RIETI Discussion Paper Series 15-E-138

Accounting Information Quality and Government Guaranteed Loans: Evidence from Japanese SMEs

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RIETI Discussion Paper Series 15-E-138

December 2015

Accounting Information Quality and Government Guaranteed Loans: Evidence from Japanese SMEs[1]

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Abstract

We empirically investigate the effects of accounting information quality, as measured by accruals quality, on the use of government guaranteed loans, which we regard as a form of transaction lending. We find that higher accruals quality is associated with higher use rates of government guaranteed loans, but not associated with use rates of nonguaranteed (i.e., regular) loans, which we consider to constitute relationship lending within the Japanese context. We also find that higher accruals quality is not related to the interest rate for guaranteed loans, but is associated with a lower interest rate for nonguaranteed loans. These results indicate that the relevant accounting information is effectively used in the screening processes for small and medium-sized enterprises (SMEs), but that the effectiveness varies depending on the particular lending technology employed.

Keywords: Asymmetric information, Accruals quality, Government guaranteed loans, nonguaranteed loans, Interest rates

JEL classification: G21 G31 G32

[1]This study is conducted as a part of the Project "Corporate financing and firm dynamics study group" undertaken at Research Institute of Economy, Trade and Industry (RIETI). The authors are grateful to the valuable comments and suggestions by Masayuki Morikawa (RIETI), Keiichiro Oda (RIETI), Hiroshi Ohashi (University of Tokyo), Makoto Yano (Kyoto University), Olga Kandinskaia (CIIM), Arito Ono (Cho Univeristy), Iichrio Uesugi (Hitotsubashi Univerisy), DaisukeTsuruta (Nihon University), Shinya Okuda (Nagya City Univesrsity) , Kazuki Yokoyama (Nagoya City University), Kazuho Yoshida (Nagya City University)and the members of the RIETI study group.

1. Introduction

We empirically investigate the effects of accounting information quality on the credit availability and cost of bank debt. Higher quality of accounting information is generally expected to help firms reduce information asymmetries with banks. However, previous banking literature has failed to fully explore the effects of accounting information quality on credit availability. In contrast, the role of accounting information quality, which is typically measured by accruals quality, is widely discussed by accounting academics.

Banks generally use two types of lending technologies prior to extending loans: transaction lending and relationship lending (see Berger and Udell, 2006). Although previous studies have largely focused on the role of soft information especially that provided through relationship lending (see Petersen and Rajan, 1994 and Berger and Udell, 1995) they have implicitly assumed that hard information such as financial statements is a useful information source for banks. Financial statements are the primary information source on firm performance, and their quality is directly related to uncertainty about a firm's health and ~~its~~ performance.

In this paper, we focus on small and medium-sized enterprises (SMEs) that enjoy the advantage of having no mandatory disclosure requirements and few competing information sources such as ratings agencies, analyst reports, and the like. There have been only a few studies, such as Garcia-Teruel (2014), that examine the effects of SMEs' accounting information quality on credit availability, despite SMEs significant roles in numerous economies. Thus, we attempt to fill this gap by focusing on lending processes for SMEs.

We consider the granting of Japanese government guaranteed loans to be a form of transaction lending, because the screening process involved crucially depends on

accounting information examined by Credit Guarantee Corporations (CGCs), a system which is the counterpart to the SBA program in the US. Following the global financial crisis of 2008, the scope of Japan's financial safety net was dramatically expanded. We focus on Emergency Credit Guarantee Program (ECGP) loans that were established in Japan in response to the financial turmoil which followed the bankruptcy of Lehman Brothers (the so-called 'Lehman Shock'). That is, we use the ECGP as a natural experimental for examining the effectiveness of accounting information quality on transaction lending. In contrast, we may regard nonguaranteed (i.e., regular) loans as involving relationship lending. Taking advantage of these Japanese institutional features, we empirically investigate the general characteristics of transaction lending and relationship lending in Japanese context.

We find that higher accruals quality is associated with a higher use rate of government guaranteed loans, but not of nonguaranteed loans. We also find that higher accruals quality is not related to the interest rate for guaranteed loans, but is associated with a lower interest rate for nonguaranteed loans. The results indicate that the relevant accounting information is effectively used in screening processes for SMEs, but that the degree of effectiveness differs depending on the type of lending technology employed (i.e., transaction lending vs. relationship lending).

Only a few studies have examined the roles of accounting information on bank lending. They have found that higher accounting information quality improves credit

availability for SMEs[1]. Cassar et al. (2014) found that accrual-basis accounting is negatively associated with the initial interest rate for approved loans, but found little evidence that it reduces the probability of loan denial. Thus, they argue that accrual accounting can lower the cost of debt. Although we focus on accruals quality rather than on accrual-basis accounting, our qualitative results for nonguaranteed loans are similar to theirs. Garcia-Teruel et al. (2014) examined the effects of accruals quality on the access of firms to bank debt and found a positive association between accruals quality and bank debt, which suggests that higher precision in earnings reporting reduces information asymmetries with banks.

Ono et al. (2013) looked at the effectiveness of the ECGP, whose aim was to enhance credit availability for SMEs in response to the financial turmoil that followed the Lehman Shock[2]. They examined whether relationship lending enhanced or dampened the efficacy of the ECGP, finding that the ECGP improved credit availability, but that this increased availability was partially offset by a decrease in non-ECGP loans if the lender was a main bank. Here, we focus on the role of accounting information rather than on the soft information used in relationship lending.

In short, no previous studies have examined the effects of accounting information on SME lending policies, such as government loan guarantees. In this respect, we contribute to the SME lending policy argument by presenting empirical evidence that high quality

[1] Lee and Masulis (2009) examined the association between accounting information quality and expected flotation costs, finding that poor accounting information quality is associated with higher flotation costs.

[2] There are a few theoretical papers that analyze the effects of credit guarantee programs, e.g., Minelli and Modica (2009), and Busetta and Zazzaro (2012).

accounting information reduces information asymmetries and improves credit availability for SMEs.

The remainder of this paper is organized as follows. Section 2 provides an overview of the institutional background of accounting policy and the government loans guarantee system in Japan. Section 3 develops testable hypotheses. Section 4 explains the data, research methodology, and variables used in our empirical study. Section 5 presents our empirical findings. Section 6 provides concluding remarks.

2. Institutional background

In this section, we review the institutional environment in relation to SME accounting policy and the Emergency Credit Guarantee Program (ECGP) in Japan.

2.1. Accounting policy and practice in relation to SMEs

SMEs are not listed on the stock markets and generally have difficulty accessing to capital markets; thus, their reliance on bank debt is relatively high compared with that of listed firms. Furthermore, unlike listed firms that operate under mandatory disclosure rules, for SMEs there are few competing information sources such as ratings agencies and analyst reports. Accurate accounting information is therefore considered to be an important information source for enhancing the credibility of financial statements and thus facilitating funding.

According to a 2013 White Paper on Small and Medium Enterprises in Japan, SMEs are defined as firms that meet one or both of the following conditions: capital is less than

300 million yen, or the number of regular employees is below 300[3]. According to the Small and Medium Enterprise Agency (SMEA), there are over 3.85 million SMEs in Japan (which accounted for 99.7% of all Japanese enterprises in 2012). However, no standard accounting rules for SMEs existed until the early 2000s.

From 2002 related institutions such as the Japanese Institute of Certified Public Accountants, the Japan Federation of Certified Public Tax Accountants' Associations, the Japan Chamber of Commerce and Industry, and the Accounting Standards Board of Japan worked to establish a set of accounting standards for SMEs. The result was the release, in August of 2005, of *Chusho Kigyo no Kaikei ni Kansuru Shisin* (Guidelines on Accounting of Small and Medium-sized Enterprises).

In addition, the SMEA released a new set of accounting guidelines for SMEs, *Chusho Kigyo no Kaikei ni Kansuru Kihon Yoryo*, in February 2012 in collaboration with Japanese Financial Services Agency. The SMEA is now promoting these guidelines so as to encourage SMEs to fully grasp their management obligations and present precise accounts of their financial circumstances to all relevant financial institutions.

2.2. The Emergency Credit Guarantee Program (ECGP) – A government loan guarantee system

In Japan, government loan guarantees have been used extensively, and the government has implemented various loan guarantee systems aimed at facilitating flows of funds to SMEs. In terms of total number of government guaranteed loans outstanding,

[3] Different thresholds apply to the wholesale, services, and retail sectors.

roughly 40% have been taken on by SMEs. The government credit guarantee system brings together SMEs, financial institutions such as banks, and Japan's roughly 50 CGCs. Most applications prepared by an SME are filed by a financial institution on the SME's behalf, the financial institution conducting a screening process before submitting the application to a CGC. The CGC then examines the application and makes a credit decision. If successful, the financial institution will receive an approval letter from the CGC enabling it to extend the guaranteed loan to the SME. With respect to the credit risks of guaranteed loans, CGCs use the Credit Insurance Program run by the Japan Finance Corporation. About 80% of guaranteed loans are insured under this program.

On 31 October 2008, in response to the Lehman Shock, the Japanese government introduced the Emergency Credit Guarantee Program (ECGP) as a temporary rescue measure with credit guarantees of up to 36 trillion yen. The program expired at the end of March 2011, at which time the total value of ECGP loans was more than 27 trillion yen. This was equivalent to about 15 percent of the total value of SME loans outstanding in Japan.

The ECGP differs from the Regular Guarantee Program (RGP) in several important respects. First, the ratio of credit covered by the CGC is 100 percent. In other words, banks bear no credit risk for ECGP loans. Second, the maximum duration of an ECGP loan is ten years, while that of a regular guaranteed loan is seven years. Third, guarantee premiums, most of which are set at about 0.75–0.80 percent of the loan amount, are lower than average premiums charged to regular program users. The premium for ECGP loans is a fixed percentage set by the acting CGC in order to reduce the payment burdens of risky

borrowers. Conversely, the premiums for regular guaranteed loans vary between 0.45 and 1.9 percent, with an average of 1.15 percent, depending on the borrowing firm's credit risk[4].

The lending policy of the ECGP is strict in the sense that approvals are not automatic and are subject to a rigorous screening process. It is in this sense that we regard ECGP loans as a form of transaction lending. In terms of the maximum size and duration of loans, the ECGP allows SMEs to borrow a larger amount for a longer period of time than does the RGP: the maximum amount and duration of ECGP loans are 280 million yen and ten years, respectively.

3. Hypotheses

In this section we develop testable hypotheses.

3.1. Accounting information quality and access to guaranteed loans

Information asymmetries are generally greater in SMEs than within large firms, and so lenders need to use multiple information sources to assess individual SMEs' capacity to repay loans. Banks are expected to possess the requisite skills for evaluating applicants' creditworthiness and generally use two types of lending technologies prior to extending loans: transaction lending and relationship lending (see, Berger and Udell, 2006). Transaction lending technology makes use of hard information such as that provided in financial statements. If a small business can reduce information asymmetries with banks by

[4] While the risk weighting of regular guaranteed loans under the Basel II Capital Accord is 10 percent, the risk weighting of ECGP loans is set to 0 percent in order to facilitate the use of the ECGP by banks.

using increasingly sophisticated accounting methods that convey useful information, it can more easily access bank debt and secure lower interest rates. Cassar et al. (2014) showed that accrual accounting can lower the cost of debt. Garcia-Teruel et al. (2014) found that higher precision in earnings reporting reduces information asymmetries with banks.

We empirically examine the loan screening function of the ECGP conducted by Japan's CGCs. The purpose of the ECGP was to enhance credit availability to SMEs following the Lehman Shock. However, loan approvals were not automatic, but subject to a strict screening process. In principle, CGCs are required to screen SME applicants rigorously to ascertain whether they have sufficiently strong business prospects which will enable repayment of the guaranteed loans. Presumably, CGCs use financial statement information (instead of soft information) as a form of transaction lending.

Thus, the empirical question here is whether CGCs, as transaction lenders, use the accounting information effectively in their screening processes. We empirically investigate this question by examining the effects of accounting information quality on the availability of government guaranteed loans. Our first hypothesis is as follows:

H1: Accounting information quality is positively associated with the use rate of government guaranteed loans (i.e., transaction lending).

3.2. Accounting information quality and access to nonguaranteed loans

In this vein, we should also address the same issue in relation to nonguaranteed (regular) loans. Thus, our next question is whether banks, when extending nonguaranteed

loans to SMEs, use accounting information effectively by reducing asymmetric information. However, here we need to pay attention to the fact that relationship lending information relies heavily on soft information (such as that obtained from personal interactions) which is often difficult to verify. Previous studies such as Petersen and Rajan (1994) and Beger and Udell (1995) have explored the efficacy of relationship lending and found important evidence of the effects of soft information on the process of bank lending.

Because of the credit risks they face, banks have more incentive to screen applicants for nonguaranteed loans than those seeking guaranteed loans[5]. Therefore, as accounting information quality deteriorates—and all other things being equal—a bank's uncertainty towards a firm should rise, while the probability of loan acceptance should fall. Thus, our second hypothesis is as follows:

H2: Accounting information quality is positively associated with the use rate of nonguaranteed loans (i.e., relationship lending).

3.3. Accounting information quality and interest rates

We next examine the determinants of interest rates, assuming acceptance of a government guaranteed or nonguaranteed loan. Even if a CGC uses accounting information effectively to reduce information asymmetry with an SME, the impact of accounting

[5] Another important but unanswered question relates to the effects of accounting information quality on the substitution between guaranteed and nonguaranteed lending. Suppose that banks use the financial statements and/or soft information effectively, and thus accurately detect their borrowers' credit quality. Then, to the extent they identify their borrowers as risky, banks might have an incentive to switch their nonguaranteed loans to government guaranteed loans to reduce the possibility of losses (See, for example, Uesugi et al., 2010 and Wilcox and Yasuda, 2009).

information quality on contract terms (e.g., the interest rate) will remain unclear. This is because, with the existence of government guarantees, banks are not required to bear any of the credit risk. Thus, the effects of accounting information quality on interest rates is an empirical question. In contrast, if a bank uses accounting information effectively in the screening process for a nonguaranteed loan, the terms of the loan contract (e.g., the interest rate) will presumably reflect said information. Several previous researches, such as that by Francis et al. (2005), confirm that higher accruals quality affects contract terms. Based on these arguments, our third hypothesis is as follows:

H3: Accounting information quality is not associated with the interest rate for government guaranteed loans (i.e., transaction lending), but high accounting information quality is negatively associated with the interest rate for nonguaranteed loans (i.e., relationship lending).

4. Research design

4.1. Model specification

We analyze the effects of accounting information quality on credit availability and the cost of bank debt. To examine the determinants of loan use and its cost, the following logit and OLS model equations are used:

$$Pr(Loan\_Acceptance_{i,t}) = \alpha_0 + \alpha_1 Accounting\ Quality_{i,t} + \alpha \cdot Control\ variables_{i,t} + \varepsilon_{i,t.} \quad (1)$$

$$Borrowing\_Cost_{i,t} = \beta_0 + \beta_1 Accounting\ Quality_{i,t} + \beta \cdot Control\ variables_{i,t} + \varepsilon_{i,t.} \quad (2)$$

4.2. Variables

4.2.1. Credit availability and the cost of bank debt

We first examine the determinants of the probability of loan use (*Loan_Acceptance*). As discussed earlier, we focus on government guaranteed loans and nonguaranteed loans. We use two variables for the *Loan_Acceptance* variable: *ECGP_dum* and *NGL_dum.* The independent variable *ECGP_dum* is a dummy variable that takes a value of one if a small business obtained a government guaranteed loan through the ECGP between 31 October 2008 (start of the ECGP) and February 2009 (when the 2009 RIETI survey was conducted).

We also use *NGL_dum*, which is a dummy variable that takes a value of one if a small business obtained a nonguaranteed loan from its primary bank[6] during the year preceding the survey (i.e., between March 2008 and February 2009). This variable is constructed from the 2009 survey data. Note that we only include firms that applied or negotiated for loans, and thus *NGL_dum* represents the share of loan approvals.

We also examine the factors affecting the interest rate for small business loans, given the bank's decision to provide a loan. As variables for *Borrowing_Cost*, we use two variables: *ECGP_Interest_Rate* and *NGL_Interest_Rate*. The variable *ECGP_Interest_Rate* is the interest rate for the ECGP loan. The variable *NGL_Interest_Rate* is the interest rate for the nonguaranteed loan with the primary bank that has been contracted during the year preceding the survey.

[6] The primary bank is defined as the bank with the largest value of loans outstanding.

4.2.2. Accounting information quality measures

One of the most important accounting information is on earnings and its quality. Although there are several dimensions to consider earnings quality (see Dechow et al., 2010), we focus on accruals and its quality (*Accrual_Quality*) as a proxy for accounting information quality (*Accounting Quality*) following prior studies (see, Garcia-Teruel et al., 2014 and Lee & Masulis, 2009).

Under the accrual-basis accounting system, earnings is composed by two components; cash flow and accruals[7]. There is a timing gap between the receipt and disbursement of cash and the recognition of these cash flows in earnings as revenues or expense. Accruals are defined as the difference between cash flow and earnings, and they are used to adjust the recognition of cash flows over time[8]. For example, receivables, one of accruals component of earnings, are recognized as revenues at the current period but change to cash at the subsequent period. However, accruals have estimation error in nature. Many of prior studies have focused on the estimation error as an intended errors (discretional accruals) to detect earnings management (see, Healy, 1985 and DeAngelo, 1986 and Jones, 1991 and Dechow at el., 1995).

However, it should be noted that accruals can also include unintended estimation errors. Dechow and Dichev (2002) argue that estimation errors are systematically related to firm and industry characteristics, even in the absence of intentional errors. The model developed by Dechow and Dichev (2002) (hereafter, DD model) is designed to capture the

[7] Under cash-basis accounting system, revenues or expenses are recognized when cash is received or paid. Therefore, all of earnings is composed by cash flow component.

[8] Dechow et al. (2011) describe accruals as the piece of earnings that is “made up” by accountants.

accruals quality including not only intentional estimation errors but also unintentional estimation errors[9]. Because we do not focus on any management discretion on accruals but focus on accruals quality itself, we adopt DD model as accounting quality measures in this study. Accruals quality is measured by the extent to which accruals accurately map the cash flows of prior, current, and future periods. Based on this idea, we use the DD model to estimate accruals quality defined as residuals of the following equation:

$$\Delta WC_{i,t} = \gamma_0 + \gamma_1 CFO_{i,t-1} + \gamma_2 CFO_{i,t} + \gamma_3 CFO_{i,t+1} + \varepsilon_{i,t}, \quad (3)$$

where $\Delta WC_{i,t}$ is working capital accruals calculated as the change in non-current assets (change in current asset minus change in cash and cash equivalents), minus the change in non-current liabilities (change in current liabilities minus change in short-term debt) (Dechow et al., 2012). *CFO* is cash flow from operations, calculated as net income before extraordinary items minus total accruals, which are calculated as working capital accruals minus depreciation and amortization (Dechow et al., 2012)[10]. All variables are scaled by the average of total assets during fiscal year t and fiscal year t-1. The coefficient of γ_2 is expected to be negative because accruals are negatively associated with current cash flows. The coefficients of γ_1 of γ_3 are expected to be positive because accruals are positively associated with past the future cash flows.

[9] As discussed in Dechow et al. (2012), even though DD model is not intended to capture discretional accruals, subsequent research has adopted DD model in this context to examine earnings management.

[10] Although we focus on short-term working capital accruals designed by DD model in this study, focusing on long-term accruals suggested by Richardson et al. (2005) could be also useful. This is one of our future works.

Following Garcia-Teruel et al. (2014), we use the absolute value of the residual as a proxy for accruals quality: the lower the residual, the higher the accruals quality. Dechow and Dichev (2002) define accrual quality as a standard deviation of residuals calculated on firm-specific regressions. However, we are unable to obtain a constant SME sample across years, especially before fiscal year 2007. Thus, we cannot obtain sufficient samples if we use the standard deviation of the residuals as a proxy for accruals quality. Dechow and Dichev (2002) also argue that the absolute value of the residual could be used as an alternative measure, and show that the results are similar.

When we examine SMEs in Japan, we inevitably face the potential problems of no mandatory accounting policy and firm characteristics that are basically time invariant: these are typically known as the unobservable omitted variables. To address this problem, we extend the DD model by expanding it to a panel data model (hereafter, PDD model). The idea is that the residuals might be inflated in a simple regression, but this bias can be eliminated by including a firm's individual fixed effects. In addition, we include year dummies to control for macro variations across years because our sample period is in the middle of the global financial crisis. Then, we use the absolute value of the residual calculated from panel data as our first measure of accruals quality.

To enable a comparison with the standard estimation, we also regress the DD model by using cross-sectional data for industry–year combinations as our second measure[11]. The DD model is estimated at 1 digit of the Japan Standard Industrial Classification in its

[11] We also estimated the modified DD model by including the changes in sales revenue and property, plant, and equipment (PPE) suggested by McNichols (2002). We confirm that the qualitative results are the same as those obtained below.

cross-sectional regression for the period fiscal year 2006 to fiscal year 2009. Although Dechow and Dichev (2002) argue that accruals quality calculated by firm-specific regressions is a better theoretical measure, they also show that the results for industry regressions are similar to those for firm-specific regressions. To make the interpretation of the variables easier, we define $Accrual\_Quality_p$ and $Accrual\_Quality_i$ as the negative values of the absolute value of residuals calculated by the PDD model and the DD model, respectively.

4.2.3. Control variables

We include several other variables to control for potential determinants of loan use and interest rates regardless of whether the loans are government guaranteed or nonguaranteed. These variables are based on previous research on small business lending.

RCGP_dum is a dummy variable that takes a value of one if a small business obtained a loan through a regular credit guarantee program, and zero otherwise. *Size* is the natural log of total assets and *Leverage* is total debt divided by total assets. *PD* is a proxy for the probability of default, and we use the credit score from the Tokyo Shoko Research (TSR) database[12]. The TSR score measures a firm's creditworthiness, and is used extensively in Japanese studies. Firms with a higher TSR score have a lower probability of default. Thus, we use the negative of the TSR score as *PD*. *ROA* is a profitability measure, calculated as business income divided by average total assets. *FA* is fixed assets divided by total assets. We include *FA* as a collateral proxy in accordance with prior studies. *Growth* is sales

[12] The data was provided by the Research Institute of Economy, Trade and Industry (RIETI).

growth from the previous year and *Loan_enquiry* is a dummy variable that takes a value of one if a firm applies for a loan, and zero otherwise. We include the variable *Loan_enquiry* to control for loan demand. Table 1 lists all variables and their definitions.

4.3. Sample and data

The data used in this study are mainly taken from the *Kinyukikika ni okeru Kigyo Kinyukikan tono Torihiki Jittai Chosa* (Survey on Interfirm and Firm-bank Relationships during the Financial Crisis) conducted in February 2009. The survey was conducted by the Research Institute of Economy, Trade and Industry (RIETI), a research institution affiliated with the Ministry of Economy, Trade and Industry of Japan. The RIETI survey asked firms about a variety of issues such as the use of credit guarantees, the total value of ECGP loans obtained, the amount of short-term loans, and their relationships with banks. The 2009 survey questionnaire was sent to 5,979 firms that had responded to the previous survey in 2008, excluding defaulters. There were 4,103 respondents, a response rate of 68.6 percent.

We were able to obtain financial data from the TSR database for 2,962 of the 4,103 respondents. To examine the effect of accruals quality on guaranteed and nonguaranteed loans, we excluded firms with missing responses to *ECGP_dum* or *NGL_dum* questions and firms that were missing any control variables. As a result, we obtained 1,213 and 1,602 observations for *ECGP_dum* and *NGL_dum* analyses, respectively. To examine the effect of accruals quality on interest rates for guaranteed and nonguaranteed loans, we excluded firms with missing responses to *ECGP_ Interest_Rate* or *NGL_ Interest_Rate* questions and firms that were missing any control variables from the *ECGP_dum* or *NGL_dum* analysis

samples, respectively. As a result, we obtained 316 and 628 observations for *ECGP_ Interest_Rate* and *NGL_ Interest_Rate* analyses, respectively. Table 2 summarizes our sample selection process.

5. Empirical results

5.1. Descriptive statistics

Tables 3 and 4 show descriptive statistics and correlation matrixes by *ECGP_dum*, *NGL_dum*, *ECGP_ Interest_Rate*, and *NGL_ Interest_Rate* analysis samples, respectively. Panel A of Table 3 indicates that 28.7% of SMEs in our sample used the ECGP during this period and 36.8% used regular government guaranteed loans. $Accrual\_Quality_p$ is generally higher than $Accrual\_Quality_i$, and these key variables are examined in detail in the next subsection prior to the main analyses.

5.2. Accruals quality estimation

Table 5 shows the results of our estimation of accruals quality. We winsorize all variables such as the *CFO* variables used in the estimation of accruals quality at the top and bottom of the 1% level. In addition, we winsorize the estimated value of accruals quality using the same criteria because the maximum number is beyond 1. Panel A presents the descriptive statistics of variables used in the estimation and panel B reports the results of both the PDD and DD models. Panel C summarizes the statistics for the residuals calculated by those models.

Panel B of Table 5 shows that the coefficients of CFO_{t-1} and CFO_{t+1} are positively significant but the coefficient of CFO_t is negatively significant in both the PDD and DD models. The strongest association is with CFO_t. Theoretically, because accruals adjust the recognitions of cash flows over time, they are negatively related to current cash flows but positively related to past and future cash flows (Dechow and Dichev, 2002). Thus, our results are consistent with the theory and with prior studies. We also find that the explanatory power of the PDD model is higher than that of the DD model. The results seem reasonable in the sense that the PDD model captures more unobserved time-invariant factors by individual fixed effects than the DD model. Finally, we find that the standard deviation of the residuals using the DD model is higher than that using the PDD model. This is consistent with the fact that $Accrual\_Quality_i$ (defined as the negative of the absolute value of residuals in the DD model) is lower than $Accrual\_Quality_p$ (defined as the negative of the absolute value of residuals in the DD model), as discussed earlier. Overall, our specifications are valid for calculating the residuals, and thus can be used as a proxy for accruals quality.

5.3. Determinants of the use of government guaranteed loans and nonguaranteed loans

Here, we examine the determinants of government guaranteed loans (i.e., transaction lending). Table 6 presents the results from the logit models. Rows 1 and 2 show that the coefficients of *Accrual_Quality* are positive and statistically significant regardless of the specifications of the accruals model. They show that accruals quality is associated with higher use rates for ECGP loans. This result indicates that accounting information quality

reduces the information asymmetries with the CGC, which uses the accounting information effectively during their screening process for government guaranteed loans. We also report the change in the probability of usage rate of guaranteed loans in the specifications in column 3 and 4. The results indicate that the marginal effect of accounting information quality improvement increases the probability of using rate of the guaranteed loans by about 2.3%.

Note that the coefficients of *PD* are positive but the coefficients of *ROA* are negative, indicating that the guaranteed loan users are generally riskier and their profitability is presumably lower. In this sense, the firm characteristics of ECGP loan users fit the aims of the ECGP, because they generally tend to face greater financial constraints, especially in periods of financial crisis. Overall, even if SMEs are in financial trouble, the improvement in the quality of their financial statements contributes to alleviating the information asymmetries with the CGC.

Table 7 presents the corresponding results for nonguaranteed loans (i.e., relationship lending). Here, the coefficient of *Accrual_Quality* is not statistically significant. Interestingly, this result is quite different from that for guaranteed loans. One possibility is that we do not consider the effects of soft information such as relationship lending. At this point, we cannot judge whether accruals quality is an important source of information for the banks because in general the results agree with those of previous studies. However, those studies evaluate the importance of accounting information quality in relation to contract terms, not the acceptance rate of loans.

The variables that have explanatory powers in this specification are also very different from those for guaranteed loans. For example, firm size is an important determinant of nonguaranteed loans, but not of guaranteed loans. The probability of default does not affect the use rate of nonguaranteed loans. In contrast, the coefficients of firm profitability are negatively associated with the use rate of nonguaranteed loans, which is the same result as that for guaranteed loans.

5.4. Determinants of interest rates for guaranteed and nonguaranteed loans

Table 8 presents the results regarding the determinants of interest rates for guaranteed (i.e., transaction lending) and nonguaranteed loans (i.e., relationship lending). Rows 1 and 2 show the effects of accruals quality on interest rates. Columns 1 and 2 show that accruals quality does not affect the interest rate for guaranteed loans. These results indicate that banks do not require the same risk premiums for guaranteed loans, presumably because they don't bear the burden of credit risk. In contrast, columns 3 and 4 show that the coefficients of accruals quality are negative and statistically significant. For example, Column 3 implies that a unit of improvement accrual quality economically decreases the interest rate of regular loans by about 0.2%. These results indicate that the higher the accruals quality, the lower the interest rate for nonguaranteed loans. Again, the results agree with those of previous studies, and thus the quality of accounting information is seen to contribute to improved loan contract terms. In this sense, accounting information quality is still important for SMEs, even if it is not associated with the acceptance rate of nonguaranteed loans.

interest rate of regular loans by about 0.2%. These results indicate that the higher the accruals quality, the lower the interest rate for nonguaranteed loans. Again, the results agree with those of previous studies, and thus the quality of accounting information is seen to contribute to improved loan contract terms. In this sense, accounting information quality is still important for SMEs, even if it is not associated with the acceptance rate of nonguaranteed loans.

For other variables, *PD* in row 6 is positively associated with both of guaranteed and non-guaranteed loans indicating higher probability of default is related to higher interest rates. In contrast, *ROA* in row 7 is negatively associated with both of guaranteed and non-guaranteed loans. These results show that firms with good performance enjoy lower cost of debt.

6. Conclusion

In this paper, we empirically investigate the effects of accounting information quality as measured by accruals quality on the use of government guaranteed loans and nonguaranteed loans. We also examine whether accounting quality has effects on the cost of debt. We find that higher accruals quality is associated with a higher use rates of government guaranteed loans (i.e., transaction lending) but not associated with use rates of nonguaranteed loans (i.e., relationship lending). We also find that higher accruals quality is not associated with the interest rate for guaranteed loans, but is associated with a lower interest rate for nonguaranteed loans. These results indicate that the relevant accounting information is effectively used in screening processes for small and medium-sized

important measures of firm performance, and thus it is important to understand that there are incentives for firms to use these measures opportunistically, even though the financial statements are useful in reducing information asymmetries with lenders. However, when banks extend loans, it is also important for them to be able to detect window-dressing during the screening process. We have not explicitly consider the discretional accruals in the estimation, but the proxy of discretional accruals are well known in accounting academics. Thus, it is still challenging to empirically examine how banks cope with the potential problem of opportunistic use of accounting information to dress up firm performance.

As Cassar et al. (2014) and Bartoli et al. (2013) report, under the current paradigm of SME lending, how the two types of information (i.e., hard and soft) work is not fully understood. Thus, the next question is whether these information sources act as substitutes or complements in resolving the information asymmetry problems when banks offer guaranteed or nonguaranteed loans. These are topics for future research.

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Table 1

Variables, their definitions, and data sources

Variables	Definition	Source
Loan_Acceptance		
1. *ECGP_dum*	Dummy variable that takes one if a firm obtained government guaranteed loans of ECGP between October 31, 2008 (start of ECGP) and February 2009 (when 2009 RIETI survey was conducted), zero otherwise	RIETI Survey in February 2009
2. *NGL_dum*	Dummy variable that takes one if a firm obtained non-guaranteed loans that is contracted within the past one year from the timing of 2009 survey, zero otherwise	RIETI Survey in February 2009
Borrowing Cost		
3. *ECGP_Interest_Rate*	Interest rate on the ECGP loans	RIETI Survey in February 2009
4. *NGL_Interest_Rate*	Interest rate on the recent non-guaranteed loans	RIETI Survey in February 2009
Accounting Information Quality		
5. $Accrual\_Quality_p$	Negative value of |residual| where the residual is calculated based on $WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \eta_i + \lambda_t + \varepsilon_t$	TSR database
6. $Accrual\_Quality_i$	Negative value of |residual| where the residual calculated based on $WC_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon_t$ for each industry-specific regressions	TSR database
Control variables		
7. *RCGP_dum*	Dummy variable that takes one if a firm obtained regular credit guarantee program, zero otherwise	RIETI Survey in February 2009
8. *Size*	Natural log of total assets	TSR database
9. *Leverage*	Total debt divided by total assets	TSR database
10. *PD*	Negative value of TSR score that shows a firm's creditworthness	TSR database
11. *ROA*	Business income divided by average total assets	TSR database
12. *FA*	Fixed assets divided by total assets as a collateral proxy	TSR database
13. *Growth*	Sales growth	TSR database
14. *Loan_enquiry*	Dummy variable that takes one if a firm applys to loans, zero otherwise	RIETI Survey in February 2009

Table 2
Sample selection process

	Observation	
RIETI surveys in February of 2009	4,103	
Less: firms missing financial data in TSR database	1,141	
	2,962	
Less: firms missing response to *ECGP_dum* question	94	
Less: firms missing any independent variables	1,655	
Sample used in *ECGP_dum* analysis	1,213	
Less: firms missing response to *NGL_dum* question		1,602
Less: firms missing any independent variables		870
Sample used in *NGL_dum* analysis		732
Less: firms missing response to *ECGP_Interest_Rate* question	897	
Sample used in *ECGP_Interest_Rate* analysis	316	
Less: firms missing any independent variables		104
Sample used in *NGL_Interest_Rate* analysis		628

Table 3

Descriptive statistics by analysis

Panel A: Sample used in *ECGP_dum* analysis (N = 1,213)

	Mean	Std. Dev.	Min	Max
1. *ECGP_dum*	0.287	0.452	0.000	1.000
5. *Accrual_Quality* $_p$	-0.007	0.015	-0.125	0.000
6. *Accrual_Quality* $_i$	-0.030	0.031	-0.203	0.000
7. *RCGP_dum*	0.368	0.482	0.000	1.000
8. *Size*	13.77	1.40	9.87	17.60
9. *Leverage*	0.713	0.236	0.073	1.801
10. *PD*	-54.90	6.42	-77.00	-36.00
11. *ROA*	0.022	0.056	-0.233	0.237
12. *FA*	0.300	0.204	0.001	0.843
13. *Growth*	0.005	0.207	-0.697	1.129
14. *Loan_enquiry*	0.384	0.487	0.000	1.000

Panel B: Sample used in *NGL_dum* analysis (N = 732)

	Mean	Std. Dev.	Min	Max
2. *NGL_dum*	0.705	0.456	0.000	1.000
5. *Accrual_Quality* $_p$	-0.007	0.016	-0.125	0.000
6. *Accrual_Quality* $_i$	-0.031	0.032	-0.203	0.000
7. *RCGP_dum*	0.389	0.488	0.000	1.000
8. *Size*	13.77	1.36	9.87	17.60
9. *Leverage*	0.715	0.236	0.073	1.801
10. *PD*	-54.89	6.40	-77.00	-38.00
11. *ROA*	0.022	0.055	-0.233	0.237
12. *FA*	0.292	0.195	0.001	0.843
13. *Growth*	0.014	0.218	-0.697	1.129
14. *Loan_enquiry*	0.557	0.005	0.000	1.000

Panel C: Sample used in *ECGP_Interest_Rate* analysis (N = 316)

	Mean	Std. Dev.	Min	Max
3. *ECGP_Interest_Rate*	0.021	0.006	0.006	0.050
5. *Accrual_Quality* $_p$	-0.006	0.014	-0.087	0.000
6. *Accrual_Quality* $_i$	-0.030	0.030	-0.179	0.000
7. *RCGP_dum*	0.680	0.467	0.000	1.000
8. *Size*	13.47	1.16	10.69	17.11
9. *Leverage*	0.817	0.191	0.095	1.801
10. *PD*	-51.27	4.47	-66.00	-38.00
11. *ROA*	0.001	0.048	-0.233	0.226
12. *FA*	0.315	0.205	0.001	0.841
13. *Growth*	-0.030	0.212	-0.697	1.129
14. *Loan_enquiry*	0.465	0.500	0.000	1.000

Panel D: Sample used in *NGL_Interest_Rate* analysis (N = 628)

	Mean	Std. Dev.	Min	Max
4. *NGL_Interest_Rate*	0.019	0.007	0.005	0.044
5. *Accrual_Quality* $_p$	-0.007	0.016	-0.125	0.000
6. *Accrual_Quality* $_i$	-0.030	0.031	-0.203	0.000
7. *RCGP_dum*	0.490	0.500	0.000	1.000
8. *Size*	13.74	1.34	9.87	17.60
9. *Leverage*	0.755	0.220	0.095	1.801
10. *PD*	-53.70	6.07	-72.00	-38.00
11. *ROA*	0.013	0.053	-0.233	0.226
12. *FA*	0.296	0.198	0.001	0.843
13. *Growth*	0.097	0.213	-0.697	1.129
14. *Loan_enquiry*	0.546	0.498	0.000	1.000

Table 4

Correlation matrix by analysis

Panel A: Sample used in *ECGP_dum* analysis (N = 1,213)

	1	5	6	7	8	9	10	11	12	13	14
1. *ECGP_dum*	1.000										
5. *Accrual_Quality* $_p$	0.027	1.000									
6. *Accrual_Quality* $_i$	-0.016	0.342	1.000								
7. *RCGP_dum*	0.405	-0.017	-0.021	1.000							
8. *Size*	-0.127	0.197	0.254	-0.214	1.000						
9. *Leverage*	0.286	-0.047	-0.089	0.333	-0.130	1.000					
10. *PD*	0.353	-0.133	-0.170	0.382	-0.463	0.516	1.000				
11. *ROA*	-0.238	0.050	0.092	-0.162	0.154	-0.264	-0.389	1.000			
12. *FA*	0.055	0.097	0.096	0.007	0.123	0.010	0.032	-0.096	1.000		
13. *Growth*	-0.096	0.013	0.028	-0.041	0.106	-0.018	-0.154	0.353	-0.033	1.000	
14. *Loan_enquiry*	0.117	-0.068	-0.001	0.132	0.068	0.141	0.113	-0.108	0.037	-0.005	1.000

Panel B: Sample used in *NGL_dum* analysis (N = 732)

	2	5	6	7	8	9	10	11	12	13	14
2. *NGL_dum*	1.000										
5. *Accrual_Quality* $_p$	-0.048	1.000									
6. *Accrual_Quality* $_i$	-0.030	0.341	1.000								
7. *RCGP_dum*	0.050	0.016	0.024	1.000							
8. *Size*	0.072	0.194	0.242	-0.158	1.000						
9. *Leverage*	0.057	-0.003	-0.042	0.344	-0.113	1.000					
10. *PD*	0.060	-0.107	-0.153	0.377	-0.440	0.513	1.000				
11. *ROA*	-0.141	0.045	0.091	-0.134	0.144	-0.258	-0.396	1.000			
12. *FA*	-0.047	0.089	0.086	0.019	0.122	0.001	0.031	-0.051	1.000		
13. *Growth*	-0.006	0.004	0.015	-0.013	0.067	-0.021	-0.117	0.372	-0.051	1.000	
14. *Loan_enquiry*	0.304	-0.079	0.040	0.131	0.066	0.191	0.204	-0.138	0.087	-0.064	1.000

Panel C: Sample used in *ECGP_Interest_Rate* analysis (N = 316)

	3	5	6	7	8	9	10	11	12	13	14
3. *ECGP_Interest_Rate*	1.000										
5. *Accrual_Quality* $_p$	-0.013	1.000									
6. *Accrual_Quality* $_i$	-0.141	0.207	1.000								
7. *RCGP_dum*	0.111	0.002	0.023	1.000							
8. *Size*	-0.112	0.167	0.229	0.012	1.000						
9. *Leverage*	0.141	0.062	-0.068	0.149	-0.101	1.000					
10. *PD*	0.249	-0.031	-0.154	0.110	-0.350	0.411	1.000				
11. *ROA*	-0.139	-0.051	0.346	0.063	0.155	-0.093	-0.301	1.000			
12. *FA*	-0.027	0.107	0.106	-0.102	0.169	-0.146	-0.088	-0.011	1.000		
13. *Growth*	0.002	-0.027	0.059	0.037	0.101	-0.010	-0.165	0.362	0.030	1.000	
14. *Loan_enquiry*	0.163	-0.037	-0.034	0.054	0.116	-0.009	0.142	-0.022	-0.062	-0.002	1.000

Panel D: Sample used in *NGL_Interest_Rate* analysis (N = 628)

	4	5	6	7	8	9	10	11	12	13	14
4. *NGL_Interest_Rate*	1.000										
5. *Accrual_Quality* $_p$	-0.105	1.000									
6. *Accrual_Quality* $_i$	-0.169	0.366	1.000								
7. *RCGP_dum*	0.318	0.041	0.009	1.000							
8. *Size*	-0.265	0.162	0.223	-0.163	1.000						
9. *Leverage*	0.352	0.004	-0.069	0.334	-0.188	1.000					
10. *PD*	0.468	-0.096	-0.170	0.357	-0.472	0.531	1.000				
11. *ROA*	-0.285	0.003	0.256	-0.143	0.222	-0.232	-0.387	1.000			
12. *FA*	-0.004	0.097	0.101	-0.003	0.117	-0.017	0.004	-0.054	1.000		
13. *Growth*	-0.023	-0.039	0.047	-0.050	0.092	-0.039	-0.125	0.356	-0.001	1.000	
14. *Loan_enquiry*	0.151	-0.059	0.020	0.024	0.100	0.007	0.041	0.017	-0.001	0.053	1.000

Table 5

Results of accruals quality estimation. $\Delta WC_{i,t}$ is working capital accruals calculated as the change in non-current assets (change in current asset minus change in cash and cash equivalents), minus the change in non-current liabilities (change in current liabilities minus change in short-term debt). *CFO* is cash flow from operations, calculated as net income before extraordinary items minus total accruals, which are calculated as working capital accruals minus depreciation and amortization.

Panel A: Descriptive statistics of variables used to estimate the residuals

	Mean	Std. Dev.	Min.	25q	Median	75q	Max.
ΔWC_t	0.006	0.103	-0.391	-0.034	0.004	0.045	0.441
CFO_{t-1}	0.029	0.117	-0.450	-0.022	0.028	0.082	0.456
CFO_t	0.025	0.119	-0.460	-0.026	0.024	0.079	0.456
CFO_{t+1}	0.026	0.117	-0.397	-0.027	0.025	0.079	0.438

Panel B: Estimates of residuals based on PDD model and DD model

		Constant	CFO_{t-1}	CFO_t	CFO_{t+1}	R-squared
PDD model						
	Coefficients	0.03***	0.06***	-0.81***	0.03***	0.837
	(t-statistics)	(20.49)	(10.09)	(-130.16)	(5.36)	
DD model						
	Mean of coefficients	0.02***	0.20***	-0.65***	0.15***	0.700
	(t-statistics)	(4.72)	(6.91)	(-27.91)	(5.31)	

Panel C: Residuals based on PDD model and DD model

	Mean	Std. Dev.	Min.	25q	Median	75q	Max.
Residuals of PDD model	0.000	0.026	-0.501	-0.001	0.000	0.002	0.346
Residuals of DD model	0.000	0.051	-0.620	-0.021	0.000	0.022	0.615

The values in parentheses are t-statistics. ***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Table 6

Results of accruals quality on the use of guaranteed loans. *ECGP_dum* is a dummy variable that takes a value of one if a small business obtained a government guaranteed loan through the Emergency Credit Guarantee Program. $Accrual\_Quality_p$ and $Accrual\_Quality_i$ are the negative values of the absolute value of residuals calculated based on the DD model of panel estimation and industry-specific regression, respectively. *RCGP_dum* is a dummy variable that takes a value of one if a small business obtained a loan through a regular credit guarantee program, and zero otherwise. *Size* is the natural log of total assets and *Leverage* is total debt divided by total assets. *PD* is probability of default based on TSR credit score. *ROA* is profitability measure calculated as business income divided by average total assets. *FA* is fixed assets divided by total assets. *Growth* is sales growth and *Loan_enquiry* is a dummy variable that takes one if a firm apply to loans, zero otherwise. The marginal effects on the probability of using guaranteed loans are evaluated at the mean value of each independent variable.

		(1) *ECGP_dum*	(2) *ECGP_dum*	(3) *ECGP_dum*	*Marginal Effects*	(4) *ECGP_dum*	*Marginal Effects*
1.	$Accrual\_Quality_p$	15.15***		13.10**	2.30		
		(2.93)		(2.51)			
2.	$Accrual\_Quality_i$		6.05**			4.35*	0.76
			(2.38)			(1.66)	
3.	*RCGP_dum*			1.46***	0.28	1.45***	0.28
				(9.36)		(9.33)	
4.	*Size*	0.00	0.00	0.06	0.01	0.06	0.01
		(0.04)	(0.05)	(0.90)		(0.97)	
5.	*Leverage*	1.59***	1.57***	1.03**	0.18	1.02**	0.18
		(3.99)	(3.97)	(2.54)		(2.50)	
6.	*PD*	0.10***	0.10***	0.08***	0.01	0.08***	0.01
		(5.80)	(5.85)	(4.32)		(4.36)	
7.	*ROA*	-5.33***	-5.74***	-5.75***	-1.01	-5.98***	-1.05
		(-3.30)	(-3.45)	(-3.47)		(-3.53)	
8.	*FA*	0.43	0.44	0.40	0.07	0.42	0.07
		(1.17)	(1.20)	(1.03)		(1.09)	
9.	*Growth*	-0.16	-0.17	-0.21	-0.04	-0.21	-0.04
		(-0.45)	(-0.47)	(-0.56)		(-0.54)	
10.	*Loan_enquiry*	0.32**	0.29**	0.19	0.03	0.17	0.03
		(2.17)	(2.00)	(1.27)		(1.11)	
	Constant	2.67*	2.56*	0.78		0.58	
		(1.83)	(1.72)	(0.50)		(0.37)	
	industry effects	yes	yes	yes		yes	
	year effects	yes	yes	yes		yes	
	Observations	1,213	1,213	1,213		1,213	
	ECGP_dum= 1	348	348	348		348	
	Pseudo R-squared	0.158	0.156	0.221		0.218	

The values in parentheses are t-statistics. ***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Table 7

Results of accruals quality on the use of nonguaranteed loans. *NGL_dum* that is a dummy variable that takes a value of one if a small business obtained a nonguaranteed loan from its primary bank within one year preceding the 2009 survey. *Accrual_Quality*$_p$ and *Accrual_Quality*$_i$ are the negative values of the absolute value of residuals calculated based on the DD model of panel estimation and industry-specific regression, respectively. *RCGP_dum* is a dummy variable that takes a value of one if a small business obtained a loan through a regular credit guarantee program, and zero otherwise. *Size* is the natural log of total assets and *Leverage* is total debt divided by total assets. *PD* is probability of default based on TSR score. *ROA* is profitability measure calculated as business income divided by average total assets. *FA* is fixed assets divided by total assets. *Growth* is sales growth and *Loan_enquiry* is a dummy variable that takes one if a firm apply to loans, zero otherwise. The marginal effects on the probability of using nonguaranteed loans are evaluated at the mean value of each independent variables.

		(1) *NGL_dum*	(2) *NGL_dum*	(4) *NGL_dum*	*Marginal Effects*	(5) *NGL_dum*	*Marginal Effects*
1.	*Accrual_Quality* $_p$	-4.72		-4.84	-0.95		
		(-0.75)		(-0.77)			
2.	*Accrual_Quality* $_i$		-4.17			-4.28	-0.84
			(-1.36)			(-1.40)	
3.	*RCGP_dum*			0.07	0.01	0.09	0.02
				(0.36)		(0.45)	
4.	*Size*	0.16**	0.17**	0.16**	0.03	0.18**	0.03
		(2.09)	(2.21)	(2.09)		(2.22)	
5.	*Leverage*	-0.11	-0.13	-0.14	-0.03	-0.18	-0.03
		(-0.23)	(-0.28)	(-0.30)		(-0.37)	
6.	*PD*	-0.01	-0.01	-0.01	0.00	-0.01	0.00
		(-0.28)	(-0.31)	(-0.35)		(-0.39)	
7.	*ROA*	-6.61***	-6.81***	-6.62***	-1.30	-6.83***	-1.33
		(-3.45)	(-3.45)	(-3.45)		(-3.46)	
8.	*FA*	-0.89*	-0.87*	-0.87*	-0.18	-0.088*	-0.17
		(-1.83)	(-1.80)	(-1.85)		(-1.82)	
9.	*Growth*	0.63	0.64	0.63	0.12	0.63	0.12
		(1.40)	(1.41)	(1.39)		(1.39)	
10.	*Loan_enquiry*	1.33***	1.35***	1.33***	0.26	1.35***	0.27
		(7.15)	(7.26)	(7.13)		(7.25)	
	Constant	-2.20	-2.47	-2.29		-2.58	
		(-1.17)	(-1.30)	(-1.21)		(-1.35)	
	industry effects	yes	yes	yes		yes	
	year effects	yes	yes	yes		yes	
	Observations	732	732	732		732	
	NGL_dum= 1	516	516	516		516	
	Pseudo R-squared	0.108	0.109	0.108		0.110	

The values in parentheses are t-statistics. ***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.

Table 8

Results of accruals quality on the interest rates of guaranteed and nonguaranteed loans. *ECGP_Interest_Rate* is interest rate on the Emergency Credit Guarantee Program loans. *NGL_Interest_Rate* is interest rate on the recent nonguaranteed loans. $Accrual\_Quality_p$ and $Accrual\_Quality_i$ are the negative values of the absolute value of residuals calculated based on the DD model of panel estimation and industry-specific regression, respectively. *RCGP_dum* is a dummy variable that takes a value of one if a small business obtained a loan through a regular credit guarantee program, and zero otherwise. *Size* is the natural log of total assets and *Leverage* is total debt divided by total assets. *PD* is probability of default based on TSR score. *ROA* is profitability measure calculated as business income divided by average total assets. *FA* is fixed assets divided by total assets. *Growth* is sales growth and *Loan_enquiry* is a dummy variable that takes one if a firm apply to loans, zero otherwise.

		(1) *ECGP_Interest_Rate*	(3) *ECGP_Interest_Rate*	(2) *NGL_Interest_Rate*	(4) *NGL_Interest_Rate*
1.	$Accrual\_Quality_p$	-0.00		-0.19***	
		(-0.17)		(-6.90)	
2.	$Accrual\_Quality_i$		-0.02		-0.07***
			(-1.44)		(-4.97)
3.	*RCGP_dum*	0.00	0.00**	0.00**	0.00**
		(1.98)	(2.01)	(2.09)	(2.01)
4.	*Size*	-0.00	-0.00	-0.00	-0.00
		(-1.12)	(-0.89)	(-0.15)	(-0.27)
5.	*Leverage*	0.00	0.00	0.00	0.00
		(1.05)	(1.01)	(0.98)	(0.91)
6.	*PD*	0.00**	0.00**	0.00**	0.00**
		(1.99)	(2.01)	(2.02)	(2.10)
7.	*ROA*	-0.02*	-0.01	-0.05***	-0.04***
		(-1.90)	(-1.31)	(-5.77)	(-4.32)
8.	*FA*	0.00	0.00	0.00	0.00
		(0.16)	(0.31)	(0.48)	(0.46)
9.	*Growth*	0.00	0.00	0.00	0.00
		(0.95)	(0.83)	(1.33)	(1.38)
10.	*Loan_enquiry*	0.00**	0.00**	0.08	0.00
		(2.14)	(2.10)	(0.88)	(1.38)
	Constant	0.04***	0.04***	0.01	0.02**
		(4.73)	(4.58)	(1.57)	(2.22)
	industry effects	yes	yes	yes	yes
	year effects	yes	yes	yes	yes
	Observations	316	316	628	628
	R-squared	0.140	0.140	0.202	0.173

The values in parentheses are t-statistics. ***Significant at the 1% level. **Significant at the 5% level. *Significant at the 10% level.