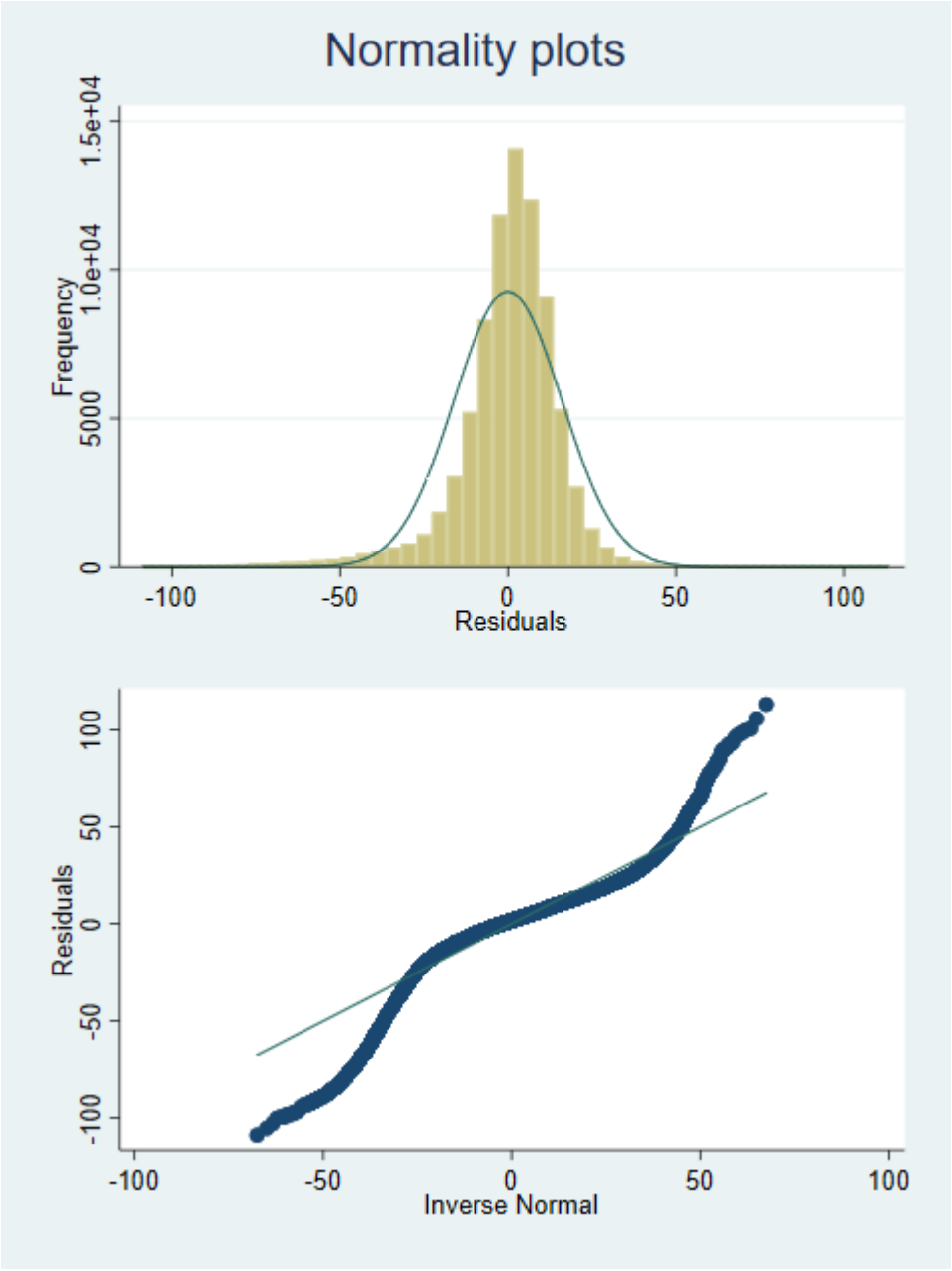


*Figure 8: Diagnostic plots for normality of residuals.*

## A.3.2. SK-test

*Table 12: Skewness-kurtosis test for normality of residuals.*

| Variable | Obs | Pr(Skewness) | Pr(Kurtosis) | adj | chi2(2) | Prob>chi2 |
|---|---|---|---|---|---|---|
| Residuals | 82,036 | 0.0000 | 0.0000 | | . | . |

# A.4. List of Sanctioned Companies

*Table 13: List of firms sanctioned by the SEC for FCPA violations from 2000 to 2016.*

| Company | Sanction year | Corruption period | Fine size (mill. USD) | Incl. in final sample? | SEC statement URL |
|---|---|---|---|---|---|
| General Cable Corporation | 2016 | 2003-2015 | 75 | Y | https://www.sec.gov/news/pressrelease/2016-283.html |
| Teva Pharmaceutical | 2016 | 2002-2012 | 519 | Y | https://www.sec.gov/news/pressrelease/2016-277.html |
| Braskem S.A | 2016 | 2006-2014 | 957 | Y | https://www.sec.gov/news/pressrelease/2016-271.html |
| JPMorgan | 2016 | 2006-2013 | 264 | N | https://www.sec.gov/news/pressrelease/2016-241.html |
| Embraer | 2016 | 2008-2011 | 205 | Y | https://www.sec.gov/news/pressrelease/2016-224.html |
| GlaxoSmithKline | 2016 | 2010-2013 | 20 | Y | https://www.sec.gov/litigation/admin/2016/34-79005-s.pdf |
| Och-Ziff | 2016 | 2007-2011 | 412 | N | https://www.sec.gov/news/pressrelease/2016-203.html |
| Anheuser-Busch InBev | 2016 | 2009-2012 | 6 | Y | https://www.sec.gov/news/pressrelease/2016-196.html |
| Nu Skin Enterprises | 2016 | 2013 | 0.77 | Y | https://www.sec.gov/litigation/admin/2016/34-78884-s.pdf |
| AstraZeneca | 2016 | 2005-2010 | 5 | Y | https://www.sec.gov/litigation/admin/2016/34-78730-s.pdf |
| Key Energy Services | 2016 | 2010-2013 | 5 | Y | https://www.sec.gov/litigation/admin/2016/34-78558-s.pdf |
| LAN Airlines | 2016 | 2006-2007 | 22 | Y | https://www.sec.gov/news/pressrelease/2016-151.html |
| Johnson Controls | 2016 | 2007-2013 | 14 | Y | https://www.sec.gov/litigation/admin/2016/34-78287-s.pdf |
| Analogic Corporation | 2016 | 2001-2011 | 15 | Y | https://www.sec.gov/news/pressrelease/2016-126.html |
| Akamai Technologies | 2016 | 2013-2015 | 0.65 | Y | https://www.sec.gov/news/pressrelease/2016-109.html |
| Nortek Inc | 2016 | 2009-2014 | 0.3 | N | https://www.sec.gov/news/pressrelease/2016-109.html |
| Las Vegas Sands | 2016 | 2006-2011 | 9 | Y | https://www.sec.gov/news/pressrelease/2016-64.html |
| Novartis | 2016 | 2009-2013 | 25 | Y | https://www.sec.gov/litigation/admin/2016/34-77431-s.pdf |
| Nordion Inc | 2016 | 2004-2011 | 0.375 | N | https://www.sec.gov/litigation/admin/2016/34-77288-s.pdf |
| Qualcomm | 2016 | 2002-2012 | 7.5 | Y | https://www.sec.gov/news/pressrelease/2016-36.html |
| VimpelCom | 2016 | 2006-2012 | 795 | Y | https://www.sec.gov/news/pressrelease/2016-34.html |
| PTC Inc | 2016 | 2006-2011 | 28 | Y | https://www.sec.gov/news/pressrelease/2016-29.html |
| SciClone | 2016 | 2005-2010 | 12 | Y | https://www.sec.gov/litigation/admin/2016/34-77058-s.pdf |
| SAP SE | 2016 | 2009-2013 | 3.7 | Y | https://www.sec.gov/news/pressrelease/2016-17.html |
| Bristol-Myers Squibb | 2015 | 2009-2014 | 14 | Y | https://www.sec.gov/news/pressrelease/2015-229.html |
| Hitachi Ltd | 2015 | 2005-2010 | 19 | Y | https://www.sec.gov/news/pressrelease/2015-212.html |

| Company | Sanction year | Corruption period | Fine size (mill. USD) | Incl. in final sample? | SEC statement URL |
|---|---|---|---|---|---|
| Bank of New York Mellon | 2015 | 2010-2011 | 14.8 | N | https://www.sec.gov/news/pressrelease/2015-170.html |
| Mead Johnson Nutrition | 2015 | 2008-2013 | 12 | Y | https://www.sec.gov/news/pressrelease/2015-154.html |
| BHP Billiton | 2015 | 2008 | 25 | Y | https://www.sec.gov/news/pressrelease/2015-93.html |
| FLIR Systems | 2015 | 2008-2010 | 9.5 | Y | https://www.sec.gov/news/pressrelease/2015-62.html |
| Goodyear Tire & Rubber Company | 2015 | 2007-2011 | 16 | Y | https://www.sec.gov/news/pressrelease/2015-38.html |
| PBSJ Corporation | 2015 | 2009-2011 | 3.4 | N | https://www.sec.gov/news/pressrelease/2015-13.html |
| Avon Products Inc | 2014 | 2004-2008 | 135 | Y | https://www.sec.gov/news/pressrelease/2014-285.html |
| Bruker Corporation | 2014 | 2005-2011 | 2.4 | Y | http://www.sec.gov/News/PressRelease/Detail/PressRelease/1370543708934 |
| Bio-Rad Laboratories | 2014 | 2005-2010 | 55.05 | Y | https://www.sec.gov/news/press-release/2014-245 |
| Layne Christensen Company | 2014 | 2005-2010 | 5 | Y | https://www.sec.gov/news/press-release/2014-240 |
| Smith & Wesson | 2014 | 2007-2010 | 2 | Y | https://www.sec.gov/news/press-release/2014-148 |
| Hewlett Packard | 2014 | 2000-2010 | 108 | Y | https://www.sec.gov/news/press-release/2014-73 |
| Alcoa | 2014 | 2003-2005 | 384 | Y | https://www.sec.gov/news/press-release/2014-3 |
| Archer-Daniels-Midland Company | 2013 | 2002-2008 | 36 | Y | https://www.sec.gov/News/PressRelease/Detail/PressRelease/1370540535139 |
| Weatherford International | 2013 | 2002-2011 | 250 | Y | https://www.sec.gov/news/press-release/2013-252 |
| Stryker Corporation | 2013 | 2003-2008 | 13.2 | Y | https://www.sec.gov/news/press-release/2013-229 |
| Diebold | 2013 | 2005-2010 | 48 | Y | https://www.sec.gov/news/press-release/2013-225 |
| Total S.A. | 2013 | 1995-2004 | 398 | Y | https://www.sec.gov/news/press-release/2013-2013-94htm |
| Ralph Lauren Corporation | 2013 | 2005-2009 | 0.7 | Y | https://www.sec.gov/news/press-release/2013-2013-65htm |
| Parker Drilling Company | 2013 | 2004 | 16 | Y | https://www.sec.gov/litigation/litreleases/2013/lr22672.htm |
| Koninklijke Philips Electronics | 2013 | 1999-2007 | 4.5 | Y | https://www.sec.gov/litigation/admin/2013/34-69327.pdf |
| Ely Lilly and Company | 2012 | 1994-2009 | 29 | Y | https://www.sec.gov/news/press-release/2012-2012-273htm |
| Allianz SE | 2012 | 2001-2008 | 12.3 | N | https://www.sec.gov/news/press-release/2012-2012-266htm |
| Tyco | 2012 | 2006-2009 | 26 | Y | https://www.sec.gov/news/press-release/2012-2012-196htm |
| Oracle | 2012 | 2005-2007 | 2 | Y | https://www.sec.gov/news/press-release/2012-2012-158htm |
| Pfizer | 2012 | 2001-2007 | 45 | Y | https://www.sec.gov/news/press-release/2012-2012-152htm |
| Orthofix International | 2012 | 2003-2010 | 7.4 | N | https://www.sec.gov/news/press-release/2012-2012-133htm |

| Company | Sanction year | Corruption period | Fine size (mill. USD) | Incl. in final sample? | SEC statement URL |
|---|---|---|---|---|---|
| Biomet Inc | 2012 | 2000-2008 | 22 | N | https://www.sec.gov/news/press-release/2012-2012-50htm |
| Smith & Nephew | 2012 | 1997-2008 | 22 | Y | https://www.sec.gov/news/press-release/2012-2012-25htm |
| Magyar Telekom | 2011 | 2005-2006 | 95 | Y | https://www.sec.gov/news/press/2011/2011-279.htm |
| Aon Corporation | 2011 | 1983-2007 | 16.3 | N | https://www.sec.gov/litigation/litreleases/2011/lr22203.htm |
| Watts Water Technologies Inc. | 2011 | 2005 | 3.78 | Y | https://www.sec.gov/litigation/admin/2011/34-65555.pdf |
| Diageo | 2011 | 2003-2009 | 16 | Y | https://www.sec.gov/news/press/2011/2011-158.htm |
| Armor Holdings | 2011 | 2001-2007 | 16 | N | https://www.sec.gov/news/press/2011/2011-146.htm |
| Tenaris | 2011 | 2006-2007 | 5.4 | Y | https://www.sec.gov/news/press/2011/2011-112.htm |
| Rockwell Automation | 2011 | 2003-2006 | 2.77 | Y | https://www.sec.gov/litigation/admin/2011/34-64380.pdf |
| Johnson & Johnson | 2011 | 1998-2007 | 70 | Y | https://www.sec.gov/news/press/2011/2011-87.htm |
| Comverse | 2011 | 2003-2006 | 2.8 | Y | https://www.sec.gov/litigation/litreleases/2011/lr21920.htm |
| Ball Corporation | 2011 | 2006-2007 | 0.3 | Y | https://www.sec.gov/litigation/admin/2011/34-64123.pdf |
| International Business Machines (IBM) | 2011 | 1998-2009 | 10 | Y | https://www.sec.gov/litigation/litreleases/2011/lr21889.htm |
| Tyson Foods | 2011 | 2004-2006 | 5 | Y | https://www.sec.gov/news/press/2011/2011-42.htm |
| Maxwell Technologies | 2011 | 2002-2009 | 14.3 | Y | https://www.sec.gov/news/press/2011/2011-31.htm |
| Alcatel-Lucent | 2010 | 2001-2006 | 137 | Y | https://www.sec.gov/news/press/2010/2010-258.htm |
| RAE Systems | 2010 | 2004-2009 | 2.95 | Y | https://www.sec.gov/news/press/2010/2010-242.htm |
| Panalpina | 2010 | 2002-2007 | 82 | N | https://www.sec.gov/news/press/2010/2010-214.htm |
| Pride International | 2010 | 2003-2005 | 56 | Y | https://www.sec.gov/news/press/2010/2010-214.htm |
| Tidewater | 2010 | 2002-2007 | 15.6 | Y | https://www.sec.gov/news/press/2010/2010-214.htm |
| Transocean | 2010 | 2002-2007 | 20.6 | Y | https://www.sec.gov/news/press/2010/2010-214.htm |
| GlobalSantaFe Corp | 2010 | 2002-2007 | 5.9 | N | https://www.sec.gov/news/press/2010/2010-214.htm |
| Noble Corporation | 2010 | 2003-2007 | 8.2 | Y | https://www.sec.gov/news/press/2010/2010-214.htm |
| Royal Dutch Shell | 2010 | 2002-2005 | 48.1 | Y | https://www.sec.gov/news/press/2010/2010-214.htm |
| ABB Ltd | 2010 | 1999-2004 | 39.3 | Y | https://www.sec.gov/news/press/2010/2010-175.htm |
| Universal Corporation | 2010 | 2000-2007 | 9.9 | Y | https://www.sec.gov/news/press/2010/2010-144.htm |
| Alliance One | 2010 | 1996-2005 | 19.45 | Y | https://www.sec.gov/news/press/2010/2010-144.htm |
| General Electric | 2010 | 2000-2003 | 23.4 | Y | https://www.sec.gov/news/press/2010/2010-133.htm |

| Company | Sanction year | Corruption period | Fine size (mill. USD) | Incl. in final sample? | SEC statement URL |
|---|---|---|---|---|---|
| ENI S.p.a. | 2010 | 1995-2004 | 365 | Y | https://www.sec.gov/news/press/2010/2010-119.htm |
| Veraz Networks | 2010 | 2007 | 0.3 | N | https://www.sec.gov/news/press/2010/2010-115.htm |
| Technip SA | 2010 | 1995-2004 | 338 | Y | https://www.sec.gov/news/press/2010/2010-110.htm |
| Daimler AG | 2010 | 1998-2008 | 185 | Y | https://www.sec.gov/news/press/2010/2010-51.htm |
| Innospec | 2010 | 2000-2007 | 40.2 | Y | https://www.sec.gov/news/press/2010/2010-40.htm |
| NATCO Group Inc | 2010 | 2007 | 0.065 | N | https://www.sec.gov/litigation/litreleases/2010/lr21374.htm |
| UTStarcom | 2009 | 2002-2007 | 3 | Y | https://www.sec.gov/litigation/litreleases/2009/lr21357.htm |
| AGCO Corp | 2009 | 2000-2003 | 18.3 | Y | https://www.sec.gov/litigation/litreleases/2009/lr21229.htm |
| Nature's Sunshine Products | 2009 | 2000-2001 | 0.6 | Y | https://www.sec.gov/litigation/litreleases/2009/lr21162.htm |
| Helmerich & Payne Inc | 2009 | 2003-2008 | 0.38 | Y | https://www.sec.gov/litigation/admin/2009/34-60400.pdf |
| Avery Dennison Corporation | 2009 | 2002-2008 | 0.52 | Y | https://www.sec.gov/litigation/litreleases/2009/lr21156.htm |
| United Industrial Corp | 2009 | 2001-2002 | 0.34 | N | https://www.sec.gov/litigation/admin/2009/34-60005.pdf |
| Novo Nordisk AS | 2009 | 2000-2003 | 16 | Y | https://www.sec.gov/litigation/litreleases/2009/lr21033.htm |
| ITT Corp | 2009 | 2001-2005 | 1.7 | Y | https://www.sec.gov/litigation/litreleases/2009/lr20896.htm |
| KBR | 2009 | 1995-2004 | 402 | N | https://www.sec.gov/news/press/2009/2009-23.htm |
| Halliburton | 2009 | 1995-2005 | 177 | N | https://www.sec.gov/news/press/2009/2009-23.htm |
| FIAT | 2008 | 2000-2003 | 17.8 | Y | https://www.sec.gov/litigation/litreleases/2008/lr20835.htm |
| Siemens AG | 2008 | 2001-2007 | 1369 | Y | https://www.sec.gov/news/press/2008/2008-294.htm |
| Con-way Inc | 2008 | 2000-2003 | 0.3 | Y | https://www.sec.gov/litigation/litreleases/2008/lr20690.htm |
| Faro Technologies | 2008 | 2004-2006 | 1.85 | Y | https://www.sec.gov/litigation/admin/2008/34-57933.pdf |
| Willbros Group | 2008 | 2003-2005 | 32.3 | Y | https://www.sec.gov/news/press/2008/2008-86.htm |
| AB Volvo | 2008 | 1999-2003 | 19.6 | Y | https://www.sec.gov/litigation/litreleases/2008/lr20504.htm |
| Flowserve | 2008 | 2001-2003 | 10.5 | Y | https://www.sec.gov/litigation/litreleases/2008/lr20461.htm |
| Westinghouse Air Brake Technologies | 2008 | 2001-2005 | 0.387 | Y | https://www.sec.gov/litigation/litreleases/2008/lr20457.htm |
| Lucent Technologies | 2007 | 2000-2003 | 2.5 | N | https://www.sec.gov/litigation/litreleases/2007/lr20414.htm |
| Akzo Nobel | 2007 | 2000-2003 | 2.98 | Y | https://www.sec.gov/litigation/litreleases/2007/lr20410.htm |
| Chevron | 2007 | 2001-2002 | 30 | Y | https://www.sec.gov/news/press/2007/2007-230.htm |
| Ingersoll-Rand Company | 2007 | 2000-2003 | 5 | Y | https://www.sec.gov/litigation/litreleases/2007/lr20353.htm |

| Company | Sanction year | Corruption period | Fine size (mill. USD) | Incl. in final sample? | SEC statement URL |
|---|---|---|---|---|---|
| York International | 2007 | 2000-2004 | 22 | N | https://www.sec.gov/litigation/litreleases/2007/lr20319.htm |
| Immucor Inc | 2007 | 2004 | 0 | Y | https://www.sec.gov/litigation/admin/2007/34-56558.pdf |
| Bristow Group | 2007 | 2003-2004 | 0 | Y | https://www.sec.gov/litigation/admin/2007/34-56533.pdf |
| Electronic Data Systems | 2007 | 2003-2004 | 1 | Y | https://www.sec.gov/litigation/admin/2007/34-56519.pdf |
| Textron Inc | 2007 | 2001-2003 | 4.68 | Y | https://www.sec.gov/litigation/litreleases/2007/lr20251.htm |
| Delta & Pine | 2007 | 2001-2006 | 0.3 | N | https://www.sec.gov/litigation/litreleases/2007/lr20214.htm |
| Baker Hughes Inc | 2007 | 1998-2005 | 44 | Y | https://www.sec.gov/news/press/2007/2007-77.htm |
| Dow Chemical | 2007 | 1996-2001 | 0.325 | Y | https://www.sec.gov/litigation/litreleases/2007/lr20000.htm |
| El Paso Corp | 2007 | 2001-2002 | 7.7 | Y | https://www.sec.gov/news/press/2007/2007-16.htm |
| Schnitzer Steel | 2006 | 1999-2004 | 7.7 | Y | https://www.sec.gov/litigation/admin/2006/34-54606.pdf |
| Statoil | 2006 | 2002-2003 | 10.5 | Y | https://www.sec.gov/news/press/2006/2006-174.htm |
| Oil States International | 2006 | 2003-2004 | 0 | Y | https://www.sec.gov/litigation/admin/2006/34-53732.pdf |
| Tyco | 2006 | 1996-2002 | 50 | Y | https://www.sec.gov/news/press/2006/2006-58.htm |
| Diagnostic Products Corp | 2005 | 1991-2002 | 4.8 | Y | https://www.sec.gov/litigation/admin/34-51724.pdf |
| Titan Corporation | 2005 | 1999-2001 | 28.5 | N | https://www.sec.gov/news/press/2005-23.htm |
| GE InVision | 2005 | 2002-2004 | 1.1 | N | https://www.sec.gov/litigation/litreleases/lr19078.htm |
| Monsanto | 2005 | 1997-2002 | 1.5 | Y | https://www.sec.gov/litigation/litreleases/lr19023.htm |
| Schering-Plough Corp | 2004 | 1999-2002 | 0.5 | Y | https://www.sec.gov/litigation/litreleases/lr18740.htm |
| ABB Ltd | 2004 | 1998-2003 | 16.4 | Y | https://www.sec.gov/litigation/litreleases/lr18775.htm |
| BJ Services | 2004 | 1998-2002 | 0 | Y | https://www.sec.gov/litigation/admin/34-49390.htm |
| Syncor | 2002 | 1985-2002 | 2.5 | N | https://www.sec.gov/litigation/litreleases/lr17887.htm |
| BellSouth | 2002 | 1997-2000 | 0.15 | Y | https://www.sec.gov/litigation/litreleases/lr17310.htm |
| Chiquita Brands International | 2001 | 1996-1997 | 0.1 | Y | https://www.sec.gov/litigation/litreleases/lr17169.htm |
| Baker Hughes Inc | 2001 | 1995-1999 | 0 | Y | https://www.sec.gov/litigation/admin/34-44784.htm |
| KPMG Siddharta Siddharta & Harsono | 2001 | 1999 | 0 | N | https://www.sec.gov/litigation/litreleases/lr17127.htm |
| American Bank Note Holographics | 2001 | 1998 | 0 | Y | https://www.sec.gov/litigation/admin/33-7994.htm |
| IBM | 2000 | 1994-1995 | 0.3 | Y | https://www.sec.gov/litigation/admin/34-43761.htm |

# A.5. Stata Do-File

```
clear
* Load dataset
use "/Users/OleOverland/Documents/NHH/Masteroppgave/STATA/combined_compustat.dta"

* Merge database with dataset of geographical segments
merge m:1 gvkey using "/Users/OleOverland/Documents/NHH/Masteroppgave/STATA/geographic_segment_data.dta", force
* Rename auto-generated merge variable
rename _merge merge1

* Drop variables order and y
drop order y
* Drop firms that are only present in the dataset of geographical segments, not in the database
drop if merge1 == 2
* Drop all observations where numbers are reported in a financial services format (All sanctioned firms report as industrial firms, some as both)
drop if indfmt == 1
* Drop observations with no data
drop if fyear ==.
* Drop observations with no revenue
drop if revt ==.
* Drop observations from 1994 and earlier, and 2017
drop if fyear <= 1994
drop if fyear == 2017

* Generate list of variables where we change missing to 0

local corruptvars "Company Listed_in_US US_compustat Year Ticker gvkey Statement_Date HQ_Country Corrupt_Ctry Start_year End_year Fine_size_m_USD Repeat_offender Individual_action Oil_for_food Fraud Merger_Year Comment S_Year S_Statement_Date S_Corrupt_Ctry S_Start_year S_End_year S_Fine_size_m_USD S_Individual_action S_Oil_for_food S_Fraud compst acctchg"

* Replace missing values with 0 for the variables

foreach v of varlist `corruptvars' {
   replace `v' = 0 if `v' == .
}
* Generate dummy that is 1 if a company has been sanctioned for corruption during the sample period
gen corrupt = 0
replace corrupt = 1 if Year > 0

* Generate inflation adjustment factor
gen inflation = 0
replace inflation = 100.00 if fyear == 1995
replace inflation = 102.94 if fyear == 1996
replace inflation = 105.34 if fyear == 1997
replace inflation = 106.97 if fyear == 1998
replace inflation = 109.32 if fyear == 1999
replace inflation = 113.00 if fyear == 2000
replace inflation = 116.18 if fyear == 2001
replace inflation = 118.04 if fyear == 2002
replace inflation = 120.75 if fyear == 2003
replace inflation = 123.97 if fyear == 2004
replace inflation = 128.14 if fyear == 2005
replace inflation = 132.27 if fyear == 2006
replace inflation = 136.07 if fyear == 2007
replace inflation = 141.26 if fyear == 2008
replace inflation = 140.81 if fyear == 2009
replace inflation = 143.11 if fyear == 2010
replace inflation = 147.60 if fyear == 2011
replace inflation = 150.66 if fyear == 2012
replace inflation = 152.87 if fyear == 2013
replace inflation = 155.34 if fyear == 2014
replace inflation = 155.52 if fyear == 2015
replace inflation = 157.50 if fyear == 2016
replace inflation = inflation / 100

```

```
61    * Generate inflation adjusted assets
62    gen adjusted_at = at/inflation
63    * Generate inflation adjusted revenue
64    gen adjusted_revt = revt/inflation
65
66    * Generate two-digit industry classifications based on NAICS
67    gen industry=naics
68    replace industry = industry*10 if industry<10
69    replace industry = industry*10 if industry<100
70    replace industry = industry*10 if industry<1000
71    replace industry = industry*10 if industry<10000
72    replace industry = industry*10 if industry<100000
73    replace industry = int(industry/10000)
74
75    * Label industries
76    label define industrylabel 11 "Agriculture and Fishing"
77    label define industrylabel 21 "Mining and Petroleum", add
78    label define industrylabel 22 "Utilities", add
79    label define industrylabel 23 "Construction", add
80    label define industrylabel 31 "Food and Textiles Mfg.", add
81    label define industrylabel 32 "Wood and Petrochemical Mfg.", add
82    label define industrylabel 33 "Metal, Electronics, Misc Mfg.", add
83    label define industrylabel 41 "Wholesale Trade Canada", add
84    label define industrylabel 42 "Wholesale Trade", add
85    label define industrylabel 44 "Auto, Home, Necessities Retail", add
86    label define industrylabel 45 "Hobby and Misc Retail", add
87    label define industrylabel 48 "Transportation", add
88    label define industrylabel 49 "Postal and Warehousing", add
89    label define industrylabel 51 "Information", add
90    label define industrylabel 52 "Finance and Insurance", add
91    label define industrylabel 53 "Real Estate and Rental", add
92    label define industrylabel 54 "Professional Services", add
93    label define industrylabel 55 "Management", add
94    label define industrylabel 56 "Support and Waste Management", add
95    label define industrylabel 61 "Educational Services", add
96    label define industrylabel 62 "Health Care & Social Assistance", add
97    label define industrylabel 71 "Arts and Entertainment", add
98    label define industrylabel 72 "Accomodation and Food Services", add
99    label define industrylabel 81 "Other Services", add
100   label define industrylabel 92 "Public Administration", add
101   label define industrylabel 99 "Not Classified", add
102   label values industry industrylabel
103
104   * Interpret ticker and the company name as a strings
105   decode conm, generate (conm_str)
106
107   * Make Stata treat fine size as a number
108   decode Fine_size_m_USD, generate (Fine_size_m_USD_str)
109   destring Fine_size_m_USD_str, generate (fine_size) dpcomma
110
111   * Define as panel data
112   xtset gvkey fyear
113
114   * Manually fix errors from data collection
115   replace S_Start_year = 2006 if gvkey == 010787
116   replace S_End_year = 2009 if gvkey == 010787
117   replace Oil_for_food = 1 if gvkey == 006266 | gvkey == 017828 | gvkey == 010519
118
119   * Generate financial variables
120   gen roa = ni/at
121   gen ptroa = pi/at
122   gen ros = oiadp/sale
123   gen debt_ratio = dltt/at
124   gen ppent_at = ppent/at
125   gen ln_revt = ln(adjusted_revt)
126
127   * Drop observations with missing variables
128   drop if roa ==.
129   drop if industry ==.
130   drop if ppent ==.
131
132   * Time from sanction
133   gen time_from_sanction = fyear - Year if corrupt == 1
134   * Generate dummy for year equal to sanctioning year
135   gen sanction_yr = 0
136   replace sanction_yr = 1 if fyear == Year
137
```

```
* Generate corruption period
gen corrupt_period = 0
replace corrupt_period = 1 if fyear >= Start_year & fyear <= End_year
replace corrupt_period = 1 if fyear >= S_Start_year & fyear <= S_End_year
* Generate between period
gen between_period = 0
replace between_period = 1 if fyear > End_year & fyear < Year
replace between_period = 1 if fyear > S_End_year & fyear < S_Year
* Generate sanction period
gen sanction_yr_0_3 = 0
replace sanction_yr_0_3 = 1 if (fyear - Year >= 0 & fyear - Year <= 3) & corrupt == 1
replace sanction_yr_0_3 = 1 if (fyear - S_Year >= 0 & fyear - S_Year <= 3) & corrupt==1

* Calculate sum of foreign sales for each firm
egen totabs_pifo = sum(abs(pifo)), by (gvkey)
replace foreign_sales = 1 if totabs_pifo > 0

* Setting foreign sales for Smith & Wesson and Remington
replace foreign_sales = 1 if gvkey == 115757 | gvkey == 9043

* Setting foreign sales for foreign companies (US is code 62)
replace foreign_sales = 1 if fic != 62

* Drop unnecessary variables from dataset of geographical segments
drop sum_foreign foreign_segment geotp srcdate sid stype

* Drop double observations of Nortel
drop if gvkey == 145518
* Drop DoJ-sanctioned companies AGA and Micrus
drop if gvkey == 180279 | gvkey == 163102
* Drop companies sanctioned after 2016
drop if gvkey == 008644 | gvkey == 065379 | gvkey == 220579 | gvkey == 028883 | gvkey
== 142953 | gvkey == 012978

* Generate dummy for first obs of a firm
gen long order = _n
by gvkey (order), sort: gen y = _n == 1

* Preparing for figure of industry distribution
gen y_corrupt = .
replace y_corrupt = y if corrupt == 1
gen y_clean = .
replace y_clean = y if corrupt == 0

drop order y

gen long order = _n
by gvkey (order), sort: gen y = _n == 1
gen in_industry = y * industry
replace in_industry =. if in_industry == 0

* Figure 3: Industry distribution before sample restrictions
#delimit ;
graph hbar (percent) y_corrupt y_clean,
over(industry, label(labsize(small)))
title ("Percentage of firms per industry")
subtitle ("before sample restrictions")
ytitle ("Percent of firms", size(small))
legend( label(1 "Corrupt") label(2 "Clean") size(small))
;
graph export "Industry distribution before restrictions.png", replace ;
#delimit cr

*** Start of sample restrictions ***
* Drop companies with no obs in sanction_year or later
bysort gvkey: egen last_year = max(fyear)
drop if last_year < Year & corrupt ==1

* Drop post-2016 repeat offenders
replace Repeat_offender = 1 if gvkey == 002230 | gvkey == 005439 | gvkey == 028380
drop if Repeat_offender == 1
* Indicate pre-2017 repeat offenders for later use
replace Repeat_offender = 1 if gvkey == 210418 | gvkey == 001976 | gvkey == 006066 |
gvkey == 010787

* Drop subsidiaries
replace stko = 0 if gvkey == 11914
```

```
replace stko = 1 if gvkey == 174310
drop if stko == 1

* Drop firms where we have five or fewer firm-year observations
gen allobs=1
egen sumobs = sum (allobs), by (gvkey)
drop if sumobs < 5
drop allobs
* Drop observations with negative sales
drop if sale < 0
* Drop observations with leverage > 1 (negative equity)
drop if debt_ratio > 1
* Drop observations from industries with no corrupt firms
drop if (industry == 22 | industry == 44 | industry == 45 | industry == 53 | industry == 56 | industry == 61 | industry == 62 | industry == 71 | industry == 81)
* Drop financial institutions (NAICS code 52)
drop if industry == 52
* Drop firms with no foreign sales
drop if foreign_sales != 1

* Generate largest number of employees by firm
by gvkey: egen max_emp = max(emp)
* Drop firms with less than 100 employees entire period
drop if max_emp < 0.1
* Drop if total assets are below $1 million
drop if adjusted_at < 1
* Drop if total revenue is below $10 million
drop if adjusted_revt < 10

* Generate mean and standard deviation for ROA
egen SD_roa = sd(roa)
egen mean_roa = mean(roa)
* Drop obs outside of 3 st.dev from mean ROA
drop if roa > (mean_roa + 3 * SD_roa) | roa < (mean_roa - 3 * SD_roa)

* Generate dummy for first obs of each firm
drop order y
gen long order = _n
by gvkey (order), sort: gen y = _n == 1

sort gvkey fyear
* Preparing for figure of industry distribution
drop y_corrupt y_clean in_industry
gen y_corrupt = .
replace y_corrupt = y if corrupt == 1
gen y_clean = .
replace y_clean = y if corrupt == 0
drop order y
gen long order = _n
by gvkey (order), sort: gen y = _n == 1
gen in_industry = y * industry
replace in_industry =. if in_industry == 0

* Figure 4: Industry distribution after sample restrictions
#delimit ;
graph hbar (percent) y_corrupt y_clean,
over(industry, label(labsize(small)))
title ("Percentage of firms per industry")
subtitle ("after sample restrictions")
ytitle ("Percent of firms", size(small))
legend( label(1 "Corrupt") label(2 "Clean") size(small))
;
graph export "Industry distribution after restrictions.png", replace ;
#delimit cr

*** Summary statistics ***
* Data for Table 2
ssc install tabout
tabout corrupt using "descriptive_statistics.xls", replace
tabout corrupt using "descriptive_statistics.xls", append sum cells (sum y) format(0) dpcomma
tabout corrupt using "descriptive_statistics.xls", append sum cells(mean roa p5 roa median roa p95 roa)  format(4) dpcomma
tabout corrupt using "descriptive_statistics.xls", append sum cells (mean revt min revt median revt max revt) format(2) dpcomma
tabout corrupt using "descriptive_statistics.xls", append sum cells (mean ppent_at mean debt_ratio) format(4) dpcomma
```

```
285
286   * Data for Table 3
287   count if corrupt_period==1
288   count if between_period==1
289   count if sanction_yr_0_3==1
290   summarize roa if corrupt_period==1
291   summarize roa if between_period==1
292   summarize roa if sanction_yr_0_3==1
293
294   * Figure 2: SEC Enforcement Actions per Year
295   graph bar (sum) sanction_yr if fyear >= 2000, over(fyear, label(angle(45)) gap(40))
      b1title ("Year") ytitle ("Number of enforcement actions") title ("SEC enforcement
      actions per year")
296   graph export "Enforcement actions per year.png", replace
297
298   * Figure 7: Graph of periods
299   graph bar (sum) corrupt_period between_period sanction_yr_0_3 if Year > 0, over(fyear,
      label(angle(45)) gap(40)) b1title ("Year") ytitle ("Number of observations") title
      ("Number of observations of each period per year") legend( label(1 "Corruption period")
      label(2 "Between period") label(3 "Sanction period") size(small) rows(1))
300   graph export "Observations of period per year.png", replace
301
302   * Figure 5: Mean ROA graph
303   bysort fyear: egen avg_roa_corrupt = mean(roa) if corrupt == 1
304   bysort fyear: egen avg_roa_control = mean(roa) if corrupt == 0
305   replace avg_roa_corrupt = 100 * avg_roa_corrupt
306   replace avg_roa_control = 100 * avg_roa_control
307   twoway line avg_roa_corrupt avg_roa_control fyear, title("Mean of ROA over time")
      xtitle("Year") ytitle("Percent") legend( label(1 "Corrupt") label(2 "Clean"))
      xlabel(1996(2)2016)
308   graph export "Mean ROA over time.png", replace
309
310   * Figure 6: Median & mean ROA over time from sanction
311   bysort time_from_sanction: egen median_roa_corrupt_tfs = median(roa) if corrupt == 1
312   replace median_roa_corrupt_tfs = 100 * median_roa_corrupt_tfs
313   bysort time_from_sanction: egen mean_roa_corrupt_tfs = mean(roa) if corrupt == 1
314   replace mean_roa_corrupt_tfs = 100 * mean_roa_corrupt_tfs
315   twoway line median_roa_corrupt_tfs mean_roa_corrupt_tfs time_from_sanction if
      time_from_sanction >= -10 & time_from_sanction <= 10, title("ROA over time from
      sanction") subtitle("For sanctioned companies") xtitle("Years from sanction")
      ytitle("Percent") xline(0, lcolor(gs10)) yscale(range(0 10)) ylabel(0(5)10) legend(
      label(1 "Median") label(2 "Mean")) lpattern(2 dash)
316   graph export "Mean and median ROA over time from sanction.png", replace
317
318   *** Preparing variables for Table 5 and Table 6 ***
319
320   * Generate average revenue
321   bysort gvkey: egen avg_revt = mean(adjusted_revt)
322
323   * Assign dummies based on size
324   xtile pct = avg_revt if corrupt==1, n(4)
325   gen low_revt = 0
326   replace low_revt = 1 if pct == 1
327   gen mid_revt = 0
328   replace mid_revt = 1 if pct == 2 | pct == 3
329   gen high_revt = 0
330   replace high_revt = 1 if pct == 4
331
332   * Create interactions between size and time
333   gen low_revt_cp = low_revt*corrupt_period
334   gen low_revt_bp = low_revt*between_period
335   gen low_revt_0_3 = low_revt*sanction_yr_0_3
336   gen mid_revt_cp = mid_revt*corrupt_period
337   gen mid_revt_bp = mid_revt*between_period
338   gen mid_revt_0_3 = mid_revt*sanction_yr_0_3
339   gen high_revt_cp = high_revt*corrupt_period
340   gen high_revt_bp = high_revt*between_period
341   gen high_revt_0_3 = high_revt*sanction_yr_0_3
342
343   * Generate relative fine as share of total revenue in sanction year
344   gen relative_fine_caught = fine_size/revt if sanction_yr ==1
345   bysort gvkey: egen relative_fine = max(relative_fine_caught)
346
347   * Replace missing values of relative fine with zero
348   replace relative_fine = 0 if corrupt == 0
349
350   * Assign dummies based on relative fine size
```

```
xtile pct1 = relative_fine if corrupt==1, n(4)
gen low_rel_fine = 0
replace low_rel_fine = 1 if pct1 == 1
gen mid_rel_fine = 0
replace mid_rel_fine = 1 if pct1 == 2 | pct1 == 3
gen high_rel_fine = 0
replace high_rel_fine = 1 if pct1 == 4

gen low_rel_fine_cp = low_rel_fine*corrupt_period
gen low_rel_fine_bp = low_rel_fine*between_period
gen low_rel_fine_0_3 = low_rel_fine*sanction_yr_0_3
gen mid_rel_fine_cp = mid_rel_fine*corrupt_period
gen mid_rel_fine_bp = mid_rel_fine*between_period
gen mid_rel_fine_0_3 = mid_rel_fine*sanction_yr_0_3
gen high_rel_fine_cp = high_rel_fine*corrupt_period
gen high_rel_fine_bp = high_rel_fine*between_period
gen high_rel_fine_0_3 = high_rel_fine*sanction_yr_0_3

* Assign dummies based on absolute fine size
xtile pct2 = fine_size if corrupt==1, n(4)
gen low_fine = 0
replace low_fine = 1 if pct2 == 1
gen mid_fine = 0
replace mid_fine = 1 if pct2 == 2 | pct2 == 3
gen high_fine = 0
replace high_fine = 1 if pct2 == 4

gen low_fine_cp = low_fine*corrupt_period
gen low_fine_bp = low_fine*between_period
gen low_fine_0_3 = low_fine*sanction_yr_0_3
gen mid_fine_cp = mid_fine*corrupt_period
gen mid_fine_bp = mid_fine*between_period
gen mid_fine_0_3 = mid_fine*sanction_yr_0_3
gen high_fine_cp = high_fine*corrupt_period
gen high_fine_bp = high_fine*between_period
gen high_fine_0_3 = high_fine*sanction_yr_0_3

*** Preparing for regressions ***
* Generate year and industry dummies
xi: sum i.fyear i.industry, mean

* Multiply ROA with 100 to display as percentage
gen roa_percent = roa * 100
* Multiply PTROA with 100 to display as percentage
gen ptroa_percent = ptroa * 100
* Multiply ROS with 100 to display as percentage
gen ros_percent = ros * 100

* Increase STATA acceptable matrix size
set matsize 5000

******************** REGRESSIONS ********************
*** Table 4: Main regression table ***
* Column (4): FE main model
xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
ppent_at _Ii*##_If*, fe vce(cluster gvkey)
outreg2 using regressions3.doc, word replace

* Diagnostic plots main model
predict res, res
qnorm res
graph save "qnorm.gph", replace
histogram res, frequency normal
graph save "histogram res normal.gph", replace
graph combine "histogram res normal.gph" "qnorm.gph", ysize(2) xsize(1.5) rows(2)
title("Normality plots")
graph export "normality.png", replace
* Formal test of normality
sktest res

* Column (1): OLS
reg roa_percent corrupt_period between_period sanction_yr_0_3 _Ii*#_If* _If*,
vce(cluster gvkey)
outreg2 using regressions3.doc, word append
* Column (2): FE with no control variables
xtreg roa_percent corrupt_period between_period sanction_yr_0_3  _Ii*##_If*, fe
vce(cluster gvkey)
```

```
424   outreg2 using regressions3.doc, word append
425   * Column (3): FE including size measure
426   xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt _Ii*##_If*, fe
      vce(cluster gvkey)
427   outreg2 using regressions3.doc, word append
428
429   *** Table 5: Fine size ***
430   * Column (1): Relative fine size
431   xtreg roa_percent low_rel_fine_cp mid_rel_fine_cp high_rel_fine_cp low_rel_fine_bp
      mid_rel_fine_bp high_rel_fine_bp low_rel_fine_0_3 mid_rel_fine_0_3 high_rel_fine_0_3
      ln_revt debt_ratio ppent_at _Ii*##_If* if Repeat_offender!=1, fe vce(cluster gvkey)
432   outreg2 using regression_finesize.doc, word replace ctitle("Relative fine size")
433   * Column (2): Absolute fine size
434   xtreg roa_percent low_fine_cp mid_fine_cp high_fine_cp low_fine_bp mid_fine_bp
      high_fine_bp low_fine_0_3 mid_fine_0_3 high_fine_0_3 ln_revt debt_ratio ppent_at
      _Ii*##_If* if Repeat_offender!=1, fe vce(cluster gvkey)
435   outreg2 using regression_finesize.doc, word append ctitle("Absolute fine size")
436
437   *** Table 6: Firm size ***
438   xtreg roa_percent low_revt_cp mid_revt_cp high_revt_cp low_revt_bp mid_revt_bp
      high_revt_bp low_revt_0_3 mid_revt_0_3 high_revt_0_3 ln_revt debt_ratio ppent_at
      _Ii*##_If*, fe vce(cluster gvkey)
439   outreg2 using regression_firmsize.doc, word replace
440
441   *** Table 7: ROS as dependent variable ***
442   xtreg ros_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If*, fe vce(cluster gvkey)
443   outreg2 using regression_ros.doc, word replace
444
445   *** Table 8: Excluding Oil-for-Food ***
446   xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If* if Oil_for_food!=1, fe vce(cluster gvkey)
447   outreg2 using regressions_no_oil_for_food.doc, word append
448
449   *** Table 9: Various robustness checks ***
450   * Column (1): Main regression with pretax income as dep var
451   xtreg ptroa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If*, fe vce(cluster gvkey)
452   outreg2 using regressions_other_controls.doc, word replace
453   * Column (2): No repeat offenders
454   xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If* if Repeat_offender!=1, fe vce(cluster gvkey)
455   outreg2 using regressions_other_controls.doc, word append
456   * Column (3): No fraud cases
457   xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If* if Fraud!=1, fe vce(cluster gvkey)
458   outreg2 using regressions_other_controls.doc, word append
459   * Column (4): FE only corrupt companies
460   xtreg roa_percent corrupt_period between_period sanction_yr_0_3 ln_revt debt_ratio
      ppent_at _Ii*##_If* if corrupt==1, fe vce(cluster gvkey)
461   outreg2 using regressions_other_controls.doc, word append
```