The Prewar Financial System and the Dynamics of Corporate Financing

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Abstract

The literature that documents the positive association between financial development and growth raises the question, in a historical context, of whether financial systems were well developed enough to promote growth even in the early stages of economic growth. This study examines whether firms used the financial system (capital markets and financial intermediaries) for financing in the prewar period as actively as they do today. Applying the survival analysis to the financial data of Japanese listed nonfinancial firms in the 1914–1929 and 1999–2013 periods, we show that prewar firms used the financial system to meet their needs for funds equally or more actively compared with present-day firms; however, they did not use it to realize their optimal capital structures as actively as present-day firms do. Prior studies show that the Japanese financial system was well developed in the early 20th century in terms of the size of capital markets compared with the recent period. Our results related to meeting financing needs are consistent with this. However, the results related to the realization of optimal capital structure imply that the Japanese financial system was not as sophisticated in the prewar period as it is today in terms of allowing firms optimal choices between debt and equity for adjustments of capital structure.

Keywords: Financial development, financial markets, capital structure, leverage
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1. Introduction

Financial development is considered a key factor that facilitates economic growth. In theory, financial intermediaries and markets reallocate funds from depositors and investors to firms with productive opportunities to raise growth possibilities (e.g., Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991). In addition, financial markets help risk-averse investors create diversified portfolios, thereby reducing their exposure to unsystematic risk and inducing them to allocate funds to high-return investment opportunities, which in turn promote economic growth (e.g., King and Levine, 1993; Obstfeld, 1994; Greenwood and Smith, 1997). Extant empirical studies find a positive association between financial development and growth and causality running from financial development to growth (e.g., King and Levine, 1993; Roussau and Wachtel, 1998; Rajan and Zingales, 1998; Levine and Zervos, 1998; Levine, 1998, 1999; Guiso et al., 2004).

Given this positive association, an important question emerges in a historical context: Were financial systems well developed enough in the early stages of economic growth to promote growth? Empirical evidence on this issue is limited. Notable exceptions are Rajan and Zingales (2003) and Hoshi and Kashyap (2001). Rajan and Zingales (2003) provide evidence that as early as 1913, the level of financial development of selected countries was higher than that of 1980, and the 1913 level is exceeded only by the end of the 1990s. Hoshi and Kashyap (2001) also show that the total market value of companies listed on the Tokyo Stock Exchange relative to GDP is 90% in 1928, whereas it is 66% in 1998, indicating that the stock market in prewar Japan was sizable compared with the recent developed period. Furthermore, they find that securities markets were dominant in the Japanese financial system during the period from the 1910s to the early 1930s; that is, equity and bond financing were more important than bank loans for Japanese firms. The evidence is contrary to the theoretical prediction of Boot and Thakor (1997) that market finance expands relative to bank finance in the course of financial development.

This study aims to provide new insights into the issue above in terms of dynamics of corporate financing. We answer the question: Did firms use financial system (capital markets and financial intermediaries) to meet their needs for funds and to realize their optimal capital structures in the early stages of economic growth as actively as they do today? This research question is relevant because it is widely recognized both in practice of and empirical research in corporate finance that meeting the needs for funds and realizing optimal capital structure

are the two most important motives for financing (e.g., Faulkender et al., 2012; Byoun 2008). If the answer is yes, it is implied that the financial system was already as well developed for corporate financing in the early stages of economic growth as it is today not only in a static sense (e.g., the size of stock market) but also in a dynamic sense in that firms actively used the financial system.

To answer the research question, we examine whether the financing activities⸺equity issuance, bond issuance, and an increase in loan amounts (hereafter, "loan increase")⸺of large Japanese firms in the prewar period were as *responsive* to financing surplus or deficit and to under- or over-leverage as they are in the 21st century. The financial data used in this study are those of 54 large prewar listed firms from 1914 to 1929 (hereafter, "prewar firms") and those of firms that belong to the same industries as the prewar firms and listed on the First or Second Sections of the stock exchange from 1999 to 2013 (hereafter, "present-day firms"). To detect the difference in the responsiveness between the prewar and present-day firms, we use the survival analysis following Leary and Roberts (2005) and Shikimi (2014). In our survival analysis, the events are the firms' financing activities and the main covariates proxy for financing surplus or deficit and under- or over-leverage. Following Faulkender et al. (2012), financing surplus is defined as the extent to which a firm's internal funds exceed the amount needed to realize the average investment opportunities of the firm's industry, and financing deficit is defined as the opposite. Under-leverage is defined as the extent to which the firm's estimated optimal leverage (i.e., the ratio of debt to total assets) exceeds its actual leverage, and over-leverage is defined as the opposite, as is customary in the empirical literature on capital structure.

The main results are as follows. First, the prewar firms' equity issuance and loan increase are as responsive to financing deficit as the present-day firms'. Second, the prewar firms issue bonds in response to financing deficit, whereas the present-day firms do not. Third, the prewar firms' equity issuance and loan increase are not as responsive to over- and under-leverage, respectively, as the present-day firms'. Fourth, the prewar firms do not issue bonds in response to under-leverage, whereas the present-day firms do.

These results lead to the following answer to the research question: The prewar firms used the financial system to meet their needs for funds equally or more actively compared with the present-day firms, whereas they did not use it to realize their optimal capital structure as actively as the present-day firms do. The first part of the answer is consistent with the fact documented by Rajan and Zingales (2003) and Hoshi and Kashyap (2001) that the Japanese

financial system was well developed in the early 20th century in terms of the size of capital markets compared with the recent period. The second part of the answer could be viewed differently: The Japanese financial system was not as sophisticated in the prewar period as it is today in terms of allowing firms optimal choices between debt and equity for adjustment of capital structure. We would attribute this to the characteristics of investors, insufficient underwriting capability of banks and securities companies, and instability of the banking system.

This study contributes to two strands of literature. First, it contributes to the literature on financial development and growth by providing new insights, in the context of dynamics of corporate financing, into whether financial systems were well developed enough to promote growth in the early stages of economic growth. Second, it contributes to the empirical literature on the dynamics of corporate capital structure by providing new insights into the question of what differences arise in leverage adjustment from differences in financial systems. Using cross-country data, Antoniou, Guney, and Paudyal (2008) and Öztekin and Flannery (2012) examine what differences arise in the speed of leverage adjustment from differences in the financial systems. Öztekin and Flannery (2012) show that financial systems with institutional features for better access to capital markets and lower information asymmetry and distress costs enhance the speed of leverage adjustment. Rather than using the adjustment speed as the only guiding indicator, our empirical framework based on the survival analysis uses three guides: stock issuance, bond issuance, and loan increase. It could enable a more multifaceted understanding of the effects of the financial system on leverage adjustment.

The remainder of this paper is organized as follows. Section 2 provides institutional background on corporate financing during prewar Japan. Section 3 presents our empirical methods. In Section 4, we describe the sample selection procedure and provide the descriptive statistics. Section 5 presents the empirical results of the study, while Section 6 presents the results of the robustness tests. We summarize our findings in Section 7.

2. Financial System and Corporate Financing in Prewar Japan

In this section, we provide institutional background on corporate financing during prewar Japan in three steps. The first subsection describes institutional development before the prewar sample period and presents the rationale behind commencing the sample period

at 1914. The second subsection reviews the multi-dimensional characteristics of the financial system related to corporate financing during the prewar sample period. These characteristics are the basis of the interpretation of our empirical results. The third subsection presents the rationale behind ending the prewar sample period at 1929.

2.1 Institutional Development before the Prewar Sample Period

The government rigorously pursued the institutional development of the financial system in the Meiji Era (1868-1912). By 1914, the beginning of the prewar sample period, three primary measures of financing—bank loans, equity, and bonds—became available to firms. To see this, we review the institutional development in terms of banking, joint-stock company system, security exchanges, and corporate bonds.

First, with respect to banking, the Bank Ordinance came into effect in 1893, setting the general framework for the prewar banking system. The Bank Ordinance brought minimal regulations to banks concerning approval of incorporation, the submission of business reports and balance sheets, inspections and penalties, and, in that sense, was laissez-faire (Teranishi, 2011). Partly because of minimal regulations, the number of banks drastically increased from 255 at the end of 1889 to a peak of 2,334 in 1901 (Teranishi, 1989). Loan and deposit interest rates were unregulated and were market dominated (Teranishi, 1991).

Second, with respect to the joint-stock company system, Teranishi (2011) documents that the so-called old commercial code promulgated in 1893 stipulated the limited liability of shareholders. Moreover, through the so-called new commercial code promulgated in 1899, it became possible to issue bearer shares and to transfer them without the company's consent. These rules secured investors' incentives for equity investment and established the conditions that were necessary for stocks to be traded on the market.

Third, Okazaki, Hamao, and Hoshi (2005) and Teranishi (2010) describe the evolution of security exchanges as follows. The Tokyo and Osaka Stock Exchanges were established in the same year as the promulgation of the new stock exchange law of 1878. Thereafter, up to 1886, further exchanges were established in Yokohama, Kyoto, Nagoya, and Kobe. The stock exchange law of 1893 defined how the prewar stock exchange market was to operate. A high profit margin was guaranteed because the law defined stock exchanges as local monopoly companies. Moreover, because the government adopted a generous approval policy, many exchanges were established as private ventures. The number of stock exchanges reached a peak of 46 in 1897, and thereafter, the government reversed its policy of permitting

small stock exchanges and this number reduced; from the latter half of the 1900s, it had reduced to about 10. The Tokyo Stock Exchange was Japan's largest stock exchange throughout the prewar period; 96 companies were listed in 1900, which increased to 160 in 1915.

Fourth, Shimura (1969), Hoshi and Kashyap (2001), and Teranishi (2011) document the development of corporate bonds. The first corporate bond was issued in 1890. The revision of the commercial code in 1893 clarified the distinction between equity increase and bond issuance, which had been ambiguous. In 1898, corporate bonds were listed on the Tokyo Stock Exchange, and the underwriting of corporate bonds by banks began. The revision of the commercial code in 1899 allowed the issuance of bearer bonds and abolished the approval of the authorities for bond issuance. These developments facilitated issuance and circulation of corporate bonds was developed, their issuance increased. The majority of corporate bonds were unsecured. In the five-year periods, 1905-1910 and 1910-15, 76 and 109 corporate bond issuances were made, respectively.

As set out above, by the end of the Meiji era (1912), Japanese firms were allowed to use bank loans, equity, and bonds in almost the same manner as today as a result of the institutional development of the financial system. Therefore, it is pertinent to set the beginning of the prewar sample period at 1914.

2.2 Characteristics of the Financial System in the Prewar Sample Period

In this subsection, we review the characteristics of the Japanese financial system during the prewar sample period on various dimensions related to corporate financing.

2.2.1 Capital Structure of Large Firms

The capital structure of large firms is shown in Table 1 (Teranishi, 2006). Panels A and B show the average capital structure of large firms in all industries and manufacturing industries, respectively. The percentages of equity, provisions, bonds, and loans add up to 100% in each row. Fujino and Teranishi (2000) and Teranishi (2006) conjecture that most of the notes payable issued by industrial firms were discounted by banks in the prewar period. Thus, the authors regard the sum of bank loans and notes payable as equivalent to loans today. Based on this notion, the figures in Table 1 were computed from raw data.

For all industries (Panel A), equity accounted for more than half, and bonds accounted for 12-22%in all the periods. By contrast, the percentage of loans ranges from 10% to 15%. The percentage of bonds exceeded loans in all the periods except for 1914-15. Thus, the

capital structure of large firms was largely market-based in that the percentage of equity was high and that firms relied on bonds more than on loans in the use of debt.

For manufacturing industries (Panel B), a somewhat different tendency is observed. In all the periods, the percentage of equity is around 50%, slightly lower than that for all industries. The percentage of bonds ranges from 10% to 18%, which is close to the percentage of loans in 1926-27 and lower than that of loans in the other periods. Thus, the capital structure of large firms in manufacturing industries resembles that of all industries emphasizing on market-based sources of finance (equity and bonds); but the reliance on loans exceeds bonds, distinct from all industries. The percentage of bonds in all industries was higher than that in manufacturing primarily because electricity companies were more reliant on bonds than on loans.

2.2.2 Financing of Large Firms

Table 2 shows the composition of source of funds for large firms (Matsumoto, 1986). The percentage of the sum of outside equity and bonds is lower between 1915 and 1919, but higher during 1920-25 and 1926-30, than that of loans and other measures of financing. This implies that market-based measures of financing were more important for large firms than bank-based measures during the prewar sample period.

2.2.3 Size of the Stock Market and Banking System

Table 3 shows a comparison between the size of the prewar stock market and banking system with that of the recent period. Table 3 shows the 1913, 1929, and 1999 values of four indicators for Japan: the ratio of stock market capitalization against GDP, the share of fixed capital formation made up by equity, the number of listed firms per million people, as well as the ratio of bank deposits to GDP (Rajan and Zingales, 2003). Of these four indicators, the ratio of bank deposits to GDP reflects the importance of the banking system for the entire Japanese economy. The other three reflect the importance of the stock market. The year 1913 corresponds to 1 year prior to the first year of the prewar sample period, 1929 is the final year of the prewar sample period, and 1999 is the first year of the present-day sample period.

For the most part, the three stock market indicators show that the stock market in the prewar sample period had a scale comparable with that of the recent period. By contrast, the ratio of bank deposits to GDP indicates that the scale of the banking system was smaller than it is in the recent period. Market capitalization to GDP was 1.20 in 1929, exceeding 0.95 in 1999. The share of fixed capital formation made up by equity was 0.08 in 1913 and 0.13 in 1929, greater than its 1999 value, 0.08. The number of listed companies per million people

was 16.65 in 1929, close to the 1999 value of 20.00. By contrast, the ratio of bank deposits to GDP was 0.22 in 1929, which is not even half the 1999 value of 0.53.

Okazaki, Hamao and Hoshi (2005) reports the number of listed companies and their types of industry as follows: In 1925, 712 companies were listed on the Tokyo Stock Exchange, an increase of approximately 4.5 times the 160 companies of 1915. As regards industry type, a slight bias can be seen. In 1915 the largest was railway with 32 companies, accounting for approximately 21% of the 151 companies whose industry types are known. By contrast, in 1925, the numbers of companies by type of industry and composition ratio were: 58 railway companies at 8.3%, 44 commerce companies at 6.3%, 37 food manufacturers at 5.3%, and 36 chemical manufacturers at 5.2%. This shows the variety of industries had increased. Note that at the end of 1999, 1,892 companies were listed on the Tokyo Stock Exchange.

2.2.4 Stock Primary Market and Investors

Shimura (1969) and Teranishi (2006) document that, excluding speculators, stock investors were merchants and landlords with large personal assets, and that existing shareholders of a listed firm were akin to a peer group eager to control the firm. Newly established companies issued stock largely through private offerings. The majority instances of stock issuance were performed by face-value placement to existing shareholders; public offerings were rare. Banks and securities companies did not have the ability to underwrite stocks because of a lack of capital, and firms issued stocks by themselves. Stock ownership by institutional investors was limited. Total holdings by banks, insurance companies, and trust companies were 6.0% in 1915 and 9.6% in 1930.

2.2.5 Bond Primary Market and Investors

The Public and Corporate Bond Underwriting Association (1980, "Basic Statistics of Public and Corporate Bonds") and Teranishi (2011, 2012) provides a review of the bond primary market and investors. Based on the institutional development described in Section 2.1, corporate bond issuance increased significantly in the 1920s. Whereas annual corporate bond issuance was in the tens of millions of yen from 1906 to 1917, it reached approximately 142 million yen in 1919 and from there increased almost consistently to reach 1.205 billion yen in 1928.

As the primary market of corporate bonds expanded, public offerings through bank underwriting became the focus. In terms of ownership, financial institution ownership also increased. The total share held by banks, insurance companies, and trust companies was

18.9% in 1915, expanding to 32.1% by 1930. However, the share of non-institutional investors, mainly individuals, remained large: 41.27% in 1915 and 42.54% in 1925. Teranishi (2012) documents that the 1,000-3,000 individuals above the middle class in each prefecture were primarily owners of stocks and corporate bonds.

2.2.6 Banking System

Teranishi (1982, 1989, 1991, 2006) highlights the following with regards to trends in the banking system. The number of banks in 1919 was 2,001. Banks were rapidly weeded out from 1920, and by the end of 1932, this number reduced to 625 banks.

"Organ banks" (Hoshi and Kashyap, 2001) characterize the banking system in this period the most. An organ bank generally refers to a bank owned by shareholders who own a single company or a small corporate group, and it performs prioritized lending to that company or corporate group. Such lending tended to be fixed and excessive. Organ banks made loans generally passively in response to the specific company's or corporate group's demand for funding, rather than based on their own decision making. Therefore, it is doubtful whether organ banks' information production was relevant for the optimal allocation of funds.

The studies by Teranishi referred to above reveal three primary factors that made banks weed out. The first was unregulated interest rates on deposits. During the influx of small-scale banks, unregulated interest rates brought about fierce competition among banks in acquiring deposits. The banks were caught in a vicious cycle, in that, once business began to slide there was no other way to absorb funds with particularly high rates of deposit interest, further worsening their business.

The second factor, as already described, was organ banks. By nature, their assets were not diversified. Therefore, in some cases where managerial performance of an organ bank's specific company or corporate group deteriorated severely in situations like the rebound crisis that began in 1920, the organ bank went bankrupt.

The third factor was "bank consolidation" promoted by the government. This aimed at correcting the instability of the financial system brought by the first and second factors. Specifically, because of the promulgation in March 1927 of a banking law that dictated minimum capital requirements, immediately after a financial crisis, 631 banks that did not meet these requirements were sold off in the 5-year period following January 1928.

2.3 Changes in the Financial System after the Prewar Sample Period

The period where firms were allowed full use of the three financing measures (equity,

bonds, and loans) ran up to 1930, and therefore, it is pertinent to extend the prewar sample period up to 1929. Two restrictions on financing measures that emerged in the 1930s are important. First, Matsuo (1999) documents a restriction on corporate bonds. Frequent defaults on corporate bonds in the 1920s because of the unfavorable macroeconomic and financial conditions gave rise to the "Corporate Bond Cleanup Movement" in 1931. This movement prompted institutional corporate bond underwriters (banks, trust companies, and life insurance companies, etc.) to set collateral and, thus, made corporate bonds hardly available for firms that were unable to provide adequate collateral.

Second, the wartime controls virtually posed a restriction on market-based financing measures. In the latter half of the 1930s, the wartime controls changed the financial system; financing through stocks and corporate bonds gradually diminished and financing through banks became dominant.

3. Empirical Methodology

We organize the empirical methodology of this study into two steps: target leverage estimation and the survival analysis to answer the research question. In the first step, we estimate target leverages using each of the prewar and present-day subsamples by regressing leverage on the standard explanatory variables used in empirical capital structure studies. The predicted values from the leverage regressions are used as target leverages to compute the extent of under- or over-leverage used in the second step. Prior studies (Leary and Roberts, 2005; Flannery and Rangan, 2006, Huang and Ritter, 2009; Faulkender et al., 2012 among others) document firms' adjustments of leverage toward estimated targets. The details of the first step are described in Appendix 1.

In the second step, we define the events to be analyzed based on the four financing activities (i.e., equity issuance, debt issuance, loan increase, and bond issuance) following Leary and Roberts (2005) and Shikimi (2014) and apply the Cox proportional hazards model to examine the difference in the responsiveness of financing activities between the prewar and present-day firms. The details of the second step follow.

In the survival analysis, we estimate the following specification of the Cox proportional hazards model:

$$h(t) = h_0(t) \exp(\boldsymbol{\zeta} Z_{i,t} + \boldsymbol{\eta} X_{i,t-1} + Y_t + W_j), \tag{1}$$

where $h(t)$ is a hazard function and gives the instantaneous probability that the financing event occurs in case it has not occurred up to time t. The value of the probability given by $h(t)$ is called hazard rate. Occurrence of the event is called "failure" in the language of the survival analysis. The financing events are described in Subsection 3.1, and their definitions are in Appendix 2.

$Z_{i,t}$, $X_{i,t-1}$, Y_t, and W_j are called covariates, and $\exp(\zeta Z_{i,t} + \eta X_{i,t-1} + Y_t + W_j)$ represents the entire effect of the covariates on the hazard rate. $Z_{i,t}$ consists of covariates that represent some firm characteristics and macroeconomic conditions. $X_{i,t-1}$ consists of covariates that proxy for the other firm characteristics with one-year lag. Y_t is the year fixed effect. W_j is the fixed effect of industry j. Estimation of the coefficients, ζ and η shows the responsiveness of the financing event to the factors proxied by the covariates in $Z_{i,t}$ and $X_{i,t-1}$, respectively. The covariates of interest and the control covariates are described in Subsections 3.2 and 3.3, respectively. Definitions of the covariates are in Appendix 2. $h_0(t)$ is the baseline hazard and gives the hazard rate as a function only of time in case all the values of the covariates are zero.

Equation (1) means that the effect of each covariate does not change through the passage of time because the term, $\exp(\zeta Z_{i,t} + \eta X_{i,t-1} + Y_t + W_j)$, does not contain any factor representing effects that depend on the passage of time. This is the proportional hazards assumption of the Cox model.

3.1 Events

The events analyzed in this study are defined based on four financing activities: equity issuance, debt issuance, loan increase, and bond issuance. Following the approach developed by Leary and Roberts (2005), Chang and Dasgupta (2009), and Shikimi (2014), we define the events as the four financing activities with scales that are equal to or above the cutoffs, which are defined as percentages of the firm's total assets. For example, an equity issuance event, EQUITY_ISSUANCE_3%, is defined as an increase in the firm's shareholders' funds minus the increase in retained earnings for the fiscal year that is equal to or above 3% of its total assets at the end of the previous fiscal year. Another example is DEBT_ISSUANCE_3%, which is defined as an increase in the firm's debt for the fiscal year that is equal to or above 3% of its total assets at the end of the previous fiscal year, where debt is the sum of bonds and loans. Definitions of the loan increase and bond issuance events are similar.

The frequency of failure of such an event varies depending on the levels of cutoff. For the selection of cutoffs not to be ad hoc and to ensure robustness of the results of the survival analysis, we compute the frequencies of failure of the events defined by various levels of the cutoff and select two cutoffs for each financing activity. We do so in such a way as to avoid excessively high or low frequencies. An event with excessively high frequency might generate unclear results, and an event with excessively low frequency is likely to generate results that could hardly be generalized.

3.2 Covariates of Interest

Our covariates of interest are FINANCING_SURPLUS, UNDER_LEVERAGE, and their cross-terms with PREWAR, a binary variable that equals one for the prewar firms and zero for the present-day firms. These four covariates are designed to detect the difference between the prewar and present-day firms in the responsiveness of financing activities to financing surplus or deficit and over- or under-leverage. They are included in $Z_{i,t}$ and common to all the events.

FINANCING_SURPLUS represents the extent of financing surplus or deficit of the firm and is defined following Faulkender et al. (2012) as follows:

FINANCING_SURPLUS
$\equiv$(EBITDA—taxation—interest paid)/total assets at the end of the previous fiscal year
—industry investment, (2)

where the industry investment is the industry average of INVESTMENT, which is a change in fixed assets for the fiscal year divided by total assets at the end of the previous fiscal year. Thus, a positive value of FINANCING_SURPLUS means that the firm's internal funds exceed the amount needed to capture the average investment opportunities of the industry, and its negative value means that the firm's internal funds fall short of it (financing deficit). The expected sign of FINANCING_SURPLUS is negative for all the financing events because firms are expected to issue equity, debt, or both in response to financing deficit. The cross-term, FINANCING_SURPLUS*PREWAR, represents the difference between the prewar and present-day firms in the responsiveness of the event to financing surplus or deficit.

UNDER_LEVERAGE represents the extent of under- or over-leverage of the firm and is defined as the target leverage at the end of the fiscal year minus the actual leverage

(LEVERAGE, see Appendix 2 for definition) at the end of the previous fiscal year, as is customary in the capital structure literature. The predicted values generated by the first-step leverage regressions are used as the target leverages. A positive value of UNDER_LEVERAGE shows that the firm is under-levered, and its negative value shows that the firm is over-levered. The expected sign of the coefficient of UNDER_LEVERAGE is positive for the debt issuance, loan increase, and bond issuance events because firms are expected to issue debt in response to under-leverage. Conversely, the expected sign is negative for the equity issuance events because firms are expected to issue equity in response to over-leverage. The cross-term UNDER_LEVERAGE*PREWAR represents the difference between the prewar and present-day firms in the responsiveness of the event to under- or over-leverage.

3.3 Control Covariates

To control for (i) firm characteristics other than financing surplus or deficit and over- or under-leverage, and (ii) macroeconomic conditions, we include some covariates in Equation (1). For the debt issuance, loan increase, and bond issuance events, we include LN(TOTAL_ASSETS), LN(AGE), PROFITABILITY, FIXED_ASSETS, and ASSET_ GROWTH in $X_{i,t-1}$ to control for firm characteristics and GDP_GROWTH and PROFIT_GROWTH in $Z_{i,t}$ to control for macroeconomic conditions. In addition, we include the cross-terms of these covariates and PREWAR to control for potential differences in the responsiveness between the prewar and present-day firms.

LN(TOTAL_ASSETS) reflects firm size. If a large part of debt issuance costs are fixed, then these costs are lower for large firms. LN(AGE) reflects information asymmetry between management and outside investors. Older firms may incur lower adverse selection costs in debt issuance because of the lower information asymmetry. A higher level of PROFITABILITY is expected to motivate a firm to use more debt because the expected costs of financial distress are lower. A higher level of FIXED_ASSETS suggests that the firm has more assets for collateral and thus incurs lower debt issuance costs. ASSET_GROWTH proxies for growth opportunities. A firm with abundant growth opportunities may incur higher agency costs to issue debt because it is difficult for outside debt investors to monitor its management.

The covariates to control for macroeconomic conditions, GDP_GROWTH and PROFIT_GROWTH, are necessary because favorable macroeconomic conditions could

enhance the responsiveness of the financing events. This conjecture is based on the findings by Halling, Yu, and Zechner (2015) and Cook and Tang (2010). These studies suggest that favorable macroeconomic conditions accelerate firms' leverage adjustments.

For the equity issuance events, we include LN(TOTAL_ASSETS) and LN(AGE) in $X_{i,t-1}$ to control for firm characteristics and GDP_GROWTH and PROFIT_GROWTH in $Z_{i,t}$ to control for macroeconomic conditions. Again, we include the cross-terms of these covariates and PREWAR to control for potential differences in the responsiveness between the prewar and present-day firms. LN(TOTAL_ASSETS) and LN(AGE) are necessary because they could affect equity issuance costs based on the same rationale, as described regarding these two covariates for debt issuance costs above.

4. Sample Selection and Data

In this section, we describe the sample selection procedure and macroeconomic data and provide the descriptive statistics of our sample. Our sample consists of subsamples of the prewar and present-day firms.

The prewar subsample contains 54 firms. We use two sources of data prepared by a publisher, Toyo Keizai: "A Study on Managerial Performance of Industrial Firms" (hereafter "the Study") published in 1932 and various issues of "Toyo Keizai Company Yearbook" (hereafter "the Yearbook") published almost annually. The Study provides selected financial data and analyses on managerial performance of the 74 representative large firms of the time in seven main industries: food, textiles, paper, chemicals, ceramics, mining, and railways. The Yearbook records detailed financial data and related information of a larger number of firms than the Study. Out of the 74 firms in the Study we exclude 20 electricity companies, as is customary in the capital structure literature, and use the data of the remaining 54 firms.

We collect shareholders' funds, total assets, fixed assets, and earnings data from the Study. Data of bonds, bank loans, and notes payable and dates of incorporation are collected from the Yearbook. We compute loans by summing bank loans and notes payable following Fujino and Teranishi (2000) and Teranishi (2006) (see Subsection 2.2.1). We exclude financial data for the periods during which some of the 54 subsample firms were not listed on the stock exchanges to ensure consistency with the present-day subsample, which contains only listed firms. Whether or not a sample prewar firm was listed was determined by Tokyo Stock Exchange (1928, 1933) and Osaka Stock Exchange (1928).

The prewar sample period spans 16 years from 1914 to 1929. It is consistent with the data collection period of the Study. In this period, firms generally closed accounts biannually. In order to create the dataset combining the prewar and present-day periods, we convert the biannual financial data into annual data by regarding a six-month period that ends from January to June as the first half of the fictitious fiscal year and a six-month period that ends from July to December as its second half.

The present-day subsample consists of firms listed on the main markets of the Japanese stock exchanges and in the same seven industries as the prewar firms. This results in a present-day subsample of 576 firms. For the present-day firms, we collect financial data of from the Corporate Finance Databank prepared by the Development Bank of Japan and dates of incorporation from the Oriana database prepared by Bureau van Dijk. The present-day sample period spans 15 years from 1999 to 2013. It is relevant to begin it at 1999 for the purpose of this study because the Japanese financial system was almost completely deregulated by the Financial System Reform Act, which came into effect in 1998.

The financial figures were adjusted through the prewar and present-day sample periods using the Corporate Price Index (1934–1936 average = 1) published by the Bank of Japan.

The prewar real GDP growth rate was calculated from the coarse domestic production data recorded by Okawa, Takamatsu, and Yamamoto (1974). The profit growth rate of all prewar Japanese firms was calculated by converting the profit data recorded by Emi, Ito, and Eguchi (1988) using the consumer price index (Okawa et al., 1967). The present-day real GDP growth rate was calculated from the gross domestic product data in the Cabinet Office's "Statistical Table (Annual Report on National Accounts)." The growth rate of all Japanese companies in the present-day period was calculated by converting the ordinary profits relating to "Industries other than the finance and insurance industries" in the Ministry of Finances' "Corporate Statistical Survey" using the consumer price index.

Descriptive statistics of the prewar and present-day subsample firms are shown in Table 4. Panels A, B, and C show descriptive statistics of the prewar firms, those of the present-day firms, and the differences in means between them, respectively. The average value of LEVERAGE is 0.235 for the prewar firms and 0.190 for the present-day firms. Although the difference, 0.045, is statistically significant at the 1% level, it is not so large. The standard deviation of LEVERAGE is 0.171 for the prewar firms and is at the same level as that for the present-day firms, 0.167. The distribution of the prewar firms' debt ratios is generally close to that of the present-day firms.

LOAN_RATIO, BOND_RATIO, and SHAREHOLDER_FUNDS_RATIO are the ratios of bonds, loans, and shareholders' funds (the sum of equity and provisions in Table 1) to total assets and 0.137, 0.098, and 0.675, respectively, for the prewar firms. These averages differ from the capital structure figures in Table 1 for two reasons. First, LOAN_RATIO, BOND_RATIO, and SHAREHOLDER_FUNDS_RATIO are the ratios against total assets of the firm and do not add up to 100%, whereas the figures in Table 1 are percentages computed so that they add up to 100%. Second, the seven industries are a part of all industries in Panel A of Table 1 and wider than the manufacturing industries in Panel B of Table 1.

The differences in means in Panel C between the prewar and present-day firms are all statistically significant except PROFIT_GROWTH. Compared with the present-day firms, the prewar firms had a high degree of dependence on bonds, low dependence on loans, and high dependence on equity.

5. Results

The results of the first step of our analysis, target leverage estimation, are presented in Appendix 1. The results of the second step of our analysis follow.

5.1 Financing Events

As noted in Subsection 3.2, we decide the events analyzed in this study by selecting two out of various levels of cutoff (percentage of the firm's total assets) for each of the four financing activities in such a way to avoid excessively high or low frequencies. The frequencies across various levels of cutoff for the four financing activities are shown in Table 5. For example, the first line of Table 5 shows that EQUITY_ISSUANCE_1% occurs in 334 firm-year observations (Column (a)) out of the entire 619 firm-year observations of the prewar firms (Column (c)) and that its frequency is 54.0% (Column (d)).

The results in Table 5 show that the frequency of the prewar firms is higher than that of the present-day firms for all the events. Avoiding excessively high or low frequencies for both the prewar and present-day firms, we select two combinations of the cutoff (as highlighted in Table 5): (i) 3% for the equity issuance, debt issuance, and loan increase events and 1% for the bond issuance event, and (ii) 5% for the equity issuance, debt issuance, and loan increase events and 3% for the bond issuance event. We believe that doing so ensures objectivity in selection of the events and contributes to robustness of the results of the

survival analysis. We call (i) above "low cutoff(s)" and (ii) above "high cutoff(s)." Further, we use the low-cutoff events mainly in the survival analysis and the high-cutoff events for a robustness test. The reason is that the low-cutoff events collectively cover a larger part of the entire financing activities than the high-cutoff events, and thus the results from the low-cutoff events are more generalizable than those from the high-cutoff events.

5.2 Survival Analysis

The results from the estimation of Equation (1) for the low-cutoff events using the Cox proportional hazards model are shown in Table 6. The results for EQUITY_ISSUANCE_3% and DEBT_ISSUANCE_3% are in Panel A, and the results for LOAN_INCREASE_3% and BOND_ISSUANCE_1% are in Panel B. In Panels A and B, Columns (1) and (3) present the results from the entire sample (both the prewar and present-day firms), and Columns (2) and (4) present the results from the prewar subsample. Because the specifications in Columns (1) and (3) of Panels A and B include the cross-terms of the covariates and PREWAR, the coefficients of the covariates other than the cross-terms show the responsiveness of the present-day firms. The industry fixed effect is omitted for brevity.

We review the results for equity and debt issuance in Panel A in Subsection 5.2.1. The results for loan increase and bond issuance in Panel B are reviewed in Subsection 5.2.2, and we summarize the results and discuss the backgrounds in terms of the Japanese prewar financial system in Subsection 5.2.3.

5.2.1 Results for Equity and Debt Issuance

We review the results for the equity and debt issuance events in Panel A of Table 6. In Column (1), the coefficient of FINANCING_SURPLUS for EQUITY_ISSUANCE_3% is not statistically significant. However, it is negative (−2.0849), in line with expectations, and is statistically significant at the 5% level in the untabulated results that we obtain by applying the Cox model for the prewar subsample to the present-day subsample. In Columns (2) through (4), the coefficients of FINANCING_SURPLUS for EQUITY_ISSUANCE_3% and for DEBT_ISSUANCE_3% are negative, in line with expectations, and are statistically significant at the 1% or 5% levels. In Columns (1) and (3), the coefficients of FINANCING_SURPLUS*PREWAR for EQUITY_ISSUANCE_3% and for DEBT_ISSUANCE_3% are not statistically significant. These results suggest that both the prewar and present-day firms issue equity and debt in response to financing deficit and that there is no difference between the responsiveness of the prewar and present-day firms both for equity

issuance and for debt issuance.

In Columns (1) and (2), the coefficients of UNDER_LEVERAGE for EQUITY_
ISSUANCE_3% are negative. In Columns (3) and (4), the coefficients for DEBT_
ISSUANCE_3% are positive. All these coefficients have signs in line with expectations and
Shikimi (2014) and are statistically significant at the 1% level. In Column (1), the coefficient
of UNDER_LEVERAGE*PREWAR for EQUITY_ISSUANCE_3% is positive and
statisitically significant at the 5% level. In Column (3), the coefficient of UNDER_
LEVERAGE*PREWAR for DEBT_ISSUANCE_3% is negative and statisitically significant
at the 1% level. These results suggest that both the prewar and present-day firms issue equity
in response to over-leverage and issue debt in response to under-leverage and that the prewar
firms' equity and debt issuance are not as responsive to over- and under-leverage, respectively,
as the present-day firms'.

5.2.2 Results for Loan Increase

Proceeding to Panel B of Table 6, we review the results for LOAN_INCREASE_3%,
which are similar to those for DEBT_ISSUANCE_3%. In Columns (1) and (2), the
coefficients of FINANCING_SURPLUS are negative, in line with expectations, and are
statistically significant at the 1% level. In Column (1), the coefficient of
FINANCING_SURPLUS*PREWAR is not statistically significant. These results imply that
both the prewar and present-day firms increase loans in response to financing deficit and that
no difference in the responsiveness to financing deficit is observed between the prewar and
present-day firms.

In Columns (1) and (2), the coefficients of UNDER_LEVERAGE are positive, in line
with expectations, and are statistically significant at the 1% level. In Column (1), the
coefficient of UNDER_LEVERAGE*PREWAR is negative and statistically significant at the
1% level. These results imply that both the prewar and present-day firms increase loans in
response to under-leverage and that the prewar firms' loan increase is not as responsive to
under-leverage as the present-day firms'.

5.2.3 Results for Bond Issuance

In Panel B of Table 6, the results for BOND_ISSUANCE_1% are different from those
for DEBT_INCREASE_3% described above. In Column (3), the coefficient of
FINANCING_SURPLUS is not statisitically significant, whereas in Column (4), it is
negative, in line with expectations, and is statistically significant at the 1% level. In Column
(3), the coefficient of FINANCING_SURPLUS*PREWAR is negative and statisitically

significant at the 1% level. These results imply that the prewar firms issue bonds in response to financing deficit, whereas the present-day firms do not.

In Column (3), the coefficient of UNDER_LEVERAGE is positive, in line with expectations, and statistically significant at the 1% level, whereas in Column (4), it is not statistically significant. In Column (3), the coefficient of UNDER_LEVERAGE*PREWAR is negative and statistically significant at the 10% level. These results imply that the present-day firms issue bonds in response to under-leverage, whereas the prewar firms do not.

5.2.4 Summary and Discussion

Focusing on the events of three distinct measures of financing (i.e., equity, bonds, and loans) and excluding the debt issuance event for brevity, the implications from the results of the survival analysis could be summarized as follows:

(i) Response to financing deficit.

 a) The prewar firms issue equity and bonds and increase loans in response to financing deficit.

 b) The present-day firms issue equity and increase loans but do not issue bonds in response to financing deficit.

 c) The prewar firms' equity issuance and loan increase are as responsive as the present-day firms'.

(ii) Response to over- and under-leverage.

 d) The prewar firms issue equity in response to over-leverage. They increase loans but do not issue bonds in response to under-leverage.

 e) The present-day firms issue equity in response to over-leverage. They increase loans and issue bonds in response to under-leverage.

 f) The prewar firms' equity issuance and loan increase are not as responsive to over- and under-leverage, respectively, as the present-day firms'.

The implications above, related to the response to financing deficit, together suggest that the prewar firms used the financial system to meet their needs for funds equally or more actively compared with the present-day firms. This is consistent with the observation documented by Rajan and Zingales (2003) and Hoshi and Kashyap (2001) that the Japanese financial system was well developed in the early 20th century in terms of the size of capital markets compared with the recent period. However, this is not necessarily consistent with the observation documented by the studies above that the size of the prewar banking system was smaller than it is in the recent period because it is implied that the prewar firms' loan increase

is as responsive as the present-day firms' as stated in c) of (i) above.

The implications above, related to the response to over- or under-leverage, together suggest that the prewar firms do not use the financial system to realize their optimal capital structures as actively as the present-day firms. it is conjectured that the Japanese financial system was not as sophisticated in the prewar period as it is today in terms of allowing firms optimal choices between debt and equity for adjustment of capital structure. From the review of the prewar financial system in Subsection 2.2, we point out three unsophisticated aspects that were likely to make such financing choices difficult in terms of investors, security underwriting, and banking system.

First, the majority of both the equity and bond investors were a small number of wealthy individuals. Through the prewar sample period, institutional investors owned less than 10% of listed firms' equity and around or below 30% of corporate bonds. The majority of stock issuance was face-value assignment to existing shareholders. Large public offerings of stock to a wide range of general investors were difficult.

Second, although banks came to underwrite public offerings of corporate bonds, banks and securities companies were unable to underwrite stocks because of a lack of capital. Firms issued stocks by themselves. The insufficient underwriting capability made distributions to a wide range of general investors difficult and thus posed large costs of searching for investors to firms.

Third, the banking system was unstable. Many exits and mergers of banks made stable, long-term relationships between banks and firms difficult. This pushed up information production costs for banks and thus raised the cost of credit for firms.

6. Robustness Test

We perform a robustness test for the survival analysis by applying the same Cox model to the high-cutoff events described in Subsection 5.1. The results from estimating Equation (1) for the high-cutoff (3% for bond issuance and 5% for other financing activities) events using the Cox proportional hazards model are shown in Table 7, which is structured in the same way as Table 6 (the results for the low-cutoff events). Two differences between the results for the high- and low-cutoff events are worth noting.

First, in Column (1) of Panel A, the coefficient of FINANCING_SURPLUS for EQUITY_ISSUANCE_5% is not significant. Moreover, it is not significant in the

untabulated results that we obtain by applying the Cox model to the present-day subsample. This implies that the present-day firms do not issue equity in response to financing deficit. By contrast, as noted in Subsection 5.2.1, the coefficient of FINANCING_SURPLUS for EQUITY_ISSUANCE_3% is negative and statisitically significant at the 5% level in the untabulated results. To confirm the results for the prewar firms in Column (2), the coefficient of FINANCING_SURPLUS for EQUITY_ISSUANCE_5% is negative and statistically significant at the 1% level. This is the same as in Table 6. To summarize, the results in Table 7 imply that the present-day firms do *not* issue equity in response to financing deficit while the prewar firms do, although the results presented in Subsection 5.2.1. imply no difference in the responsiveness between the prewar and present-day firms for equity issuance (see also (i) c) in Subsection 5.2.4). Thus, this discrepancy in the results between the high- and low-cutoff events does not affect the overall implication regarding the response to financing deficit noted in Subsection 5.2.4, that the prewar firms used the financial system to meet their needs for funds equally or more actively compared with the present-day firms.

Second, in Column (3) of Panel B, the coefficient of FINANCING_SURPLUS for BOND_ISSUANCE_3% is *positive* and statisitically significant at the 5% level. This implies that the present-day firms issue bonds in response to financing *surplus*. By contrast, the coefficient of FINANCING_SURPLUS for BOND_ISSUANCE_1% (in Table 6) is not statisitically significant. To summarize, the result in Table 7 suggests that the present-day firms issue bonds in a way that makes reasonable interpretation difficult, whereas the results in Table 6 imply that the present-day firms do not issue bonds in response to financing deficit (see Subsection 5.2.3 and (i) b) in Subsection 5.2.4). Therefore, this discrepancy in the results between the high- and low-cutoff events does not affect the overall implication regarding the response to financing deficit noted in Subsection 5.2.4 and referred to above.

Overall, regardless of these two differences in the results between the high- and low-cutoff events, the overall implication noted in Subsection 5.2.4 holds.

7. Conclusion

The literature on financial development and growth documents the positive association between the development of financial systems and economic growth through the allocation of funds to investment opportunities by financial markets and intermediaries. From a historical perspective, the positive association between financial development and growth

leads to the important question of whether financial systems were well developed enough to promote growth in the early stages of economic growth.

To gain new insights into this issue in terms of dynamics of corporate financing, we investigate whether firms used financial systems (capital markets and financial intermediaries) to meet their needs for funds and to realize their optimal capital structures in the early stages of economic growth as actively as they do today. Specifically, we examine whether large Japanese firms' financing activities—equity issuance, bond issuance, and loan increase—in the prewar period were as responsive to financing surplus or deficit and to under- or over-leverage as they are in the 21st century. The financial data we use are those of 54 large prewar listed firms from 1914 to 1929 and those of listed firms that belong to the same industries as the prewar firms from 1999 to 2013. To detect the difference in the responsiveness between the prewar and present-day firms, we use survival analysis and apply the Cox proportional hazards model.

Our results imply that the prewar firms used the financial system to meet their needs for funds equally or more actively compared with the present-day firms, whereas they did not use it to realize their optimal capital structures as actively as the present-day firms do. Prior studies conclude that the Japanese financial system was well developed in the early 20th century in terms of the size of capital markets compared with the recent period. The implication from our results regarding fulfillment of financing needs are consistent with this. However, another implication from our results regarding realization of optimal capital structure suggests that the Japanese financial system was not as sophisticated in the prewar period in terms of allowing firms optimal choices between debt and equity for adjustments of capital structure as it is today. This could be attributable to the characteristics of investors, insufficient underwriting capability of banks and securities companies, and instability of the banking system in the prewar period.

Appendix 1. Target Leverage Estimation

We estimate target leverage using each of the prewar and present-day subsamples by the following regression:

$$L_{i,t} = \alpha + \beta X_{i,t-1} + \delta_i + Y_t + \varepsilon_{i,t}, \tag{3}$$

where $L_{i,t}$ is the leverage of firm i at the end of the fiscal year t, α is a constant, $X_{i,t-1}$ is a vector of observable characteristics of firm i at (the end of) the fiscal year $t-1$ (lagged by one year as is customary in leverage regressions), δ_i is the firm fixed effect, Y_t is the year fixed effect, and $\varepsilon_{i,t}$ is an error term.

Following prior studies of capital structure, the dependent variable, $L_{i,t}$ (LEVERAGE), is defined as long- and short- term (book) debt divided by total assets.[1] The standard explanatory variables are included in $X_{i,t-1}$, and their definitions are in Appendix 2. We include δ_i, following prior studies that use the fixed effects model (Booth et al., 2001; Lemmon, Roberts, and Zender, 2008; and Frank and Goyal, 2015). Equation (1) is estimated by the least squares dummy variable (LSDV) regression.

Results from the estimation of Equation (3) are shown in Table A1 on the last page. The results are largely in line with capital structure theories and prior empirical work.[2] For the prewar firms, the coefficients of LN(TOTAL_ASSETS), PROFITABILITY, and INDUSTRY_LEVERAGE have signs consistent with theoretical predictions and prior empirical studies and are statistically significant at the 5%, 10%, and 1% levels, respectively. For the present-day firms, the coefficients of LN(TOTAL_ASSETS), PROFITABILITY, and FIXED_ASSETS have signs in line with theoretical predictions and prior empirical studies and are statistically significant at the 1% level.

We use ASSET_GROWTH as a proxy for growth opportunity instead of market-to-book

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[1] See, for example, Flannery and Rangan (2006), Lemmon, Roberts, and Zender (2008), Antoniou, Guney, and Paudyal (2008), Faulkender et al. (2012), Öztekin and Flannery (2012), Warr et al. (2012). Another definition of leverage widely used in the empirical literature is book debt divided by the sum of book debt and market value of equity. It is not practical to use this definition because market value of equity is not readily available for the prewar firms.

[2] For prior empirical work, see Bradley, Jarrell, and Kim (1984), Titman and Wessels (1988), Allen and Mizuno (1989), Rajan and Zingales (1995), Hirota (1999), Fama and French (2002), Flannery and Rangan (2006), Lemmon, Roberts, and Zender (2008), Brav (2009), Frank and Goyal (2009), Elsas and Florysiak (2011), and Goyal, Nova, and Zanetti (2011).

ratio. The latter is conventional but is not readily available for the prewar firms. Contrary to expectation but consistent with prior empirical studies (Brav, 2009; Goyal, Nova, and Zanetti, 2011), the coefficient of ASSET_GROWTH is positive and statistically significant at the 1% level. As Goyal, Nova, and Zanetti (2011) point out, using the lagged growth rate of assets or sales as a proxy for growth opportunity is not relevant because it is not forward-looking.

Overall, the predicted values from the LSDV regression are suitable for generating UNDER_LEVERAGE for the survival analysis.

Appendix 2. Variable and Event Definitions

Panel A: Descriptive Statistics

LEVERAGE	Debt / total assets. Debt is the sum of loans and bonds.
LOAN_RATIO	Loans / total assets
BOND_RATIO	Bonds / total assets
SHAREHOLDER_FUNDS_RATIO	Shareholders' funds / total assets
UNDER_LEVERAGE	Target leverage at the end of the fiscal year minus the actual value of LEVERAGE at the end of the previous fiscal year
FINANCING_SURPLUS	(EBITDA―taxation―interest paid) adjusted by the Corporate Price Index / TOTAL_ASSETS(b) at the end of the previous fiscal year − industry investment, where the industry investment is the industry average of INVESTMENT, which is a change in fixed assets adjusted by the Corporate Price Index for the fiscal year divided by TOTAL_ASSETS(b) at the end of the previous fiscal year.
TOTAL_ASSETS(a)	Book total assets.
TOTAL_ASSETS(b)	Book total assets adjusted by the Corporate Price Index.
AGE	The number of years from the date of incorporation to the end of the fiscal year.
PROFITABILITY	Earnings before depreciation and after interest paid and taxation adjusted by the Corporate Price Index / {(TOTAL_ASSETS(b) + TOTAL_ASSETS(b) at the end of the previous fiscal year)/2}. PROFITABILITY is winsorized 0.5% in each tail for each of the prewar and present-day subsamples to mitigate the impact of outliers.
FIXED_ASSETS	Book fixed assets / TOTAL_ASSETS(a). FIXED_ASSETS is winsorized 0.5% in each tail for each of the prewar and present-day subsamples to mitigate the impact of outliers.
ASSET_GROWTH	(TOTAL_ASSETS(b) − TOTAL_ASSETS(b) of at the end of the previous fiscal year) / TOTAL_ASSETS(b) at the end of the previous fiscal year. ASSET_GROWTH is winsorized 0.5% in each tail for each of the prewar and present-day subsamples to mitigate the impact of outliers.
GDP_GROWTH	Real GDP growth rate per year.
PROFIT_GROWTH	Growth rate per year of the earnings of all the Japanese firms.

Panel B: Financing Events for the Survival Analysis

EQUITY_ISSUANCE_a%	An increase in the firm's shareholders' funds adjusted by the Corporate Price Index minus the increase in retained earnings adjusted by the Corporate Price Index for the fiscal year that is equal to or above a% of TOTAL_ASSETS(b) at the end of the previous fiscal year.
DEBT_ISSUANCE_b%	An increase in the firm's debt adjusted by the Corporate Price Index for the fiscal year that is equal to or above b% of TOTAL_ASSETS(b) at the end of the previous fiscal year, where debt is the sum of bonds and loans.
LOAN_INCREASE_c%	An increase in the firm's loans adjusted by the Corporate Price Index for the fiscal year that is equal to or above c% of TOTAL_ASSETS(b) at the end of the previous fiscal year.
BOND_ISSUANCE_d%	An increase in the firm's bonds adjusted by the Corporate Price Index for the fiscal year that is equal to or above d% of TOTAL_ASSETS(b) at the end of the previous fiscal year.

Panel C: Covariates for the Survival Analysis

Covariates of interest	
FINANCING_SURPLUS	See Panel A.
PREWAR	A binary variable that equals one for the prewar firms and zero for the present-day firms.
UNDER_LEVERAGE	See Panel A.
Control Covariates	
LN(TOTAL_ASSETS)	Natural logarithm of TOTAL_ASSETS(b).
LN(AGE)	Natural logarithm of AGE.
PROFITABILITY	See Panel A.
FIXED_ASSETS	See Panel A.
ASSET_GROWTH	See Panel A.
GDP_GROWTH	See Panel A.
PROFIT_GROWTH	See Panel A.

Panel D: Target Leverage Estimation

Dependent Variable	
LEVERAGE	See Panel A.
Explanatory Variable	
LN(TOTAL_ASSETS)	See Panel C.
LN(AGE)	See Panel C.
PROFITABILITY	See Panel A.
FIXED_ASSETS	See Panel A.
ASSET_GROWTH	See Panel A.
INDUSTRY_LEVERAGE	The mean of LEVERAGE of all the subsample firms in each of the seven industries (food, textiles, paper, chemicals, ceramics, mining, and railways.)

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Table 1

Capital Structure of Large Firms in Prewar Japan

Panel A: All Industries

| Year | Shareholders' funds | | Bonds | Loans | | |
	Equity	Provisions		Bank loans	Notes payable	Total
1914-15	56.7%	16.3%	12.2%	6.3%	8.6%	14.9%
1916-20	55.7%	22.9%	11.7%	2.6%	7.1%	9.7%
1921-25	55.9%	19.1%	13.4%	4.5%	7.1%	11.6%
1926-27	51.6%	13.2%	21.8%	6.1%	7.4%	13.5%
1928-30	51.0%	11.2%	20.9%	6.9%	10.1%	18.0%

Panel B: Manufacturing

| Year | Shareholders' funds | | Bonds | Loans | | |
	Equity	Provisions		Bank loans	Notes payable	Total
1914-15	54.2%	14.7%	10.2%	6.7	14.2	20.9
1916-20	50.2%	24.0%	11.0%	2.5	12.4	14.9
1921-25	48.6%	25.3%	9.7%	4.0	12.4	16.4
1926-27	44.3%	20.3%	17.8%	5.2	12.5	17.7
1928-30	49.8%	15.2%	15.3%	8.9	10.8	19.7

Source: Teranishi (2006)

This table shows the capital structure of large firms in prewar Japan. Panels A and B show the average capital structure of large firms in all industries and manufacturing industries, respectively. The percentages of equity, provisions, bonds, and loans add up to 100% in each row. Fujino and Teranishi (2000) and Teranishi (2006) conjecture that most of the notes payable issued by industrial firms were discounted by banks in the prewar period and, thus, regard the sum of bank loans and notes payable as equivalent to loans today. Based on this notion, the figures in Table 1 were computed from raw data.

Table 2

Financing of Large Firms in Prewar Japan

| Year | Internal funds | Market-based source of funds | | | Loans and other |
		Outside equity	Bonds	Total	
1915-19	29.57	28.36	3.54	31.90%	38.53
1920-25	22.93	46.50	33.62	80.12%	−3.05
1926-30	41.08	20.41	25.49	45.90%	13.02

Source: Matsumoto (1986)

This table shows the composition of source of funds for large firms in prewar Japan. Internal funds, outside equity, bonds, and loans and other add up to 100% in each row.

Table 3

Importance of Stok Market and Banking Systems for the Japanese Economy

	1913	1929	1999
Ratio of stock market capitalization against GDP	0.49	1.20	0.95
Share of fixed capital formation made up by equity	0.08	0.13	0.08
Number of listed firms per million people	7.53	16.65	20.00
Ratio of bank deposits to GDP	0.13	0.22	0.53

Source: Rajan and Zingales (2003)

This table shows a comparison between the size of the prewar stock market and banking system with that of the recent period in Japan. It shows the 1913, 1929, and 1999 values of four indicators for Japan: the ratio of stock market capitalization against GDP, the share of fixed capital formation made up by equity, the number of listed firms per million people, as well as the ratio of bank deposits to GDP. Of these four indicators, the ratio of bank deposits to GDP reflects the importance of the banking system for the entire Japanese economy. The other three reflect the importance of the stock market.

Table 4

Descriptive Statistics

Panel A: Prewar Firms

	No. of obs.	Mean	Median	Std. dev.
LEVERAGE	685	0.235	0.227	0.171
LOAN_RATIO	662	0.137	0.096	0.146
BOND_RATIO	662	0.098	0.029	0.120
SHAREHOLDER_FUNDS_RATIO	681	0.675	0.675	0.161
UNDER_LEVERAGE	570	0.007	0.006	0.069
FINANCING_SURPLUS	634	0.052	0.031	0.172
TOTAL_ASSETS(a) (in thousand yen)	685	35,305	22,708	32,703
TOTAL_ASSETS(b) (in thousand yen)	685	30,209	19,281	28,439
AGE	685	22.3	20.8	11.6
PROFITABILITY	623	0.120	0.098	0.096
FIXED_ASSETS	685	0.619	0.626	0.209
ASSET_GROWTH	627	0.125	0.091	0.247
GDP_GROWTH	673	0.037	0.028	0.045
PROFIT_GROWTH	673	0.092	0.028	0.261

Panel B: Present-day Firms

	No. of obs.	Mean	Median	Std. dev.
LEVERAGE	7,170	0.190	0.158	0.167
LOAN_RATIO	7,173	0.162	0.124	0.155
BOND_RATIO	7,173	0.028	0.000	0.055
SHAREHOLDER_FUNDS_RATIO	7,173	0.511	0.518	0.217
UNDER_LEVERAGE	6,002	−0.003	0.000	0.056
FINANCING_SURPLUS	7,106	0.038	0.041	0.053
TOTAL_ASSETS(a) (in million yen)	7,173	176,351	43,136	478,547
TOTAL_ASSETS(b) (in thousand yen)	7,173	262,309	64,340	711,209
AGE	7,173	66.2	64.0	23.0
PROFITABILITY	6,585	0.048	0.050	0.047
FIXED_ASSETS	7,173	0.554	0.548	0.156
ASSET_GROWTH	6,585	0.008	0.001	0.095
GDP_GROWTH	7,173	0.007	0.011	0.018
PROFIT_GROWTH	7,173	0.094	0.099	0.238

Panel C: Difference in Means (Prewar minus Present-day)

LEVERAGE	0.045 ***
LOAN_RATIO	0.070 ***
BOND_RATIO	−0.026 ***
SHAREHOLDER_FUNDS_RATIO	0.164 ***
UNDER_LEVERAGE	0.010 ***
FINANCING_SURPLUS	0.014 ***
TOTAL_ASSETS(b) (in thousand yen)	−232,101 ***
AGE	−43.9 ***
PROFITABILITY	0.072 ***
FIXED_ASSETS	0.065 ***
ASSET_GROWTH	0.116 ***
GDP_GROWTH	0.030 ***
PROFIT_GROWTH	−0.003

Table 4 presents descriptive statistics for the prewar and present-day subsamples of the Japanese listed firms. The prewar and present-day sample are over the periods from 1914 to 1929 and from 1999 to 2013, respectively. TOTAL_ASSETS(a) and TOTAL_ASSETS(b) are before and after adjustment by the Corporate Price Index developed by the Bank of Japan, respectively. See Appendix 2 for variable definitions. The table reports means, medians, and standard deviations for the key variables used in the analysis of this study. In addition, it reports the differences in means. *** indicates a difference that is significant in a t-test at the 1% level.

Table 5

Frequency of Financing Events

Event	Prewar firms				Present-day firms			
	(a) No. of obs. with failure	(b) No. of obs. without failure	(c)=(a)+(b) Total	(d)=(a)/(c) Frequency of failure	(e) No. of obs. with failure	(f) No. of obs. without failure	(g)=(e)+(f) Total	(h)=(e)/(g) Frequency of failure
EQUITY_ISSUANCE_1%	334	285	619	54.0%	1,222	5,363	6,585	18.6%
EQUITY_ISSUANCE_2%	313	306	619	50.6%	764	5,821	6,585	11.6%
EQUITY_ISSUANCE_3%	**280**	**339**	**619**	**45.2%**	**543**	**6,042**	**6,585**	**8.2%**
EQUITY_ISSUANCE_4%	262	357	619	42.3%	400	6,185	6,585	6.1%
EQUITY_ISSUANCE_5%	**242**	**377**	**619**	**39.1%**	**310**	**6,275**	**6,585**	**4.7%**
EQUITY_ISSUANCE_6%	219	400	619	35.4%	254	6,331	6,585	3.9%
EQUITY_ISSUANCE_7%	194	425	619	31.3%	222	6,363	6,585	3.4%
DEBT_ISSUANCE_1%	304	323	627	48.5%	1,615	4,970	6,585	24.5%
DEBT_ISSUANCE_2%	271	356	627	43.2%	1,297	5,288	6,585	19.7%
DEBT_ISSUANCE_3%	**257**	**370**	**627**	**41.0%**	**1,044**	**5,541**	**6,585**	**15.9%**
DEBT_ISSUANCE_4%	235	392	627	37.5%	836	5,749	6,585	12.7%
DEBT_ISSUANCE_5%	**217**	**410**	**627**	**34.6%**	**694**	**5,891**	**6,585**	**10.5%**
DEBT_ISSUANCE_6%	203	424	627	32.4%	554	6,031	6,585	8.4%
DEBT_ISSUANCE_7%	190	437	627	30.3%	452	6,133	6,585	6.9%
LOAN_INCREASE_1%	252	348	600	42.0%	1,600	4,985	6,585	24.3%
LOAN_INCREASE_2%	220	380	600	36.7%	1,245	5,340	6,585	18.9%
LOAN_INCREASE_3%	**194**	**406**	**600**	**32.3%**	**986**	**5,599**	**6,585**	**15.0%**
LOAN_INCREASE_4%	176	424	600	29.3%	760	5,825	6,585	11.5%
LOAN_INCREASE_5%	**163**	**437**	**600**	**27.2%**	**618**	**5,967**	**6,585**	**9.4%**
LOAN_INCREASE_6%	149	451	600	24.8%	500	6,085	6,585	7.6%
LOAN_INCREASE_7%	139	461	600	23.2%	406	6,179	6,585	6.2%
BOND_ISSUANCE_1%	**140**	**460**	**600**	**23.3%**	**479**	**6,106**	**6,585**	**7.3%**
BOND_ISSUANCE_2%	125	475	600	20.8%	353	6,232	6,585	5.4%
BOND_ISSUANCE_3%	**111**	**489**	**600**	**18.5%**	**267**	**6,318**	**6,585**	**4.1%**
BOND_ISSUANCE_4%	103	497	600	17.2%	196	6,389	6,585	3.0%
BOND_ISSUANCE_5%	96	504	600	16.0%	155	6,430	6,585	2.4%
BOND_ISSUANCE_6%	87	513	600	14.5%	105	6,480	6,585	1.6%
BOND_ISSUANCE_7%	84	516	600	14.0%	84	6,501	6,585	1.3%

This table reports the frequencies of financing events defined by two levels of cutoffs computed using the prewar and present-day subsamples of the Japanese listed firms. The prewar and present-day subsamples are over the period from 1914 to 1929 and from 1999 to 2013, respectively. See Subsection 5.1 for the details of computation. See Appendix 2 for event definitions. The financing events analyzed in this paper using the Cox proportional hazards model are highlighted.

Table 6

Determinants of Low-cutoff Financing Events

Panel A: Equity and Debt Issuance

| | EQUITY_ISSUANCE_3% | | DEBT_ISSUANCE_3% | |
| | Entire sample | Prewar subsample | Entire sample | Prewar subsample |
	(1)	(2)	(3)	(4)
Covariates of interest				
FINANCING_SURPLUS	−1.367	−2.580 ***	−1.378 **	−2.395 ***
	(−1.43)	(−7.31)	(−2.27)	(−5.03)
FINANCING_SURPLUS*PREWAR	−1.569		−0.992	
	(−1.55)		(−1.28)	
UNDER_LEVERAGE	−2.896 ***	−1.772 ***	9.907 ***	4.442 ***
	(−4.15)	(−3.58)	(15.42)	(6.31)
UNDER_LEVERAGE*PREWAR	1.753 **		−5.375 ***	
	(1.96)		(−5.79)	
Control covariates				
LN(TOTAL_ASSETS)	0.040	−0.076 *	−0.044 **	0.049
	(1.18)	(−1.69)	(−2.31)	(0.69)
LN(TOTAL_ASSETS)*PREWAR	−0.103 **		0.086	
	(−2.07)		(1.29)	
LN(AGE)	0.149	−0.074	0.176 ***	0.007
	(1.28)	(−1.05)	(3.26)	(0.09)
LN(AGE)*PREWAR	−0.260 *		−0.175 *	
	(−1.94)		(−1.74)	
PROFITABILITY			1.657 **	2.233 ***
			(2.02)	(2.92)
PROFITABILITY*PREWAR			0.517	
			(0.47)	
FIXED_ASSETS			0.857 ***	0.756
			(3.69)	(1.62)
FIXED_ASSETS*PREWAR			−0.052	
			(−0.10)	
ASSET_GROWTH			0.009	−0.350
			(0.03)	(−1.32)
ASSET_GROWTH*PREWAR			−0.288	
			(−0.79)	
GDP_GROWTH	−4.701	−4.985 ***	−9.130 ***	−3.554 **
	(−1.29)	(−3.30)	(−4.88)	(−2.08)
GDP_GROWTH*PREWAR	−1.6040		5.9053 **	
	(−0.40)		(2.35)	
PROFIT_GROWTH	−0.341	−1.164 ***	−0.522 ***	−1.004 ***
	(−1.26)	(−3.42)	(−2.93)	(−2.79)
PROFIT_GROWTH*PREWAR	0.122		−0.372	
	(0.28)		(−0.93)	
PREWAR	3.531 ***		0.868	
	(4.84)		(1.09)	
Industry fixed effect	Yes	Yes	Yes	Yes
No. of observations	6,568	566	6,568	566
No. of firms	616	52	616	52

Table 6 (Continued)

Panel B: Loan Increase and Bond Issuance

	LOAN_INCREASE_3%		BOND_ISSUANCE_1%	
	Entire sample (1)	Prewar subsample (2)	Entire sample (3)	Prewar subsample (4)
Covariates of interest				
FINANCING_SURPLUS	−2.304 ***	−2.036 ***	1.497	−3.054 ***
	(−3.87)	(−3.51)	(1.30)	(−4.48)
FINANCING_SURPLUS*PREWAR	0.380		−4.357 ***	
	(0.46)		(−3.24)	
UNDER_LEVERAGE	8.869 ***	4.543 ***	4.092 ***	0.781
	(14.45)	(5.30)	(4.64)	(0.64)
UNDER_LEVERAGE*PREWAR	−3.892 ***		−2.702 *	
	(−3.95)		(−1.81)	
Control covariates				
LN(TOTAL_ASSETS)	−0.060 ***	−0.083	0.168 ***	0.159
	(−2.72)	(−1.00)	(4.11)	(1.36)
LN(TOTAL_ASSETS)*PREWAR	−0.010		0.003	
	(−0.12)		(0.02)	
LN(AGE)	0.153 **	−0.153	0.248 ***	0.143
	(2.48)	(−1.51)	(2.86)	(0.85)
LN(AGE)*PREWAR	−0.299 ***		−0.046	
	(−2.61)		(−0.25)	
PROFITABILITY	1.657 **	1.075	−2.756 **	1.624
	(1.96)	(1.18)	(−2.29)	(1.49)
PROFITABILITY*PREWAR	−0.506		4.107 **	
	(−0.41)		(2.55)	
FIXED_ASSETS	1.096 ***	0.447	1.685 ***	1.593 **
	(4.58)	(0.74)	(3.68)	(2.33)
FIXED_ASSETS*PREWAR	−0.705		0.058	
	(−1.18)		(0.07)	
ASSET_GROWTH	0.049	−0.043	0.927 *	0.045
	(0.15)	(−0.14)	(1.84)	(0.16)
ASSET_GROWTH*PREWAR	−0.182		−0.755	
	(−0.45)		(−1.32)	
GDP_GROWTH	−9.682 ***	−4.417 **	−10.008 ***	−1.023
	(−4.89)	(−2.29)	(−3.32)	(−0.39)
GDP_GROWTH*PREWAR	5.216 *		9.965 **	
	(1.88)		(2.47)	
PROFIT_GROWTH	−0.541 ***	−1.173 **	0.682 ***	−0.264
	(−2.91)	(−2.36)	(2.69)	(−0.53)
PROFIT_GROWTH*PREWAR	−0.523		−0.907	
	(−1.06)		(−1.62)	
PREWAR	2.091 **		1.682	
	(2.38)		(1.18)	
Industry fixed effect	Yes	Yes	Yes	Yes
No. of observations	6,568	566	6,568	566
No. of firms	616	52	616	52

Table 6 reports the results of estimating Equation (1) by the Cox proportional hazards model for the financing events defined by the low-cutoffs using the entire sample that consists of the prewar and present-day subsamples and the prewar subsample of large listed Japanese firms from the Study, Yearbook, and Corporate Finance Databank for the periods of 1914-1929 and 1999-2013. See Appendix 2 for event and variable definitions. See Section 3 for the details of estimation. z values computed from standard errors that allow for correlation within a firm are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 7

Determinants of High-cutoff Financing Events

Panel A: Equity and Debt Issuance

	EQUITY_ISSUANCE_5%		DEBT_ISSUANCE_5%	
	Entire sample (1)	Prewar subsample (2)	Entire sample (3)	Prewar subsample (4)
Covariates of interest				
FINANCING_SURPLUS	−0.760	−2.905 ***	−1.798 **	−2.598 ***
	(−0.56)	(−6.97)	(−2.37)	(−4.71)
FINANCING_SURPLUS*PREWAR	−2.283		−0.783	
	(−1.62)		(−0.83)	
UNDER_LEVERAGE	−3.913 ***	−1.507 ***	10.962 ***	4.437 ***
	(−4.78)	(−2.69)	(13.34)	(5.59)
UNDER_LEVERAGE*PREWAR	2.273 **		−6.310 ***	
	(2.32)		(−5.66)	
Control covariates				
LN(TOTAL_ASSETS)	0.013	−0.065	−0.053 **	0.045
	(0.30)	(−1.56)	(−2.19)	(0.53)
LN(TOTAL_ASSETS)*PREWAR	−0.101 *		0.091	
	(−1.70)		(1.14)	
LN(AGE)	0.049	−0.114	0.165 **	0.014
	(0.35)	(−1.46)	(2.31)	(0.13)
LN(AGE)*PREWAR	−0.176		−0.184	
	(−1.11)		(−1.46)	
PROFITABILITY			2.648 **	2.697 ***
			(2.43)	(3.00)
PROFITABILITY*PREWAR			0.273	
			(0.19)	
FIXED_ASSETS			1.132 ***	0.921
			(3.80)	(1.60)
FIXED_ASSETS*PREWAR			−0.137	
			(−0.22)	
ASSET_GROWTH			−0.224	−0.237
			(−0.57)	(−0.80)
ASSET_GROWTH*PREWAR			−0.038	
			(−0.08)	
GDP_GROWTH	−6.828	−7.751 ***	−10.436 ***	−3.390
	(−1.18)	(−5.25)	(−3.99)	(−1.57)
GDP_GROWTH*PREWAR	−2.059		7.736 **	
	(−0.34)		(2.33)	
PROFIT_GROWTH	0.798 **	−0.455	−0.463 **	−0.771 *
	(1.98)	(−1.26)	(−1.96)	(−1.90)
PROFIT_GROWTH*PREWAR	−0.643		−0.320	
	(−1.21)		(−0.68)	
PREWAR	3.683 ***		1.018	
	(4.00)		(1.00)	
Industry fixed effect	Yes	Yes	Yes	Yes
No. of observations	6,568	566	6,568	566
No. of firms	616	52	616	52

Table 7 (Continued)

Panel B: Loan Increase and Bond Issuance

	LOAN_INCREASE_5%		BOND_ISSUANCE_3%	
	Entire sample (1)	Prewar subsample (2)	Entire sample (3)	Prewar subsample (4)
Covariates of interest				
FINANCING_SURPLUS	− 3.042 ***	− 2.626 ***	4.417 **	− 2.172 ***
	(− 4.06)	(− 4.06)	(2.35)	(− 2.61)
FINANCING_SURPLUS*PREWAR	0.530		− 6.540 ***	
	(0.54)		(− 3.19)	
UNDER_LEVERAGE	9.984 ***	4.184 ***	4.889 ***	0.689
	(11.98)	(5.30)	(3.68)	(0.43)
UNDER_LEVERAGE*PREWAR	− 5.181 ***		− 3.240	
	(− 4.69)		(− 1.64)	
Control covariates				
LN(TOTAL_ASSETS)	− 0.111 ***	− 0.016	0.158 ***	0.162
	(− 4.16)	(− 0.15)	(2.79)	(1.09)
LN(TOTAL_ASSETS)*PREWAR	0.091		0.017	
	(0.93)		(0.12)	
LN(AGE)	0.102	− 0.239 **	0.306 **	0.196
	(1.40)	(− 2.26)	(2.27)	(1.06)
LN(AGE)*PREWAR	− 0.334 ***		− 0.068	
	(− 2.64)		(− 0.31)	
PROFITABILITY	2.869 **	1.429	− 4.766 ***	1.194
	(2.52)	(1.24)	(− 3.06)	(0.91)
PROFITABILITY*PREWAR	− 1.214		6.087 ***	
	(− 0.76)		(3.08)	
FIXED_ASSETS	1.366 ***	0.794	1.675 ***	1.019
	(4.29)	(1.08)	(2.77)	(1.18)
FIXED_ASSETS*PREWAR	− 0.634		− 0.582	
	(− 0.90)		(− 0.58)	
ASSET_GROWTH	− 0.103	0.106	1.628 **	0.637 **
	(− 0.25)	(0.30)	(2.49)	(1.96)
ASSET_GROWTH*PREWAR	− 0.063		− 1.015	
	(− 0.13)		(− 1.39)	
GDP_GROWTH	− 10.663 ***	− 4.248 *	− 13.100 **	− 3.547
	(− 3.57)	(− 1.80)	(− 2.51)	(− 1.32)
GDP_GROWTH*PREWAR	7.120 *		11.919 **	
	(1.85)		(2.00)	
PROFIT_GROWTH	− 0.566 **	− 0.921 *	0.716	− 0.404
	(− 2.21)	(− 1.73)	(1.57)	(− 0.75)
PROFIT_GROWTH*PREWAR	− 0.366		− 1.067	
	(− 0.64)		(− 1.49)	
PREWAR	1.341		2.476	
	(1.16)		(1.35)	
Industry fixed effect	Yes	Yes	Yes	Yes
No. of observations	6,568	566	6,568	566
No. of firms	616	52	616	52

Table 7 reports the results of estimating Equation (1) by the Cox proportional hazards model for the financing events defined by the high-cutoffs using the entire sample that consists of the prewar and present-day subsamples and the prewar subsample of large listed Japanese firms from the Study, Yearbook, and Corporate Finance Databank. The prewar and present-day sample periods are 1914-1929 and 1999-2013, respectively. See Appendix 2 for event and variable definitions. See Section 3 for the details of estimation. z values computed from standard errors that allow for correlation within a firm are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table A1

Target Leverage Estimation

	Prewar firms		Present-day firms	
LN(TOTAL_ASSETS)	0.053	**	0.090	***
	(2.02)		(5.01)	
LN(AGE)	−0.028		−0.035	
	(−0.95)		(−1.18)	
PROFITABILITY	−0.132	*	−0.376	***
	(−1.81)		(−7.75)	
FIXED_ASSETS	0.035		0.148	***
	(0.68)		(4.05)	
ASSET_GROWTH	0.053	**	0.019	
	(2.07)		(1.26)	
INDUSTRY_LEVERAGE	0.519	***	0.028	
	(5.48)		(0.21)	
Constant	−0.324		−0.770	***
	(−1.13)		(−3.29)	
Year fixed effect	Yes		Yes	
Adj. R-squared	0.8228		0.8770	
No. of observations	570		6,003	
No. of firms	52		564	

This table presents the results of estimating Equation (3) by the LSDV regression of firms' leverage on the standard explanatory variables using the prewar and present-day subsamples of large listed Japanese firms from the Study, Yearbook, and Corporate Finance Databank. The prewar and present-day sample periods are 1914-1929 and 1999-2013, respectively. See Appendix 1 for the details of estimation. See Appendix 2 for variable definitions. z values computed from standard errors that allow for correlation within a firm are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.