Paper Session 4

Government Customer as Monitor: Evidence from Loan Covenants

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Abstract

This study examines how a firm's business relationship with the U.S. government, in particular, sales to the government, impacts covenant intensity of its loan contract. We argue that lenders benefit from the strict monitoring activities of the government customer and reduce the use of covenants in loan contracts when the borrowing firm has a government customer. Consistent with this argument, we find strong evidence that a loan contract contains significantly fewer covenants when the borrowing firm reports a major government customer. In contrast, we do not find such an effect for a firm that has a major corporate customer. We document similar results for the use of performance pricing provision, but not for loan spread and security, which suggests that the documented effect of a major government customer on covenant intensity is unlikely to be driven by sales to the government reducing the borrowing firm's operating risk.

1. Introduction

The monitoring role of debt covenants have been well established in the finance and accounting literature. The agency theory and incomplete contracting theory argue that restricting managerial opportunistic behaviors and allocating control rights through debt covenants improve the efficiency of debt contracting (e.g., Jensen and Meckling [1976], Smith and Warner [1979], Grossman and Hart [1986], Aghion and Bolton [1992]). As a firm is "a nexus of contracts" among various stakeholders (Jensen and Meckling [1976], Fama and Jensen [1983]), lenders' monitoring need in a debt contract is likely a function of the borrowing firm's contracting relationships with other stakeholders. In this paper, we examine how a firm's business relationship with the U.S. government, in particular, sales to the government, impacts the use of covenants in its loan contracts.

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."

Although lenders and the government customer may have different objectives of monitoring a firm, their objectives overlap to a large extent. 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. Thus, we predict that lenders benefit from the strict monitoring activities of the U.S. government customer and reduce the use of covenants in loan contracts when the borrowing firm has a government customer.

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. [2015]). 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]

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[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 et al. [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.

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 et al. [2015]).[3] We find that a loan contract contains fewer general as well as financial covenants when it has a major government customer or when its sales from the government increases. For instance, among loan contracts signed by the same firm, the number of general covenants is lower by 0.4 when the firm has the government as a major customer than otherwise, which accounts for 25% of the average number of general covenants in our sample. Once again, we do not find a significant effect for major corporate customers. We find qualitatively similar results when measuring a firm's dependence on major government and corporate customers with its percentage sales to them. These results suggest that, as predicted, a firm's business transaction with the U.S. government reduces lenders' monitoring need.

Our findings are also consistent with the following two alternative explanations. First, business transaction with the government may improve a firm's credit quality by improving its profitability and reducing its operating risk. For instance, Cohen and Li [2015] find that firms with major government customers have less volatile future earnings.[4] Second, the existence of a

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[3] Christensen et al. [2015] 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 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.

[4] Prior studies provide mixed evidence on the impact of major government customers on firm fundamentals. For instance, Cohen et al. [2015] document consistent adverse effects of having a major government customer. They

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.

To empirically disentangle whether the documented effect of major government customers on covenant intensity is due to strict monitoring from the government or improved firm fundamentals, we explore the effect of major government customers on loan interest spread and collateral requirement. The logic is that if government sales decreases covenant intensity by reducing the borrowing firm's credit risk, we would expect similar effects on loan spread or security as these two terms are sensitive to the borrowing firms' credit risk (e.g., Berger and Udell [1990], Bharath, Sunder, and Sunder [2008]). We find that major government customers have no significant effects on loan spread or collateral requirement. 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. Asquith, Beatty and Weber [2005] suggest that performance pricing provisions are more common when the potential for adverse selection and moral hazard is higher. Taken together, the findings on these other contractual terms suggest that the effect of major government customers on covenant intensity is probably due to the government's effective monitoring, not its positive impacts on firm fundamentals.

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

find that firms with the government as a major customer invest less in physical and intellectual capital, and have lower future sales growth. Thus, the overall effect of a government customer on a firm's credit risk is ambiguous.

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.

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 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.

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. [2015]). We show that a major government customer enhances the external monitoring a firm faces, which reduces the monitoring need of its lenders. We further show that government and corporate major customers has different effectiveness in monitoring the supplier firm, as reflected in their differential effects on loan contract terms. 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. [2015], Cohen and Li [2015], Cohen et al. [2015]).

Second, we contribute to the debt contracting literature by showing that lenders can benefit from monitoring of borrowing firms or their managers by other stakeholders, in particular, the government as a major customer. Extant studies focus on how a lender can benefit from other lenders' monitoring 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, Liao, and Weber [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 reviews the related literature and develops our primary hypothesis regarding the effect of government customers on covenant intensity. Section 3 describes the data and presents summary statistics. Section 4 presents our empirical analysis. Section 5 concludes.

2. Prior Literature and Hypothesis Development

2.1 Debt Covenants

Debt covenants are central to the analysis of creditor control outside of bankruptcy, given that a covenant violation gives lenders the right to accelerate the loan (Robert and Sufi [2009]). 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]). As firm owners have *ex post* incentives to engage in actions to further their own interests to the detriment of creditors and creditors will price protect their claims in anticipation of this behavior,

owners are willing to incur monitoring and bonding costs *ex ante* to restrict their ability to engage in such behavior through debt covenants (Armstrong et al. [2010]). These covenants can increase the value of the firm *ex ante* by reducing the loss which results when equity holders of a levered firm follow a policy which does not maximize the value of the firm (Smith and Warner [1979]).[5]

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]). As any contract will be "incomplete" in the sense that it does not address every possible future contingency, it is more efficient to allocate control rights to the party that has incentives to take the more efficient action ex post. The optimal contract generally makes control allocation contingent on a contractible signal that serves as a noisy measure of the non-contractible state of nature.

Christensen et al. [2015] note that both the agency and incomplete contracting perspectives offer complementary approaches to understanding the role of debt covenants. They further argue that general covenants (e.g., restrictions on dividend payout and capital expenditure), which directly restrict managers' operating, investment, and financing activities by specifying actions to be taken or not taken in certain conditions, seem to be more consistent with the agency view that covenants are used to restrict agency problems, while financial covenants (e.g., interest coverage and net worth covenants), which require firms to adhere to a

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[5] Smith and Warner [1979] summarize four categories of agency conflicts between creditors and equity holders: equity holders' tendency to transfer wealth through increased dividend payout, increased debt level, asset substitution, and underinvestment. Asset substitution is that following a debt issuance, firms have incentives to shift their asset mix toward riskier investments, resulting in a wealth transfer from debt holders to equity holders. Underinvestment is that when firms approach default, they may forgo positive net present value projects because the benefits would accrue to the firm's creditors rather than to its equity holders.

predetermined level of accounting performance, seem to be more consistent with the incomplete contracting view that covenants are used to allocate control rights more efficiently.

2.2. 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. [2015] documents that customer base concentration measure is positively associated with the implied cost of equity capital. Shantanu 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 et al. [2015]

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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. [2015] 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 [2015] find that these firms have less volatile future earnings. A recent paper by Cohen, Coval, and Malloy [2015], however, document consistent 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.

2.3 Hypothesis Development

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]). Consistent with this argument, Beatty, Liao, and Weber [2012] show that bondholders can delegate monitoring to banks through cross-acceleration provisions because public debt holdings are less concentrated and more costly renegotiate, while bank debt typically has financial covenants that monitor borrowers' performance. We extend this argument and

contend that lenders can also benefit from other stakeholders' monitoring activities to the extent that their objectives overlap.

The stakeholder theory predicts customers have incentives to monitor the supplier firm because of their relationship specific investments in the supplier firm (e.g., Cornell and Shapiro [1987]). Anecdotal evidence suggests that 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 B). 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 B). 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."

We argue that the strict audits and reviews by the government agencies for government contractors reduce lenders' monitoring need and the use of covenants, given the direct and

indirect costs of covenants.[6] 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. Thus, we propose the following hypothesis:

H1: The presence of a government customer reduces the number of covenants in the supplier firm's loan contract.

In addition to strict monitoring activities, a government customer could also reduce loan covenant intensity of the supplier firm through its impacts on firm fundamentals and corporate strategies. This link, however, is ambiguous, as we discussed in Section 2.2. On one hand, government customers could reduce the supplier firms operating risk due to their lower operational and bankruptcy risks (e.g., Cohen and Li [2015], Dhaliwal et al. [2015]). On the other hand, Cohen et al. [2015] show that firms with the government as major customer invest less in physical and intellectual capital, and have lower future sales growth.

3. Data and Summary Statistics

3.1. 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

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[6] 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.

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].[7] 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.[8] 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.

3.2. 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.[9] Although a firm may voluntarily disclose a customer with sales below 10%, we follow Dhaliwal et al. [2015] and define a major customer as one that accounts for at least 10%

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[7] 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.

[8] 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.

[9] 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.

of the supplier firm's sales.[10] 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 major customer and zero otherwise. *SaleOther dummy* measures the presence of other major customers; it equals 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 major 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 statics 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 corporate major 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 corporate major customers generate 36% of annual sales from these customers. Thus, although a firm is more likely to have major corporate customers than a

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[10] 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.

major government customer, conditional on the existence of a respective major customer, the average percentage sales from major corporate customers are similar to those from the government.

The firms in our sample are relatively large, with a mean value of total assets of 4.5 billion dollars. An average firm has a leverage ratio of 29%, and profitability of 13%. We also report an average market-to-book ratio of 1.73, and an average 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, which corresponds to S&P's BB+ rating. The average loan amount is $415 million dollars and the average loan maturity is 46 months.[11] 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 represent major economic sectors (Fama-French 12 industries), with the largest fraction of observations 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 industries, respectively, are from government customers. [12]

4. Empirical Analysis

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[11] For a loan package with multiple facilities, we report the amount weighted average maturity of all facilities.
[12] At the finer industry level (Fama-Frech 49 industries), the likelihood of having a government major 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.

4.1 Research Design

Following prior studies (e.g., Demiroglu and James [2010], Bradley and Roberts [2015]), we quantify the use of loan covenants by simply counting them. We regress the number of loan covenants (*Covenant intensity*) on our measures of a firm's business transactions with the government. Specifically, we estimate the following OLS model:

$$Covenant\ intensity = \alpha + \beta_1 SaleGov\ dummy + \beta_2 SaleFirm\ dummy + \beta_3 SaleOther\ dummy$$

$$+ \beta_4 Firm\ Controls + \beta_5 Loan\ Controls + Credit\ Rating\ FE$$

$$+ Loan\ Type\ FE + Loan\ Purpose\ FE + Firm\ FE + Year\ FE + \varepsilon, \quad (1)$$

where *SaleGov dummy, SaleFirm dummy*, and *SaleOther dummy* are as defined in Section 3.2. A negative estimated value of β_1 is consistent with our hypothesis.

An important challenge in identifying the causal effect of the existence of government major 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 [2015] 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 debt concentration 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 corporate major customers have significantly different impacts in firm fundamentals and corporate strategies (e.g., Dhaliwal et al. [2015], Cohen and Li [2015], Cohen et al. [2015]).

We follow prior studies and control for major 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 loans and bonds that are outstanding at the time when the new

loan is issued (e.g., Lou and Otto [2015]).[13] Finally, 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 natural logarithm of loan amount (*Log(Amount)*) and maturity (*Log(Maturity)*), and a dummy variable that equals one if any of the lead arrangers of a loan has been a lead arranger of any previous loan obtained by the borrowing firm during the five years prior to the loan issuance date and zero otherwise (*Relationship banking*). 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.

As our dependent variable, *Covenant intensity*, is a count variable, in addition to the OLS model in equation (1), we also estimate a Poisson model. Although nonlinear models with firm fixed effects are generally subject to the incidental parameters problem (Wooldridge [2002]), the coefficients of a Poisson model with firm fixed effects can be consistently estimated because it has no problem of incidental parameters (Cameron and Trivedi [2005]).

4.2 The Effect of a Government Customer 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

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[13] 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.

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 -0.811 and -0.985, 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 a 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 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 corporate major 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 major 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.[14] 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. 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, market-to-book ratio, and cash flows volatility, 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 assocation 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

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[14] 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.

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 government major 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.

4.3 The Effect of a Government Customer on General and Financial Covenants

In this section, we separately examine the effects of a major government customer on the uses of general covenants and financial covenants. As Christensen et al. [2015] 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 uses 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 government major customer, *SaleGov%*, are significantly negative. The coefficient on *SaleGov%* in column 3 (coefficient = -0.826, *t-statistic* = -2.701) 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 government major 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.

4.4 How does a Government Customer Impact Loan Covenants?

Although we contend that a firm's business transaction with the government reduces covenant intensity of its loan contract due to the government's monitoring activities, it could impact covenant intensity through other channels. First, business transaction with the government may improve a firm's credit quality by improving its profitability and reducing its operating operating risk (Cohen and Li [2015]). Second, as politically connected firms may be more likely to obtain business contracts with the government, the existence of government customer may merely reflect its political connections. Alternatively, a firm's business transaction with the government may lead to political connections. Prior literature has largely show than, on average, the benefits of having political connections exceed the costs (e.g., Fisman [2001], Faccio [2006], Goldman, Rocholl, and So [2003]). Houston et al. [2014] 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.

As we discuss in Section 2.2, prior studies provide mixed evidence on the impact of government customer on firm fundamentals. For instance, Cohen et al. [2015] document

consistent adverse effects of having the government as a major customer; they find that firms

with the government as a major customer invest less in physical and intellectual capital, and have

lower future sales growth. Thus the effect of having a government customer on a firm's credit

risk is ambiguous. Further, it is unclear whether business transactions with the government can

provide similar benefits of regular political connections such as having a politician in the board

or top management (e.g., Houston et al. [2014]).

To provide evidence on whether these two factors could explain our findings in Tables 3

to 5, we further examine the effect of a government customer on other loan contract terms that

are sensitive to the borrowing firm's default risk, including interest spread and loan security. As

these two alternative explanations both assume a firm's business transaction with the government

reduces covenant intensity of its loan contract by reducing its default risk, we expect similar

effects on loan spread or security. Prior studies show that loan spread is higher and security

protection is more common for borrowers with higher credit risk (e.g., Berger and Udell [1990],

Bharath et al. [2008]).

For these analyses, we use loan spread and security as the dependent variables and

estimate equation (1) at the loan facility level, because both loan spread and security are facility

level features. The results are presented in columns 1 and 2 of Table 6, Panel A. We find that the

coefficient on *SaleGov dummy* are statistically insignificant in both columns, suggesting that

having a government customer has no significant impact on loan spread or security. Further, its

effect is statistically indistinguishable from that of having a major corporate customer or other

major customers. When we measure a firm's business transactions with the government with its

percentage sale from the government, we find qualitatively similar results (columns 1 and 2 of

Panel B). These results are inconsistent with the conjecture that having a major government customer reduces the borrower firm's credit risk.

To provide further evidence on our monitoring story, we investigate the effect of a major government customer on the use of performance pricing provision in a loan contract. Performance pricing links interest rate spread to a borrower's performance. Asquith, Beatty, and Weber [2005] suggest that performance pricing provisions are more common when the potential for adverse selection and moral hazard is higher. Thus, if lenders benefit from strict monitoring activities of the government customer, we expect a lower likelihood of performance pricing provision in a loan contract when the borrowing firm has a major government customer. We estimate equation (1) at the loan facility level using as the dependent variable an indicator variable for whether a loan facility contains a performance pricing provision and present the results in column 3 of Table 6, Panel A. We find that the coefficient on *SaleGov dummy* is significantly negative, whereas the coefficients on *SaleFirm dummy* and *SaleOther dummy* are statistically insignificant. Further, the coefficient on *SaleGov dummy* is significantly different from those on *SaleFirm dummy* and *SaleOther dummy*. The results based on *SaleGov%*, *SaleGov%*, and *SaleGov%* are qualitatively similar (column 3 of Table 6, Panel B). These results corroborate our findings for covenant intensity and suggest that lenders benefit from monitoring activities of government customers.

Finally, to provide further evidence that our results are not driven by the fact that government sales are stable (Cohen and Li [2015]), we repeat the analyses in Tables 3 to 5 by dropping years with zero government sales for firms that have positive government sales in some year(s). If our results are driven by government sales being more stable, we expect to find similar effects of *GovSale%* in this subsample, because when a firm's government sales increase its total

revenue becomes more stable. In contrast, based on our monitoring story, our results are primarily driven by firms switching from having no government customer to having a government customer. For this reduced sample, we do not find any significant effect of *GovSale%* (untabulated). This finding further suggests that our covenant results are not driven by government sales being stable.

4.5 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*.[15] 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

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

government sales meet the relevance condition of an IV. On the other hand, it is unlikely that 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).[16]

We present the estimation results in Table 7. 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 (89.41) 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 financial and general 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 except that it is only marginally significant for *SaleGov dummy* and *SaleFirm dummy* when the dependent variable is the number of general covenants (*p*-value = 10.5%, column 3). The effects of *SaleGov dummy* on loan spread (column 4) and collateral requirement (column 5) continue to be insignificant and statistically indistinguishable from those of *SaleFirm dummy* and *SaleOther dummy*.

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

The estimated effects of *SaleGov dummy* on the number of all, financial, and general 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 of *SaleGov dummy* on the number of all covenants is -1.424 based on the IV analysis (column 1 of Table 7, Panel B), compared to -0.683 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 6, the bias is against our finding the predicted effects.

5. Conclusion

We investigate how a firm's business relationship with the U.S. government, in particular, having the government as a major customer, impacts covenant intensity of its loan contracts. We argue that lenders of firms with major government customers can benefit from the government's strict monitoring of these firms and reduce the need for covenants in these firms' loan contracts to monitor them. Our empirical evidence is consistent with this prediction. We find that a firm's loan contracts contain fewer covenants when it has a major government customer than when it has no such a customer. In contrast, we do not find such an effect for major corporate customers. 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.

We further rule out the possibility that our findings are due to the fact that government customers reduce credit risk through their positive impacts on firm fundamentals or that government sales result from or lead to political connections which has been shown to reduce firms' credit risk. In particular, 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 having a major government customer reduces the use of performance pricing provisions in the supplier firm's loan contracts, confirming our argument that lenders benefit from the government customer's effective monitoring of the borrowing firm.

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.

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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 corporate major customers as a percentage of total sales
SaleFirm dummy	A dummy variable equal to one if a firm has a least one corporate major 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-government major 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 total assets
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
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
Relationship banking	Dummy variable that equals one if any of the lead arrangers of a loan has been a lead arranger of any previous loan obtained by the borrowing firm during the five years prior to the loan issuance date

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	0.06	0.05	0.04
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
Relationship banking	10,671	0.44	0.00	0.50
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 a Government Major Customer

Variable	(1)	(2)	(3)	(4)
	All covenants			
SaleMajor dummy	-0.065	-0.025		
	(-0.811)	(-0.985)		
SaleGov dummy			-0.683***	-0.181***
			(-3.233)	(-3.048)
SaleFirm dummy			-0.132	-0.033
			(-1.433)	(-1.195)
SaleOther dummy			0.214**	0.052*
			(2.325)	(1.648)
Log(Assets)	-0.444***	-0.153***	-0.444***	-0.153***
	(-5.508)	(-6.187)	(-5.503)	(-6.210)
Leverage	0.079	-0.013	0.058	-0.016
	(0.257)	(-0.155)	(0.191)	(-0.191)
Tangibility	-0.162	-0.083	-0.116	-0.082
	(-0.297)	(-0.502)	(-0.213)	(-0.498)
Profitability	0.751*	0.134	0.729*	0.128
	(1.791)	(0.973)	(1.742)	(0.935)
Market to book	-0.114**	-0.043**	-0.116**	-0.043***
	(-2.174)	(-2.559)	(-2.213)	(-2.591)
Cash flow volatility	-3.735**	-1.235***	-3.550**	-1.206***
	(-2.414)	(-2.730)	(-2.286)	(-2.652)
Prior covenant	-0.022**	-0.004*	-0.022**	-0.004*
	(-2.441)	(-1.699)	(-2.512)	(-1.786)
Log(Amount)	0.560***	0.199***	0.563***	0.198***
	(11.446)	(10.896)	(11.595)	(10.909)
Log(Maturity)	-0.077	-0.031	-0.081	-0.031
	(-1.084)	(-1.241)	(-1.143)	(-1.255)
Relationship banking	0.182***	0.041**	0.183***	0.041**
	(2.940)	(2.037)	(2.960)	(2.013)
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	10,250	10,671	10,250
Adj. R^2/Pseudo R^2	52.5%		52.6%	
P-value for SaleGov dummy = SaleFirm dummy			0.017	0.027
P-value for SaleGov dummy = SaleOthe dummy			0.000	0.001

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
			All covenants	
SaleMajor%	-0.022	-0.013		
	(-0.192)	(-0.339)		
SaleGov%			-1.545***	-0.366***
			(-3.470)	(-3.275)
SaleFirm%			-0.294	-0.074
			(-1.357)	(-1.161)
SaleOther%			0.359***	0.102**
			(2.612)	(2.185)
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	10,250	10,671	10,250
Adj. R^2/Pseudo R^2	52.5%		52.6%	
P-value for SaleGov% = SaleFirm%			0.011	0.023
P-value for 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 government major customers. Panel B presents results for percentage sales to government major 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 4. The Effect of Government Customer on the Number of General Covenants

Panel A. The Presence of a Government Major Customer

Variable	(1)	(2)	(3)	(4)
	General covenants			
SaleMajor dummy	-0.060	-0.046		
	(-1.088)	(-1.263)		
SaleGov dummy			-0.428***	-0.225***
			(-3.052)	(-2.817)
SaleFirm dummy			-0.093	-0.051
			(-1.464)	(-1.294)
SaleOther dummy			0.140**	0.061
			(2.241)	(1.328)
Log(Assets)	-0.288***	-0.199***	-0.289***	-0.199***
	(-5.154)	(-5.778)	(-5.160)	(-5.782)
Leverage	0.243	0.086	0.232	0.084
	(1.149)	(0.754)	(1.099)	(0.742)
Tangibility	-0.290	-0.214	-0.260	-0.215
	(-0.788)	(-0.967)	(-0.707)	(-0.966)
Profitability	-0.082	-0.139	-0.096	-0.148
	(-0.273)	(-0.685)	(-0.321)	(-0.730)
Market to book	-0.057	-0.054**	-0.058	-0.054**
	(-1.575)	(-2.221)	(-1.605)	(-2.233)
Cash flow volatility	-2.354**	-1.644***	-2.238**	-1.609**
	(-2.238)	(-2.581)	(-2.120)	(-2.515)
Prior covenant	-0.010*	-0.001	-0.010*	-0.001
	(-1.657)	(-0.407)	(-1.715)	(-0.486)
Log(Amount)	0.371***	0.257***	0.373***	0.257***
	(11.275)	(10.586)	(11.414)	(10.582)
Log(Maturity)	-0.078	-0.072**	-0.080	-0.073**
	(-1.586)	(-2.210)	(-1.638)	(-2.227)
Relationship banking	0.134***	0.058**	0.135***	0.056**
	(3.160)	(2.033)	(3.171)	(1.985)
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	9,657	10,671	9,657
R^2/Pseudo R^2	50.6%		50.7%	
P-value for testing SaleGov dummy = SaleFirm dummy			0.028	0.051
P-value for testing SaleGov dummy = SaleOther dummy			0.001	0.003

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
	General covenants			
SaleMajor%	-0.030	-0.031		
	(-0.383)	(-0.594)		
SaleGov%			-0.826***	-0.376**
			(-2.701)	(-2.368)
SaleFirm%			-0.241	-0.123
			(-1.589)	(-1.382)
SaleOther%			0.207**	0.106
			(2.309)	(1.645)
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	9,657	10,671	9,657
Adj. R^2/Pseudo R^2	50.6%		50.7%	
P-value for testing: SaleGov% = SaleFirm%			0.084	0.162
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 government major customers. Panel B presents results for percentage sales to government major 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 a Government Major Customer

Variable	(1)	(2)	(3)	(4)
	Financial covenants			
SaleMajor dummy	-0.005	-0.004		
	(-0.130)	(-0.167)		
SaleGov dummy			-0.255**	-0.138**
			(-2.544)	(-2.360)
SaleFirm dummy			-0.040	-0.018
			(-0.868)	(-0.649)
SaleOther dummy			0.074	0.041
			(1.528)	(1.276)
Log(Assets)	-0.156***	-0.106***	-0.156***	-0.106***
	(-3.959)	(-4.341)	(-3.940)	(-4.348)
Leverage	-0.164	-0.116	-0.174	-0.119
	(-1.189)	(-1.439)	(-1.263)	(-1.483)
Tangibility	0.127	0.032	0.144	0.033
	(0.507)	(0.202)	(0.571)	(0.213)
Profitability	0.833***	0.396***	0.826***	0.393***
	(3.744)	(2.825)	(3.727)	(2.814)
Market to book	-0.057**	-0.032*	-0.058**	-0.033**
	(-2.152)	(-1.944)	(-2.188)	(-1.979)
Cash flow volatility	-1.381*	-0.904**	-1.312*	-0.881**
	(-1.868)	(-2.108)	(-1.771)	(-2.047)
Prior covenant	-0.012***	-0.007***	-0.012***	-0.007***
	(-2.877)	(-2.736)	(-2.940)	(-2.806)
Log(Amount)	0.189***	0.133***	0.190***	0.133***
	(8.337)	(7.607)	(8.410)	(7.602)
Log(Maturity)	0.001	0.011	-0.001	0.011
	(0.019)	(0.458)	(-0.028)	(0.447)
Relationship banking	0.048	0.028	0.048	0.029
	(1.603)	(1.497)	(1.624)	(1.514)
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	10,102	10,671	10,102
Adj. R^2/Pseudo R^2	52.0%		52.1%	
P-value for testing:				
SaleGov dummy = SaleFirm dummy			0.057	0.075
P-value for testing:				
SaleGov dummy = SaleOther dummy			0.005	0.012

Panel B. The Percentage of Government Sales

Variable	(1)	(2)	(3)	(4)
			Financial covenants	
SaleMajor%	0.007	0.004		
	(0.123)	(0.101)		
SaleGov%			-0.719***	-0.359***
			(-3.417)	(-3.366)
SaleFirm%			-0.053	-0.025
			(-0.518)	(-0.415)
SaleOther%			0.152*	0.097*
			(1.950)	(1.898)
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	10,102	10,671	10,102
Adj. R^2/Pseudo R^2	52.0%		52.1%	
P-value for testing: SaleGov% = SaleFirm%			0.004	0.007
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 government major customers. Panel B presents results for percentage sales to government major 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 Loan Spread, Collateral Requirement, and Performance Pricing

Panel A. The Presence of a Government Major Customer

Variable	(1) Loan spread	(2) Loan security	(3) Performance pricing
SaleGov dummy	0.026	-0.012	-0.071**
	(0.282)	(-0.475)	(-2.356)
SaleFirm dummy	-0.045	-0.018	-0.009
	(-1.260)	(-1.433)	(-0.579)
SaleOther dummy	-0.049	0.013	-0.004
	(-1.521)	(0.881)	(-0.231)
Log(Assets)	-0.185***	-0.060***	0.015
	(-5.583)	(-5.367)	(1.207)
Leverage	0.709***	0.088**	-0.119***
	(6.848)	(2.409)	(-2.743)
Tangibility	0.234	-0.093	-0.006
	(1.133)	(-1.345)	(-0.070)
Profitability	-1.985***	-0.214***	0.306***
	(-8.226)	(-3.772)	(3.981)
Market to book	-0.075***	-0.031***	-0.016*
	(-3.453)	(-3.683)	(-1.729)
Cash flow volatility	0.202	0.089	-0.120
	(0.357)	(0.498)	(-0.495)
Prior covenant	-0.004	0.001	-0.001
	(-1.409)	(1.065)	(-0.979)
Log(Amount)	-0.074***	-0.026***	0.048***
	(-5.241)	(-5.661)	(9.452)
Log(Maturity)	-0.044	0.018**	0.050***
	(-1.559)	(2.005)	(5.589)
Relationship banking	0.019	-0.006	-0.026***
	(1.057)	(-0.807)	(-2.909)
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	11,545	15,870
Adj. R²	72.5%	74.1%	43.7%
P-value for testing SaleGov dummy = SaleFirm dummy	0.518	0.862	0.070
P-value for testing SaleGov dummy = SaleOther dummy	0.476	0.416	0.068

Panel B. The Percentage of Government Sales

Variable	(1) Loan spread	(2) Loan security	(3) Performance pricing
SaleGov%	-0.017	-0.039	-0.170***
	(-0.103)	(-0.723)	(-3.182)
SaleFirm%	-0.111	-0.071**	0.003
	(-1.205)	(-2.571)	(0.099)
SaleOther%	-0.027	0.026	0.024
	(-0.515)	(1.143)	(0.892)
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	11,545	15,870
Adj. R^2	72.5%	74.2%	43.7%
P-value for testing: *SaleGov% = SaleFirm%*	0.633	0.594	0.007
P-value for testing: *SaleGov% = SaleOther%*	0.955	0.258	0.001

This table presents results for the effect of a firm's business transaction with the government on interest spread, collateral requirement, and the use of performance pricing provision of its loan contracts. 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 government major customers. Panel B presents results for percentage sales to government major 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 7. The Effect of Government Customer on Loan Contract Terms: Instrumental Variable Analysis

Panel A: First-stage results

	SaleGov dummy
Industry SaleGov%	1.117***
	(9.46)
SaleFirm dummy	0.001
	(0.04)
SaleOther dummy	0.047***
	(3.55)
Log(Total assets)	0.004
	(0.38)
Leverage	-0.023
	(-0.75)
Tangibility	0.042
	(0.90)
Profitability	-0.059*
	(-1.65)
Market to book	0.000
	(0.02)
Cash flow volatility	0.164
	(1.52)
Prior covenant	-0.001
	(-0.78)
Log(Debt amount)	0.001
	(0.16)
Log(Debt maturity)	-0.007
	(-1.57)
Relationship banking	0.006
	(1.31)
Fixed effects:	
Credit Rating	Yes
Loan Type & Purpose	Yes
Firm&Year Fixed Effects	Yes
N	10671
R-squared	0.763
Weak instrument tests	
F-statistic	89.41
Partial R-squared	0.132

Panel B: Second stage results

	(1)	(2)	(3)	(4)	(5)	(6)
	All covenants	*Financial covenants*	*General covenants*	*Loan spread*	*Loan security*	*Performance pricing*
Predicted SaleGov dummy	-1.424***	-0.780***	-0.645**	0.047	-0.023	-0.155**
	(-3.08)	(-3.32)	(-1.96)	(0.25)	(-0.32)	(-1.96)
SaleFirm dummy	-0.122	-0.032	-0.090	-0.045	-0.017	-0.007
	(-1.30)	(-0.70)	(-1.40)	(-1.27)	(-1.42)	(-0.48)
SaleOther dummy	0.260***	0.107**	0.153**	-0.050	0.014	0.002
	(2.73)	(2.09)	(2.39)	(-1.48)	(0.92)	(0.10)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Fixed effects:						
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes	Yes	Yes
Model	OLS	OLS	OLS	OLS	OLS	OLS
N	10671	10671	10671	13026	11545	15870
R-squared	0.525	0.518	0.507	0.725	0.741	0.436
P-value for testing *SaleGov dummy = SaleFirm dummy*	0.007	0.002	0.105	0.639	0.943	0.070
P-value for testing *SaleGov dummy = SaleOther dummy*	0.001	0.001	0.024	0.630	0.630	0.071

This table presents results for the effect of a firm's business transaction with the government on loan covenants, interest spread, 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.