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Fraud in the DoD: is the Current Fraud Penalty System an Effective Deterrence Tool?

December 2019

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Prepared for the Naval Postgraduate School, Monterey, CA 93943.



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ABSTRACT

The purpose of this research is to assess the relationship between fraud penalties levied by the Department of Justice (DoJ) against defense contractors (firms) that commit fraud against the Department of Defense (DoD) and the effect of those penalties on future fraud recidivism. Using hand-collected historical data related to fraud committed against the DoD we find a total of 511 fraud cases and \$13.5 billion in fines between 1995 and 2018. An estimated regression model is used to analyze the relationship between fraud penalties and fraud occurrences. Multiple specifications of our model show little to no relationship between DoD and DoJ-imposed fines and subsequent contractor fraud commission. Given the magnitude of resources deployed for setting and enforcing fines and penalties, the DoD should consider employing alternative tools to encourage compliance with procurement laws and discourage contractor fraud.



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I. INTRODUCTION

Procurement fraud in the U.S. government has existed since the nascence of our country. However, the frequency and magnitude of such frauds has grown exponentially. For example, the Department of Defense (DoD) reported to Congress in 2018 that procurement fraud permeated over \$334 billion of defense contracts between the 2012 and 2017 fiscal years (Office of the Under Secretary of Defense for Acquisition & Sustainment (OUSD[A&S], 2018). To contextualize the extent of procurement fraud, the DoD's total budget in 2019 was \$716 billion (Congressional Research Service, 2019). Despite the magnitude of procurement fraud committed by defense contractors, less than 2% of contract amounts are recovered in civil judgements and settlements (OUSD[A&S], 2018). The prevalence of procurement fraud naturally raises the question as to whether the DoD's current penalties effectively deter contractor misbehavior. This question forms the basis of this paper.

We investigate the association between DoD and Department of Justice (DOJ)-imposed penalties on current and future contractor procurement fraud. We combine unclassified data from interest groups, government documents, and financial databases to compile our dataset. The complete dataset includes the contractor names, number of fraudulent occurrences per year, fraud fines paid, market to book (MTB) ratio, and size of the firms involved in DoD procurement fraud.¹ Our final dataset includes a sample population consisting of 511 fraud occurrences involving 96 defense contractors and over \$13.5 billion in fraud fines across the 23-year time period.

We contribute to a growing body of literature on the relationship between penalties and fraudulent activity (Cressey 1973; Lot 1996; Karpoff, Lee, & Vondryk. 1999; Murphy, Shrieves, & Tibbs 2009; Karpoff 2012; Wolfe and Hermanson 2013; see Chapter II for a review of this literature). While a large portion of the early literature on fraud was theoretical in nature, more recent work has tended to be more empirical. The

¹ Data that includes contractor names, fraud occurrences per year, and fraud fines paid is across years 1995 to 2018. MTB and size data were only obtained for years 2012 to 2017.



empirical estimates provided in this paper follow this trend. Our key contribution to this literature is that we are the first to empirically examine the longitudinal relationship shared between fraud fines and fraud trends in the context of procurement fraud within the DoD. It is our hypothesis that fraud fines have no effect on a future firm-fraud behavior.

We use the variation in fines and fraud occurrences over time as our primary means of identification. A variety of modeling techniques are utilized such as including industry and yearly fixed effects in the regressions as well as including lagged terms depending upon specification. Our empirical tests show that fines and penalties are unassociated with subsequent contractor misbehavior. This result is robust to several alternative measurement techniques; taken together, our results suggest that fines and penalties (as currently deployed) are less than fully effective at disincentivizing contractors' fraudulent behavior. We recommend that DoD officials may want to consider increasing the fine structures currently in place or consider deploying alternative tools to encourage compliance with procurement laws and discourage contractor fraud.

The remainder of the paper is structured as follows: in the next section, we describe the academic literature related to fines and fraudulent activity. In addition, we discuss institutional details related to fraud and procurement policies within the DoD. In the third chapter, we discuss the data and our empirical strategy. We then present the results in Chapter IV. Chapter V concludes the paper.



II. BACKGROUND AND LITERATURE REVIEW

Multiple conflicts and military engagements since 1990 have led to a crowded acquisition environment, full of construction projects for expansion and revitalization, along with technological development for warfighters. These initiatives have continued to increase DoD spending: the Fiscal Year (FY) 2019 DoD budget was approved in September 2018 for over \$716 billion (Congressional Research Service, 2019). A significant portion of this annual DoD budget is used for the procurement of goods and services. DoD procurement is based on DoD need and is affected by multiple external factors across the world. Figure 1 shows the changes in total annual DoD budget and changes in procurement spending since FY2009.²

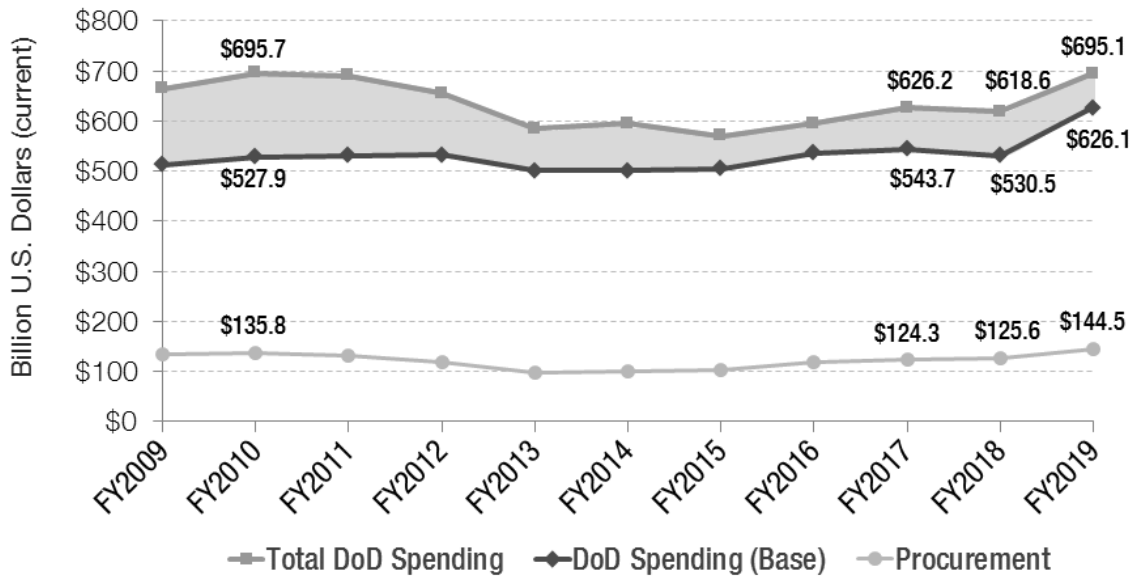


Figure 1. DoD Budget from FY2009 to FY2019. Source: “U.S. DoD Defense Spending” (2018).

As part of the secretary of defense’s initiative to build a more lethal force, just over \$140 billion of the FY2019 budget was designated for DoD procurement. Those

² In Figure 1, the FY2019 dollars represent the proposed DoD budget for FY2019 prior to being signed into law in September 2018. The final FY2019 DoD budget was \$716 billion as stated in this paper.



procurement dollars come from taxpayers who expect the judicious spending and safeguarding of their hard-earned dollars. Unfortunately, DoD procurement comes with a significant risk of fraud committed by defense contract companies.

A. FRAUD WITHIN THE DOD

According to a 2018 report compiled by the Association of Certified Fraud Examiners, 5% of the total DoD budget is lost to fraudulent activities. Based on that estimate, Figure 2 shows that fraud losses between FY2015 and FY2019 were expected to total approximately \$153.8 billion (R. Bershok, personal communication, January 30, 2019). This report is compared to information in a National Defense Authorization Act report from 2018, which stated that the DoD only recovered \$6.2 billion in fines between FY2013 and FY2017. Many of these reports do not address the government’s inconsistency in tracking the fines and penalties imposed on the contracting agencies committing the fraudulent activities.

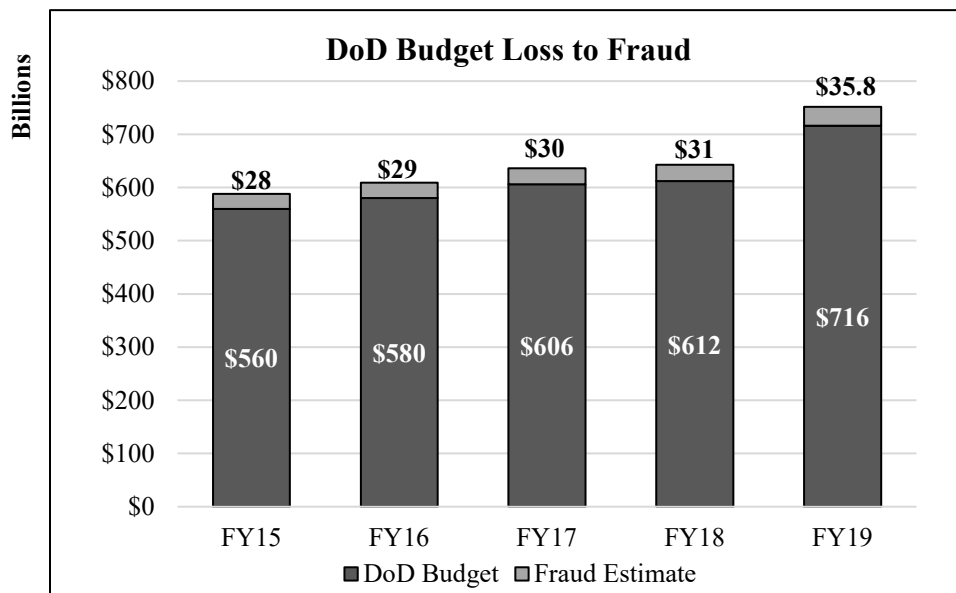


Figure 2. DoD Fraud Losses, FY2015 to FY2019. Source: R. Bershok, personal communication, January 30, 2019.

A closer look at the DoD fraud environment over the last 20 years reveals numerous instances of fraudulent transactions from the DoD’s top 10 defense contractors.



Table 1 identifies the top 10 defense contractors, based on total contract awards in FY2018 and their known instances of fraud since 1995. The table also includes the imposed monetary penalties that these companies have had to pay as part of the fraud remedy system (Project on Government Oversight [POGO], 2019).

Collectively, these companies were awarded over \$154 billion by the DoD in FY2018 alone, and since 1995, they have committed 332 different fraud incidents and paid a total of \$7.385 billion in penalties (POGO, 2019). Comparatively speaking, 24 years of paid fraud penalties total only 4.8% of annual earnings from the top 10 defense contractors in a single year.

Table 1. Defense Contractor Fraud since 1995. Source: POGO (2019).

Federal Contractor	FY 2018 Contracts Awarded (\$ in millions)	Fraud Occurrences since 1995	Fraud Penalties since 1995 (\$ in millions)
Lockheed Martin	40,552	86	767.5
Boeing	29,755	70	1,459
Raytheon	18,767	28	490
General Dynamics	17,503	23	280
Northrop Grumman	11,987	46	919.6
McKesson	8,965	27	2,092
Huntington Ingalls Industries	7,346	4	9
BAE Systems	6,877	23	596
Leidos Holdings	6,771	1	0
United Technologies	6,305	24	771.5
Total	154,833	332	7,385

Congress has recognized the prevalence of fraud against the DoD and has requested multiple reports since 2000 to help provide a visual of the fight against fraud. As part of the DoD Appropriations Act of 2010, Congress required the DoD to provide a report of fraud-related activities between 2000 and 2010. That report was compiled with inputs from the Department of Justice (DoJ) and the Defense Criminal Investigative



Service (DCIS). According to the *Report to Congress on Contracting Fraud*, there were approximately 64 criminal cases against defense contractors, totaling over \$33 million in criminal fines (Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OUSD[AT&L]; 2011). At the time of the report, the DoJ did not report any criminal fines for its reported 49 cases. In addition to these criminal cases, there were 326 civil cases with a total of \$2.9 billion in civil judgments or settlements (OUSD[AT&L], 2011). There did not appear to be any reporting from the primary Military Criminal Investigative Organizations (MCIOs) as part of the 2011 report. Congress requested similar metrics as part of the more recent FY2018 National Defense Authorization Act (NDAA).

Section 889 of House Resolution (H.R.) 2810 required the DoD to provide a report to Congress within 180 days, capturing all fraud-related incidents involving contractor criminal convictions, debarments, and suspensions from FY2013 to FY2017. The 2018 DoD report showed over 1,000 total criminal cases with subsequent fines totaling \$368.67 million. There were over 440 total civil cases in 2018 with \$5.85 billion collected in judgments and settlements (OUSD[A&S], 2018).

Unlike the 2011 report, the 2018 report included fraud case information from the MCIOs in the U.S. Air Force and U.S. Navy, along with the DCIS. Both reports were part of a direct request from Congress; however, the feeders of fraud data appear to have been different for unknown reasons. Table 2 shows the data from the two reports side by side. The 2018 report shows a greater number of instances of fraud across five years than the 2011 report captured across 10 years. These numbers describe an environment where the crime of fraud is growing in a seemingly unchecked fashion. However, despite the apparent trend of increasing losses, the crime of fraud is not being ignored by the DoD or DoJ (see Chapter IV). Rather, fraud is pervasive in the DoD environment because money is plentiful, and the consequences have apparently been deemed acceptable by deep-pocketed perpetrators.



Table 2. Findings from DoD Fraud Reports to Congress. Adapted from DoD (2011); OUSD(A&S; 2018).

	2011 DoD Report (2000–2010)	2018 DoD Report (FY 2013–FY 2017)
Total Criminal Cases	64	1,059
Total Civil Cases	326	443
Total Criminal Fines	\$33,389,702 ³	\$368,670,055
Total Settlement/Judgment	\$2,955,065,913	\$5,858,180,290

1. DoD Environmental Factors

Government contracting is competition-based. The Competition in Contracting Act (CICA) of 1984 requires that the government pursue fair and open competition for almost all contract activities. Competition drives innovation and helps to reduce cost as businesses are forced to compete for government contracts. There are few exceptions to the fair and open competition requirement, causing industry to compete with other suppliers for most contracts, regardless of a provider’s previous performance history. With government contracting, future contracts are not guaranteed, and as a result, profitability for a company may be linked to a single contract action. The need to generate the greatest profit on the current contract creates an incentive to reduce costs however possible; in some cases, that leads to lying about costs in one form or another.

The second greatest impact on government contracting is agency theory. It has long stood that the principal–agent relationship can be plagued with issues due to each member’s individual goals. The same can be said for government contracting where the government is the principal and a contractor is the agent. The government’s objective is to secure the most effective solution to a need at a fair and reasonable price, and firms seek to earn a profit. So, there exists a tension between saving money and earning money. Additionally, the relationship is negatively affected by information asymmetry on both sides. The government most often knows exactly what it wants, but it doesn’t want to explicitly tell the contractor because it wants to see what innovation a contractor can

³ 2011 total criminal fines are a result of 15 cases as reported by the DCIS. The DoJ did not report any criminal fines during the review period.



introduce. The contractor knows the level of innovation that is possible but does not want to volunteer a solution that presents a higher cost-risk because it could negatively affect the contractor's bottom line. These factors create a prisoner's dilemma where two actors in a relationship are presented with two options: to pursue self-interest, equating to defective behavior, or to pursue the interest of the relationship and cooperate. Self-seeking behavior costs the government additional money over time and reduces potential earnings for defense contractors.

The third and final issue is purchasing volume. The DoD represents a significant workforce with a global mission. As a result, the government purchases countless goods and services each year. Between FY2013 and FY2017, the DoD participated in over 15.9 million contract actions (OUSD[A&S], 2018). The purchasing volume has overwhelmed the government acquisition system to the point of task saturation, creating a material weakness in contract oversight that presents an opportunity to commit fraud.

2. Fraud Methods

Defense contractors understand this environment and know how to work well within it. Likewise, some of the contractors with which the DoD does business use their knowledge to pursue self-interest at a cost to the relationship. Companies that choose to commit fraud often do so in one of the following ways:

a. Defective Pricing

The government requires accurate financial data from firms to determine which contractor presents a best-value solution to a government need. When contractors provide false financial data, the government may unwittingly chooses the wrong contractor based on fraudulent data. Once a contract is underway, contractors are also required to submit accurate financial records to the government to justify costs associated with the performance of government contracts. Defective pricing is one way that contractors can fraudulently bill the government for falsified costs relating to labor charges and/or the actual material used (General Services Administration [GSA], 2012).



b. Cost Mischarging

Contractors commit cost mischarging when they charge costs to a contract that are not allowable or reasonable for a particular government contract. Cost mischarging is often done by hiding additional charges under otherwise allowable costs such as contractor overhead. Contractors can also mischarge the government by shifting costs between contracts to one in which their profit margin may be lower than expected in an attempt to increase costs (GSA, 2012).

c. Product Substitution

Fraud through product substitution is the replacement of materials used in a good or service with an inferior material that fails to meet the agreed-upon product specification set forth in the contract, often at a cheaper cost to the contractor (Chang, 2013). An example of product substitution would be a contractor using a cheaper, subpar bolt as part of an aircraft contract, while the government pays the premium rate for the agreed-upon part. Fraud through product substitution is often latent and may not be discovered until after the product is accepted by the government (GSA, 2012).

d. Collusion

Collusion, a secret or illegal cooperation, is committed by members of government or industry through the use of gifts, gratuities, or guarantees of future business and employment. Often, the item of value or the promise is given by the buyer to the seller, in this case the government, or among sellers themselves. Contractors want to win government contracts because of their monetary value. Collusion is just one way that contractors can bypass the normal process and stack the cards in their favor (GSA, 2012).

e. Bid Rigging

Bid rigging is like collusion in that it impedes the government's ability to successfully utilize free and open competition in a competitive marketplace. Government procuring officials build a solicitation packet, and contractors bid on the project based on the contract requirements. Bid rigging is accomplished when potential defense



contractors agree among themselves who will win a future bid for a contract. Four common bid rigging schemes are bid suppression, bid rotation, complementary bidding, and market division. Bid suppression occurs when a contractor agrees not to submit a bid for the primary contract because of a promise of money or a subcontract opportunity from the winning contractor. Bid rotation happens when contractors take turns on who bids the lower amount on future government contracts, essentially guaranteeing the lowest bidder's contract award. Complementary bidding refers to contractors who submit bid proposals that intentionally lack the necessary solicitation requirements or are unreasonably high, giving the appearance that a designated contractor appears to be a better value to the government. Contractors can also divide the market among themselves and agree to compete for certain contracts in geographical areas that are assigned to them (GSA, 2012).

f. Bribery, Kickbacks, and Conflicts of Interest

Within the contracting environment, there are individuals who pursue personal financial gain and take unethical actions to profit from the large dollar amounts associated with government contracts. One method these contractors use is bribery, or the presentation of gifts or any item of value with the intent to gain favor during the future performance of a job or a decision (GSA, 2012). Another is kickbacks, a form of reward, gift, or item of value that an individual receives as a result of the performance of duties in favor of a designated offeror. Generally, kickbacks take the form of a “commission” for doing business after the action has taken place and are negotiated before the illegal action takes place. Finally, conflicts of interest arise in government contracting when a government representative’s loyalty is not aligned with the government’s best interest (GSA, 2012). The first potential conflict of interest could derive from continual interactions as part of a long-term government contracting relationship. Second, government–industry transfers are not uncommon, as individuals often leave jobs in industry to take jobs in government, and vice versa. Last, family relationships can also pose issues when members are affiliated across different contract stakeholders. Other potential conflicts of interest include stocks owned in industry or part-time employment positions (Chang, 2013). The overarching theme of this type of fraud is that the



government representative stands to gain personally from any contractual deals with industry.

3. Fraud Remedies

Fraud remedies consist primarily of administrative actions, a criminal conviction, or civil settlements. These remedies can affect a contractor's eligibility to perform contracts for the government, require them to pay fines, or require jail time for individuals.

a. Administrative Actions

Contracting officers have a great deal of latitude in how they perform contract functions, including contract management. Contracting officers must make fair and reasonable decisions, while acting as a type of judge on contract issues. Due to this requirement, when approved by leadership, contracting officers have the authority to execute administrative actions such as those described in the following sections (Department of the Air Force, 2004).

(1) Suspension

The government has the power to suspend a contract company's ability to hold contracts with the federal government under Federal Acquisition Regulation (FAR), Subpart 9.4, Debarment, Suspension, and Ineligibility. A suspension is often for a period of 12 months or less, and it deems the contractor ineligible for new contracts with the federal government. A suspension is based on "adequate evidence" of contractor misconduct and remains in effect throughout the duration of any investigation or legal proceeding. Examples of contractor misconduct that would warrant suspension are fraud-related behavior, violations of other federal or state antitrust laws, violations of the Drug-Free Workplace Act of 1988, or lack of integrity or honesty that diminishes contractor responsibility (Department of the Air Force, 2004).

(2) Debarment

Debarment is more serious than a suspension in that contractors are debarred from accessing the installation where the company was previously performing the contract



work. Suspension prevents future awards; however, debarments impact current contracts. Debarments are often issued if a contractor is convicted of a fraud-related crime, fraud-related civil action, or any misconduct that may affect the contractor's responsibility. Debarments are generally applied to a contractor for no more than three years under FAR Subpart 9.406-4, Period of Debarment (Department of the Air Force, 2004). Examples of misconduct that would warrant a debarment are similar to those for suspension; however, debarment is less frequent and often follows a criminal conviction.

b. Criminal Action

When fraud investigations reveal the specific individual who is responsible for the fraudulent conduct, criminal charges can be filed against that person. According to the United States Attorney's Manual (DoJ, 2018), the primary criminal charges include the following:

False Statements (18 U.S.C. § 1001) - A contractor can be charged with making false statements if he or she “(1) knowingly falsifies, conceals, or covers up a material fact by any trick, scheme, or device; (2) makes false, fictitious, or fraudulent statements or representations; or (3) makes or uses any false documents or writings within the jurisdiction of any department or agency of the U.S.”

False Claims (18 U.S.C. § 287) - A contractor can be charged with making false claims if he or she “knowingly presents or makes any false, fictitious, or fraudulent claims against any agency or department of the U.S.”

Mail Fraud (18 U.S.C § 1341) or Wire Fraud (18 U.S.C § 1343) - A contractor can be charged with mail fraud if he or she has an intent to defraud and uses any U.S. mail system as a means of communication to facilitate such fraud. Likewise, wire fraud involves the use of any wire such as a telephone or other electronic means across a wire such as a computer to complete a fraud scheme against a target (DoJ, 2018).

Conspiracy to Defraud the U.S. Government (18 U.S.C § 371) - A contractor can be charged with conspiracy to defraud the U.S. government if he or she “agrees with another individual to defraud the U.S. or to violate any federal law or regulation when at least one act is taken in furtherance of the agreement.”



Civil action can be pursued against an individual or company if they commit a civil False Claims Act violation (31 U.S.C. § 3729 et seq.) for payment to the U.S. government either knowingly or with reckless disregard. The potential civil penalties for a False Claims Act violation include treble damages plus damages equal to \$5,500 to \$11,000 for each false claim (GSA, 2012). We reviewed past research to understand why defense firms or individuals would commit fraud against the DoD, given all the potential penalties.

B. FRAUD LITERATURE

There are two primary theories that explain the basic elements of fraud. The Fraud Triangle (1973) suggests that fraud is accomplished when three basic elements intersect at the same time (Cressey, 1973). Cressey (1973) suggested that the three basic elements of fraud are opportunity, incentive or pressure, and rationalization.

Opportunity occurs when an individual perceives a breakdown in internal controls or oversight. A breakdown in these areas provides a window or method for accomplishing the fraudulent act. It is the weakness in any system that allows the theft to occur. *Incentive/pressure* is created when the individual feels he or she has a financial need or want. A financial need can be attributed to events or hardships in life or can also be manufactured internally as part of personal greed. *Rationalization* succeeds whenever individuals are able to convince themselves that it is okay to commit the crime, and it can be gained by believing that fraud is a victimless crime or by assuming that the risks of perpetrating the crime are worth it in the end.

A prevailing theory referred to as the Fraud Diamond was developed in furtherance of Cressey's (1973) theory, further explains the three elements of fraud, and introduces a fourth element: capability. Wolfe and Hermanson (2013) opined that in addition to rationalization, opportunity, and incentive, capability is what allows the successful perpetration of fraud (Wolfe & Hermanson, 2013). Only with the proper capability can a person rationalize the crime, have an incentive to commit it, and also recognize a weakness in controls or security measures that provides the opportunity (Wolfe & Hermanson, 2013). With these four elements present at the same time, the risk



of fraud is high. Past research demonstrates that the opportunity element of fraud may be higher than DoD acquisition professionals are willing to admit.

In April 2013, a survey was conducted within the U.S. Army contracting agency procurement workforce and included responses from 99 members whose workforce experience ranged from two to over 20 years of workforce experience. The survey consisted of a 26 knowledge-based questions and 12 perception questions that dealt with the organization's internal controls and the its internal structure, culture, and processes regarding risk to fraudulent activity. On the assessment, the average score for questions answered correctly was 69.8%. This information was paired with the same surveyed members' responses on questions regarding the organization's vulnerability to fraud within internal controls and fraud schemes. Survey responses showed that 38% of respondents answered that they did not suspect fraud within the internal control component of their organization and 53% of respondents stated they did not suspect fraud schemes in their organization (Rendon & Rendon, 2015).

By analyzing this sample of DoD procurement workforce members, one sees that the current knowledge of the Army contracting agency procurement workforce is creating the opportunity for potential criminal and fraudulent activity by defense contractors. This opportunity exists because of the disparity in knowledge versus awareness of the procurement workforce members that creates a large potential for oversight of typical fraud schemes to be used within defense contracts.

Another area of focus for our review includes the incentives for firms and firm management to commit fraudulent actions. Prior literature shows that incentives increase a firm's propensity to commit fraud. Specifically, Trompeter, Carpenter, Desai, Jones, and Riley (2013) underlined the immense pressure to commit fraud created by a firm's management team and the incentives it uses to drive performance. However, it should be noted that no direct relationship was identified between management's use of aggressive accounting and management rewards. Instead of a clear relationship between management incentives and firm growth, Trompeter et al. (2013) state that the external pressure of a person's social environment may be to blame.



Trompeter et al. (2013) argued that General Strain Theory may be a significant aspect of fraud. General Strain Theory proposes that potential stressors of an individual's social environment and need to maintain a certain social status could cause one to indulge in criminal behavior and fraudulent activities within a firm. This type of social-induced pressure, compounded with an opportunity to commit fraud, and an individual's ability to rationalize the behavior is a picture-perfect risk environment according to the Fraud Triangle. Keeping the firm's social environment in mind, organizations must strive to develop continuous fraud awareness training and employ fraud-detection methods. This process will continue to show members in a firm that fraud at any level is wrong and will deter potential frauds by removing an individual's ability to rationalize the behavior as good or acceptable. In addition to personal and professional incentives for fraud, researchers have also theorized about the fraud penalty system.

The wrist-slap hypothesis suggests that current and past penalties for those who commit fraud against the government are merely a slap on the wrist and do little to affect the perpetrators themselves or prevent fraud recidivism (Karpoff et al., 1999). The penalties that are imposed against companies are simply too small to have a positive effect. Defense contract companies represent a small group of businesses, an oligopoly, where there are only a few distinct sellers that can supply the sought-after good or service. In some cases, a single company acts as a monopoly and is the sole provider. As a result, the government is less inclined to inflict severe penalties due to the criticality of these contractors. Additionally, the abundance of work, time, and skill required to pursue each fraud occurrence across the volume of contract actions surpasses government resources. As previous DoD Inspector General Joseph Sherick stated, the government is "outmatched by the defense contractors" (Dwyer, 1986, p. 75).

Even when employed, fraud remedies have limitations, and as the wrist-slap hypothesis suggests, remedies may be more for show than for actual effect. In 1989, Boeing mishandled DoD planning documents, and the Washington, DC, office was debarred from performing government contracts. This office did not provide any goods or services to the government, so the impact on Boeing was immaterial (Wartzman, 1989). In a case against General Dynamics, the government suspended the company, but on the day the suspension was lifted, the company received new government contracts totaling



\$892.2 million (Carrington, 1985). In addition to those contracts, the government began pushing through a backlog of projects and contracts for the General Dynamics company (“General Dynamics Led Defense Firms,” 1987).

Another theory is known as the influential contractor hypothesis. The oligopoly–monopsony relationship between defense contractors and the government creates an environment where true justice cannot be pursued due to mutual harm. The larger, more critical defense contractors retain great wealth and influence due to the necessary goods and services they are able to provide to the DoD. The result is a justice system where fraud penalties are levied more heavily against non-critical defense contractors as a means of creating an example, thereby transferring a greater margin of wealth, influence, and dependence to large contract companies (Karpoff et al., 1999).

The last theory surrounding fraud penalties is the deterrent hypothesis, and it suggests that fraud penalties effectively deal with fraud. In fact, there are some opinions that suggest that fraud penalties have become too great and now pose a threat to defense contract companies and the procurement environment (Karpoff et al., 1999). Higher penalties can have varying degrees of effectiveness when imposed on a small business, potentially leading to bankruptcy. Alternatively, the effect is significantly different for a large defense contractor who has the ability to pay the fines. We believe our research provides data points that specifically address the deterrent hypothesis. In addition to the effect of imposed fines, multiple works address the potential reputational impacts that affect firms that commit fraud or misconduct.

A 1996 discussion paper written by John Lott (1996), University of Chicago Law School, states that “the optimal criminal fine for fraud will be zero” (p. 363), meaning that externalities like positive or negative reputation greatly affect the firms committing fraud. Lott explained throughout the paper that higher fines would likely cause increases to overall price in the market to outweigh any potential fines paid by firms in the future. Subsequently, prices would increase for customers (the government in this case) who purchase services from private firms. On the other hand, if a firm’s reputation is damaged with negative actions—fraud, for instance—the firm will have a difficult time obtaining additional work or providing services to new customers (Lott, 1996).



Lott (1996) also discusses the use of fines and reputation working together as simultaneous punishments towards firms that commit fraudulent actions. He wrote: “In a world with both fines and reputation, firms are indifferent to committing fraud as long as the firm’s reputation plus fines equals the short-term gain that the firm can get from cheating” (Lott, 1996, p. 365). Lott essentially stated that regardless of the penalties imposed, if the damage to the firm is short-term, the firm will justify fraudulent actions as a cost of doing business. We believe this to be evident in our research.

A 2009 study examined the external effects of alleged fraud or corporate misconduct on a firm’s reputation through impacts on profitability and risk (Murphy et al., 2009). Profitability was determined based on earnings projections and actual reported earnings. Risk was assessed based on the volatility of stock due to deviations in forecasted earnings. The study concluded that profitability and risk generally shared an inverse relationship following allegations of corporate misconduct or fraud. The changes in profitability and risk suggest reputational impacts brought on by fraud, though the magnitude of the impact is dependent on the degree of effect on firm value (Murphy et al., 2009).

A firm’s future business may be diminished by corporate misconduct, though Karpoff (2012) pointed out additional factors that affect the severity of any impact. In 2012, Karpoff sought to assess the extent of reputational effect on a firm that has committed corporate misconduct or fraud. His review noted a significant reputational impact among companies involved in financial representation and consumer fraud, versus companies merely engaged in environmental violations. In some instances, the monetary value of the reputational effect exceeded that of imposed criminal fines or lawsuits (Karpoff, 2012). Karpoff (2012) opined that a firm’s reputational effect was greatest when a firm’s perfunctory behavior caused a customer to alter contract terms, thereby resulting in a diminished profit margin and potentially higher costs. Again, the gradation of reputational impact was greatly moved by the type of misconduct and the relationship the buyer and seller share (Karpoff, 2012). While the relationship between reputation and misconduct may be real in the general market, we submit that no such relationship exists within DoD acquisition due to the oligopoly–monopsony relationship already discussed. Despite the many who suggest that negative impacts on firm reputation are in themselves



a penalty, we argue that such a penalty is not acceptable in the absence of feasible substitutes, such is the case for the DoD's largest providers. There is no diminished future business potential in an environment where future business is all but assured.

A closer look at specific effects on firm reputation through an analysis of firm share price presents findings that are in line with the current business relationship between the DoD and defense firms. In 1999, researchers evaluated the overall economic effect of fraud and fraud remedies on defense contractors' stock prices. The study included a review of 98 contractor companies involved in an aggregate 249 cases of alleged procurement fraud from 1983 to 1995 (Karpoff et al., 1999). Of the 98 companies, most were bigger firms, which is reasonable given the number of contract actions awarded to large defense contractor firms. The volume of contracts awarded to larger firms represents a higher risk for potential fraud actions. During the 12-year review period by Karpoff et al. (1999), stock price fluctuations were also evaluated central to periods of time surrounding press releases that revealed allegations of fraud. A total of 396 press releases were revealed, including an additional review of stock prices that was conducted as part of any follow-up press releases that reported indictments, suspensions, or fines (Karpoff et al., 1999).

The results of the study showed a significant difference on stock price changes among companies within the top 100 defense contractors, versus companies that were considered to be smaller providers of DoD services. Among those outside of the top 100, there was a significant change to stock price following a press release announcing the company's fraud. However, stock price changes were not significant among companies that were part of the top 100 defense contractors. Karpoff et al. (1999) theorized that stock price change differences between the two distinct groups of DoD providers were directly related to the influential contractor hypothesis. Large firms of a critical nature to the DoD were less affected by fraud, mostly due to their assured continued business in the future. However, smaller firms were more at risk to losing DoD business because of fraudulent activities. The stock price changes among those companies showed that shareholders questioned the survival of the smaller firms (Karpoff et al., 1999).



III. DATA AND METHODOLOGY

As part of our research, we gathered unclassified data from interest groups, government records, and financial databases that included data across a 23-year period from 1995 to 2018. Our primary data source includes information collected and maintained by a government watchdog group, the Project on Government Oversight (POGO). POGO collects and distributes information regarding DoD federal contractor misconduct data via the website Contractor Misconduct. POGO has reported the information annually based on DoJ press releases. The data includes the contractor names, fraud occurrences per year, and the annual fraud penalties paid by firms. The website provides historical contractor misconduct data going back to 1995 and up to 2019.⁴ In addition to data obtained from POGO, we collected our control variables for MTB and Size from the Compustat database.

A. SAMPLE DATA

Our sample population included a total of 552 fraudulent occurrences involving 111 contractors from 1995 to 2018. We discovered that several of the contract companies had merged during the review period, so only companies that remained intact in 2018 were included in the final sample population. We sought to ensure that any collected data would be standardized to make accurate comparisons between identified firms and firm years. After excluding mergers and companies that went out of business, 511 fraud occurrences involving 96 defense contract companies and approximately \$13.5 billion in fraud fines remained in the sampling. Figure 3 shows the trend data based on the total fraud occurrences each year within the sample population. Additionally, Figure 4 shows the trend data based on the total fraud fines collected each year within the sample population.

⁴ We elected to only include data between years 1995 and 2018 to avoid truncated data in 2019.



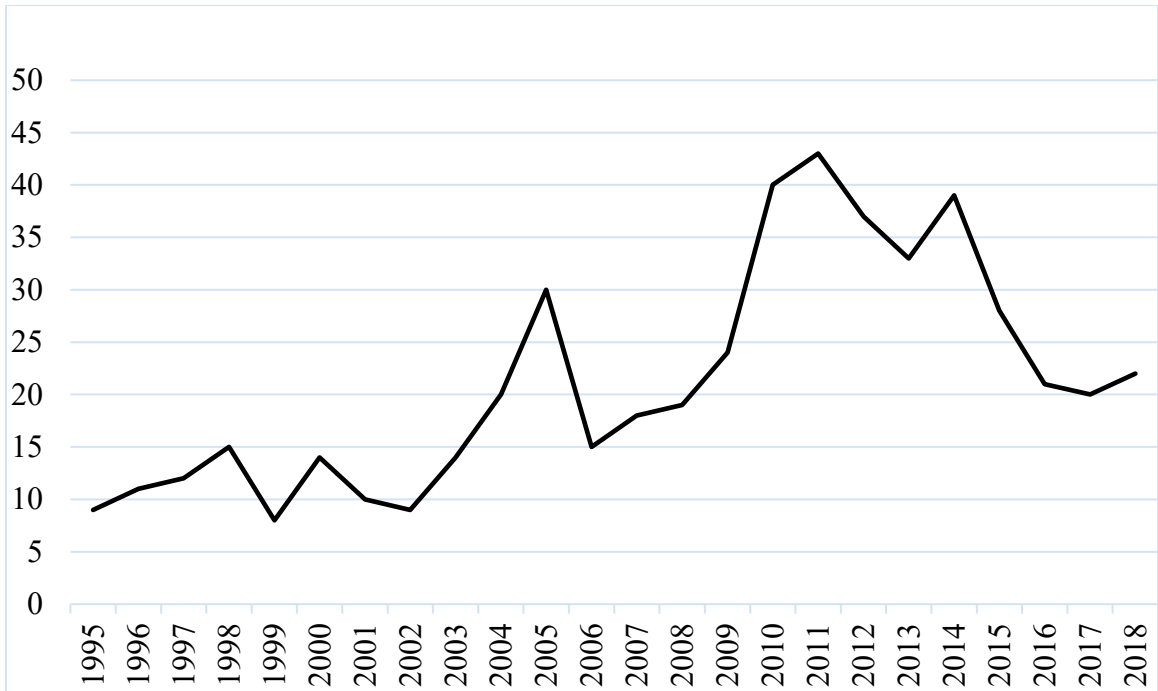


Figure 3. Sample Population Summary—Total Fraud Cases per Year. Source: POGO (2019).

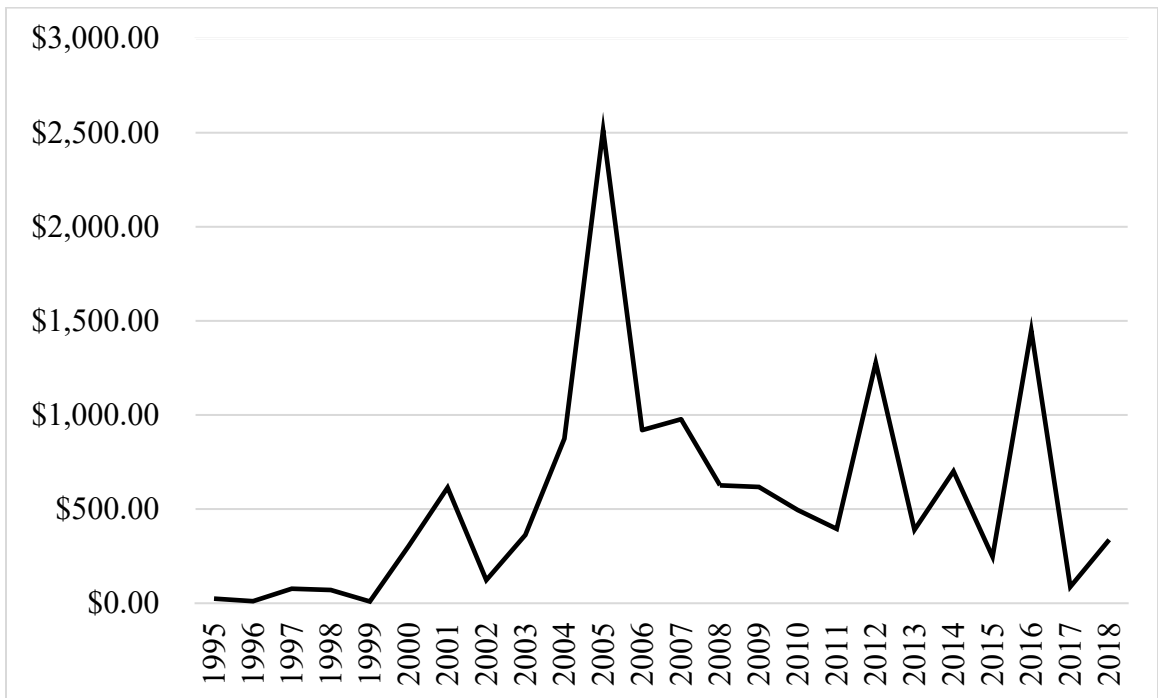


Figure 4. Sample Population Summary—Total Fines per Year in Millions. Source: POGO (2019).



After collecting the fraud/firm/year data, we sorted all firms by the years in which the fraudulent activity took place and searched through the contract award records of USAspending.gov to gather a sampling of non-fraud contractors who held active government contracts during our review period.⁵ In order to create standardized monetary amounts for the award fees within USAspending.gov, we used the “Obligated Amounts” from the downloadable data sets for each firm and year. This financial information was chosen because it allowed for completeness without relying on projected contract award amounts.⁶

Control variables were extracted from Compustat, a database that maintains financial, statistical, and market information on global companies, to extract necessary variables for our analysis. Compustat provided relevant financial and market information for the sample population contract companies including market cap and total assets per contractor by year between years 2012 and 2017. We used these data points to formulate variables within our model for the purpose of comparing companies similar in size. Data was also collected from USAspending.gov to determine which companies had active contract activities with the DoD between 2012 and 2017. In addition to these data sources, we spoke with multiple military investigators and legal teams who specialize in procurement fraud, all of whom verified aspects of the sample population data.

After completing a cross-sectional review of all variables and controls, we conducted a regression analysis on year periods 2012 to 2017. We determined that this five-year period contained the most complete data from POGO, USAspending.gov, and Compustat.⁷ During the five-year review period, we analyzed 213 fraud firm-year observations with 808 non-fraud firm-year observations for variability. We used these observations, along with the collected control variables to test our null hypothesis that the current magnitude of fraud fines has no effect on firm behavior or future fraud by firms.

⁵ USAspending.gov is an unclassified, open source federal spending database that provides transparency to taxpayers on how the federal government spends tax dollars.

⁶ USAspending.gov only provided contract award data for contract companies by year starting in 2008 through 2019.

⁷ Portions of the Compustat data was extracted from Hermis (2019).



As presented in Table 3, our data included a total of 1,021 observations that included a dependent fraud variable and independent fine variable. As mentioned, we also included control variables for firm size and MTB for normalization. While the commission of fraud was measured with a 1 or 0, the average fraud measure per firm-year was 0.784. Fines showed an average fine amount of over \$4.7 million with a maximum fine paid of \$1.67 billion. The standard deviation for fines was \$63.4 million. The mean coefficient for size measured 6.599, while the mean for MTB resulted in 16.634.

Table 3. Summary Statistics on Fraud Occurrence and Fine Amount, 2012-2017

	Observations	Mean	Standard Deviation	Min.	Max.
Fraud	1,021	0.784	0.412	0	1
Fines	1,021	\$4,789,163	\$6.34e+07	0	\$1.67e+09
Size	1,021	6.599	3.269	-5.116	14.447
MTB	1,021	16.634	288.241	-3155.393	4463.306

B. METHODOLOGY

To estimate the effect of fines on current and later fraud, we used the variation in fines and fraud occurrences across time as our primary means of identification. Our formal mathematical equation is as follows:

$$\text{Fraud}_{i,t} = \alpha + \beta_1 \text{Penalties}_{i,t} + \beta_2 \text{Size}_{i,t} + \beta_3 \text{MTB}_{i,t} + \beta_4 \text{GovSales}_{i,t} + \text{Ind}_i + \text{Year}_t + \varepsilon_{i,t} \quad (1)$$

Where "Fraud" is a binary indicator variable equal to 1 if company *i* in year *t* committed fraud and 0 otherwise. "Penalties" refers to the amount of fines paid by contractor *i* in year *t*.⁸ "Size" is the natural logarithm of total assets of contractor *i* in year *t*. "MTB" refers to the market value of equity scaled by the book value of equity for form *i* in year *t*.⁹ "GovSales" is contractor *i*'s government sales in year *t*.¹⁰ "Ind" refers to

⁸ Fraud and Penalties were extracted from POGO; Penalties were scaled by total assets using Compustat.

⁹ Size and MTB were taken from Compustat.

¹⁰ GovSales data was pulled from USA Spending.gov and scaled by total assets using Compustat.



industry dummies and is a series of indicator variables for the two-digit standard industrial classification (SIC) code. "Year" refers to a year dummies and is a series of indicator variables per year. Standard errors are bootstrapped because small clusters can erroneously impact the coefficient's interpretation (Klein & Santos, 2012).

The control variables help us measure factors most likely to have an impact on a firm's likelihood of fraud occurrence and magnitude of the fraud penalties. Size attempts to capture firm-specific characteristics that might otherwise be unobservable. MTB helps control for a difference in a firm's growth across years, where a high MTB value of equity is defined as high growth. GovSales controls for firms that may be heavily dependent on government contracts. Ind and Year control for unobservable factors related to invariant industry and time. Additionally, we used a variation of the equation that substituted a one-to-five-year lag for all independent variables. The lag inclusion is important because the previous year's profit could affect a firm's economic need to commit fraud. Finally, we estimate a variation of Equation 1 with a three-year rolling window. A rolling window is necessary because fraud investigations are time and labor intensive. Fraud fines paid by a firm could be the results of fraud committed three to five years prior to the actual fine.



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IV. RESULTS

Using a variety of specifications, our analysis shows that fraud fines paid have little to no relationship on current or future fraud-firm behavior. Our regression analysis uses Equation 1 with combined data from POGO, USAspending.gov, and Compustat. The time period for analysis includes data from 2012 to 2017 and includes a total of 1,021 firm-year observations.

A. REGRESSION ANALYSIS

Table 4 depicts the results from Equation 1. Column 1 in Table 4 shows the regression results with zero controls. Column 2 adds in the control variables Size and MTB. Columns 3 and 4 add in Industry and Year fixed effects, respectively. Column 5 includes the full set of controls and fixed effects for Industry, Year, and Firm. The coefficient of interest is Fines which shows the effect between fines and fraud in future calendar years.

Table 4. Analysis Results with Control Variables

	1	2	3	4	5
Fines	-2.57e-10 (9.03e-11)***	-2.91e-10 (1.13e-10)***	-2.84e-10 (2.21e-10)	-3.18e-10 (1.55e-9)	-7.32e-10 (6.84e-10)
Size	No	-0.003 (0.004)	-0.001> (0.005)	-0.003 (0.005)	-0.018 (0.053)
MTB	No	0.001> (0.001>)	0.001> (0.001>)	0.001> (0.001>)	-0.001> (0.001>)*
Industry Dummy	No	No	Yes	Yes	Yes
Year Dummy	No	No	No	Yes	Yes
Firm Fixed Effects	No	No	No	No	Yes
R ²	0.002	0.002	0.058	0.144	0.008
Observations	1,021	1,021	1,021	1,021	1,021

Notes: Coefficients denoted with * represent a p-value of 5-10%. Coefficients denoted with ** represent a p-value of 1-5%. Coefficients denoted with *** represent a p-value of less than 1%.

The results from Table 4 show little to no relationship between fines and fraud. The point estimates in columns 1 through 5 for Fines range in value from



-0.000000000732 to -0.000000000257. In terms of interpretation, these estimates suggest that a \$1 increase in fines is associated with an increase in the probability of fraud by between -0.000000000732% and -0.000000000257%. The coefficients for Fines in columns 1 and 2 are both statistically significant at the 1% level. Columns 3 through 5 show no statistical significance at any level for Fines. Our preferred estimates are displayed in column 5. The point estimate in column 5 for Fines is -0.000000000732 and not statistically significant at any standard level.

Adding in fixed effects for Industry appears to control for a significant amount of the variation in the results for Fines. After Industry is controlled for in the regressions, the point estimates for Fines in columns 3 through 5 coalesce around a small negative range of values between -0.000000000284 and -0.000000000732. All of the coefficients for Fines across the specifications are economically insignificant since they are close to zero in magnitude. Overall, the results from Table 4 show that fines have little to no effect on fraud in the subsequent calendar years.

Table 5 shows the results from Equation (1) when lagged variables are introduced on the right-hand side of the equation. In this table, each of the columns include the full set of controls and fixed effects for Industry, Year, and Firm. Column 1 lags each of the independent variables by one year, column 2 lags the variables by two years, etc. up until column 5 which lags all of the independent variables by five years. The interpretation of the coefficients in Table 5 is the same as Table 4 except that Table 5's coefficients show the relationship between fines and subsequent fraud found in later years.

The results from Table 5 largely mirror those of Table 4. Table 5 shows little to no relationship between fines and subsequent fraud in later years. The point estimates for Fines in Table 5 are all statistically insignificant and range in value from -0.000000000919 and 0.000000000861. These estimates suggest that a \$1 increase in fines is associated with an increase in the probability of subsequent fraud by between -0.000000000919% and 0.000000000861% depending upon specification.



Table 5. Analysis Results with One-to Five-Year Lags

	1-Year Lag	2-Year Lag	3-Year Lag	4-Year Lag	5-Year Lag
Fines	3.03e-10 (4.23e-10)	-9.19e-11 (1.93e-10)	8.61e-11 (7.30e-11)	1.30e-10 (1.06e-10)	-8.22e-11 (9.02e-11)
Size	0.008 (0.008)	0.004 (0.008)	0.015 (0.007)**	0.013 (0.007)*	-0.001 (0.008)
MTB	0.001> (0.001>)	-0.001> (0.001>)	-0.001> (0.001>)*	-0.001> (0.001>)**	0.001> (0.001>)***
Industry Dummies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
R ²	0.028	0.019	0.017	0.018	0.029
Observations	1,020	1,019	1,018	1,017	1,016

Notes: Coefficients denoted with * represent a p-value of 5-10%. Coefficients denoted with ** represent a p-value of 1-5%. Coefficients denoted with *** represent a p-value of less than 1%.

In results not shown, the estimates in Table 5 are found to be robust across a number of different specifications including (or excluding) the full set of controls and fixed effects for Industry, Year, and Firm. In particular, the coefficient on Fines is robust across all of the specifications, showing little to no relationship between fines and subsequent fraud for firms in our dataset. The results from Table 5 show the coefficient on Fines to be both economically and statistically insignificant across all of the specifications when the full set of controls and fixed effects for Industry, Year, and Firm are included in the regressions. Overall, the results from Table 5 show little to no relationship of fines on fraud in subsequent calendar years.

B. DISCUSSION

Our research indicated that fraud fines have no effect on subsequent firm-fraud behavior. External factors that could have an impact on our findings include: penalties are too low, fraud policies throughout the DoD and DoJ have changed, there have been changes in procurement spending, there is a revolving door between government and industry, and the value of money decreases over time. These theories or external factors are not all-inclusive. Outside of the literature and immediate contracting environment,



however, these points should be considered when discussing possible effects on these results.

The first and most obvious factor affecting our results may be that the fraud penalties themselves are too inconsequential to change firm behavior. Our findings refute the deterrent hypothesis and support both the influential contractor hypothesis and wrist-slap hypothesis. Defense contractors within the top 100 defense firms may be too big to fail from a financial penalty standpoint. Given the large profit margins, the penalty magnitude could very well be part of the firm's end-of-year profit equation through an estimated loss contingency.

The fact is, suspension and debarment are not real options for top 100 firms and even when employed, are half measures due to the waiver process, allowing firms to continue operating for the government. As such, financial penalties must be effective as the primary means of remuneration for fraud among critical firms. However, the results of our analysis show that the current measure of fraud fines has no impact on firm behavior or the commission of fraud.

Our second potential external factor is fraud policy changes in the DoD and DoJ. The first area of policy we researched and analyzed alongside our data was the Panel on Contracting Integrity 2007 Report to Congress. This panel produced 21 recommendations for 2008, to be accomplished across four areas including: the reinforcement of functionally independent contracting employees with the use of qualified contracting leadership, fully identify the appropriate amount of contracting workforce employees with the correct skill sets and experience, develop a standardized DoD contracting policy plan, and increase the level of education, training, and planning used in contingent contracting (Office of the Under Secretary of Defense Acquisition, Technology, and Logistics (OUSD[AT&L], 2007).

Additionally, in order to better support the review of integrity issues within contracting, the panel established 10 subcommittees that also provided additional recommendations. Subcommittee 6, Sufficient Contract Surveillance, chaired by the deputy assistant secretary of the Navy (Acquisition & Logistics Management), established the following initial actions for implementation in 2008: evaluate the current



functions of contracting office representatives (CORs) and establish a standardized certification for CORs within the DoD, ensure COR assignment takes place prior to contract award, and create a process for COR nominations to be approved through organization management. This approval is accomplished by requiring written letters stating that CORs have the needed resources for their positions and that a member's COR duties will be reportable on their employee performance assessments (OUSD[AT&L], 2007). These initial actions were focused on building a better method of continuous contract surveillance and a more regulated and standardized use of CORs in government contracting.

The second area of policy we analyzed alongside our data points was a memo authored by the Office of Deputy Attorney General Sally Quillian Yates titled "Individual Accountability for Corporate Wrongdoing" signed on September 9, 2015. This memo outlined six areas in which the DoJ should refocus the U.S. Attorney's Manual for all future investigations of corporate wrongdoing. Specifically, the Yates memo addressed the need for continued focus on corporate participation with fraud investigations, and the need to pursue the individuals responsible, where practicable (Office of the Deputy Attorney General, 2015).

First, "to be eligible for any cooperation credit, corporations must provide to the Department all relevant facts about the individuals involved in corporate misconduct" (Office of the Deputy Attorney General, 2015, p. 3). Any corporations that want to receive cooperation consideration must be complete and truthful with all relevant facts concerning the individual's misconduct. Providing that the corporation meets the required threshold criteria, the amount of extended cooperation credit shall remain dependent on the traditional factors applied to the assessment, including the firm's cooperation timeliness, proactivity of the cooperation, and swiftness of internal investigations related to the matter.

Second, "both criminal and civil corporate investigations should focus on individuals from the inception of the investigation" (Office of the Deputy Attorney General, 2015, p. 4). Criminal and civil attorneys should concentrate on cases built against specific wrongdoers as corporations can act only through the individuals within



them. This step maximizes the chances of criminal or civil charges being found against the individual who committed the wrongdoing and not only the corporation.

Third, “criminal and civil attorneys handling corporate investigations should be in routine communication with one another” (Office of the Deputy Attorney General, 2015, p. 4). This aims to build upon the relationships between civil and criminal attorneys, especially those who could be working on concurrent criminal and civil investigations involving corporate wrongdoing. This includes a notification system between civil and criminal attorneys regarding cases that could potentially become concurrent investigations.

Fourth, “absent extraordinary circumstances, no corporate resolution will provide protection from criminal or civil liability for any individuals” (Office of the Deputy Attorney General, 2015, p. 5). In a situation where the DoJ resolves matters with a corporation for wrongdoing, attorneys should continue investigations and resolutions involving specific individuals. A key point of this step is that “department lawyers should not agree to a corporate resolution that includes an agreement to dismiss charges against, or provide immunity for, individual officers or employees” (Office of the Deputy Attorney General, 2015, p. 5). These types of criminal or civil liability releases must be personally officiated by the proper assistant attorney general or U.S. attorney (Office of the Deputy Attorney General, 2015).

Fifth, “corporate cases should not be resolved without a clear plan to resolve related individual cases before the statute of limitations expires and declinations as to individuals in such cases must be memorialized” (Office of the Deputy Attorney General, 2015, p. 6). In the event a corporate case is resolved, attorneys must have a documented investigative plan for all potentially liable individuals involved prior to any statute of limitations periods expiring. Additionally, any postponements in a corporate level investigation should not affect the exposure of potentially culpable individuals.

Sixth, “civil attorneys should consistently focus on individuals as well as the company and evaluate whether to bring suit against an individual based on considerations beyond that individual’s ability to pay” (Office of the Deputy Attorney General, 2015, p. 6). Essentially, an individual’s financial status should not stand as the controlling factor



in decision-making for pursuance of a civil suit against him or her. Instead, factors such as whether the individual's actions were serious and actionable, or if pursuing the actions would reflect key federal interest, should be considered. This is similar to when prosecuting attorneys evaluate an individual's previous misbehavior, previous circumstances, and any additional background information leading to the event of misconduct.

In addition to changes in DoD and DoJ policy, changes in procurement spending contracts may affect the propensity for fraud. The DoD has been involved in multiple engagements and projects since 2000, all of which have affected the number of contract activities and procurement spending for goods and services. The U.S. government tracks procurement contract expenditures above the micro-purchase threshold of \$3,500 in the Federal Procurement Data System (FPDS). According to the FPDS, DoD contract expenditures increased sharply by \$265 billion between FY2000 and FY2008. Following the sharp spike, DoD procurement spending decreased by \$170 billion from FY2009 to FY2015 (Schwartz, Sargent, Nelson, & Coral, 2016).

Large fluctuations in contract expenditures, an increase of 142% between FY2000 and FY2008, followed by a 38% decrease between FY2009 and FY2015, have a notable impact on the environment where contracting fraud is probable to transpire. It is reasonable to accept that the risk of fraud occurrences increases as total spending and contract activities increase. Likewise, as contract activities and procurement spending decrease, the pool for potential fraud activities also diminishes.

In addition to the factors already discussed, the revolving door or brass parachute effect, could also have an impact on fraud and continued business dealings between the DoD and defense firms. It has long been the practice of businesses to acquire personnel from their competing business entities or regulatory bodies that oversee respective business practices. It is understandable why this headhunter tactic is employed and is successful. When companies or entities routinely do business with one another, it is advantageous to bring someone over who understands the other company's environment. Furthermore, new employees likely have remaining contacts at their point of origin, which can make future business easier to secure or maintain. This practice also happens



with defense firms and DoD leadership. Members of the DoD acquisition workforce, including members of the secretary of defense's office, have moved over from defense firms and vice versa.

According to the POGO (2018), in FY2016, companies in the top 20 defense contractors hired over 645 former government leaders, members of Congress, and military officers. In FY2016, firms onboarded military officers including "25 Generals, 9 Admirals, 43 Lieutenant Generals, and 23 Vice Admirals" (POGO, 2018, p. 9). Those new hires were brought over as lobbyists, senior executives, or board members. Of those, approximately 95 instances consisted of senior DoD officials who went to work directly for the top five defense contractors, including (in alphabetical order): Boeing, General Dynamics, Lockheed Martin, Northrop Grumman, and Raytheon (POGO, 2018).

These post-military positions are highly valued and often extremely lucrative. As such, senior military leaders who hope to transition into industry post-military stand to suffer professionally if they speak out against defense contractors. There are numerous notable instances of the revolving door in past and current senior-level DoD positions, as well as positions in the DoD acquisition community. Many of these appointed individuals have decades of experience in their prior careers with firms who have a long standing relationship with DoD procurement. The aforementioned facts in no way infer any wrongdoing, but instead are meant to demonstrate the close relationship that the DoD and defense firms share, despite the apparent trends of fraud. These types of relationships may embolden influential contractors through the perception of assured future business dealings within the DoD contracting arena.

Lastly, the effect of time on the value of money may have an impact on fraud trends as defense firms recognize that committing fraud today costs them less in the future. The benefit of fraud today may outweigh the cost of fraud tomorrow. For example, if a company were to commit contract fraud today for \$1 million, it would stand to profit immediately by \$1 million. Fraud investigations are time- and labor-intensive and can take as long as three to five years to prosecute. Most often, defense firms choose to settle the case outside of criminal court. In our example, a three-to-five-year period could also incur 6–10% inflation, conservatively. Using the future value of money



formula: $FV = PV \times (1+i)^n$, even if fines were levied dollar for dollar, the future dollar value of fines paid in post-fraud years three to five would be between \$941,192 and \$903,920, respectively. Based on the amount of fraud committed, the top 100 contractors could see the benefits as worth the costs.



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V. CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

This paper includes an analysis of unclassified data that includes fraud fines and the fraud cases committed by DoD defense contractors. We utilize a regression analysis to assess 218 fraud firm-year observations and 803 non-fraud firm-year observations between the years 2012 and 2017, along with associated fraud fine penalties paid by those same firms. The results of our analysis showed coefficients that were insignificant and economically near zero from an effects standpoint. The incorporation of one-to five-year lag variations of variables did not impact findings, but confirmed them. Based on our findings, we were unable to reject our null hypothesis that fraud fines have no impact on the firm-fraud behavior of defense companies.

There are several potential factors that have an influence on our results. Fraud fine amounts paid by defense contractors are likely too low in comparison to the profit potential of committing fraud against the DoD. Second, there have been numerous changes in DoD and DoJ policy that have affected the focus on fraud. Third, since 2001, there have been numerous changes in procurement spending, which impacts the fraud environment through volume. Lastly, the effect of time on the value of money may provide an incentive for defense firms to commit fraud with a near assurance that penalties will not be imposed for three to five years. The time delay decreases the magnitude of the fine effect. Despite the potential factors that may have an effect on our results, the results themselves are significant and suggest that additional measures be evaluated by the DoD and DoJ.

Additional research should be conducted to evaluate the effectiveness of fraud penalties outside of post-occurrence fines. Potential measures for research could include a fraud-risk multiplier effect to be applied to future contract activities with defense companies who historically present the greatest fraud risk. Second, an earned price reduction on an immediate contract activity following an instance of fraud, similar to a coupon, could be applied by the DoD. Third, the DoD could create a fraud-risk reduction plan and impose it on defense firms that present the greatest fraud risk. Plan requirements



could include additional accounting reviews, quality control measures, government-administered fraud training, and program-level fraud hotlines for specific contracts.



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