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Major Government Customers and Loan Contract Terms

Abstract

This study examines how a firm's business relationship with the U.S. government, in particular, sales to the government, impacts its loan contract terms and how the effect is different from that of major corporate customers. We find that firms with major government customers have a lower number of covenants and are less likely to have performance pricing provisions in their loan contracts than other firms, whereas major corporate customers do not have such impacts. We do not find evidence that major government customers affect the supplier firm's loan spread, security, or maturity. We conjecture that lenders benefit from the strict monitoring activities of the government customer and reduce the use of covenants and performance pricing in loan contracts when the borrowing firm has a government customer.

1. Introduction

A firm can be viewed as a "nexus of contracts" among various stakeholders (Jensen and Meckling [1976], Fama and Jensen [1983]). It is theoretically and empirically interesting how different contracting relationships interact with each other. In this paper, we investigate how a firm's contracting relationship with its customers impacts its contracts with creditors. In particular, we examine the effect of major government customers on the supplier firm's loan contract terms, and how it differs from the effect of major corporate customers.

Theoretically, the impact of major government customers on loan contract terms is unclear ex ante. On the one hand, although major corporate customers generally increase a supplier firm's operating risk (e.g., Banerjee, Dasgupta, and Kim [2008], Dhaliwal, Judd, Serfling, and Shaikah [2016]), prior studies find that major government customers could reduce the supplier firm's operating risk, for instance, because the government is unlikely to declare bankruptcy and federal procurement contacts are typically longer-term and explicit (e.g., Dhaliwal et al. [2016], Cohen and Li [2016a,b]). This reduced operating risk could lead to more favorable loan contract terms. In addition, the existence of a government customer may reflect or lead to political connections. Houston, Jiang, Lin, and Ma [2014] argue that political connections reduce credit risk and show that politically connected firms have lower cost of bank loans and lower likelihoods of a capital expenditure restriction and liquidity requirement covenants in their loan contracts.

On the other hand, compared to other customers, such as individual, corporate, and nonprofit customers, the U.S. government as a customer is unique in that a government contractor is usually subject to financial audits and other reviews by the government, and the consequences of failing these audits and reviews could be very serious as the government is a powerful customer. For instance, Oshkosh Corporation, which had approximately 45% sales from the U.S. government in 2012, clearly stated in its 2012 annual report that “like most large government contractors, the Company is audited and reviewed by the government on a continual basis” (see Appendix A). These audits and reviews could lead to “civil, criminal or administrative proceedings” in addition to adjustment of government contracts. It also stated that “under government regulations, a company or one or more of its subsidiaries can also be suspended or debarred from government contracts, or lose its export privilege based on the results of such proceedings.”

The strict monitoring of major government customers could make supplier firms’ loan contract terms more or less favorable. If governments use their regulatory powers to expropriate benefits from their supplier firms, they may have adverse effects on their supplier firms’ operations and loan contract terms. Cohen and Malloy [2015] document consistent evidence on the adverse effect of having the government as a major customer. They find that firms with governments as major customers invest less in physical and intellectual capital, and have lower future sales growth. However, to the extent that government customers’ and lenders’ monitoring incentives overlap, lenders may benefit from government customers’ monitoring and allow more favorable loan contract terms for the supplier firm. For instance, due to the government’s relationship-specific investments in the supplier firm, it demands assurances that the supplier firm is economically and financially healthy and can continue to deliver on its promises (e.g., Cornell and Shapiro [1987]). Similarly, lenders also want to ensure that the borrowing firm has no financial difficulty and is able to repay interest and principal when they are due. In this sense, banks may benefit from government customers’ monitoring.

Using a large sample of loan contracts from 1995 to 2014, we document strong evidence that a loan contract contains significantly fewer covenants when it has a major government customer. We identify a customer as a major customer if it accounts for at least 10% of the supplier firm's total sales (e.g., Dhaliwal et al. [2016]). Among loan contracts signed by the same firm, on average the number of covenants is lower by 0.7, which accounts for around 22% of the mean and standard deviation of the number of covenants in the sample, when the firm has a major government customer than otherwise. Interestingly, we do not find such an effect for a major corporate customer, and the effect of a major government customer on the supplier firm's loan covenant intensity is statistically different from that of a major corporate customer.[1] We find qualitatively similar results when measuring a firm's dependence on major government and corporate customers with its percentage sales to them.[2]

We further separately examine the effect of a firm's business transactions with the government on the uses of general covenants and financial covenants. General covenants, sometimes referred to as negative and affirmative covenants, such as restrictions on dividend payout and capital expenditure, directly restrict managers' operating, investment, and financing activities by specifying actions to be taken or not taken in certain conditions (Costello and Wittengberg-Moerman [2011]). Financial covenants, such as interest coverage and net worth covenants, require firms to adhere to a predetermined level of accounting performance (Christensen, Naikolaev, and Witternberg-Moerman [2016]).[3] We find that a loan contract

[1] The insignificant effect of a major corporate customer could be due to the following reasons. On one hand, customer base concentration could increase the supplier firm's operating risk (e.g., Dhaliwal et al. [2015]). On the other hand, major corporate customers have incentives and powers to monitor the supplier firm due to their stakes in the firm (e.g., Cornell and Shapiro [1987], Hui, Klasa, and Yeung [2012]).

[2] We find that other major customers (e.g., individuals and nonprofit organizations) have a positive effect on loan covenant intensity. We conjecture that these major customers increase the borrowing firms' operating risk but generally do not monitor the borrowing firm effectively.

[3] Christensen et al. [2016] note that although both the agency and incomplete contracting perspectives offer complementary approaches to understanding the role of covenants, general covenants seem to be more consistent

contains fewer general as well as financial covenants when it has a major government customer or when its sales from the government increases.

We also examine the effect of major government customers on other loan contract terms. We find that major government customers have no significant effects on loan spread, collateral requirement, or loan maturity and their effects on these loan contract terms are statistically indistinguishable from that of major corporate customers. In contrast, we find that firms with major government customers or higher government sales are less likely to have performance pricing provisions in their loan contracts and we do not find a similar effect for major corporate customers. Further, the effect of major government customers on the use of performance pricing is significantly more negative than that of major corporate customers.

The difficulty with identifying the impacts of government customers on loan contract terms is that certain firms select the government as a major customer or the government may select certain firms as its suppliers. Thus, all the empirical results we document may simply be a function of those firms' characteristics, not of the fact that they have a major government customer. We employ several approaches to address this endogeneity concern. First, we utilize a difference-in-difference design by incorporating both firm and year fixed effects into the regressions (e.g., Bertrand and Mullainathan [2003], Valta [2012]). The firm fixed effects control for time-invariant firm characteristics that are likely associated with a firm's having a major government customer, allowing the estimation of the effect of *within-firm changes* in a firm's business transaction with the government on loan covenant intensity. The year fixed effects control for common time variant factors, such as macroeconomic conditions. As Bertrand and Mullainathan [2003] explain, this design is essentially a difference-in-difference design.

with the agency view that covenants are used to restrict agency problems, while financial covenants seem to be more consistent with the incomplete contracting view that covenants are used to allocate control rights more efficiently.

Second, in addition to examining the direct effect of government customers on loan covenant intensity, we compare the effect of government customers with those of major corporate customers and other major customers. This approach allows us to control for the common effects of major customers on loan contract terms as well as firm characteristics that are related to the existence of major customers. Finally, we employ an instrument variable analysis. To identify exogenous change in a firm's business transaction with the government, we explore the change caused by the government's purchase behavior. Specifically, we use the total government sales of each three-digit SIC industry scaled by total industry sales as an instrument variable for our treatment variable. We find qualitatively similar results.

While our main goal is to examine the overall effect of major government customers on a supplier's loan contract terms and how it differs from the effect of major corporate customers, we also attempt to shed light on whether the negative effect of major government customers on covenant intensity and the use of performance pricing is due to lower operating risk associated with government sales or enhanced monitoring by government customers. We conjecture that enhanced monitoring might be the primary channel for the following reasons.[4] First, if the primary channel is the reduced risk, one should be able to observe a similar effect in loan spread and collateral requirement because these two terms are sensitive to the borrowing firms' credit risk (e.g., Berger and Udell [1990], Bharath, Sunder, and Sunder [2008]). However, we do not find such effects. As loan covenants and performance pricing are mainly used to reduce the agency problem between borrowers and lenders (Jensen and Meckling [1979], Asquith, Beatty, and Weber [2005]), the negative effect of major government customers on covenant intensity and

[4] We acknowledge that this conclusion is at most conjectural. However, this will not dilute our contribution to the literature because we focus on the effect of major government customers on the supplier firm' loan contract terms.

performance pricing, combine with their insignificant effect on loan spread and security, suggests that enhanced monitoring is likely the primary channel.

Second, to further explore whether major government customers reduce credit risk, we examine their effect on the expected default likelihood and CDS spread of the supplier firm and find insignificant results. Third, if the primary channel is the reduced risk, we expect for firms with major government sales, covenant intensity and the use of performance pricing will be lower if the supplier firm has more government sales, because a higher level of government sales will reduce operating risk further. However, we do not observe such an effect. This finding suggests that our covenant and performance pricing results are mainly driven by firms switching from having no major government sales to having major government sales. It appears more consistent with the monitoring explanation because for this channel what matters is the existence of a major government customer.[5]

Our study makes several contributions. First, we contribute to the literature on how a firm's customer base characteristics affect firm fundamentals and corporate outcomes (e.g., Patatoukas [2012], Dhaliwal et al. [2016]). We show that firms with major government customers have a lower number of covenants and are less likely to have performance pricing provisions in their loan contracts, whereas major corporate customers do not have such impacts. Our study adds to the emerging line of studies that investigate the effects of government customers (e.g., Banerjee et al. [2008], Dhaliwal et al. [2016], Cohen and Li [2016a,b], Cohen and Malloy [2015]).

Second, we contribute to the debt contracting literature by showing that lenders can benefit from the monitoring of borrowing firms by other stakeholders, in particular, the government as a major customer. Extant studies focus on how a lender can benefit from other lenders' monitoring

[5] However, we acknowledge that the insignificant effect of government sales for the sample of firms with major government customers could be also due to the limited test power.

of the borrowing firm (e.g., Beatty, Liao, and Weber [2012]). The finance literature has long recognized that delegating monitoring to other "specialist" creditors can reduce monitoring costs when borrowers have multiple classes of lenders (e.g., Diamond [1984]). Beatty et al. [2012] show that bondholders can delegate monitoring to other creditors through cross-acceleration provisions. We extend this literature by showing that banks can also "free ride" the monitoring from the government as a major customer.

The remainder of the paper is organized as follows. Section 2 describes the institutional background. Section 3 reviews the related literature and develops our hypotheses. Section 4 describes the data and presents summary statistics. Section 5 presents our empirical analysis. Section 6 concludes.

2. Institutional Background

The U.S. government is an important customer of public and private firms. It purchases many of the products and services it needs from suppliers who meet certain qualifications. The federal government spends more than $500 billion a year on private sector contractors, which accounts for around 14% of the federal budget.[6] The federal, state, and local governments apply standardized procedures to purchase goods and services. Government contracting officials use procedures that conform to the Federal Acquisition Regulation (FAR), which is standardized set of regulations used by all federal agencies in making purchases. When the government wants to purchase a certain product or service, it can use a variety of contracting methods, for instance, sealed bidding and contracting by negotiation.

[6] CNN Monday, 2012: "Cutting Washington Could Hit Main Street." Source: http://money.cnn.com/2012/07/23/news/economy/federal-spending/.

In the basic federal procurement process, acquisition personnel, after determining their agency's requirements (that is, the goods and services the agency needs), post a solicitation on the Federal Business Opportunities (FedBizOpps) website. Interested companies prepare their offers in response to the solicitation, which are evaluated by agency personnel in accordance with applicable provisions of FAR. A company can also become a subcontractor of a government contractor. To be eligible to compete for government contracts, a company must obtain a Data Universal Numbering System number and register with the federal government's System for Award Management (Halchin [2012]).

Government customers are different from corporate customers and other customers in several ways. First, government spending is subject to strict public monitoring. For instance, the Federal Funding Accountability and Transparency Act (FFATA) was signed on September 26, 2006 with the intent to empower every American with the ability to hold the government accountable for each spending decision. It requires information on federal awards (federal financial assistance and expenditures) be made available to the public via a single, searchable website (USAspending.gov).

Second, the U.S. government engaged in strict monitoring of their corporate suppliers. A U.S. government contractor is usually subject to financial audits and other reviews by the government for issues related to the government contracts. The consequences of failing these audits and reviews could be very serious as the government is a powerful customer. These audits and reviews could lead to not only adjustment of government contracts, but also civil, criminal, or administrative proceedings. For instance, Halliburton Company, which contracts with U.S. Department of Defense and other governmental agencies, disclosed in its 2003 annual report that Department of Defense officials referred an audit dispute to the Defense Contract Audit

Agency's inspector general with a request for additional investigation by the agency's criminal division (see Appendix A). The company also had inquiries in the past by the civil fraud division of the U.S. Department of Justice into possible contract overcharges. Oshkosh Corporation, which has approximately 45% sales the U.S. government in 2012, clearly stated in its 2012 annual report that "like most large government contractors, the Company is audited and reviewed by the government on a continual basis" (see Append A). It also stated that "under government regulations, a company or one or more of its subsidiaries can also be suspended or debarred from government contracts, or lose its export privilege based on the results of such proceedings."

Third, government purchases are typically regulated by longer-term procurement contracts (Goldman, Rocholl, and So [2013]) and a significant portion of these contracts use cost-plus pricing (Dhaliwal et al. [2016]). Cost-plus or cost-reimbursement contracts pay a contractor for all of its allowed expenses and an additional payment that allows a contractor to make a profit. Cost-plus contracts, particularly those with fixed fees, are criticized for providing insufficient incentives for contractors to reduce costs. To mitigate this problem, some cost-plus contracts provide a larger fee for contracts that meet or exceed performance targets such as cost savings.

3. Prior Literature and Hypothesis Development

3.1. Prior Studies on Customer Base Characteristics

Prior studies have linked customer base characteristics, such as customer relationship and customer base concentration, with firm fundamentals and corporate strategies. Empirical studies generally support that customer relationship is positively associated with firms' future performance (e.g., Ittner and Larcker [1998], Nagar and Rajan [2005], Gruca and Rego [2005]). For instance, using a unique and proprietary cross-sectional data set of the retail banking industry, Nagar and Rajan [2005] find that customer relationships is positively associated with the supplier firm's future profits. Customer base concentration has been shown to be positively associated with firms' operating risk, because relationship breakdown with or demand fluctuation from major customers can have material adverse impacts on firms' performance. For instance, Dhaliwal et al. [2016] documents that customer base concentration measure is positively associated with the implied cost of equity capital. Banerjee et al. [2008] show that some firms with major customers maintain low leverage to protect themselves from the adverse effects of losing major customers. Becchetti and Sierra [2003] document that customer concentration is positively associated with firm bankruptcy risk.

Prior studies have documented mixed evidence on the impacts of customer base concentration on the supplier firm's performance. Kim [1996] finds that major customers significantly reduce big firms' profit margins, whereas the results with medium or small firms are insignificant. Patatoukas [2012], however, show that customer base concentration is positively associated with accounting performance and asset utilization. Irvine, Park, and Yildizhan [2016] follow up Patatouka's [2012] work and show that the relation between customer-based concentration and profitability is significantly negative in the early years of the relationship, but becomes positive as the relationship matures.

Prior studies also recognize that major government customers could have different impacts on firm fundamentals and corporate strategies. Dhaliwal et al. [2016] argue that firms reporting the U.S. government as major customers may have lower operational risk, because (i) the federal government is unlikely to declare bankruptcy, and (ii) federal procurement contacts are typically longer-term and explicit, and (iii) a non-trivial fraction of those contracts use cost-plus pricing, which assign less risk to the firm than to the government. Consistent with these arguments, they document that these firms have lower implied cost of equity capital; Cohen and

Li [2016a,b] find that these firms have better profitability and lower operational uncertainty. A recent paper by Cohen and Malloy [2015], however, provide evidence on the adverse effect of having the government as a major customer. They find that firms with the government as major customer invest less in physical and intellectual capital, and have lower future sales growth.

3.2 Hypothesis Development

Major government customers could affect the supplier firm's loan contract terms through multiple channels. First, as we discuss in Section 3.1, although major corporate customers generally increase a supplier firm's operating risk (e.g., Banerjee et al. [2008], Dhaliwal et al. [2016]), prior studies find that major government customers could reduce the supplier firm's operating risk (e.g., Dhaliwal et al. [2016], Cohen and Li [2016a,b]). This reduced operating risk could lead to more favorable loan contract terms. Second, the existence of a government customer may reflect or lead to political connections. Houston et al. [2014] argue that political connections reduce credit risk and show that politically connected firms have lower cost of bank loans and lower likelihoods of a capital expenditure restriction and liquidity requirement covenants in their loan contracts.

Third, as we discuss in Section 2, the U.S. government engaged in strict monitoring of their corporate suppliers. A government contractor is usually subject to financial audits and other reviews by the government. If governments use their regulatory powers to expropriate benefits from their supplier firms, they may have adverse effects on their supplier firms' operations and loan contract terms. For instance, Cohen and Malloy [2015] document consistent evidence on the adverse effect of having the government as a major customer. Finally, the strict audits and reviews by the government agencies for government contractors may reduce lenders' monitoring need, which may result in more favorable contract terms, such as fewer covenants, given the direct and indirect costs of covenants.[7] Lenders can benefit from the government customer's monitoring activities because they share the goal of ensuring that the firm is economically and financially healthy to fulfill its promises of providing quality products to the government customer or repaying debt to the lenders.

Given the mixed predictions from the above arguments, we propose the following non-directional hypotheses:

H1: The presence of major government customers is not related to the supplier firm's loan contract terms.

H2: The effect of major government customers on the supplier firm's loan contract terms is not different from that of major corporate customers.

We examine the following major loan contract terms: covenant intensity, performance pricing provision, interest spread, loan maturity, and collateral requirement. The agency theory argues that debt covenants mitigate agency problems between debt holders and shareholders (Jensen and Meckling [1976], Myers [1977], Smith and Warner [1979]). The incomplete contracting theory, which provides another theoretical perspective on debt covenants, emphasizes control rights and views covenants as a tool to more efficiently allocate control rights (Grossman and Hart [1986], Hart and Moore [1988, 1990], Aghion and Bolton [1992]). Both theories predict that firms with more agency problems have more covenants in their loan contracts.

Performance pricing provisions in loan contracts link bank interest rate spreads to borrowers' performance measures, such as credit ratings and debt to EBITDA ratio. Asquith et

[7] The direct costs of covenants include the costs of negotiating, implementing, and renegotiating the covenants. The indirect costs include the adverse effects of covenants on the borrowing firm's investment, financing, and operating activities.

al. [2005] suggest that performance pricing provisions are more common when the potential for adverse selection and moral hazard is higher. Shorter debt maturity enables more frequent monitoring by the lender (Diamond [1991], Rajan and Winton [1995]). Armstrong, Guay, and Weber [2010] argue that reduction in maturity can be a substitute for accounting based covenants in monitoring the borrower. Loan spread and security are negatively associated with the borrowing firm's credit quality (Holmstrom and Tirole [1997], Stulz and Johnson [1985], Boot, Thakor, and Udell [1991], Asquith et al. [2005], Berger and Udell [1990]).

4. Data and Summary Statistics

4.1. Sample Selection

We obtain major customer data from Compustat segment files, which provide the types and names of major customers of U.S. public firms along with the dollar amounts of annual sales to the customers. The Statement of Financial Accounting Standards No. 14 (SFAS 14), which was issued by the Financial Accounting Standard Board (FASB) in 1976, requires a supplier to disclose external customers that individually account for 10% or more of its revenues. Although SFAS 14 was later superseded by SFAS 131, the requirement to disclose such customers remains intact for public firms under SEC Regulation S-K Item 101. Despite of the disclosure requirement of 10% or more revenues, public firms often voluntarily report external customers that generate less than 10% of total sales.

We obtain data on loan characteristics from the Dealscan database. Dealscan is provided by Loan Pricing Corporation (LPC) and contains a wide range of loan characteristics, such as loan amount, interest spread, and covenants. We merge the Dealscan data to Compustat using the linking table provided by Dealscan, which is based on Chava and Roberts [2008].[8] After merging Dealscan with Compustat segment files, excluding financial and utilities firms, and requiring the availability of control variables in the multivariate analyses, we obtain 11,774 loan packages issued by U.S. public firms over years 1995–2014.[9] We further require each firm to have at least two loans in order to implement firm fixed effects estimation. Our final sample consists of 10,671 loan packages issued by 2,183 firms.

4.2. Variable Measurement and Summary Statistics

Our main measure of the government customer is an indicator variable, *SaleGov dummy*, which equals one if a firm discloses the U.S. government as a major customer and zero otherwise.[10] Although a firm may voluntarily disclose a customer with sales below 10%, we follow Dhaliwal et al. [2016] and define a major customer as one that accounts for at least 10% of the supplier firm's sales.[11] To compare the effect of major government customers with those of other types of major customers, we also create another three indictor variables, *SaleFirm dummy*, *SaleOther dummy*, and *SaleMajor dummy*. *SaleFirm dummy*, which measures the existence of major corporate customers, equals to one if a firm has a major corporate customer and zero otherwise. *SaleOther dummy* measures the presence of other major customers; it equals

[8] For recent loans that are not covered by the linking table in Dealscan, we match them to Compustat manually based on company names and addresses.

[9] A loan package specified in a loan contract may contain multiple loan facilities with different characteristics (e.g., maturities, interest spreads, and repayment schedules). All facilities in a loan package are governed by the same set of covenants. Thus, we perform covenant related analyses at the loan package level and facility related analyses, such as analyses of loan spread, security, and performance pricing provisions, at the facility level.

[10] The indicator variable, *SaleGov dummy*, equals one if a firm generates at least 10% of its annual total sales from the U.S. federal government, a state government, or a local government. Most (over 90% of) firm-year observations have the federal government as a major customer, whereas few observations have a state government or a local government as a major customer. Our results are robust to the exclusions of state governments and local governments.

[11] As Dhaliwal et al. [2015] note, defining a major customer as one with at least 10% of sales mitigates the potential selection bias related to firms' voluntarily reporting customers with sales lower than 10%. In sensitivity analyses, we also include customers that account for less than 10% of total sales. Our results (not tabulated) hold.

to one if a firm reports a non-government and non-corporate major customer (e.g., an individual or nonprofit organization) and zero otherwise. *SaleMajor dummy* captures the existence of any major customer; it equals one if a firm has any major customer and zero otherwise.

In addition to these indicator variables, we also measure a firm's business relation with a certain type of major customers with the percentage sale to these customers. These variables, labeled as *SaleGov%*, *SaleFirm%*, *SaleOther%* and *SaleMajor%*, represent a firm's percentage sales to major government customers, major corporate customers, other major customers, and all major customers, respectively.

Table 1 presents summary statistics for our sample. On average, 69% of firms have at least one major customer, 9% have at least one major government customer, 46% have at least one major corporate customer, and 24% have at least one other major customer. On average, major customers account for 33% of a firm's total sales; major government and major corporate customers account for 3% and 17% of a firm's total sales, respectively. Firms that report the U.S. government as a major customer generates 38% of annual sales from the transactions with the government. Firms that report major corporate customers generate 36% of annual sales from these customers. Although major corporate customers are more common than government customers, percentage sales from these two types of major customers are comparable.

An average firm in our sample has total assets of 4.5 billion dollars. On average, a firm has a leverage ratio of 29%, profitability of 13%, the market-to-book ratio of 1.73, and tangibility ratio of 30%. These variables are defined in Appendix B. Half of firms in our sample have credit ratings. Conditional on being rated, an average firm has a credit rating of 11, corresponding to S&P's BB+ rating. The average loan amount is $415 million dollars and the average loan maturity is 46 months.[12] On average, a loan package contains 1.64 financial covenants and 1.61 general covenants. The average loan interest spread is 203 basis points above LIBOR (London Interbank Offer Rate). On average, 75% of loan facilities are secured, and 44% of loan facilities contain performance pricing provisions.

As reported in Table 2, the sample firms cover most major economic sectors (Fama-French 12 classification industries), with the largest fraction in manufacturing (18.4%). The likelihood of having a major government customer is the highest in the following two industries: Healthcare, medical equipment, and drugs (22%) and business equipment (15%). On average, 8.9% and 6.0% of sales of firms in these two industries are generated from major government customers.[13]

5. Empirical Analysis

5.1 Research Design

We estimate the following model to examine the effect of major government customers on loan contract terms:

$$\begin{aligned} \textit{Loan term} = \alpha &+ \beta_1 \textit{SaleGov dummy} + \beta_2 \textit{SaleFirm dummy} + \beta_3 \textit{SaleOther dummy} \\ &+ \beta_4 \textit{Firm Controls} + \beta_5 \textit{Loan Controls} + \textit{Credit Rating FE} \\ &+ \textit{Loan Type FE} + \textit{Loan Purpose FE} + \textit{Firm FE} + \textit{Year FE} + \varepsilon, \qquad (1) \end{aligned}$$

where *SaleGov dummy*, *SaleFirm dummy*, and *SaleOther dummy* are as defined in Section 4.2. *Loan term* is one of the loan contract terms we investigate. Following prior studies (e.g., Demiroglu and James [2010], Bradley and Roberts [2015]), we quantify the use of loan

[12] For a loan package with multiple facilities, we report the amount weighted average maturity of all facilities.
[13] At the finer industry level (Fama-Frech 49 industries), the likelihood of having a major government customer is the highest in the following three industries: defense (63%), healthcare (49%), and aircraft (45%). On average, 32%, 20%, and 16% of sales of firms in these industries, respectively, are from government customers.

covenants by simply counting them (*All covenants*). We also separately examine the effect of major government customers on the number of general covenants (*General covenants*) and the number of financial covenants (*Financial covenants*).

An important challenge in identifying the causal effect of the existence of major government customer on loan covenant intensity is that firms with significant business transactions with the government may be fundamentally different from other firms. For instance, Cohen and Li [2016a,b] document that these firms are smaller, more profitable, and have less volatile earnings than firms that have no government customers. As a result, the estimated effect of *SaleGov dummy* on loan contract terms could be due to omitted firm characteristics that are associated with both the presence of a major government customer and covenant intensity.

We attempt to address this endogeneity concern in several ways. First, we follow prior studies (e.g., Bertrand and Mullainathan [2003], Valta [2012], Christensen et al. [2013]) and incorporate both firm and year fixed effects into equation (1). Firm fixed effects fully controls for unobservable time-invariant differences between firms with and without government customers, allowing the estimation of the effect of *within-firm changes* in the existence of a major government customer on covenant intensity. The year fixed effects control for common time variant factors, such as macroeconomic conditions. As Bertrand and Mullainathan [2003] explain, with this approach, for a firm that experiences a change in *SaleGov dummy* in a given year, all sample firms that do not experience a change in that year serve as control firms. In this sense, equation (1) is essentially a difference-in-difference design (Bertrand and Mullainathan [2003], Valta [2012]).

Second, in addition to estimating the treatment effect of *SaleGov dummy*, we also compare it with the effects of *SaleFirm dummy* and *SaleOther dummy*. We expect β_1 to be more negative than β_2 and β_3. This approach will rule out that the documented effect of *SaleGov dummy* is due to the effect of having a major customer, not due to the unique feature of having a major government. In addition, to the extent that we document a differential effect of *SaleGov Dummy*, it will add to prior studies that show government and major corporate customers have significantly different impacts on firm fundamentals and corporate strategies (e.g., Dhaliwal et al. [2016], Cohen and Li [2016a,b], Cohen and Malloy [2015]).

We follow prior studies and control for firm and loan characteristics that are possibly associated with covenant intensity (e.g., Graham, Li, and Qiu [2008], Costello and Wittengberg-Moerman [2011]). Specifically, we control for the following firm characteristics that are possibly associated with credit quality: firm size (*Log(Assets)*), leverage ratio (*Leverage*), asset tangibility (*Tangibility*), returns on assets (*Profitability*), market-to-book ratio (*Market to book*), and the volatility of operating cash flows (*Cash flow volatility*). These variables are defined in Appendix B. To capture the effect of monitoring activities by the borrowing firms' existing creditors, we also include the number of covenants (*Prior covenants*) that are already specified in the borrowing firm's existing loans and bonds at the time when the new loan is originated (e.g., Lou and Otto [2015]).[14]

To further control for the effect of borrowing firms' credit quality, we include fixed effects for all credit rating categories, including an indicator variable for unrated firms. This specification allows us to control for any possible nonlinear effect that a borrower's credit rating may have on covenant intensity. We also control for the following loan characteristics: the

[14] Consistent with the new lenders delegating monitoring to existing lenders, Lou and Otto [2015] document that when a firm has more covenants outstanding, its new loan contains fewer covenants. The number of prior covenants is based on data for previously issued loans and bonds from DealScan and Mergent FISD. If the same covenant is included in multiple outstanding loans or bonds of the borrowing firm, we count the covenant only once. Dropping the number of prior covenants from the regressions does not change our results.

natural logarithm of loan amount (*Log(Amount)*) and maturity (*Log(Maturity)*).[15] We further include fixed effects for loan types and loan purposes. Finally, we cluster the standard errors by each firm to account for potential within-firm dependence in the error terms.

We estimate an OLS model for all loan terms. When the dependent variable is *All covenants, General covenants, or Financial covenants*, we also estimate a Poisson model. We also estimate a conditional logit model when the dependent variable is the use of performance pricing (*Performance pricing*) or collateral requirement (*Loan security*). Although nonlinear models with firm fixed effects are generally subject to the incidental parameters problem, the coefficients of a Poisson model and a conditional logit model with firm fixed effects can be consistently estimated because it has no problem of incidental parameters (Wooldridge [2002], Cameron and Trivedi [2005]).

5.2 The Effect of Major government Customers on Loan Covenant Intensity

Table 3 presents the regression estimates of equation (1). To provide a benchmark for evaluating the effect of a major government customer, we first regress covenant intensity on the indicator variable of major customers, namely, *SaleMajor dummy*. The results are presented in the first two columns of Panel A. Column 1 reports results for an OLS model and column 2 for a Poisson model. We find that the coefficients on *SaleMajor dummy* are insignificant at the conventional levels in both columns (*t*-statistics equal to -0.759 and -0.962, respectively). These results suggest that having a major customer does not affect a firm's covenant intensity.

In column 3 of Panel A, we separately investigate in an OLS model the effects of having a major government customer, a major corporate customer, and any other major customer on covenant intensity. We find that their effects are distinct. The estimated coefficient on *SaleGov*

[15] We drop *Log(Maturity)* from the control variables when the dependent variable is loan maturity.

dummy is negative and statistically significant, suggesting that a firm has fewer loan covenants when they report at least 10% of their total sales from the U.S. government than when it does not have such a major customer. The effect of *SaleGov dummy* is also economically significant. The estimated coefficient on *SaleGov dummy* in Column 3 indicates that having the U.S. government as a major customer lowers the average number of covenants by 0.7, which accounts for approximately 22% of the mean and standard deviation of the number of covenants in the sample. In contrast, the estimated coefficient on *SaleFirm dummy* is statistically insignificant, which suggests that a major corporate customer do not have a significant impact on the supplier firm's covenant intensity. The statistical test reported at the bottom of the panel indicates that the difference in the coefficients on *SaleGov dummy* and *SaleFirm dummy* is statistically significant. These results suggest that the effect of a major government customer on covenant intensity is not only significantly negative but also significantly more negative than that of a major corporate customer.

The coefficient on *SaleOther dummy* is significantly positive in column 3 of Panel A, suggesting that having other major customers (e.g., individuals and nonprofit organizations) actually increases the use of covenants in the borrowing firm's loan contract. This effect could be due to the fact that relying on these other major customers increases the borrowing firm's operating risk and these customers do not have strong incentives or powers to monitor the borrowing firm.[16] Not surprisingly, the difference in the coefficients on *SaleGov dummy* and *SaleOther dummy* is statistically significant based on the test reported at the bottom of the panel.

[16] Although relying on major *corporate* customers also increases the supplier firm's operating risk, these customers have incentives and powers to monitor the supplier firm due to their relationship specific investments (e.g., Cornell and Shapiro [1987], Hui et al. [2012]). Thus, it is not surprising that a major corporate customer does not have a significant impact on covenant intensity. As the economic behaviors of other major customers, such as nonprofit organizations, are not well understood, we provide no further explanation for why the effect of *SaleOther dummy* is positive and primarily view this as an empirical fact.

Column 4 reports a similar test as in column 3 using a Poisson model. The results are qualitatively similar to those in column 3 and lead to the same conclusions.

The effects of control variables in Table 3, Panel A are largely consistent with prior studies (e.g., Graham et al. [2008], Costello and Wittengberg-Moerman [2011], Lou and Otto [2015]). For instance, we find significantly negative effects of firm size and market-to-book ratio, consistent with firms with lower credit quality having more covenants in their loan contracts. The coefficient on *Prior covenant* is significantly negative in all regressions in Table 3, Panel A, suggesting that firms with more covenants in the existing loan and bonds have fewer covenants in a new loan. This finding is consistent with new lenders benefit from the monitoring activities of existing lenders.

In Panel B of Table 2, we repeat the analyses in Panel A by replacing the indicator variables for various major customers with percentage sales from them. Similar to Panel A, the results in Panel B show that the percentage sales from all major customers combined (*SaleMajor%*) do not exhibit a significant association with loan covenant intensity. Separating *SaleMajor%* into percentage sales from major government customers (*SaleGov%*), major corporate customers (*SaleFirm%*), and other major customers (*SaleOther%*), we find that covenant intensity of a loan contract is negatively related to *SaleGov%* and positively related to *SaleOther%,* and does not seem to have a significant association with *SaleFirm%*. Further, the coefficient on *SaleGov%* is significantly different from those on *SaleFirm%* and *SaleOther%* based on the statistical tests reported at the bottom of the panel. The effect of government sales on covenant intensity is also economically significant. One standard deviation increase in *SaleGov%* reduces the number of covenants by 0.2, which accounts for around 6% of the mean and standard deviation of the number of covenants in the sample. Taken together, the evidence in

Table 3 indicates that the existence of a major government customer significantly reduces covenant intensity of the supplier firm's loan contract, while major corporate customers do not have such an effect and other major customers have an opposite effect.

5.3 The Effect of Major government Customers on General Covenants and Financial Covenants

Next, we separately examine the effects of a major government customer on the uses of general covenants and financial covenants. As Christensen et al. [2016] note, general and financial covenants may serve different monitoring roles. By separately examining general and financial covenants, we intend to shed light on what category of covenants are affected by major government customers. We separate the total number of covenants into the number of general covenants and the number of financial covenants, and use each of them as the dependent variable in Equation (1).

Table 4 reports the estimation of equation (1) with the number of general covenants as the dependent variable. Panel A shows that the indicator variable of all major customers, *SaleMajor dummy*, is not significantly associated with the number of general covenants in both the OLS and Poisson regressions (columns 1 and 2). However, the coefficients on the indicator of government sales, *SaleGov dummy*, are consistently negative and significant in columns 3 and 4, suggesting that having a major government customer reduces the number of general covenants. Moreover, the coefficients on the indicators of corporate and other major customers, namely, *SaleFirm dummy* and *SaleOther dummy*, are significantly more positive than that on *SaleGov dummy*. This evidence indicates that a government customer is different from corporate and other major customers in terms of its effects on directly restricting managers' operating, investing, and financing activities in loan contracts. On average, having a major government customer reduces the number of general covenants by 0.4, which accounts for about 25% of the average number of general covenants in our sample.

Table 4, Panel B employs the percentage sales from various major customers as the main independent variables of interest. Consistent with the results in Panel A, the coefficients on the percentage sales to all major customers combined, *SaleMajor%*, are insignificant, while the coefficients on the percentage sales to the major government customer, *SaleGov%*, are significantly negative. The coefficient on *SaleGov%* in column 3 (coefficient = -0.819, *t-statistic* = -2.650) suggests that a standard deviation increase in government sales (12%) reduces the number of general covenants by 0.1, which approximately equals 6% of the average number of general covenants in our sample. In general, the evidence in Table 4 reveals that a major government customer reduces the restrictions on managerial decisions through general covenants in the supplier firm's loan contract.

Next, we report in Table 5 the estimation of equation (1) with the number of financial covenants as the dependent variable. Panel A relies on the indicator variables of major customers as the main variables of interest. The coefficients on *SaleMajor dummy* are statistically insignificant in columns 1 and 2, while the coefficients on *SaleGov dummy* are significantly negative in both columns 3 and 4. The estimated coefficient on *SaleGov dummy* in the OLS regression suggests that having a major government customer lowers the number of financial covenants by 0.3 (column 3), which represents 18% of the average number of financial covenants in our sample. Panel B of Table 4 presents results based on the percentage sales to major customers. The results are generally consistent with those in Panel A. To summarize, the evidence in Tables 4 and 5 indicates that firms have fewer general and financial covenants in their loan contracts when they report the U.S. government as a major customer than otherwise.

5.4 The Effect of Major government Customers on the Use of Performance Pricing

Given that performance pricing is a feature at the loan facility level, we perform this analysis at the facility level. As the dependent variable is a dummy variable and the model include firm fixed effects, we estimate an OLS model as well as a conditional logit model to avoid the incidental parameters problem that would arise in a probit or logit model (Wooldridge [2002]). A conditional logit model is not subject to the incidental parameter problem. However, it would not allow us to consistently estimate the average marginal effects of the explanatory variables (Wooldridge [2002]). Thus, we rely on the OLS model to interpret marginal effects.

The estimation results are shown in Table 6. Panels A and B present results based on major customer dummies and major customer sale percentages, respectively. In columns 1 and 2 of Panel A, we regress the use of performance pricing on the indicator variable of major customers, namely, *SaleMajor dummy*. We find that the coefficients on *SaleMajor dummy* are insignificant at the conventional levels in both columns. These results suggest that having a major customer does not affect a firm's tendency to have performance pricing provisions. However, when we separate major customers into government, corporate, and other major customers in columns 3 and 4, the coefficient on *SaleGov dummy* is significantly negative, whereas the coefficients on *SaleFirm dummy* and *SaleOther dummy* are statistically insignificant. Moreover, the coefficient on *SaleGov dummy* is significantly more negative than those on *SaleFirm dummy* and *SaleOther dummy*. The estimated coefficient on *SaleGov dummy* in column 3 (-0.071) suggest that firms with major government customers are 7 percentage points more likely to have performance pricing provisions in their loan contracts than other firms. The effect is economically significant compared to the average likelihood of using a performance pricing provision in our sample (44%).

The results based on major customer sale percentages in Panel B are qualitatively consistent with those based on the dummy variables in Panel A. Collectively, the results in Table 6 indicate that firms with major government customers are less likely to have performance pricing provisions in their loan contracts than other firms, and this effect is significant more negative than the effect of major corporate customers.

5.5 The Effect of Major government Customers on Loan Spread, Maturity, and Security

Next, we examine the effect of major government customers on loan spread, maturity, and security. These analyses are performed at the loan facility level. We report the results in Table 7. Panels A and B present results based on major customer dummies and major customer sale percentages, respectively. To conserve table space, we only report results based on OLS models. The results based on conditional logit models for loan security are consistent with those based on OLS models (untabulated).

Panel A shows that the coefficients on *SaleGov dummy* are insignificant across all columns, suggesting that having a major government customer has no significant impact on loan spread, maturity, or collateral requirement. The effect of major corporate customers on these loan terms is also insignificant. Further, the effect of major government customers is statistically indistinguishable from that of major corporate customers. The results based on major customer sale percentages in Panel B are qualitatively consistent with those based on the dummy variables in Panel A except that the effect of *SaleFirm%* on loan security (column 3) becomes significantly negative (it is still statistically indistinguishable from the effect of *SaleGov%*). Collectively, the results in Table 7 indicate that major government customers have no impacts on the supplier firm's loan spread, maturity, and collateral requirement, and their effects are not statistically different from those of major corporate customers.

5.6 Instrumental Variable Analysis

Although our difference-in-difference design in equation (1) helps address the endogeneity of a firm's business relationship with the government, it is still conceivable that certain time-variant factors may correlate with both the presence of government customer and loan contract terms. If the presence of the government customer is driven by time-variant firm specific factors (e.g., higher firm quality), it is likely that these factors will also impact loan contract terms. It is arguable that firm characteristics valued by the government customer are also likely viewed favorably by creditors. Thus, the change of business relationship with the government caused by changes of firm specific characteristics are likely endogenous.

We employ an instrument variable (IV) analysis to mitigate this concern. To identify exogenous change in the presence of the government customer, we explore change in a firm's business transaction with the government caused by the government's purchase behavior. Specifically, we use the total government sales of each three-digit SIC industry scaled by total industry sales (*Industry SaleGov%*) as an instrument variable for our treatment variable *SaleGov dummy*.[17] When the government increases purchase from an industry relative to other customers, firms in that industry are more likely to have the government as a major customer. Thus, industry government sales meet the relevance condition of an IV. On the other hand, it is unlikely that

[17] We find qualitatively similar results when the industry government sale is calculated based on four-digit SIC industries.

industry government sales will affect the loan contract terms of an individual firm after controlling for relevant firm characteristics. We estimate equation (1) using a two-stage least squares (2SLS) analysis. In the first stage, we regress *SaleGov dummy* on *Industry SaleGov%* and all other explanatory variables in equation (1), including various fixed effects. In the second stage, we replace *SaleGov dummy* in equation (1) with its predicted value from the first stage regression and estimate equation (1).[18]

We present the estimation results in Table 8. Panel A reports results for the first-stage regression, *Industry SaleGov%* is positively associated with *SaleGov dummy* and their association is statistically significant (Panel A). The high *F*-statistic (89.17) and partial R^2 (13.2%) reported at the bottom of Panel A suggest that our results do not suffer from the weak instrument problem (Larcker and Rusticus [2010]). Panel B reports results for the second-stage regression. We continue to find that the existence of the government customer is negatively associated with the number of covenants (both general and financial covenants) and the use of performance pricing provisions in firms' loan contracts. The statistical tests reported at the bottom of the panel indicate that the differences in the effects of *SaleGov dummy* and *SaleFirm dummy* (*SaleOther dummy*) are statistically significant. In contrast, the effects of *SaleGov dummy* on loan spread (column 5), loan maturity (column 6), and collateral requirement (column 7) continue to be insignificant and statistically indistinguishable from those of *SaleFirm dummy* and *SaleOther dummy*.

The estimated effects of *SaleGov dummy* on the number of all, general, and financial covenants and that on the use of performance pricing provisions are all larger in magnitude than their corresponding values in regular OLS regressions in Tables 3 to 6. For instance, the effect of

[18] In untabulated analyses, we find similar results using *Industry SaleGov%* as an IV for *SaleGov%*, the percentage sales from the government customer.

of *SaleGov dummy* on the number of all covenants is –1.456 based on the IV analysis (column 1 of Table 7, Panel B), compared to –0.690 in a regular OLS regression (column 3 of Table 3, Panel A). Therefore, if there is any selection bias in the analyses reported in Tables 3 to 7, the bias is against us finding the predicted effects.

5.7 Additional Analysis on the Channel

While our main goal is to examine the overall effect of major government customers on a supplier's loan contract terms and how it differs from the effect of major corporate customers, we also attempt to shed light on whether the negative effect of major government customers on covenant intensity and the use of performance pricing is due to lower operating risk associated with government sales or enhanced monitoring by government customers. Because loan spread and security are very sensitive to the borrowing firms' credit risk (e.g., Berger and Udell [1990], Bharath, Sunder, and Sunder [2008]), the insignificant effect of major government customers on loan spread and security suggests that the reduced risk is probably not a major channel. As loan covenants and performance pricing are mainly used as monitoring mechanisms to reduce the agency problem between borrowers and lenders (Jensen and Meckling [1979], Asquith et al. [2005]), the negative effect of major government customers on covenant intensity and performance pricing, combine with their insignificant effect on loan spread and security, suggests that enhanced monitoring is likely the primary channel.

To further explore whether major government customers reduce credit risk, we examine their effect on the expected default likelihood based on Merton's model and CDS spread of the supplier firm. The results are reported in Table 9. The first two columns include all firm-year observations from Compustat, while the estimates in columns 3–4 are based on firm-year observations in our loan sample. Table 9 provides consistent evidence that having major government customers does not affect the supplier firm's credit risk. In fact, major government customers are not significantly different from corporate or other major customers in their impacts on the supplier's estimated default likelihood and CDS spread. These results provide further evidence for our conjecture that major government customers probably do not affect covenant intensity and the use of performance pricing through their effect on credit risk.

In addition, if the major channel for major government customers to reduce covenant intensity and the use of performance pricing is through the reduced risk, we expect for firms with major government sales, covenant intensity and the use of performance pricing will be lower if the supplier firm has more government sales, because a higher level of government sales will reduce operating risk further. In other words, if our results are driven by government sales being more stable, we expect to find similar effects of *GovSale%* in this subsample, because a firm's total revenue should become more stable as its government sales increase. However, we do not observe such an effect (untabulated). This finding suggests that our covenant and performance pricing results are mainly driven by firms switching from having no major government sales to having major government sales. It appears more consistent with the monitoring explanation because for this channel what matters is the existence of a major government customer.[19]

6. Conclusion

We investigate how a firm's business relationship with the U.S. government, in particular, having the government as a major customer, impacts its loan contracts. Major government customers may affect the supplier firm's loan contract terms through their effects on

[19] However, we acknowledge that the insignificant effect of government sales for the sample of firms with major government customers could be also due to the limited test power.

the supplier firm's operating risk and other firm fundamentals, as well as their strict monitoring of the supplier firm. We find that a firm's loan contracts contain fewer covenants and are less likely to have a performance pricing provision when it has a major government customer than when it has no such a customer. We find qualitative similar results when separately examining general and financial covenants, or measuring a firm's business transaction with the government using percentage sales from the government. In contrast, we do not find such an effect for major corporate customers. We do not find evidence that government customers affect the supplier firm's loan spread, maturity, or collateral requirement.

We conjecture that our findings may be primarily due to lenders benefiting from major government customers' strict morning of the supplier firm, not government customers reducing credit risk through their positive impacts on firm fundamentals, because we find that having a major government customer does not affect loan spread or the likelihood of collateral requirement, both of which are sensitive to the borrowing firm's credit risk. Further, we find that major government customers are not associated the supplier firm's credit risk, measured with the estimated default likelihood based on Merton's model and CDS spreads.

Our study contributes to the literature on how a firm's customer base characteristics affect firm fundamentals and corporate strategies as well as the literature on debt contracting. It highlights the uniqueness of the government as a customer from the perspective of its monitoring incentives and effectiveness. Future studies can further explore the impact of the government as a customer on other corporate outcomes, such as managerial behaviors and financial reporting.

References

Aghion, P., and P. Bolton. 1992. An Incomplete Contracts Approach to Financial Contracting. *Review of Economic Studies* 59: 473-494.

Armstrong, C., W. Guay, and J. Weber, 2010. The Role of Information and Financial Reporting in Corporate Governance and Debt Contracting. *Journal of Accounting and Economics* 50: 179-234.

Asquith, P., A. Beatty, and J. Weber, 2005. Performance Pricing in Bank Debt Contracts. *Journal of Accounting and Economics* 40: 101-28.

Bangerjee, S., S. Dasgupta, and Y. Kim, 2008. Buyer-Supplier Relationships and the Stakeholder Theory of Capital Structure. *Journal of Finance* 63: 2507-2552.

Beatty, A., S. Liao, and J. Weber, 2012. Evidence on the Determinants and Economic Consequences of Delegated Monitoring. *Journal of Accounting and Economics* 53: 555-576.

Becchetti, L., and J. Sierra, 2003. Bankruptcy Risk and Productive Efficiency in Manufacturing Firms. *Journal of Banking and Finance* 27: 2099-2120.

Berger, A., and G. Udell, 1990. Collateral, Loan Quality, and Bank Risk. *Journal of Monetary Economics* 25: 25-42.

Bertrand, M., and S. Mullainathan. 2003. Enjoying the Quiet Life? Corporate Governance and Managerial Preferences. *Journal of Political Economy* 111: 1043-1075.

Bharath, S., J. Sunder, and S. Sunder, 2008. Accounting Quality and Debt Contracting. *The Accounting Review* 83: 1-28.

Boot, A., A.V. Thakor, and G.F. Udell. 1991. Credible Commitments, Contract Enforcement Problems and Banks: Intermediation as Credibility Assurance. *Journal of Banking & Finance* 15: 605-632.

Cameron, A.C., and P.K. Trivedi. 2005. Microeconometrics: Methods and Applications. *Cambridge University Press*.

Chava, S., and M. Roberts, 2008. How Does Financing Impact Investment? The Role of Debt Covenants. *Journal of Finance* 63: 2085-2121.

Christensen, H., L. Hail, and C. Leuz. 2013. Capital Market Effects of Securities Regulation: Prior Conditions, Implementation, and Enforcement. *Working Paper*.

Christensen, H., V. Nikolaev, and R. Witternberg-Moerman, 2016. Accounting Information in Financial Contracting: The Incomplete Contract Theory Perspective. *Journal of Accounting Research* 54: 397-435.

Cohen, D., and B. Li., 2016a. Customer-Base Concentration, Profitability and the Information Environment: The U.S. Government as a Major Customer. *Working paper*.

Cohen, D., and B. Li., 2016b. Why do Firms Hold Less Cash? A Customer Base Explanation. Working paper.

Cohen, L., Coval, J., Malloy, C., 2011. Do Powerful Politicians Cause Corporate Downsizing? *Journal of Political Economy* 119: 1015-1060.

Cohen, L., Malloy, C., 2015. Mini West Virginia: Corporations as Government Dependents. *Working paper*.

Cornell, B., and A. Shapiro. 1987. Corporate Stakeholders and Corporate Finance. *Financial Management* 16: 5-14.

Costello, A., and R. Wittenberg-Moerman, 2011. The Impact of Financial Reporting Quality on Debt Contracting: Evidence from Internal Control Weakness Reports. *Journal of Accounting Research* 49: 97-136.

Cull, R., Xu, L.C., 2005. Institutions, Ownership, and Finance: The Determinants of Profit Reinvestment among Chinese Firms. *Journal of Financial Economics* 77, 117-146.

Demiroglu, C., and C.M. James. 2010. The Information Content of Bank Loan Covenants. *Review of Financial Studies* 23: 3700-3737.

Dhaliwal, D., Judd, S., Serfling, M., Shaikh, S., 2016. Customer Concentration Risk and the Cost of Equity Capital. *Journal of Accounting and Economics* 61: 23-48.

Diamond, D., 1984. Financial Intermediation and Delegated Monitoring. *Review of Economic Studies* 51: 393-414.

Fama, E., and M. Jensen, 1983. Separation of Ownership and Control. *Journal of Law and Economics* 26: 301–325.

Graham, J., S. Li, and J. Qiu, 2009. Corporate Misreporting and Bank Loan Contracting. *Journal of Financial Economics* 89: 44-61.

Goldman, E., Rocholl, J., So, J., 2013. Politically Connected Boards of Directors and The Allocation of Procurement Contracts. *Review of Finance* 17, 1-32.

Grossman S., and O. Hart, 1986. The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration. *Journal of Political Economy* 94: 691-719.

Gruca, T, and L. Rego, 2005. Customer Satisfaction, Cash Flow, and Shareholder Value. *Journal of Marketing* 69: 115-130.

Halchin, L.E., 2012. Overview of the Federal Procurement Process and Resources. *Current Politics and Economics of the United States, Canada and Mexico* 14.1: 1-8.

Hart, O., and J. Moore, 1988. Incomplete Contracts and Renegotiation. *Econometrica* 56: 755-85.

Hart, O., and J. Moore, 1990. Property Rights and the Nature of Firm. *Journal of Political Economy* 98: 1119-58.

Holmstrom, B., and J. Tirole. 1997. Financial Intermediation, Loanable Funds, and the Real Sector. *Quarterly Journal of Economics* 112: 663-691.

Houston, J.F., L. Jiang, C. Lin, and Y. Ma. 2014. Political Connections and the Cost of Bank Loans. *Journal of Accounting Research* 52: 193-243.

Hui, K., S. Klasa, and E. Yeung. 2012. Corporate Suppliers and Customers and Accounting Conservatism. *Journal of Accounting and Economics* 53: 115-135.

Ittner C., and D. Larcker, 1998. Are Nonfinancial Measures Leading Indicators of Financial Performance? An Analysis of Customer Satisfaction. *Journal of Accounting Research* 36: 1-35.

Irvine, P., S. Park, and C. Yildizhan, 2016. Customer-Based Concentration, Profitability, and the Relationship Life Cycle. *The Accounting Review* 91: 883-906.

Jensen, M., and W. Meckling, 1976. Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure. *Journal of Financial Economics* 3: 305–60.

Kim, Y. 1996. Big Customers, Selling Expenses and Profit Margin. *Journal of Economic Research* 1: 311-326.

Khwaja, A.I., Mian, A., 2005. Do Lenders Favor Politically Connected Firms? Rent Provision in an Emerging Financial Market. *The Quarterly Journal of Economics* 120, 1371-1411.

Larcker, D., and T. Rusticus, 2010. On the Use of Instrumental Variables in Accounting Research. *Journal of Accounting and Economics* 49: 186-205.

Lou, Y., and C. Otto, 2015. Debt Heterogeneity and Covenants. Working paper.

Myers, S. C., 1977. Determinants of Corporate Borrowing. *Journal of Financial Economics* 5: 147–76.

Nagar, V., and M. Rajan, 2005. Measuring Customer Relationships: The Case of Retain Banking Industry. *Management Science* 51: 904-919.

Patatoukas, P.N., 2012. Customer-Base Concentration: Implications for Firm Performance and Capital Markets. *The Accounting Review* 87, 363-392.

Rajan, R., and A. Winton.1995. Covenants and Collateral as Incentives to Monitor. *Journal of Finance* 50: 1113-1146.

Smith, C., and J. Warner, 1979. On Financial Contracting: An Analysis of Bond Covenants. *Journal of Financial Economics* 7: 117–61.

Stulz, R.M., and H. Johnson. 1985. An Analysis of Secured Debt. *Journal of Financial Economics* 14: 501-521.

Valta, P. 2012. Competition and the Cost of Debt. *Journal of Financial Economics* 105, 661-682,

Wooldridge, J. 2002. *Econometric Analysis of Cross Section and Panel Data*. MIT Press: Cambridge, MA.

Appendix A: Anecdotal Evidence

Oshkosh 2012 Annual Report

"The Company made approximately 45%, 56% and 72% of its net sales for fiscal 2012, 2011 and 2010, respectively, to the U.S. government, a substantial majority of which were under multi-year contracts and programs in the defense vehicle market."

"The Company, as a U.S. government contractor, is subject to financial audits and other reviews by the U.S. government of performance of, and the accounting and general practices relating to, U.S. government contracts. Like most large government contractors, the Company is audited and reviewed by the government on a continual basis. Costs and prices under such contracts may be subject to adjustment based upon the results of such audits and reviews. Additionally, such audits and reviews can lead to civil, criminal or administrative proceedings. Such proceedings could involve claims by the government for fines, penalties, compensatory and treble damages, restitution and/or forfeitures. Under government regulations, a company or one or more of its subsidiaries can also be suspended or debarred from government contracts, or lose its export privileges based on the results of such proceedings. The Company believes that the outcome of all such audits and reviews that are now pending will not have a material adverse effect on its financial condition, results of operations or cash flows."

Halliburton 2003 Annual Report

"The increase in consolidated revenues for 2003 compared to 2002 was largely attributable to activity in our government services projects, primarily work in the Middle East. International revenues were 73% of total revenues in 2003 and 67% of total revenues in 2002, with the increase attributable to our government services projects. The United States Government has become a major customer of ours with total revenues of approximately $4.2 billion, or 26% of total consolidated revenues, for 2003."

"Our operations under these contracts are also regularly reviewed and audited by the Defense Contract Audit Agency, or DCAA, and other governmental agencies. When issues are found during the governmental agency audit process, these issues are typically discussed and reviewed with us in order to reach a resolution.

The results of a preliminary audit by the DCAA in December 2003 alleged that we may have overcharged the Department of Defense by $61 million in importing fuel into Iraq. After a review, the Army Corps of Engineers, which is our client and oversees the project, concluded that we obtained a fair price for the fuel. However, Department of Defense officials have referred the matter to the agency's inspector general with a request for additional investigation by the agency's criminal division. We understand that the agency's inspector general has commenced an investigation. We have also in the past had inquiries by the DCAA and the civil fraud division of the United States Department of Justice into possible overcharges for work under a contract performed in the Balkans, which is still under review with the Department of Justice."

Appendix B: Variable Definitions

Variable	Definition
Major customer measures	
SaleMajor%	Sales to all major customers as percentage of total sales
SaleMajor dummy	A dummy variable equal to one if a firm has a least one major customer and zero otherwise.
SaleGov%	Sales to the U.S. government as a major customer as percentage of total sales
SaleGov dummy	A dummy variable equal to one if a firm has the U.S. government as a major customer and zero otherwise.
SaleFirm%	Sales to major corporate customers as a percentage of total sales
SaleFirm dummy	A dummy variable equal to one if a firm has a least one major corporate customer and zero otherwise.
SaleOther%	Sales to other major customers as a percentage of total sales
SaleOther dummy	A dummy variable equal to one if a firm has a least one non-corporate non-major government customer and zero otherwise.
Industry SaleGov%	The total government sales of each three-digit SIC industry scaled by total industry sales.
Other firm characteristics	
Cash flow volatility	Standard deviation of quarterly cash flows from operations over the 12 prior quarters divided by sales
Credit rating	Numeric values assigned to firm ratings issued by S&P's ranging from1 to 23 with the rating "AAA" equal to "1". If a firm is unrated, it takes the value 0.
Market to book	Market value of equity plus book value of debt divided by total assets
Leverage	Long-term debt plus debt in current liabilities divided by total assets
Tangibility	Net property, plant, and equipment divided by total assets
Total assets	Book value of total assets
Prior covenants	Total number of prior covenants already specified in a firm's existing loans and bonds outstanding when a new loan or bond is issued
Profitability	Earnings before interest, tax, depreciation, and amortization divided by total assets
Default probability	Estimated probability of default based on the Merton model
Log (CDS spread)	Logarithm of credit default swap spreads from Markit
Loan characteristics	
All covenants	Total number of covenants included in the loan contract
Financial covenants	Total number of financial covenants included in the loan contract
General covenants	Total number of general covenants included in the loan contract
Loan amount	Face value of the loan
Loan maturity	Maturity of the loan
Loan spread	Difference between the interest rate on a loan and the LIBOR for loans; difference between the yield at issuance of a bond and the yield of a Treasury bill with matched maturity for bonds
Loan security	Dummy variable that equals one if a debt instrument is backed by collateral
Performance pricing	Dummy variable that equals one if a loan has a performance pricing clause

Table 1. Summary Statistics

Variable	*N*	Mean	Median	Std. Dev.
Firm characteristics				
SaleMajor dummy	10,671	0.69	1.00	0.46
SaleGov dummy	10,671	0.09	0.00	0.28
SaleFirm dummy	10,671	0.46	0.00	0.50
SaleOther dummy	10,671	0.24	0.00	0.43
SaleMajor%	10,671	0.33	0.26	0.32
SaleGov%	10,671	0.03	0.00	0.12
SaleFirm%	10,671	0.17	0.00	0.23
SaleOther%	10,671	0.14	0.00	0.28
SaleMajor% (*SaleMajor%*>0)	7,396	0.48	0.44	0.28
SaleGov% (*SaleGov%*>0)	931	0.38	0.35	0.20
SaleFirm% (*SaleFirm%*>0)	4,954	0.36	0.31	0.22
SaleOther% (*SaleOther%*>0)	2,543	0.57	0.56	0.28
Industry SaleGov%	10,671	0.03	0.00	0.08
Total assets (mills)	10,671	4,527	932	10,776
Log(Assets)	10,671	6.85	6.84	1.86
Leverage	10,671	0.29	0.26	0.21
Tangibility	10,671	0.30	0.23	0.24
Profitability	10,671	0.13	0.13	0.10
Market to book	10,671	1.73	1.46	0.96
Cash flow volatility	10,671	0.05	0.04	0.05
Prior covenants	10,671	8.04	7.00	7.29
Unrated	10,671	0.50	1.00	0.50
Credit rating	5,289	10.72	11.00	3.46
Loan characteristics				
Loan amount (mills)	10,671	415	188	636
Log(Amount)	10,671	5.05	5.24	1.58
Loan maturity (months)	10,671	46.39	49.00	24.17
Log(Maturity)	10,671	3.65	3.89	0.70
All covenants	10,671	3.25	3.00	3.19
Financial covenants	10,671	1.64	2.00	1.51
General covenants	10,671	1.61	1.00	2.14
Loan spread	13,026	2.03	1.75	1.24
Loan security	11,545	0.75	1.00	0.47
Performance pricing	15,870	0.44	0.00	0.50

This table presents summary statistics of our sample of 10,671 loan packages issued by 2,183 firms over the time period of 1995-2014. The descriptive statistics of performance pricing, loan spread and loan security are at the facility level. Variable definitions are in Appendix B.

Table 2. Industry Distribution

Industry name	*N*	Percentage	*SaleGov dummy*	*SaleFirm dummy*	*SaleGov%*	*SaleFirm%*
Consumer NonDurables	974	9.13%	0.00	0.62	0.04%	20.70%
Consumer Durables	508	4.76%	0.04	0.52	1.40%	18.58%
Manufacturing	1,964	18.41%	0.10	0.44	3.56%	13.67%
Oil, Gas, and Coal Extraction and Products	1,066	9.99%	0.01	0.80	0.15%	32.77%
Chemicals and Allied Products	438	4.10%	0.01	0.38	0.18%	12.19%
Business Equipment	1,751	16.41%	0.15	0.43	6.00%	15.75%
Telephone and Television Transmission	228	2.14%	0.01	0.36	0.55%	11.06%
Wholesale, Retail, and Some Services	991	9.29%	0.05	0.31	1.49%	9.93%
Healthcare, Medical Equipment, and Drugs	971	9.10%	0.22	0.38	8.94%	15.36%
Other	1,780	16.68%	0.10	0.39	3.58%	14.44%

This table reports the industry (Fama-French 12 industries) distribution of our sample of 10,671 loan packages issued by 2,183 firms over the time period of 1995–2014.

Table 3. The Effect of Government Customer on Covenant Intensity

Panel A. The Presence of Major Government Customers

Variable	(1)	(2)	(3)	(4)
	All covenants			
SaleMajor dummy	–0.063	–0.025		
	(–0.784)	(–0.983)		
SaleGov dummy			–0.690***	–0.184***
			(–3.260)	(–3.110)
SaleFirm dummy			–0.132	–0.033
			(–1.424)	(–1.197)
SaleOther dummy			0.221**	0.054*
			(2.410)	(1.702)
Log (Assets)	–0.421***	–0.146***	–0.422***	–0.146***
	(–5.200)	(–5.854)	(–5.219)	(–5.889)
Leverage	0.122	–0.001	0.099	–0.004
	(0.395)	(–0.007)	(0.324)	(–0.044)
Tangibility	–0.139	–0.071	–0.092	–0.070
	(–0.253)	(–0.429)	(–0.167)	(–0.424)
Profitability	0.608	0.080	0.590	0.074
	(1.398)	(0.553)	(1.357)	(0.514)
Market to book	–0.128**	–0.046***	–0.129**	–0.047***
	(–2.513)	(–2.786)	(–2.537)	(–2.813)
Cash flow volatility	–1.099	–0.421	–1.079	–0.420
	(–1.067)	(–1.271)	(–1.047)	(–1.268)
Prior covenant	–0.020**	–0.004	–0.021**	–0.004
	(–2.268)	(–1.533)	(–2.341)	(–1.624)
Log (Amount)	0.562***	0.199***	0.565***	0.198***
	(11.490)	(10.911)	(11.644)	(10.927)
Log (Maturity)	–0.082	–0.032	–0.086	–0.033
	(–1.154)	(–1.306)	(–1.215)	(–1.318)
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10671	10671	10,671	10,671
Adj. R^2/Pseudo R^2	0.524	0.302	0.525	0.303
P-value for testing *SaleGov dummy = SaleFirm dummy*			0.016	0.024
P-value for testing *SaleGov dummy = SaleOther dummy*			0.001	0.001

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
	All covenants			
SaleMajor%	–0.018	–0.013		
	(–0.153)	(–0.348)		
SaleGov%			–1.563***	–0.371***
			(–3.488)	(–3.314)
SaleFirm%			–0.293	–0.074
			(–1.352)	(–1.158)
SaleOther%			0.369***	0.102**
			(2.683)	(2.193)
Control variables:	Yes	Yes	Yes	Yes
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10,671	10,671	10,671	10671
Adj. R^2/Pseudo R^2	0.524	0.302	0.525	0.303
P-value for testing *SaleGov% = SaleFirm%*			0.010	0.021
P-value for testing *SaleGov% = SaleOther%*			0.000	0.000

This table presents results for the effect of a firm's business transaction with the government on covenant intensity of its loan contract. The dependent variable is the number of loan covenants. Panel A presents results for the existence of major government customers. Panel B presents results for percentage sales to major government customers. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix B.

Table 4. The Effect of Government Customer on the Number of General Covenants

Panel A. The Presence of Major Government Customers

Variable	(1)	(2)	(3)	(4)
	General covenants			
SaleMajor dummy	–0.058	–0.046		
	(–1.052)	(–1.260)		
SaleGov dummy			–0.432***	–0.230***
			(–3.066)	(–2.897)
SaleFirm dummy			–0.092	–0.050
			(–1.455)	(–1.279)
SaleOther dummy			0.145**	0.064
			(2.337)	(1.390)
Log (Assets)	–0.271***	–0.188***	–0.272***	–0.188***
	(–4.882)	(–5.493)	(–4.907)	(–5.505)
Leverage	0.273	0.102	0.260	0.100
	(1.286)	(0.897)	(1.232)	(0.885)
Tangibility	–0.276	–0.199	–0.246	–0.200
	(–0.748)	(–0.900)	(–0.666)	(–0.900)
Profitability	–0.145	–0.189	–0.156	–0.197
	(–0.465)	(–0.888)	(–0.502)	(–0.931)
Market to book	–0.066*	–0.058**	–0.067*	–0.058**
	(–1.883)	(–2.399)	(–1.897)	(–2.407)
Cash flow volatility	–0.485	–0.411	–0.469	–0.405
	(–0.733)	(–0.926)	(–0.708)	(–0.914)
Prior covenant	–0.009	–0.001	–0.009	–0.001
	(–1.473)	(–0.240)	(–1.533)	(–0.324)
Log (Amount)	0.373***	0.257***	0.375***	0.257***
	(11.344)	(10.606)	(11.487)	(10.603)
Log (Maturity)	–0.082*	–0.075**	–0.084*	–0.075**
	(–1.663)	(–2.284)	(–1.717)	(–2.299)
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10,671	10,671	10,671	10,671
R^2/Pseudo R^2	0.505	0.344	0.506	0.345
P-value for testing *SaleGov dummy = SaleFirm dummy*			0.027	0.043
P-value for testing *SaleGov dummy = SaleOther dummy*			0.001	0.002

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
	General covenants			
SaleMajor%	–0.027	–0.033		
	(–0.341)	(–0.626)		
SaleGov%			–0.835***	–0.383**
			(–2.700)	(–2.396)
SaleFirm%			–0.242	–0.125
			(–1.596)	(–1.403)
SaleOther%			0.215**	0.105
			(2.393)	(1.638)
Control variables:	Yes	Yes	Yes	Yes
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10,671	10,671	10,671	10,671
Adj. R^2/Pseudo R^2	0.505	0.344	0.506	0.345
P-value for testing: *SaleGov% = SaleFirm%*			0.082	0.156
P-value for testing: *SaleGov% = SaleOther%*			0.001	0.004

This table presents results for the effect of a firm's business transaction with the government on the number of general covenants in its loan contracts. The dependent variable is the number of general covenants. General covenants, also known as negative and affirmative covenants, directly restrict managers' decisions on operating, investing, and financing activities by specifying actions to be taken or not taken in certain situations. Panel A presents results for the existence of major government customers. Panel B presents results for percentage sales to major government customers. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variable are defined in Appendix B.

Table 5. The Effect of Government Customer on the Number of Financial Covenants

Panel A. The Presence of Major Government Customers

Variable	(1)	(2)	(3)	(4)
	Financial covenants			
SaleMajor dummy	–0.005	–0.004		
	(–0.126)	(–0.175)		
SaleGov dummy			–0.258***	–0.140**
			(–2.581)	(–2.394)
SaleFirm dummy			–0.040	–0.018
			(–0.864)	(–0.666)
SaleOther dummy			0.076	0.042
			(1.567)	(1.296)
Log (Assets)	–0.150***	–0.102***	–0.150***	–0.102***
	(–3.741)	(–4.128)	(–3.740)	(–4.146)
Leverage	–0.152	–0.107	–0.161	–0.111
	(–1.094)	(–1.328)	(–1.170)	(–1.373)
Tangibility	0.138	0.044	0.154	0.046
	(0.546)	(0.282)	(0.612)	(0.295)
Profitability	0.753***	0.330**	0.746***	0.327**
	(3.279)	(2.272)	(3.257)	(2.252)
Market to book	–0.062**	–0.035**	–0.062**	–0.035**
	(–2.384)	(–2.117)	(–2.409)	(–2.147)
Cash flow volatility	–0.614	–0.501	–0.610	–0.504
	(–1.184)	(–1.485)	(–1.178)	(–1.494)
Prior covenant	–0.012***	–0.006***	–0.012***	–0.007***
	(–2.770)	(–2.612)	(–2.834)	(–2.684)
Log (Amount)	0.190***	0.134***	0.191***	0.134***
	(8.345)	(7.625)	(8.423)	(7.624)
Log (Maturity)	–0.001	0.010	–0.002	0.010
	(–0.018)	(0.408)	(–0.067)	(0.398)
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10,671	10,671	10,671	10,671
Adj. R^2/Pseudo R^2	0.520	0.229	0.520	0.229
P-value for testing: *SaleGov dummy = SaleFirm dummy*			0.052	0.071
P-value for testing: *SaleGov dummy = SaleOther dummy*			0.004	0.011

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
	Financial covenants			
SaleMajor%	0.009	0.004		
	(0.146)	(0.112)		
SaleGov%			–0.728***	–0.364***
			(–3.467)	(–3.421)
SaleFirm%			–0.051	–0.023
			(–0.496)	(–0.385)
SaleOther%			0.155**	0.098*
			(1.983)	(1.909)
Control variables:	Yes	Yes	Yes	Yes
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year Fixed Effects	Yes	Yes	Yes	Yes
Model	OLS	Poisson	OLS	Poisson
No. of observations	10,671	10,671	10,671	10,671
Adj. R^2/Pseudo R^2	0.520	0.229	0.521	0.229
P-value for testing: *SaleGov%* = *SaleFirm%*			0.004	0.006
P-value for testing: *SaleGov%* = *SaleOther%*			0.000	0.000

This table presents results for the effect of a firm's business transaction with the government on the number of general covenants in its loan contracts. The dependent variable is the number of general covenants. Financial covenants, such as interest coverage and net worth covenants, require firms to adhere to a predetermined level of accounting performance. Panel A presents results for the existence of major government customers. Panel B presents results for percentage sales to major government customers. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variable are defined in Appendix B.

Table 6. The Effect of Government Customer on the Use of Performance Pricing

Panel A. The Presence of Major Government Customers

Variable	(1)	(2)	(3)	(4)
	Performance pricing			
SaleMajor dummy	–0.003	–0.025		
	(–0.180)	(–0.305)		
SaleGov dummy			–0.071**	–0.452**
			(–2.367)	(–2.531)
SaleFirm dummy			–0.009	–0.063
			(–0.600)	(–0.688)
SaleOther dummy			–0.004	–0.039
			(–0.253)	(–0.394)
Log (Assets)	0.016	0.080	0.017	0.081
	(1.299)	(1.040)	(1.319)	(1.062)
Leverage	–0.117***	–0.599**	–0.120***	–0.617**
	(–2.684)	(–2.279)	(–2.769)	(–2.347)
Tangibility	–0.009	–0.286	–0.008	–0.285
	(–0.104)	(–0.562)	(–0.089)	(–0.562)
Profitability	0.314***	2.183***	0.309***	2.182***
	(3.999)	(4.095)	(3.923)	(4.085)
Market to book	–0.016*	–0.093	–0.016*	–0.094
	(–1.784)	(–1.591)	(–1.795)	(–1.604)
Cash flow volatility	0.062	0.517	0.056	0.494
	(0.376)	(0.520)	(0.337)	(0.497)
Prior covenant	–0.001	–0.011	–0.001	–0.012
	(–1.056)	(–1.482)	(–1.103)	(–1.572)
Log (Amount)	0.047***	0.287***	0.047***	0.288***
	(9.117)	(8.930)	(9.159)	(8.974)
Log (Maturity)	0.051***	0.287***	0.051***	0.285***
	(5.748)	(4.778)	(5.701)	(4.749)
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Conditional Logit	OLS	Conditional Logit
No. of observations	15,870	12,585	15,870	12,585
Adj. R^2/Pseudo R^2	0.436	0.172	0.436	0.174
P-value for testing *SaleGov dummy = SaleFirm dummy*			0.070	0.057
P-value for testing *SaleGov dummy = SaleOther dummy*			0.068	0.055

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
	Performance pricing			
SaleMajor%	–0.003	–0.043		
	(–0.141)	(–0.347)		
SaleGov%			–0.171***	–1.004***
			(–3.205)	(–3.219)
SaleFirm%			0.002	0.000
			(0.043)	(0.002)
SaleOther%			0.023	0.099
			(0.849)	(0.603)
Control variables:	Yes	Yes	Yes	Yes
Fixed effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes	Yes
Model	OLS	Conditional Logit	OLS	Conditional Logit
No. of observations	15,870	12,585	15,870	12,585
Adj. R^2/Pseudo R^2	0.436	0.172	0.436	0.173
P-value for testing *SaleGov% = SaleFirm%*			0.007	0.008
P-value for testing *SaleGov% = SaleOther%*			0.001	0.002

This table presents results for the effect of a firm's business transaction with the government on the use of performance pricing in its loan contract. The dependent variable is an indicator variable that takes the value of 1 if a loan contract includes a performance pricing provision, and 0 otherwise. The sample sizes of the conditional Logit models are smaller than those of the OLS models because firms for which the value of the outcome variable does not change across loans cannot be included in the conditional Logit estimations. Panel A presents results for the existence of major government customers. Panel B presents results for percentage sales to major government customers. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined in Appendix B.

Table 7. The Effect of Government Customer on Loan Spread, Loan Maturity, and Collateral Requirement

Panel A. The Presence of Major Government Customers

Variable	(1) *Loan spread*	(2) *Loan maturity*	(3) *Loan security*
SaleGov dummy	0.027	–0.037	–0.012
	(0.285)	(–1.232)	(–0.473)
SaleFirm dummy	–0.045	–0.001	–0.018
	(–1.256)	(–0.056)	(–1.444)
SaleOther dummy	–0.049	–0.007	0.013
	(–1.523)	(–0.421)	(0.863)
Log (Assets)	–0.187***	0.009	–0.060***
	(–5.738)	(0.673)	(–5.408)
Leverage	0.709***	–0.156***	0.086**
	(6.829)	(–2.938)	(2.381)
Tangibility	0.238	0.002	–0.093
	(1.151)	(0.017)	(–1.352)
Profitability	–1.989***	0.435***	–0.214***
	(–8.280)	(4.130)	(–3.578)
Market to book	–0.074***	–0.012	–0.030***
	(–3.443)	(–1.188)	(–3.634)
Cash flow volatility	–0.098	0.099	–0.006
	(–0.230)	(0.420)	(–0.047)
Prior covenant	–0.004	–0.001	0.001
	(–1.370)	(–0.736)	(1.023)
Log (Amount)	–0.073***	0.064***	–0.026***
	(–5.194)	(10.034)	(–5.692)
Log (Maturity)	–0.045		0.018**
	(–1.574)		(2.022)
Fixed effects:			
Credit Rating	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes
Model	OLS	OLS	OLS
No. of observations	13,026	15,870	11,545
Adj. R^2	0.725	0.631	0.741
P-value for testing *SaleGov dummy = SaleFirm dummy*	0.516	0.292	0.857
P-value for testing *SaleGov dummy = SaleOther dummy*	0.474	0.422	0.421

Panel B. The Percentage of Government Sales

Variable	(1) *Loan spread*	(2) *Loan maturity*	(3) *Loan security*
SaleGov%	–0.017	–0.070	–0.039
	(–0.103)	(–1.068)	(–0.722)
SaleFirm%	–0.110	–0.015	–0.071**
	(–1.186)	(–0.392)	(–2.573)
SaleOther%	–0.026	0.012	0.025
	(–0.504)	(0.482)	(1.133)
Control variables:	Yes	Yes	Yes
Fixed effects:			
Credit Rating	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes
Firm &Year	Yes	Yes	Yes
Model	OLS	OLS	OLS
No. of observations	13,026	15,870	11,545
Adj. R^2	0.725	0.631	0.741
P-value for testing: *SaleGov% = SaleFirm%*	0.639	0.475	0.594
P-value for testing: *SaleGov% = SaleOther%*	0.958	0.241	0.260

This table presents results for the effect of a firm's business transaction with the government on interest spread, loan maturity, and collateral requirement. The analyses are at loan facility level. The sample size varies depending on the availability of the dependent variable. Panel A presents results for the existence of major government customers. Panel B presents results for percentage sales to major government customers. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variable are defined in Appendix B.

Table 8. The Effect of Government Customer on Loan Contract Terms: Instrumental Variable Analysis

Panel A: First-stage results

Variable	*SaleGov dummy*
Industry SaleGov%	1.117***
	(9.44)
SaleFirm dummy	0.001
	(0.05)
SaleOther dummy	0.047***
	(3.53)
Log(Total assets)	0.003
	(0.27)
Leverage	–0.024
	(–0.78)
Tangibility	0.043
	(0.21)
Profitability	–0.061*
	(–1.71)
Market to book	0.001
	(0.26)
Cash flow volatility	–0.035
	(–0.54)
Prior covenant	–0.001
	(–0.76)
Log (Amount)	0.001
	(0.23)
Log (Maturity)	–0.007
	(–1.62)
Fixed effects:	
Credit Rating	Yes
Loan Type & Purpose	Yes
Firm&Year Fixed Effects	Yes
N	10,671
R-squared	0.779
F-statistic	89.171
Partial R-squared	0.132

Panel B: Second-Stage Results

Variable	(1) *All covenants*	(2) *General covenants*	(3) *Financial covenants*	(4) *Performance pricing*	(5) *Loan spread*	(6) *Loan maturity*	(7) *Loan security*
Predicted SaleGov dummy	–1.456***	–0.666**	–0.790***	–0.152*	0.045	0.040	–0.022
	(–3.12)	(–2.01)	(–3.35)	(–1.94)	(0.24)	(0.49)	(–0.31)
SaleFirm dummy	–0.121	–0.09	–0.032	–0.008	–0.045	–0.002	–0.018
	(–1.28)	(–1.39)	(–0.69)	(–0.51)	(–1.27)	(–0.14)	(–1.43)
SaleOther dummy	0.268***	0.160**	0.109**	0.001	–0.050	–0.012	0.014
	(2.82)	(2.50)	(2.13)	(0.07)	(–1.48)	(–0.69)	(0.90)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects:							
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS
N	10,671	10,671	10,671	15,870	13,026	15,870	11,545
R-squared	0.524	0.506	0.518	0.436	0.724	0.631	0.741
P-value for testing *SaleGov dummy = SaleFirm dummy*	0.006	0.095	0.002	0.075	0.644	0.618	0.951
P-value for testing *SaleGov dummy = SaleOther dummy*	0.001	0.020	0.001	0.076	0.634	0.562	0.638

This table presents results for the effect of a firm's business transaction with the government on loan covenants, interest spread, loan maturity, collateral requirement, and the use of performance pricing provision in its loan contracts using an 2SLS approach. We use total government sales as a percentage of total sales in each three-digit SIC industry (*Industry SaleGov%)* as the instrument for *SaleGov dummy*. Panel A presents the first-stage OLS regression results. Panel B presents the second-stage OLS regression results using the predicted value of *SaleGov dummy* from the first-stage regression as the treatment variable. The regressions for covenants (columns 1 to 3) are performed at the loan package level. Other regressions are performed at the loan facility level. All regressions include credit rating, loan type and purpose, firm and year fixed effects. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variable are defined in Appendix B.

Table 9. The Effect of Government Customer on Credit Risk

Variable	Compustat sample		Loan sample	
	(1)	(2)	(3)	(4)
	Default probability	*Log (CDS spread)*	*Default probability*	*Log (CDS spread)*
SaleGov dummy	0.181	0.005	0.252	0.002
	(0.528)	(0.967)	(0.535)	(0.232)
SaleFirm dummy	–0.079	0.002	–0.146	0.006
	(–0.424)	(0.529)	(–0.422)	(1.056)
SaleOther dummy	0.236	0.002	0.280	–0.001
	(1.393)	(0.726)	(0.938)	(–0.173)
Log (Assets)	–0.758***	0.004	–0.332	–0.001
	(–4.895)	(1.106)	(–1.082)	(–0.194)
Leverage	8.786***	0.024*	6.437***	0.012
	(9.496)	(1.910)	(5.568)	(0.611)
Tangibility	3.296***	–0.032	4.509**	–0.017
	(2.864)	(–1.335)	(1.995)	(–0.452)
Profitability	–6.866***	0.008	–12.375***	–0.010
	(–9.228)	(0.428)	(–3.767)	(–0.251)
Market to book	–0.503***	0.003	–0.034	–0.002
	(–6.872)	(1.467)	(–0.320)	(–0.783)
Cash flow volatility	–0.189*	–0.046	–2.092	–0.077
	(–1.815)	(–1.633)	(–0.757)	(–1.217)
Firm &Year Fixed Effects	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS
No. of observations	43,626	1,709	7,986	754
Adj. R2	0.116	0.068	0.141	0.085
P-value for testing: *SaleGov dummy = SaleFirm dummy*	0.521	0.593	0.489	0.784
P-value for testing: *SaleGov dummy = SaleOther dummy*	0.887	0.611	0.961	0.771

This table presents results for the effect of a firm's business transaction with the government on its credit risk. The dependent variable is the estimated probability of default based on the Merton model in columns (1) and (3), and the logarithm of credit default swap spread in columns (2) and (4). We use all firm-year observations from Compustat from 1995 to 2014 in columns (1) and (2). In columns (3) and (4), we restrict the sample to the unique firm-year observations that appear in our loan sample. *t-statistics* are in parentheses below parameter estimates. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All variable are defined in Appendix B.