Same information, different value: New evidence on the value of voluntary assurance

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Same Information, Different Value: New Evidence on the Value of Voluntary Assurance

Abstract

This paper examines whether there is a difference in the value of voluntarily assured financial statements of private firms, depending on the availability of other information for the users of the statements. By using a within-firm estimator that completely controls for firm fixed effects, we find that the loan interest rate for private firms with voluntarily assured financial statements is lower when the firms have longer relationships with their banks. This finding suggests that the value of assured financial statements differs among the same type of users (banks), and is larger for those that accumulate soft information through long-term lending relationships. We also find that this larger value is not present when the tenure of the auditor with the client is very long.

1 Introduction

Many auditing studies have investigated whether the assurance of financial statements by independent external auditors has economic value. The literature finds that assured financial statements allow firms to obtain easier access to bank loans or more favorable lending terms (e.g., lower interest rates) (Allee and Yohn, 2009; Blackwell et al., 1998; Dedman and Kausar, 2012; Kausar et al., 2016; Kim et al., 2011; Lennox and Pittman, 2011; Minnis, 2011), which suggests that auditors' assurance does have value. These studies also find that even small and medium enterprises (SMEs), which are not required by regulation to do so, voluntarily acquire assurance on their financial statements from auditors to obtain the economic value.

Building on these studies, we aim to examine a further question in this paper: is the value of the voluntarily assured financial statements always the same among the same types of users of these statements? It is important to ask this question because assured financial statements are not the sole source of information for firms' stakeholders, and the value of assured financial statements might differ to the extent that other information is available to the stakeholders. For example, banks that are important stakeholders of firms independently collect information on the creditworthiness of these firms. The value of assured financial statements of a firm might thus be different for banks that already have much information about the firm and those that do not. To the best of our knowledge, however, prior studies have not considered this possibility of different value of assured

financial statements among the same types of users.

To explore this possibility, we examine whether banks with different levels of other information evaluate the same set of voluntarily assured financial statements in a different manner. We focus on banks not only because banks are among the most important users of accounting information but also because they are likely to have different levels of other information. Banks need information on their clients' creditworthiness as integral input in making lending decisions. Banks rely on quantitative and verifiable information—so-called hard information—and assured financial statements are an important source of such information (see, e.g., Liberti and Petersen, 2018).

On the other hand, as indicated above, information from sources other than assured financial statements is also available to banks, and the degree of this availability might differ among banks. In their own screening and monitoring processes, banks collect important information on their clients that is qualitative and unverifiable—so-called soft information—such as the competence of a firm's chief executive officer (CEO) or the future prospects of a firm's business (see, e.g., Liberti and Petersen, 2018).[1] Many studies argue that banks accumulate soft

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[1] This terminology follows the convention in the field of banking, but the term *soft information* might also mean nonfinancial information other than the details found in financial statements. That is, it is often used to describe different types of environmental, social, and governance disclosures included in sustainability reports, corporate web pages, social media pages, and other sources (e.g., Bertomeu and Marinovic, 2016). The authors thank an anonymous referee for this clarification.

information through strong bank-borrower relationships and make lending decisions based on such information, which is called relationship(-based) lending (e.g., Berger and Udell, 2002; Boot, 2000).[2] These studies also argue that soft information is especially valuable for opaque private firms with high informational asymmetry. Many empirical studies find reduced loan costs or greater credit availability for stronger bank-borrower relationships and thereby lend support to the presence of this value creation (e.g., see, Degryse et al., 2009, chapter 4, for a survey of empirical studies). However, these studies overlook the interplay between relationship-based soft information and information from assured financial statements. In this paper, we fill this research gap.

In examining whether the value of voluntarily assured financial statements differs based on the availability of soft information, we also examine the direction of the difference, if there is one. Whether the availability increases or decreases the value is a priori indeterminate, because soft and hard information can either substitute for or complement each other. On the one hand, banks might need as much information as possible to resolve the lack of information, and there might be synergy in using both types of information to accurately predict borrowers' future profitability or in confirming one type of information using the other. On the other hand, to the

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[2] The relationships include lending relationships and relationships through banks' provision of other financial services. These studies on relationship lending argue that banks obtain more soft information through longer and wider-scope relationships.

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extent that their information content is similar, soft and hard information might be substitutes for each other, and using both types of information might just increase costs related to duplicated information production. Furthermore, theory argues that relationship lending based on soft information might be disadvantageous for borrowers because of information monopoly of banks—the so-called hold-up problem—(Rajan, 1992; Sharpe, 1990). In this case, the assurance of financial statements might mitigate this problem by providing other lenders with more information on the borrowers. On balance, whether the presence of soft information increases or decreases the value of assured financial statements is an empirical question.

We further examine whether this increase or decrease, if present, depends on the tenure of auditors. There is a prolonged debate on whether longer auditor tenure enhances or compromises audit quality. Longer tenure might enable an auditor to perform more precise assessments of the fairness of a firm's financial statements based on accumulated client-specific information, whereas a lengthy relationship could jeopardize audit quality since strengthened intimacy between the auditor and the firm might make the auditor less independent. Consistent with this mixed prediction, prior studies report mixed evidence (e.g., Carey and Simnett, 2006; Davis et al., 2009; Myers et al., 2003, and Tepalagul and Lin, 2015 for a review). However, these studies predominantly focus on public firms, and limited studies on private firms do not take into account a possiblility of different value of voluntarily assured financial statements among users as the

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present study does (Bell et al., 2015; Fortin and Pittman, 2007; Svanström, 2013).

To examine whether and how the value of assured financial statements differs based on the availability of other (soft) information and whether the differences depend on auditor tenure, we follow a unique approach. While we measure the value as a reduction in firms' interest rates on loans due to the presence of assured financial statements, the uniqueness of our study lies in our investigation of whether this reduction differs depending on the availability of soft information. As a proxy for this availability, we use the duration of the bank-borrower lending relationship—a conventionally used proxy in the literature on relationship lending (see, e.g., Petersen and Rajan, 1994, Berger and Udell, 1995, and Degryse et al., 2009, chapter 4).[3]

Additionally, we use unique data from a corporate survey conducted in Japan in 2010. Data from Japan are suitable for our tests because Japan's financial system is bank-oriented and there are long and multifaceted bank-borrower relationships, called main bank relationships, such as reciprocal shareholdings, supply of management resources and directors, and the provision of various financial services (not limited to loans) (see, e.g., Aoki and Patrick, 1994 and Uchida and Udell, 2019). Through such relationships banks could obtain sufficient soft information on their clients that other lenders cannot obtain, and thus we could extract a possible effect of such

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[3] A longer duration might capture not only good soft information but also good credit history (hard information). However, in this paper, we can isolate the effect of the former because we examine a within-firm difference in interest rates across banks.

information on the value of voluntary assurance.

Our analysis has sufficient relevance to other countries as well, despite the fact that our evidence is from a setting which has unique bank-firm relationships. In many countries, as in Japan, bank borrowing is one of the primary sources of financing for private firms (e.g., Berger and Udell, 1998, Beck et al., 2008), and relationship lending is relevant (e.g., Degryse et al., 2009 (chapter 4), Kysucky and Norden, 2016). More importantly, auditor assurance is not mandatory for private firms. For instance, small private firms in EU countries are not required to have their financial statements assured because of the statutory audit exemption following the 2013 Accounting Directive (Accountancy Europe, 2020). There are also other advanced and developing countries, such as the U.S., Canada, Australia, and some Latin American countries (Argentina, Brazil, Colombia, and Mexico), that also have no requirements or exemptions for private firms on mandatory assurance (Briozzo and Albanese, 2020; IAASB, 2019a). Moreover, our sample is from the period before Japan's efforts to enhance the credibility of financial reporting by private firms (see section 2 for more details). The findings in this paper could thus provide meaningful implications to countries where private financial reporting is currently inconsistent or poorly regulated, as it was in Japan.

In addition to this suitability, our data have uniqueness for analytical purposes. The data set includes loan information from firms' largest and second-largest lenders, which allows us to

use a within-firm estimator that recent papers in the field of finance have used (e.g., Khwaja and

Mian, 2008). The within-firm estimator captures the effect of an independent variable that varies

within each firm after we control for firm fixed effects. In our case, after controlling for the effects

of both observable and unobservable firm-level factors by using firm dummies, we identify within-

firm cross-bank differences in interest rates, for firms with voluntarily assured financial statements,

that stem from differences in the durations of the firms' relationships with their banks.

The most significant advantage of this approach is its ability to control for endogeneity that

could arise from an endogenous choice of assurance services. To the extent that firms with

particular (unobservable) characteristics choose to obtain these services (i.e., self-selection), the

correlation between the variable to indicate the choice (i.e., dependent variable) and the error term

(which includes unobservable characteristics) produces endogeneity in the estimation. By

controlling for firm fixed effects, the error term in our estimation does not include any firm-level

factors that might influence managers' decisions to voluntarily acquire assurance on their financial

statements.

From our analysis, we find that the loan interest rates for firms with voluntarily assured

financial statements is lower when they have longer relationships with banks. We also find that

this result of the difference in the reduction of interest rates is robust to different specifications and

to our control for differences in bank characteristics. These findings indicate that even among the

same type of users (banks, in our case), the value of the same voluntarily assured financial statements differs. The result also indicates that the difference in the value depends on the amount of soft information that banks have, suggesting that the soft information that banks accumulate through long relationships and the hard information in assured financial statements complement each other.

In our further analysis on the effect of auditor tenure, we measure tenure at both the firm and partner levels, and compare the effect we found of assured financial statements for banks with long firm relationships between firms with shorter and longer auditor tenures (below or above the median tenure). We find that the value of assured financial statements for banks with long relationships is present only in the case of a shorter auditor tenure. This finding calls for the need to consider auditor rotation to enhance the value of assured financial statements for private firms, although our results indicate that in Japan, where the tenure is relatively long (at median, 20 years at the audit firm level and 13 years at the audit partner level), the frequency of such rotation can be low enough to avoid only substantially long tenure.

Our study contributes to three strands of the literature. First, it adds to the literature on the economic value of auditors' assurance of financial statements. Following Blackwell's (1998) finding of a reduction in interest rates for private firms with voluntarily assured financial statements, several studies have reported the presence of the value of the voluntary assurance (see

Vanstraelen and Schelleman (2017) for a review). However, to the best of our knowledge, ours is the first study to find a difference in the value of the same voluntarily assured financial statements between users of the statements depending on the availability of other information.[4] Among studies on the value of voluntary assurance, Kim et al. (2011) are methodologically similar to ours because they control for firm fixed effects using multiple observations for each sample firm. However, their observations are multiple across years (in panel data) rather than across banks as in our paper (in cross-sectional data). Thus, they cannot use the within-firm estimator to examine whether banks put different value on the same voluntarily assured financial statement.[5]

Second, this paper contributes to studies on the effect of auditor tenure on audit quality. The literature overwhelmingly investigates the link between auditor tenure and the quality of audits for public firms, since it is an urgent issue for such firms given the controversy over the effect of auditor tenure on audit quality (Ewelt-Knauer et al., 2012; PCAOB, 2011). However, the effect of tenure on audit quality is just as important for private firms, since a non-negligible number of private firms voluntarily purchase assurance services. Uncovering evidence on auditing specific to SMEs is becoming increasingly important as indicated, for example, by the fact that the IAASB

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[4] Our results also have implications for the literature on the auditing expectation gap. Miller et al. (1993) show that loan officers from large and small banks understand the content of audit reports differently. Although the authors discuss this difference in the context of the expectation gap, their results could indicate that the information technologies that bank officers use differ depending on the bank's size, which is consistent with our expectations.

[5] The primary interest of Kim et al. (2011) is whether the value of voluntary assurance by Big 4 auditors is different from that by non-Big 4 auditors.

recently initiated a project to explore possible actions to address issues related to auditing for SMEs (IAASB, 2019b). In this paper, we find that for private firms, the value of voluntarily assured financial statements in the case of a long bank-borrower relationship changes depending on auditor tenure. This finding suggests that for private firms, it might be necessary to have a system to prevent a very long auditor tenure, even if an auditor's assurance on financial statements is not mandatory.

Third, this study is closely related to the banking literature on lending technologies that classify loans into different types based on factors such as information sources, and screening and underwriting policies and procedures (Berger and Udell, 2002, 2006). In this classification, there are two main lending technologies, transaction lending and relationship lending, that respectively base their lending decisions on hard quantitative information and soft qualitative information. Recent empirical studies find that banks focus on (or value) both types of information in their screening, which indicates that the two technologies are complementary (Bartoli et al., 2013; Uchida, 2011). However, when and how the use of both types of information creates value is still unclear. One paper examines this issue using a method similar to ours (Kano et al., 2011); however, the authors do not take into account the bias from an endogenous choice of assurance services, and they find no evidence for the beneficial effect of audited financial statements. Using a more powerful approach, our paper provides evidence that complementarity exists and that the value of

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assured financial statements is present when banks accumulate sufficient soft information.

The remainder of this paper is structured as follows: The next section presents the institutional background of financial reporting and auditing systems in Japan. Section 3 reviews the literature and develops the hypotheses. Section 4 describes the data and sample, and section 5 explains the empirical procedures. The results are reported in section 6. The final section concludes the paper.

2 Institutional background

To provide a context for our analysis, this section briefly reviews the auditing and financial reporting systems in Japan.[6] The democratization policy of the Allied Powers' occupation forces after World War II established the present system in 1948. The present regulations on audits for financial statements require firms that issue publicly traded securities to prepare and disclose audited financial statements in accordance with the Financial Instruments and Exchange Act. The Companies Act also requires public or large private firms to prepare audited financial statements.[7] Thus, for privately held SMEs in Japan, audits or any levels of assurance on financial statements

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[6] Further detailed accounts of the accounting and auditing systems in Japan can be found in JICPA (2010), for example.

[7] The Companies Act defines a large company as any stock company that satisfies at least one of two criteria: (1) the amount of stated equity capital on the balance sheet is at least 500 million Japanese yen, and (2) total liabilities are at least 20 billion Japanese yen.

are not mandatory, as is the case for privately held U.S. small companies (Minnis, 2011). However,

some of them voluntarily acquire assurance on financial statements from independent auditors for

better access to external funds and for other purposes.[8]

Regarding the accounting and auditing standards applicable to Japanese firms, regulators

revised the standards several times to be consistent with those of their international counterparts

(e.g., Mizuno, 2004). For accounting standards, this movement mostly targeted public firms.

Therefore, there was a need to establish separate standards for SMEs because the purpose of their

financial reporting differs from that of large public firms, e.g., for tax accounting or for establishing

effective management control systems. In response to this need, regulators established the

Accounting Guidance for SMEs in 2005.[9]

However, since many Japanese SMEs did not apply the Guidance probably due to its high

application cost, the Basic Accounting Guidance for SMEs, —a simpler set of standards—was

issued in 2012. This Guidance targets small entities that do not undertake complicated accounting

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[8] For example, Chow (1982) shows that firms with higher leverage and more accounting-based covenants are inclined to have their financial statements audited even when doing so is not legally required. For purposes other than access to external financing, Abdel-Khalik (1993) finds that managers have their financial statements audited to compensate for the lack of control by managers due to, for example, an enlarged size of the company. It is also possible that privately held SMEs have their financial statements assured according to the provisions under a private contract with a stakeholder (such as banks), but this practice should be regarded as voluntary assurance since it is not required by law.
[9] The Accounting Guidance for SMEs was issued by the Japanese Institute of Certified Public Accountants, the Japan Federation of Certified Public Tax Accountants' Association, the Japan Chamber of Commerce and Industry, and the Accounting Standards Board of Japan. For more details on accounting standards for Japanese SMEs, see Urasaki (2014).

transactions or that have employees with limited accounting literacy. One of the objectives of this Guidance is to develop a set of accounting standards that enable companies of any size to prepare financial statements that are useful for their stakeholders, such as banks.

Our sample period is prior to the establishment of this simpler Guidance. Under such a regime in which accounting practices are underdeveloped, it is difficult to judge whether accounting treatment for an accounting phenomenon is fair. Thus, auditors' assurance should have more importance to ensure the fair representation of financial statements prepared by firms, and the value of assurance on financial statements could be more salient.

As for audits on financial statements in Japan, the Auditing Standards enacted by the Accounting Standards Board of Japan are applied regardless of firm size or whether the audit is mandatory or voluntary. However, since the Auditing Standards are primarily based on principle, more detailed standards and guidance that focus on specific issues are provided by the Japanese Institute of Certified Public Accountants (JICPA); these are mostly relevant for the mandatory audits of financial statements of public firms. For SMEs, there are two relevant standards issued by the JICPA: Auditing Standards Committee Statements 800 and 805—these are the Japanese counterparts to ISA 800 (Special Considerations – Audits of Financial Statements Prepared in Accordance with Special Purpose Frameworks), and ISA 805 (Special Considerations – Audits of Single Financial Statements and Specific Elements, Accounts or Items of a Financial Statement).

3 Literature and hypothesis development

3.1 Economic value of voluntary assurance

Theory suggests that firms have incentives to have their financial statements assured by auditors because doing so is valuable for them. Agency theory predicts that firms acquire assurance from auditors for their financial statements because it reduces the cost of debt financing through mitigation of the ex ante informational asymmetry between firms and lenders, through mitigation of the ex post moral hazard behavior of firm managers (Jensen and Meckling, 1976), or through the emission of signals that the relevant firms are good borrowers (Kausar et al., 2016; Lennox and Pittman, 2011).

Empirically, the economic value of assured financial statements has been extensively documented in prior studies in the context of mandatory audits for public firms (e.g., Wallace, 1980).[10] However, since Blackwell et al. (1998), researchers started to pay attention to the value of assurance in the context of private firms, for which no regulation requires assurance at any level. This focus is based on the view that it is not well founded to test the economic value for public firms because in many jurisdictions, public firms are *forced* by law to have their financial

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[10] The prior studies also document that voluntary review, or lower level assurance relative to an audit, of quarterly financial reports increases the reliability of the quarterly earnings (Ettredge et al. 2000) and conveys new information to the capital market participants (Kajüter et al. 2016). These results indicate that the *voluntary* assurance of financial statements has economic value for capital market participants.

statements audited, and their reason for obtaining assurance might not be related to its value.

Empirical studies on private firms find evidence for the economic value of auditor assurance in various countries. More specifically, auditors' assurance of financial statements allows firms to have easier access to bank loans (Allee and Yohn, 2009), to obtain better credit ratings (Dedman and Kausar, 2012), and to obtain lower interest rates (Blackwell et al., 1998; Kim et al., 2011; Minnis, 2011).

3.2 Possible difference in the value of voluntary assurance

Although these studies focus on the value of auditors' assurance of financial statements, they do not take into account the possibility that the value might be different among the same type of user of financial statement information. There are good reasons to predict such a difference, especially among lenders to firms, because various sources of information other than financial statements are available to the lenders. Specifically, the banking literature shows that in addition to obtaining hard information (such as financial statements) that is quantitative and verifiable, banks accumulate soft information that is qualitative and non-verifiable through various transactional relationships with borrowers (Berger and Udell, 2002; Stein, 2002).

Theory argues that soft information is valuable because it mitigates the problem of informational asymmetry. Many empirical studies report evidence that borrowers with stronger

relationships with their banks can benefit from lower interest rates or a lower likelihood of pledging collateral.[11] Based on these studies, the value of voluntarily assured financial statements should differ because of differences in the availability of valuable soft information among banks. We thus establish the following hypothesis:

H1. The value of voluntarily assured financial statements differs across banks because of the difference in the availability of soft information.

Although it is reasonable to predict the presence of such a difference, the direction of the difference is a priori indeterminate because the availability of soft information can both increase and decrease the value of assured financial statements. On the one hand, soft and hard information might complement each other, and the availability of soft information might increase the value of voluntarily assured financial statements. This could be the case for highly opaque private firms because, for such firms, banks might want to obtain as much information as possible. In this case, the use of both types of information could have a synergetic effect to promote a more accurate evaluation of the competence of a CEO, a better prediction of a firm's future profitability, or confirmation of information from one source using information from another source.

On the other hand, soft and hard information might be substitutes for each other, and the

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[11] See Degryse et al. (2009, chapter 4) for a survey on empirical studies. Building on these studies, Kysucky and Norden (2016) conduct a meta-analysis.

availability of soft information might decrease the value of assured financial statements. This might be the case when the content of the soft and hard information are similar, and banks that accumulate a great deal of soft information through stronger relationships with their borrowers do not have to rely on hard information.[12] In this case, using both types of information could create costs related to the duplication of information production. This view is similar to the *relationship banking perspective* of Kim et al. (2011), which predicts that due to banks' own information production, the information role of external assurance is of second-order importance.[13]

The difference in the value of assured financial statements might also stem from a reason other than the complementarity or substitutability of soft and hard information. Regarding the value of soft information, there is also a theory that argues that banks with more soft information could charge higher interest rates due to the so-called hold-up problem or information monopoly (Rajan, 1992; Sharpe, 1990). To the extent that soft information is proprietary and cannot be used by other banks, borrowers have difficulty in changing banks, and therefore become captured. Based on this theory, good borrowers might want to avoid such rent extraction by emitting a signal

[12] Minnis and Sutherland (2017) provide evidence that supports this substitution view by showing that banks are less likely to require clients' financial statements as the duration of their relationship becomes longer.

[13] Based on this perspective, Kim et al. (2011) test the hypothesis that there is no value for voluntarily assured financial statements, and compare it to the hypothesis based on the opposing *information perspective* that there is value due to the alleviation of informational asymmetry between lenders and borrowers. The present paper is similar to, but different from the approach of Kim et al. (2011), in that their relationship banking perspective predicts no value of auditors' assurance (an extensive margin), while we predict that the presence of soft information (obtained from relationship lending) reduces the value (an intensive margin).

of their creditworthiness to other banks through voluntarily having their financial statements assured (Kausar et al., 2016; Lennox and Pittman, 2011). In this case, the value of voluntarily assured financial statements takes the form of a reduction in costs due to the hold-up problem.

On balance, how the value of assured financial statements differs based on the availability of soft information is an important empirical question. In our empirical analysis, we try to answer this question using a unique data set that detects differences in the value of financial statement assurance across banks.

3.3 Impact of auditor tenure on the economic value of voluntary assurance for lenders

We further extend our analysis by examining whether the tenure of auditors influences the difference in the economic value of voluntary assurance for banks with different levels of soft information. We focus on tenure because it is one of the important observable indicators of audit quality for banks.[14] If banks utilize assured financial statements for their lending decisions, they should monitor auditor-client relationships and thereby precisely scrutinize changes in the quality of assurance depending on the duration of an auditor's tenure.

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[14] Although other indicators, such as auditor size and industry specialization, are often used as measures of audit quality in the literature, those measures are not applicable in our setting for the following reasons. First, all of our sample firms are assured by non-Big 4 audit firms because larger audit firms are not very active in the market for private firms. Second, banks have very limited information about whether an auditor has industry specialization. On the other hand, the length of auditor tenure that we focus in this paper is readily available for banks as long as they are using assured financial statements for their lending decisions.

Whether longer tenure influences the quality positively or negatively is not theoretically straightforward. AICPA (1978) argues that longer tenure enables an auditor to perform more precise assessments of the fairness of a firm's financial statements and to reduce the possibility of audit failures. However, a lengthened relationship between auditors and clients can erode auditors' independence (Mautz and Sharaf, 1961). Moreover, we have observed different regulatory responses to this issue at the audit firm and partner levels in several jurisdictions. If a lengthy relationship between an auditor and a client is believed to decrease audit quality, periodic auditor rotations should be effective to address this issue. At the audit partner level, periodic partner rotations are required in many jurisdictions, as promogulated by the Code of Ethics issued by the IESBA. At the audit firm level, on the other hand, mandatory audit firm rotations are required under Directive 2014/56/EU for public interest entities (PIEs) in EU countries, while the U.S. House of Representatives approved a bill that prohibits mandatory audit firm rotations for public firms in the U.S. However, since these requirements are generally applied to public firms or PIEs, private SMEs are not subject to these regulations.

Empirical studies have investigated the issue of tenure at both the audit firm and partner levels, although their evidence is mixed. For instance, Geiger and Raghunandan (2002), Mansi et al. (2004), and Myers et al. (2003) report a positive relation between audit firm tenure and audit quality, while Davis et al. (2009) and Stanley and DeZoort (2007) show a nonlinear relation. At

the audit partner level, Carey and Simnett (2006) find a negative impact of lengthened partner tenure on audit quality, while Chen et al. (2008) and Manry et al. (2008) find that longer partner tenure relates to higher-quality audits. Although these prior studies focus almost exclusively on public firms, there are a few studies that highlight the impact of audit firm tenure on audit quality for private firms. Specifically, Fortin and Pittman (2007) do not find a significant relation between audit firm tenure and audit quality, and Svanström (2013) documents improved audit quality as audit firm tenure becomes longer. Moreover, Bell et al. (2015) find that there is a general nonlinear relation between audit firm tenure and audit quality for public and private firm clients, but that the negative impact of lengthened firm tenure on audit quality is exclusively attributed to private firm clients.

Taken together, auditor tenure at the audit firm and partner levels could influence the value of assured financial statements, although the direction of this influence is a priori unclear. To the extent that there is any such influence, the value of voluntarily assured financial statements for banks with different levels of soft information should differ depending on auditor tenure. Based on this discussion, we establish the following hypothesis:

H2. Auditor tenure influences the extent of the difference in the value of voluntarily assured financial statements for banks due to different availability of soft information.

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4 Data and sample

The data in this paper come from the Survey on Corporate Finance in Japan, which a group of

researchers conducted in October 2010 to collect information on different characteristics of firms,

including their relationships with banks and auditors, and the effect of policy measures for SMEs.[15]

The targets of the survey are 13,579 firms that are randomly selected from firms recorded in the

database of Tokyo Shoko Research, a business credit information provider in Japan that is similar

to Dun & Bradstreet in the U.S. These firms are selected based on two criteria: (1) firms for which

financial statements were available for the two accounting years of 2007 and 2009 and (2) firms

that have transactions with one of 286 pre-specified regional financial institutions.[16] The majority

of the target firms were SMEs throughout the country (92.6% of them had 50 or fewer employees).

A total of 2,703 firms responded (a response rate of 19.91%). After eliminating observations with

missing data, 2,687 firms remained in the sample.

When asking questions about loans from banks, the survey asks the respondents to provide

answers about a loan from the bank that lends the most to the firm (the largest lender) and about a

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[15] The researchers designed the survey questions on firm-bank and firm-auditor relationships by referring to prior studies on relationship lending in the field of banking and the role of auditors in the field of auditing. For details of the survey and its results, see Nakaoka et al. (2011a, 2011b). Hattori et al. (2015) use these data to examine information production within bank organizations.

[16] These criteria were used to collect data for studies that differ from ours. As for the financial variables that in our analysis, we use the ones in the most recent 2009 statements.

loan from the bank that lends the second most (the second-largest lender) at the time of the survey.

Thus, we have two bank-firm observations for one firm. Although our data are cross-sectional, we

can therefore take into account firm fixed effects by using firm dummies and thereby control for

any observable or unobservable firm-level factors that could affect our dependent variable. This

approach is the so-called within-firm estimator (e.g., Khwaja and Mian, 2008).[17]

After eliminating large firms and firms for which the borrowing interest rate is not available

for either the largest or second-largest lenders, we have 592 observations at the firm-bank level

(296 observations at the firm level).[18] These observations are used as our baseline sample. The

characteristics of the firms in our baseline sample are reported in Table 1.

To describe the characteristics of our sample firms, Table 2 compares the distributions of

industries and firm size (employee size) of the firms in our baseline sample, those of the

respondents in the survey (firms in the sample before the sample selection) and those of firms in

the 2009 Economic Census (compiled by the Ministry of Internal Affairs and Communications of

the Government of Japan) that represent the universe of firms in Japan. Consistent with the

distribution of the respondents, our baseline sample includes a large number of firms in the

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[17] Because our sample firms are private firms that rarely obtain syndicated loans, we can rule out the possibility that these banks cooperatively set interest rates.
[18] We eliminate large firms whose equity capital is at least 500 million yen or whose total debt outstanding is at least 20 billion yen, because financial statement auditing for those firms is mandatory under the Companies Act.

construction sector (Panel A). This dominance might reflect one of the criteria for selecting the

target firms in the survey, that is, the availability of financial statements for two accounting years,

because firms in the construction sector in Japan need to file financial statements if they participate

in competitive bidding for public construction.[19] Meanwhile, the size distribution of the baseline

sample indicates that the average size of the firms in our sample is larger than that of the universe

of firms in Japan (Panel B).

5 Empirical procedure

5.1 Regression and main variables

We use a regression analysis to examine the differences in the value of voluntarily assured financial

statements among banks with different accumulations of soft information. Below, we explain the

variables used in our analysis. The summary statistics of these variables are in Table 3, and their

definitions are summarized in the Appendix.[20]

Our dependent variable is *INTEREST_RATE*, the interest rate on loans from a bank (the

largest or the second-largest lender). This variable is obtained from the survey questions on the

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[19] We confirm that our results are qualitatively unchanged if we exclude firms in the construction sector from the sample, although the statistical significance of the main variables weakens in some specifications.
[20] The data source of the variables other than the bank financial variables is the Survey on Corporate Finance in Japan. The data sources for the bank financial variables are the Nikkei Financial QUEST Database (Nikkei Inc.) for city, regional, and Shinkin banks, and the Financial Statements of Credit Cooperatives in Japan (Kin-yu Tosho Consultant Sha) for credit cooperatives. For these variables, we use the data as of the end of March 2010.

terms of loans that are contracted during fiscal year 2009 (from April 2009 to March 2010). If there

are multiple loans during the year, responding firms answer with the terms of the largest loan. As

shown in Table 3, the average interest rate is 2.13%, with a minimum of 0.5% and a maximum of

5.0%.[21]

As independent variables to indicate determinants of the interest rate, we use many

variables at the firm-bank pair level or at the bank level. We do not use variables at the firm level

because, as we explain in the next subsection, we use firm fixed effects (firm dummies) to control

for any effects of firm-specific factors.

Our main independent variable is the interaction term between the variable indicating the

acquisition of assurance services from auditors and the variable indicating the accumulation of soft

information. For the former, we use a dummy, *ASSURANCE*, defined at the firm level, which

indicates that the firm acquires assurance services on its financial statements from an auditor

(based on survey responses).[22] Specifically, this variable takes the value of 1 if the relevant firm

had an external auditor evaluate the fairness of the financial documents that the firm had

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[21] To deal with outliers, we winsorize observations whose interest rates are below the 0.5th or above the 99.5th percentile.

[22] In our sample, there are no firms that are compelled by law to have their financial statements assured because they are neither public firms nor large firms (according to the Companies Act) that are required to do so by regulatory requirements. It could be the case for some firms that the assurance of financial statements is conducted under contractual commitments, although such private agreements are not observable. However, even if assurance is based on contractual agreements, it should be still regarded as voluntary assurance because it is not legally binding.

prepared.[23, 24] As reported in Table 3, 14% of our sample (42 of 296 firms) have auditors assure

their financial statements.[25] This finding is reasonable because most of our sample firms are small

and medium-sized private firms that are not required by law to have their financial statements

assured.

As a variable to interact with *ASSURANCE*, we use *B_DURATION*, which measures the

duration (in years) of the bank-firm lending relationship, i.e., the years elapsed since the firm

borrowed from the relevant bank for the first time. This variable is a measure of the strength of the

bank-firm relationship.[26] Since the seminal papers of Petersen and Rajan (1994) and Berger and

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[23] The survey first asks whether a firm acquires any services from an auditor (or a CPA) and, if so, asks the respondent to choose the types of service(s) it acquires (multiple choices allowed). The options to choose in this case are services that could be provided by CPAs (according to the CPA Act): (1) to provide assistance for the firm to prepare documents for tax purposes, (2) to provide assistance for the firm to prepare financial statements, (3) to provide advice on the firm's documents for tax purposes, (4) to provide advice on the firm's financial statements, (5) to evaluate the fairness of the documents created for tax purposes, and (6) to evaluate the fairness of the firm's financial statements. Since the question does not specify the level of assurance by external auditors when they evaluate the fairness of financial statements, we consistently use the term "assurance," instead of "auditing" in this study.

[24] Due to the design of the survey questionnaire, there is a concern regarding flipped timing between *INTEREST_RATE* and *ASSURANCE*, because the survey asks the interest rate for loans that are contracted during fiscal year 2009 (from April 2009 to March 2010), while *ASSURANCE* is captured as of the survey date (October to November 2010). However, judging from the result that the minimum auditor tenure is one year and the median is at least 13 (20) years at the partner (firm) level (see section 5.3), the concern is not significant. To address any remaining concern, we use information on when the loans are underwritten and run regressions by limiting the sample so that the year firms started their relationships with audit firms or auditors is strictly before the date (year) of the loan contracting. The results are qualitatively unchanged (available from the authors upon request).

[25] The small number of firms with assured financial statements might produce bias in the estimation, but the bias should increase the standard errors of the estimated coefficients and decrease their statistical significance. Any finding of statistical significance should then indicate that the relevant effects are strong.

[26] The duration might also capture good credit history (hard information), but we can exclude this interpretation in this paper, because, as we explain in the subsequent subsection, we control for firm fixed effects and examine a within-firm difference in interest rates across banks (i.e., a diffference in the interest rates for the same firm with the same credit history).

Udell (1995), studies have used this variable as a proxy for the extent to which a bank accumulates soft information on a borrower.[27] By interacting this proxy with *ASSURANCE*, we can examine whether the effect of the availability of assured financial statements on the interest rate differs depending on the availability of soft information for a bank. The hypothesis established in section 3 predicts that the interaction term has a nonzero effect on interest rates. In the analysis, we use the natural logarithm of the duration, *Log(1 + B_DURATION)*, to take into account its nonlinear effect. As reported in Table 3, the average duration of a bank-borrower relationship is 14.62 years.

5.2 Firm fixed effects and the within-firm estimator

The other important independent variables are dummies to control for firm fixed effects. The unit of observation in our data is at the firm-bank level, and we have two observations for one firm: one for the pair of the firm and the largest lender, and the other for the pair of the firm and the second-largest lender. We can therefore use firm dummies even though our data are cross-sectional.

When accompanied by these firm dummies, the estimator of the coefficient for the

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[27] By definition, soft information cannot be directly measured, shared, or quantified because it is information that is difficult to transmit and quantify. The duration of relationships is one of the most frequently used proxies for the production of soft information in a large number of empirical studies in the field of banking (see, e.g., Degryse et al., 2009, chapter 4). Other, less frequently used proxies include the scope of relationships (the number of financial services obtained from the bank) and the number of relationships (the number of lenders) because a wider scope and a smaller number indicate stronger bank-borrower relationships. However, we have no information on the scope due to the availability of data, and we cannot use the number of banks because it is a firm-level variable and its effect is absorbed by the firm fixed effects.

interaction between *ASSURANCE* and *Log*(1 + *B_DURATION*) is called the within-firm estimator

(e.g., Khwaja and Mian, 2008). The firm dummies control for all observable and unobservable

firm-level factors that could affect the interest rates for the relevant firm. With these controls, the

interaction term extracts any cross-bank (or relative) difference in the value of audited financial

statements that differs depending on the duration of the bank-borrower relationship.[28]

The use of the within-firm estimator is also advantageous because it addresses potential

endogeneity. When regressing a measure of the economic value of auditor assurance on an

indicator for obtaining assurance services, the conventional approach is to run a simple OLS

regression using a cross-sectional sample. However, the decision to obtain assurance services

might depend on unobservable firm characteristics. Because such characteristics should be

captured by the error term, the term might correlate with *ASSURANCE* and thereby produce

endogeneity problems. The within-firm estimator can deal with this self-selection problem, as

well.[29]

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[28] In other words, we try to isolate the cross-sectional difference in the effect of *ASSURANCE* depending on the duration of bank-firm relationships by interacting the variable with *B_DURATION*. This difference does not include the overall effect of *ASSURANCE* at the firm level (without interaction) because such an effect is absorbed in the firm fixed effects (firm dummies). The ability to isolate this cross-sectional difference by controlling for firm-specific effects is the most significant advantage of the within-firm estimator (Khwaja and Mian, 2008).

[29] These advantages come at the expense of a small sample due to a smaller number of firms transacting with two banks. To compensate for this disadvantage, we follow recent studies and replicate the analysis by replacing the firm fixed effects with location-size-sector fixed effects (e.g., Degryse et al., 2016; De Jonghe et al., 2016). Untabulated results indicate that the effect of the main independent variables is qualitatively unchanged but loses statistical significance due to increased standard errors. This result

It is worthwhile to note that our approach using the within-firm estimator, which controls for firm fixed effects using firms' dummy variables, is also called the least squares dummy variable (LSDV) estimator. There is a similar approach called the within-estimator, which subtracts the mean from each variable before running the regressions. The two estimators are theoretically equivalent to each other and produce the same estimates of the coefficients, but they produce different robust standard errors when taking into account clustering.[30] Thus, when we show the results in the next section, we report the standard errors both for the within-firm (LSDV) estimator and for the within-estimator.

5.3 Tenure of auditors

To test H2, we use variables indicating the tenure of auditors. Our survey data allow us to examine the tenures of an audit firm and the audit partner. Information on firm and partner tenures is respectively available for 284 and 281 firms. Using this information, we compare the effect of our main interaction term, *ASSURANCE × Log(1 + B_DURATION)*, between firms with longer versus shorter tenures.

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suggests that our main result might be weakly observed for firms that transact with only one bank, but it can also suggest that the control for location-size-sector fixed effects is less powerful than that for firm fixed effects.

[30] Cameron and Miller (2015) demonstrate that when the number of observations in each cluster (two in our analysis) is small, the LSDV estimator produces upward bias in the computed clustered robust standard errors due to the small sample correction. For more details on this clustering issue, also see Cameron and Trivedi (2005).

In this vein, we first create variables *FIRM_TENURE* and *PARTNER_TENURE*, which respectively measure the length (years) of the tenure of the audit firm and that of the audit partner. As shown in Table 3 that reports descriptive statistics, the mean and the median are respectively 21.98 and 20.00 years for *FIRM_TENURE* and 16.14 and 13.00 years for *PARTNER_TENURE*. The minimum tenure is one year for both variables, and the maximum for *FIRM_TENURE* and *PARTNER_TENURE* is respectively 63 and 60 years.

However, when we simply interact these variables with the main interaction term, the resulting triple interaction term has a high coefficient of correlation with the original double interaction term. This correlation produces multicollinearity, and the estimated coefficients for the two interaction terms become statistically insignificant when we use them at the same time.

Thus, instead of using the continuous variables *FIRM_TENURE* and *PARTNER_TENURE*, we use dummies for a longer tenure. [31] Specifically, we create two dummies, *D_FTENURE_LONG* and *D_PTENURE_LONG*, which take the value of 1 if the tenures are longer than their respective medians. We interact each of these two dummies with *ASSURANCE ×* *Log(1 + B_DURATION)* to create a triple interaction term and add this to the baseline regressions.[32] We can test H2 by examining whether the coefficient for this triple interaction term

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[31] We thank an anonymous referee for suggesting this approach.
[32] Because *D_FTENURE_LONG* and *D_PTENURE_LONG* are both firm-level variables, we cannot use them in isolation as independent variables.

is different from zero.

5.4 Control variables

Because we control for firm fixed effects, we do not have to (and cannot) use any firm-level control variables, including *ASSURANCE* in isolation. We only need control variables at the bank or firm-bank level. We first use the natural logarithm of the duration of the bank-borrower relationship, *Log(1 + B_DURATION)*, in isolation (not interacted with *ASSURANCE*). We also use variables for bank characteristics. First, we use bank-type dummies: *B_REGIONAL* for regional banks; *B_SHINKIN* for Shinkin banks; *B_COOPERATIVE* for credit cooperatives, and *B_OTHERS* for other types of banks, with the default being city banks.[33] Second, we use variables from banks' financial statements: *B_ASSET*, the bank's total assets; *B_ROA*, the bank's return on assets; *B_CAPITAL_RATIO*, the bank's capital ratio, and *B_NPL_RATIO*, the nonperforming loan ratio. Banks' financial statement data are available only for a limited sample.[34] We thus use two types of specifications in our regression analysis: those with and without bank financial variables.

We do not use variables for loan terms, such as maturity. Because these terms are

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[33] City banks are the largest banks, have complex organizational structures, and operate nationwide. Regional banks are middle sized and operate in one or a few prefectures. Shinkin banks and credit cooperatives are, respectively, larger and smaller cooperative banks operating in a limited area. See Uchida and Udell (2019) for more on bank types in Japan.

[34] Specifically, they are available for 220 (of 296) firms that borrow from city, regional, or Shinkin banks or credit cooperatives (see Table 3).

determined simultaneously with the interest rate, their inclusion produces endogeneity (Brick and

Paria, 2007).[35] However, even if we run the regression with maturity as an additional independent

variable, we find that the main results are qualitatively unchanged.

6 Results

6.1 Baseline results

Table 4 reports our baseline results. The dependent variable is the interest rate on loans, and the

main independent variable is the interaction term *ASSURANCE × Log(1 + B_DURATION)*. The

first column reports the results without banks' financial variables, and the second column reports

the results with them. We control for firm fixed effects in both specifications. For each variable,

we report two standard errors: an ordinary error and an error that takes into account clustering. We

report the latter because ordinary standard errors could be biased, since our sample has two

observations for one firm (e.g., Petersen, 2009).[36] As shown in the table, however, the statistical

significance of the variables does not change significantly.

Focusing first on the results for the control variables, column (1) of Table 4 shows that the

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[35] Due to this endogeneity, Brick and Palia (2007) estimate the simultaneous equations for multiple loan terms that take into account their joint determination (structural form estimation), controlling for the endogeneity by using instrumental variables. However, many studies do not follow this approach and instead estimate an equation for a specific term that is obtained by solving the simultaneous equations (reduced form estimation). In this paper, we follow the latter approach.
[36] See the exposition at the end of section 5.2 for more details on this bias.

interest rate is higher for firms that transact with banks of smaller size (the highest for Shinkin banks or credit cooperatives and the second highest for regional banks). This is a reasonable finding because firms transacting with such banks are smaller and more opaque. When we add the bank's financial variables to column (2), the bank's asset size (*Log(B_ASSET)*) absorbs the effect of bank types. We also find that the interest rate is higher when banks have more nonperforming loans.

As for the main independent variables, we find that *ASSURANCE × Log(1 + B_DURATION)* has a negative and statistically significant effect on the interest rate. This finding indicates that obtaining assurance services reduces the interest rate for the firm, and that this effect increases with the duration of the bank-firm relationship.[37] These results support H1, and have important implications for the value of auditor assurance. Although prior studies do not take into account the possibility that the value of auditor assurance on financial statements differs among the same types of users, our result indicates that the value does differ among banks depending on the availability of soft information.

In contrast, *Log(1 + B_DURATION)* has no significant effect by itself, which means that

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[37] As an additional analysis, we run the regression by splitting the sample depending on whether *ASSURANCE* = 0 or 1 (dropping *ASSURANCE × Log*(1 + *B_DURATION*) from the right-hand side of the regression). The results (available upon request from the authors) show that *Log*(1 + *B_DURATION*) has a negative and statistically significant coefficient for the sample with *ASSURANCE* = 1 but the coefficient is insignificant for the sample with *ASSURANCE* = 0. These results are consistent with the results in Table 4.

the accumulation of soft information does not matter on its own. This finding is in contrast with prior findings of a negative effect of relationship duration on interest rates (e.g., Berger et al., 2007; Berger and Udell, 1995). By taking into account the availability of assured financial information, we find a negative effect only when the client voluntarily acquires assurance. This finding indicates that the two types of information on clients (i.e., soft information and assured financial statements) and thus the two types of lending technologies (i.e., financial statement lending and relationship lending) complement each other.

6.2 Effects of longer auditor tenure

Table 5 shows the results for our test of H2 developed in section 3.3. We find that the triple interaction term has a positive coefficient in all specifications, although its effect is not necessarily statistically significant. In contrast, the double interaction of *ASSURANCE × Log(1 + B_DURATION)* has a negative and statistically significant effect. These results lend weak support to H2.

To check the joint effect of the double and the triple interaction terms, we also test the null hypothesis that the sum of the coefficients for the two terms is zero (F tests). The results show that the null hypothesis is rejected at the 10% level of statistical significance in the case of audit firms' tenure (with *p*-values of 0.0687 and 0.0078 for columns (1) and (3), respectively), while the null

hypothesis is not rejected even at the 10% level of statistical significance in the case of audit partners' tenure (with *p*-values of 0.4218 and 0.3495 for columns (2) and (4), respectively).

These results at least weakly indicate that the effect that we find in the previous subsection—the value-enhancing effect of assurance services for banks with longer relationships with firms—is present only in the case of a shorter auditor tenure (for firms with tenure that is shorter than its median of 20 years (audit firm level) or 13 years (audit partner level)). This result is consistent with findings of prior studies that audit quality deteriorates as auditor tenure becomes longer (Carey and Simnett, 2006), although some studies find that in addition to this deterioration, the quality increases for a rather short tenure (Davis et al., 2009; Stanley and DeZoort, 2007).

Our result has an implication regarding auditor rotation, that is, an independent auditor's assurance is not valuable for banks when the auditor's tenure is very long. This implies that regulation to require mandatory audit-firm rotation, such as the EU Directive that limits auditors' involvement with the same client to a maximum of 10 years, is meaningful, although our findings are for private firms. On the other hand, the acceptable rotation cycle that our result from Japan suggests is longer than what the Directive requires.

6.3 Alternative proxy for soft information

As an additional analysis, we examine an alternative proxy for soft information production by

banks.[38] Our approach of using *B_DURATION* as a proxy for the extent to which a bank accumulates soft information on a borrower follows one of the conventional approaches adopted by studies on relationship lending in the field of banking (see section 5.1). However, there is no perfect measure for soft information, and even relationship duration is an indirect measure. To overcome this limitation, we try to measure soft information more directly.

Specifically, the survey asked firms about the extent to which "the bank knows the strength or weakness of the firm that cannot be measured quantitatively." Although this information is not perfect in the sense that it is based on subjective evaluation by borrowers, it more directly measures the extent to which banks have soft information that is hard to quantify. The answer to the question is categorical, and respondent firms choose an answer on a 1-4 scale (4 for "knows very much," 3 for "to some extent," 2 for "not very much," and 1 for "not at all"). Using this information, we create a categorical variable *SOFTINFO*, which takes one of these four values, and we use it as an alternative to *Log(1 + B_DURATION)*. As an alternative definition, we also use a dummy variable *D_SOFTINFO*, which takes the value of 1 if the answer is 4 or 3 and indicates that the bank has at least some soft information. This approach of using firms' evaluation of banks' knowledge is similar to the approach used in a study on the role of loan officers in producing soft information (Uchida et al., 2012).

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[38] The analysis in this subsection is inspired by a comment by an anonymous referee.

The regression results using *SOFTINFO* or *D_SOFTINFO* are shown in Table 6. Consistent with the results in Table 4, the interaction variable of *ASSURANCE × SOFTINFO* or *ASSURANCE × D_SOFTINFO* has a negative and statistically significant coefficient. This result indicates that the value of hard information (assured financial statements) in the form of a reduction in loan interest rates is larger when the bank has more soft information. Thus, our main result is robust to the use of an alternative measure of soft information. On the other hand, *SOFTINFO* and *D_SOFTINFO* have only a statistically insignificant or a weakly significant effect, which is also consistent with the insignificance of *Log(1 + B_DURATION)* in Table 4.

7 Conclusion and discussion

In this paper, we investigate whether the economic value of voluntarily acquired auditor assurance for financial statements differs among banks. We hypothesize that the value differs depending on the availability of soft information that banks obtain through their relationships with their borrowers. Using unique data from a survey of private firms in Japan, we test this hypothesis by examining the difference in the effect of voluntary assurance on interest rates depending on the duration of bank-borrower relationships.

Our main finding is that the effect of voluntary assurance on interest rates is negative and stronger for banks with longer relationships with their borrowers. This finding implies that the

value of auditor assurance differs among banks because of the different availability of soft information on their borrowers, and that hard and soft information complement each other. Furthermore, by examining whether the value of auditor assurance differs based on auditor tenure, we find that the value of auditor assurance on financial statements for banks is present only in the case of a shorter auditor tenure. This finding suggests that a periodic auditor rotation is required to maintain perceived audit quality for private firms.

These findings have important policy implications. Our main finding on the reduction of interest rates for borrowing from banks with stronger relationships suggests that assurance reduces agency costs in using bank borrowing in the presence of such relationships. This finding implies that policies to promote the use of an external auditor's assurance on financial statements could have beneficial effects for bank-dependent private firms, especially in countries where regulation of private financial reporting is not tight and/or the accounting system is underdeveloped, such as EU countries that do not require private firms to have their financial statements assured, and other advanced and developing countries that have no requirements or exemptions for private firms on mandatory assurance. Also, our finding from the analysis on auditor tenure suggests that the tenure should not be very long. This finding thus implies that policymakers need to consider limiting the duration of tenure in order to enhance the credibility of financial reporting for SMEs.

Finally, although our evidence is based on a unique empirical approach and is robust to a

battery of additional tests, it is nevertheless based on survey data in one year from one country. Whether the same results hold in other periods or countries remains an important research question. In addition, although this paper focuses on the value of voluntary assurance for financial statements in terms of the interest rates on loans, the data availability prevents us from comparing this value with the cost of obtaining assurance. Future studies of this comparison also are needed.

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Appendix: Variable definitions

Firm-specific variables	
Age (years)	Firm's age as of the closing date in 2009.
Asset Size (million yen)	Total assets.
ROA (%)	Return on assets (net income divided by total assets).
Sales Growth (%)	Three-year geometric average of annual percentage growth in sales.
Debt Ratio (%)	Total liabilities divided by total assets.
Cash Ratio (%)	Cash and marketable securities divided by total assets.
Tangible Ratio (%)	Tangible assets divided by total assets.
ASSURANCE	Dummy for assurance services (=1 if the firm obtains assurance services from its auditor).
FIRM_TENURE (years)	Tenure of audit firm.
PARTNER_TENURE (years)	Tenure of audit partner.
Bank's financial variables	
B_ASSET (million yen)	Total assets.
B_ROA (%)	Return on assets (net business profits divided by total assets).
B_CAPITAL_RATIO (%)	Capital ratio by the Basel capital standard (domestic standards if the Basel standards do not apply to the bank).
B_NPL_RATIO (%)	Nonperforming loan ratio, equals amount of nonperforming loan (sum of legally bankrupt loans, past due loans, and renegotiated loans) divided by total loan amount.
Loan-specific variables	
INTEREST_RATE (%)	Borrowing interest rate (winsorized at 0.5% and 99.5% levels).
B_CITY	Dummy for bank type (=1 for city banks: the default).
B_REGIONAL	Dummy for bank type (=1 for regional banks).
B_SHINKIN	Dummy for bank type (=1 for Shinkin banks).
B_COOPERATIVE	Dummy for bank type (=1 for credit cooperatives).
B_OTHERS	Dummy for bank type (=1 for other lenders).
B_DURATION (years)	Duration of firm-bank relationships.

Notes: Net business profits are a measure of operating profits from the core business minus operating costs from gross income. This measure is commonly used to evaluate firm performance in the Japanese banking sector.

Tables

Table 1. Summary statistics of firm-level observations

Firm-specific variables	No. of obs.	Mean	Median	Std. Dev.	Min	Max
Age (years)	294	33.08	33.38	15.61	3.42	86.75
Asset Size (million yen)	296	891.17	482.39	1390.61	8.55	12169.90
ROA (%)	296	-0.70	0.33	6.25	-35.57	16.33
Sales Growth (%)	295	-3.83	-4.57	18.93	-50.86	106.76
Debt Ratio (%)	296	79.00	81.74	25.52	9.12	219.64
Cash Ratio (%)	296	19.15	16.15	13.16	0.45	77.89
Tangible Ratio (%)	296	30.74	28.35	20.70	0.00	79.62

Notes: The variables *ROA*, *Sales Growth*, *Debt Ratio*, *Cash Ratio*, and *Tangible Ratio* are

winsorized at the 0.5% and 99.5% levels. For the variable definitions, see Appendix.

Table 2. Sample characteristics

Panel A: Industries

Industry classification	Economic Census in 2009		Survey respondents		Baseline sample	
	No. of obs.	%	No. of obs.	%	No. of obs.	%
Construction	331,359	18.4%	1,512	56.3%	134	45.3%
Manufacturing	277,066	15.3%	341	12.7%	51	17.2%
Information and Communications	47,969	2.7%	26	1.0%	1	0.3%
Transportations	56,695	3.1%	52	1.9%	8	2.7%
Wholesale	191,314	10.6%	353	13.1%	48	16.2%
Retail	282,036	15.6%	113	4.2%	8	2.7%
Real Estate	182,363	10.1%	94	3.5%	19	6.4%
Restaurants and Hotels	97,583	5.4%	16	0.6%	4	1.4%
Other Services	292,005	16.2%	160	6.0%	17	5.7%
Others	47,155	2.6%	20	0.7%	6	2.0%
Total	1,805,545	100.0%	2,687	100.0%	296	100.0%

Table 2 (continued)

Panel B: Number of employees

Number of employees	Economic Census in 2009		Original sample		Baseline sample	
	No. of obs.	%	No. of obs.	%	No. of obs.	%
0–4	1,067,825	59.1%	485	18.0%	20	6.8%
5–9	309,445	17.1%	668	24.9%	56	18.9%
10–19	200,451	11.1%	762	28.4%	83	28.0%
20–29	75,974	4.2%	326	12.1%	52	17.6%
30–49	62,940	3.5%	234	8.7%	40	13.5%
50–99	46,090	2.6%	139	5.2%	27	9.1%
100–299	30,218	1.7%	60	2.2%	16	5.4%
300–	12,602	0.7%	13	0.5%	2	0.7%
Total	1,805,545	100.0%	2,687	100.0%	296	100.0%

Table 3. Summary statistics

	No. of obs.	Mean	Median	Std. Dev.	Min	Max
Dependent variable (firm–bank pair)						
INTEREST_RATE (%)	592	2.13	2.00	0.79	0.50	5.00
Audit variables (firm)						
ASSURANCE	296	0.14	0.00	0.35	0.00	1.00
FIRM_TENURE (years)	284	21.98	20.00	14.19	1.00	63.00
PARTNER_TENURE (years)	281	16.14	13.00	12.38	1.00	60.00
Loan-specific variables (firm–bank pair)						
B_DURATION (years)	592	14.62	8.00	14.88	0.00	80.00
B_CITY	592	0.08	0.00	0.28	0.00	1.00
B_REGIONAL	592	0.47	0.00	0.50	0.00	1.00
B_SHINKIN	592	0.39	0.00	0.49	0.00	1.00
B_COOPERATIVE	592	0.05	0.00	0.21	0.00	1.00
B_OTHERS	592	0.01	0.00	0.08	0.00	1.00
Bank's financial variables (bank)						
B_ASSET (million yen)	220	3,175,179	704,171	13,422,308	50,960	153,924,815
B_ROA (%)	220	0.45	0.43	0.17	-0.08	1.38
B_CAPITAL_RATIO (%)	220	12.25	11.10	5.53	6.19	65.15
B_NPL_RATIO (%)	220	5.48	4.55	3.30	1.23	25.99

Notes: See Appendix for the variable definitions. The variable *INTEREST_RATE* is winsorized at the 0.5% and 99.5% levels.

Table 4. Baseline regression results

Variable	(1) Coeff.		(2) Coeff.	
Assurance × Bank–firm duration				
ASSURANCE×Log(1 + B_DURATION)	-0.3704		-0.3502	
	(0.1556)	**	(0.1528)	**
	[0.1550]	**	[0.1518]	**
Loan-specific variables				
Log(1 + B_DURATION)	0.0515		0.0455	
	(0.0424)		(0.0444)	
	[0.0423]		[0.0441]	
B_REGIONAL	0.1621		-0.0660	
	(0.0786)	**	(0.1330)	
	[0.0784]	**	[0.1321]	
B_SHINKIN	0.3191		-0.0764	
	(0.0771)	***	(0.1887)	
	[0.0768]	***	[0.1874]	
B_COOPERATIVE	0.3188		-0.1927	
	(0.1100)	***	(0.2544)	
	[0.1097]	***	[0.2527]	
B_OTHERS	-0.0221			
	(0.3892)			
	[0.3878]			
Bank's financial variables				
Log(B_ASSET)			-0.0615	
			(0.0360)	*
			[0.0357]	*
B_ROA(%)			0.0114	
			(0.1616)	
			[0.1605]	
B_CAPITAL_RATIO (%)			-0.0010	
			(0.0055)	
			[0.0055]	
B_NPL_RATIO (%)			0.0211	
			(0.0124)	*
			[0.0123]	*
No. of Observations	592		520	
Adj. R^2	0.74		0.73	

Notes: See Appendix for the variable definitions. All regressions include firm fixed effects. Heteroscedasticity-robust standard errors are reported in parentheses, and robust standard errors clustered at the firm level by using the within-estimator are reported in square brackets. The superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 5. Regression results: Effects of longer auditor tenure on the borrowing interest rate

Variable	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.	
Longer audit tenure × Assurance × Bank-firm duration								
D_FTENURE_LONG×ASSURANCE×Log(1+B_DURATION)	0.2082				0.3408			
	(0.2498)				(0.1930)	*		
	[0.2487]				[0.1914]	*		
D_PTENURE_LONG×ASSURANCE×Log(1+B_DURATION)			0.3922				0.3276	
			(0.2090)	*			(0.2110)	
			[0.2080]	*			[0.2092]	
ASSURANCE×Log(1+B_DURATION)	-0.4711		-0.4664		-0.4987		-0.4224	
	(0.2116)	**	(0.1974)	**	(0.1935)	**	(0.1981)	**
	[0.2106]	**	[0.1965]	**	[0.1919]	***	[0.1965]	**
Loan-specific variables								
Log(1+B_DURATION)	0.0534		0.0528		0.0426		0.0444	
	(0.0429)		(0.0433)		(0.0448)		(0.0453)	
	[0.0427]		[0.0431]		[0.0445]		[0.0450]	
B_REGIONAL	0.1527		0.1451		-0.0837		-0.0990	
	(0.0786)	*	(0.0809)	*	(0.1375)		(0.1416)	
	[0.0782]	*	[0.0805]	*	[0.1364]		[0.1404]	
B_SHINKIN	0.3088		0.3010		-0.0968		-0.1184	
	(0.0765)	***	(0.0777)	***	(0.2008)		(0.2065)	
	[0.0762]	***	[0.0774]	***	[0.1991]		[0.2048]	

Table 5 (continued)

B_COOPERATIVE	0.2680		0.2512		-0.2543		-0.2839
	(0.1050)	**	(0.1061)	**	(0.2654)		(0.2718)
	[0.1045]	**	[0.1057]	**	[0.2632]		[0.2696]
B_OTHERS	-0.0318		-0.0397				
	(0.3901)		(0.3902)				
	[0.3883]		[0.3884]				
Bank's financial variables							
Log(B_ASSET)					-0.0673		-0.0671
					(0.0381)	*	(0.0391) *
					[0.0378]	*	[0.0387] *
B_ROA(%)					-0.0531		-0.0672
					(0.1562)		(0.1607)
					[0.1550]		[0.1593]
B_CAPITAL_RATIO (%)					-0.0004		-0.0002
					(0.0055)		(0.0055)
					[0.0054]		[0.0054]
B_NPL_RATIO (%)					0.0151		0.0168
					(0.0122)		(0.0122)
					[0.0121]		[0.0121]
No. of Observations	568		562		500		496
Adj R^2	0.73		0.72		0.72		0.71

Note: See Appendix for the variable definitions, except for the two audit tenure variables, *D_FTENURE_LONG* for the tenure of audit firms and *D_PTENURE_LONG* for the tenure of audit partners, which are dummy variables that take the value of 1 if the tenures are longer than their respective medians. All regressions include firm fixed effects. Heteroscedasticity-robust standard errors are reported in parentheses, and robust standard errors clustered at the firm level by using the within-estimator are reported in square brackets. The superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6. Regression results: Alternative proxy for soft information

Variable	(1) Coeff.		(2) Coeff.		(3) Coeff.		(4) Coeff.	
Assurance × Direct measure of soft information accumulation								
ASSURANCE×SOFTINFO	-0.4007				-0.3368			
	(0.1415)	***			(0.1201)	***		
	[0.1410]	***			[0.1193]	***		
ASSURANCE×D_SOFTINFO			-0.5450				-0.3630	
			(0.2549)	**			(0.2151)	*
			[0.2541]	**			[0.2138]	*
Direct measure of soft information accumulation								
SOFTINFO	0.1545				0.1478			
	(0.0924)	*			(0.0994)			
	[0.0921]	*			[0.0988]			
D_SOFTINFO			0.1793				0.1279	
			(0.1643)				(0.1753)	
			[0.1638]				[0.1742]	
Loan-specific variables								
B_REGIONAL	0.1530		0.1469		-0.1971		-0.2154	
	(0.0862)	*	(0.0868)	*	(0.1471)		(0.1491)	
	[0.0859]	*	[0.0865]	*	[0.1462]		[0.1481]	
B_SHINKIN	0.2580		0.2654		-0.2825		-0.2896	
	(0.0848)	***	(0.0849)	***	(0.1923)		(0.1971)	
	[0.0846]	***	[0.0846]	***	[0.1911]		[0.1959]	

Table 6 (continued)

B_COOPERATIVE	0.2463		0.2503		-0.4750		-0.4951	
	(0.1049) **		(0.1085) **		(0.2433) *		(0.2496) **
	[0.1046] **		[0.1081] **		[0.2418] *		[0.2481] **
B_OTHERS	0.2589		0.2327				
	(0.2217)		(0.1999)				
	[0.2209]		[0.1992]				
Bank's financial variables							
Log(B_ASSET)					-0.0952		-0.0981
					(0.0361) ***		(0.0370) ***
					[0.0358] ***		[0.0368] ***
B_ROA(%)					0.1352		0.1219
					(0.1752)		(0.1800)
					[0.1741]		[0.1789]
B_CAPITAL_RATIO (%)					-0.0044		-0.0050
					(0.0066)		(0.0066)
					[0.0066]		[0.0066]
B_NPL_RATIO (%)					0.0157		0.0154
					(0.0128)		(0.0130)
					[0.0127]		[0.0129]
No. of Observations	636		636		564		564
Adj R^2	0.73		0.73		0.71		0.71

Notes: See Appenix for the variable definitions, except for the proxies for soft information (*SOFTINFO* and *D_SOFTINFO*). *SOFTINFO* is a categorical variable indicating the extent to which the bank knows the strength or weakness of the firm that cannot be measured quantitatively (4 for knows very much, 3 for to some extent, 2 for not very much, and 1 for not at all). *D_SOFTINFO* is a dummy variable that takes the value of 1 if *SOFTINFO* is equal to 4 or 3. All regressions include firm fixed effects. Heteroscedasticity-robust standard errors are reported in parentheses, and robust standard errors clustered at the firm level by using the within-estimator are reported in square brackets. The superscripts ***, **, and * correspond to statistical significance at the 1%, 5%, and 10% levels, respectively.