Role, Structure, and Determinants of Debt Covenants: Evidence from Japan

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Abstract: We examine types of financial covenants and how they are used in Japanese loan markets. Since previous literature on covenants focused on US firms, little is known about financial covenants in the so-called bank-oriented countries. We use a hand-collected dataset to explore the (1) types of financial covenants and (2) determinants of the use and strictness of financial covenants. Our binominal regression analysis shows that financial factors such as profitability, leverage, and interest rates affect the use of financial covenants. Most interestingly, we find that factors specific to Japan, dependence on the main bank and foreign shareholder ownership, also affect the use of financial covenants. Furthermore, we present that the borrower's leverage is a key determinant for the strictness of financial covenants.

Role, Structure, and Determinants of Debt Covenants: Evidence from Japan

1. Introduction

Financial covenants are provisions in debt contracts that restrict a firm's actions and specify the allocation of control rights between lenders and borrowers, particularly, when covenants are violated. The main reason for the existence of financial covenants is to resolve conflicts of interest between shareholders and bondholders. Jensen and Meckling (1976), Myers (1977), and Smith and Warner (1979) successfully developed the Agency Theory of Covenants and argued that the conflict of interest between shareholders and bondholders can be mitigated by restricting managers' behavior through financial covenants to better align their interests (e.g., Bradley and Roberts, 2004).

On the basis of the Agency Theory of Covenants, significant research focuses their attentions on the role, structure, and determinants of financial covenants in both public and private debt contracts. Leuz et al. (1998) reviews articles on debt covenants in the US, the UK, and Germany and argues that financial covenants (both *direct* and *indirect* dividend constraints, see Kalay, 1982) are more likely used in countries with less strict legal dividend restrictions. More recently, using LPC/Dealscan, a comprehensive database of private loan agreements, Dichev and Skinner (2002), Bradley and Roberts (2004), Sufi (2007), and Chava and Roberts (2008) reveal the structure and economic roles of debt covenants empirically.

However, since most of these studies focus on the US and UK firms, little is

known about financial covenants outside these countries.[1] Most importantly, recent studies argue that financial covenants differ among countries. For example, Hong et al. (2011) finds that debt covenants are more prevalent in countries with stronger law enforcement and more developed private credit markets, than in countries with more extensive creditor rights laws. These findings imply that financial covenants respond to institutional arrangements that shape the contracting environment. Moreover, in the accounting context, Ball et al. (2000) notes that the demand for accounting numbers depends on legal origin, and thus on country-level corporate governance. They argue that, although accounting income is expected to be economic income for shareholders under the "shareholder governance" prevalent in common-law countries (e.g., the US, the UK, and Australia), accounting income is regarded as a "pie" for various stakeholders under "stakeholder governance" in code-law countries (e.g., France, Germany, and Japan). Considering the existence of international differences in power and rights between shareholders and other stakeholders (including creditors), the role of financial covenants, which frequently and either explicitly or implicitly utilize accounting numbers, is assumed to differ from their role in Anglo–Saxon countries.

Motivated by the need for such research, we focus our attention on Japan, a country typically characterized as bank-oriented and having the main bank system (e.g., Prowse, 1992; Aoki et al., 1994; Kang and Shivdasani, 1999), and examine whether and how financial covenants are used in debt contracts. Assuming that the main bank already has a close relationship with and considerable power over a borrower, the need to include financial covenants may be less significant in Japan than in Anglo–Saxon

[1] Citron (1992; 1995), Day and Taylor (1995; 1996), and Moir and Sudarsanam (2007) examines financial covenants in the UK.

countries. Consistent with this conjecture, Nakamura (2011) reports that financial covenants in Japan are rarely included in bonds or bilateral loans, but are largely used in syndicated loan contracts in which participating banks in the syndicate have relatively lower incentives to monitor the borrower (Dass et al., 2011). That is, in contrast to Anglo–Saxon countries, where covenants are widely used in both public and private debt contracts (Frankel and Litov, 2007; Roberts and Sufi, 2009), covenants tend to be used in only certain situations in Japan. Yet, the structure and role of covenants are not fully understood.

We begin our analysis with financial covenants hand-collected from footnotes in firms' annual security reports due to the lack of a comprehensive commercial database of debt covenants in Japan. Although firms' disclosure policies vary, we collect 1,438 observations and find that the types of financial covenants do not vary among firms. In most cases, "maintenance of net assets" and "maintenance of net income before extraordinary items" are used as financial covenants. We also document that only 4.5% of our sample include covenants in bond contracts.

Following previous studies, we hypothesize and test the role of financial covenants by specifying the determinants involved in setting covenants. Previous studies report that factors such as leverage, tangibility, profitability, and loan size are probable determinants of including financial covenants (see next section). Including these factors, we also take into account Japanese-specific factors: the existence of the main bank and increase in foreign shareholders. We predict that the existence of the main bank substitutes for debt covenants in private lending agreements because the main bank already has a close relationship with and power over borrowers. Moreover, the presence of foreign shareholders has increased since the late 1990s and they

influence firms' payout policies. Nakao (2008) and Kochiyama (2011) report that foreign shareholder ownership is positively correlated with changes in dividends: foreign investors prefer higher dividends. Given that the role of covenants is to solve conflicts between shareholders and creditors by restricting firms' distributions (e.g., Kalay, 1982), we predict that covenants are used for firms with higher foreign shareholder ownership.

We analyze the determinants of financial covenants using a sample of more than 8,000 firm-year observations of Japanese listed companies during 2004–2012. Our binominal regression analysis shows that financial characteristics, such as operating performance, leverage, and tangibility, significantly affect the use of covenants. Most importantly, in addition to these financial factors, we find that financial covenants are likely to be included for firms with lower dependence on the main bank and higher foreign shareholder ownership. Furthermore, from additional analyses on the strictness of covenants, we find that a borrower's leverage is significantly related to the number and tightness of financial covenants.

This study contributes to the literature by empirically revealing Japanese debt covenants. Previous studies that investigated financial covenants primarily use the US and UK firms. Hence, little is known about covenants outside Anglo–Saxon countries. While Inamura (2009) examines financial covenants in Japanese bond contracts, we provide a comprehensive picture of debt covenants on the basis of a large hand-collected sample. Moreover, our findings suggest that remarkable differences exist between Japan and the US. These embrace types of debt including covenants, types of financial covenants, and lenders' measures of violations. Thus, we document that covenants vary among countries.

This paper is structured as follows. Section 2 reviews the literature on the determinants of financial covenants and develops hypotheses. Section 3 analyzes the status quo of financial covenants in Japan on the basis of our hand-collected observations. Section 4 describes our research design, sample, and variables. Section 5 shows the results of our analyses and the interpretation of those results. Section 6 is the conclusion.

2. Literature Review and Hypotheses Development

2.1. Previous studies on determinants of covenants

The importance and rationale of financial covenants are well established in Jensen and Meckling (1976), Myers (1977), and Smith and Warner (1979). These studies develop the Agency Theory of Covenants (ATC) and note that covenants are useful because they mitigate the conflicts of interest between shareholders and bondholders. In particular, Smith and Warner (1979) specifies four sources of conflict (i.e., dividend payment, claim dilution, asset substitution, and underinvestment) and argues that covenants can solve the conflicts arisen from these by restricting managers' behavior that results in wealth transfer from bondholders to shareholders (e.g., debt- and liquidation-financed distributions). In short, bondholders use debt covenants to protect themselves from exploitation by shareholders.

On the basis of the ATC, subsequent studies investigate the determinants of financial covenants in both public and private debt contracts. For example, El-Gazzar and Pastena (1991) uses 73 private lending contracts from the US firms and reports that the materiality of new debt, the existence of collateral, and leverage affect the setting of

financial covenants. Using 91 non-convertible debentures, Begley and Feltham (1999) finds that the borrower's tangibility, market-to-book ratio, leverage, and management incentives (i.e., cash compensation, stock wealth, and ownership fraction) affect the use of financial covenants. Similarly, Bradley and Roberts (2004) analyzes 12,425 private lending agreements drawn from the Dealscan database and shows that the borrower's market capitalization, leverage, profitability, loan size and credit spread are related to the setting of covenants. Billet et al. (2004) and Frankel and Litov (2007) focus on bond contracts and find that financial factors such as the borrower's market-to-book ratio, operating performance, and leverage influence the use of financial covenants. In the Japanese context, Inamura (2009) uses bond contracts and reports that the existence of a bond manager, bond maturity, and interest spread are the probable determinative factors of financial covenants.

Some recent studies attempt to capture the effect of country-level institution on the use of financial covenants and firm-level determinants. Utilizing the US state law environment, Qi and Wald (2008) analyzes the relationship between the use of covenants in bond contracts and the strictness of each state law. They find that financial covenants appear less frequently in states with stricter payout restriction laws. Qi et al. (2011) examines covenants in foreign corporate bonds issued in the US from more than 50 countries and reports that bonds of firms incorporated in countries with stronger creditor rights use fewer covenants. Furthermore, in a sample of 7,053 syndicated loans from 23 countries, Hong et al. (2011) finds that debt covenants are more prevalent in countries with stronger law enforcement and more developed private credit markets.

Table 1 summarizes the relevant studies on determinants of financial covenants. Overall, while many previous studies reveal that the use of financial covenants is largely

related to the borrower's financial characteristics, recent studies have begun investigating why and how the use of covenants differs among countries.

Insert Table 1 about here

2.2. Hypothesis Development

In this study, we extend the literature by empirically and comprehensively examining determinants of financial covenants in Japanese firms. First, following previous studies, we predict that the borrower's financial characteristics affect the use of financial covenants. Specifically, we adopt eight basic measures as determinative factors: (1) profitability, (2) firm size, (3) leverage, (4) interest rates, (5) sales growth, (6) market-to-book ratio, (7) tangibility, and (8) likelihood of bankruptcy. Dichev and Skinner (2002) and Asquith et al. (2005) argue that financial covenants are written to provide the lender with an early warning signal of deterioration in credit risk. Thus, the use and structure of covenants are likely to vary depending on the borrower's economic circumstances. Given that one of the expected roles of covenants is to be an "early warning signal," lenders are likely to include covenants to engage in early intervention in firms with lower profitability, higher leverage and/or interest rates, fewer growth opportunities, and lower collateral.

In addition to these basic financial characteristic, we predict that Japanese-specific factors also affect the use of financial covenants. We focus on two unique governance factors: the main bank system and the presence of foreign shareholders. The main bank system has been regarded as one of the most significant features in the Japanese economy. Aoki et al. (1994) defines the concept of a main bank

as a "nexus," and argues that the main bank provides large loans and has a close relationship with and power over the borrower. In particular, during *good* times the main bank monitors the borrower by checking the transaction account and dispatching a manager, and during *bad* times the main bank is involved in the borrower's management for the purpose of reconstructing it (e.g., Aoki et al., 1994; Osano, 2001). Therefore, in the presence of the main bank, we predict that, as the main bank system substitutes for covenants, the need for including financial covenants to "monitor the borrower" is less significant (e.g., Begley and Feltham, 1999).

Foreign shareholder ownership has increased since the late 1990s in Japan. According to the Tokyo Stock Exchange, foreign investors held approximately 4.7% of the shares in 1990, which increased by 28.0% in 2012 and is now the highest compared with other shareholder groups (Tokyo Stock Exchange, 2013). Foreign shareholders, most of whom are institutional investors, are frequently characterized as investors who are very strict regarding corporate value, and thus intervene in management through a "voice" on behalf of themselves (e.g., Iwatsubo and Tonogi, 2006). Consistently, Nakao (2008) and Kochiyama (2011) report that foreign shareholder ownership is positively correlated with changes in dividends: foreign investors prefer higher dividends. Therefore, considering that covenants are useful for solving conflicts between shareholders and creditors by restricting firms' distributions (e.g., Kalay, 1982; Leuz et al., 1998), we predict that lenders are more likely to use covenants for firms with higher foreign shareholder ownership to protect themselves.

3. Analysis for Status Quo of Financial Covenants in Japan

This section describes and analyzes our sample of financial covenants and its

characteristics. We obtain our sample of private and public lending agreements from footnotes of firms' annual security reports. Utilizing the Pronexus/EOL database, which comprehensively records annual reports of listed Japanese firms, we search and hand-collect both qualitative and quantitative data on financial covenants by using the phrase "covenant." Our sample of financial covenants consists of 1,483 firm-year observations represented by 463 Japanese listed firms whose fiscal years ends are in March from 2004 to 2012. We preliminarily note that most covenants are used in bilateral or syndicated loan contracts, whereas only 66 observations are bond covenants (the ratio of bond covenant observations: 4.5%).

Table 2 shows the number of firms and types of available information on financial covenants. Since neither public regulations on disclosure nor a comprehensive commercial database for debt covenants exists, we note that the information is completely depends on firms' voluntary disclosures. We classify the degree of firms' disclosure policy into three levels: only the existence of covenants (level 1), the types of covenants (level 2), and the types and thresholds of covenants (level 3). From Table 2, approximately 78.0% of our sample discloses their types of financial covenants.

Insert Table 2 about here

Table 3 reports on the types of financial covenants used in debt contacts. We note that the observations classified as level 2 and level 3 are analyzed hereafter. From Table 3, we observe that "maintenance of net assets" (92.4%) and "maintenance of earnings" (79.0%) are included in most cases. In contrast, the other types of covenants are not used frequently. Hence, Japanese firms tend to use financial covenants in uniform

practice. Moreover, when we analyze the number of financial covenants included for each observation, “two items” is approximately 58.5%, many of which are a combination of “maintenance of net assets” and “maintenance of earnings.” The result is reported in Table 4.

Insert Tables 3 and 4 about here

Next, we analyze the threshold of “maintenance of net assets” and “maintenance of earnings,” since these two covenants are most frequently used. Again, we note that only observations with available information are considered. Table 5 reports the results of the analysis. Most “maintenance of net assets” covenants require maintaining over X% of net assets at the end of each fiscal year compared to these of the reference year. For more than half of our available observations, the threshold is 75% of the reference net assets. We also observe that approximately 90.9% of the observations use the value of net assets without any adjustments.

Insert Table 5 about here

Table 6 shows the types of earnings and the thresholds referred to in the “maintenance of earnings” covenants. We find that the most common earnings type is net income before extraordinary items (83.2%), and that the next most common is operating income (23.8%). Moreover, from Panel B of Table 6, approximately 80.0% of the covenants require the borrower not to report losses for the reference earnings for two consecutive years. Therefore, earning-related covenants are also considerably uniform

in terms of the threshold and reference earnings.

Insert Table 6 about here

These findings contrast sharply with that of the US. Dichev and Skinner (2002) examines types of financial covenants in private lending agreements and finds that US firms use various covenants, such as debt-to-cash flow ratio, interest coverage, and tangible net worth (p.1101). Similarly, using a sample of bond contracts, Frankel and Litov (2007) reports that both "EBITDA based covenants" and "balance sheet and earnings based covenants" are widely used in the US.[2] Therefore, unlike Japan, US firms tend to use substantively tailored and various financial covenants for both public and private debt contracts.

Finally, we examine the behavior of 183 firms in our sample that violated financial covenants. Table 7 displays the behaviors during the period of and the next period after violations. In Japan, lenders and borrowers usually formulate agreements stating that when borrowers violate covenants, they lose "the benefit of time" at the time of the contracts. However, Panel A of Table 7 shows that forfeiture of the benefit is respited in many cases (48.9%), and there are not many cases in which firms

[2] Recent studies report that some changes were made to financial covenants in the US. Begley and Freedman (2004) finds that, in new debt agreements from 1975 to 2000, the dividend restriction covenants and the covenants limiting the borrowing based on accounting numbers were no longer used; in contrast, the tendency was to use cash-flow-based covenants. Additionally, Demerjian (2011) reports a decline in covenants based on the balance sheet (e.g., debt ratio, net assets, and current ratio) from 1996 to 2007.

immediately refinance or pay off their debt (4.9%). Likewise, Panel B shows that only eight out of the 182 cases were “refinance or pay off” in the next period after the violation (the ratio: 4.4%). Considering that the punishment for violations in the US is severe (e.g., Beneish and Press, 1993; 1995; Nini et al., 2007; Chava and Roberts, 2008; Dyreng, 2009; Roberts and Sufi, 2009), penalties may be relatively light in Japan.

Insert Table 7 about here

In summary, Japanese firms tend to use “maintenance of net assets” and “maintenance of earnings” as financial covenants. In addition, they typically require firms to maintain over 75% of the reference net assets value and not to report losses for two consecutive years. Therefore, in Japan, financial covenants are used uniformly. Figure 1 illustrates a typical example of the financial covenants set by Japanese companies.

Insert Figure 1 about here

4. Research Design and Descriptive Statistics

4.1. Research Design

We apply the following binominal logit regression model to evaluate the determinants of financial covenants.

$$Cov\_D_{i,t} = \alpha_0 + \alpha_1 ROA_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 Lev_{i,t} + \alpha_4 Interest_{i,t} + \alpha_5 Growth_{i,t} + \alpha_6 MtoB_{i,t} + \alpha_7 Tangibility_{i,t} + \alpha_8 SAF_{i,t} + \alpha_9 MainBankDep_{i,t} + \alpha_{10} ForeignOwn_{i,t} + \sum Industries + \sum Years + \varepsilon_{i,t}$$

Eq. (1)

The variables in equation (1) are as follows: $Cov\_D_{i,t}$ is a dummy variable that equals one if financial covenants exist in debt contracts for firm *i* in year *t* and zero otherwise; $ROA_{i,t}$ denotes the net incomes before extraordinary items for firm *i* in year *t*; $Size_{i,t}$ denotes the natural log of total assets for firm *i* in year *t*; $Lev_{i,t}$ denotes the net amount of debt for firm *i* in year *t*; $Interest_{i,t}$ denotes the weighted average interest rates on commercial lending for firm *i* in year *t*; $Growth_{i,t}$ denotes the average growth in sales for the past three years for firm *i* in year *t*; $MtoB_{i,t}$ denotes the market-to-book ratio at the fiscal year end for firm *i* in year *t*; $Tangibility_{i,t}$ denotes the amount of PPE for firm *i* in year *t*; $SAF_{i,t}$ is a dummy variable that equals one if the value of SAF2002 (Shirata, 2003) for firm *i* in year *t* is lower than 0.68 and zero otherwise; $MainBankDep_{i,t}$ denotes the ratio of loans financed from the main bank to total debt with interest for firm *i* in year *t*; $ForeignOwn_{i,t}$ denotes the ratio of shares held by foreign investors to outstanding shares for firm *i* in year *t*; $Industries$ denotes the industry dummies on the basis of the Nikkei Middle Industry Classification (33 industries); and $Years$ denotes the year dummies from 2004 to 2012.

The first eight variables represent the basic financial characteristics discussed in section 2: (1) profitability, (2) firm size, (3) leverage, (4) interest rates, (5) sales growth, (6) market-to-book ratio, (7) tangibility, and (8) likelihood of bankruptcy, respectively. In particular, note that we use the *net* amount of debt as leverage, and that SAF2002 as

introduced in Shirata (2003) is an indicator of the likelihood of bankruptcy.

$MainBankDep_{i,t}$ and $ForeignOwn_{i,t}$ represent Japanese-specific factors. The former indicates the borrower's financial dependence on its main bank and proxies the closeness of the relation. According to our hypothesis, the sign of $MainBankDep_{i,t}$ are expected to be significantly negative. The latter indicates the presence of foreign shareholders and proxies the degree of profit claims from shareholders. We predict that the sign of $ForeignOwn_{i,t}$ should be significantly positive.

We also include industry and year dummies to control industry- and year-fixed effects, respectively. $ROA_{i,t}$, $Lev_{i,t}$, and $Tangibility_{i,t}$ are scaled by total assets in year *t–1*. Furthermore, to rule out the effect of outliers, we use data that was winsorized at the bottom 1% and top 99% levels for each non-indicator variable.

4.2. Sample and Descriptive Statistics

We analyze our hypotheses using a sample of publically listed Japanese firms with fiscal year ends in March. The financial data are obtained from the Nikkei Media Inc. database NEEDS Financial-QUEST 2.0 and NEEDS-Cges for a sample period of 2005–2012 because data on commercial loans financed from the main bank are available from 2005. We use firm-year observations with available annual consolidated financial data, except for those in the banking, securities, and insurance sectors. The final sample comprises 8,791 firm-year observations: 842 observations with covenants and 7,949 observations without covenants.

Table 8 reports the descriptive statistics. The mean of $Cov\_D_{i,t}$, our dependent variable, indicates a ratio of covenant observations out of our sample. The value is approximately 9.6%, suggesting disproportionality in our sample. As argued in Palepu

(1986) and Maddala (1991), logistic regression is an appropriate approach where disproportionate sampling from two populations occurs. In logistic regression, the coefficients of the independent variables are not affected by the unequal sampling rates. Therefore, we consider that our research design is appropriate for our sample structure.

Insert Table 8 about here

Table 9 shows the correlations between the testing variables. A strong positive correlation exists between $Size_{i,t}$ and $ForeignOwn_{i,t}$ (the values are 0.62 and 0.68 for Pearson's and Spearman's correlations, respectively), indicating foreign investors tend to hold the shares of relatively large firms. To check the multicollinearity among independent variables, we calculate and find that the variance inflation factors (VIF) are less than five for every estimate (the mean is 1.42).

Insert Table 9 about here

5. Empirical Findings

5.1. Results for Determinants of Financial Covenants

To analyze the determinants of financial covenants, we apply Equation (1). The results are reported in Table 10. Given our large panel data set, we use heteroskedasticity corrected robust standard errors (White, 1980). Moreover, we note that column (1) shows the results for the full sample (including both private and public debt covenants), and that column (2) reports the results when we exclude bond covenant observations

(only private debt covenants are analyzed).

Insert Table 10 about here

First, for basic financial measures, we observe that profitability, leverage, interest rates, tangibility, and the likelihood of bankruptcy are significantly related to the use of financial covenants. In other words, covenants are likely included for firms with lower profitability and higher leverage, interest ratios, and thus likelihood of bankruptcy. In contrast to Inamura (2009), which finds a negative relationship between interest rates and covenants, we observe that interest rates are positively correlated with the use of covenants, implying that in Japanese private lending agreement lenders do not use covenants as a substitute for interest rates as self-protection. Moreover, contrary to our prediction, tangibility, which proxies the amount of firm's collateral, is positively correlated to the setting of financial covenants. This result suggests that most fixed tangible assets are relation-specific for firms in Japan, and thereby the variable proxies the amount of assets on which lenders cannot rely.

For Japanese-specific factors, consistent with our hypotheses, Table 10 shows negative coefficients for the main bank variable and positive coefficients for the foreign investor variable. For the former, covenants are less likely to be used for firms with higher dependence on or closer relationship with main banks, implying that the need to include covenants is less significant in the presence of a main bank. For the latter, lenders are likely to use covenants for firms with higher foreign shareholder ownership. Given that foreign shareholders frequently intervene with the management on behalf of themselves, lenders may use covenants as a self-protection tool.

5.2. Additional Analyses on the Strictness of Financial Covenants

To obtain more specific implications on financial covenants, we further analyze their strictness. Previous studies attempt to examine not only covenants' determinative factors but also their strictness by constructing either slack or number of covenants, or both (e.g., Demerjian and Owens, 2014). For example, Dichev and Skinner (2002) use slack defined as the actual value minus the corresponding covenant threshold. Similarly, Frankel and Litov (2007) and Kim et al. (2010) take the same approach to measure the slack. In contrast, Bradley and Roberts (2004) and Billet et al. (2007) use the number of covenants as a proxy for financial covenant strictness.

On the basis of these studies, we analyze how strictness is determined in the Japanese context. As discussed in Section 3, the typical Japanese financial covenants are two provisions on "maintenance of net assets" and "maintenance of net income before extraordinary items." Considering this characteristic, we use three measures for strictness: $NoCov_{i,t}$, $NA\_D_{i,t}$, and $NA\_Slack_{i,t}$. $NoCov_{i,t}$ is a dummy variable that equals one if the number of financial covenants is more than two for firm *i* in year *t* and zero otherwise; $NA\_D_{i,t}$ is a dummy variable that equals one if the threshold of "maintenance of net assets" is more than 75% of the benchmark net assets for firm *i* in year *t* and zero otherwise; and $NA\_Slack_{i,t}$ denotes slack, defined as the actual value of net assets minus the threshold of net assets. Since lenders use the two covenants and adopt the threshold of 75% for "maintenance of net assets" in most cases (see Tables 4 and 5), we consider that debt contacts with more than two covenants and a higher threshold of net assets are relatively restrictive in Japan. We note that $NA\_Slack_{i,t}$ is scaled by the benchmark net assets.

We incorporate these three measures into Equation (1) as dependent variables and apply OLS for the estimation of $NA\_Slack_{i,t}$ because it is a continuous variable. Table 11 reports the results. Note that covenant observations with available data are used in each estimate.

Insert Table 11 about here

First, we observe that factors such as leverage, interest rates, growth, tangibility, and foreign shareholder ownership have a strong effect on the number of covenants used in debt contracts. The findings imply that more covenants are used for firms with higher default risk. Furthermore, lenders are likely to include more than two covenants to protect their interests from strong foreign shareholders.

In contrast, the results of columns (2) and (3) exhibit that tightness of financial covenants is determined differently. Leverage and likelihood of bankruptcy consistently affect tightness for both $NA\_D_{i,t}$ and $NA\_Slack_{i,t}$, although some different variables have statistically significant coefficients. Thus, tighter covenants are also used for firms with higher default risk.

Overall, our findings suggest that a firm's default risk specifically represented as leverage is likely to determine the strictness of financial covenants. This implication is consistent with previous studies (e.g., Dhaliwal, 1980; Hunt, 1985; Duke and Hunt, 1990), that discuss the leverage is a valid proxy for the strictness of covenants, and thus the probability of violating covenants. Therefore, we conclude that stricter covenants are used as early-warning signals and to monitor the high-risk borrower.

6. Conclusions

This study empirically examines the role, structure, and determinants of financial covenants in Japan. Since previous studies largely investigate US firms, little is known about financial covenants outside Anglo–Saxon countries. Moreover, recent studies report that the use of covenants differs among countries. In light of these arguments, we focus our attention on Japan, a country typically characterized as bank-oriented and having the main bank system.

First, we analyze information on the structure of financial covenants. The analyses reveal that the types of financial covenants do not vary among firms. In most cases, two financial covenants, namely "maintenance of net assets" and "maintenance of net income before extraordinary items," are used. Furthermore, we show that lenders do not impose severe punishments on the borrower when covenants are violated. Rather, lenders are likely to give moratoriums.

From the analysis of the determinants of using financial covenants, we find that financial factors such as profitability, leverage, interest rates, and the likelihood of bankruptcy affect such use. Moreover, we apply two Japanese-specific factors: dependence on the main bank and foreign shareholder ownership. Consistent with our prediction, we find that covenants are more likely to be used for firms with less financial dependence on main bank and that have a larger foreign shareholder stake. These results suggest that country-unique factors, in addition to basic financial characteristics, affect the use of covenants. Moreover, our additional analyses show that a firm's leverage is a key determinative factor for the strictness of financial covenants.

From these findings, we infer that the role of financial covenants in Japan is

substantially different from that in the US. The remarkable differences are as follows: (1) the type of debt with financial covenants, (2) types of financial covenants, and (3) lenders' measures when violating covenants. That is, although covenants in the United States are widely used for both public and private debt contracts, Japanese covenants are primarily used for syndicated loans. Moreover, although the types of covenants vary in the United States, Japanese covenants are boilerplates and do not vary among firms. Finally, the punishments for the violation of covenants are considerably severe in the United States (e.g., Nini et al., 2007; Roberts and Sufi, 2009; Dyreng, 2009), yet lenders in Japan are not likely to impose punishments. On the basis of these comparisons, we conjecture that the role of financial covenants in the Japanese context is to simply provide an opportunity to renegotiate to find a more appropriate reconstruction together with lenders, rather than to strongly ensure lenders' profits.

This study contributes to the literature by empirically analyzing Japanese debt covenants. Previous studies investigate financial covenants primarily using US firms. Therefore, little is known about covenants outside Anglo–Saxon countries. While Inamura (2009) examines financial covenants in Japanese bond contracts, we provide a comprehensive picture of financial covenants on the basis of a large hand-collected sample. Furthermore, we find that remarkable differences exist between covenants in the Japanese and US contexts, including the types of debt that include covenants, types of financial covenants, and lenders' measures for violations. Therefore, we conclude that the role, structure, and determinants of financial covenants vary among countries, in particular, in respond to a country's unique economic system.

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Table 1. Overview of empirical studies on determinants of financial covenants

Study	Type of debt	Country	Main determinative factors
El-Gazzar and Pastena (1991)	Private Lending	US	Materiality, Existence of Collateral, Leverage
Begley and Feltham (1999)	Public Debt Debenture	US	Collateral (PPE scaled by total assets), Market-to-Book Ratio, EBITD, Leverage, Management Incentives
Bradley and Roberts (2004)	Private Lending	US	Maturity, Market-to-Book Ratio, Tangibility, EBITDA, Credit Spread
Billet et al. (2007)	Public Bond	US	Leverage, Maturity, Market-to-Book Ratio, Size, Performance Volatility, Altman's Z score
Frankel and Litov (2007)	Public Bond	US	Market-to-Book Ratio, Tangibility, Profitability, Size, Debt Rating, Firm Age
Graham et al. (2008)	Private Lending	US	Market-to-Book Ratio, Leverage, Profitability, Tangibility, Z-score, Loan Maturity, Credit Spread
Qi and Wald (2008)	Public Bond	US	Strictness of State Law, Market-to-Book Ratio, Size, Loan Size, Maturity
Inamura (2009)	Public Bond	Japan	Maturity, Existence of Bond Manager, Size, Leverage, Interest Spread
Hong et al. (2011)	Private Lending (Syndicated Loans)	23 countries	Country Level Institutional Factors, Size, Leverage, ROA, Tangibility, R&D, Dividend, Loan Size, Maturity
Qi et al. (2011)	Public Bind	50 countries	Country-Level Institutional Factors, Size, Issue Size, Type of Bond

Table 2. Number and types of available information on financial covenants

	Disclosure Level 1 (only existence of financial covenants is disclosed)	Disclosure Level 2 (the types of covenants are disclosed)	Disclosure Level 3 (the types and thresholds of covenants are disclosed)	Total
N	326	172	985	1,483
%	22.0%	11.6%	66.4%	100.0%

Table 3. Types of financial covenants used in Japan

types of financial covenants	N	%
Maintenance of net assets	1,069	92.4%
Maintenance of earnings	914	79.0%
Balance of debt with interests	148	12.8%
Equity ratio	66	5.7%
Leverage ratio	58	5.0%
Bond rating	46	4.0%
Interest coverage ratio	43	3.7%
Debt service coverage ratio	34	2.9%
Restrictions on investment	16	1.4%
Restrictions of distribution	13	1.1%
Current ratio	8	0.7%
Fixed assets ratio	7	0.6%
Inventory turnover period in days	3	0.3%
Total number of observations	1,157 observations	

Table 4. Number of financial covenants set for each observation

	One item	Two items	Three items	Four items	More than four	Total
N	175	676	217	54	35	1,157
%	15.1%	58.4%	18.8%	4.7%	3.0%	100.0%

Table 5. Threshold for “maintenance of net assets” covenants

	85% and over	80%	75%	70%	60% and fewer	Using amounts	Total
N	24	115	523	60	15	159	896
%	2.7%	12.8%	58.4%	6.7%	1.7%	17.7%	100.0%

Table 6. Types of earnings and threshold used for "maintenance of earnings" covenants

Panel A: Types of earnings used in "maintenance of earnings" covenant

	Operating income	Net income before extraordinary items	Net income	Others	Number of available observations
N	206	721	60	7	867
%	23.8%	83.2%	6.9%	0.8%	

Panel B: Threshold of "maintenance of earnings" covenant

	Do not report losses for the reference earnings	Do not report losses for the reference earnings for two consecutive years	Do not report losses for the reference earnings for three consecutive years	Others	Number of available observations
N	133	613	8	15	769
%	17.3%	79.7%	1.0%	2.0%	100.0%

Table 7. Behavior of companies violating covenants

Panel A: At the period of covenant violation

Moratorium	Under negotiation	Contract modification	Complete payment or refunding	Others	Unclear		Total
89	33	32	9	4	15	–	182
48.9%	18.1%	17.6%	4.9%	2.2%	8.2%		100.0%

Panel B: At the next period of covenant violation

Moratorium	Under negotiation	Contract modification	Complete payment or refunding	Others	Unclear	Delisting	Undescribed or avoiding violations	Total
26	10	18	8	3	5	14	98	182
14.3%	5.5%	9.9%	4.4%	1.6%	2.7%	7.7%	53.8%	100.0%

Figure 1. Typical example of Japanese financial covenants

Syndicated loan financial covenants

1. At the end of each fiscal year, the net asset amount recorded in the consolidated balance sheets must be higher than 75% of the net asset amounts recorded in the consolidated balance sheets for fiscal year 2012.
2. At the end of each fiscal year, the consolidated statements of ordinary income must not show a loss for two consecutive terms.

(Annual security report 2013, Nomura Micro Science Co., Ltd.)

Table 8. Descriptive statistics

	Mean	Std. Dev.	Q1	Median	Q3
$Cov\_D_{i,t}$	0.096	0.294	0.000	0.000	0.000
$ROA_{i,t}$	0.043	0.051	0.016	0.037	0.067
$Size_{i,t}$	11.014	1.538	9.969	10.844	11.893
$Lev_{i,t}$	0.122	0.295	−0.016	0.121	0.270
$Interest_{i,t}$	0.017	0.009	0.012	0.015	0.019
$Growth_{i,t}$	1.035	0.136	0.967	1.022	1.083
$MtoB_{i,t}$	1.209	1.071	0.600	0.891	1.418
$Tangibility_{i,t}$	0.328	0.190	0.195	0.312	0.433
$SAF\_D_{i,t}$	0.224	0.417	0.000	0.000	0.000
$MainBankDep_{i,t}$	0.311	0.194	0.182	0.285	0.405
$ForeignOwn_{i,t}$	0.090	0.101	0.011	0.051	0.138

Table 9. Correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
$Cov\_D_{i,t}$	(1)		−0.14	0.04	0.16	0.09	−0.08	−0.02	0.06	0.16	−0.04	0.02
$ROA_{i,t}$	(2)	−0.12		0.08	−0.25	−0.13	0.47	0.36	0.02	−0.49	−0.02	0.28
$Size_{i,t}$	(3)	0.03	0.06		0.19	0.01	0.05	0.15	0.09	−0.07	−0.36	0.68
$Lev_{i,t}$	(4)	0.09	−0.13	0.18		0.17	0.02	0.13	0.38	0.30	−0.21	−0.07
$Interest_{i,t}$	(5)	0.05	−0.06	0.09	0.06		0.00	0.08	0.02	0.24	−0.04	0.01
$Growth_{i,t}$	(6)	−0.50	0.39	0.00	0.01	0.03		0.30	−0.00	−0.20	−0.07	0.17
$MtoB_{i,t}$	(7)	−0.02	0.27	0.00	0.07	0.09	0.27		0.02	0.03	−0.12	0.24
$Tangibility_{i,t}$	(8)	0.06	0.02	0.12	0.36	0.00	−0.01	0.00		−0.05	−0.08	−0.05
$SAF\_D_{i,t}$	(9)	0.16	−0.46	−0.07	0.22	0.14	−0.13	0.10	−0.03		0.01	−0.13
$MainBankDep_{i,t}$	(10)	−0.03	−0.02	−0.34	−0.16	−0.08	−0.06	−0.02	−0.07	0.00		−0.24
$ForeignOwn_{i,t}$	(11)	0.02	0.24	0.62	−0.06	0.15	0.12	0.26	−0.05	−0.11	−0.20	

Pearson's correlations appear below the diagonal; Spearman's correlations appear above the diagonal.

Table 10. Results for determinative factors for the use of financial covenants

		(1)			(2)		
	Predict	Coef.	z-value	P>|z|	Coef.	z-value	P>|z|
$ROA_{i,t}$	−	−4.90	−4.91	0.000	−4.75	−4.66	0.000
$Size_{i,t}$	−	−0.03	−0.93	0.350	−0.04	−1.03	0.301
$Lev_{i,t}$	+	0.94	2.97	0.003	1.07	3.00	0.003
$Interest_{i,t}$	+	12.42	3.89	0.000	11.67	3.58	0.000
$Growth_{i,t}$	−	0.36	1.14	0.256	0.31	0.94	0.346
$MtoB_{i,t}$	−	0.01	0.21	0.837	−0.00	−0.06	0.956
$Tangibility_{i,t}$	−	1.32	5.02	0.000	1.20	4.35	0.000
$SAF\_D_{i,t}$	+	0.73	6.68	0.000	0.75	6.70	0.000
$MainBankDep_{i,t}$	−	−0.59	−2.47	0.014	−0.58	−2.37	0.018
$ForeignOwn_{i,t}$	+	2.05	3.91	0.000	2.14	4.00	0.000
Year Dummies		Yes			Yes		
Industry Dummies		Yes			Yes		
N		8,791			8,758		
(Cov. Obs.)		(842)			(809)		
Pseudo R2		11.84%			12.47%		
Prob > chi2		0.000			0.000		

All variables are defined as above. All z-statistics are corrected for heteroskedasticity using robust standard errors (White, 1980).

Table 11. Results for analyses on the strictness of financial covenants

	(1) Dep. : $NoCov_{i,t}$		(2) Dep. : $NA\_D_{i,t}$		(3) Dep. : $NA\_Slack_{i,t}$	
	Coef.	z-value	Coef.	z-value	Coef.	z-value
$ROA_{i,t}$	2.34	0.67	4.88	1.26	1.25***	3.55
$Size_{i,t}$	0.21*	1.69	−0.59***	−3.20	0.02	1.18
$Lev_{i,t}$	2.40**	2.59	3.56**	2.58	−0.23***	−3.28
$Interest_{i,t}$	57.84**	2.48	−28.53	−0.94	−2.29	−1.19
$Growth_{i,t}$	−2.56**	−2.28	−0.13	−0.10	−0.14	−1.61
$MtoB_{i,t}$	0.21*	1.68	−0.42***	−2.22	0.02	1.01
$Tangibility_{i,t}$	4.05***	3.73	−1.97	−1.23	0.23**	2.38
$SAF\_D_{i,t}$	0.25	0.77	1.06**	2.28	−0.09***	−2.71
$MainBankDep_{i,t}$	1.07	1.21	−0.48	−0.34	0.09	1.10
$ForeignOwn_{i,t}$	5.27***	3.30	0.533	0.24	−0.22	−0.83
Year Dummies	Yes		Yes		Yes	
Industry Dummies	Yes		Yes		Yes	
N	576		422		401	
(Cov. Obs.)	(139)		(71)			
Pseudo R^2 / Adj. R^2	25.58%		22.68%		34.88%	

***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All variables are defined as above. All z-statistics and *t*-statistics are corrected for heteroskedasticity using robust standard errors (White, 1980).