ESSAYS ON POLITICAL INFLUENCE IN ACCOUNTING

by

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Essays on Political Influence in Accounting

Thesis directed by Professor Steven Rock

In this study, I examine the interplay between regulatory enforcement and corporate behavior. Specifically, I focus on how interactions with regulators influence firms' financial reporting and operating environments. I find evidence consistent with the hypothesis that regulatory enforcement is associated with material changes in financial reporting disclosures and operating performance.

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CHAPTER 1
FINANCIAL REPORTING OVERSIGHT AND RESOURCE CONSTRAINTS: EVIDENCE FROM SEC COMMENT LETTERS
(Katherine A. Gunny and Judith M. Hermis)

1.0 INTRODUCTION

The mission of the U.S. Securities and Exchange Commission (SEC) is "to protect investors, maintain fair, orderly, and efficient capital markets, and facilitate capital formation."[1] To achieve this mission, the SEC has a number of processes designed to facilitate compliance with disclosure regulations and to pursue enforcement against noncompliant firms. Taken together, these activities comprise the SEC's financial reporting oversight. In this paper, we examine how the SEC's resource constraints affect the compliance aspect of financial reporting oversight. Specifically, we study the impact of resource constraints on the SEC's filing review program and the issuance of comment letters on registrants' filings.

The availability of high quality disclosure is critical to the market's assessment of firm value. The SEC issues informal interpretive guidance to facilitate firms' compliance with disclosure regulations. In addition, eleven Assistant Director Offices (ADOs) of the Division of Corporation Finance ("Corp Fin") periodically review the filings of public registrants. If a filing review identifies noncompliance with Generally Accepted Accounting Principles (GAAP) or

[1] http://www.sec.gov/about/whatwedo.shtml#.U8lEOpRdV8E

[2] Firms are assigned to ADOs based on industry, defined as 4-digit Standard Industrial

deficiencies in disclosure, the ADO will issue a comment letter addressing the issue.[2]

Prior literature on the SEC's financial reporting oversight focuses on the impact of resource constraints on enforcement, including restatements and Accounting and Auditing Enforcement Releases (AAERs) (DeFond et al. 2011; Kedia and Rajgopal 2011). Other studies that examine the SEC's compliance role focus on firm characteristics associated with comment letter receipt and the market consequences of comment letters (e.g., Bozanic et al. 2014; Dechow et al. 2015; Ertimur and Nondorf 2006; Johnston and Petacchi 2014). In contrast to existing literature, we examine the association between resource constraints and the compliance role of the SEC. Specifically, we study how resource constraints influence the SEC's propensity to issue a comment letter and how the consequences of comment letter receipt vary with resource constraints.

The SEC's resource constraints are not directly observable and the various divisions of the SEC have separate and distinct functions. In particular, ADOs have two main responsibilities: Conducting filings reviews and issuing comment letters. Seasonality in firms' choice of fiscal year-end leads to predictable clustering of 10-K filing dates across ADO offices. Given that the majority of our sample firm-years have a December fiscal year-end, we use December year-end as our proxy for ADO busyness. To mitigate concerns that our measure captures variation in reporting quality concurrent with fiscal year-end choice, we include observable firm

[2] Firms are assigned to ADOs based on industry, defined as 4-digit Standard Industrial Classification (SIC) code.

characteristics known to vary predictably with the firm's choice of year-end, including size, industry, leverage, and beta (Smith and Pourciau 1988; Huberman et al. 1989; Kamp 2002; Feng 2013).

Our first hypothesis examines the association between ADO busyness and 10-K comment letter issuance. The SEC's decision to issue a comment letter is a joint function of their propensity to review a given filing and the probability that they issue a comment letter conditional on having reviewed the filing. We employ a bivariate probit model that allows us to explicitly model both of the latent processes underlying the observable outcome of comment letter issuance. We believe this methodology represents an innovation over prior literature because assuming that the probability of review is embedded in the issuance of a comment letter leads to biased estimators.[3] We find that ADOs exhibit a lower propensity to issue a 10-K comment letter when busy, conditional on the probability the filing was reviewed. This effect is incremental to other factors known to vary with fiscal year-end, such as industry, size, beta, and leverage.

In order to facilitate efficient capital allocation, the SEC might focus its limited resources on firms with the most serious disclosure noncompliance during busy periods. Therefore, our second set of hypotheses explores the association between ADO busyness and comment letter severity. We follow prior literature and classify comment letters as serious when they: (1) lead to a financial statement restatement (Cassell et al. 2013) or (2) consist of a greater proportion of revenue-related topics (Dechow et al. 2015). We find that the probability of an SEC-initiated

[3] We discuss the bivariate probit model in greater detail in Section 5.

restatement and the proportion of revenue comment letter topics (relative to all topics) are both increasing in ADO busyness. This result is consistent with the SEC allocating its limited resources to identifying the most egregious instances of noncompliance when busy.

Lastly, prior literature suggests that revenue-related comment letters play an important role in price formation (Dechow et al. 2015), and some comment letters identify compliance issues so serious that they result in financial statement restatements (Cassell et al. 2013).[4] Therefore, the timeliness with which compliance information via comment letters is conveyed to stakeholders is critical. Our third and final hypothesis explores the impact of SEC resource constraints on comment letter processing time – the time between the 10-K filing date and the date of the initial comment letter. We find a positive association between ADO busyness and comment letter processing time, suggesting that ADOs take longer to process comment letters when busy. We also find evidence that suggests ADO prioritize larger firms when busy.

We make several contributions to extant literature. We are the first to investigate how resource constraints affect the compliance aspect of financial reporting oversight at the SEC. Prior literature examining the SEC's compliance role focuses on the firm characteristics that affect the probability and consequences of receiving a comment letter (e.g., Cassell et al. 2013; Dechow et al. 2015). Prior literature examining SEC resource constraints focuses on the enforcement aspect of

[4] Hribar and Jenkins (2004) and Palmrose et al. (2004) document large negative market reactions to accounting restatements.

financial reporting oversight at the SEC (DeFond et al. 2011; Kedia and Rajgopal 2011). The enforcement and compliance aspects of financial reporting oversight at the SEC are distinct functions.[5] We examine how resource constraints at the SEC affect the issuance, substance, and processing time of comment letters.

Second, we introduce an econometric tool to address the partial observability problem inherent in studies dealing with financial misreporting/compliance behavior. The problem of partial observability arises because the issuance of a comment letter is a clear indicator that a firm's filing was reviewed, but the absence of a comment letter is less easily interpreted. The lack of a comment letter may arise because a filing was not reviewed or because it was reviewed and the SEC did not identify any compliance issues. Prior literature on financial misreporting and noncompliance assumes that the probability the SEC selects a filing for review is embedded in the issuance of a comment letter. We use a bivariate probit model to measure both the probability the SEC selects a filing for review and the probability a comment letter is issued, conditional on the probability of review. To the best of our knowledge, we are the first to incorporate this tool into studies of the comment letter process and our results should be of interest to researchers in this area.

Third, we examine how resource constraints at Corp Fin influence the comment letter process. A number of studies assess the impact of busyness on outcomes for various financial professionals including auditors (Lopez and Peters

[5] The SEC's enforcement role is undertaken at the Division of Enforcement through one of its 12 regional offices (e.g., Atlanta, Boston, Chicago, Denver, Fort Worth, Los Angeles, Miami, New York, Philadelphia, Salt Lake City, San Francisco), whereas its compliance role is undertaken at the Division of Corporation Finance through its 11 assistant director offices located in the national office in Washington D.C.

2012), directors (Fich and Shivdasani 2006), and audit committee chairs (Tanyi and Smith 2015). The advantage of our setting is that we can directly measure the output of the comment letter process. For example, we can observe the frequency of comment letters, issues identified in the comment letter, whether the comment letter initiated a restatement, and the length of time between the 10-K filing date and comment letter issuance. The output of other financial professions (e.g., auditors and directors) is not directly observable and usually measured using proxies for financial reporting quality. Our results suggest that, when resource constrained, the SEC issues fewer comment letters but focuses its limited resources on the most severe cases of noncompliance. In addition, the time to process a comment letter is longer when busy, suggesting that SEC resource constraints reduce the timeliness with which information about disclosure quality reaches stakeholders.

Our results also have implications for policy makers responsible for allocating resources to the SEC. Our finding suggest that allocating additional resources to ADOs would likely broaden the scope of comment letters beyond identifying non-GAAP compliance and revenue recognition issues during ADOs' busy periods. Also, allocating additional resources to the SEC should shorten comment letter processing time. Policy makers should consider the benefit of comment letters that are broader in scope and more timely, net of the cost of allocating additional resources to Corp Fin.

2.0 BACKGROUND ON SEC FILING REVIEW PROCESS

The SEC is organized into five divisions: Corporation Finance, Enforcement, Investment Management, Economic and Risk Analysis, and Trading and Markets. Each division plays an important role in the SEC's financial reporting oversight which, consists of enforcement and compliance activities. Enforcement actions entail requiring financial restatements, issuing Accounting and Auditing Enforcement Releases (AAERs), and imposing sanctions related to civil and criminal penalties. An equally critical aspect of SEC oversight is compliance, the objective of which is to provide investors with sufficient information to facilitate efficient capital allocation.[6] Compliance actions includes providing nonbinding disclosure guidance and issuing comment letters.

Corp Fin is located at the SEC national office in Washington, D.C., and is comprised of eleven ADOs that are wholly responsible for reviewing registrants' filings. Firms are assigned to ADOs by industry, defined as 4-digit Standard Industrial Classification (SIC) code.[7] Table 1 contains a listing of the ADOs and their industry jurisdictions.

[6] http://www.sec.gov/corpfin#.U9ZpreNdV8E

[7] In 2011, the SEC added a second ADO dedicated to the financial services industry. Before 2011, there were 11 ADOs. However, ADO Financial Services II issued an unusually low number of comment letters. Therefore, we combined both ADOs dedicated to the financial services industry for the duration of our sample period. Results are robust to separately classifying these two offices.

Table 1 - Frequency of firms' 10-K filing dates by ADO office

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Comment Letters	%10-Ks filed
ADO 1: Healthcare and Insurance	8	16	81	19	20	185	21	8	83	7	6	2,755	3,209	987	31%
ADO 2: Consumer Products	280	43	44	39	3	70	30	35	149	26	1	1,305	2,025	652	32%
ADO 3: Info Technologies and Services	110	23	264	70	37	307	50	28	216	59	52	2,260	3,476	802	23%
ADO 4: Natural Resources	3	-	49	2	24	102	10	11	76	24	15	1,454	1,770	590	33%
ADO 5: Transportation and Leisure	21	15	164	41	64	110	42	55	188	64	19	2,164	2,947	822	28%
ADO 6: Manufacturing and Construction	91	14	115	29	66	189	47	71	177	82	55	1,929	2,865	927	32%
ADO 7: Financial Services	-	1	34	6	-	55	4	-	50	9	19	622	800	205	26%
ADO 8: Real Estate and Commodities	8	-	26	11	-	21	9	5	61	17	7	1,444	1,609	613	38%
ADO 9: Beverages, Apparel, and Mining	318	17	56	24	10	96	23	6	65	28	11	813	1,467	434	30%
ADO 10: Electronics and Machinery	63	35	381	48	42	402	35	51	362	129	22	2,545	4,115	820	20%
ADO 11: Telecommunications	26	43	140	23	24	160	23	35	93	32	6	1,732	2,337	534	23%
Total	928	207	1,354	312	290	1,697	294	305	1,520	477	213	19,023	26,620	7,386	28%

Each ADO is staffed with approximately 30 employees, 80% of whom are accountants and attorneys with expertise in financial reporting and disclosure. These employees conduct filing reviews. Filing reviews require substantial industry expertise, and each ADO's budget is fixed within the government's fiscal year; therefore, ADOs are unlikely to share resources or transfer employees among offices (Blackburne 2014).[8]

Section 408 of the Sarbanes Oxley Act (SOX) establishes six criteria that ADOs should consider when selecting filings to review. These are (i) issuers that have issued material restatements of financial results; (ii) issuers that experience significant volatility in their stock price as compared to other issuers; (iii) issuers with the largest market capitalization; (iv) emerging companies with disparities in price to earnings ratios; (v) issuers whose operations significantly affect any material sector of the economy; and (vi) any other factors that the Commission considers relevant.[9] SOX also requires that public registrants be reviewed at least once every three years. Apart from these guidelines, ADOs have sole discretion over which firms and filings to review. Reviews vary in scope and may be cover to cover (a complete review of the financial statements and footnotes), financial statements

[8] To assess the extent to which staffing levels and employee turnover at ADOs could be influencing our results, we obtained information on the number of employees and employee turnover rates at each ADO through a Freedom of Information Act request. During our sample period, turnover and number of employees is consistent across ADOs and years, which mitigates concerns that variation in staffing levels explains our results. We also confirmed with a former Corp Fin employee that ADOs are unlikely to share resources (i.e. employees).

[9] https://www.sec.gov/about/laws/soa2002.pdf

only (with key disclosures), or targeted issues (only disclosures related to a specific topic, such as revenue recognition).

If a filing review reveals any GAAP noncompliance or deficiency in disclosure, the ADO will issue a comment letter requesting additional information, recommending a disclosure revision in the current filing, or requesting that a disclosure be amended in all future filings. A comment letter may address multiple concerns, and firms have 10 days to respond to the SEC. Comment letters sometimes undergo multiple rounds before resolution. When the issues have been adequately remediated, the ADO will issue a letter stating that it has no further comments. At this point, the process is closed. In May 2004, the SEC began publicly disclosing all comment letter correspondence on the Electronic Data Gathering, Analysis and Retrieval (EDGAR) system no sooner than 20 days after resolution of the comment letter process.[10]

3.0 HYPOTHESIS DEVELOPMENT

3.1 Hypothesis 1

If ADOs are inundated with filings during busy periods, they may review fewer filings, decreasing the probability that a comment letter will be issued for a given firm's 10-K. Alternatively, ADOs may review the same number of filings during busy and less busy periods, but filing reviews may be narrower in scope during busy periods, resulting in a reduced probability that the SEC issues a comment letter. Both a lower probability of review and a narrower review scope could result in a

[10] Prior to January 1, 2012, comment letters were publicly disclosed on EDGAR no sooner than 45 days after resolution (Dechow et al. 2015).

decreased probability that the SEC issues a 10-K comment letter when busy. Our first hypothesis is stated as follows:

Hypothesis 1: There is a negative association between assistant director office (ADO) busyness and the SEC's propensity to issue a comment letter.

ADO busyness may be unassociated with comment letter issuance for a number of reasons. First, ADOs may select the same number of filings for review and may perform reviews of the same scope regardless of busyness. If timeliness is not a major concern during the comment letter process, then we could expect the filing review process to simply be extended into the future during busy periods.[11] To the extent the SEC merely takes longer to complete filing reviews when they are inundated with 10-Ks, we would expect ADO busyness to be unassociated with comment letter issuance.

SOX requires that public registrants be reviewed at least triennially. Therefore, ADO staff likely consider that firms' 10-K filing dates vary predictably across time when designing filing review procedures. In addition, personnel responsible for filing reviews have specialized industry expertise related to financial reporting and disclosure that facilitates efficient filing reviews regardless of busyness. If ADOs have procedures in place that incorporate predictable variation in 10-K filing dates, we would predict that

[11] The SEC Annual Reports for each year in our sample period imply that ADOs value timeliness in completing filing reviews. Specifically, each report mentions that 30 days is a "de facto industry standard" to complete a filing review and issue initial comments. This statement does not indicate whether that 30 days refers to 10-K filing reviews or all filing reviews (which include relatively shorter filings such as 10-Qs, S-1s, and 8-Ks). Since 10-Ks have the most extensive disclosures, 10-K reviews might take longer than reviews of other filings. See https://www.sec.gov/reports for the SEC's annual reports.

busyness would not be associated with the SEC's propensity to issue a comment letter.

3.2 Hypothesis 2

In order to facilitate efficient capital allocation, the SEC might focus its limited resources on firms with the most serious disclosure noncompliance during busy periods relative to less busy periods. The SEC alludes to this in their 2012 Agency Financial Report stating that "the agency's success in fulfilling its mission is highly dependent upon its ability to continually direct its resources towards the most productive uses for investors and the public." Therefore, we explore the association between ADO busyness and the severity of issues identified in comment letters.

Prior literature suggests that the comment letter process plays an important role in price formation. For example, Dechow et al. (2015) report a negative stock market reaction to comment letters that identify issues related to revenue recognition. Additionally, many comment letters identify compliance issues so serious that they result in financial statement restatements (Cassell et al. 2013) and prior literature documents large negative market reactions to accounting restatements (Hribar and Jenkins 2004; Palmrose et al. 2004).

Our second set of hypotheses explores whether the SEC directs its limited resources, when busy, towards identifying serious compliance issues. We follow prior literature and define serious comment letters as those (1) leading to a restatement (Cassell et al. 2013) and (2) containing a greater proportion of revenue-related topics (Dechow et al. 2015). If the SEC allocates its limited

resources to identifying the most egregious instances of noncompliance, we would expect the comment letter process to uncover more serious compliance issues during busy periods. The ability to deploy constrained resources to identify serious instances of noncompliance is consistent with the SEC's stated goal of facilitating capital allocation. This reasoning leads us to state our second set of hypotheses as follow:

Hypothesis 2a: There is a positive association between ADO busyness and the likelihood of a restatement initiated by an SEC comment letter.

Hypothesis 2b: There is a positive association between ADO busyness and the percent of comment letter topics related to revenue recognition.

However, busyness may be unassociated with comment letter severity for reasons enumerated in the discussion of hypothesis one. ADOs may be less likely to review a firm if the 10-K filing date coincides with a busy period leading to less serious issues being uncovered during the comment letter process. Also, ADOs could perform a cursory review that is narrower in scope and fails to hone in on serious compliance issues.

3.3 Hypothesis 3

Prior literature suggests that the comment letter process uncovers material noncompliance with GAAP (Casell et al. 2013) and revenue recognition issues (Dechow et al. 2015), both of which play an important role in price formation (Dechow et al. 2015; Hribar and Jenkins 2004; Palmrose et al. 2004). Therefore, the timeliness with which this information is conveyed to stakeholders is critical to market efficiency. Our third and final hypothesis explores the impact of SEC resource constraints on comment letter processing

time – the time between the 10-K filing date and the date of the initial comment letter. Processing time measures the timeliness with which compliance-related information is conveyed to capital markets.

If ADOs are inundated with filings during busy periods and have a relatively consistent number of employees to perform reviews throughout the year, then comment letter processing time will increase during busy periods.[12] Even if ADOs allocate limited resources to identifying the most egregious instances of noncompliance when busy, comment letter processing time could still increase because the busy season has a disproportionately large number of filings.[13] We state our final hypothesis as follows:

Hypothesis 3: There is a positive association between ADO busyness and comment letter processing time.

However, to the extent timeliness is an important attribute of the comment letter process, ADOs could adjust their review procedures so that filing review timeliness is unaffected by SEC busyness. If this is true, we would expect to see no association between ADO busyness and comment letter processing time.

4.0 SAMPLE SELECTION AND VARIABLE MEASUREMENT

4.1 Sample Selection

To test our hypotheses that resource constraints at ADOs affect the comment letter process, we begin with 58,490 firms in the Compustat Annual database between 2005 and 2013. Next, we require each observation to have an audit opinion

[12] Augmenting this contention is a discussion with a former Corp Fin employee who suggested ADOs do not transfer employees or hire temporary employees to review filings during their busy season.

[13] For example, in our sample, the majority of firms have a December fiscal-year end in which 71% of firms file their 10-K. The next busiest month is June in which only six percent of firms file their 10-K.

in the Audit Analytics database. This requirement yields a sample of 54,006 firm-years. We begin our sample in 2005 because comment letter correspondence became publicly available on SEC EDGAR in 2004; however, the majority of comment letters in 2004 related to disclosures of auditor changes on Form 8-K. We end our sample in 2013 (i.e. fiscal year ends through May 31, 2014) to allow for sufficient time for resolution of comment letter items and disclosure of the comment letter correspondence in EDGAR. Next, we delete observations without the necessary data to calculate our control variables (from Compustat, CRSP, or Audit Analytics). These steps result in a sample of 26,620 firm-years, including 7,386 firm-years with 10-K comment letters.

4.2 Comment Letters

We retrieve information about comment letters from Audit Analytics' Comment Letters database. Consistent with prior literature, we focus on comment letters that pertain to Form 10-K filings (e.g., Cassell et al. 2013; Dechow et al. 2014; Johnston and Petacchi 2014). Our comment letter variable (CommentLetter) is an indicator variable equal to one if the firm received a comment letter on its 10-K filing for fiscal year t and zero otherwise.

4.3 Busyness Measure

Various divisions of the SEC have separate and distinct functions. ADOs under Corp Fin have two main responsibilities: Conducting filings reviews and issuing comment letters. Therefore, to understand the busyness of ADOs we examine the number of 10-K filings received by ADOs by month. Although the SEC may review any of a registrant's filings, we focus on 10-K filings for two reasons.

First, Form 10-Ks contain the most comprehensive disclosure about a firm's critical accounting policies and application of GAAP during the period (Dechow et al. 2014). Thus, 10-K reviews conducted by ADOs are likely to be more time-consuming and require greater resources than reviews of other filings such as 8-Ks. Second, Bozanic et al. (2014) state that over 70% of filing reviews conducted by the SEC focus exclusively on 10-Ks. Therefore, we focus on ADO busyness based on the number of 10-Ks filed.

To understand ADO busyness, we examine the frequency of firms' 10-K filings dates by month and ADO office. Table 1 reveals that an overwhelming majority of firms file their 10-K in December (i.e. 19,023/26,620 = 71.5%). The next busiest fiscal year-end is June in which only 6.4% (1,697/26,620) of firms file their 10-K. The filing volume by month appears to indicate that ADOs would be resource constrained in December but not resource constrained in any other month. Therefore, given the disparity between December fiscal year-end and the next busiest month, we proxy for ADO busyness with a binary variable equal to one if a firm has a December fiscal year end and zero otherwise (FYR12).

4.4 Comment Letter Severity: SEC-Initiated Restatements and Revenue Letters

We follow Cassell et al. (2013) to identify SEC-initiated restatements. First, for our sample of 7,386 comment-letter firms, we identify firm-years where a 10-K restatement was disclosed between the initial comment letter date and the comment letter correspondence date posted to SEC EDGAR (i.e., the dissemination date). This results in a sample of 760 restatements. For each restatement in this sample, we read the restatement disclosure and the comment letter correspondence

to determine if the restatement was initiated by the comment letter process. This process resulted in a final sample of 303 SEC-initiated restatements arising from comment letters. We define an indicator variable equal to one if a financial statement restatement was initiated by a comment letter and zero otherwise (SECInitiated_Restatement).

The Audit Analytics' Comment Letters database provides a listing of topics addressed in each comment letter. Following Cassell et al. (2013) we identify the total number of topics included in each comment letter as the number of issue codes assigned by Audit Analytics in the first comment letter from the SEC. We identify whether the comment letter has a revenue recognition-related issue if the comment letter was assigned a code of 212 – "Revenue recognition (including deferred revenue) issues." We identify the percentage of topics in the comment letter that are revenue-related (PercTopicsRevenue) as whether the firm has a revenue recognition-related issue divided by the total number of topics identified by in the comment letter.

4.5 Comment Letter Processing Time

When a firm files a 10-K report with the SEC, the ADO office to which the firm is assigned needs to determine whether the filing will be reviewed. If the filing is chosen for review, the SEC takes time to review the filing and issue initial comments. We calculate the comment letter processing time (CL_DaysToProcess) as the number of days between a firm's 10-K filing date and the date of the initial comment letter from the SEC.

5.0 RESEARCH DESIGN

5.1 Testing Hypothesis 1

The receipt of a comment letter is the result of two underlying processes. First, the SEC must select a firm's filing for review and review the filing. Then, the SEC must detect a deficiency in the application of GAAP or inadequate disclosures (here-on-out, referred to as a compliance error) and issue a comment letter. These two processes result in four possible outcomes of the filing review process.[14] When an error is detected as part of the filing review process, we assume that a compliance error occurred. However, the absence of a comment letter is less easily interpreted. The SEC may not issue a comment letter either because they did not review a firm's filing or they reviewed the filing but did not detect a compliance error.

Prior literature disregards this problem of partial observability and treats firms without comment letters as if they had been reviewed. Equating the probability of review and the probability of comment letter issuance (i.e., assuming that firms without comment letters were reviewed) results in inefficient estimators compared to those obtained under fully observable outcomes (Poirier 1980; Feinstein 1990). To address this concern, we use a binary probit model that allows for partial observability. In addition to enhancing the estimator efficiency and reducing measurement error, the use of the binary probit model allows us to better

[14] These outcomes are: 1. A compliance error occurred and a comment letter was issued. 2. A compliance error occurred but no comment letter was issued. 3. No compliance error occurred and no comment letter was issued. 4. No compliance error occurred and a comment letter was erroneously issued. We assume that detected errors (those that result in comment letters) are true compliance errors. This assumption may add measurement error to our models but is unlikely to introduce systematic bias into the empirical results.

understand the relative impact of the propensity to issue a comment letter given the probability of a filing review.

5.2 Bivariate Probit Model with Partial Observability

Comment letter issuance depends on the probability that the SEC reviews a filing and that they issue a letter, conditional on conducting a filing reviews. To better understand the relative impact of these two processes on comment letter issuance, we explicitly model each latent process following Wang (2013). To illustrate our methodology, let R_i be the probability that the SEC reviews firm i's 10-K and L_i be the probability the SEC issues a comment letter, conditional on the probability of review (conditional on R_i). R_i and L_i are the result of firm-specific factors related to the SEC's propensity to review the 10-K and issue a comment letter. Further, both R_i and L_i are strictly greater than zero if a 10-K is reviewed and the SEC issues a comment letter, respectively, otherwise, R_i and L_i equal zero. Comment letter issuance is thus defined as the interaction between R_i and L_i ($R_i x L_i$). Following Wang (2013), we define R_i and L_i to have mean-zero error terms with a correlation of ρ.

Two conditions are required for identification of the model parameters. First, the determinants of filing review probability and the conditional probability of comment letter issuance cannot be identical. In other words, the explanatory variables in the bivariate models of 10-K filing review and 10-K comment letter issuance cannot be exactly the same. Second, the explanatory variables in both bivariate models should exhibit as much variation as possible, implying that continuous covariates are preferable to discrete ones (Poirier 1980). We follow prior

literature and theory to select determinants of the probability that the SEC reviews the 10-K and issues a comment letter conditional on review (e.g., Cassell et al. 2013, Dechow et al. 2015). We obtain the estimator of interest (probability of comment letter issuance, conditional on filing review) through maximum likelihood of the interaction between R_i and C_i.

5.3 Probability of a 10-K filing Review: "Prob(Review)"

Section 408 of SOX identifies 6 criteria that the SEC should consider when selecting filings for review. These criteria are: (i) issuers that have issued material restatements of financial results; (ii) issuers that experience significant volatility in their stock price as compared to other issuers; (iii) issuers with the largest market capitalization; (iv) emerging companies with disparities in price to earnings ratios; (v) issuers whose operations significantly affect any material sector of the economy; and (vi) any other factors that the Commission considers relevant.

We model the probability that a given filing is reviewed as a function of the following factors. First, the likelihood that a firm's 10-K is reviewed is strongly associated with firm size. Conversations with a former Corp Fin employee revealed that ADOs generally review large firms annually and smaller firms once every three years. While there is no red-line for selecting the frequency of filing reviews, the employee suggested that the SEC uses accelerated filer status as a metric when designing review frequency. Therefore, we use accelerated filer status to capture predictable variation in review frequency attributable to firm size. Specifically, we include an indicator variable equal to one if the firm is a large accelerated filer (i.e. the public float is $700 million or more) and zero otherwise (FilerStat_Large). We

also include an indicator variable equal to one if the firm is a small non-accelerated filer (i.e. the public float is less than $75 million) and zero otherwise (FilerStat_Small).

Consistent with the determinants of SEC review discussed in SOX, we include whether the firm issued a 10-K restatement during the fiscal year (Restate_Issued). We also measure the volatility of abnormal monthly stock returns (Volatility) and whether the firm is in the highest quintile of price-to-earnings ratio (HighPE). Finally, we include a series of fiscal-year indicator variables and a series of indicator variables for each industry based on the ADO office to which the registrant is assigned. Therefore, we model the probability that the SEC reviews a 10-K filing as follows:

$$\text{CommentLetter}_{it} = \beta_{01} + \beta_1\text{Restate\_Issued}_{it} + \beta_2\text{Volability}_{it} + \beta_3\text{HighPE}_{it} + \beta_4\text{FilerStat\_Large}_{it} + \beta_5\text{FilerStat\_Small}_{it} + \text{K'Year} + \text{X'Ind} + \varepsilon \quad (1a)$$

where,

CommentLetter	=	an indicator variable equal to one if the firm received a 10-K comment letter in year t and zero otherwise (Audit Analytics).
Restate_Issued	=	an indicator variable equal to one for firms that issued a 10-K restatement in year t and zero otherwise (Audit Analytics).
Volatility	=	the volatility of abnormal monthly stock returns (monthly return minus the value weighted return). Return volatility is calculated over the 36-month period ending in the last month of the fiscal year (CRSP).
HighPE	=	an indicator variable equal to one if the price (PRCC_F) earnings (IBC) ratio is in the highest quintile and zero otherwise. (Compustat).

FilerStat_Large = an indicator variable equal to one if the public float is $700 million or more and zero otherwise (Audit Analytics).

FilerStat_Small = an indicator variable equal to one if the public float is less than $75 million and zero otherwise (Audit Analytics).

Ind = a series of indicator variables for each industry based on the ADO office to which the registrant is assigned.

Year = a series of fiscal-year indicator variables.

5.4 Probability of a Comment Letter Given Review: "Prob(Comment Letter | Review)"

Our model for the probability that a restatement is detected SEC issues a comment letter, conditional on a review of the 10-K filing follows Cassell et al. (2013).

Our model for the probability that the SEC issues a comment letter, conditional on a review of the 10-K filing follows Cassell et al. (2013).

$$CommentLetter_{it} = \beta_{02} + \beta_6 FYR12_{it} + \beta_7 LogMV_{it} + \beta_8 FirmAge_{it} + \beta_9 Loss_{it} + \beta_{10} AltZRank_{it} + \beta_{11} ExtFinancing_{it} + \beta_{12} SalesGrowth_{it} + \beta_{13} Segments_{it} + \beta_{14} M\&A_{it} + \beta_{15} Restructure_{it} + \beta_{16} Big4_{it} + \beta_{17} SecondTier_{it} + \beta_{18} Leverage_{it} + \beta_{19} Beta_{it} + K'Year + X'Ind + \varepsilon \quad (1b)$$

where,

FYR12 = an indicator variable equal to one for firms with a fiscal year-end in December and zero otherwise (Compustat).

logMV = the natural logarithm of the market value of equity in millions (Compustat: CSHO*PRCC_F).

FirmAge = the total number of years for which assets (AT) are reported on Compustat.

Loss = an indicator variable equal to one if earnings before extraordinary items (IB) is negative and zero otherwise

(Compustat).

AltZRank = the descending decile rank of the firm's financial health. Altman's (1968) z-score is equal to 3.3*(earnings before interest and tax, (PI+XINT)/total assets (AT) + 1.0*(sales (REVT)/ total assets) + 1.4*(retained earnings (RE)/total assets) + 1.2*(net working capital (ACT-LCT)/total assets) + 0.6(market value of equity (CSHO*PRCC_F)/ book value of liabilities (LT). Thus, firms having the poorest financial health are assigned a value of 10, and firms with the best financial health are assigned a value of zero (Compustat).

ExtFinancing = the sum of equity financing and debt financing scaled by total assets in t+1. Equity financing equals the sales of common and preferred stock (SSTK) minus the purchases of common and preferred stock (PRSTKC) minus dividends (DV). Debt financing equals long-term debt issued (DLTIS) minus long-term debt reduction (DLTR) minus the change in current debt (DLCCH). (Compustat)

SalesGrowth = the percentage change in annual sales (REVT) from t-1 to t (Compustat).

Segments = the number of business segments (Compustat Segment File).

M&A = an indicator variable equal to one if pre-tax acquisitions or mergers (AQP) are nonzero and zero otherwise (Compustat).

Restructure = an indicator variable equal to one if pre-tax restructuring costs (RCP) are nonzero and zero otherwise (Compustat).

Big4 = an indicator variable equal to one if the firm is audited by a Big 4 audit firm (Deloitte, Ernst & Young, KPMG, or PricewaterhouseCoopers) and zero otherwise (Compustat: AU).

SecondTier = an indicator variable equal to one if the firm is audited by a national audit firm (BDO Seidman, Crowe Horwath, Grant Thornton, of McGladrey & Pullen) and zero otherwise (Compustat: AU)

Leverage = total liabilities (LT) divided by total assets (AT) (Compustat).

Beta = mean value of the systematic risk calculated using daily stock returns over the fiscal year of the year end decile ranked beta portfolio for which the firm is assigned (CRSP: BETAAV).

Prior literature finds that firm size and age are positively associated with the receipt of a comment letter (Johnston and Petacchi 2012; Cassell et al. 2013). Therefore we expect a positive coefficient on logMV and FirmAge. Financially distressed firms face greater capital market pressures and are more likely to manipulate the financial statements and related disclosures in response to these pressures. We expect Loss and AltZRank to be positively associated with comment letter issuance. High growth firms likely face similar pressures as distressed firms, so we expect SalesGrowth to be positively associated with comment letter receipt. Firms raising external financing also have incentives to manipulate accounting numbers and information; however, these firms also face higher levels of monitoring by outside stakeholders. Thus, the effect of ExtFinance on comment letter activity is unclear.

Cassell et al. (2013) note that operational complexity may allow a firm to conceal manipulation of accounting information. Therefore, we expect Segments, M&A, and Restructure to be positively associated with the SEC's propensity to issue a comment letter. If the presence of a high quality external auditor improves reporting quality, we expect Big4 and SecondTier will be negatively associated with comment letter issuance.

Lastly, prior literature suggests that firms' choice of fiscal year-end differs by industry membership (Smith and Pourciau 1988; Huberman and Kandel 1989; Kamp 2002; Feng 2013) and several other firm characteristics including size, market beta, and leverage (Smith and Pourciau 1988). As such, we include controls for industry membership – a series of indicator variables for each industry based on the ADO office to which the registrant is assigned.[15] Also, we include the mean value of the year end decile ranked beta portfolio for which the firm is assigned by CRSP (Beta) and total liabilities divided by total assets (Liabilities).[16]

5.5 Testing Hypothesis 2

To test hypothesis 2a, we estimate the following logistic regression on the 7,386 firm-years that received a 10-K comment letter.

$$\text{SECInitiated\_Restatement}_{it} = \psi_0 + \psi_1 \text{FYR12}_{it} + \psi_2 \text{Restate\_Issued}_{it} + \psi_3 \text{Volability}_{it} + {}_4\text{HighPE}_{it} + \psi_5 \text{LogMV}_{it} + \psi_6 \text{FirmAge}_{it} + \psi_7 \text{Loss}_{it} + \psi_8 \text{AltZRank}_{it} + \psi_9 \text{ExtFinancing}_{it} + \psi_{10} \text{SalesGrowth}_{it} + \psi_{11} \text{Segments}_{it} + \psi_{12} \text{M\&A}_{it} + \psi_{13} \text{Restructure}_{it} + \psi_{14} \text{Big4}_{it} + \psi_{15} \text{SecondTier}_{it} + \psi_{16} \text{Leverage}_{it} + \psi_{17} \text{Beta}_{it} + \text{K'Year} + \text{X'Ind} + \varepsilon \quad (2a)$$

where,

SECInitiated_Restatement	=	an indicator variable equal to one if a financial statement restatement was initiated by a comment letter and zero otherwise. (Audit Analytics, hand-collected)

[15] In unbtabulated sensitivity analysis, we include industry indicator variables based on the 19 industries defined by Huberman and Kandel (1989) and the 14 industries defined by Feng (2013). Our results are robust to these alternative measures of industry membership.

[16] Cassell et al. (2013) find that whether the CEO is also the chairman of the board (CEO_Chair) is positively and significantly related to comment letter receipt. We are unable achieve convergence of the bivariate probit model when we include CEO_Chair because the inclusion of too many binary explanatory variables reduces our ability to fully specify the model. However, sensitivity analysis reveals that our results are robust to including CEO_Chair when we combine Big4 and SecondTier into a single control variable.

In order to facilitate efficient capital allocation, the SEC might focus its limited resources on firms with the most serious disclosure noncompliance during busy periods. Serious disclosure deficiencies identified during the comment letter process are more likely to result in a financial statement restatement. To test hypothesis 2a, we define a serious disclosure deficiency as those where the firm has a restatement that was initiated by the comment letter process (SECInitiated_Restatement) (variable measurement described in more detail in Section 4.4). We then regress SECInitiated_Restatement on the same covariates identified in equation (1b) and Restate_Issued, Volatility, and HighPE from equation (1a). The main coefficient of interest in equation (2a) is ψ_1. We predict that ψ_1 will be positive, which is consistent with the SEC focusing its limited resources on the most egregious instances of noncompliance when busy.

To test hypothesis 2b, we estimate a similar regression as equation (2a), however, our dependent variable is proportion of all topics in the comment letter that are related to revenue (PercTopicsRevenue) (variable measurement described in more detail in Section 4.4). Since our dependent variables ranges from zero to one and there is a large proportion of firms where comment letter topics do not include revenue issues (5,865/7,386 = 79.4%), we estimate the following equation using an ordered logistic regression:

$$\begin{aligned}\text{PercTopicsRevenue}_{it} = {} & Z'\mu + \mu_1 \text{FYR12}_{it} + \mu_2 \text{Restate\_Issued}_{it} + \mu_3 \text{Volability}_{it} + \\ & \mu_4 \text{HighPE}_{it} + \mu_5 \text{LogMV}_{it} + \mu_6 \text{FirmAge}_{it} + \mu_7 \text{Loss}_{it} + \mu_8 \text{AltZRank}_{it} + \mu_9 \text{ExtFinancing}_{it} + \\ & \mu_{10} \text{SalesGrowth}_{it} + \mu_{11} \text{Segments}_{it} + \mu_{12} \text{M\&A}_{it} + \mu_{13} \text{Restructure}_{it} + \mu_{14} \text{Big4}_{it} + \\ & \mu_{15} \text{SecondTier}_{it} + \mu_{16} \text{Leverage}_{it} + \mu_{17} \text{Beta}_{it} + \text{K'Year} + \text{X'Ind} + \varepsilon \end{aligned} \quad (2b)$$

where,

PercTopicsRevenue	=	whether the firm has a revenue recognition related issue in the comment letter [Audit Analytics topic 212, "Revenue recognition (including deferred revenue) issues"] divided by the number of topics included in the SEC comment letter as defined by Audit Analytics (ranges from zero to one).
$Z'\mu$	=	an intercept for each value of PercTopicsRevenue

The main coefficient of interest in equation (2b) is μ_1. We predict that μ_1 will be positive, which is consistent with the SEC focusing its limited resources on a higher proportion of noncompliance related to revenue (relative to all topics) when busy. The association between filer characteristics and comment letter topics is briefly discussed in Cassell et al. (2013) but largely remains an empirical question. Therefore, we do not make predictions for the control variables in equation (2b).

5.6 Testing Hypothesis 3

In this section, we examine how busyness influences the timeliness with which comment letter information in conveyed. Since comment letter processing time is only available for firms that received a comment letters, we estimate the following OLS regressions on the 7,386 firm-years that received a 10-K comment letter.

$$CL\_DaysToProcess_{it} = \lambda_0 + \lambda_1 FYR12_{it} + \lambda_2 Restate\_Issued_{it} + \lambda_3 Volability_{it} + \lambda_4 HighPE_{it} + \lambda_5 LogMV_{it} + \lambda_6 FirmAge_{it} + \lambda_7 Loss_{it} + \lambda_8 AltZRank_{it} + \lambda_9 ExtFinancing_{it} + \lambda_{10} SalesGrowth_{it} + \lambda_{11} Segments_{it} + \lambda_{12} M\&A_{it} + \lambda_{13} Restructure_{it} + \lambda_{14} Big4_{it} + \lambda_{15} SecondTier_{it} + \lambda_{16} Leverage_{it} + \lambda_{17} Beta_{it} + \lambda_{18} FYR12_{it}*Restate\_Issued_{it} + \lambda_{19} FYR12_{it}*Volability_{it} + \lambda_{20} FYR12_{it}*HighPE_{it} + \lambda_{22} FYR12_{it}*LogMV_{it} + \lambda_{23} FYR12_{it}*FirmAge_{it} + \lambda_{24} FYR12_{it}*Loss_{it} + \lambda_{25} FYR12_{it}*AltZRank_{it} + \lambda_{26} FYR12_{it}*ExtFinancing_{it} + \lambda_{27} FYR12_{it}*SalesGrowth_{it} + \lambda_{28} FYR12_{it}*Segments_{it} + \lambda_{29} FYR12_{it}*M\&A_{it} + \lambda_{30} FYR12_{it}*Restructure_{it} + \lambda_{31} FYR12_{it}*Big4_{it} +$$

$\lambda_{32}FYR12_{it}*Nat_{it} + \lambda_{33}FYR12_{it}*\lambda_{16}Leverage_{it} + \lambda_{34}FYR12_{it}*\lambda_{17}Beta_{it} + K'Year + X'Ind + \varepsilon$ (3)

where,

CL_DaysToProcess = the number of days between a firm's 10-K filing date and the date of the initial comment letter from the SEC. (Audit Analytics)

We calculate the comment letter processing time of the SEC (CL_DaysToProcess) as the number of days between a firm's 10-K filing date and the date of the initial comment letter from the SEC. We then regress CL_DaysToProcess on the same covariates identified in equation (2a) and (2b) and also interact busyness with each control variable. The main coefficient of interest in equation (3) is λ_1. We predict that λ_1 will be positive, which is consistent with the SEC taking longer to issue comment letters when busy. The interactions can shed light on what firm factors influence the relation between busyness and comment letter processing time. For example, if the SEC prioritizes larger firms when busy, we would expect a negative coefficient on the interaction between busyness and size ($FYR12_{it}*LogMV_{it}$).

6.0 DESCRIPTIVE STATISTICS

Table 1 reports the distribution of firms' 10-K filing dates across each of the 11 ADOs. December is the busiest month for all of the ADOs, followed by June. The last two columns of Table 1 report the frequency of comment letters by ADO. Twenty-eight percent of the firm-years in our sample period receive a 10-K comment letter. There is intra-ADO variation in the number of comment letters issued during our sample period, consistent with variation in the number of firms

comprising various sectors of the economy. However, the variation is not so pronounced as to suggest that ADO-specific characteristics explain comment letter issuance.

Table 2 Panels A and B report descriptive statistics for the full sample of 26,620 firm-years between 2005 and 2013 with nonmissing data. As previously stated, 27.7% (7,386) of firm-years are the recipient of a comment letter on the 10-K (CommentLetter). Consistent with the majority of firms following a calendar-year fiscal year, 71.5% of observations have a December fiscal year-end (FYR12). A small but nontrivial proportion (9.2%) of firms announce a financial statement restatement during the sample period (Restate_Issued). Almost 40% of firm-years have large accelerated filer status (FilerStat_Large) and approximately 11.2% are small non-accelerated filers (FilerStat_Small). Our average firm is older, with mean FirmAge of slightly under 18 years; consistent with more established firms hiring reputable auditors, 73.9% of firm-years use a Big Four Auditor (Big4) and 11.6% use a national audit firm (SecondTier).

Table 2 Panel A - Descriptive Statistics

	N	Mean	Median	Std.Dev.	25%	75%	Min	Max
CommentLetter	26,620	0.277	0.000	0.448	0.000	1.000	0.000	1.000
FYR12	26,620	0.715	1.000	0.452	0.000	1.000	0.000	1.000
Restate_Issued	26,620	0.092	0.000	0.290	0.000	0.000	0.000	1.000
Volatility	26,620	0.126	0.108	0.077	0.074	0.156	0.026	0.462
HighPE	26,620	0.100	0.000	0.300	0.000	0.000	0.000	1.000
FilerStat_Large	26,620	0.380	0.000	0.485	0.000	1.000	0.000	1.000
FilerStat_Small	26,620	0.112	0.000	0.315	0.000	0.000	0.000	1.000
logMV	26,620	6.261	6.255	2.044	4.866	7.629	1.754	11.229
FirmAge	26,620	17.793	15.000	11.435	8.000	25.000	2.000	42.000
Loss	26,620	0.310	0.000	0.462	0.000	1.000	0.000	1.000
AltZRank	26,620	4.500	4.500	2.872	2.000	7.000	0.000	9.000
ExtFinancing	26,620	0.016	-0.006	0.172	-0.053	0.036	-0.435	0.845
SalesGrowth	26,620	0.156	0.078	0.470	-0.029	0.219	-0.724	3.083
Segments	26,620	2.355	1.000	1.709	1.000	3.000	1.000	11.000
M&A	26,620	0.024	0.000	0.153	0.000	0.000	0.000	1.000
Restructure	26,620	0.014	0.000	0.117	0.000	0.000	0.000	1.000
Big4	26,620	0.739	1.000	0.439	0.000	1.000	0.000	1.000
SecondTier	26,620	0.116	0.000	0.321	0.000	0.000	0.000	1.000
Leverage	26,620	1.113	0.145	21.657	0.004	0.494	0.000	2264.440
Beta	26,620	0.980	0.764	0.680	0.353	1.587	0.000	1.867
SECInitiated_Restatement	7,386	0.041	0.000	0.198	0.000	0.000	0.000	1.000
PercTopicsRevenue	7,386	0.022	0.000	0.071	0.000	0.000	0.000	1.000
CL_DaysToProcess	7,386	152.087	140.500	85.695	79.000	224.000	9.000	309.000

Table 2 Panel B - Pearson Correlation Matrix

	Comment Letter	Restate _Issued	Volatility	HighPE	FilerStat _Large	FilerStat _Small	FYR12	logMV	Firm Age	Loss	AltZ Rank	Ext Financing	Sales Growth	Segments	M&A	Restructure	Big4	Second Tier	Leverage
Restate _Issued	0.008																		
Volatility	-0.024***	0.009																	
HighPE	-0.054***	0.009	-0.049***																
FilerStat _Large	0.169***	-0.036***	-0.270***	-0.266***															
FilerStat _Small	-0.065***	-0.011	0.203***	0.081***	-0.278***														
FYR12	0.024***	-0.017***	0.001	-0.076***	0.059***	-0.076***													
logMV	0.135***	-0.034***	-0.355***	-0.236***	0.723***	-0.487***	0.090***												
FirmAge	0.084***	-0.016***	-0.181***	0.042***	0.251***	-0.001	-0.163***	0.192***											
Loss	-0.049***	0.040***	0.317***	-0.332***	-0.297***	0.179***	0.020***	-0.406***	-0.185***										
AltZRank	0.036***	0.031***	0.162***	-0.228***	-0.054***	0.105***	0.159***	-0.183***	-0.036***	0.378***									
ExtFinancing	-0.001	-0.018***	0.015***	-0.001	-0.017***	0.009	0.003	-0.018***	-0.012*	0.008	0.010*								
SalesGrowth	-0.004	0.000	0.007	-0.005	-0.008	-0.002	0.006	-0.007	-0.006	0.000	0.010	0.003							
Segments	0.071***	0.000	-0.149***	-0.076***	0.268***	-0.112***	0.024***	0.312***	0.301***	-0.163***	0.066***	0.000	-0.006						
M&A	0.013**	-0.006	-0.022***	-0.013**	0.026***	-0.008	0.003	0.030***	0.017***	-0.013**	-0.001	0.006	0.000	0.025***					
Restructure	0.009	0.008	-0.004	-0.019***	0.012*	-0.027***	-0.016***	0.031***	-0.003	0.002	0.024***	0.001	-0.001	0.004	0.004				
Big4	0.062***	-0.009	-0.169***	-0.198***	0.393***	-0.408***	0.102***	0.518***	0.033***	-0.146***	0.008	-0.005	-0.012**	0.148***	0.013**	0.039***			
SecondTier	-0.022***	0.002	0.041***	0.109***	-0.212***	0.129***	-0.063***	-0.224***	0.005	0.056***	-0.026***	0.003	-0.003	-0.072***	0.005	-0.014**	-0.611***		
Leverage	0.014**	-0.003	0.054***	-0.019***	-0.018***	0.012**	0.020***	-0.033***	0.000	0.036***	0.056***	-0.001	0.000	0.006	-0.003	-0.003	0.004	-0.006	
Beta	0.031***	0.001	0.097***	-0.113***	0.123***	-0.194***	0.036***	0.175***	-0.024***	0.004	-0.010	-0.005	0.006	0.037***	0.015**	0.034***	0.165***	-0.061***	-0.014**

In the last three rows of Table 2A we provide descriptive statistics for the 7,386 firm-years that received a comment letter. We find 0.04 (303/7,386) of firm-years have a restatement that was initiated by the SEC comment letter process (SECInitiated_Restatement). This percentage is similar to Casell et al. (2013) who find that over 3% firm-years have a restatement attributable to a comment letter. The mean percentage of topics in the comment letter that are revenue-related (PercTopicsRevenue) is 0.02 whereas the median is 0.00. Untabulated results reveal that of the 7,386 firm-years with a comment letter, 1,521 (20.6%) have a revenue-related issue in the comment letter and 5,865 (79.4%) do not have a revenue-related issue. Therefore, this variable is zero for the majority of firm-years. Of the 1,521 firm-years with a revenue-related comment letter, mean PercTopicsRevenue is 10.54% and the median is 6.67% and the variable ranges 0.95% to 100.00%. Finally, processing time (the number of days between the 10-K filing date and the issue date of the first comment letter) is 152 (CL_DaysToProcess).

Table 2 Panel B reports Pearson correlations for the covariates in our bivariate probit and logistic regressions. It is not surprising that our proxy for ADO busyness (FYR12) is significantly positive correlated with comment letter issuance (CommentLetter), which is contrary to our first hypothesis. Consistent with guidance in SOX Section 408, CommentLetter is correlated with firm size. For example, the two largest Pearson correlation coefficients in column 1 is between CommentLetter and FilerStat_Large (correlation = 0.159, significant at 1% level) and CommentLetter and logMV (correlation = 0.135, significant at 1% level). In

addition, we find a positive and significant correlation between FYR12 and size (proxying using FilerStat_Large and logMV) which suggests larger firms file in December. Therefore, we suggest caution be exercised in interpreting these univariate correlation results because they may be driven by omitted correlated variables such as size. Consistent with regression results from Cassell et al. (2013), comment letter issuance is also correlated with financial distress (AltZRank), operational complexity (Segments and M&A), and Leverage.

7.0 RESULTS

7.1 Results of Testing Hypothesis 1

Panel A of Table 3 reports univariate results for the test of our first hypothesis that comment letter issuance decreases with ADO busyness. We divide the full sample of 29,620 firm-years into subsamples of comment letter firms (7,386 firm-years) and noncomment letter firms. We then compare the mean and the medians for *FYR12*. Consistent with the correlation results in Table 2A, the mean and median of our busyness proxy is significantly higher for comment letter firms compared to noncomment letter firms. These univariate results are not consistent with Hypothesis 1, however, as explained in the discussion of the correlation table size is important. Panel B of Table 3 reports the univariate analysis for FYR12, by whether the firm received a comment letter and size quintile. The results reveal that the positive correlation between FYR12 and CommentLetter is driven by the largest quintile of market value consistent with the guidance in SOX Section 408 that ADOs should prioritize "issuers with the largest market capitalization" for review. Overall, the univariate results highlight the importance of our

multivariable probit model that controls for size and the probability that a filing is selected for review.

Table 3 Panel A - Univariate Analysis by Whether the Firm Received a Comment Letter

	CommentLetter = 0 (obs. = 19,234)		CommentLetter = 1 (obs. = 7,386)	
	Mean	Median	Mean	Median
FYR12	0.708	1.000	0.732 ***	1.000 ***
Restate_Issued	0.085	0.000	0.111 ***	0.000 ***
Volatility	0.127	0.109	0.123 ***	0.104 ***
HighPE	0.095	0.000	0.112 ***	0.000 ***
FilerStat_Large	0.333	0.000	0.504 ***	1.000 ***
FilerStat_Small	0.124	0.000	0.078 ***	0.000 ***
logMV	6.088	6.043	6.710 ***	6.817 ***
FirmAge	17.203	14.000	19.330 ***	16.000 ***
Loss	0.324	0.000	0.274 ***	0.000 ***
AltZRank	4.436	4.000	4.666 ***	5.000 ***
ExtFinancing	0.017	-0.005	0.012 **	-0.009 **
SalesGrowth	0.158	0.081	0.153	0.073 *
Segments	2.280	1.000	2.550 ***	2.000 ***
M&A	0.023	0.000	0.027 **	0.000 **
Restructure	0.013	0.000	0.016	0.000
Big4	0.722	1.000	0.783 ***	1.000 ***
SecondTier	0.121	0.000	0.105 ***	0.000 ***
Leverage	0.931	0.124	1.588 **	0.199 ***
Beta	0.967	0.764	1.014 ***	0.764 ***

Table 3 Panel B - Univariate Analysis of December Fiscal Year End by Whether the Firm Received a Comment Letter and Size Decile

	CommentLetter = 0		CommentLetter = 1	
	Mean	Median	Mean	Median
FYR12 (Q5, Largest quintile of logMV)	0.734	1.000	0.764 **	1.000 **
FYR12 (Q4)	0.755	1.000	0.764	1.000
FYR12 (Q3)	0.742	1.000	0.741	1.000
FYR12 (Q2)	0.696	1.000	0.707	1.000
FYR12 (Q1, Smallest quintile of logMV)	0.632	1.000	0.628	1.000

We test hypothesis one by estimating models (1a) and (1b); the results of these estimations are reported in Table 4. The first stage estimates the probability that a firm's 10-K is selected for review. Consistent with the criteria identified in SOX, firms with a prior restatement and volatile firms have a higher probability of being selected for review. Restate_Issued has a coefficient=0.121 and a p-value=0.000, making the announcement of a financial statement restatement a significant determinant of the SEC's decision to review the 10-K. In addition, Volatility has a coefficient=0.144 and p-value=0.094. Consistent with larger firms being reviewed more frequently FilerStat_Large is significant and positive (coefficient=0.180, p=value=0.000).

Table 4 - Bivariate Probit Model with Partial Observability on Whether the Firm Receives a Comment Letter on SEC Busyness

		Prob(Review)		P(Comment Letter | Review)	
	Pred.	Coeff.	p-value	Coeff.	p-value
Constant	?	-1.151 ***	(0.000)	0.592	(0.194)
Restate_Issued	+	0.121 ***	(0.000)		
Volatility	+	0.144 *	(0.094)		
HighPE	+	-0.005	(0.834)		
FilerStat_Large	+	0.180 ***	(0.000)		
FilerStat_Small	-	0.028	(0.491)		
FYR12	-			-0.128 ***	(0.010)
logMV	+			0.374 ***	(0.000)
FirmAge	+			0.007 **	(0.017)
Loss	+			-0.025	(0.694)
AltZRank	+			0.047 ***	(0.000)
ExtFinancing	?			-0.008	(0.301)
SalesGrowth	+			0.003	(0.443)
Segments	+			0.041 **	(0.032)
M&A	+			0.218 *	(0.095)
Restructure	+			0.554 *	(0.091)
Big4	-			-0.435 ***	(0.000)
SecondTier	-			-0.163 *	(0.073)
Leverage	+			-0.001	(0.184)
Beta	+			0.066 *	(0.114)
Industry Fixed Effects			Yes		
Year Fixed Effects			Yes		
No. of Firm-Years (Comment Letters)			26,620 (7,386)		
Wald Chi-Square (df)			929 (55)		
Log liklihood			-14845		
Area under the ROC curve					

The second bivariate regression in Table 4 reports the results of estimating the probability that the SEC issues a 10-K comment letter, conditional on having selected that 10-K for review. Consistent with our first hypothesis, we find that ADO busyness around the firm's 10-K filing date is associated with a lower propensity to issue a comment letter (FYR12 coefficient=-0.128, p-value=0.010). Other significant determinants of the propensity to issue a comment letter are size (logMV coefficient=0.374, p-value=0.000), FirmAge (coefficient=0.007, p-value=0.017), financial distress (AltZRank coefficient=0.047, p-value=0.000), operational complexity (Segments, M&A, and Restructure, coefficients=0.041, 0.218, and 0.554, p-values=0.032, 0.095, and 0.091, respectively), and having a high quality auditor (Big4 coefficient=-0.435, p-value=0.000, SecondTier coefficient=-0.163, p-value=0.073). Finally, we find that systematic risk also increases the SEC's propensity to issue a comment letter (Beta coefficient=0.066, p-value=0.114). Taken together, the results in Tables 3 and 4 are consistent with the prediction that ADO busyness decreases the probability that a comment letter is issued.

7.2 Results of Testing Hypothesis 2

We test hypothesis 2a by estimating a logistic regression of the probability that the firm-year subsequently announces a financial statement restatement arising from a comment letter issued on the 10-K (SECInitiated_Restatement) on busyness. We report the results of estimating equation (2a) in Table 5. We find that FYR12 is significantly and positively associated with SECInitiated_Restatement (coefficient=0.230, p-value=0.023). The results are consistent with the SEC

Table 5 - Logistic Regression of Whether the Firm-Year has an SEC Initiated Restatement on SEC Busyness, Conditional on Receiving a Comment Letter

	Pred.	SECInitiated_Restatement	
		Coefficient	p-value
Constant	?	-2.155 ***	(<.0001)
FYR12	+	0.230 **	(0.023)
Restate_Issued	+	0.733 ***	(<.0001)
Volatility	+	0.364	(0.634)
HighPE	+	-0.406 **	(0.037)
logMV	-	-0.163 ***	(0.001)
FirmAge	?	-0.011 *	(0.074)
Loss	+	-0.059	(0.730)
AltZRank	+	0.031	(0.241)
ExtFinancing	-	0.001	(0.835)
SalesGrowth	+	-0.009	(0.167)
Segments	+	0.056 *	(0.065)
M&A	+	-0.340	(0.466)
Restructure	+	-0.173	(0.730)
Big4	-	-0.436 **	(0.023)
SecondTier	-	-0.610 **	(0.011)
Leverage	+	-0.001	(0.583)
Beta	+	-0.006	(0.950)
Year & Industry Fixed Effects		Yes	
No. of Firm-Years		7,386	
SEC initiated restatements		303	
Pseudo R^2		0.0530	

allocating its limited resources to identifying the most egregious instances of noncompliance when busy.

In terms of the control variables, the issuance of a restatement (likely on a prior year financial statement) is a significant determinant of a restatement initiated by the comment letter process (Restate_Issued coefficient=0.733, p-value<0.0001). Contrary to intuition, firms with a large disparity in price-to-earnings ratios have a lower probability of an SEC-initiated restatement (HighPE coefficient=-0.406, p-value=0.037). If the SEC closely monitors such firms (in accordance with SOX guidance), then potentially serious issues that could result in a restatement may be identified before they become so material that a restatement is necessary. Such a deterrence effect of the comment letter process may explain the negative coefficient on HighPE reported in Table 5. Size (logMV) and FirmAge are both negatively associated with SECInitiated_Restatement (coefficients=-0.163 and -0.011, p-values=0.001 and 0.074, respectively), consistent with larger and older firms being less likely to experience a restatement.

Finally, Segments is weakly associated with SECInitiated_Restatement (coefficient=0.056, p-value=0.065), consistent with operational complexity increases the likelihood of a restatement. Both our proxies of auditor quality are negatively associated with the dependent variable, suggesting that high quality auditors deter

material misreporting (Big4 and SecondTier coefficients=-0.436 and -0.610, p-values=0.023 and 0.011, respectively).[17]

We test our second hypothesis on comment letter severity by estimating equation (2b); results of this ordered logistic regression are reported in Table 6. The positive association between ADO busyness (FYR12 coefficient=0.086, p-value=0.043) and the proportion of revenue-related comment letter topics (PercTopicsRevenue) suggests that firms filing their 10-K during the SEC's busy time receive a higher proportion of comment letter topics related to revenue noncompliance. Firms with high volatility and loss firms receive a lower proportion of revenue topics relative to all comment letter topics (Volatility and Loss coefficients=-0.801 and -0.509, p-values=0.038 and <0.0001, respectively). Table 4 reports that firms with high volatility are more likely to be selected for review, so the negative coefficients on Volatility and Loss reported in Table 6 do not speak to the SEC's overall propensity to issue comment letters to such firms. Rather, they suggest that these firms receive fewer revenue topics relative to other issues. The association between filer characteristics and comment letter topics is briefly discussed in Cassell et al. (2013) but largely remains an empirical question. Taken together, the results in Tables 5 and 6 are consistent with the SEC allocating its limited resources to identifying the most serious instances of reporting and disclosure noncompliance during ADOs' busy periods.

[17] Untabulated analysis reveals that the area under the receiver operating characteristics (ROC) curve in Table 4 is 82.13% and Table 5 is 78.56%. A ROC of 70% or above typically indicates that the model has discriminatory power beyond that of chance.

Table 6 - Ordered Logistic Regression of Percent of Comment Letter Topics That are Revenue Recognition on SEC Busyness, Conditional on Receiving a Comment Letter

	Revenue Issue / Number of Comment Letter Topics (PercTopicsRevenue)	
	Coefficient	p-value
FYR12	0.086 **	(0.043)
Restate_Issued	-0.125	(0.213)
Volatility	-0.801 **	(0.038)
HighPE	0.023	(0.792)
logMV	0.040 *	(0.074)
FirmAge	0.009 ***	(0.001)
Loss	-0.509 ***	(<.0001)
AltZRank	0.077 ***	(<.0001)
ExtFinancing	-0.001	(0.812)
SalesGrowth	-0.001	(0.855)
Segments	0.024	(0.185)
M&A	-0.152	(0.396)
Restructure	-0.027	(0.907)
Big4	-0.098	(0.351)
SecondTier	-0.094	(0.437)
Leverage	0.150 ***	(0.002)
Beta	-0.033	(0.463)
Year & Industry Fixed Effects	Yes	
No. of Firm-Years	7,386	
Revenue Issues	1,521	
Pseudo R^2	0.0160	

7.3 Results of Testing Hypothesis 2: Sensitivity Analysis

As a sensitivity test, we examine whether ADOs are more likely to miss a material issue when busy. The decision to issue an enforcement action, like requiring firms to restate financial statements, resides with the SEC's Division of Enforcement. Division of Enforcement investigations begin with a trigger event, which is generally a tip or complaint from many possible sources, including investors, auditors, whistleblowers, firms who have self-identified noncompliance with securities laws, media attention, and comment letters. Restated financial statements could be (1) SEC comment letter-initiated or (2) non-SEC comment letter-initiated. If ADOs miss more material issues when busy, we would expect to find more non-SEC-initiated restatements.

We implement our sensitivity test by estimating a logistic regression of the probability that the firm-year subsequently announces a financial statement restatement arising from a noncomment letter source (nonSECInitiated_Restatement) on busyness. We report the results in Table 7. We find that FYR12 is not significantly associated with SECInitiated_Restatement. Therefore, our evidence suggests that ADOs do not miss more material issues (that require restatement of the financial statements) when busy.

Table 7 - Sensitivity Analysis: NonSEC Initiatied Restatements

	nonSECInitiated_ Restatement	
	Coefficient	p-value
Constant	-2.684 ***	(<.0001)
FYR12	-0.100	(0.333)
Restate_Issued	0.588 ***	(<.0001)
Volatility	-0.263	(0.674)
HighPE	-0.090	(0.524)
logMV	-0.071 **	(0.022)
FirmAge	0.007 *	(0.066)
Loss	0.270 *	(0.028)
AltZRank	0.002	(0.925)
ExtFinancing	0.050 ***	(<.0001)
SalesGrowth	-0.007	(0.355)
Segments	0.069 ***	(0.008)
M&A	0.027	(0.913)
Restructure	-0.305	(0.406)
Big4	0.617 ***	(0.001)
SecondTier	0.191 **	(0.383)
Leverage	-0.013	(0.161)
Beta	0.087	(0.205)
Year & Industry Fixed Effects	Yes	
No. of Firm-Years	7,386	
nonSEC initiated restatements	608	
Pseudo R^2	0.0320	

7.4 Results of Testing Hypothesis 3

We next turn to assessing the impact of ADO busyness on comment letter processing time. We estimate an OLS regression of equation (3) to test our third hypothesis and report the results in Table 7. FYR12 is significantly and positively associated with CL_DaysToProcess (coefficients= 42.816, p-values= 0.002), consistent with ADO busyness increasing comment letter processing time. This result is consistent with Hypothesis 3 and suggests that ADOs take longer to process comment letters when busy and receive an influx of filings.

In terms of the main effects, volatile firms experience longer processing time (Volatility coefficient=53.170, p-value=0.036), as do firms with higher sales growth (SalesGrowth coefficient=3.885, p-value=0.097). A positive coefficient is consistent with two explanations: (1) the SEC takes longer to process comment letters or (2) the SEC takes the same amount of time to process the comment letter but places a lower priority (in terms of timing) on reviewing these particular firms. Given the SEC places a priority on reviewing firms with high volatility, it is unlikely that these firms are a lower priority. Therefore, perhaps the SEC spends more time on more complex firms (i.e. high volatility, high sales growth). Interestingly, the coefficients on both Big4 and SecondTier are positive and significant. Given the two explanations above, if you assume the SEC does not take longer to process comment letters for firms with high quality auditors, then the interpretation of the positive coefficient is that the SEC places a lower priority on firms with high quality auditors.

Larger firms experience shorter processing time (LogMV coefficient=-9.177, p-value=0.0001) which is consistent with the criteria in SOX Section 404, that suggests the SEC place a high priority on firms "with the largest market capitalization". The coefficients on Loss and AltZRank are negative and significant. A negative coefficient is consistent with two explanations: (1) the SEC takes less time to process comment letters or (2) the SEC takes the same amount of time to process the comment letter but places a higher priority on these firms. Given financially distressed firms face greater capital market pressures and are more likely to manipulate the financial statements it seems reasonable that the SEC would place a higher priority on reviewing these firms.

Next, we explore the impact of busyness on comment letter processing time and focus on the interaction between FYR12 and various firm factors. The coefficient on the interaction between FYR12 and size is negative and significant (FYR12*logMV coefficient=-4.809, p-value=0.003). Given the two explanations above, one possible interpretation of this interactive coefficient is that the SEC places a higher priority on larger firms relative to smaller firms when busy. Since larger firms are more complex, it is unlikely that the SEC takes less time to process comment letters for larger firms. Firms with high sales growth also experience incrementally longer comment letter processing time relative to low sales growth firms when busy, (FYR12*SalesGrowth coefficient=-3.798, p-value=0.068). Finally, financially distressed firms experience longer processing times during ADOs' busy

Table 8 - OLS Regression of SEC Comment Letter Processing Time on Busyness and Interactions

	CL_DaysToProcess	
	Coeff.	p-value
Constant	190.141 ***	(<.0001)
FYR12	42.816 ***	(0.002)
Restate_Issued	-5.456	(0.384)
Volatility	53.170 **	(0.036)
HighPE	-5.256	(0.317)
logMV	-9.177 ***	(<.0001)
FirmAge	-0.166	(0.323)
Loss	-10.719 *	(0.051)
AltZRank	-2.249 ***	(0.007)
ExtFinancing	1.335	(0.746)
SalesGrowth	3.885 *	(0.097)
Segments	0.770	(0.515)
M&A	4.564	(0.693)
Restructure	-21.551 *	(0.042)
Big4	29.302 ***	(<.0001)
SecondTier	25.015 ***	(0.000)
Leverage	0.395	(0.792)
Beta	4.556	(0.103)
FYR12*Restate_Issued	-5.597	(0.457)
FYR12*Volatility	-30.957	(0.280)
FYR12*HighPE	2.156	(0.735)
FYR12*logMV	-4.809 ***	(0.003)
FYR12*FirmAge	-0.281	(0.155)
FYR12*Loss	6.558	(0.294)
FYR12*AltZRank	2.168 **	(0.023)
FYR12*ExtFinancing	-0.821	(0.843)
FYR12*SalesGrowth	-3.798 *	(0.068)
FYR12*Segments	-1.184	(0.380)
FYR12*M&A	-1.994	(0.878)
FYR12*Restructure	24.903	(0.112)
FYR12*Big4	-6.904	(0.368)
FYR12*SecondTier	-10.097	(0.244)
FYR12*Leverage	-0.361	(0.809)
FYR12*Beta	4.274	(0.194)
Year & Industry Fixed Effects	Yes	
No. of Firm-Years	7,386	
R^2	0.0938	

periods than their more financially stable peers when busy (FYR12*AltZRank coefficients=2.168 and 24.903).

Overall, the results in Table 7 suggest that SEC busyness delays the timeliness with which ADOs complete filing reviews and issue initial comments. The results in Table 7 suggest that if policy-makers allocate additional resources to Corp Fin, the time lag between filing dates and comment letter issuance could shorten during busy periods potentially providing more timely compliance information to the market.

8.0 CONCLUSION

Compliance and enforcement play important roles in the financial reporting oversight of the SEC. Prior to this manuscript, the effect of SEC resource constraints on the compliance aspect of oversight remained an open empirical question. Twelve ADOs, organized by industry, review registrants' filings to ensure compliance with securities laws. If an ADO identifies a departure from GAAP or disclosure regulation, they will issue a comment letter seeking clarification or requesting additional information. In this paper, we examine how resource constraints affect the SEC's probability of issuing a comment letter and the consequences of the comment letter process, specifically the severity of issues identified in the comment letter and the timeliness of the filing review process.

To test whether SEC busyness is associated with the propensity to issue a comment letter, we employ a bivariate probit model that models the joint function of ADOs: Review filings and issue comment letters. We find that ADOs are less likely to issue a 10-K comment letter when busy, holding constant the probability the

filing was selected for review and firm-specific determinants of the comment letter process. We also find that firms are more likely to have an SEC-initiated restatement and receive a greater proportion of comment letter topics related to revenue when ADOs are busy. These results are consistent with the SEC allocating its limited resources to identifying the most serious instances of noncompliance which facilitates efficient capital allocation. Finally, we report that comment letter processing time is increasing in ADO busyness and this relation is mitigated by size.

Our findings suggest that allocating additional resources to ADOs would likely (1) broaden the scope of comment letters when busy and (2) shorten comment letter processing time when busy. To help assess the costs/benefits of additional resources to ADOs, future research could study the usefulness of broader scope comment letters and optimal comment letter processing time.

CHAPTER 2

CORPORATE POLITICAL INFLUENCE AND CONTRACT RISK: EVIDENCE FROM FEDERAL PROCUREMENT

(Judith M. Hermis)

1.0 INTRODUCTION

In this paper, I study the impact of corporate political influence on risk sharing in government procurement contracts. Specifically, I assess whether the allocation of favorably-priced, lower risk U.S. Federal government procurement contracts is a function of firms' political networks. Several recent studies, discussed in further detail below, measure the relationship between corporate political influence and the allocation of procurement contracts. In contrast, I measure the association between political influence and contract risk, conditional on the level of contract allocation.

Federal government procurement contracts are priced using two structures. The first of these is fixed-price contracts, which pay the firm a specified amount regardless of actual input costs on the contract. Cost-reimbursable procurement contracts comprise the remainder of government contracts. As the name suggests, such contracts reimburse the firm for actual costs plus a margin. These costing schemes have clear implications for risk sharing; while fixed-price contracts force the firm to absorb cost overruns, cost-reimbursable contracts insure against this risk by shifting cost overruns to the customer, the government.

In 2009, President Obama issued a memorandum stating that "...there shall be a preference for fixed-price contracts."[18] This preference implicitly assumes that the allocation of cost-reimbursable contracts is costly for the government. Prior literature supports the hypothesis that cost-reimbursable contracts impose additional costs on the customer. For example, Chen and Gunny (2015) find that the use of cost-reimbursable contracts is associated with cost shifting to the government. Anecdotal evidence indicates that the use of cost-reimbursable contracts imposes substantial costs on the Federal government and, correspondingly, taxpayers. A 2008 study conducted by the Government Accountability Office (GAO) found that 95 major defense acquisition programs experienced cost overruns of $295 billion over the life of the underlying projects.

Taken as a whole, this evidence suggests that cost-reimbursable contracts are associated with material, incremental government spending. However, from the government's perspective, cost-reimbursable contracts may be used to incentivize firms to invest in novel goods and technologies. Additionally, such contracts enhance firm value if they allow firms to achieve incremental profits.[19] Measuring the social welfare implications of government procurement contracting is outside the scope of my paper. Nonetheless, contract risk has wealth implications for numerous stakeholders, including the government, taxpayers, and corporate

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[18] See http://prhome.defense.gov/Portals/52/Documents/RFM/TFPRQ/docs/Obama%20memo%20contracting%2003-4-09.pdf

[19] Prior studies report mixed results on the extent to which opportunistic behavior under cost-reimbursable contracts explains firms' profitability (e.g., McGowan and Vendrzyk 2002; Euske et al. 2012).

shareholders. Given the enormity of government procurement, government contract risk may have a material impact on stakeholder wellbeing, rendering contract risk an important construct for researchers to examine.[20]

Focusing on government contract risk also allows me to measure the extent to which politicians' incentives are altered as a function of firms' political influence. Rave (2013) describes politicians as "...standing in a fiduciary capacity to the people they represent."[21] As taxpayer fiduciaries, politicians should prefer that firms be allocated fixed-price contracts, all else equal. However, politicians may face incentives to allocate favorably-priced, less risky procurement contracts to influential firms.

Anecdotal evidence supports the existence of a revolving door for employment between the public and private sectors. A 2004 report issued by the Project on Government Oversight (POGO) documents numerous instances of key Federal politicians obtaining private-sector employment subsequent to their political careers.[22] For example, in 2002, over 240 top-government officials obtained private-

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[20] For example, the Federal government procured over $500 billion in goods and services during 2008. See Memorandum for the Heads of Executive Departments and Agencies – Subject: Government Contracting. Available at: https://www.whitehouse.gov/the-press-office/memorandum-heads-executive-departments-and-agencies-subject-government-contracting

[21] Case law also emphasizes politicians' fiduciary responsibilities. For example, Driscoll v. Burlington-Bristol Bridge Co. (1952) states that "[Public officials] stand in a fiduciary relationship to the people whom they have been elected or appointed to serve. . . . [T]hey are under an inescapable obligation to serve the public with the highest fidelity. . . . These obligations are not mere theoretical concepts or idealistic abstractions of no practical force and effect . . . . The citizen is not at the mercy of his servants holding positions of public trust nor is he helpless to secure relief from their machinations except through the medium of the ballot, the pressure of public opinion or criminal prosecution. He may secure relief in the civil courts . . . .").

[22] The Project on Government Oversight (POGO) is a "... nonpartisan independent watchdog that champions good government reforms. POGO's investigations into corruption, misconduct, and

sector employment as lobbyists, board members, or executives at government contractors. Of these, more than one-third held government positions with substantial influence over the Federal procurement process. Also, among former Congresspersons currently serving as lobbyists on behalf of the largest government contractors, at least two-thirds had served on Congressional committees that approved programs and appropriated funds beneficial to their future employers. Scott Amey, POGO's General Counsel, summarized the report by stating that "...over the years, the revolving door has become an accepted and unchallenged practice..."[23] Additionally, politicians may favor affiliated firms in the contracting process if doing so will enhance the politician's probability of attaining subsequent reelection (i.e., through allocating a contract to a firm because doing so will create economic growth among the politician's constituents).

In summary, politicians fulfill a fiduciary duty of loyalty to their constituents. As stewards of taxpayer-generated revenues, politicians should prefer that firms be allocated less favorably-priced, more risky (from the firm's perspective) fixed-price contracts that force the firm to absorb cost overruns. However, politicians may have incentivizes to allocate cost-reimbursable contracts to influential firms if doing so results in private benefit. The extent to which firms' political influence is associated with politicians' private versus fiduciary incentives is *ex ante* unclear.

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conflicts of interest achieve a more effective, accountable, open, and ethical federal government." For further information, see http://www.pogo.org/about/?referrer=http://www.pogo.org/our-work/contract-oversight.html?page=14

[23] See http://www.defense-aerospace.com/articles-view/release/3/41662/group-details-pentagon-conflicts-of-interest-%28july-2%29.html

To test the association between corporate political influence and government procurement contract risk, I exploit contract-level data made available through the Federal Procurement Data System (FPDS) to form a firm-year measure of aggregate government contract risk. I then employ multiple proxies and an extensive hand-collected dataset to measure the breadth of firms' political networks. I find an inverse association between corporate political influence and government procurement contract risk, all else equal. I also find that contract risk is predictive of diminished future operating performance.

Collectively, these results suggest that influential firms successfully align politicians' incentives with the firm's incentives, potentially leading to the allocation of favorably-priced, lower risk government procurement contracts. Additionally, reduced contract risk is associated with stronger future operating performance.[24] As previously discussed, the use of cost-reimbursable contracts may be associated with cost shifting to the government and, ultimately, taxpayers. While my empirical results suggest that firms favorably alter government contract terms as a function of their political influence, enhancements to firm value may be achieved at the expense of taxpayers. Distortions in the contracting process, associated with corporate political influence, may lead to wealth transfers from taxpayers to shareholders.

I contribute to a stream of literature that examines the impact of political influence on the allocation and characteristics of government procurement

[24] In Section 2.0, I discuss potential explanations for the absence of a pooling equilibrium in my analyses.

contracts. For example, Tahoun (2014) finds that firms whose shares are owned by politicians are more likely to be allocated government procurement contracts, and Goldman et al. (2013) report that firms with Boards of Directors who are connected to key politicians receive larger government contracts than less-connected peers. In a paper that is closely related to mine, Brogaard et al. (2016) find that politically influential firms receive government procurement contracts of larger dollar value and with weaker oversight. Brogaard et al. also find that lax government oversight of influential firms exacerbates agency problems and erodes subsequent firm performance.

My paper differs from Brogaard et al. (2016) in several ways. Firstly, Brogaard et al. focus on contract absolute value as a proxy for distortions in contracting. It is unclear that the allocation of larger dollar-value contracts represents a deviation from expected contract design. In contrast, the allocation of less risky contracts represents a cleaner measure of distortions in the contracting process. Brogaard et al. implicitly assume that input price risk is constant across government contracts. Their measure of performance incentives comingles cost-reimbursable and fixed-price contracts, making it difficult to draw inferences regarding the extent to which the firm favorably alters pricing terms as a function of political networks.

Finally, Brogaard et al. (2016) do not control for development contracts in their empirical models. All else equal, contracts for highly specific, novel goods and services are more likely to be priced as cost-reimbursable to incentivize firms to

innovate. It seems critical to control for the nature of the goods being purchased, in order to draw clean inferences on the association between political influence and government contract characteristics. Without such a control, which I incorporate into my analyses, it is difficult to distinguish whether politically influential firms receive favorably-priced contracts, or such firms would be more likely to receive favorably-priced contracts due to the nature of the contracts themselves, regardless of the firm's political networks.

My empirical results also extend the literature in political economy, which posits a mixed association between firm value and political influence. Political influence conveys numerous capital market benefits, including a reduced cost of capital and increased access to external financing (e.g., Boubakri et al. 2012; Claessens et al. 2008). Conversely, corporate political influence may exacerbate agency problems and result in reduced shareholder wealth through lower financial reporting quality and aggressive tax planning (Chaney et al. 2011; Kim and Zhang 2016). I provide evidence that political influence is value enhancing to shareholders because it is associated with the allocation of favorably-priced, less risky government contracts, and that contract risk is predictive of future firm performance.

I proceed as follows: Section 2 provides an overview of the government procurement process and politicians' incentives, Section 3 develops my hypotheses, Section 4 describes my data and sample selection procedures, Section 5 explains the research design, and Section 6 discusses empirical results. I conclude in Section 7.

2.0 BACKGROUND

2.1 Overview of the Government Procurement Process

The government procurement process begins when the government identifies a needed good or service, known as a requirement. The agency with the requirement issues a Request for Proposal (RFP), inviting firms to submit a proposal in response to the government's solicitation of goods or services. The RFP specifies the nature of the goods or services being requisitioned, the information that should be contained in the firm's proposal, and the factors that will be considered in the government's decision to award the contract.[25] RFPs may specify characteristics of the contract (including pricing terms). However, pricing terms and other contract characteristics, such as contract duration and the negotiation of follow-on contracts, known as option years, are generally negotiated between the government and the firm prior to the final award. Government solicitations vary in the extent of competition, ranging from full and open competition (where any vendor is invited to submit a proposal), to sole-source procurements, where the government solicits a proposal from only one vendor.[26]

After the contract has been awarded to a vendor, the requisitioning Agency within the government delegates contract oversight to a single employee, known as the Contracting Officer (CO). The contracting officer supervises all aspects of

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[25] Most RFPs specify some combination of technical expertise (i.e., the quality of the technical solution), prior performance on similar government contracts, and pricing. These factors are not exhaustive and the weighting assigned to various components of the firm's proposal varies on a contract-by-contract basis.

[26] Federal acquisitions are governed by the Federal Acquisition Regulations (FAR), which describes a preference for the use of full and open competition. FAR Part 6 – Competition Requirements describes circumstances under which solicitation procedures other than full and open competition may be used.

contract performance, including the firm's periodic submission of invoices to the government. As part of the Federal government's objective to reduce unnecessary spending in the procurement process, contracting firms are required to comply with Federal regulations known as the Cost Accounting Standards (CAS). CAS serve many functions, one of which is to specify which costs the vendor can be reimbursed for by the government (known as allowable costs).

Firms' compliance with applicable regulations is monitored through multiple channels, perhaps the most significant of which is periodic contract audits by various federal agencies. For example, defense contracts are audited by the Defense Contract Audit Agency. The government has essentially unlimited power in the procurement process, including the power to disallow costs *ex post*. That is, the government can require the vendor to return to the government previously submitted revenues as a result of the government's audit process for Federal contracts.[27]

2.2 Corporate Political Influence and the Contracting Process

The diffuse nature of the contracting process naturally raises the question regarding whether firms can successfully alter the pricing terms of contracts, administered by COs at the government agency level, through forming networks with key politicians at a Federal level. To better understand this issue, I spoke with several current and former employees of the Federal government and various government contractors. These conversations confirmed that firms have the

[27] Conversations with several former procurement contract auditors from various branches of the Federal government revealed that the government has a non-trivial backlog of contract audits, with a time lag exceeding six years in many departments.

potential to exploit the political process to obtain favorable contracting outcomes, including favorable contract pricing terms. While politicians are unlikely to directly instruct COs to award a contract to a certain vendor or to alter contract pricing terms, politicians who are affiliated with influential firms may disseminate favorable information about preferred firms within the politician's own network.

For example, a politician affiliated with a large government contractor may intimate that the firm in question is developing a new tank, and the politician may share this information with a high-ranking Army official, who then disseminates the information through the Army such that this information ultimately reaches the CO responsible for a contract to procure tanks. In the opinion of the industry experts with whom I spoke, firms' political influence can favorably alter the outcomes of government contracts, and key politicians are better able to influence the procurement process. I later test whether the breadth of politicians' networks plays a role in the association between corporate political influence and government contract risk.

2.3 Politicians' Incentives and the Existence of a Separating Equilibrium

I later report that the average sample firm in this study makes PAC contributions that are trivial in magnitude, yet these contributions are associated with the firm receiving favorably-priced government contracts. Previous studies suggest that regulatory capture happens relatively frequently, which implies that it is not overly costly for the average firm to form political alliances (e.g., Goldman et al. 2008; Correia 2014). These results motivate the question as to why all firms do not engage in the political process. I propose two potential explanations for the

existence of a separating equilibrium. First, engaging in the political process requires both explicit (monetary) and implicit deployment of firms' resources. If the firm perceives that creating an alliance with key politicians will comprise a negative net present value investment or will be less beneficial than alternative investments, the firm will prefer to abstain from the political process, all else equal.

Second, in order for firms' to successfully cultivate politicians, those politicians must be incentivized to serve the firm's interests rather than serve as taxpayer fiduciaries. Anecdotal evidence discusses two channels through which influential firms incentivize politicians. First, there is a well-documented revolving door for employment between the public and private sectors. Industry experts with whom I spoke stated that retired politicians frequently seek lucrative consulting opportunities and prestigious directorships subsequent to their retirement from the public arena. In addition to favorable private employment outcomes, politicians face strong incentives to favor firms located in the same geographic region as the politician's Congressional district. By favoring geographically-proximate firms in the allocation and design of procurement contracts, aligned politicians direct economic growth and jobs to their home district, increasing the politician's chance of reelection.

Neither the revolving door, nor the reelection explanation establishes that private benefits are equally attractive to all politicians. It is plausible that politicians maximize their utility with regard to their private sector career choices along dimensions such as the prestige of the private firm with whom they are

affiliated, as well as the impact of that firm's connections on additional benefits to the politician, such as the potential to obtain membership on the Board of Directors of peer firms. Also, self-interested politicians should favor geographically-proximate firms only if the potential benefits of the alliance exceed the expected costs (e.g., reputational damage inflicted on politicians who behave opportunistically) (McChesney 1997).

While my empirical results, *ex post,* indicate a statistical relation between firms' political influence and politicians' incentives with regard to government contract pricing terms, this is an average result and does not imply that the relation holds for every firm and every affiliated politician. In this paper, I do not disentangle these non-mutually exclusive hypotheses regarding the mechanisms through which political influence captures the incentives of politicians. However, doing so represents a natural extension to extant literature on government contracting and corporate political influence.

3.0 HYPOTHESIS DEVELOPMENT

Politicians serve as fiduciaries and are stewards charged with allocating taxpayer revenues to the most productive use. As such, politicians should prefer that firms be allocated fixed-price contracts that force the vendor to incur the risk of cost overruns, all else equal. However, politicians may face personal incentives that induce them to prefer the allocation of more favorably-priced, less risky (to the firm), cost-reimbursable contracts. Anecdotal evidence suggests that politicians who confer favors on influential firms receive private benefits, such as lucrative employment opportunities (Amey 2004). Additionally, politicians may favor

affiliated firms if doing so conveys benefits to the politician's electoral constituency, thereby increasing the politician's chance of reelection.

The allocation of favorably-priced, less risky contracts in exchange for private benefits is consistent with regulatory capture of key politicians by the firms these politicians are intended to oversee. The extent to which politicians' private and fiduciary incentives vary in response to firms' corporate political influence remains an open empirical question. I thus state my first hypothesis in the null form, as follows:

Hypothesis 1: There is no association between the firm's political influence over key Federal politicians and the firm's government procurement contract risk.

I also study the extent to which future firm performance varies as a function of contract risk. Contract pricing terms are a proxy for the construct of government contract risk. Fixed contracts force the firm to incur the risk associated with cost overruns. In contrast, cost-reimbursable contracts insure the firm against risk by shifting cost overruns to the government. Prior research finds evidence consistent with firms using the discretion available in cost-reimbursable contracts to enhance their financial performance, by shifting additional costs to the government (e.g., Chen and Gunny 2015). All else equal, cost shifting to the government should enhance operating performance. When firms are more (less) able to shift costs to the government because they have a higher proportion of cost-reimbursable (fixed-price) contracts, we would expect the firm to experience enhanced (diminished) operating performance. I state the next hypothesis as follows:

Hypothesis 2a: There is a negative association between the firm's government procurement contract risk and the firm's subsequent operating performance.

As previously discussed, the government has virtually unlimited power to clawback revenues on previously completed contracts. If the present value of expected revenue clawbacks exceeds the benefit to the firm of engaging in cost shifting, we would expect to see no association between contract risk and firm operating performance.

Finally, managers may exploit the discretion conferred by cost-reimbursable contracts to pursue excessive investment opportunities. If this hypothesis is correct, then we would expect to see the firm's investment activities increase as contract risk declines. I state my final hypothesis as follows:

Hypothesis 2b: There is a negative association between the firm's government procurement contract risk and subsequent firm investment.

For the reasons discussed in the development of hypothesis 2a, firms may experience neither positive cash flows, nor reduced non-government contract risk, as a function of government procurement contract risk. To the extent firms do not face enhanced cash flows or reduced overall exposure to cost overruns, we would expect government procurement contract risk to be unassociated with the firm's subsequent investment activity.

4.0 DATA AND SAMPLE SELECTION

4.1 Matching Government Procurement Contracts to Compustat

FPDS collects data for all contracts awarded by the U.S. Federal government in the amount of $2,500 or greater.[28] The CO who administers each contract is responsible for updating FPDS records, including adding contract modifications and amendments. The FPDS system tracks significant details for each contract, including the awarding agency, the contracting firm, contract price, and contract pricing terms. Beginning in 2004, the government significantly altered the reporting requirements for contract maintenance in the FPDS system. I analyze contracts awarded beginning in 2004 to capture these changes in reporting requirements.

I begin by collecting a sample of over 39 million unique contracts awarded by the Federal government between government fiscal years 2003 and 2014.[29] After eliminating contracts missing the unique contract identifier assigned by the FPDS system, the contract award date, dollar value, pricing terms, recipient firm, and contracts with a value of less than $100,000, I have a sample of approximately 26.7 million unique contracts.

I obtain the Compustat North American Fundamentals Annual File for firm fiscal years between 2004 and 2013, an initial sample comprised of 149,760 firm-years. After eliminating observations missing data necessary to calculate control variables and financial firms and regulated utilities (Standard Industrial

[28] See fpds.gov

[29] I download contracts between government fiscal years 2003 through 2014 to capture firm fiscal years between 2004 and 2013.

Classification codes 6000-6999 and 4900-4999, respectively), 41,785 firm-years remain. I then use an algorithm that matches character strings based on the similarity between their phonetic composition to match contracts from FPDS to the Compustat file based on vendor/firm name. This results in a sample of 246,494 firm-contract pairs, where a firm-contract pair is defined as a one-to-one match between a firm and a given contract identifier. To verify the efficacy of the matching algorithm used to link contracts from FPDS to firms in Compustat, I select a random sample of 24,000 firm-contract pairs and manually inspect them to ensure the validity of my matching procedures. This process yields a matching-validity rate of 100%. The set of 246,494 firm-contract pairs contains 2,093 firm-years between 2004 and 2013, comprised of 263 unique firms representing 23 industries (two-digit SIC code).

4.2 Selecting the Random Sample for Statistical Testing

To test the association between corporate political influence and government contract risk, I hand-collect data on political activity as described in further detail below. Because hand-collection is prohibitively time-consuming, I select a sample 1,000 firm-years for statistical analyses, from the full universe of 2,093 firm-years. If the sample I chose for analysis is not representative of the larger population, then my results may not be indicative of the underlying association between corporate political influence and contract risk. To mitigate this concern, I include each of the 263 unique firms from the full population of 2,093 firm-years in my sample. I then select a random sample of 1,000 firm-years from among those 263 unique firms to comprise the final sample for my analyses. In general, the mean values of sample

statistics for the 1,000 firm-years do not significantly differ from those for all 2,093 firm-years. The median values of firm size (logSize), profitability (Profitability), growth (MTB), and industry concentration (HHI) differ between the two samples; however, the differences are relatively small.

4.3 Collecting Data on Corporate Political Influence

The Federal Elections Commission collects and publicly reports Political Action Committee (PAC) contributions, including the amount of money collected by and disbursed from election, leadership, and Super PACs, the recipients of PAC funds, and the organization associated with a given PAC.[30] OpenSecrets.org, a non-partisan website maintained by the Center for Responsive Politics, also tracks corporate PAC activity. To assess the relative difference between PAC activity reported by the FEC and that collected by OpenSecrets.org, I select a random sample of 100 firm-years and hand-match this sample to both FEC and OpenSecrets.org data. This hand-matching procedure reveals non-trivial differences between the FEC and OpenSecrets.org PAC data, including a number of FEC observations that are missing data sufficient to allow for matching PAC contributions to donor firms. For this reason, I use OpenSecrets.org as the source of PAC data.

I first assign each firm-year in the sample to the corresponding two-year election cycle. For every two-year election cycle, I obtain the firm's total PAC contributions to Congressional candidates. I also collect contributions to individual candidates, regardless of election outcome. To refine my measure of firms' influence

[30]See www.fec.org

over key politicians, I track election outcomes using the Congressional Directory Record (CDR). I also use the CDR to identify Congressperson committee assignments, with a specific focus on members of the Senate and House of Representatives Committees on Appropriations and the Budget.[31]

5.0 RESEARCH DESIGN

5.1 Proxies for Corporate Political Influence

To test the association between corporate political influence and government contract risk, I specify four proxies for firms' influence over key Federal politicians. My goal is to identify politicians who potentially have direct influence over the contracting environment and who also have firm connections. These measures are inherently noisy; therefore, I triangulate my results across multiple proxies to mitigate the effect of measurement error in individual proxies.

First, I define a continuous variable, TotalPAC, equal to the dollar value of election, leadership, and Super PAC contributions made by a given firm to candidates running for election in the U.S. Senate or House of Representatives. I further refine my measure of PAC contributions by assessing firms' connections to politicians who won a Congressional seat. I define WinningPAC as the dollar value of election, leadership, and Super PAC contributions made to candidates who won a seat in the Senate or House of Representatives. Finally, I create a proxy for firms' connections to politicians who are in a position to affect the allocation of government procurement contracts. I define KeyPAC as the dollar value of all PAC contributions to Congresspersons serving on the Senate or House of Representatives

[31] The Congressional Directory Record is made available by the U.S. Government Publishing Office and can be found at https://www.gpo.gov/fdsys/browse/collection.action?collectionCode=CDIR.

Committees on Appropriations and Budget. I specifically focus on these committees because their activities arguably have the clearest link to government procurements.

WinningPAC and KeyPAC are arguably stronger proxies for political influence for two reasons. First, they focus on the intensity of the firm's political resources that are devoted to cultivating relationships with influential politicians. In addition, focusing on winning candidates and candidates on key Congressional committees allows me to isolate the firm's relationship with politicians in a position to influence the allocation and characteristics of government contracts.[32] The measurement of TotalPAC, WinningPAC, and KeyPAC is motivated by prior literature on political influence (e.g., Aggarwal et al. 2012; Akey 2013; Brogaard et al. 2016; Cooper et al. 2010).

Government contracting experts with whom I spoke identify politicians' geographic proximity to a given firm as an important factor in the allocation of procurement contracts. All else equal, politicians prefer to allocate contracts to firms located in the politician's Congressional district. Hence, I define a fourth proxy for political influence, CDOverlap, equal to one if the firm contributes to a politician whose constituency is located in the same geographic area as the primary

[32] My measures of PAC contributions are designed to capture the firm's influence over politicians who are in a position to impact the allocation and design of procurement contracts. Government procurements generally follow a lengthy process that includes budget and contract approval. Therefore, TotalPAC, WinningPAC, and KeyPAC are measured for each firm-year for the two-year election cycle including the year immediately preceding the sample firm-year. For example, if firm i in year t is included in the sample, I measure each of my three measures of PAC contributions for firm i during the two-year election cycle that includes year t-1. As an example, I would collect PAC contributions for Coca Cola in the 2002 election cycle (which results in Congresspersons who serve for 2003 and 2004) if Coca Cola in fiscal year 2005 was included in my sample.

location of contract performance, zero otherwise.[33] Specifying a measure of geographic overlap between Congresspersons' constituencies and vendor firms' locations allows me to better assess the impact of political influence on contract risk when firms have greater influence over the politician (because the firm is located in the same Congressional district), all else equal.

Political relationships are potentially beneficial to firms for several reasons. First, connected firms are more likely to obtain private information, such as information about upcoming government solicitations. Access to privileged information may allow firms to better prepare proposals to secure upcoming government business, or to secure such business with preferential terms (such as lower contract risk). Second, influential firms may receive preferential cost-reimbursement rates. Finally, politically influential firms may have a lower *ex post* probability of being subject to contract audits by government agencies, and such firms could face lower revenue clawbacks, conditional on facing a government contract audit. Limited data availability makes it difficult to disentangle the various benefits of firms' political networks. To the extent that TotalPAC, WinningPAC, KeyPAC, and CDOverlap are noisy measures of the strength of the firm's relationship with key politicians, then my empirical results represent a conservative estimate of the true magnitude of the association between corporate political influence and government contract risk.

[33] The FPDS reports both the location of the recipient firm's corporate headquarters and the location at which the majority of the work on the contract is performed. These are often distinct locations. For example, the corporate headquarters of General Dynamics is located in Falls Church, Virginia, but the firm has locations throughout the United States.

It is important to note that political science literature argues that firms' engagement in the political process does not purchase politicians' votes *per se*; rather, such activity represents the firm's intent to establish a relationship with a politician (Lehoucq 2007). I implicitly assume that, in addition to representing the existence of a relationship with a politician (a binary event), PAC contributions also represent the intensity of firm-specific resources dedicated to cultivating said relationship. I employ continuous and binary proxies of corporate influence to capture both of these aspects of firms' political influence.[34]

5.2 Measuring Government Contract Risk and Controls

FPDS tracks contract-specific information, including contract pricing terms, contract dollar value, and whether the contract is for development-type work. To test the impact of corporate political influence on government contract risk and firm performance, I create a variable, ContractRisk, which is the dollar value of fixed-price government contracts allocated to firm i in year t, scaled by the total value of all government contracts awarded to firm i in year t.[35] I follow prior literature and specify controls for other determinants of government contracting outcomes,

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[34] In untabluated analyses, I specify CDOverlap to be the total dollar value of PAC contributions to Congresspersons whose geographic constituency (Congressional district) encompasses the primary location of contract performance. Conditional on being affiliated with a geographically-proximate politician, the absolute value of PAC contributions displays low inter-temporal or cross-sectional variation. I thus specify a binary, rather than continuous, measure of CDOverlap,.

[35] My specification of ContractRisk includes contracts in the numerator and denominator only in the year in which they are awarded. For example, a contract with a three-year performance period that is awarded in year *t* only factors into ContractRisk in the year of award and is excluded in years t+1 and t+2. The multi-year period of performance on certain contracts adds measurement error to ContractRisk but is unlikely to systematically bias empirical results. In untabulated analyses, results are robust to the exclusion of contracts with a multi-year period of performance.

including firm size (logSize), Profitability, Leverage, growth (MTB), and industry concentration as measured by the Herfindahl-Hirshman Index (HHI).

Contracts that impose significant risk on the contracting firm (e.g., contracts for the development of proprietary weapons systems) are likely to be awarded with cost-reimbursable pricing terms to encourage the necessary firm-specific innovation. To control for cost-reimbursable contracts that are priced as such due to the nature of the goods or services being requisitioned, I also control for contract type. Each contract in FPDS is assigned a code that describes the nature of the work that falls within the contract scope. Codes follow a standardized format developed by the Federal Government and are made available in the Product and Service Codes Manual.[36]

Based on conversations with a former CO, research and development work imposes the greatest cost uncertainty on the contracting firm and is, thus, more likely to be awarded with cost-plus pricing terms. I define a continuous variable, %DevContract, equal to the dollar value of research and development government contracts awarded to firm i in year t, scaled by the total dollar value of all government contracts awarded to the firm.

Firms with non-government large customers (defined in accordance with Statement of Financial Accounting Standards 131) may be less sensitive to government contract risk because the business attributable to other large customers insures the firm against such risk. To control for this possibility, I gather data on

[36] See https://interact.gsa.gov/sites/default/files/PSC%20Manual%20-%20Final%20-%2011%20August%202011.pdf

firms' major customers (defined as customers to whom sales exceeds ten percent of total sales) from the footnote disclosures on Form 10-K. I measure MajorSales as the dollar value of sales to non-government large customers of firm i in year t, scaled by total sales. Finally, I specify a control variable, %GovContracts, that is defined as the total value of firm i's government contracts in year t, scaled by sales. %GovContracts allows me to better assess variation in government contract risk as a function of whether the firm does a large volume of government business.

The dependent variable in my primary analyses is ContractRisk, which proxies for the firm's exposure to cost uncertainty arising from government contracts. By construction, the measurement of this proxy is constrained between zero and one. To allow for censorship of the dependent variable, I employ Tobit regressions. I specify the following four Tobit regressions to my hypothesis that corporate political influence is negatively associated with government contract risk:

$$ContractRisk_{i,t}=\alpha_0+\beta_1 TotalPAC_{i,t-1}+K'Controls_{i,t}+\varepsilon_{i,t} \quad (1a)$$

$$ContractRisk_{i,t}=\alpha_0+\delta_1 WinningPAC_{i,t-1}+\Pi'Controls_{i,t}+u_{i,t} \quad (1b)$$

$$ContractRisk_{i,t}=\alpha_0+\lambda_1 KeyPAC_{i,t-1}+\Gamma'Controls_{i,t}+\varphi_{i,t} \quad (1c)$$

$$ContractRisk_{i,t}=\alpha_0+\Theta_1 CDOverlap_{i,t-1}+X'Controls_{i,t}+\eta_{i,t} \quad (1d)$$

where,

ContractRisk — The dollar value of all fixed-price contracts awarded to firm i in year t, scaled by the dollar

	value of all government contracts awarded to firm i in year t (FPDS).
TotalPAC	The dollar value of all election PAC, leadership PAC, and Super PAC contributions made by firm i to candidates running for a seat in the U.S. Congress during the two-year election cycle that coincides with the year prior to contract award (OpenSecrets.org).
WinningPAC	The dollar value of all election PAC, leadership PAC, and Super PAC contributions made by firm i to candidates who won a seat in the U.S. Congress during the two-year election cycle that coincides with the year prior to contract award (OpenSecrets.org).
KeyPAC	The dollar value of all election PAC, leadership PAC, and Super PAC contributions made by firm i to candidates serving on the Senate or House of Representatives' Committees on Appropriations and the Budget during the two-year election cycle that coincides with the year prior to contract award (OpenSecrets.org).
CDOverlap	A binary variable equal to one if the firm contributes to at least one politician whose constituency is located in the same geographic area as a primary location of contract performance, zero otherwise (OpenSecrets.org).

In each of equations (1a), (1b), (1c), and (1d), controls are specified as follows:

logSize	Natural logarithm of total assets of firm i in year t (Compustat).
Profitability	Earnings before interest, taxes, depreciation, and amortization of firm i in year t, scaled by total assets. (Compustat).
Leverage	Total debt of firm i in year t, scaled by total assets (Compustat).

MTB	Market value of equity of firm i in year t, scaled by the book value of equity (Compustat).
HHI	Herfindahl-Hirschmann index of industry competition, defined as the sum of squared market share measured by industry-year (Compustat).
%DevContract	The dollar value of research and development government contracts awarded to firm i in year t scaled by the total dollar value of government contracts awarded to firm i in year t (Product and Service Code Manual and FPDS).
MajorSales	The dollar value of sales to non-government major customers of firm i in year t (defined as customers to whom sales exceed ten percent of all sales), scaled by total sales (Edgar.gov and Compustat).
%GovContracts	The dollar value of government contracts awarded to firm i in year t, scaled by total sales (FPDS and Compustat).
Industry	A series of indicator variables for industry, defined as two-digit SIC code (Compustat).
Year	A series of indicator variables for year.

I measure ContractRisk as of year t, while all proxies for corporate political influence (TotalPAC, WinningPAC, KeyPAC, and CDOverlap) are measured for the election cycle coinciding with the year prior to contract award. For example, if a government contract is awarded to firm i in fiscal year 2007, TotalPAC, WinningPAC, KeyPAC, and CDOverlap are measured for the 2004 election cycle, because elected candidates are in office for 2005 and 2006 (the year prior to contract award). All other controls are measured concurrently with ContractRisk (that is, as of year t). Continuous variables are winsorized at one percent and 99 percent and

standard errors are clustered by firm to correct for inter-temporal correlation of error terms associated with multiple observations for a given firm.

5.3 Measuring the Impact of Contract Risk on Firm Performance

My second set of analyses examines the impact of government contract risk on subsequent firm performance. I define three proxies for firm performance, Abnormal_FutureOpInc, Abnormal_FutureCFO, and Abnormal_Investment, where Abnormal_FutureOpInc is the excess of firm i's operating income for year t+1 over the industry-year median, scaled by total sales, Abnormal_FutureCFO is the excess of firm i's operating cash flows for year t+1 over the industry-year median, scaled by total sales, and Abnormal_Investment is the excess of firm i's investment (research and development expenditure+capital expenditure+acquisition expenditure-cash receipts from the sale of property, plant and equipment) for year t+1 over the industry-year median, scaled by total sales. I focus on abnormal future operating income and operating cash flows because prior research finds that income and cash from routine operations convey important information to the stock market (e.g., Core et al. 2006; Rayburn 1986; Dechow 1994; Cheng et al. 1996). I also specify a proxy for abnormal investment because extant studies suggest that firm investment is predictive of subsequent performance and firm value (e.g., Eberhart et al. 2004; Robertson 2006).

Variation in subsequent operating performance is a reasonable alternative proxy to Abnormal_OpInc, Abnormal_FutureCFO, and Abnormal_Investment. However, operating income, operating cash flows, and investment display low variability in my sample firms, so I elect to use measures of abnormal performance

rather than measuring the second moment of performance.[37] Government contracting is a multi-period game in which firms repeatedly interact with the customer. In addition to the repeat nature of contracting, individual contracts often span multiple fiscal years. Based on these characteristics of my research setting, it is plausible to hypothesize that current period government contract risk will be associated with firm performance over longer time horizons than one year. Due to the low occurrence of multi-year contracts in my sample, I focus on one-year ahead firm performance in tests of my second hypothesis.[38]

To test my hypothesis that government contract risk is inversely associated with future operating performance, I specify the following two OLS regressions:

$$Abnormal\_FutureOpInc_{i,t+1}=\alpha_0+\Omega_1 ContractRisk_{i,t}+X'Controls_{i,t}+\varepsilon_{i,t} \quad (2a)$$

$$Abnormal\_FutureCFO_{i,t+1}=\alpha_0+\partial_1 ContractRisk_{i,t}+B'Controls_{i,t}+\varepsilon_{i,t} \quad (2b)$$

where,

AbnormalFutureOp_Inc	The excess of firm i's operating income for year t+1 over the industry-year median, scaled by total sales (Compustat).
Abnormal_FutureCFO	The excess of firm i's operating cash flows for year t+1 over the industry-year median, scaled by total sales (Compustat).

[37] Abnormal measures may obscure variation of interest, reducing the power of statistical tests and increasing Type II error (Kothari et al. 2005). The use of abnormal performance measures may, thus, generate conservative estimates of the true economic association between two variables.

[38] Less than 3% of firm-years in my sample contain at least one government contract with a multi-year period of performance.

ContractRisk in equations (2a) and (2b) is as previously defined. The vector of controls includes logSize, Profitability, Leverage, and MTB (previously defined). Equations (2a) and (2b) also include controls for research and development and auditor type, defined as follows:

R&D	Research and development expense of firm i in year t, scaled by total asset (Compustat).
BigN	An indicator variable equal to one if firm i had a Big N auditor in year t, zero otherwise (Audit Analytics).

I follow prior literature in specifying predictors of future firm operating performance (e.g., Core et al. 1999; DeAngelo 1981; Singh and Faircloth 2005). Large firms (logSize) have economies of scale that enhance operating efficiencies, potentially increasing performance. Profitability is associated with beneficial characteristics (such as the ability to raise capital) that are positive predictors of subsequent firm value. The association between leverage and future performance is *ex ante* unclear. High interest payments may erode performance, leading to a negative association; in contrast, high leverage represents capital available to the firm to fund operations, suggesting a potential positive association. High-growth firms (MTB) may experienced diminished short-term future performance if they are early in their life cycle. However, the opposite may be true for firms experiencing substantial growth in sales and other components of the primary operating environment. Expenditures on research and development (R&D) are ambiguously associated with firm performance. R&D may direct resources from core operations

and constrain operating performance, or research and development may result in innovations that strengthen the firm's competitive and operating position. Finally, high quality auditors (Big N) constrain earnings management, potentially constraining firms' ability to opportunistically report higher operating performance.

Finally, I test my hypothesis that government contract risk is negatively associated with future investment activity by specifying the following OLS regression

$$Abnormal\_Investment_{i,t+1}=\alpha_0+\pi_1 ContractRisk_{i,t}+\prod' Controls_{i,t}+\varepsilon_{i,t} \quad (2c)$$

where,

Abnormal_Investment	The excess of firm i's investment (research and development expenditures plus capital expenditures plus acquisition expenditures less cash receipts from the sale of property, plant and equipment) for year t+1 over the industry-year median, scaled by total sales (Compustat).

Controls in equation (2c) include Leverage and firm size (logSize), both defined previously. Equation (2c) also includes controls for cash flows, firm age, and stock market performance, defined as:

Cash	The dollar value of cash and cash equivalents for firm i in year t, scaled by total assets (Compustat).
Age	The number of years the firm appears in the Compustat Annual File as of year t.
StockReturns	Change in market value for firm i between years t and t-1, defined as [(beginning market

value of equity less ending market value of equity)/beginning market value of equity] (Compustat).

The specification of equation (2c) and selection of controls follow Rogerson (2006), who finds evidence that a firm's cash on hand, access to efficiencies of size and scale (measured by Age) and historical firm value (StockReturns) are significant predictors of subsequent firm investment.

6.0 RESULTS

6.1 Descriptive Statistics

Table 1 reports descriptive statistics for the sample of 1,000 firm-years with at least one government contract between 2004 and 2013. The average firm has a mean (median) logSize of 6.507 (5.843). The average sample firm is profitable (mean Profitability=0.146), and has mean (median) MTB of 2.066 (1.514). The typical firm has a Herfindahl-Hirschmann index of 0.437. Also, development contracts represent an average of 13.7% of the dollar value of sample firms' total government contracts. The government comprises a significant proportion of firms' total sales (mean and median %GovContracts =0.233 and 0.098, respectively). Finally, the overall proportion of sales to major customers as defined in SFAS 131 represents a small proportion of total sales (mean MajorSales = 0.014). A significant number of sample firms report no sales to non-government major customers, which reduces the overall sample mean of MajorSales.

Table 1 - Descriptive Statistics

N (firm-years) = 1,000

	Mean	Median	Min.	Max.	Std. Dev.
ContractRisk	0.818	0.599	0.000	1.000	2.197
TotalPAC ($M)	1.572	0.982	0.000	2.398	2.263
WinningPAC ($M)	1.147	0.915	0.000	1.410	1.553
KeyPAC ($M)	0.006	0.000	0.000	1.007	4.612
CDOverlap	0.582	0.401	0.000	1.000	0.793
logSize	6.507	5.843	1.549	12.158	2.243
Profitability	0.146	0.117	0.000	0.374	0.152
Leverage	0.145	0.104	0.000	0.687	0.160
MTB	2.066	1.514	0.347	8.445	3.763
HHI	0.437	0.389	0.054	1.000	0.060
%DevContract	0.137	0.092	0.000	0.265	0.762
MajorSales	0.014	0.107	0.000	0.211	0.888
Abnormal_FutureOpInc	0.017	0.025	-0.334	0.478	0.328
Abnormal_FutureCFO	0.003	0.002	0.000	0.078	0.166
Abnormal_Investment	0.005	0.001	-0.179	0.233	6.174
R&D	0.096	0.003	0.000	0.183	0.152
%GovContracts	0.233	0.098	0.013	0.891	6.552
BigN	0.781	0.795	0.000	1.000	0.349
Cash	0.021	0.013	0.001	0.078	0.145
Age	19.103	17.652	5.003	25.324	0.228
StockReturns	0.062	0.054	-0.338	1.264	0.744

With regard to corporate political activity, firms make mean (median) TotalPAC contributions of $1.57M ($0.982M). PAC contributions to winning Congresspersons are lower than average TotalPAC; the mean (median) of WinningPAC is $1.147M ($0.915M). Contributions to Congresspersons on the Senate and House Committees on Appropriations and the Budget are negligible, with a mean of $0.006M. The average firm makes non-zero PAC contributions to at least one politician whose Congressional district coincides with the primary place of performance on at least one of the firm's government contracts (mean CDOverlap = 0.582). Finally, fixed-price contracts represent nearly 82% of sample firms' government contracts (mean ContractRisk = 0.818).

Table 2 Panels A, B, and C report Spearman (Pearson) correlations above (below) the diagonal. TotalPAC is inversely correlated with ContractRisk, consistent with the prediction that greater political influence is associated with lower government procurement contract risk (coefficients = -0.078 and -0.068 for Spearman and Pearson correlations, respectively). TotalPAC is positively correlated with logSize, Profitability, Leverage, MTB, and HHI.[39] These correlations suggest that larger, more profitable firms as well as levered firms, growth firms, and firms with high marker power are more politically influential. Finally, TotalPAC is inversely correlated with sales to other large customers (MajorSales Spearman coefficient of

[39] The Spearman coefficient of correlation between TotalPAC and Profitability = 0.652, which raises the concern of multicollinearity. I discuss this in further detail below.

Table 2 Panel A - Correlations

N (firm-years) = 1,000

	ContractRisk	TotalPAC ($M)	WinningPAC ($M)	KeyPAC ($M)	CDOverlap	logSize	Profitability
ContractRisk	*1.000*	-0.078	-0.092	-0.035	-0.167	0.026	-0.046
TotalPAC ($M)	-0.068	*1.000*	0.427	0.133	0.084	0.516	0.652
WinningPAC ($M)	-0.123	0.523	*1.000*	0.032	0.177	0.394	0.433
KeyPAC ($M)	-0.084	0.158	0.035	*1.000*	0.024	0.021	0.001
CDOverlap	-0.169	0.177	0.064	0.051	*1.000*	0.126	0.315
logSize	0.172	0.589	0.423	0.028	0.096	*1.000*	0.566
Profitability	-0.177	0.107	0.133	0.041	0.068	0.517	*1.000*
Leverage	0.092	0.158	0.043	0.018	0.001	0.374	0.019
MTB	-0.088	-0.137	-0.115	0.098	0.023	-0.204	-0.028
HHI	0.053	0.003	0.021	0.008	0.143	0.176	0.164
%DevContract	-0.189	0.023	0.015	0.008	-0.011	0.016	0.051
MajorSales	0.006	-0.034	-0.016	0.002	-0.017	0.161	0.233
Abnormal_FutureOpInc	-0.052	0.019	0.074	0.016	0.062	0.072	0.262
Abnormal_FutureCFO	0.009	-0.154	-0.167	0.016	0.009	0.043	0.168
Abnormal_Investment	-0.058	-0.005	-0.007	-0.025	-0.016	0.031	0.319
R&D	-0.255	0.025	0.037	0.049	0.061	-0.007	0.041
%GovContracts	0.096	-0.004	-0.026	0.006	0.001	-0.004	0.006
BigN	0.001	-0.015	-0.004	-0.031	-0.005	0.388	0.014
Cash	0.005	0.143	0.172	0.095	0.166	0.096	0.178
Age	-0.053	0.112	0.081	0.036	0.006	0.149	0.069
StockReturns	-0.065	0.043	0.058	0.024	-0.017	0.036	0.129

Table 2 Panel B - Correlations

N (firm-years) = 1,000

	Leverage	MTB	HHI	%DevContract	MajorSales	Abnormal_FutureOpInc	Abnormal_FutureCFO
ContractRisk	0.022	0.017	**0.056**	**-0.178**	0.001	**-0.065**	0.026
TotalPAC ($M)	**0.350**	**0.035**	**0.329**	-0.041	**-0.058**	0.023	0.007
WinningPAC ($M)	**0.288**	0.012	**0.286**	-0.059	0.004	0.001	0.019
KeyPAC ($M)	0.032	0.006	0.055	0.008	0.003	0.006	0.064
CDOverlap	**0.211**	**0.159**	**0.149**	0.043	0.009	0.034	-0.031
logSize	**0.433**	**-0.057**	**0.233**	0.018	**0.072**	0.015	**0.137**
Profitability	**0.155**	**-0.177**	**0.209**	0.033	**0.096**	**0.117**	**0.064**
Leverage	*1.000*	**-0.120**	**0.156**	**-0.096**	**0.166**	-0.003	-0.008
MTB	-0.022	*1.000*	**-0.206**	**0.081**	**-0.069**	0.012	**0.064**
HHI	0.025	-0.013	*1.000*	**-0.166**	0.031	**0.069**	**0.058**
%DevContract	0.016	**0.039**	0.008	*1.000*	**0.086**	**0.103**	**0.062**
MajorSales	0.017	-0.021	0.009	0.025	*1.000*	**0.162**	**0.177**
Abnormal_FutureOpInc	0.036	**0.145**	**0.192**	0.016	0.025	*1.000*	**-0.051**
Abnormal_FutureCFO	**-0.071**	**0.119**	**0.381**	0.002	0.006	**0.075**	*1.000*
Abnormal_Investment	**-0.129**	**0.162**	**0.156**	**0.095**	-0.007	**0.098**	**-0.138**
R&D	**-0.109**	**0.463**	-0.019	**0.121**	**-0.024**	**0.118**	**-0.116**
%GovContracts	**0.065**	0.003	0.007	**0.088**	**-0.042**	**0.041**	0.027
BigN	0.003	**0.046**	**0.061**	0.003	0.008	**0.059**	0.036
Cash	**-0.216**	**-0.171**	**0.155**	**0.041**	0.059	-0.008	**-0.076**
Age	0.035	**-0.122**	0.002	-0.036	0.006	-0.019	0.008
StockReturns	**-0.082**	**0.178**	**0.100**	-0.035	0.015	**0.088**	-0.036

Table 2 Panel C - Correlations

N (firm-years) = 1,000

	Abnormal_Investment	R&D	%GovContracts	BigN	Cash	Age	StockReturns
ContractRisk	0.003	**-0.052**	0.051	0.007	0.009	0.018	0.032
TotalPAC ($M)	0.042	**-0.233**	**0.286**	**0.088**	**0.184**	**0.063**	**0.047**
WinningPAC ($M)	0.048	**-0.168**	-0.191	**0.051**	**0.173**	0.022	0.054
KeyPAC ($M)	0.032	0.017	-0.019	**0.051**	**0.173**	0.022	0.054
CDOverlap	-0.004	**0.097**	-0.001	0.018	**0.059**	0.004	0.013
logSize	-0.029	**-0.423**	**0.195**	**0.125**	**0.189**	**0.049**	-0.006
Profitability	**0.078**	**-0.409**	0.006	**0.035**	**0.162**	**0.051**	**0.128**
Leverage	**0.012**	**-0.314**	**0.060**	**0.134**	**-0.074**	0.006	**-0.161**
MTB	**0.053**	0.037	**-0.122**	-0.001	**-0.123**	**-0.186**	0.009
HHI	**0.121**	-0.002	0.007	-0.071	**0.034**	**0.086**	0.042
%DevContract	0.000	**0.206**	0.009	0.004	0.027	**0.146**	0.011
MajorSales	**0.194**	0.006	-0.016	**0.061**	0.007	0.013	0.008
Abnormal_FutureOpInc	0.017	0.027	**0.070**	0.011	0.006	0.019	**0.074**
Abnormal_FutureCFO	**0.095**	-0.008	**0.053**	0.039	0.052	0.037	**0.031**
Abnormal_Investment	*1.000*	**0.196**	**0.066**	0.008	**0.175**	0.006	**-0.115**
R&D	**0.132**	*1.000*	**0.076**	**0.060**	**0.037**	**0.041**	0.019
%GovContracts	0.004	0.009	*1.000*	0.001	**0.046**	0.004	0.001
BigN	**0.128**	0.016	**0.064**	*1.000*	0.071	**0.146**	**0.128**
Cash	**0.159**	**0.117**	-0.082	**0.048**	*1.000*	**0.127**	0.036
Age	**0.069**	-0.014	0.004	**0.122**	**0.082**	*1.000*	**0.055**
StockReturns	**-0.074**	**0.072**	**0.052**	**0.087**	0.033	**0.036**	*1.000*

correlation = -0.058) and positively correlated with total government contracts (%GovContracts Spearman coefficient of correlation = 0.286).

ContractRisk is positively correlated with logSize, (Spearman and Pearson coefficients of correlation = 0.026 and 0.172 and, respectively), suggesting that larger firms incur greater government contract risk. As discussed in further detail below, this correlation may be attributable to larger, more established firms being allocated a greater number and dollar value of government contracts, all else equal. ContractRisk is negatively correlated with Profitability (Spearman and Pearson coefficients = -0.046 and -0.177, respectively). Also, ContractRisk is inversely correlated with the value of development contracts the firm is awarded (Spearman coefficient on %DevContract = -0.178, Pearson coefficient of correlation = -0.189. The highly significant correlation between ContractRisk and %DevContract highlights the importance of controlling for contract type (i.e., development or non-development) in empirical tests. Finally, ContractRisk is negatively correlated with Abnormal_FutureOpInc (Spearman and Pearson coefficients of correlation = -0.065 and -0.052, respectively), suggesting that higher contract risk is associated with reduced subsequent operating performance.

6.2 Results on Corporate Political Influence and Contract Risk

Table 3 reports the results from the Tobit estimation of equations (1a), (1b), (1c), and (1d). The primary coefficients of interest in Table 3 are TotalPAC, WinningPAC, KeyPAC, and CDOverlap. Both TotalPAC and WinningPAC are significantly, negatively associated with ContractRisk (coefficients = -0.025 and -0.131, respectively). The signs of these coefficients are consistent with the

prediction that politically influential firms are allocated a lower percentage of fixed-price contracts, relative to the total value of all government contracts. CDOverlap, the coefficient of interest in equation (1d), is also highly significant (coefficient = -0.162), consistent with the results in equations (1a) and (1b).[40] The coefficients on ContractRisk in equations (1a), (1b), and (1d) suggest that each additional dollar of PAC contributions has an economically meaningful impact on government contract risk. For example, donating one additional dollar to a winning Congressperson is associated with a 13.1 percent decline in government procurement contract risk. I propose several explanations for the rather large effects reported in Table 3. First, in non-linear regressions, the coefficient on the covariate represents the impact of a one-unit change in that covariate on the underlying construct measured by the specification of the dependent variable. In my research design, a one unit (one dollar) increase in TotalPAC (WinningPAC) is associated with a two-and a half percent (13.1 percent) decline in the latent construct of government contract risk. Second, PAC contributions are a noisy proxy for the firm's investment in political affiliations. If PAC contributions are correlated with the (unobservable) strength of the firm's political networks, then the economic effects I report are likely capturing the effect of additional PAC contributions and other resources devoted to the political process.

[40] The average firm's PAC contributions are small relative to the firm's size. Scaling my continuous measures of PAC contributions by total assets or total sales causes the results in Table 3 to become statistically insignificant (untabulated). In untabulated analyses, I define TotalPAC, WinningPAC, and KeyPAC using binary specifications (for example, TotalPAC equal to one if the firm made PAC contributions to at least one Congressional candidate, zero otherwise). I also replace continuous measures with the number of politicians to whom the firm made PAC contributions. The results in Table 3 are robust to these alternative specifications.

In the estimation of equation (1c), KeyPAC fails to exhibit a significant association with ContractRisk. Although I cannot reject the null hypothesis in equation (1c), I believe that the lack of significance on the coefficient of interest is attributable to low statistical power. Out of approximately 535 Congresspersons, members of the Senate and House Committees on Appropriations and the Budget comprise a low proportion of total Congressional membership, rendering it *ex ante* unlikely that any given politician will belong to these committees, all else equal.

In terms of control variables, large, profitable firms and firms with higher market power experience reduced government contract risk. LogSize is negatively significant in each of equations (1a), (1b), (1c), and (1d) (coefficients = -0.061, -0.065, -0.058, and -0.066, respectively). Profitability and HHI are significant in equations (1a), (1b), and (1d) (Profitability = -0.098, -0.107, and 0.126, respectively; HHI = -0.093, -0.097, -0.094, respectively).[41] In general, sales to non-government large customers are inversely related to ContractRisk (the coefficient on MajorSales = -0.095, -0.109, -0.127 in equations (1a), (1b), and (1d), respectively). In Table 2, MajorSales is positively correlated with firm size; the negative coefficient on MajorSales in equations (1a), (1b), and (1d) may be partially attributable to large firms having more major customers and facing lower government contract risk. The firm's total business with the government is positively associated with ContractRisk

[41] In untabulated analyses, I find Profitability to be collinear with PAC contributions. I repeat the analyses reported in Table 3 using two bivariate specifications of profitability (Profitability equal to one if firm i exceeded the industry-year median of profitability, zero otherwise. Also, Profitability equal to one if firm i was in the top decile of profitability for year t, zero otherwise). I also re-estimate equations (1a), (1b), (1c), and (1d) after removing Profitability from the model. Results remain robust to alternative measures of Profitability.

in each of equations (1a) through (1d) (coefficient on %GovContracts = 0.238, 0.201, 0.261, and 0.244, respectively), consistent with firms with more government business experiencing greater contract risk. Finally, %DevContract is significantly and negatively associated with the dependent variable in equations (1a), (1b), (1c), and (1d) (coefficients = -0.177, -0.187, -0.164, and -0.225, respectively). The consistent significance of %DevContract underscores the importance of controlling for development contracts in studies of procurement contract allocation and design.[42] Collectively, the results in Table 3 are consistent with my hypothesis that corporate political influence is negatively related to government contract risk. Empirical results suggest each additional dollar of PAC contributions is associated with a reduction in contract risk ranging between 2% and 16% (e.g., the proportion of the firm's fixed-price government contracts will be reduced by between 2% and 16%).

[42] The discussion of statistically insignificant variables is omitted for parsimony.

Table 3 - Tobit Regressions of Government Contract Risk on Corporate Political Influence and Controls

Dependent Variable = ContractRisk

(1a)			(1b)			(1c)			(1d)		
TotalPAC	-0.025	***	WinningPAC	-0.131	***	KeyPAC	-0.088		CDOverlap	-0.162	***
	(0.009)			(0.012)			(0.443)			(0.003)	
logSize	-0.061	***		-0.065	*		-0.058	**		-0.066	*
	(0.017)			(0.039)			(0.027)			(0.039)	
Profitability	-0.098	***		-0.107	***		-0.104			-0.126	***
	(0.020)			(0.024)			(0.083)			(0.027)	
Leverage	0.140			0.136			0.091			0.137	
	(0.207)			(0.311)			(0.206)			(0.205)	
MTB	0.084			0.048			-0.055	*		0.050	
	(0.085)			(0.099)			(0.028)			(0.091)	
HHI	-0.093	*		-0.097	*		0.012			-0.094	***
	(0.051)			(0.051)			(0.171)			(0.037)	
%DevContract	-0.177	***		-0.187	***		-0.164	***		-0.225	**
	(0.043)			(0.059)			(0.032)			(0.018)	
MajorSales	-0.095	***		-0.109	**		0.092	**		-0.127	*
	(0.033)			(0.054)			(0.044)			(0.069)	
%GovContracts	0.238	***		0.201	**		0.261	***		0.244	***
	(0.081)			(0.079)			(0.018)			(0.012)	
Industry Fixed Effects	Yes			Yes			Yes			Yes	
Year Fixed Effects	Yes			Yes			Yes			Yes	
Pseudo R-squared	0.171			0.188			0.116			0.185	
N (firm-years)	1,000			1,000			1,000			1,000	

6.3 Results on Contract Risk and Future Performance

To test the ability of government contract risk to predict future performance, I estimate equations (2a), (2b), and (2c) using OLS regression. These results are reported in Tables 4 and 5. Table 4 reports the results of regressing measures of abnormal operating income (Abnormal_FutureOpInc) and abnormal operating cash flows (Abnormal_FutureCFO) on ContractRisk and Controls. The estimation of equation (2a) provides evidence of a negative association between ContractRisk and subsequent Abnormal_FutureOpInc (coefficient = -0.078). This coefficient is consistent with firms facing high government contract risk experiencing diminished future operating performance relative to their industry peers. In estimating equation (2b), I am unable to reject the null hypothesis that ContractRisk is unassociated with Abnormal_FutureCFO. The lack of significance on ContractRisk in the estimation of equation (2b) may be attributable to low statistical power due to variation of Abnormal_CFO (standard deviation = 0.166 in Table 1).[43]

[43] In untabulated analyses, I specify measures of Future Operating Income, Future CFO, and Future Investment not adjusted for the industry-year median. I also regress unscaled measures of Abnormal_FutureOpInc, Abnormal_FutureCFO, and Abnormal_Investment on ContractRisk and controls. I also control for lagged Abnormal_OpInc (equation (2a)), lagged Abnormal_CFO (equation (2b)), Profitability (equation (2c)) and MTB, a proxy for growth and firm ability (equation (2c)). Results in Tables 4 and 5 are robust to these changes.

Table 4 - OLS Regressions of Abormal Future Performance on Government Contract Risk and Controls

	Dependent Variable = Abnormal_FutureOpInc		Dependent Variable = Abnormal_FutureCFO	
	(2a)		(2b)	
ContractRisk	-0.078	**	0.139	
	(0.033)		(0.364)	
logSize	0.155	**	0.117	***
	(0.069)		(0.019)	
Profitability	0.143	***	0.320	***
	(0.006)		(0.052)	
Leverage	-0.064	*	-0.094	**
	(0.039)		(0.045)	
MTB	-0.220		-0.106	*
	(1.180)		(0.058)	
R&D	0.466		0.127	
	(0.580)		(0.371)	
BigN	-0.008		-0.036	
	(0.275)		(0.934)	
Industry Fixed Effects	No		No	
Year Fixed Effects	Yes		Yes	
R-squared	0.508		0.496	
N (firm-years)	1,000		1,000	

Table 5 - OLS Regression of Abormal Investment on Government Contract Risk and Controls

Dependent Variable = Abnormal_Investment

	(2c)	
ContractRisk	0.022	
	(1.877)	
Leverage	-0.079	**
	(0.033)	
Cash	0.194	***
	(0.001)	
Age	0.056	
	(0.253)	
logSize	0.068	***
	(0.007)	
StockReturns	0.014	***
	(0.005)	
Industry Fixed Effects	No	
Year Fixed Effects	Yes	
R-squared	0.387	
N (firm-years)	1,000	

Finally, the results of estimating equation (2c) are reported in Table 5. Similar to the estimation of equation (2b) in Table 4, the coefficient on ContractRisk is insignificant in Table 5. I am thus unable to reject the null hypothesis that ContractRisk is not related to the firm's subsequent abnormal investment. Unlike Abnormal_FutureCFO, Abnormal_Investment exhibits substantial variation (standard deviation = 6.174 in Table 1), but the coefficients of variation are low relative to standard errors.

Taken together, the results in Table 3, Table 4, and Table 5 are consistent with corporate political influence being negatively associated with government contract risk. This result is robust to multiple measures of political influence. There is some evidence that contract risk is predictive of diminished future firm operating performance, suggesting that the allocation of fixed-price contracts is costly to firms. While the use of cost-reimbursable contracts reduces costs borne by firms, additional costs may be imposed on the government. For example, firms exploit the discretion available under cost-reimbursable contracts to shift additional costs to the government (Chen and Gunny 2015). There is also some evidence suggesting that firms perform less efficiently when the government exhibits weak contract oversight (Brogaard et al. 2016). While I do not make any prescriptive statements with regard to the allocation and design of procurement contracts, my results highlight the tradeoffs inherent in contract pricing terms. These results should be of interest to politicians, contracting officers, and persons involved in designing

government contracts that balance risk-sharing and cost efficiency for the government.

6.4 Additional Analyses

Table 6 is reports the results of a sensitivity analysis of the association between corporate political influence and government contract risk, restricting the sample to 852 firm-years with non-zero PAC contributions.[44] Because ContractRisk assumes values between zero and one, this sensitivity analyses is important to mitigate concerns that firms with no PAC contributions drive the results reported in Table 3 Panels A and B. In general, the results in Table 6 are consistent with prior results. Both WinningPAC and CDOverlap are negative and significant (coefficients = -0.117 and -0.144, respectively). The coefficient on TotalPAC in Table 6 is insignificantly related to ContractRisk. One potential explanation for this result in is that, conditional on making non-zero PAC contributions, the total dollar value of those contributions is unassociated with government contract risk. However, PAC contributions to winning candidates and candidates whose Congressional district coincides with the location of performance for at least one government contract are associated with reduced contract risk. WinningPAC is a cleaner measure of firms' influence over key politicians than is TotalPAC, and CDOverlap is a proxy of the firm's influence on politicians with stronger incentives to favor the firm in the design and allocation of procurement contracts.

[44] I omit the regression of ContractRisk on KeyPAC in Table 6 due to the insignificance of this proxy in prior analyses.

Table 6 - Tobit Regressions of Government Contract Risk on Corporate Politicial Influence and Controls for Firms with Positive PAC

Dependent Variable = ContractRisk

	(1a)			(1b)			(1d)	
TotalPAC	-0.037		WinningPAC	-0.117	***	CDOverlap	-0.144	***
	(0.061)			(0.005)			(0.007)	
logSize	-0.009	**		-0.006			-0.008	
	(0.004)			(0.007)			(0.005)	
Profitability	-0.106			-0.107	**		-0.109	
	(0.087)			(0.061)			(0.071)	
Leverage	0.067			0.095			0.084	
	(0.213)			(0.237)			(0.265)	
MTB	0.085	***		0.096	***		0.118	***
	(0.023)			(0.021)			(0.024)	
HHI	-0.127	***		-0.146	***		0.133	*
	0.005			(0.009)			(0.072)	
%DevContract	-0.326	***		-0.319	***		-0.281	***
	(0.049)			(0.054)			(0.059)	
MajorSales	-0.133			-0.115			-0.128	
	(0.091)			(0.088)			(0.101)	
%GovContracts	0.354	***		0.366	***		0.412	
	(0.022)			(0.023)			(0.029)	
Industry Fixed Effects	Yes			Yes			Yes	
Year Fixed Effects	Yes			Yes			Yes	
Pseudo R-squared	0.195			0.214			0.203	
N (firm-years)	852			852			852	

In a final set of analyses (untabulated), I divide firm-years into deciles of PAC contributions. I then form a sample comprised of firm-years in the top and bottom deciles of corporate political influence. I regress ContractRisk on an indicator for being in the top decile of political influence as well as the controls included in Table 3. Being in the highest decile of PAC contributions is associated with marginally significant and reduced government contract risk, relative to firms in the lowest decile of political influence. In additional analyses, I stratify firms into quintiles and quartiles of PAC contributions to assess whether less extreme variation in political influence is similarly associated with reduced government contract risk. I am not able to reject the null hypothesis under these alternative specifications.

7.0 CONCLUSION

In this paper, I provide evidence that corporate political influence is associated with the characteristics of government procurement contracts. Specifically, greater influence is associated with the allocation of less risky (from the firm's perspective), favorably-priced government procurement contracts. Additionally, contract risk is predictive of future firm performance; greater government contract risk is associated with lower subsequent firm operating performance. These results are consistent with politically influential firms capturing key Federal politicians, and also receiving favorable government procurement contract outcomes.

Politicians have a fiduciary duty to their constituents, including the stewardship of taxpayer-generated revenues. As such, disinterested politicians should prefer that firms be allocated more risky, fixed-price procurement contracts. In contrast, my results suggest that the contracting process can be distorted when politicians may obtain private benefits from serving the interest of corporate shareholders. The wealth effects of government procurement contracting, including contract pricing terms and contract risk, have clear implications for numerous stakeholders in the public and private sectors. I do not make prescriptive statements regarding optimal government procurement contract design. Rather, my results highlight the complexity of the procurement process and underscore the importance of careful consideration of *all* costs and benefits in the allocation and design of procurement contracts.

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