The effect of political connections on earnings management: The evidence from government suppliers

Thanh Ngo[1] and Jurica Susnjara[2,*]

[1]East Carolina University

[2]Texas State University

[*]contact author, juricas@hotmail.com

Abstract

This study examines earnings management among US suppliers to various types of government agencies relative to those firms without government contracts, with government sales serving as a proxy for political connections. On a sample of 16,995 firms that includes 2,548 government suppliers, we find government suppliers engaging in more earnings management. We also find that the level of sales to government agencies is positively related to the degree of earnings management. We find this to be the case for both types of earnings management: accruals management as well as two measures of the costlier real activities manipulation (discretionary expenditures and abnormal production). Our results are robust to endogeneity concerns.

Introduction

Earnings management has been studied extensively in finance and related fields. Most of the empirical studies focused on the "purely" accounting methods of accruals management. More recently, especially since the series of accounting scandals that led to the passage of Sarbanes-Oxley Act early in this century (Enron, Worldcom, Tyco), the focus has been on the less detectable but perhaps costlier real earnings management[1] (Cohen et al, 2008; Ibrahim et al, 2011). Unlike accruals management, which reverses in subsequent years and typically has no effect on cash flows, real earnings management affects operations of the company and therefore its future cash flows (Graham et al, 2005; Gunny, 2010; Kim and Sohn, 2013). Most of the time, these non-accrual attempts to manage earnings upwards have negative effects on cash flows.

This study examines earnings management in the context of politically connected firms (PCFs). The effect of political connections on a firm's financial wealth and its decision making has also been examined recently (Acharya et al, 2015; Borisova et al, 2015; Cull et al, 2015; Shen et al, 2015). However, most of the PCF studies follow the Faccio (2006) definition of political connections: having a top corporate officer either in government or with a strong connection to a government official. This particular type of political connection is not very prevalent in the United States, where government ownership is less prevalent (Borisova et al 2015, Houston et al 2011). In a study most similar to ours, Braam et al (2015) examine the effect of political connections (defined as in Faccio, 2006) on earnings management on a global sample. Out of 2,786 US firms in their sample only 10 (0.36%) qualify as PCFs. By contrast, among non-US firms in their sample

[1] We use the terms "real earnings management" and "real activities manipulation" interchangeably throughout the study, as both terms are used in recent literature

19.78% qualify as PCFs. While US may exhibit low levels of political influence on corporate behavior, it is possible that the Faccio (2006) definition understates that influence.

Consequently, we focus on an alternative proxy for political connections: the firm's sales to government agencies. Government contracts can be viewed as both tangible evidence and consequence of existing political connections (Faccio, 2006; Goldman et al, 2013; Tahoun, 2014). A government contract without an existing political connection may also create an ongoing association and a de facto future political connection. As such, it allows us to potentially capture a greater share of PCFs in a country whose legal system may not be as conducive to more direct political connections, such as United States.

All firms may have reasons to manage earnings; see Datta et al (2013) for a detailed discussion of different motivating factors. All those firms are also faced with balancing the benefits of managed earnings with the associated costs. Those costs include future earnings revisions and accompanying scrutiny (from lenders, regulatory bodies, and other) when engaging in accruals management, and potentially adverse financial effects when engaging in real activities manipulation. A growing body of literature on politically connected firms shows that the pressures they face can be different from those faced by non-PCFs. For example, banks have been shown to be less concerned with the quality of earnings of politically connected firms (Chaney et al, 2011; Houston et al, 2014). Government suppliers[2] may have less to fear when it comes to regulatory pressures due to their de facto political connections, especially when connected to the federal government (Brockman et al, 2013). Government suppliers may also have less to fear when it

[2] We use the terms "government contractors" and "government suppliers" interchangeably throughout the study

comes to future adverse effects of real activities management if they can count on a steady flow of government contracts.

The primary purpose of this study is to examine whether this distinctiveness of government suppliers extends to earnings management as well, across different types of government agencies and different types of earnings management. Government suppliers are matched with non-government suppliers using different combinations of year, industry, size and book-to-market variables. We find that government suppliers do, indeed, engage in more earnings management. Higher proportion of sales coming from government agencies results in more real earnings management, proxied by both discretionary expenses and abnormal production, regardless of the type of government involved (federal, state, local or foreign). Higher proportion of sales coming from government agencies results in more accruals management, but only for sales to federal government agencies.

To address endogeneity/self-selection concerns, we employ Heckman's (1979) two-stage self-selection model. We first estimate a probit regression of the probability of a firm having a government agency as its customer. We then use this predicted probability (propensity) to identify the non-government supplier that is the closest match to our government suppliers (in addition to matching on year and industry). We then repeat our matched-sample analysis of different measures of earnings management and find that government suppliers still engage in more earnings management (real and accruals).

As a robustness check, we use alternative proxies for earnings management, suggested by Lang et al (2003), among others. Firms with zero or negative earnings have an incentive to report positive earnings; relatively high proportion of firms with small positive earnings would indicate earnings management. Firms also have an incentive to spread out large losses; a relatively high proportion of firms with large negative earnings would indicate a lack of earnings management. In two separate logistic regression, we use a firm reporting small positive earnings or large negative earnings as explanatory variables with the government supplier dummy being the dependent variable. We find that there is a firm reporting small positive earnings means increased likelihood of being a government supplier; no relationship is reported for firms with large negative earnings.

As a whole, our results show that government suppliers are more likely to engage in earnings management, both accruals management and real activities management. We attribute this to government suppliers being less concerned with the costs normally associated with earnings management. Our study contributes both to the earnings management literature as well as to the growing literature on politically connected firms. The remainder of the paper consists of a literature review, hypotheses, data and methodology, results, and conclusion.

Literature review and hypotheses

Earnings Management

Earnings management has been well documented in finance literature as well as in related fields, and the motivation of firms for earnings management may vary. Graham et al (2005) survey CFOs of which majority admit to real and/or accruals earnings management. Roychowdhury (2006) finds evidence of both kinds of earnings management. Collins and Hribar (2000) suggest that one type of motivating factor could be to boost stock prices. This could be done prior to seasoned equity offerings (Cohen and Zarowin, 2010), initial public offerings (IPOs), as well as stock-financed acquisitions (Adams et al, 2009; Erickson and Wang, 1999; Rangan, 1998; Teoh et al, 1998). Bushee (1998) reports reducing R&D to meet zero- or last-year's-earnings. Earnings management could also be done to obtain lower financing costs (DeChow et al, 1996), as well as to meet regulatory requirements (Yu et al, 2006). Earnings could even be managed downward prior to a management buyout (Perry and Williams, 1994).

Consequences of earnings management can be significant for the firms involved. Cohen, Zarowin (2010) find a decline in post-seasoned-equity-offering performance due to earnings management, with decline due to real activities manipulation more severe. DuCharme et al (2004) relate higher level of accrual management to more lawsuits and larger settlement amounts. Kao et al (2009) finds that Chinese state owned enterprise IPOs that report higher earnings have poorer first day and long run post-IPO performance, with those that manage earnings more (proxied by non-core earnings) performing worse. Teoh et al (1998) find similar underperformance post-IPO among US firms that manage earnings.

There are two distinct approaches to earnings management, and therefore distinct methods for measuring it. The accounting techniques to manage earnings are quantified through discretionary accruals, computed using some version of a Jones (1991) approach (Bartov et al, 2001; Cohen and Zarowin, 2010; Datta et al, 2013; DeChow et al, 1995; Hribar and Collins, 2002; Kothari et al, 2006). The economic/operational techniques to manage earnings involve "real activities" and are therefore often called real activities management. Studies that attempt to quantify real activities management most often use some combination of variables proposed by Roychowdhury (2006). All these variables are discussed in detail below, in the Earnings Management part of the Data and Methodology section.

Most of the 20th-century studies on earnings management focused on accounting techniques and accruals management. Early 2000s saw a series of accounting scandals that resulted in the two largest ever bankruptcies up to that point in time, Enron and Worldcom. These bankruptcies led directly to the passage of the Sarbanes-Oxley Act (SOX) in 2002 (Akhigbe and

Martin, 2006). This law had, among its many consequences, made chief financial officers more accountable for earnings restatements (Collins et al, 2009).

Ibrahim et al (2011), on a study of seasoned equity offerings, find that post-SOX investors are more likely to identify accruals-based earnings management; they find no change in ability of investors to identify real earnings management. They find a shift from accruals-based to real earnings management, confirming Cohen et al (2008). Zang (2012) explains further the decision to engage in different types of earnings management in terms of the relative costs associated with them in the post-SOX environment.

Most of the earnings management studies in recent years have included real activities management alongside accruals management. Braam et al (2015) document both types of earnings management on a global sample. Cohen and Zarowin (2010) and Ibrahim et al (2011) do so among seasoned equity offerings. Wongsunwai (2013) finds earnings management of both types among IPOs. Any study of earnings management that does not include real activities manipulation is therefore likely to understate the real magnitude of earnings management.

Roychowdhury (2006) lists variables that are typically used to explain the cross-sectional variation in earnings management among firms. Governance structure, internal or external, is in particular likely to influence the degree of earnings management. Weaker disciplinary environment in general (internal or external) has been shown to lead to more earnings manipulation (Becker et al, 1998; Bowen et al, 2008; Guidry et al, 1999). Datta et al (2013) find that firms with less market pricing power (lower operating margin relative to industry) and those in more competitive industries engage in more earnings management. Klein (2002) finds strong internal governance leading to less abnormal accruals. Becker et al (1998) find that having a Big 5 auditor leads to less discretionary accruals.

The general conclusion in the literature is that better governance leads to less earnings management, with rare exceptions like Larcker et al (2007) showing mixed results. Beasley (1996), DeChow et al (1995), and Klein (2002) document that poor corporate governance leads to weaker financial controls and more financial statement fraud. Jiang et al (2008) find that higher firm-level corporate governance results in lower absolute discretionary accruals and higher quality of earnings. Among variables that have been found to reduce earnings management are institutional ownership (Del Guercio and Hawkins, 1999; Hartzell and Starks, 2003; McConnell and Servaes, 1990; Nesbitt, 1994; Smith, 1996), smaller board size (Del Guercio and Hawkins, 1999), and outside directorship (Beasley 1996).

Politically Connected Firms (PCFs)

Economic consequences to PCFs have been studied extensively since the game-theoretical work of Shleifer and Vishny (1994). There have been many single-country studies that have focused on the benefits of those connections to PCFs: Shen et al (2015) in Taiwan, Khwaja and Mian (2005) in Pakistan, Claessens et al (2008) in Brazil, Johnson and Mitton (2003) in Malaysia, Fisman (2001) and Leuz and Oberholzer-Gee (2006) in Indonesia. The most studied single country has been China; Chen et al (2009), Calomiris et al (2010), Wu et al (2012), Francis et al (2009), Fan et al (2008), Li et al (2008), Cull et al (2015), Chan et al. (2012) all find various advantages to firms having political connections in China. Those advantages involve some combination of subsidies and tax benefits, favorable access to equity markets, and preferential treatment from banks.

Most, but not all, cross-country studies of PCFs also find advantages to political connections. Chaney et al. (2011) show that PCFs are not penalized by borrowers for lower quality disclosures. PCFs get preferential treatment from state-owned banks (Backman, 2001; Boubakri et al., 2013; Charumilind et al., 2006; Dinç, 2005; Sapienza, 2004) as well as government bailout guarantees (Boubakri et al., 2013; Faccio et al., 2006). Faccio (2006) finds that contracts may be awarded to PCFs. PCFs have also been found to have lower cost of equity (Boubakri et al, 2012), pay lower taxes and have greater market shares (Faccio, 2010), as well as better access and help with navigating regulations (Brockman et al, 2013).

Other studies have found negative consequences to political connections, typically stemming from PCFs following political rather than shareholder-wealth-maximizing objectives (Boubakri et al, 2013). This can lead to poorer accounting performance (Faccio, 2010; Boubakri et al, 2008). Political connections can make earnings forecast more difficult, and that difficulty rises in more corrupt countries (Chen et al, 2010). Country-level political connectedness can also lead to country-level earning opacity (Riahi-Belkaoui, 2004).

PCFs and Earnings Management

Corporate governance has been shown to influence earnings management. Liu and Lu (2007) find that, in China, firms with higher levels of corporate governance engage in less earnings management. Zhao et al (2012) find that takeover protections like staggered boards reduce real earnings management. Zhao and Chen (2008) and Armstrong et al (2012) find that takeover protections mitigate accruals management. DeChow and Sloan (1991) and Bens et al (2002) argue that real earnings management stems from agency problems and managers expropriating from shareholders (e.g. executives near the end of tenure reducing R&D). Bhojraj and Libby (2005) argue that earnings management is driven by external market pressures. Roychowdhury (2006) shows that real earnings management is less prevalent when sophisticated investors are present.

Previous studies suggest that different types of ownership have an effect on the quality of financial reporting, be it family (Chen et al, 2010), private equity (Katz, 2009), or venture capital (Wongsunwai 2013, Liu 2014) ownership. In particular, Wongsunwai (2013) finds that having higher quality venture capitalists (VCs) result in less earnings management. Previous studies also found that VC-backing resulted in lower abnormal accruals (Morsfield and Tan, 2006; Hochberg, 2012). Other types of insiders may not have such a positive effect, as Leuz et al (2003) argue that insiders use earnings management to conceal private benefits from outsiders.

Government control of firms can be viewed as a negative, fostering suboptimal investing and bribes (La Porta et al, 2002; Shleifer and Vishny, 1994), or as positive, vital in curtailing monopolistic behavior and similar market imperfections (Shleifer 1998). Liu et al (2014) state that the effect of government involvement on financial reporting depends on country's investor protection: in civil law countries with higher risk of expropriation, firms will manage earnings down, to give expropriators nothing to expropriate; in common law countries with better investor protection, firms will report earnings aggressively.

The exact effect of political connections on the degree of earnings management is yet unclear. Braam et al (2015) state that the motivation of PCFs when it comes to earnings management is different: they have greater fear of being detected, and of benefits of political connections being detected. As such, their motivation includes not just potentially meeting certain earnings targets but actively hiding perks of political connections. Li et al (2016) find that after a tax-law change in China, only PCFs engaged in tax-induced earnings management: they were more likely to end up paying less if caught, as well as less likely to get caught in the first place. While Chaney et al (2011), Ramanna and Roychowdhury (2010) and Riahi-Belkaoui (2004) find that

PCFs have lower earnings quality, Guedhami et al (2014) find PCFs have less earnings management and lower cost of equity.

Government supplier firms (GSFs) as political connections in the US

US and similarly developed countries are typically under-represented in cross-country PCF studies. Braam et al (2015) look for a relationship between political connections and earnings management, but using the Faccio (2006) definition of political connections yields only 10 out of 2,786 (0.4%) US firms in their sample being classified as PCFs (as opposed to nearly 20% for the rest of their sample). This is due to several factors: government ownership being less prevalent (Borisova et al. 2015, Houston et al. 2011), bank lending being under lesser government influence (La Porta et al., 2002; Dinç¸ 2005; Beck et al. 2006), PCFs in general being less prevalent in less corrupt countries and those with greater judicial independence (Boubakri et al 2008) and stronger legal systems (Faccio 2006). This can profoundly affect studying a role of PCFs in an economy, as Brockman et al (2013) find that politically connected bidders underperform (outperform) in countries with strong (weak) legal systems and low (high) corruption. In more direct consequences for earnings management, Liu et al (2014) show that the effect of government involvement on financial reporting depends on country's investor protection, and Leuz et al (2003) that earnings management decreases with investor protection.

To address this issue, we focus on government contracts as a proxy for political connections. Faccio (2006) globally and Goldman et al (2013) domestically find evidence of preferential treatment for PCFs, including preferential treatment in competition for government contracts. This indicates that government contracts may indeed be a proxy for political connections. Tahoun (2014) finds that US firms with strong politician ownership–contribution relationship are awarded more government contracts.

Government contracts may also help with the issue of the Faccio (2006) PCF definition underestimating the true extent of political connections, especially in a country like the US. Some prior political connections that result in attainment of government contracts may not be captured by the Faccio (2006) definition. Even political connections captured by Faccio (2006) definition may be considered stronger once they have materialized in the form of government contracts. In other instances, a government contract obtained without a prior political connection may create an ongoing business association and a de facto political connection for future use, also not captured by the Faccio (2006) definition.

Hypotheses

Previous research on political connections indicates that PCFs are under less pressure to be transparent and forthcoming toward their investors. For example, Chaney et al (2011) and Houston et al (2014) show that financial institutions that lend to PCFs may be less concerned with the quality of their earnings. More directly applicable to our proxy for political connections, Brockman et al (2013) show that government suppliers may have less to fear when it comes to regulatory pressures due to their de facto political connections, especially when their contracts are with the US federal government.

We therefore hypothesize that firms with sales to government agencies engage in more earnings management. Following current literature (Braam et al, 2015; Cohen and Zarowin, 2010; Ibrahim et al, 2011; Wongsunwai, 2013; Zang, 2012), we use two definitions of earnings management: accruals management and real activities manipulation. We hypothesize that government suppliers (GSFs) engage in both to a greater extent relative to non-GSFs. We also hypothesize that the degree of both accruals management and real activities manipulation is positively related to the proportion of sales coming from government agencies.

Data and methodology

Sample

We identify our sample of government contractor firms from Compustat Segment Customer file. The database reports the identity of any customer accounting for more than 10% of the total sales of the firm according to FASB No. 14 and FAS No. 131. The customers are further classified into (1) corporate customers (customer type = "COMPANY"), (2) government customers including domestic (federal) government agencies (coded as "GOVDOM" in customer type field), foreign government agencies (GOVFRN), state government agencies ("GOVSTATE") and local government agencies ("GOVLOC") or (3) market customers ("MARKET"). Our sample includes 2,548 government contractor firms (16,955 firm-year observations) during the period from 1980-2014. These firms have data available in both COMPUSTAT and CRSP.

In Table 1, we report the sample distribution by year (in Panel A) and by Fama-French 48 sector classifications (in Panel B). The distribution of the firms throughout the sample period is proportional. As expected, business service (BUSSV – 11.27%), computer technology (CHIPS – 11.23%), healthcare (HLTH – 7.56%), and computers (COMP – 6.91%) account for a significant fraction of the sample.

Matching firm identification

We construct 3 alternative matching portfolios of firms that do not have government agencies as customers, and compare earnings management of these firms with that of the sample firms. The first matching portfolios include all firms in the same year and same Fama-French 48 sector classification. The second matching portfolios include all firms in the same year, same

Fama-French 48 sector classification and same size quintile as the sample firm. The third matching portfolios include all firms in the same year, same Fama-French 48 sector classification, same size quintile and same market-to-book ratio as the sample firm.

In Panel A of Table 2, we report the summary statistics of the sample firm characteristics. The mean market capitalization of government contractor firms is $1,554.76 million, significantly higher than the median market capitalization of the sample ($90.867 million). Such stark difference suggests that there are extreme large government contractor firms in our sample, including General Electric Co., United Technologies Corp., Boeing and IBM. The average market-to-book ratio of government contractor firms are 3.286 (median = 1.561). In Panel B of Table 2, we report the summary characteristics of each of the 3 matching firm portfolios. We compare and contrast the characteristics of the sample government contractor firms and the 3 matching firm portfolios in Panel C. Despite our attempt to identify the closest matching firm portfolios, there are significant differences in market capitalization between the sample government contractor firms and the 3 matching firm portfolios. The sample government contractor firms are larger in size than the 3 matching firm portfolios.

Earnings Management

Accrual-based earnings management (AM)

Following previous research (Dechow et al, 1995; Rangan, 1998; Sloan, 1996; Young, 1999; Xie et al, 2003), we use discretionary accruals to proxy for accrual-based earnings management. Discretionary accrual refers to the difference between a firm's actual level of accruals and its expected normal level of accruals. We use the following modified Jones (1991) model to estimate the accruals:

$$\frac{Accruals_{i,t}}{A_{i,t-1}} = \alpha_0 + \alpha_1 \left(\frac{1}{A_{i,t-1}}\right)^3 + \alpha_2 \left(\frac{\Delta SALES_{i,t}}{A_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}}\right) + \varepsilon_{i,t} \tag{1}$$

where $Accruals_{i,t}$ is the earnings before extraordinary items and discontinued operations *minus* the operating cash flows from the statement of cash flows (net cash flow *minus* total receivables) of firm i in year t. $A_{i,t-1}$ is the total asset of firm i in year $t-1$, $\Delta SALES_{i,t}$ refers to the change in sales from the preceding year of firm i, and $PPE_{i,t}$ is the total gross value of property, plant and equipment of firm i in year t. $\varepsilon_{i,t}$ is the residual that represents abnormal discretionary accruals, which is used as a proxy for accrual-based earnings management (AM) of firm i in year t.

Real Activities Manipulation (RM)

We follow Zang (2012) in our construction of two measures of real activities manipulation, abnormal discretionary expenses and abnormal production costs. These measures are based on prior work of Roychowdhury (2006)[4] and used extensively in similar studies.

To estimate the abnormal level of production costs, we use the following model:

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{i,t-1}}\right) + \beta_2 \left(\frac{Sales_{i,t}}{A_{i,t-1}}\right) + \beta_3 \left(\frac{\Delta Sales_{i,t}}{A_{i,t-1}}\right) + \beta_4 \left(\frac{\Delta Sales_{i,t-1}}{A_{i,t-1}}\right) + \mu_{i,t} \tag{2}$$

where $PROD_{i,t}$ is the sum of the cost of goods sold in year t and the change in inventory from year $t-1$ to t; A_{t-1} is the total assets of firm i in year $t-1$; $Sales_{i,t}$ is the net sales of firm i in year t; and $\Delta Sales_{i,t}$ is the change in net sales of firm i from year $t-1$ to t. The abnormal

[3] It is standard in the literature to use both scaled and unscaled intercepts. This is done to, among other things, avoid a spurious correlation among variables and insure that mean abnormal CFO is zero, respectively.

[4] Roychowdhury (2006) constructs a third measure as well, abnormal cash flows from operations, but cautions on page 341 that "the net effect [of real activities manipulation] on abnormal CFO is ambiguous."

level of production cost (RM_PROD) is measured as the residuals from equation (4) $\left(\mu_{i,t}\right)$. The higher the residual, the larger is the amount of abnormal production costs, and the greater is the increase in reported earnings through real activities manipulation.

We estimate the abnormal level of discretionary expenditure using the following model:

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \gamma_0 + \gamma_1\left(\frac{1}{A_{i,t-1}}\right) + \gamma_2\left(\frac{Sales_{i,t-1}}{A_{i,t-1}}\right) + e_{i,t} \qquad (3)$$

where $DISX_t$ is the discretionary expenditures (i.e., the sum of R&D, advertising, and SG&A expenditures) of firm i in year t; A_{t-1} is the total assets of firm i in year $t-1$; $Sales_{i,t}$ is the net sales of firm i in year t. The abnormal level of discretionary expenditures (denoted as RM_DISX) is measured as the residuals from the regression $\left(e_{i,t}\right)$. The lower the residuals, the lower the abnormal discretionary expenses, which suggest that firms cut down discretionary expenses excessively to inflate their earnings. We multiply the $RM\_DISX_{i,t}$ variable by -1 so that the higher the variable is associated with higher earnings management.

We estimate Equations (2) and (3) cross-sectionally for each industry-year with at least 15 observations, where industry is defined following the Fama and French 48-sector industry classification.[5] We report the regression results of equations (2) and (3) in Appendix 1. We follow Cohen et al (2008) and Zang (2012) to aggregate the two individual measures of real activities manipulation into one measure of total real earnings management (RM). The higher the value of this aggregate measure, i.e., RM, the more likely the firm is engaged in real activities manipulation (Zang, 2012).

$$RM_{PROD_{i,t}} + RM\_DISX_{i,t} = RM_{i,t} \qquad (4)^{6}$$

[5] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_48_ind_port.html
[6] We multiply RM_DISX by -1 such that the higher the value of RM_DISX, the larger the amount of discretionary expenditure cut by the firm to inflate reported earnings. This transformation allows us to express the signs of RM_DISX and RM_PROD in the same manner (i.e., positive values suggest real activities manipulations) and to be able to add both to obtain the composite score of RM (similar to Cohen et al (2008) and Zang (2012)).

Results

Comparison of earnings management between government contractors and matching firms

In Table 3, we report the summary statistics of the earnings management variables for the government contractor firms (Panel A) and for the 3 alternative matching firm portfolios (Panel B). In Panel C, we compare and contrast the differences in earnings management activities between the government contractor firms and the matching firm portfolios. Government contractor firms exhibit significantly higher earnings management levels, both discretionary accruals earnings management and real earnings management, than the 3 alternative matching portfolios.

In Table 4, we perform the cross-sectional analyses of the earnings management level on whether the firm is a government contractor while controlling for other variables proxied for the costs and benefits of engaging in earnings management. We follow the model specification and the choice of the explanatory variables suggested by Zang (2012) in our regressions of firm earnings management as follows:

$$\begin{aligned} EM_{i,t} = k_0 + k_1 GOV_{i,t} + k_2 MKTSHARE_{i,t-1} + k_3 ZSCORE_{i,t-1} + k_4 INST_{i,t-1} \\ + k_5 TAX_{i,t-1} + k_6 BIG8_{i,t} + k_7 SOX_{i,t} + k_8 NOA_{i,t-1} \\ + k_9 OPERCYCLE_{i,t-1} + k_{10} ROA_{i,t} + k_{11} LN(AT)_{i,t} + k_{12} MKBK_{i,t} \\ + k_{13} EARNINGS_{i,t} + k_{14} RES\_RM_{i,t} + u_{it} \end{aligned} \tag{5}$$

Where $EM_{i,t}$ is the earnings management level of firm *i* in year *t*. We look into two types of earnings management activities: (1) real activities manipulation (*RM*) and (2) accruals-based earnings management (*DA*). The three measures of real activities manipulation include: (1) abnormal discretionary expenses (*ABDISX*), (2) abnormal production costs (*ABPROD*) and (3) total real earnings management (*RM*). We describe the construct of these three variables in the section above.

The independent variable of interest is GOV. It is a dummy variable coded as 1 for government contractor firms and 0 for matching firm portfolios. In subsequent analyses, we also capture the extent of firm dependence on sales generated from government customers using continuous variables. GOVDOMSALE, GOVSTATESALE, GOVLOCSALE and GOVFRNSALE are the fractions of firm sales generated from domestic (federal), state, local and foreign governmental agencies, respectively.

The constructs of the control variables are described as follows. $MKTSH$ is the ratio of a company's sales to the total sales of all the firms in the same industry based on the Fama-French (1997) 48-sector industry classification; $ZSCORE_t$ is a modified version of Altman's Z-score (Altman 1968, 2000) — a proxy for financial condition. Higher values for $ZSCORE$ indicate a healthier financial condition and a lower cost associated with real activities manipulation. The $ZSCORE$ is computed as follows:

$$\begin{aligned} ZSCORE_t = {} & 0.3\frac{NI_t}{Asset_t} + 1.0\frac{Sales_t}{Asset_t} + 1.4\frac{Retained\ Earnings_t}{Asset_t} \\ & + 1.2\frac{Working\ Capital_t}{Asset_t} + 0.6\frac{(Stock\ Price \times Shares\ Outstanding)_t}{Total\ Liabilities_t} \end{aligned} \tag{6}$$

$INST$ is the percentage of firm shares held by the respective institutional owners. We control for year fixed effects, industry fixed effects and correct the standard errors for the firm-level clustering effects. *TAX* is the marginal tax rate. *BIG8* is the dummy variable for firms whose auditor is among the big 8 auditors. *SOX* is the dummy variable for the years after 2003. *NOA* represents net operating assets at the beginning of the year and serves as a proxy for the extent of accrual management in previous periods and is calculated as:

$$\frac{Shareholders' Equity_{t-1} - Cash\ and\ Marketable\ Securities_{t-1} + Total\ Debt_{t-1}}{Sales_{t-1}} \qquad (7)$$

OPERCYCLE is computed as the days receivable *plus* the days inventory *less* the days payable at the beginning of the year; *ROA* represents the return on assets. *LN(AT)* represents the natural logarithm of total asset; $MKBK$ is the market-to-book ratio. *EARNINGS* is the earnings before extraordinary items minus discretionary accruals and production costs, plus discretionary expenditures.

Zang (2012) finds an inverse association between the use of real activities manipulation and accruals-based earnings management and explains that managers tend to favor real activities manipulation during the year and then adjust the accruals at the end of the year if needed. Following Zang (2012), we first estimate equation (5) with the *RM* as the dependent variable and obtain the residuals as a proxy for the unexpected level of real activities manipulation and include this new variable (RES_RM) in the estimation of equation (5) with the *DA* as the dependent variable.

The results in Table 4 show that government contractors exhibit significantly higher real earnings management activities and discretionary accruals earnings management. This is true for all of our proxies for earnings management: discretionary expenditures, abnormal production, the composite real activities measure, and discretionary accruals. We also find that, once we control for the government sales, there is a positive relationship between the two types of earnings management: abnormal levels of real activities management coincide with accruals management.

Comparison of earnings management between quartiles of sales fraction generated from government customers

In Panel A of Table 5, we report the profile of the government customers of the sample government contractor firms. In total, a domestic (federal) government agency accounts for 31.3% of the sample firm total sales, while local, state and foreign government agencies account for much smaller firm sales. We then compare and contrast the earnings management levels between the subsamples with low vs. high fraction of sales generated by domestic (federal) government agency customers (in Panel B), state government agency customers (in Panel C), local government agency customers (in Panel D), and foreign government agency customers (in Panel E). The analyses in this table apply only to government contractor firms. Consistent with prior results, the higher the fraction of total firm sales generated from government customers, the higher the level of earnings management, with the only exception being measuring the effect of sales to local government agencies on discretionary expenditures.

In Table 6, we report the cross-sectional analyses of earnings management on the fraction of firm sales generated by various government customer types. The coefficients on the GOVDOMSALE, GOVSTATESALE, GOVLOCSALE and GOVFRNSALE are positive and significantly related to the ABPROD, ABDISX and RM variables, suggesting higher level of real earnings management (real activities manipulation) among government contractors with a higher proportion of sales generated from domestic (federal) government customers, state government customers, local government customers and foreign government customers.

Results in Table 6 also suggest that the discretionary accruals (as a proxy for accruals management) are only affected by the sales to domestic (federal) government agencies. The level of accruals management may be partly influenced by the fear of prosecution in the post-SOX regulatory environment (Ibrahim et al, 2011; Cohen et al, 2008; Zang, 2012). Stronger political connections to the US federal government proxied for (or established by) contracts to government agencies may help alleviate those fears among US firms in the way that ties to state, local or foreign governments may not.

Endogeneity and self-selection issue

As we mention earlier, despite our attempt to identify the closest matching firm portfolios, there are significant differences in market capitalization and return on assets between the sample government contractor firms and the 3 matching firm portfolios, implying that government contractor firms are inherently different from non-government contractor firms. As such, we employ a two-stage Heckman self-selection model to address such endogeneity and self-selection issue.

We first estimate a probit regression of the probability of a firm having a government agency as its customer using the whole universe of firms that have data in all three databases Compustat, CRSP and IBES. We follow Faccio (2010) to include firm age, size, market-to-book ratio and debt ratio as the explanatory variables in the probit regression. We then obtain the predicted probability for a firm to have a government agency customer from the probit regression. We match each sample firm with a firm without government-agency customers in the same year, same Fama-French 48 sector classification and the closest predicted probability (4,968 propensity score matched firms). This matching procedure allows us to control for firm characteristics that drive the firm to have government customers in the first place and address potential selection bias and endogeneity.

In Panel A of Table 7, we report the results from three logistic regression specifications based upon the whole universe of firms that have data in both databases Compustat and CRSP. We control for year and industry fixed effects and correct the standard errors for firm-clustering effects in these regressions. The regressions correctly classify up to 86% of the pooled sample. Consistent with the results documented by Faccio (2010), firms with government agency customers tend to be larger in size, more mature and highly leveraged as compared to firms without government agency customers. We then obtain the predicted probability to identify the non-government supplier firm in the same year, same industry and with the closest predicted probability (or propensity score) for each of the sample government-supplier firm. In Panel B of Table 7, we compare the market capitalization and the market-to-book ratio of the government contractor firms and the propensity matching firms. There is no consistent significant evidence of the difference in the market capitalization and the market-to-book ratio of the government contractor firms and the propensity matching firms in both the t-test and the non-parametric Wilcoxon test.

In Table 8, we report the cross-sectional analyses of earnings management on the government contractor dummy variable for all government contractor firms and the propensity matching firms. The coefficient on the GOV dummy variable is positively and significant, confirming prior evidence of more earnings management activities among government contractor firms.

Alternative measures of earnings management

In this section, we consider alternative measures of earnings management. Lang et al. (2003) suggest that earnings management can be evident among firms with small positive net income where managers massage the earnings number so as to be able to report a positive (yet small) net income figure. Alternatively, Ball et al. (2000) use a firm's willingness to recognize large losses as they occur, as opposed to spreading them over multiple periods, as a proxy for earnings quality. Spreading large losses out should make them relatively rare and difficult to observe. As such, the existence of large negative net income might indicate the willingness of the firm to report large losses and less earnings management. If government contractor firms engage in more earnings management as documented in earlier results, then we should observe a positive relationship between the existence of small positive net income and the status of being government contractor, and a negative relationship between the existence of large negative net income and the status of being government contractor. To test such conjecture, we estimate the following logistic regressions:

$$\begin{aligned} GOV_{i,t} = k_0 &+ k_1 LN(AT)_{i,t} + k_2 GROWTH_{i,t} + k_3 EISSUE_{i,t} + k_4 DEBT_{i,t} \\ &+ k_5 DISSUE_{i,t} + k_6 TURN_{i,t} + k_7 OCF_{i,t} + k_8 BIG8_{i,t} + k_9 LOSS_{i,t} \\ &+ k_{10} SPOS_{i,t} + u_{it} \end{aligned} \tag{9}$$

$$\begin{aligned} GOV_{i,t} = k_0 &+ k_1 LN(AT)_{i,t} + k_2 GROWTH_{i,t} + k_3 EISSUE_{i,t} + k_4 DEBT_{i,t} \\ &+ k_5 DISSUE_{i,t} + k_6 TURN_{i,t} + k_7 OCF_{i,t} + k_8 BIG8_{i,t} + k_9 LOSS_{i,t} \\ &+ k_{10} LNEG_{i,t} + u_{it} \end{aligned} \tag{10}$$

In the above regressions, the dependent variable is the dummy variable for government contractor firms *GOV*. The small positive net income *SPOS* variable is an indicator variable that is set to one for observations with annual net income scaled by total assets between 0 and 0.01

and set to zero otherwise (Lang et al., 2003). Large negative net income variable *LNEG* is an indicator variable set to one for observations for which annual net income scaled by total assets is less than -0.2 and set to zero otherwise. A significantly positive coefficient on *SPOS* suggests that government contractor firms are more likely to engage in earnings management, while a significant negative coefficient on *LNEG* suggests higher earnings quality. We control year and industry fixed effects in these regressions.

The other control variables are described as follows. *LN(AT)* is the natural log value of total assets. *GROWTH* is the growth rate in sales in the year. *EISSUE* is the percentage of change in common stock. *DEBT* is the debt-to-asset ratio. *DISSUE* is the percentage of change in total liabilities. *TURN* is the sales to total asset ratio. *OCF* is the annual net cash flow from operating activities, scaled by total assets. *BIG8* is a dummy variable equal to 1 if the firm's auditor is one of the Big 8, and 0 otherwise. *LOSS* is an indicator variable that equals one if the firm reports negative earnings for the year.

In Panel A of Table 9, we report the results from the logistic regressions specified in equations (9) and (10). The coefficient on the *SPOS* variable is positive and significant, suggesting that government contractor firms are more likely to engage in earnings management. The coefficient on the *LNEG* variable, however, is insignificant.

In Panel B of Table 9, we report the cross-sectional analyses of the fraction of sales generated from domestic government customers on the *SPOS* and *LNEG* variables using OLS regressions. Consistent with the results in Panel A, the coefficient on the *SPOS* variable is positive and significant, suggesting that government contractor firms are more likely to engage in earnings management. The coefficient on the *LNEG* variable, however, is insignificant.

Conclusion

We examine earnings management among US corporations within the context of sales to government agencies. Government contracts can be viewed as both proxies for and evidence of political connections. We examine various types of government agencies and different types of earnings management. Our sample covers the period from 1980-2014 and contains a total of 16,995 firms, among them 2,548 government suppliers. We find that firms that sell to government agencies engage in more earnings management. We also find that the level of sales to government agencies is positively related to the degree of earnings management, regardless of the type of government involved. We find this to be the case for both types of earnings management: accruals management as well as two measures of the costlier real activities manipulation (discretionary expenditures and abnormal production), with the exception being that higher accruals management is limited to firms that supply US federal government agencies. Our results are robust to endongeneity and self-selection concerns.

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Table 1 - Sample Distribution

Panel A - By Year

Year	Frequency	Percent
1980	392	2.31
1981	413	2.44
1982	468	2.76
1983	478	2.82
1984	504	2.97
1985	524	3.09
1986	518	3.06
1987	562	3.31
1988	697	4.11
1989	689	4.06
1990	686	4.05
1991	708	4.18
1992	721	4.25
1993	744	4.39
1994	732	4.32
1995	689	4.06
1996	651	3.84
1997	590	3.48
1998	509	3.00
1999	369	2.18
2000	361	2.13
2001	350	2.06
2002	380	2.24
2003	363	2.14
2004	362	2.14
2005	381	2.25
2006	380	2.24
2007	373	2.20
2008	359	2.12
2009	377	2.22
2010	363	2.14
2011	337	1.99
2012	315	1.86
2013	308	1.82
2014	302	1.78
Total	16,955	100

Panel B - By Industry

Industry	Frequency	Percent
AERO	584	3.44
AGRIC	19	0.11
AUTOS	258	1.52
BANKS	13	0.08
BEER	10	0.06
BLDMT	205	1.21
BOOKS	17	0.1
BOXES	51	0.3
BUSSV	1,910	11.27
CHIPS	1,904	11.23
CLTHS	78	0.46
CNSTR	326	1.92
COMPS	1,171	6.91
DRUGS	378	2.23
ELCEQ	592	3.49
FABPR	96	0.57
FIN	55	0.32
FOOD	70	0.41
FUN	18	0.11
GOLD	1	0.01
GUNS	173	1.02
HLTH	1,281	7.56
HSHLD	73	0.43
INSUR	317	1.87
LABEQ	785	4.63
MACH	426	2.51
MEALS	14	0.08
MEDEQ	360	2.12
MINES	5	0.03
OIL	144	0.85
PAPER	140	0.83
PERSV	145	0.86
RLEST	66	0.39
RTAIL	171	1.01
RUBBR	93	0.55
SHIPS	104	0.61
STEEL	169	1
TELCM	106	0.63
TOYS	30	0.18
TRANS	251	1.48
TXTLS	35	0.21
UTIL	1,183	6.98
WHLSL	306	1.8
OTHER	2,822	16.64

This table reports the sample distribution by year (in Panel A) and by industry (in Panel B).

Table 2 - Sample Firm and Matching Firm Portfolio Characteristics

Panel A - Sample Firms

Variables	25th percentile	Mean	Median	75th percentile
Market capitalization	18.724	1,554.760	90.867	607.089
Market-to-book ratio	0.977	3.286	1.561	2.653

Panel B - Matching Firm Portfolios

Variables	Matching portfolios of firms in the same 48 sector	Matching portfolios of firms in the same 48 sector and same size quintiles	Matching portfolios of firms in the same 48 sector and same size and same market-to-book quintiles
Market capitalization	1,050.080	1,110.410	1,180.940
Market-to-book ratio	3.04	2.363	3.139

Panel C - Sample firms minus Matching Firm Portfolios

Variables	Matching portfolios of firms in the same 48 sector	Matching portfolios of firms in the same 48 sector and same size quintiles	Matching portfolios of firms in the same 48 sector and same size and same market-to-book quintiles
Market capitalization	504.680	444.350	373.820
t-statistics	(4.469***)	(3.318***)	(4.346***)
Wilcoxon statistics	(7.433***)	(12.575***)	(41.807***)
Market-to-book ratio	0.249	0.923	0.147
t-statistics	(0.427)	(1.434)	(.491)
Wilcoxon statistics	(0.912)	(1.304)	(.555)

This table reports the summary statistics of the characteristics of the sample firms and the portfolios of matching firms. Three alternative portfolios of matching firms are constructed, including (1) the portfolios of all other firms in the same Fama-French 48 sector classification in the same year, (2) the portfolios of all other firms in the same Fama-French 48 sector classification and same market capitalization quintile in the same year, and (3) the portfolios of all other firms in the same Fama-French 48 sector classification, same market capitalization quintile and same market-to-book ratio quintile in the same year. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 3 – Comparison of Earnings Management Activities- Sample Firms vs. Matching Firm Portfolios

Panel A - Sample Firms

Variables	25th percentile	Mean	Median	75th percentile
DA	-0.031	0.035	0.026	0.102
ABDISX	-0.040	0.076	0.092	0.247
ABPROD	-0.078	0.031	0.012	0.125
RM	-0.121	0.079	0.109	0.343

Panel B – Matching Firm Portfolios

Variables	Matching portfolios of firms in the same 48 sector	Matching portfolios of firms in the same 48 sector and same size quintiles	Matching portfolios of firms in the same 48 sector and same size and same market-to-book quintiles
DA	0.020	0.022	0.024
ABDISX	0.033	0.026	0.034
ABPROD	-0.007	-0.006	-0.003
RM	-0.004	-0.014	-0.007

Panel C - Sample Firms minus Matching Firm Portfolios

Variables	Matching portfolios of firms in the same 48 sector	Matching portfolios of firms in the same 48 sector and same size quintiles	Matching portfolios of firms in the same 48 sector and same size and same market-to-book quintiles
DA	0.015	0.014	0.011
t-statistics	(8.769***)	(7.877***)	(7.065***)
Wilcoxon statistics	(16.775***)	(13.709***)	(10.642***)
ABDISX	0.043	0.049	0.042
t-statistics	(19.188***)	(19.795***)	(15.311***)
Wilcoxon statistics	(33.036***)	(29.900***)	(20.736***)
ABPROD	0.037	0.037	0.034
t-statistics	(21.094***)	(19.597***)	(16.743***)
Wilcoxon statistics	(17.865***)	(17.009***)	(14.189***)
RM	0.083	0.094	0.086
t-statistics	(20.402***)	(20.577***)	(16.637***)
Wilcoxon statistics	(33.365***)	(30.416***)	(22.256***)

In this table, I compare and contrast the earnings management measures between the sample firms and the portfolios of matching firms. Three alternative portfolios of matching firms are constructed, including (1) the portfolios of all other firms in the same Fama-French 48 sector classification in the same year, (2) the portfolios of all other firms in the same Fama-French 48 sector classification and same market capitalization quintile in the same year, and (3) the portfolios of all other firms in the same Fama-French 48 sector classification, same market capitalization quintile and same market-to-book ratio quintile in the same year. The construction of the earnings management measures is described in Appendix 1. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 4 - Regressions of Earnings Management Activities on Government Contractor Firm Status – Government Contractor Firms and Portfolios of Matching Firms in the Same Year, Same Industry, Same Size Quintile and Same Market-to-Book Ratio Quintile

Variables	***Model 1*** ABDISX	***Model 2*** ABPROD	***Model 3*** RM	***Model 4*** DA
Constant	-0.205	-0.036	-0.323	0.066
	(-16.483***)	(-3.733***)	(-16.119***)	(7.372***)
GOV	0.015	0.030	0.045	0.011
	(4.511***)	(11.928***)	(8.140***)	(5.151***)
MKTSHARE	-0.491	-0.122	-0.914	0.264
	(-4.816***)	(-1.674*)	(-5.566***)	(3.731***)
ZSCORE	5.533	4.851	12.030	-1.182
	(16.518***)	(18.734***)	(22.271***)	(-5.977***)
INST	0.026	-0.009	0.018	-0.019
	(2.966***)	(-1.490)	(1.314)	(-3.768***)
TAX	0.198	-0.047	0.239	-0.020
	(10.168***)	(-3.172***)	(7.612***)	(-1.511)
BIG8	-0.042	0.005	-0.041	-0.002
	(-8.407***)	(1.372)	(-5.113***)	(-0.606)
SOX	0.140	-0.021	0.125	0.093
	(9.115***)	(-1.784*)	(5.065***)	(9.195***)
NOA	0.053	-0.028	0.026	0.004
	(14.240***)	(-10.440***)	(4.387***)	(1.714*)
OPERCYCLE	0.000	-0.000	0.000	0.000
	(8.806***)	(-2.493**)	(10.375***)	(1.106)
ROA	0.158	-0.025	0.161	0.276
	(12.617***)	(-2.605***)	(7.960***)	(45.448***)
LN(AT)	0.012	0.007	0.023	-0.010
	(9.930***)	(8.449***)	(11.734***)	(-12.704***)
MKBK	-0.000	-0.000	-0.000	0.000
	(-15.217***)	(-6.418***)	(-14.947***)	(0.952)
EARNINGS	0.071	-0.200	-0.079	
	(5.034***)	(-18.831***)	(-3.468***)	
RES_RM				0.037
				(14.238***)
F-statistics	94.23***	44.35***	62.50***	108.60***

Adj. R-squared	0.151	0.0693	0.105	0.188
Year fixed effects	Yes	Yes	Yes	Yes
Observations	23,019	25,619	22,978	17,169

This table reports the results from the regressions of earnings management measures on government contractor firm status and other firm characteristics. To perform these regressions, I pool government contractor firms and the portfolios of all other firms in the same Fama-French 48 sector classification, same market capitalization quintile and same market-to-book ratio quintile in the same year. The dependent variables are ABCFO (in Panel A), RM (in Panel B) and DA (in Panel C). The construction of the earnings management measures is described in Appendix 1. The independent variable of interest is GSF, a dummy variable coded as 1 for government contractor firms and 0 for the portfolios of non-government contractor matching firms. MKTSHARE is the ratio of firm sales to total sales of all other firms in the same 48 sector in the year. ZSCORE is the Altman Z-score at the beginning of the year, calculated as 0.3(Net income /Asset) + 1.0(Sales/Asset) + 1.4(Retained Earnings/Asset) + 1.2(Working Capital/Asset) + 0.6(Market capitalization/Total liabilities). INST is the percentage of institutional ownership at the beginning of the year. TAX is the marginal tax rate developed by Professor John Graham and available at https://faculty.fuqua.duke.edu/~jgraham/. BIG8 is a dummy variable equal to 1 if the firm's auditor is one of the Big 8, and 0 otherwise. SOX is a dummy variable equal to 1 if the fiscal year is after 2003, and 0 otherwise; NOA is a dummy variable equal to 1 if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales is above the median of the corresponding industry-year, and 0 otherwise. OPERCYCLE is calculated as the days receivable plus the days inventory less the days payable at the beginning of the year. ROA is the ratio of net income to total assets. LN(AT) is the natural log value of total assets; MKBK is the market-to-book ratio. EARNINGS is the earnings before extraordinary items minus discretionary accruals and production costs, plus discretionary expenditures; RES_RM is the residual from the regression in Model 4 of this same table. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 5 - Comparison of Earnings Management by Rank of Sales Fraction Generated from Government Agency Customers

Panel A – Summary statistics of sales fraction generated from government customers (N = 16,995)

Sales fraction from	Mean	Median	25^{th} percentile	75^{th} percentile
Domestic government agency customers	0.313	0.202	0.071	0.471
State government agency customers	0.009	0.000	0.000	0.000
Local government agency customers	0.014	0.000	0.000	0.000
Foreign government agency customers	0.005	0.000	0.000	0.000

Panel B – Earnings management by rank of sales fraction generated from domestic government agency customers

Variables	Low	High	Difference	t-stat	Wilcoxon-stat
DA	0.029	0.041	0.012	3.52***	7.03***
ABDISX	0.051	0.098	0.047	9.20***	15.24***
ABPROD	0.003	0.052	0.050	13.80***	16.95***
RM	0.030	0.123	0.093	10.44***	17.02***

Panel C – Earnings management by rank of sales fraction generated from state government agency customers

Variables	Low	High	Difference	t-stat	Wilcoxon-stat
DA	0.034	0.058	0.024	2.53***	3.77***
ABDISX	0.071	0.204	0.133	10.47***	9.12***
ABPROD	0.024	0.114	0.089	9.12***	7.35***
RM	0.072	0.288	0.216	10.33***	9.26***

Panel D – Earnings management by rank of sales fraction generated from local government agency customers

Variables	Low	High	Difference	t-stat	Wilcoxon-stat
DA	0.035	0.056	0.022	1.86***	2.62***
ABDISX	0.076	0.109	0.033	1.49	1.41
ABPROD	0.026	0.089	0.062	3.90***	3.19***
RM	0.079	0.128	0.049	1.97**	1.88*

Panel E – Earnings management by rank of sales fraction generated from foreign government agency customers

Variables	Low	High	Difference	t-stat	Wilcoxon-stat
DA	0.033	0.069	0.036	4.77***	5.02***
ABDISX	0.071	0.132	0.060	7.27***	6.70***
ABPROD	0.026	0.051	0.025	4.01***	5.06***
RM	0.072	0.170	0.098	8.16***	6.99***

In Panel A, I report the summary statistics of the sales fraction generated from 4 different government agency customer types as provided in Compustat Business Segment data tape. In Panels B through E, I compare and contrast average earnings management activity measures between the groups of firms with "low" (e.g. smaller or equal to the sample median value) vs "high" (e.g. higher than the sample median value) sales fraction generated from domestic, state, local and foreign government agency customers, respectively. The construction of the earnings management measures is described in Appendix 1. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 6 - Regressions of Earnings Management Activities on Proportion of Sales Generated from Government Agency Customers – Government Contractor Firms and Portfolios of Matching Firms in the Same Year, Same Industry, Same Size Quintile and Same Market-to-Book Ratio Quintile

Variables	***Model 1*** ABDISX	***Model 2*** ABPROD	***Model 3*** RM	***Model 4*** DA
Constant	-0.208	-0.034	-0.322	0.066
	(-16.964***)	(-3.596***)	(-16.291***)	(7.423***)
GOVDOMSALE	0.092	0.085	0.169	0.014
	(18.840***)	(22.830***)	(21.528***)	(3.823***)
GOVSTATESALE	0.139	0.161	0.278	0.012
	(4.391***)	(6.856***)	(5.450***)	(0.663)
GOVLOCSALE	0.129	0.248	0.236	-0.055
	(2.127**)	(5.686***)	(2.368**)	(-1.607)
GOVFRNSALE	0.080	0.051	0.144	0.014
	(2.592***)	(2.173**)	(2.907***)	(0.668)
MKTSHARE	-0.561	-0.202	-0.983	0.282
	(-5.574***)	(-2.782***)	(-6.067***)	(3.982***)
ZSCORE	5.513	4.786	11.936	-1.211
	(16.591***)	(18.660***)	(22.313***)	(-6.120***)
INST	0.020	-0.020	0.007	-0.020
	(2.325**)	(-3.258***)	(0.540)	(-3.947***)
TAX	0.177	-0.059	0.209	-0.016
	(9.174***)	(-4.009***)	(6.697***)	(-1.190)
BIG8	-0.045	0.004	-0.044	-0.001
	(-9.034***)	(1.149)	(-5.465***)	(-0.268)
SOX	0.124	-0.035	0.098	0.095
	(8.121***)	(-2.956***)	(3.994***)	(9.418***)
NOA	0.057	-0.024	0.033	0.004
	(15.426***)	(-8.996***)	(5.513***)	(1.626)
OPERCYCLE	0.000	-0.000	0.000	0.000
	(8.937***)	(-1.949*)	(10.834***)	(1.454)
ROA	0.168	-0.025	0.171	0.275
	(13.603***)	(-2.595***)	(8.607***)	(45.298***)
LN(AT)	0.014	0.010	0.027	-0.010
	(11.711***)	(11.373***)	(13.548***)	(-12.699***)
MKBK	-0.000	-0.000	-0.000	-0.000

	(-13.894***)	(-6.720***)	(-14.670***)	(-0.489)
EARNINGS	0.062	-0.195	-0.085	
	(4.452***)	(-18.789***)	(-3.821***)	
RES_RM				0.036
				(13.722***)
F-statistics	97.35***	52.01***	68.97***	100.10***
Adj. R-squared	0.164	0.0856	0.122	0.188
Year fixed effects	Yes	Yes	Yes	Yes
Observations	23,019	25,619	22,978	17,169

This table reports the results from the regressions of earnings management measures on the fraction of sales generated from government customers and other firm characteristics. To perform these regressions, I pool government contractor firms and the portfolios of all other firms in the same Fama-French 48 sector classification, same market capitalization quintile and same market-to-book ratio quintile in the same year. The dependent variables are ABCFO (in Panel A), RM (in Panel B) and DA (in Panel C). The construction of the earnings management measures is described in Appendix 1. The independent variable of interests are GOVDOMSALE, GOVSTATESALE, GOVLOCSALE and GOVFRNSALE, which are the fractions of firm sales generated from domestic, state, local and foreign governmental agencies, respectively. MKTSHARE is the ratio of firm sales to total sales of all other firms in the same 48 sector in the year. ZSCORE is the Altman Z-score at the beginning of the year, calculated as 0.3(Net income /Asset) + 1.0(Sales/Asset) + 1.4(Retained Earnings/Asset) + 1.2(Working Capital/Asset) + 0.6(Market capitalization/Total liabilities). INST is the percentage of institutional ownership at the beginning of the year. TAX is the marginal tax rate developed by Professor John Graham and available at https://faculty.fuqua.duke.edu/~jgraham/. BIG8 is a dummy variable equal to 1 if the firm's auditor is one of the Big 8, and 0 otherwise. SOX is a dummy variable equal to 1 if the fiscal year is after 2003, and 0 otherwise; NOA is a dummy variable equal to 1 if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales is above the median of the corresponding industry-year, and 0 otherwise. OPERCYCLE is calculated as the days receivable plus the days inventory less the days payable at the beginning of the year. ROA is the ratio of net income to total assets. LN(AT) is the natural log value of total assets; MKBK is the market-to-book ratio. EARNINGS is the earnings before extraordinary items minus discretionary accruals and production costs, plus discretionary expenditures; RES_RM is the residual from the regression in Model 4 of this same table. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 7 – Identifying Propensity Matching Firms

Panel A – Logistic Regression of Government Contractor Firm Status

Variables	Model 1 Coefficients	Model 1 t-statistics	Model 2 Coefficients	Model 2 t-statistics	Model 3 Coefficients	Model 3 t-statistics
Constant	-0.421	-2.414**	-0.421	-9.333***	-0.558	-1.233
LN(AT)	0.300	2.107**	0.300	6.741***	0.243	4.904***
LN(AGE)	0.810	6.883***	0.810	18.961***	0.811	17.331***
DEBT	0.003	0.221	0.003	0.346	-0.002	-0.256
MKBK	-0.028	-2.493**	-0.028	-2.539**	-0.031	-2.711***
Chi-squared	8314.00***		1101.00***		2137.00***	
Pseudo R-squared	0.097		0.097		0.228	
% correct classification	82.31%		82.31%		85.76%	
Year fixed effect	Yes		Yes		Yes	
Clustered std err by industry	Yes		No		Yes	
Clustered std err by firm	No		Yes		Yes	
Observations	102,542		102,542		101,953	

Panel B – Comparison of the Characteristics of Government Contractor Firms and Propensity Matching Firms

Variable	Sample Firms	Propensity matching firms	Difference	t-stat	Wilcoxon-stat
Market capitalization	1,554.760	2,083.020	-528.260	-3.987***	-1.650*
Market-to-book ratio	3.286	3.538	-0.252	-0.283	-3.492***

In Panel A of this table, I report the results from the logistic regressions to predict whether a firm becomes a government contractor using the whole universe of firms in Compustat. The dependent variable in Panel A is the dummy variable GOV equal to 1 if a firm is a government contractor and 0 otherwise. LN(AT) is the natural log value of total assets; LN(AGE) is the natural log of firm age which is calculated as the number of years the firm has data in Compustat. DEBT is debt-to-asset ratio. MKBK is the market-to-book ratio. I obtain the predicted probability from Model 3 of Panel A and match each sample government-contractor firm with another non-government contractor firm in the same year with the closest predicted probability (e.g. propensity matching firm). In Panel B, I compare and contrast the characteristics of the sample government-contractor firms with their propensity matching firms. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 8 - Regressions of Earnings Management Activities on Government Contractor Firm Status – Government Contractor Firms and Propensity Matching Firms

Variables	***Model 1*** ABDISX	***Model 2*** ABPROD	***Model 3*** RM	***Model 4*** DA
Constant	-0.175	-0.084	-0.296	0.103
	(-12.736***)	(-7.729***)	(-13.590***)	(7.301***)
GOV	0.020	0.026	0.041	0.013
	(6.064***)	(10.296***)	(7.786***)	(5.689***)
MKTSHARE	-0.306	-0.241	-0.833	0.221
	(-3.054***)	(-3.262***)	(-5.248***)	(3.188***)
ZSCORE	10.527	11.500	24.241	-2.915
	(21.453***)	(30.182***)	(31.139***)	(-9.077***)
INST	-0.014	-0.012	-0.040	0.007
	(-1.607)	(-1.935*)	(-2.894***)	(1.364)
TAX	0.089	0.070	0.170	-0.103
	(4.526***)	(4.554***)	(5.440***)	(-7.289***)
BIG8	-0.044	-0.009	-0.071	-0.011
	(-9.258***)	(-2.417**)	(-9.275***)	(-3.326***)
SOX	0.129	-0.027	0.101	0.091
	(7.937***)	(-2.077**)	(3.946***)	(6.215***)
NOA	0.069	-0.030	0.042	-0.001
	(19.461***)	(-10.994***)	(7.409***)	(-0.381)
OPERCYCLE	0.000	-0.000	-0.000	-0.000
	(1.147)	(-6.668***)	(-0.584)	(-4.200***)
ROA	0.005	0.158	0.171	0.303
	(0.308)	(13.501***)	(7.120***)	(52.598***)
LN(AT)	0.008	0.004	0.018	-0.010
	(5.707***)	(4.754***)	(8.095***)	(-10.438***)
MKBK	-0.007	0.001	-0.008	-0.000
	(-12.453***)	(2.831***)	(-8.895***)	(-1.065)
EARNINGS	0.284	-0.420	-0.065	
	(15.993***)	(-30.892***)	(-2.321**)	
RES_RM				0.040
				(14.559***)
F-statistics	91.25***	74.76***	62.46***	124.90***
Adj. R-squared	0.146	0.108	0.104	0.218

Observations	23,292	26,850	23,242	16,470

This table reports the results from the regressions of earnings management measures on government contractor firm status and other firm characteristics. To perform these regressions, I pool government contractor firms and their respective propensity matching firms identified in the analyses in Panel A of Table 5. The dependent variables are ABCFO (in Panel A), RM (in Panel B) and DA (in Panel C). The construction of the earnings management measures is described in Appendix 1. The independent variable of interest is GOV, a dummy variable coded as 1 for government contractor firms and 0 for the portfolios of non-government contractor matching firms. MKTSHARE is the ratio of firm sales to total sales of all other firms in the same 48 sector in the year. ZSCORE is the Altman Z-score at the beginning of the year, calculated as 0.3(Net income /Asset) + 1.0(Sales/Asset) + 1.4(Retained Earnings/Asset) + 1.2(Working Capital/Asset) + 0.6(Market capitalization/Total liabilities). INST is the percentage of institutional ownership at the beginning of the year. TAX is the marginal tax rate developed by Professor John Graham and available at https://faculty.fuqua.duke.edu/~jgraham/. BIG8 is a dummy variable equal to 1 if the firm's auditor is one of the Big 8, and 0 otherwise. SOX is a dummy variable equal to 1 if the fiscal year is after 2003, and 0 otherwise; NOA is a dummy variable equal to 1 if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales is above the median of the corresponding industry-year, and 0 otherwise. OPERCYCLE is calculated as the days receivable plus the days inventory less the days payable at the beginning of the year. ROA is the ratio of net income to total assets. LN(AT) is the natural log value of total assets; MKBK is the market-to-book ratio. EARNINGS is the earnings before extraordinary items minus discretionary accruals and production costs, plus discretionary expenditures; RES_RM is the residual from the regression in Model 4 of this same table. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Table 9 – Alternative Measures of Earnings Management - Small Positive Earnings and Large Negative Earnings

Panel A - Logistic regressions of probability of government contractor status on small positive earnings and large negative earnings

	Model 1		***Model 2***	
Variables	Coefficient	t-stat	Coefficient	t-stat
Constant	0.2506	2.498 **	0.4856	5.017 ***
LN(AT)	0.145	4.388 ***	0.186	5.609 ***
GROWTH	-0.049	-1.791 *	-0.056	-2.053 **
EISSUE	0.028	1.059	0.020	0.774
DEBT	0.021	0.828	0.028	1.107
DISSUE	0.008	0.295	0.019	0.679
TURN	0.151	5.659 ***	0.136	5.100 ***
OCF	0.003	0.128	-0.017	-0.608
BIG8	-0.060	-2.061 **	-0.065	-2.237 **
LOSS	0.115	2.923 ***	-0.122	-3.929 ***
SPOS	0.341	8.750 ***		
LNEG			-0.024	-0.747
Chi squared	359.3***		283.9***	
Percent correct classification	60.65%		60.66%	
Year fixed effects	Yes		Yes	
Observations	27,695		27,695	

Panel B - Regressions of sales fraction generated from domestic government agency customers on small positive earnings and large negative earnings

	Model 1		***Model 2***	
Variables	Coefficient	t-stat	Coefficient	t-stat
Constant	0.149	5.702 ***	0.166	6.635 ***
LN(AT)	-0.017	-9.831 ***	-0.017	-9.650 ***
GROWTH	-0.031	-5.441 ***	-0.031	-5.504 ***
EISSUE	0.007	0.853	0.006	0.820
DEBT	0.001	0.640	0.001	0.681
DISSUE	-0.000	-0.084	0.000	0.004
TURN	0.023	5.345 ***	0.022	5.158 ***
OCF	-0.004	-0.692	-0.006	-1.083
BIG8	0.018	1.973 **	0.018	1.940 *
LOSS	0.005	0.429	-0.009	-1.025
SPOS	0.024	2.293 **		
LNEG			-0.014	-1.158

F-statistics	5.493***	5.403***
Adj. R-squared	0.01	0.01
Observations	27,654	27,654

In Panel A, I report the results from the logistic regressions of the probability of government contractor status on small positive earnings (in Model 1) and of large negative earnings (in Model 2). The dependent variable is a dummy variable GOV equal to 1 if a firm is a government contractor and 0 otherwise The independent variable of interest in Model 1 is a dummy variable SPOS (small positive earnings) equal to 1 for firms with income-to-asset ratio between 0 and 0.01 and equal to 0 otherwise. The independent variable of interest in Model 2 is a dummy variable LNEG (large negative earnings) equal to 1 for firms with income-to-asset ratio less than -0.2 and equal to 0 otherwise. LN(AT) is the natural log value of total assets. GROWTH is the growth rate in sales in the year. EISSUE is the percentage of change in common stock. DEBT is the debt-to-asset ratio. DISSUE is the percentage of change in total liabilities. TURN is the sales to total asset ratio. OCF is the annual net cash flow from operating activities, scaled by total assets. BIG8 is a dummy variable equal to 1 if the firm's auditor is one of the Big 8, and 0 otherwise. LOSS is an indicator variable that equals one if the firm reports negative earnings for the year. In Panel B, I report the results from the OLS regressions of the sales fraction generated from domestic government agency customers on small positive earnings and large negative earnings. *, ** and *** indicate the significance levels of 10%, 5% and 1%, respectively.

Appendix 1

Regression Analysis to Measure Real activities Manipulation and Accrual-Based Earnings Management

Independent Variables	*Discretionary Accrual$_{(t)}$ / Asset$_{(t-1)}$ (Equation 1)*		*Production Cost$_{(t)}$ / Asset$_{(t-1)}$ (Equation 2)*		*Discretionary Expense$_{(t)}$ / Asset$_{(t-1)}$ (Equation 3)*	
Intercept	-0.037	-8.80***	-0.067	-17.19***	0.193	28.89***
1/Asset$_{(t-1)}$	-0.524	-9.38***	0.005	-0.61	2.040	14.23***
Sales$_{(t)}$ /Asset$_{(t-1)}$			0.793	35.97***		
Sales$_{(t-1)}$ /Asset$_{(t-1)}$					0.084	16.67***
ΔSales$_{(t)}$ /Asset$_{(t-1)}$	0.009	0.99	0.016	1.87*		
ΔSales$_{(t-1)}$ /Asset$_{(t-1)}$			-0.016	-2.53***		
PPE$_{(t)}$ /Asset$_{(t-1)}$	-0.079	-9.02***				
Mean Adj. R-squared	39.85%		83.60%		50.85%	
Mean # of observations	131.31		131.86		111.48	
# industry-years	1,152		1,152		1,152	

The regressions are estimated cross-sectionally for each industry-year for the period 1990-2014 using the universe of firms in Compustat. The Fama-French 48 industry grouping is used. The reported coefficients are the mean values of the coefficients across industry-years. t-statistics are calculated using the standard errors of the coefficients across industry-years. The adjusted R^2 (number of observations) is the mean adjusted R^2 (number of observations) across industry-years.*, **, *** represent significance at 10 percent, 5 percent, and 1 percent levels, respectively.