



The Organization of Enterprise in Japan

Tom Nicholas

Working Paper

14-037

August 30, 2014

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Tom Nicholas*
Harvard Business School

August, 2014

Abstract

Recent research reveals that the joint stock corporation was not a superior form of business organization in many countries historically. In Japan, however, it played a more fundamental role. Between 1896 and 1939 joint stock enterprises accounted for 44 percent of registered businesses, and 80 percent of total capital. From 1922 to 1939 joint stock enterprises outperformed limited and unlimited partnerships by ROE, and generated 94 percent of aggregate profits. External finance factors, Japan's development phase, industrial structure, public policy and culture determined high joint stock usage. When the private limited liability company was introduced in 1938, it did not displace the joint stock form.

Keywords: Japan, legal form, enterprise, modernization

* Soldiers Field Road, Boston, MA 02163, USA. Email: tnicholas@hbs.edu. I thank Joan Farre-Mensa, Les Hannah, Naomi Kodama, Ramana Nanda, Nobuyuki Tamai, and Akiko Kanno and Mayuka Yamazaki from Harvard Business School's Japan Research Center in Tokyo for helpful comments and suggestions. The Division of Research and Faculty Development at Harvard Business School provided funding.

I. INTRODUCTION

Traditionally joint stock corporations have been seen as indispensable to rapid economic progress because they foster capital pooling, risk sharing and governance (e.g., Cochran, 1974; Chandler, 1977), but recent research has shown that when alternative forms were available in history, specifically the private limited liability company (PLLC), then the joint-stock form was adopted much less frequently. Guinnane *et al.*, (2007) find that legal provisions introducing the PLLC first emerged in 1892 in Germany with the *Gesellschaft mit beschränkter Haftung* (GmbH), and Britain authorized PLLCs to be established from 1907.¹ Similarly, France's version of the PLLC, the *Société à Responsabilité Limitée*, was adopted widely following its introduction in 1925. When the United States finally provided a systematic framework for the organization of PLLCs in the late twentieth century², Guinnane *et al.*, (2007) argue that small and medium sized business owners were liberated from the restrictions associated with the corporate form.

The recent body of work indicates that the joint stock corporation has been overstated as a handmaiden of economic growth, and it has also substantially refocused the literature on the nuances of laws governing business organizational choices. For example, Lamoreaux and Rosenthal (2005) show that the contracting environment faced by firms in nineteenth century France and the United States was quite similar despite these countries having fundamentally different legal origins. Much of the new work is cross-country comparative in approach, but studies of individual countries are also illuminating. Despite operating under a Civil Code, during the late nineteenth and early twentieth centuries, Spanish entrepreneurs were permitted by commercial law to organize their businesses in innovative ways. Many opted for what became

¹ In Germany in 1907 corporations accounted for just 0.3 percent of firms, while other legal forms of organization such as the commercial partnership or the GmbH employed approximately 88 percent of the labor force. See Guinnane *et al.*, (2007), p. 16.

² Although several states made efforts to introduce PLLCs during the late nineteenth and early twentieth centuries it was not until the 1980s that the PLLC form became fully instituted.

institutionalized as the *Sociedad de Responsabilidad Limitada*, the Spanish version of the PLLC (Guinnane and Martinez Rodriguez, 2012). Flexibility was also present in another country, civil law Brazil, as different layers of the French-based legal system (i.e., protections within corporate charters as opposed to national laws) afforded many safeguards for creditors and investors that were available in common law countries (Musacchio, 2009).

This paper examines the legal and historical context in which firms were organized in Japan from 1896 when the Civil Code was enacted and comprehensive records began to be collected. It poses two questions. First, what type of business organizational form was used most heavily? Second, to what extent were organizational forms associated with performance differences? While Guinnane *et al.*, (2007) and a number of other studies have addressed the first question in specific country contexts, lack of data has precluded progress on the second question. This is an important omission because evaluating the performance of enterprises by their organizational form permits much broader conjectures to be made concerning the relationship between the structure of enterprise and economic progress. For example, Owen (1991) argues that economic growth was constrained in the Russian Empire by especially restrictive corporate laws and bureaucratic regulation, while Kuran (2005) maintains that an aversion to the corporation in Islamic law held back the development of the Ottoman Empire.

Several factors make the study of Japan compelling. First, it adapted basic institutions from the West so it selected and modified the legal frameworks (including those relating to enterprise form) that were considered to provide the best foundation for economic development (Westney, 1987). The Japanese case helps inform our understanding of the extent to which policy makers considered that particular types of enterprise form would function most effectively in that context. Second, Japan underwent a profound economic transformation starting in the Meiji era,

which was underpinned at least partly by the growth of enterprise. Hence, the link between enterprise and economic development is fundamental. Third, at a more pragmatic level from the standpoint of empirical analysis, because the government prioritized growth it kept meticulous statistical records to guide policy. Data compiled by the Japanese government represent one of the most comprehensive collections of information on enterprises for any country historically.

New data were assembled from Japanese governmental reports and consist of a 44 year panel on the organization and performance of enterprise for the 47 prefectures from 1896. The dataset is constructed at the level of legal form, by industry, by prefecture, by year. For the time period 1896 to 1939 the dataset includes the number of enterprises by type of legal organizational structure, and financial variables including the value of authorized and paid-up capital. During the early 1920s the *Division of Statistics of the Ministry of Agriculture and Commerce* started to collect additional data on the net profits and losses of joint stock corporations [*Kabushiki Kaisha*], limited partnerships [*Goushi Kaisha*] and unlimited partnerships [*Goumei Kaisha*]. Performance data were collected from 1922 to 1939 permitting outcomes to be examined at the legal form, by industry, by prefecture, by year level for the universe of registered enterprises.

Beyond Section II, which covers the historical background, the paper has four main parts. Section III documents the data construction effort and provides descriptive evidence on enterprises by type of legal organization over time, across prefectures and industries. Heavy use of the joint stock form stands out. Joint stock companies accounted for the largest share of all registered enterprises, followed by limited partnerships and unlimited partnerships. The share of enterprises by type remained roughly the same across prefectures. The largest share of joint stock firms existed in the transportation sector, a sector relying heavily on external finance. Joint stock

firms were considerably larger on average than limited and unlimited partnerships, accounting for around 80 percent of total capital.

In Section IV, the descriptive evidence is related to the existing literature in order to provide potential explanations for why the joint stock form was used so dominantly. While a range of idiosyncratic factors mattered, main explanations revolve around the following areas: the provision of external finance, development phase and industrial structure, and culture and public policy. Specifically, work by Miwa and Ramseyer (2002) highlights that businesses relied much more heavily on equity in competitive capital markets versus bank-provided debt than is typically supposed. As such, external finance considerations would have biased organizational choices towards the joint stock form. So too would the capital intensity demands of modernization as Japan progressed along the pathway to development. In terms of industry structure the conglomerate form, or *zaibatsu*, is inextricably linked with Japanese enterprise history. After about 1910 most *zaibatsu* began to reorganize from unlimited or limited partnerships to joint stock enterprises under a holding company, which had a positive effect on performance (Okazaki, 2001). Finally, policy makers chose to make the joint stock form widely accessible, while cultural factors meant joint stock corporations had a particularly high prestige status relative to their unlimited or limited partnership counterparts.

The new data are used in Section V to consider the economic significance of enterprises as measured by their financial performance. For the period between 1922 and 1939 joint stock corporations accounted for 94 percent of aggregate profits and panel regressions show they performed better than unlimited and limited partnerships on a return on equity (ROE) basis. Additional specifications attempt to address the possibility that better performing business owners (in ROE terms) may have chosen to adopt the joint stock form, perhaps to attract more

outside capital. While endogeneity concerns cannot be ruled out, linking the descriptive results with existing evidence from the literature helps to isolate potential mechanisms and selection effects. Overall, the analysis shows the particular importance of the joint stock form both extensively and in terms of its relative financial performance.

Finally, it could be argued that the heavy use of the joint stock form may be unsurprising because an intermediate form of enterprise like the PLLC was unavailable. Therefore, additional descriptive data are introduced in Section VI to examine changes in the organization of enterprise following the passage of laws promulgating the *Yugen Kaisha*, Japan's form of PLLC.³ The *Yugen Kaisha* was instituted under the Private Limited Liability Company Law [*Yugen Kaisha Hou*] of 1938 and it came into force in 1940. Exploiting the period after Japan introduced the PLLC means that a fuller menu of organizational forms becomes observable.

Following the legal reform the share of joint stock companies remained roughly the same because the PLLC displaced limited and unlimited partnerships. This finding contrasts with Guinnane *et al.* (2007) who show that in Britain and France legislation promulgating PLLCs led to a relative drop in the formation of joint stock corporations.⁴ In these countries, and in Germany, the PLLC gave owners the flexibility to create structures that balanced tradeoffs associated with issues such as protecting against untimely dissolution and providing concessions to minority shareholders, which negated joint stock ownership. In Japan the tradeoffs between organizing as a joint stock or PLLC appear to have been much less extreme.

Broad explanations covered in Section IV also help to account for the heavy use of the joint stock form for the time period when the PLLC became available. Japan's rapid post-WWII

³ Performance data are not available on a systematic basis after the Second World War.

⁴ In Germany the cost of incorporation was particularly high and therefore the number of corporations was quite small. The GmbH substituted mainly for ordinary partnerships. See further, Guinnane *et al.* (2007), pp. 16-17.

growth created opportunities for joint stock enterprises that were able to access external capital markets (Hoshi and Kashyap, 2004). A growth in stock ownership by banks, and the connection of corporations through cross-shareholding *keiretsu* led to biases in the direction of corporate organization. Cultural norms favoring joint stock enterprise persisted, while imperfect regulatory boundaries did little to separate small closely-held enterprises from large dispersed ownership firms, meaning more limited substitution between the PLLC and the joint stock form. Consequently, attributes of the PLLC appealed mostly to Japanese business owners who had previously chosen to organize as limited and unlimited partnerships.

II. HISTORICAL BACKGROUND

Business enterprise contributed significantly to Japan's remarkable process of modernization, so it is an ideal historical context for examining the link between legal organizational forms and economic development. Economic growth in Japan from the late nineteenth to the mid-twentieth century represented the product of, among other factors, institutional reform, infrastructure investment, technological development and the marginalization of the old feudal system of the Tokugawa era (e.g., Mosk 2001; Morck and Nakamura, 2007; Mitchener and Ohnuki, 2009; Nicholas, 2011). Although growth was faster during the post-WWII era than in the pre-WWII era (Hayashi and Prescott, 2008), the Japanese "economic miracle" of the former years was not independent of the foundations established during the latter years (Kelley and Williamson, 1974). Although agricultural employment remained approximately constant between 1885 and 1940, resources were increasingly deployed in commerce and industry.⁵

In categorizations of countries around the world by their legal origin (e.g., La Porta *et al.*, 2008) Japan is classified as following the German tradition. This makes some sense up to the

⁵ Agricultural employment remained approximately the same at 14 million from 1885 to 1940, but the share fell from over 60 percent to around 40 percent over the same time period (Hayashi and Prescott, 2008, p. 580, p. 596.)

mid-twentieth century⁶ given that Japan replicated elements of most of the five major German codes, and a major reform in 1911 was based on the German *Handelsgesetzbuch*, which had replaced the original 1861 legislation relating to companies in that country.⁷ However, the interpretation of codes by judges, rather than relying on precedent, as in common law countries, had very little effect on the actual governance of enterprises. Hence, legal influence in the Japanese case should be considered as being far more nuanced.

The multitude of influences pertaining to enterprises is revealed in a close inspection of the Commercial Code, which established Japan's system of business organization consisting of joint stock corporations, limited partnerships and unlimited partnerships.⁸ Although the initial 1890 version was developed by a German employed by the Japanese government named Hermann Roesler, a 1911 translation of the 1899 Commercial Code (which replaced an 1893 version) makes implicit references to the use of French Commercial Code. French names are retained to denote the various forms of enterprise even though German-based concepts are used in substantive areas such as defining member liability and liquidation procedures.⁹

The main attributes of each organizational form are given in Table 1. It is well-known that the joint stock form created benefits and costs: it facilitated access to external finance but gave rise to moral hazard through limited liability. The Japanese joint stock form was only distinct in a few minor respects from that used in other countries, including fuller disclosure requirements and an increase in the scope of decisions that needed to be ratified at a general meeting. These efforts were designed to protect minority shareholders (Baum and Takahashi, 2005, p. 376).

⁶ After the Second World War many laws affecting investor protections were of U.S. origin, so the time-invariant coding of Japan's legal system is less defensible.

⁷ Japanese corporate law was also influenced by other countries. Issues related to the liquidation and reorganization of joint stock companies followed English principles. See further, Baum and Takahashi (2005), pp. 376-377.

⁸ Japan also used the joint stock limited partnership (*Kabushiki Goushi Kaisha*) which resembled the German *Kommanditgesellschaft auf Aktien* and a mutual company form (*Sougo Kaisha*). However, neither was common.

⁹ Joint stock, limited partnerships and unlimited partnerships are recorded as: *Kabushiki Kaisha* [*Société anonyme*], *Goushi Kaisha* [*Société en commandite*] and *Goumei Kaisha* [*Société en nom collectif*]. Hang (1911), p. 10.

The organization of enterprise in this way represented a break from the pre-Meiji era, which revolved around merchant houses run by prominent families and the guild system. Japanese policy makers promoted joint stock companies according to the belief that they would facilitate large-scale capital intensive enterprise, which was considered to be a crucial factor for catch-up industrialization. As Eiichi Shibusawa (1840-1931) a prominent Meiji reformer stated: “To make the nation truly prosperous, we must enrich the country; to enrich the country, we must make scientific progress and help commerce and industry thrive; to help commerce and industry thrive, we must establish joint-stock corporate organizations.” (Shimada, 2012, p. 9).

The joint stock form had a profound effect on Japanese business organization. *Zaibatsu* enterprises – large diverse business conglomerates – started as ordinary partnerships but became joint stock corporations. Most took advantage of limited liability for partnerships under the Commercial Code, which mitigated downside risk without requiring family owners to disclose financial statements, but public pressures to disclose, along with governance considerations led many to form as joint stock enterprises. As the economy became increasingly militarized during the 1930s, the influence of the traditional family-owned *zaibatsu* waned, but new *zaibatsu* rose to preeminence especially in heavy industries geared towards the war effort. New *zaibatsu* like Asano and Nissan exploited the joint stock form, performing more favorably in terms of profitability and sales growth than the old *zaibatsu* firms like Mitsui (Frankl, 1999).

However, while much of the existing evidence points to the significance of the joint stock form, lack of data on the universe of enterprises leaves open questions about which organizational form was most critical and especially the comparative performance of enterprise. Notwithstanding *zaibatsu* enterprises controlled about one third of Japan’s capital stock (Frankl, 1999, p. 997) empirical studies relying on these enterprises alone leave two-thirds of the capital

stock unexplored. A major premise of the Guinnane *et al.*, (2007) approach is that small and medium sized businesses should be integrated into analytical frameworks, which can only be achieved with an all-encompassing approach. The remainder of the paper introduces and analyses new data on all registered enterprises in Japan to address fundamental questions with respect to the use and performance of different organizational forms.

III. DATA AND DESCRIPTIVE EVIDENCE

New data were collected from Japanese government reports. Established in 1881, the *Ministry of Agriculture and Commerce* (MAC) collected statistics on agriculture, commerce and industry. When the MAC was divided into the *Ministry of Agriculture and Forestry* and the *Ministry of Commerce and Industry* in 1925, information on companies continued to be collected by the latter. Prefectural authorities were tasked with collecting information, which were collated centrally. Using the *Statistical Report of the Ministry of Agriculture and Commerce* [*Noushoumu Toukei-hyo*] and the *Report on Business Companies* [*Kaisha Toukei-hyo*] a consistent data series on the number of enterprises and capital was established from 1896 to 1939.

The main dataset is a panel covering 47 prefectures from 1896 to 1939, three legal forms (limited and unlimited partnerships and joint stock) and six industries (agriculture, fisheries, commercial, industrial, mining and transport). A unit of observation is at the legal form, by industry, by prefecture, by year, level. Exploiting an expansion of data collection efforts by prefectures and the government, financial statistics for enterprises were also added to the data from 1922. From 1896 figures for capital held by shareholders and owners of partnerships plus reserves are reported, and starting in the 1920s prefectural authorities also compiled data on profits and losses, dividends and debentures “in order to make the statistics more complete and

useful.”¹⁰ Data on profitability become useable from 1922 and are reported both for profitable and loss-making enterprises, which represents a particularly rich source of information.¹¹ To adjust for prices changes, the financial variables are given in 1939 prices using the CPI.¹²

Some advantages and disadvantages of the data are worth emphasizing. First, it is important to note that the data cover the universe of registered enterprises, yet the majority of Japanese enterprises were sole proprietorships and traditional *kumiai* (analogous to Anglo-Saxon partnerships or German *stille Gesellschaften*) that did not have to register (they were regulated by Civil Code provisions) and had no separate legal personality. As such, the entrepreneurial foundations of Japanese enterprise formation cannot be fully explored.¹³ Second, the financial data are not aggregated by business group and therefore the analysis cannot capture the performance of each *zaibatsu*. In other words, the panel tracks the performance of the average “representative” registered enterprise by legal form. Third, changes in enterprise form at the firm-level are not observed. This precludes estimation by firm fixed effects, thereby ruling out controls for omitted variables related to business owners choosing legal forms for reasons, such as unobservable investment requirements, that were constant over time but variable across enterprises. By using a higher level of aggregation as a unit of analysis, the approach trades off some level of identification in order to achieve universal coverage of registered enterprises.

Main Trends

Beginning with the raw data, Figure 1 shows trends in the number of registered enterprises. The kink in the series during the early 1920s is caused by two factors. First, data for the pre-1921

¹⁰ Keikichi Hirata, Chief Statistician, preface to 1921 *Report on Business Companies* [*Kaisha Toukei-hyo*].

¹¹ Financial data covering profits are first reported in 1921, but this appears to be an outlying year in terms of the quality of the data. Hence, all the estimates start from 1922.

¹² Lawrence H. Officer and Samuel H. Williamson, “What was the GDP, CPI, Wage or Population of Japan Then?” *Measuring Worth*, 2013.

¹³ Several authors emphasize the entrepreneurial foundations underpinning Japanese economic development. See further Hirschmeier (1964) and Fukuyama (1996), p. 164).

period slightly overstates the number of enterprises and thus the growth rate because these years include enterprises in suspension of business. Data from 1921 onwards do not include suspensions. Second, the Great Earthquake of 1923 caused data for certain areas of Tokyo and Kanagawa prefectures to be destroyed. A fall in the number of enterprises during the late 1930s coincides with the Sino-Japanese War (1937-1945). As Nakamura (2003, p. 55) puts it: “the direct and indirect effects of the war on Japan’s economy were profound, undermining the foundations of the national, business and household economies.”

A clear trend to emerge from Figure 1 is the rapid development of business enterprise over time. Approximately 5,000 enterprises were registered in 1896, but by 1939 there were over 88,000, representing an annual average growth rate of 7 percent. Although Japan was starting from a low base given its early stage of development, and according to metrics like the number of corporations per capita or corporate share capital (at market or book) as a percentage of GDP, Japan was considerably behind the leading industrial countries (Hannah, 2013), the growth rate is systematically pronounced across the Meiji, Taisho and early Showa eras.

Figure 2 highlights the changing organizational structure of Japanese business over time. For the period as a whole joint stock companies accounted for the largest share of all enterprises (44 percent) followed by limited partnerships (around 40 percent) and unlimited partnerships (around 16 percent). Over time, the share of joint stock firms reached a peak during the early 1920s before falling to a low point during the mid-1930s and rebounding by the end of the time period. In 1939 joint stock firms accounted for around 40 percent of registered enterprises.

At the prefecture-level, Figure 3 shows the share of enterprises by legal form remained approximately the same, with the only outlier being Okinawa which, with its capital intensive sugar industry, had relatively more joint stock firms than the average. Kanto and Kinki, and to a

lesser extent Chibu (a region in-between Kanto, including large cities like Tokyo and Yokohama, and Kinki, where the cities of Kyoto, Osaka, and Kobe are located), remained dominant areas accounting for almost three quarters of enterprises between 1896 and 1939.

Figure 4 breaks down the data by industry. All the major sectors covered by the data (fisheries and mining are excluded because the number of observations is too small to generate annual shares) exhibit similar approximate time series changes. In terms of levels, the transportation sector stands out with the highest proportion of joint stock firms. According to Figure 5 joint stock companies accounted for around four-fifths of total capital, which remained roughly constant throughout the time period. Data on financial performance become useable from 1922. Figure 6 shows that joint stock firms accounted for 94 percent of the aggregate profits between 1922 and 1939. When taken together, the evidence clearly indicates that that joint stock enterprise was significant numerically, in terms of capital intensity and profits.

IV. EXPLANATIONS FOR THE ADOPTION OF THE JOINT STOCK FORM

Three broad explanations are particularly useful for understanding the prevalence of the joint stock form. First, the main argument advanced for organizing as a joint stock enterprise is that it facilitates access to external finance through the issuance of shares in public equity markets. In Japan during the late nineteenth and early twentieth centuries, joint stock formation for reasons related to corporate financing was especially important. Despite the development of a well-functioning banking sector during the Meiji era (Mitchener and Ohnuki, 2009), firms relied heavily on public equity capital rather than bank debt for long term financing.

The principal evidence for this explanation derives from research by Miwa and Ramseyer. They reject the Gerschenkron-based argument that bank intermediation was critical to the provision of long term capital in Japan. Firms sold equity, issued bonds or funded investment

projects through retained earnings, with bank debt being a source of capital mostly for operating expenses. Flow of funds data reveals a mean ratio of bank debt to gross assets of between 2 and 8 percent between 1919 and 1941, whereas firm-level data for cotton spinning, railroad and electrical utility firms indicates a heavy reliance on stock and bond issues.

A precocious organization of stock exchanges facilitated this form of financing. Japan had two stock exchanges in 1878 (Tokyo and Osaka), as many as 46 by the turn of the century as a result of relaxed regulations, and following a rationalization phase, around 10 for the remainder of the prewar era (Hameo *et al.*, 2009, p. 57). Rajan and Zingales' (2003, Table 3) figures highlight that Japan had a higher ratio of stock market capitalization to GDP than Germany or the United States for all the prewar benchmark years of 1913, 1929 and 1938. In fact, Japan ranks highest by the Rajan-Zingales metric by some margin for all countries in 1938.

A second reason for the prevalence of the joint stock form relates to Japan's early stage of development and its industry structure. According to Guinnane *et al.*, (2007, p. 3) "the corporate form was important for enterprises such as railroads that had to raise enormous sums of capital on the market." In 1896 four out of the five largest joint stock companies in transport in Japan were railroad concerns¹⁴ and they collectively held ¥85.3 million in assets compared to the five largest joint stock companies in manufacturing (cotton or flax spinning concerns) which held ¥10.9 million in assets (Wray, 1984, p. 281).¹⁵ The development of transportation infrastructure, which required state intervention and external financing, played a key role in facilitating urban growth during the process of Japanese economic modernization (Mosk, 2001). Furthermore, joint stock appears to have been associated with effective governance in Japan's nascent industries.

¹⁴ The exception in transport was NYK Line [*Nippon Yusen Kaisha*] a shipping firm, which ranked as the second largest firm by asset size behind the Japan Railway Company.

¹⁵ These amounts in today's U.S. dollars are approximately \$3 billion and \$390 million respectively.

For example, most enterprises in the cotton industry were joint stock concerns so enterprises could grow, and be managed, beyond the boundaries of the family (Braguinsky *et al.*, 2014).

Even *zaibatsu* enterprises ultimately became joint stock corporations. Access to external capital was not a dominant reason for the switch since the *zaibatsu* relied heavily on family finance. Rather public pressures for increased disclosure and changes in governance structures played important roles. Mitsui, a major *zaibatsu* that can be traced back to the early seventeenth century, expanded from banking into mining, trade, and manufacturing and was the first *zaibatsu* to alter its organizational form. In 1909 Mitsui transformed its four main constituent enterprises into joint stock companies, which were held by family members using a limited partnership. This partnership became a joint stock corporation in 1937 (Morikawa, 1992, p. 184).¹⁶

A third reason can be broadly categorized as public policy and culture. Beyond the efforts of the Meiji reformers to promote joint stock organization, legislative changes had an important effect on enterprise legal form. A law in 1905 doubled the taxes on partnerships, and it also imposed taxes on retained earnings in mostly family-owned enterprises to fund the Russo-Japanese War. Joint stock companies were exempt from the tax increases. Furthermore, Fruin, (1992, p. 76) writes: “especially after the 1920 revision in which taxes were levied on dividends and bonuses paid to individuals, family-controlled firms adopted the joint stock form of ownership as a means of reducing taxes.”

The joint stock form was ascribed a high level of prestige by Japanese business owners within the menu of enterprise choices, which meant that they were willing to subsume the additional administrative costs and complexities associated with forming a corporation (Matsui, 2008, p. 112). As an illustration of this factor, consider Figure 7, which uses snapshot data from

¹⁶ Mitsui complied with the Commercial Code by having non-family shareholders and directors, but the stock was still mostly family-owned.

the 1921 *Report on Business Companies* [*Kaisha Toukei-hyo*] breaking down the level of enterprise capital into size thresholds. Medium and large-sized enterprises tended to be disproportionately organized using the joint stock legal form, but a surprising share of joint stock enterprises possessed capital of less than ¥50,000 (approximately \$500,000 in today's U.S. dollars). This is consistent with Hannah's (2014b, pp. 9-10) extrapolations using Rajan and Zingales' (2003) data and other sources, showing that the average size of Japanese listed companies was particularly small.

V. RETURN ON EQUITY SPECIFICATIONS AND RESULTS

Measuring Performance

Was Japan better off for the preponderance of its joint stock enterprises? While the relationship between equity returns and economic growth is complex (Ritter, 2005)¹⁷, metrics for measuring the comparative performance of enterprises are illuminating, especially given that performance measures are absent from most historical studies of law and enterprise form. ROE makes the most sense as a performance measure in this case given the rich data provided in the governmental reports on the capital held in enterprises and net profits. Although joint stock firms were larger than partnerships and generated more profits, it does not necessarily follow that they were more efficient in the use of capital. Several studies have shown that private firms have higher ROE than public ones (e.g., Faccio *et al.*, 2012) or that firms experience a decline in profitability once they undergo an IPO (e.g., Loughran and Ritter, 1997). Numerous scholars have identified an inverse correlation between firm size and equity returns (e.g., Banz, 1981) and equity capitalization is a priced factor in the asset pricing model of Fama and French (1995).

¹⁷ Ritter (2005) finds a negative relationship (cross-sectional correlation of -0.37) between cross-country real stock returns and per capita GDP growth between 1900 and 2002.

Table 2 reports descriptive statistics on the financial variables of interest and basic difference in means tests. These show that the level of capital and net profits were significantly higher in joint stock firms compared to both limited and unlimited partnerships. Variables inputted directly from the data volumes can be used to construct ROE estimates, which are calculated using the formula below, where f denotes type of organizational form, i industry, p prefecture and t denotes year. Table 2 shows that joint stock firms generated an average ROE of approximately 3.6 percent per annum between 1922 and 1939 compared to -0.69 percent for limited partnerships and 0.53 percent for unlimited partnerships. These are estimates for the universe of enterprises in Japan. For benchmarking purposes Okazaki (2001, p. 255) reports an average ROE of 8.9 percent per annum for 135 major firms active in Japan between 1922 and 1936.

$$\text{ROE}_{fipit} = \left[\frac{\text{net profit}}{\text{capital}} \right]_{fipit} \quad t = 1922 \dots 1939 \quad (1)$$

In a multivariate context the data can be used to specify an ROE estimating equation in the following form to examine the relationship between enterprise form and performance:

$$\text{ROE}_{fipit} = \alpha_1 \text{LP}_{fipit} + \alpha_2 \text{UP}_{fipit} + \beta_1 \text{LEV}_{fipit} + \beta_2 \log(\text{CAP})_{fipit} + \gamma_i + \gamma_p + \gamma_t + \varepsilon_{fipit} \quad (2)$$

ROE is the performance measure and the main parameters are α_1 and α_2 for two dummy variables, which measure ROE for limited partnerships (LP) and unlimited partnerships (UP) relative to the baseline excluded category of joint stock companies. To control for the impact of leverage on returns (i.e., the possibility that higher ROE may be driven by the greater use of debt financing) and differences in size, LEV measures the average ratio of debenture debt to capital and CAP measures the average capital of enterprises. With variation in ROE for each

organizational form by industry, prefecture and year, γ_i , γ_p and γ_t represent fixed effects to control for unobservable sector-specific, spatial or macroeconomic shocks respectively.

An obvious issue with this econometric approach is selection. Rather than being randomly determined, organizational form is a choice on the part of business owners and assuming a hierarchy of forms, then successful business owners may have simply selected to organize as a joint stock corporation. According to the explanations outlined above for the adoption of the joint stock form, business owners may have chosen this structure to access external finance and achieve higher growth rates, especially in capital intensive industries, or because of development stage and industry structure, or public policy and cultural factors, or a simultaneous mixture of all of these factors. Given the life cycle of firms, it is plausible that limited and unlimited partnerships accounted for the majority of early stage enterprises and would therefore exhibit a greater degree of entrepreneurial “churn” through successes and failures (Haltiwanger, 2012). If these categories reflect the main margin of adjustment, the effect would be to depress average ROE for limited and unlimited partnerships relative to the joint stock category.

Although ultimately the parameter estimates from (2) cannot be interpreted as causal, some progress can be made in addressing these and other potentially confounding issues. As robustness checks, separate regressions are run to test for spatial differences by excluding the main industrial areas of Kanto and Kinki and for major time period differences given that the Japanese economy became ever more militarized during the 1930s, and enterprises may have a performed differently in a market-based economy with free entry and exit of the entrepreneurial labor supply as opposed to in an increasingly autarkic context. Using a specification with interactions between LP and UP dummies and sector-specific variables, ROE estimates are also provided by type of enterprise organization for each industry relative to the joint stock form.

Furthermore, because the data volumes separately record net profits for both profitable and unprofitable enterprises it is possible to analyze the extent to which ROE differences are being driven by successful or unsuccessful business owners; that is, whether better entrepreneurs who generated higher ROE may have selected in to the joint stock form. Finally, following research in the finance literature, (e.g., Asker *et al.*, 2013), matching methods are used. Figure 8 illustrates large differences by organizational form with respect to the distribution of capital, suggesting that organizational form and performance may simply reflect fundamental variation between different types of businesses. Matching is not a remedy for endogeneity concerns or omitted variable bias, but it can be used to usefully examine ROE by enterprise type within overlapping areas of these capital distributions.

Baseline Estimates and Robustness Checks

Table 3 reports OLS estimates from equation (2). Columns 1 to 4 sequentially add the prefecture, industry and year fixed effects and columns 5 to 8 follow the same strategy while also including controls for leverage and capital. Column 9 presents the estimates excluding prefectures in the regions of Kanto and Kinki, which represent the largest concentrations of enterprises, and columns 10 and 11 partition the data according to time periods when the Japanese economy was less and more exposed to militarization.¹⁸ The dependent variable, ROE, is measured in percentage points. Standard errors account for the clustering of observations within prefectures. Given missing observations in the data volumes for some of the variables, the regressions are estimated symmetrically across specifications with 9,624 cells.¹⁹

¹⁸ Two main periods are used, 1922 to 1932 and 1933 to 1939. In 1932 Inukai Tsuyoshi, the Prime Minister of Japan was assassinated. This represents a demarcation point to identify the strengthening of militarism.

¹⁹ Because a unit of observation is at the level of legal form (3 types), by prefecture (47) by sector (6), and the panel covers 18 years (1922 to 1939) a balanced panel would give 15,228 observations. However, some enterprise forms

Estimates in columns 1 to 4 reveal large negative and statistically significant effects on the category dummy variables for both limited and unlimited partnerships. At the legal form, by industry, by prefecture, by year level the ROE of limited partnerships was between 4.5 and 5 percentage points lower than that of joint stock enterprises, the baseline category. The ROE of unlimited partnerships was between 3.4 and 4.4 percentage points lower. Both estimates are large compared to the ROE sample mean of 1.2 percent. The estimates are reasonably stable across columns 1 to 4 with the addition of the year, industry and prefecture fixed effects.

In columns 5 and 6 the parameters on the dummy variables become statistically insignificant with the addition of controls for leverage and capital. Leverage enters positively and significantly, implying that enterprises with greater leverage had higher ROE, which may stem from the fact that if business owners can borrow capital at less than the marginal rate it can be earned within the enterprise, then ROE should be mechanically higher. More surprisingly, the coefficient on the logarithm of capital is positive, implying that larger enterprises had higher ROE, all else being equal. This contrasts with the negative relationship between market performance and size found in the finance literature (e.g., Fama and French, 1995). Potential explanations would be larger Japanese enterprises being able to benefit from scale and scope economies (Chandler *et al.*, 1997), or that size correlates with unobserved managerial ability.

While the coefficients on the limited and unlimited partnership dummy variables are statistically insignificant in columns 5 and 6, they become statistically significant in columns 7 and 8 with the introduction of industry and prefecture fixed effects respectively. These estimates indicate that limited and unlimited partnerships underperformed joint stock enterprises by approximately 2 percentage points. The coefficients on the leverage and capital variables remain

did not exist at this level, or data are missing in the government reports. The maximum number of observations for any one variable in the dataset is 12,592, and for all the variables included in the ROE specifications it is 9,624.

economically large and statistically significant. In column 9 the exclusion of prefectures in Kanto and Kinki leads to slightly larger differences in ROE between limited and unlimited partnerships and joint stock enterprises, whereas the effects of leverage and capital on ROE are smaller. Columns 10 and 11 show that the largest performance differences between enterprises are observed in a free market setting between 1922 and 1932, although average ROE (the mean of the dependent variable) was much higher between 1933 and 1939 in an environment where rising government spending and low interest rates may have promoted investment and business expansion.²⁰ Overall, the baseline results and additional checks indicate that limited and unlimited partnerships underperformed in ROE terms relative to their joint stock counterparts.

To explore sector specific variation in ROE performance, Figure 9 plots point estimates and 95 percent confidence intervals from specifications where the dummy variables LP and UP are interacted with dummy variables for each sector. Joint stock enterprises act as the baseline category. Most of the sector-specific point estimates are negative, although perhaps surprisingly the confidence intervals overlap with zero in the transport sector where the joint stock form may have been expected to have advantages as a conduit to external finance.²¹ The point estimates for fisheries and mining are negative, but the confidence intervals are large because the number of observations in these industries is somewhat smaller. In the industrial sector the relative ROE estimates for limited partnerships and unlimited partnerships are negative and statistically significant at the 5 percent level. The most precise, statistically significant negative ROE effect

²⁰ Following the initial boom caused by the First World War, Japan underwent a decade of relative stagnation. It escaped most of the negative effects of the Great Depression. In his study of firm profitability in prewar Japan Okazaki (2001, p. 258) argues that the superior performance of *zaibatsu* enterprises may have been at least partly driven by privileged access to resources as a consequence of close ties to the government.

²¹ A more detailed industry classification system would permit heterogeneity within the broad industry categories to be explored. However, while these data are available from the government reports (there are break downs by approximately 45 sub-industries and 106 sub-sub-industries), at these more granular levels the number of missing observations increases substantially, as does the cost of data collection. These reasons meant constructing the dataset at the level of the legal form, by main industry, by prefecture, by year.

for limited and unlimited partnerships is estimated in the commercial sector, which includes activities such as banking, insurance and services. The commercial sector accounts for approximately 53 percent of enterprises in the dataset between 1896 and 1939 and approximately 52 percent of enterprises between 1922 and 1939 when ROE calculations can be made. As a further robustness check, the specification in column 8, Table 3 was re-estimated without the commercial sector. The parameters on the limited partnership and unlimited partnership dummies are -1.79 (s.e. 0.84) and -1.62 (s.e. 0.86) respectively.

ROE for Profitable and Unprofitable Enterprises and Matching

Tables 4A and 4B provide results that attempt to decompose the ROE outcome variable into components that can be attributable to profitable and unprofitable enterprises. The aim is to explore potential mechanisms that may be driving the baseline results. For each observation cell profits are recorded in the data volumes for successful (i.e., positive net profit) and unsuccessful (i.e., negative net profit) enterprises. Tables 4A and 4B report estimates from regressions where the dependent variable, ROE, is calculated using profits for each group of enterprises separately. Because of this decomposition, the coefficients on the limited and unlimited partnership dummy variables in Tables 4A and 4B sum to equal the coefficients in Table 3.

The first four columns of Tables 4A and 4B show that profitable and unprofitable enterprises account for approximately equivalent contributions to the generation of the results in Table 3. For example, the coefficient on the limited partnership dummy in Table 4A, column 1 is -2.18 when only the net profits of profitable enterprises are included in the calculation of the numerator of equation (1) and -2.30 in Table 4B, column 1 when only the net losses of unprofitable enterprises are included. These estimates sum to the coefficient of -4.48 in Table 3 column 1. However, introducing controls for leverage, capital and fixed effects reveals key

differences across the specifications. In columns 5 to 11 of Table 4A the coefficients are mostly large, negative and statistically significant, whereas they are small and almost always fail to clear thresholds for statistical significance in Table 4B. This implies that the differences in ROE by organizational form in Table 3 are being driven largely by the differences present in profitable enterprises. These results would be consistent with superior entrepreneurs selecting joint stock status, or joint stock status facilitating ROE gains. Loss making enterprises are statistically indistinguishable from one another by ROE across the different organizational forms.

Finally, Table 5 introduces matching estimates in order to test the robustness of the baseline results contained in Table 3 against confounds due to the implicit weighting of observations in the OLS linear framework. Whereas the baseline OLS estimates assume that the groups of enterprises by organizational form are balanced in their observable characteristics, matching relaxes that particular assumption so that only closely comparable observations determine the calculation of the relative ROE difference. Given variation in the distribution of capital in Figure 8, and the fact that capital has a large and statistically significant effect on ROE in Table 3, matching on observables has some advantages from the standpoint of inference.

Using the full set of variables in column 8 of Table 3 a propensity score was used to estimate assignment probabilities into the categories of enterprises by their legal form. The ROE outcome was then estimated by comparing limited partnerships with joint stock corporations and by comparing unlimited partnerships with joint stock corporations. The first row in each set of results provides a nearest-neighbor match where all observations in the data are included to generate the estimates. The second row uses caliper nearest-neighbor matching since some of the initial matches may have substantially different propensity scores. Calipers were set at a width of

0.2 times the standard deviation of the propensity scores (Austin, 2011). The final column reports a test to check the matching estimates statistically balance enterprises by size.

In the first row of Table 4 it can be seen that the mean difference between limited partnerships and joint stock enterprises is large, with a difference of -4.5 percentage points. However, the covariate balance test rejects the null hypothesis that the two groups of enterprises are closely matched according to their capital. Caliper matching in the second row of Table 4 provides more favorable balancing properties, establishing a mean difference of -1.3 percentage points in the ROE of limited partnerships compared to observationally similar joint stock enterprises. Although caliper matching leads to a substantial drop off in the number of matching pairs, reassuringly the matching estimates in Table 4 of -1.3 to -4.5 percentage points bound the baseline estimate of around -2.0 percentage points in column 8 of Table 3.

The third and fourth rows of Table 4 follow the same approach for comparing the mean ROE of unlimited partnerships with joint stock enterprises. The mean differences are large and negative, as in in column 8 of Table 3, although the covariate balance test fails to reject the null hypothesis of observational overlap in terms of capital. A variety of mechanisms can explain ROE variation, including correlations between the size of enterprises, the selection of organizational form and performance, or superior ROE enabling a change in form over the life cycle of businesses. Although the specific causal mechanisms cannot be identified, the results nevertheless reveal a robust positive relationship between joint stock enterprises and ROE.

VI. INTRODUCTION OF THE *YUGEN KAISHA*, (JAPAN'S PLLC)

So far the analysis has shown that the joint stock form was heavily used in Japan during the late nineteenth and early twentieth centuries, and that it was associated with superior performance. Yet, both factors could be explained by an intermediate form of organization being

unavailable. Some business owners may have been constrained optimizers and have chosen the PLLC over limited and unlimited partnerships, or the joint stock form, had it been available, as it was in other countries such as Britain, Germany and France. One way of addressing this issue is to examine what happened to organizational choices once the PLLC was introduced.

The *Yugen Kaisha*, which is often considered to be Japan's version of the PLLC, was brought about by a 1938 reform, which came into effect in 1940. While much of the more general reforms at this time were based on the 1937 German *Aktiengesetz*, or stock corporation law, the intuition behind the *Yugen Kaisha* followed that of the German GmbH from 1892, although (as described in more detail below) the precise structure of these respective legal forms differed in fundamental ways. Given the close historical correspondence between Japanese and German laws it is perhaps surprising that policy makers did not introduce the *Yugen Kaisha* earlier.

On the other hand, to the extent that Japanese policy makers designed the Commercial Code as an “eclectic body of law embodying the best principles of the commercial laws of all other civilized nations”²² it could be argued that the introduction of the *Yugen Kaisha* almost half a century after it first appeared in Germany was a reflection of the suitability of existing forms. In other words, it is possible there was no demand for a structure that in the language of Guinnane *et al.*, (2007, p. 2), “combined the advantages of legal personhood and joint stock with a flexible internal organizational structure.” Shimizu (2012) argues, for example, that flexible governance could be achieved by business owners under the existing *Goushi Kaisha*, and that the principal contribution of the *Yugen Kaisha* was only to extend the scope of limited liability.

²² De Becker (1913), p. 207.

Although Japanese policy makers had considered a flexible limited liability structure in the original Meiji draft of the Commercial Code²³, according to Baum and Takahashi (2005, p. 378) the major momentum for legislative change towards the *Yugen Kaisha* only originated in 1917 and 1918 with two academic studies published by Naojiro Sugiyama, from Tokyo University. Sugiyama pointed out that many countries had invoked laws promulgating PLLCs and the rapid take-up of the new form in those places implied Japanese small firms, which proliferated around the time of the First World War, could also benefit from the new organizational form. In 1929, the Tokyo Chamber of Commerce and Industry investigated laws in relation to various forms of enterprises, especially those with limited liability. Drawing on the findings of this investigation and academic studies, in 1931 the Legislative Council of the Ministry of Justice announced that it would “provide through a special law, recognition for a special form of company equivalent to a limited liability company under foreign laws, or a private company under English laws” (Asagi, 1995). A bill on the *Yugen Kaisha* was submitted seven years later to the Imperial Diet, and it was enacted in 1940 along with other laws revising the Commercial Code.

Table 1 documents basic elements of the *Yugen Kaisha* and illustrates how it differed from the other organizational forms available at the time in Japan. It provided for limited liability (though not as flexibly as the GmbH²⁴), was capped by a maximum of 50 shareholding members (the GmbH had no member caps²⁵), imposed restrictions on the transfer of shares but required only one director, and limited reporting requirements.²⁶ In an effort to exclude very small businesses, a minimum capital requirement was initially set at ¥10,000 (approximately \$100,000

²³ Asagi (1995) documents that Hermann Roesler, the German who was commissioned to draft Japan’s initial Commercial Code, included the idea of *Sakin Kaisha*, which allowed some partners to be unlimited liability partners through agreement among all partners in the articles of association. This idea was not included in the final text.

²⁴ Unlike in the case of German law with respect to the GmbH, no voluntary undertaking of additional contractual obligations by means of the articles of association was permissible. Japan did not recognize any deviation from the limits of liability set out in its laws.

²⁵ In this sense the *Yugen Kaisha* was more similar to the 1907 British PLLC which also had capped membership.

²⁶ For example, publication of a balance sheet was not required.

in today's U.S. dollars). Yet, the 50 member cap was sufficiently high to permit larger enterprises to exploit the new form.²⁷ In effect the *Yugen Kaisha* law established an intermediary form between the limited and unlimited partnership and the joint stock form.

Figure 10 presents time series data on the concentration of business forms in Japan from 1940 to 1995. Two striking patterns emerge. First, the adoption of the PLLC was immediate and rapid despite the disruption of the Second World War. Within two decades the PLLC accounted for 37 percent of all registered enterprises, and by the end of the twentieth century it accounted for more than 50 percent.²⁸ A second clear trend to emerge from the data is that the PLLC displaced limited and unlimited partnerships *not* joint stock enterprises. In this sense, the Japanese experience is much closer to that of Germany, than Britain or France where the PLLC started to substitute for the joint stock form (Guinnane *et al.*, 2007).

Why did the joint stock form remain in heavy use despite the introduction of the *Yugen Kaisha*? As in the prewar era (see Section IV), external finance considerations continued to be important, but rather than being advantageous for accessing equity markets, the joint stock form offered benefits for accessing bank debt, which became a considerably more important financing channel in the postwar years (Franks *et al.*, 2014). Although several *zaibatsu* were eliminated or restructured as a consequence of the allied occupation²⁹, cross-shareholding developed under the new *keiretsu*, and banks and financial institutions became both creditors and shareholders of the new industrial groups (Shishido, 2001, p. 664). Reforms from 1945 to 1952 led to the reconfiguration of corporate power and authority between the shareholders meeting, the board of

²⁷ The minimum capital requirement for *Yugen Kaisha* was changed to ¥100,000 in 1951 and ¥3 million in 1990. In 1990 also the minimum capital requirement was introduced for *Kabushiki Kaisha* and set ¥10 million. Before that, there was no legal minimum capital requirement for *Kabushiki Kaisha*, but ¥350,000 had been used as a threshold for a stock exchange listing.

²⁸ In 1995, there were 1,219,214 registered PLLCs in Japan versus 1,213,034 joint stock, 26,485 limited partnerships and 5,724 unlimited partnerships.

²⁹ The *zaibatsu* had been strong supporters of the militaristic government, so their breakup was considered to be a major objective of the allied occupation.

directors, and corporate auditors as investor protections in joint stock businesses were strengthened; but in the long run regulations protecting shareholders at the expense of business owners were less stringent in Japan than in other countries (Hannah, 2014b). A culture favoring the joint stock form persisted through the postwar era as it signaled advantages when, for example, engaging in procurement contracting or in developing relationships with banks. Joint stock was a prestigious type of organization more generally despite being associated with higher administrative costs and more stringent public disclosures (Matsui, 2008).

VII. CONCLUSION

This paper has assembled new data on the organization of enterprise in Japan, with a view to placing the Japanese experience in the context of the broader research agenda initiated by Guinnane *et al.*, (2007). Their findings show convincingly that the joint stock corporation was not a superior form of business organization in many advancing industrial nations. When governments offered business owners the opportunity to have a flexible system of organization that was embodied in the PLLC, the take-up was generally rapid, and this process occurred in nations with both Anglo-American and French, or German, legal institutions. As such this body of works casts strong doubts on the alleged domination of both joint stock corporations and country-specific legal origins as being major determinants of economic growth.

Japan appears to be a unique case, which both confirms and differs from some of this established wisdom. On the one hand, it was ostensibly a civil law country in which the joint stock form was probably just as popular as it was in the United States where a common law legal tradition existed. On the other hand, the role of the joint stock corporation was likely more pivotal in the process of Japanese modernization during the late nineteenth and early twentieth centuries than it was in many other countries, including Germany, Britain and France. It was

prevalent over time, across prefectures and sectors and it was superior in terms of ROE performance. Joint stock enterprises accounted for 94 percent of aggregate profits between 1922 and 1939, a striking illustration of this particular organizational form's dominance.

Even when the PLLC was introduced, providing an *ex post* insight into the potential selection preferences of business owners, the share of enterprises organized under joint stock ownership remained high. The *Yugen Kaisha* offered an intermediate choice to small and medium sized business owners, but the specific Japanese legal and historical context meant there was limited substitution with the joint stock form. Moreover, while the *Yugen Kaisha* ultimately accounted for over half of all registered enterprises, its relevance for satisfying the needs of both business owners and the government was severely negated in the long run. Progressive revisions to Japanese company law effectively narrowed the legal and organizational gap between the *Yugen Kaisha* and joint stock ownership. Under reforms in 2005, the *Yugen Kaisha* was abolished and replaced with the *Godo Kaisha*, which was modeled on the U.S. limited liability form.

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Table 1. Main Details of Organizational Forms

Type of Enterprise	Main Attributes
<i>Gourmei Kaisha</i>	Unlimited Partnership
	<ul style="list-style-type: none"> - 2 or more partners - Partners responsible for the debts of the firm - Retiring partners responsible for debts of firm for 2 years after their resignation - Any partner may resign at the end of the year on giving 6 months notice - Partner can not carry on a business of the same kind independently, or be a partner in a related partnership without consent - No statutory auditor - Registration required
<i>Goushi Kaisha</i>	Limited Partnership
	<ul style="list-style-type: none"> - 1 or more partners with unlimited liability (active in management) - 1 or more with limited liability (silent in management) - Active partners have same responsibilities as in unlimited partnerships - Silent partners can engage in related businesses - No statutory auditor - Registration required
<i>Kabushiki Kaisha</i>	Joint Stock
	<ul style="list-style-type: none"> - Formed by a minimum of 7 members - Single board of directors; minimum of 3 directors required - Typically majority voting with one vote per share - Annual general meeting; holders of at least 10 percent of the capital can request an extraordinary general meeting - Statutory auditor - Registration required
<i>Yugen Kaisha</i>	Private Limited Liability
	<ul style="list-style-type: none"> - Formed by a maximum of 50 members - Only 1 director required - Restrictions on share transfers; to be made only at a general meeting - Minimal reporting requirements - No statutory auditor - Registration required - Minimum capital requirement of ¥10,000

Notes: Details compiled from various editions of the *Report of the United States Industrial Commission* (Washington, D.C.) and editions of the journal *International Law Notes: A Quarterly Bulletin of Matters of Interest to International Lawyers*. The minimum capital requirement for *Yugen Kaisha* was changed to ¥100,000 in 1951 and ¥3 million in 1990.

Table 2. Descriptive Statistics

	Limited Partnership	Unlimited Partnership	Joint Stock
Net Profit	1.06 [31.81]	1.00 [29.65]	24.25 [77.54]
Capital	80.95 [1324.10]	82.58 [341.51]	451.95 [876.59]
ROE	-0.86 [9.71]	0.21 [10.97]	3.62 [8.73]

Notes: Monetary values in thousands of real Japanese yen (1939=100). ROE in percent and pertains to the period 1922 to 1939. Standard deviations in square brackets.

Table 3. ROE Estimates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	All Prefectures						Excluding Kanto and Kinki				
Limited Partnership	-4.48*** [0.37]	-4.61*** [0.39]	-5.05*** [0.35]	-5.04*** [0.34]	-0.67 [0.69]	-0.48 [0.72]	-2.00*** [0.65]	-2.07*** [0.67]	-2.86*** [0.90]	-2.50*** [0.91]	-1.55* [0.92]
Unlimited Partnership	-3.41*** [0.44]	-3.51*** [0.46]	-4.32*** [0.43]	-4.36*** [0.44]	-0.45 [0.70]	-0.30 [0.73]	-1.94*** [0.67]	-2.00*** [0.65]	-2.16** [0.85]	-2.74*** [0.94]	-0.98 [0.71]
Leverage					3.85*** [0.64]	3.89*** [0.65]	1.47*** [0.54]	1.54*** [0.51]	0.82 [0.67]	1.92*** [0.62]	0.79 [0.66]
Log(Capital)					1.41*** [0.25]	1.54*** [0.25]	1.19*** [0.21]	1.15*** [0.23]	0.86** [0.35]	1.16*** [0.33]	1.12*** [0.29]
Observations	9,624	9,624	9,624	9,624	9,624	9,624	9,624	9,624	6,658	5,620	4,004
Clusters	47	47	47	47	47	47	47	47	33	47	47
R-sq (adj)	0.04	0.07	0.12	0.14	0.07	0.1	0.14	0.15	0.16	0.13	0.24
F-test	72.9	75.1	83.0	79.7	71.7	63.2	64.1	66.8	99.7	44.7	59.3
Mean Dependent Variable	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.33	0.31	2.48
St. Dev. Dependent Variable	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.91	9.59	11.28	7.4
Prefecture F.E.	N	N	N	Y	N	N	N	Y	Y	Y	Y
Industry F.E.	N	N	Y	Y	N	N	Y	Y	Y	Y	Y
Year F.E.	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y

Notes: Dependent variable is ROE. Limited Partnership and Unlimited Partnership are dummy variables, with the reference category being Joint Stock. Leverage measures the average ratio of debenture debt to capital and Capital measures the average capital of enterprises. A unit of observation is at the level of legal form, by industry, by prefecture, by year. Standard errors in square brackets are clustered by prefecture: ***p < 0.01, **p < 0.05, *p < 0.1.

Table 4. Disaggregated ROE Estimates

A. Profitable Enterprises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
				All Prefectures					Excluding Kanto and Kinki		1922-1932	1933-1939
Limited Partnership	-2.18*** [0.23]	-2.05*** [0.24]	-2.14*** [0.20]	-2.12*** [0.20]	-1.17** [0.47]	-0.83* [0.48]	-1.71*** [0.48]	-2.45*** [0.57]	-3.06*** [0.88]	-3.34*** [0.71]	-0.99 [0.84]	
Unlimited Partnership	-1.87*** [0.27]	-1.72*** [0.28]	-1.95*** [0.22]	-1.93*** [0.21]	-1.04** [0.45]	-0.72 [0.46]	-1.55*** [0.43]	-2.09*** [0.48]	-2.49*** [0.72]	-2.82*** [0.58]	-0.89 [0.64]	
Leverage					2.66*** [0.53]	3.26*** [0.64]	2.40*** [0.59]	2.55*** [0.47]	1.97*** [0.49]	3.09*** [0.61]	1.65*** [0.46]	
Log(Capital)					0.31** [0.14]	0.37** [0.15]	0.07 [0.16]	-0.25 [0.20]	-0.53 [0.33]	-0.65** [0.27]	0.34 [0.26]	
Observations	9,624	9,624	9,624	9,624	9,624	9,624	9,624	9,624	6,658	5,620	4,004	
Clusters	47	47	47	47	47	47	47	47	33	47	47	
R-sq (adj)	0.04	0.10	0.16	0.20	0.05	0.12	0.17	0.20	0.18	0.19	0.27	
F-test	47.2	72.4	93.0	84.2	47.3	74.4	96.4	83.9	97.7	87.7	39.1	
Mean Dependent Variable	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.29	5.33	5.54	4.94	
St. Dev. Dependent Variable	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.28	5.37	5.71	4.58	
Prefecture F.E.	N	N	N	Y	N	N	N	Y	Y	Y	Y	
Industry F.E.	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	
Year F.E.	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	

Notes: Dependent variable is ROE where the numerator is restricted to only profitable enterprises. Limited Partnership and Unlimited Partnership are dummy variables, with the reference category being Joint Stock. Leverage measures the average ratio of debenture debt to capital and Capital measures the average capital of enterprises. A unit of observation is at the level of legal form by industry by prefecture by year. Standard errors in square brackets are clustered by prefecture: ***p < 0.01, **p < 0.05, *p < 0.1.

B. Unprofitable Enterprises

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
	All Prefectures						Excluding Kanto and Kinki					
							1922-1932					1933-1939
Limited Partnership	-2.30*** [0.27]	-2.56*** [0.27]	-2.91*** [0.26]	-2.92*** [0.25]	0.50 [0.50]	0.35 [0.49]	-0.29 [0.50]	0.37 [0.37]	0.20 [0.39]	0.84 [0.52]	-0.56* [0.33]	
Unlimited Partnership	-1.55*** [0.33]	-1.78*** [0.33]	-2.36*** [0.34]	-2.43*** [0.34]	0.59 [0.55]	0.42 [0.55]	-0.39 [0.58]	0.09 [0.42]	0.33 [0.37]	0.08 [0.66]	-0.09 [0.23]	
Leverage					1.19*** [0.26]	0.63** [0.31]	-0.94* [0.53]	-1.01* [0.56]	-1.14 [0.74]	-1.17 [0.78]	-0.86* [0.45]	
Log(Capital)					1.10*** [0.21]	1.17*** [0.20]	1.12*** [0.19]	1.39*** [0.14]	1.38*** [0.18]	1.81*** [0.20]	0.78*** [0.12]	
Observations	9,624	9,624	9,624	9,624	9,624	9,624	9,624	9,624	6,658	5,620	4,004	
Clusters	47	47	47	47	47	47	47	47	33	47	47	
R-sq (adj)	0.02	0.07	0.1	0.12	0.04	0.09	0.12	0.13	0.15	0.12	0.12	
F-test	39.0	40.2	50.7	42.5	43.8	34.6	42.0	40.7	51.7	17.4	25.8	
Mean Dependent Variable	-4.08	-4.08	-4.08	-4.08	-4.08	-4.08	-4.08	-4.08	-4.00	-5.23	-2.46	
St. Dev. Dependent Variable	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.95	7.6	9.31	5.08	
Prefecture F.E.	N	N	N	Y	N	N	N	Y	Y	Y	Y	
Industry F.E.	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	
Year F.E.	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	

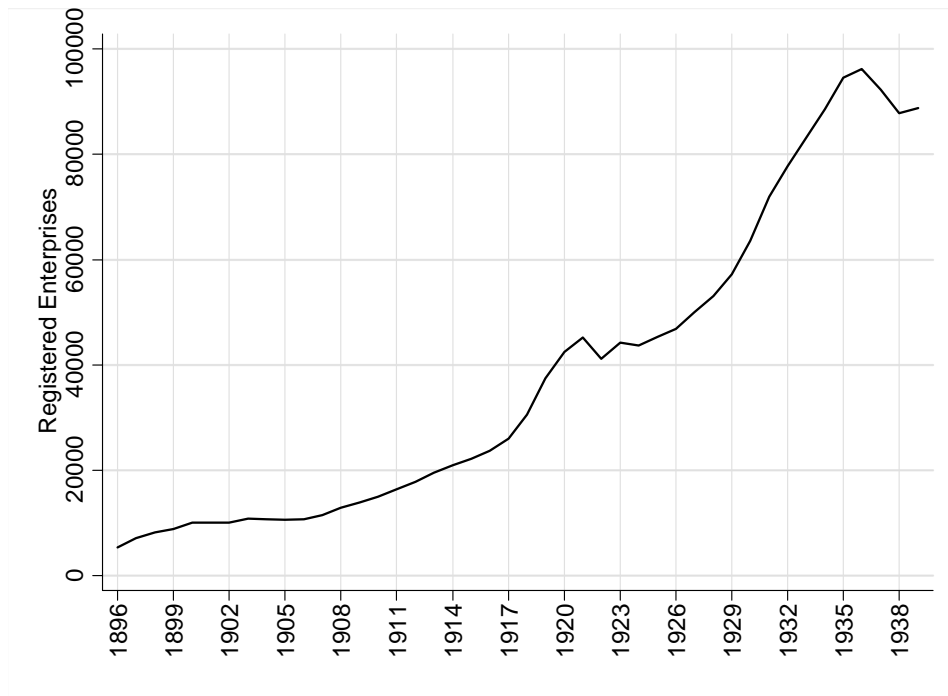
Notes: Dependent variable is ROE where the numerator is restricted to only unprofitable enterprises. Limited Partnership and Unlimited Partnership are dummy variables, with the reference category being Joint Stock. Leverage measures the average ratio of debenture debt to capital and Capital measures the average capital of enterprises. A unit of observation is at the level of legal form by industry by prefecture by year. Standard errors in square brackets are clustered by prefecture: ***p < 0.01, **p < 0.05, *p < 0.1.

Table 5. Matching Results

	Limited Partnership	Joint Stock	Difference	Covariate Balance
ROE (no caliper) Matched pairs	-0.86 3,171	3.62	-4.48 [-20.31]	[-97.89]
ROE (caliper) Matched pairs	-0.43 479	0.90	-1.33 [-1.66]	[1.33]
	Unlimited Partnership	Joint Stock	Difference	Covariate Balance
ROE (no caliper) Matched pairs	0.21 2,623	3.16	-2.95 [-10.44]	[-51.40]
ROE (caliper) Matched pairs	-0.23 571	2.75	-2.98 [-3.58]	[2.17]

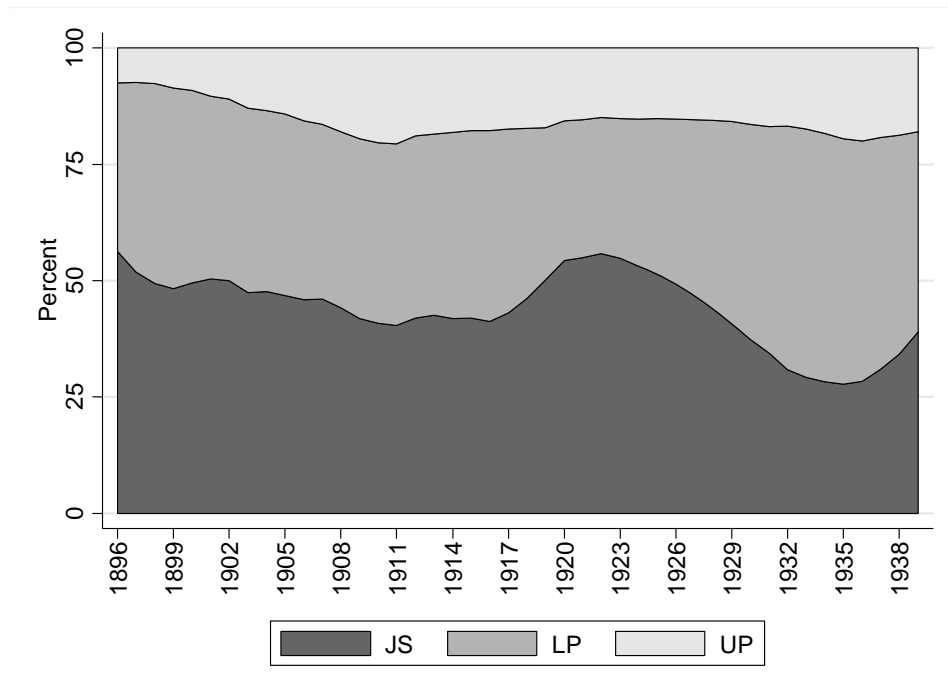
Notes: Matching results use nearest neighbor without replacement and in the relevant rows, a caliper of 0.2 times the standard deviation of the propensity scores. The propensity scores were generated using all the variables in the specification in Table 3, column 8. The covariate balance test is a t-test of the difference in means between the capital of observations in the respective groups. Values in squared brackets are t-statistics.

Figure 1. The Number of Enterprises 1896-1939



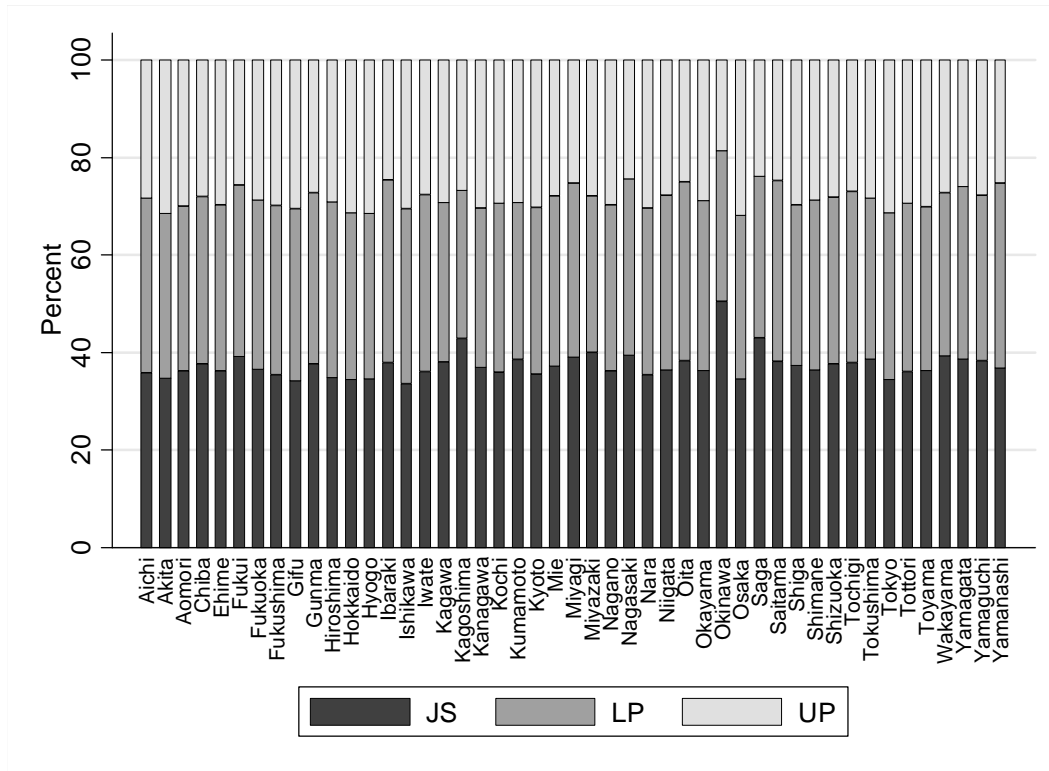
Notes: Calculations based on the data described in the text.

Figure 2. Share of Enterprises 1896-1939 by Legal Form



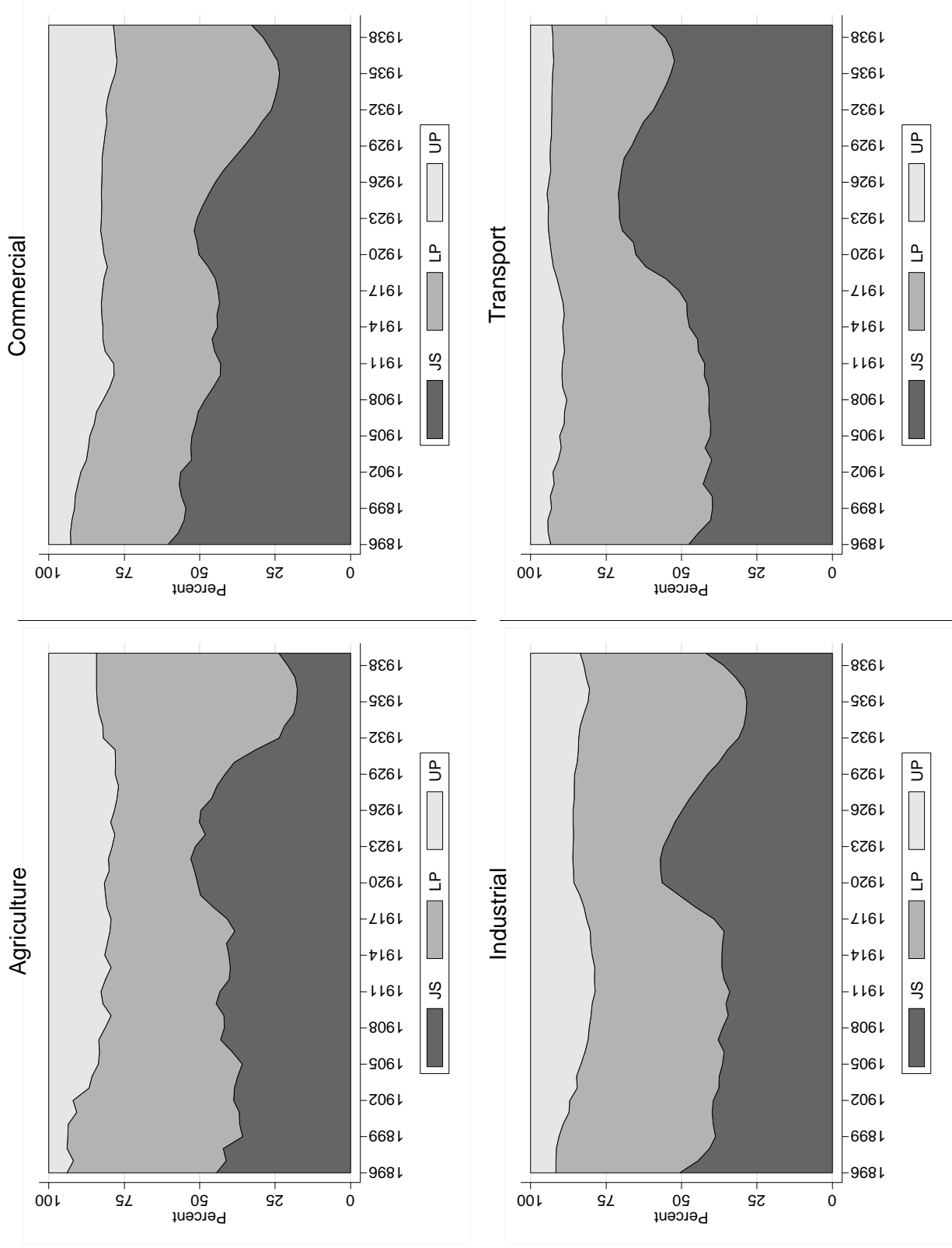
Notes: Calculations based on the data described in the text.

Figure 3. Share of Enterprises 1896-1939 by Prefecture



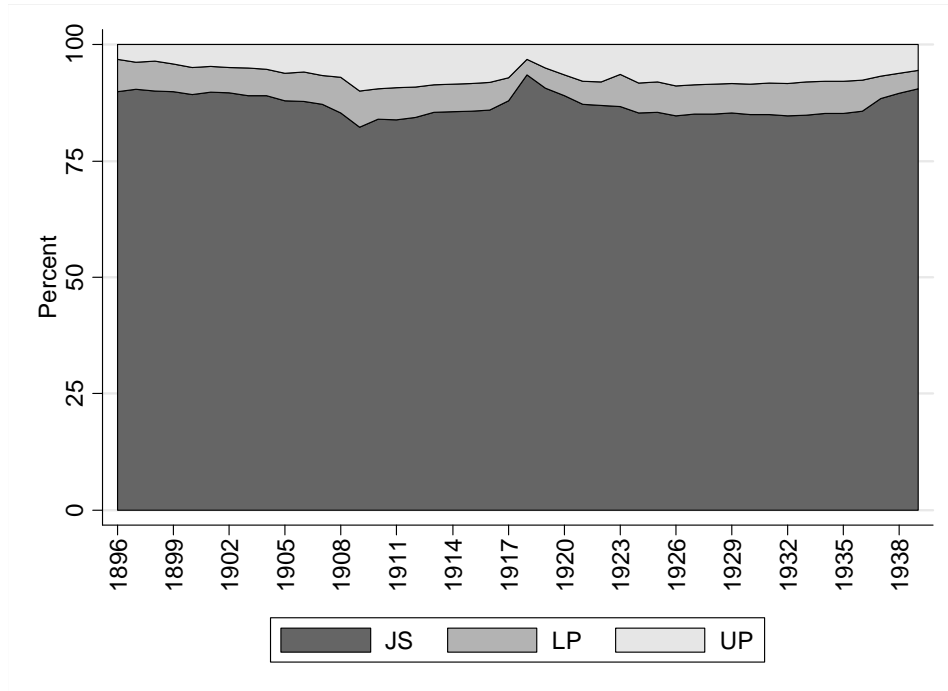
Notes: Calculations based on the data described in the text.

Figure 4. Share of Enterprises 1896-1939 by Industry



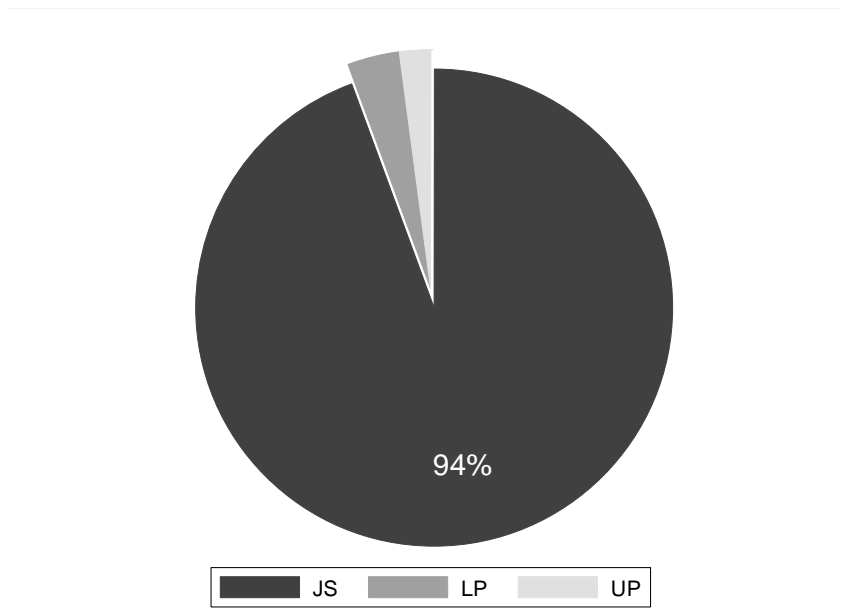
Notes: Calculations based on the data described in the text.

Figure 5. Share of Capital 1896-1939 by Legal Form



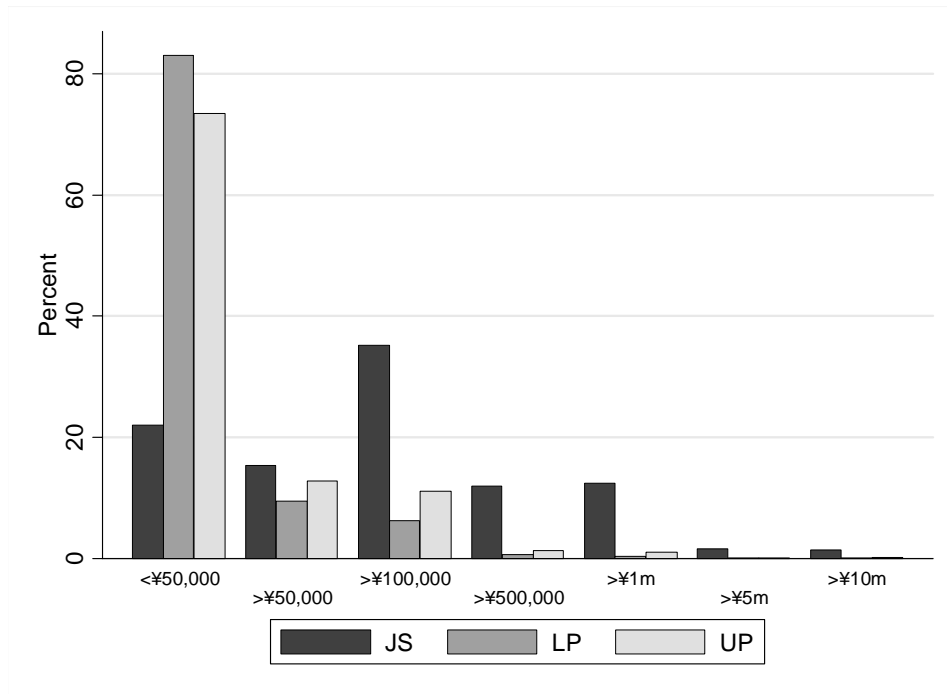
Notes: Calculations based on the data described in the text.

Figure 6. Share of Aggregate Profits by Legal Form



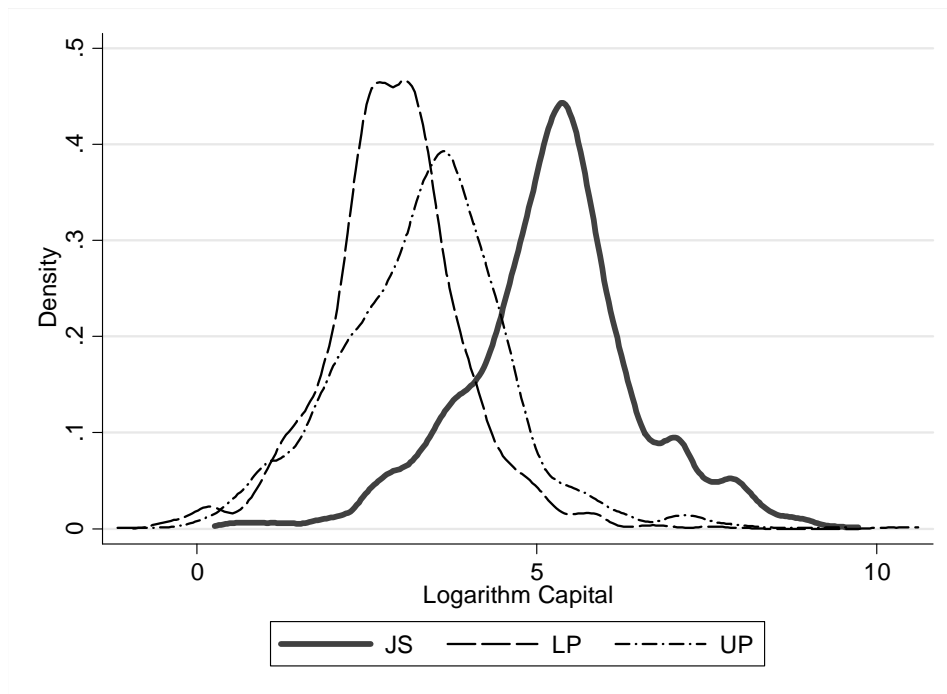
Notes: Calculations based on aggregations of the data for the period 1922 to 1939 presented in the governmental reports, as described in the text. The joint stock percentages for the sub-periods given in Table 3 are as follows: 1922 to 1932 (96%) and 1933 to 1939 (92%).

Figure 7. The Distribution of Capital by Size Bins 1921



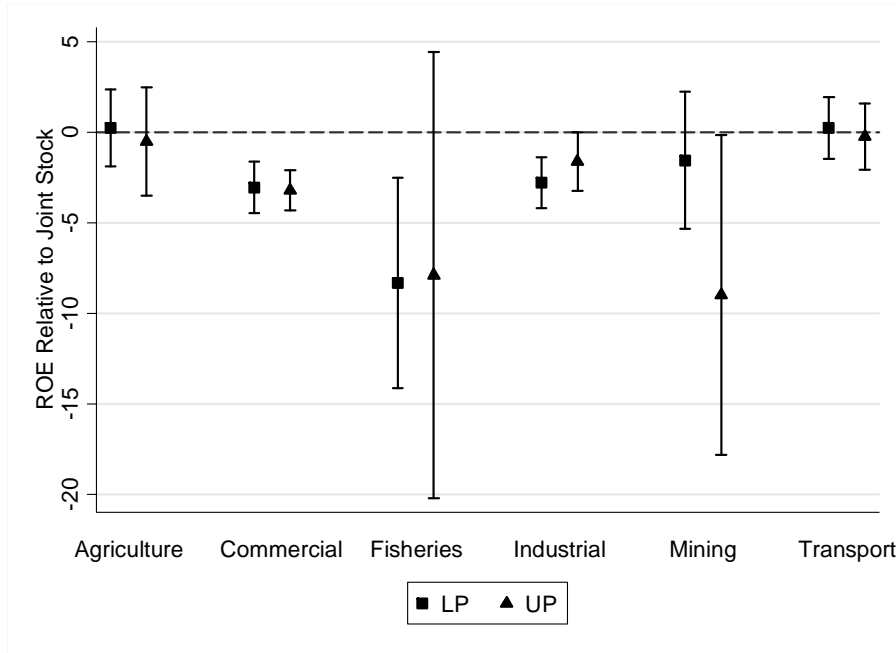
Notes: Calculations based on the data supplied in the 1921 *Report on Business Companies* [Kaisha Toukei-hyo].

Figure 8. The Distribution of Capital 1922-1939



Notes: Calculations based on the data described in the text

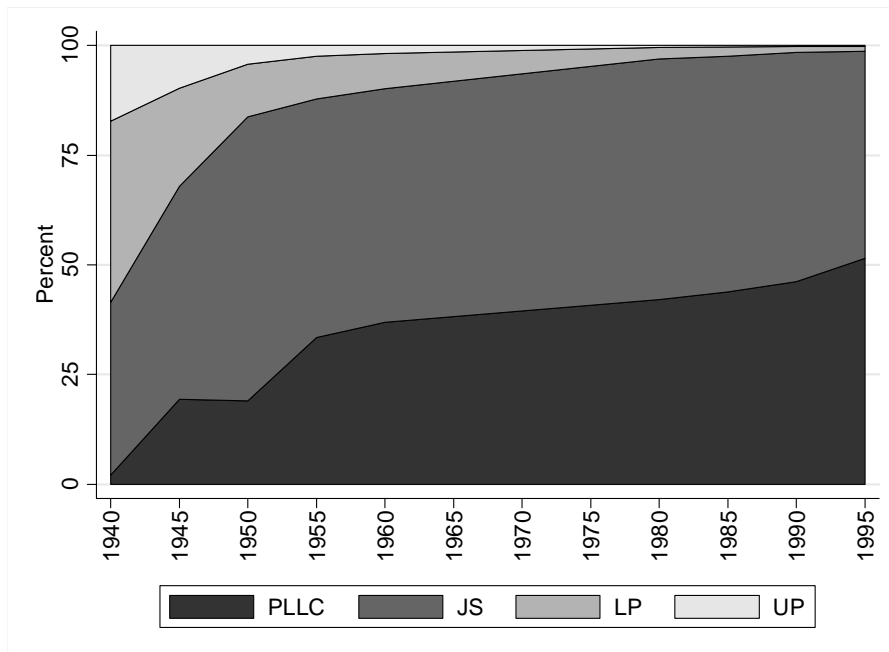
Figure 9. ROE Estimates by Sector



Notes: Estimates derived from the following specification with interaction terms between industries (IND) and Limited Partnership and Unlimited Partnership dummy variables.

$$ROE_{fip_t} = \alpha_1 LP_{fip_t} + \alpha_2 UP_{fip_t} + \beta_1 LP \times IND_{fip_t} + \beta_2 UP \times IND_{fip_t} + \delta_1 LEV_{fip_t} + \delta_2 \log(CAP)_{fip_t} + \gamma_p + \gamma_t + \varepsilon_{fip_t}$$

Figure 10. Share of Enterprises 1940-1995 by Legal Form



Notes: Compiled from statistics reported by Harald Baum and Eiji Takahashi, "Commercial and Corporate Law in Japan," p. 401 in Wilhelm Röhl, *History of Law in Japan Since 1868* (Leiden, 2005). Between 1960 and 1980 no statistics are given so these are linear interpolations.