

## The Genesis and Development of the Capital Market in Pre-War Japan \*

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# The Genesis and the Development of the Pre-war Japanese Stock Market

## Abstract

This paper examines the development of the Tokyo Stock Exchange since its inception in 1878 to the mid-1930s. Special attention is paid to the increases in the number of listed stocks throughout this period. By the mid-1930s, the Tokyo Stock Exchange had grown to a market bigger (measured relative to GDP) than many contemporary stock exchanges in major economies. Even compared with the stock exchanges in major countries today, the pre-war Tokyo Stock Exchange was quite large. New listings in the spot market section of the Tokyo Stock Exchange were not restricted for most of this period. Our regression analysis reveals that many firms decided to list their stocks on the Tokyo Stock Exchange as they became older and bigger. The commercial code change in 1911, which increased the protection of outside shareholders, also had a positive impact on the listings on the Tokyo Stock Exchange. The Tokyo Stock Exchange reform of 1918 that aimed at standardization of the spot transactions increased the listings on the Exchange. The analysis also suggests that in the earlier period, there was a “home bias” that the companies located in the Eastern part of Japan (closer to the Tokyo Stock Exchange) were more likely to be listed in the Tokyo Stock Exchange, but the effect diminished after the Exchange reform of 1918.

## 1.Introduction

Promotion of the capital market has been one of the major financial policy issues facing Japan (Sectional Committee on Financial System, Financial System Council 2003). As banks have played a central role in corporate finance and governance in the post-war period, there is an influential view that the bank-oriented financial system has been dominant since the late nineteenth century, when Japan embarked upon its modern economic development (Research Institute of the Bank of Japan 1986, 1995; Ishii 1997, 1999). In contrast, we have stressed that in the pre-war period, the Japanese economic system had characteristics substantially different from those in the post-war period, and that with respect to the financial system, in particular, the capital market and shareholders played a central role in corporate finance and governance (Okazaki 1993, 1995, 1999a, 1999b, 2000; Hoshi and Kashyap 2001). To put it in terms of Allen and Gale[2000], we consider that the financial system in pre-war Japan was market-oriented, unlike the post-war bank-oriented system. It seems that this view has been gradually accepted by other researchers (Allen and Gale 2000; Fujino and Teranishi 2000; Miwa and Ramseyer 2002; Teranishi 2003). The fact that different financial systems worked in one country in different periods, and that a transition from one to another occurred, is very important to understanding the financial systems from comparative institutional perspectives (Allen and Gale 2000; Aoki 2001; LaPorta et al 1997).

Based on the viewpoint described above, we have been working on a project to explore how and why the capital market developed and came to play a major role in pre-war Japan. In this paper, as a part of the project, we focus on the development of the Tokyo Stock Exchange (Tokyo Kabushiki Torihikijo, TSE hereafter), the largest stock exchange in pre-war Japan. The organized secondary market led to the enhanced efficiency of corporate finance and governance, through increasing liquidity of stocks and making appropriate stock prices. In fact, at least in the late 1920s and 1930s, the volume of stocks traded at exchanges in Japan were very large, compared with the US in the same period, as well as compared with Japan in the post-war period. It is noteworthy that stock exchanges developed rapidly in late 19<sup>th</sup> and early 20<sup>th</sup> century in Japan, which had just started upon the process modern economic development, both from the standpoint of comparative financial systems and policy making.

However, there has been little research on Japanese stock exchanges in the pre-war period (Shimura[1970]; Noda[1980]; Kataoka[1987]). At this moment, even such basic information as the companies listed on the TSE and the changes in this list

over time is unavailable. This is partly because the official histories of the TSE do not have sufficient information (TSE 1928, 1933, 1938 1963, 2002), but also due to the fact that researchers have not taken an interest in stock exchanges, which, in turn, is attributable to the above-mentioned view that the Japanese financial system has been bank-oriented since the pre-war period.

Therefore, in this paper, we start by exploring what companies were listed on the TSE. As stated in the following section, a comprehensive list of the companies listed on the TSE can be constructed for each year from 1878, when the TSE was established, using documents held at the TSE and other supplementary materials. Next, the list is matched with the information on the attributes of the companies including industry, scale, and establishment year. Using this dataset, the transition of the attributes of the population of the TSE listed companies can be elucidated. Then, the determinants that led to a new listing are econometrically analyzed, focusing on the cotton spinning companies, for which detailed data are available. Pagano et al.[1998] analyzed the determinants of IPOs, using the data of contemporary Italy. The distinctive feature of our paper is that we observe new listings using long-term data collected from the early stages of the capital market development (1905-1936). In this period, the Japanese economy experienced several institutional and fundamental changes. Taking advantage of this characteristic, we hope to shed light on the phenomena, specific to emerging capital markets, as well as the implications of the institutional changes.

## **2.Financial system and stock market in pre-war Japan: An overview**

To begin with, let us confirm the scale of the stock market in pre-war Japan. Figure 1 shows the total market value of the stocks listed on all the stock exchanges in Japan normalized by GNP (GDP in the post-war period). In the pre-war period, this ratio was around 1.0, which is substantially higher than that in post-war period, except during the “bubble” period in the late 1980s. In particular, the ratio was as low as 0.2-0.3 in the high growth period. Also, we can confirm the scale of the pre-war stock market in terms of the volume of stocks traded. Until the Sino-Japanese War broke out in 1937, the total volume of the stocks traded on all the exchanges was 2 to 2.5 times greater than GNP. On the other hand, the ratio was only 0.1 to 0.3 in the high growth period, and it was lower than 1.0 even in the bubble period. In terms of the scale relative to GNP, the pre-war stock market was much larger than that in the post-war period.

Figure 2a and 2b show international comparisons of the pre-war stock markets. Contemporary international data were quoted from Demirguc-Kunt and Levine[2001].

We added comparable data for pre-war Japan and the US to their data. Demirguc-Kunt and Levine focus on three ratios as measures to evaluate the development of the capital market, namely, (the total market value of the listed stocks)/GDP, (the total value of the stocks traded)/GDP, and (the total value of the stocks traded)/(the total market value of the listed stocks). In terms of all these three measures, the stock market in Japan in 1936 was more developed than that in the US. Also, the stock market in pre-war Japan was highly developed, even when compared with most of the countries in the Demirguc-Kunt and Levine[2001] data. Furthermore, as stock market development positively correlates with the development of the national economy in terms of per capita income (Demirguc-Kunt and Levine 2001), the high level of stock market development in pre-war Japan is still more striking, when we take into account the fact that per capita income was not particularly high in pre-war Japan. This result is inconsistent with the conventional view that the Japanese financial system has been bank-oriented since the late nineteenth century.

Let us examine the importance of the stock market from another standpoint. Table 1 shows the increase of the liabilities of the private non-financial corporate sector in each five-year period, based on a table of financial assets and liabilities as estimated by Fujino and Teranishi [2000]. A couple of interesting points are revealed in Table 2. First, while the proportion of the stock market was as high as more than 40% in the 1880s and the first half of the 1890s, the ratio of bank borrowings was still higher, and the latter went up in the latter half of the 1890s. Second, the ratio of the stock market started to rise in the latter half of the 1910s, and this trend continued until the first half of the 1930s. Finally, in the latter half of the 1930s, the ratio of the bank borrowings started to rise, and it stayed at a very high level until the 1980s.

The last point relates to the transformation of the Japanese economic system in wartime. As we have discussed in other papers in detail, due to the government interventions and environmental changes during the war, substantial changes, complementary to one another, occurred across many aspects of the economic system, including finance, employment and industry, and as a result a prototype of the post-war economic system emerged. With respect to finance, banks came to play a major role in corporate finance, becoming a substitute for the capital market, and various organizational and institutional devices were introduced to support the system of indirect finance (Okazaki and Okuno-Fujiwara eds. 1999; Okazaki 1994, 1995, 1999b, 2000; Hoshi and Kashyap 2001).

The first and the second points relate to a controversy over the type of pre-war financial system that existed. Ishii [1997] stressed that banks played a major role in the

1890s and 1900s, the period of “industrial revolution” (pp.139-140). The first point suggests that this view concerning the period of industrial revolution can be upheld, with some qualifications. The qualifications are that in addition to banks, the capital market also played a substantial role. Also, it should be noted that Table 1 includes the individual sector as well as corporate sector, and that for major companies the capital market was a central source of finance even in the period of industrial revolution (Fujino and Teranishi 2000, pp.408-409).

On the other hand, the second point, in addition to the development of the stock market confirmed in Figure 1 and Table 1, suggests that we should understand the pre-war financial system in dynamic terms. That is to say, while banks played a substantial role in the process of industrial revolution, the capital market later developed and came to replace the role of banks. To put it differently, the Japanese financial system experienced a transition from a system where banks played a substantial role in addition to that of the capital market, to a market-oriented system, in the pre-war period. Taking this view, we can see more clearly the significance of investigating capital market development in the pre-war period, as well as the implications of the wartime experiences, which shifted the direction of pre-war financial development.

Next, we look at the position of the TSE among all the stock exchanges in pre-war Japan. The TSE was established in 1878, as the first stock exchange, based on the Stock Exchange Act. The Stock Exchange Act prescribed that the stock exchange should have a license from the government, and that it should be a joint-stock company with capital not smaller than 100 thousand yen. The Osaka Stock Exchange (Osaka Kabushiki Torihikijo, OSE) followed the TSE in the same year. Although the Ministry of Finance had a policy to approve only the TSE and OSE at first, it changed the policy in 1880. As a result, stock exchanges were established in Yokohama (1880), Kobe (1883), Kyoto (1884), and Nagoya (1886) (TSE 2002, p.7). In 1887 the Exchange Act was passed, which prescribed that the exchange, including the stock exchange, should be a membership organization, not a joint-stock company. This act provoked a controversy about the legal framework for the exchange, and consequently the Exchange Law was framed, and this law came to be the fundamental legal basis of the exchange throughout the pre-war period. The Exchange Law allowed choice between a membership organization and a joint-stock company, and reduced the lower limit of capital to 30 thousand yen for an exchange which chose to operate as a joint-stock company. As the government adopted a liberal approach to licensing stock exchanges, many stock exchanges were established under the boom in the late 1890s. However,

because some of the newly established exchanges did not perform actual trading functions, the government changed the policy to scrap small stock exchanges in rural areas (TSE 1928, pp.6-8; TSE 2002, pp.16-18; Noda 1980, pp.240-242).

The process described above is reflected in Figure 3. The bar diagram denotes the number of stock exchanges. The number of stock exchanges began with two (Tokyo and Osaka) in 1878. While it increased to five in 1886, it decreased to three in 1891. Then a rapid increase in the number of exchanges began in 1894 and reached a peak of 46 in 1897. After that it declined again, and has remained around 10 from the late 1900s.

As long-term data on the volume of stocks traded at all the exchanges are not available, we cannot see the trends at the TSE in terms of trading volume. So in Figure 3, we depict the position of the TSE in terms of its revenue, a major part of which was from trade commissions. The total revenues of stock exchanges experienced two large increases in the periods after the Russo-Japanese War and during World War I. After sharp fluctuations and a downward trend in the 1920s, it went up again in the 1930s. During this period, the TSE continued to have the largest revenue, except in 1922 when the OSE topped the rankings. The share of the TSE in terms of revenue was 60-70% until the early 1890s. Although it declined to 20-30% in the late 1890s, when the number of stock exchanges increased sharply, it returned to 40-50% after the 1900s. We can therefore say that the TSE was the largest stock exchange in pre-war Japan.

### **3.Growth of the Tokyo market and the changing composition of the TSE listed companies**

The stock market at the TSE was divided into two divisions. The Stock Exchange Act of 1878 classified stock transactions into spot transactions (*genba torihiki*) and futures transactions (*teiki torihiki*). Each spot contract resulted in delivery of the transacted stocks. On the other hand, with respect to futures contracts, a buyer (seller) could resell (repurchase) the stocks as many times as he wished, until the delivery date, and at the delivery date only the difference between the sell and purchase prices was settled in cash (TSE 1928, p.454). In other words, in the futures market, cash settlement was the normal settlement method.

The name used to refer to spot transactions was changed three times after the enactment of the Stock Exchange Act. According to the Exchange Law of 1893, they were called *jiki torihiki*. Then, through the organizational reform of the TSE in 1918, referred to below, the name *genbutsu torihiki* came to be used. Finally, after the

revision of the Exchange Law in 1922, they came to be known as *jitsubutsu torihiki*. Concerning futures transactions, the normal period between the start date of a transaction and the delivery date was three months, until the revision of the Exchange Law in 1922. Through this revision, a new method of transaction, the short-term futures transaction, came to be introduced (*tanki seisan torihiki*). In the short-term futures market, the period between the start of transaction to the delivery date was seven days, but after the delivery date, delivery could be postponed for up to one month. Corresponding to the introduction of the short-term futures transaction, the existing futures transaction was renamed the long-term futures transaction (*choki seisan torihiki*). Short-term futures transactions began at the Osaka Stock Exchange in 1922, and the TSE followed in 1924 (Osaka Stock Exchange 1928, p.42; TSE 1928, p.48; Kuwata 1940, pp.199-203).

Figure 4a shows the number of stocks listed on each market of the TSE. The following two points should be noted. First, it was each name of the stocks, not each company that was listed. This was due to the installment system of capital. For example, assume that a company had issued 20 thousand stocks, whose face value was 50 yen each. That is to say, the capital of the company was one million yen. Also assume that this company issued new stocks, say another 20 thousand stocks, whose face value was 50 yen each. In this case, it was possible that the company collected only a part of the face value from the shareholders. If the company collected half of it, the paid-in face value of the new stocks was 25 yen each, and the new paid-in capital of the company was one million and 500 thousand yen. Therefore, there were two kinds of company stocks, with different paid-in face values, 50 yen and 25 yen. It was possible for these two stocks to be listed at the same stock exchange under different names. Second, the set of the stocks listed on the short-term futures market were a subset of the stocks listed on the long-term futures market, which in turn were a subset of the stocks listed on the spot market.

The number of the listed names, which began with four in 1878, increased steadily (Figure 4a). Until 1896, all of the listed stocks were listed on both the spot market and the (long-term) futures market, and after that a small number of names emerged which were listed only on the spot market. A substantial change occurred in 1918. In this year, the number of listed names increased sharply from 233 to 402, and the relatively rapid rate of increase continued thereafter. A large number of the newly listed names were those which were listed only on the spot market. To put it in another way, after 1918, the names listed on the spot market and those listed on the futures market diverged. In 1924, the short-term futures market started at the TSE, as stated above.



However, the number of names listed on the short-term futures market was small. It was just 36 in 1936.

The reason for the sharp increase in the number of listed names on the spot market in 1918 was the organizational reform of the TSE. Under the boom that prevailed during World War I, spot transactions of stocks became active outside the TSE. These transactions were carried by spot wholesalers (*genbutsu donya*) and merchants called *saitorinin*, who acted as intermediaries between spot wholesalers (Association of the TSE *Saitori* Members 1975, p.65, 72). The TSE wanted to gain control over the spot transactions being conducted outside it, and the government supported the TSE. Consequently, thirty *saitorinin* came to do their businesses inside the TSE when spot transactions at the TSE changed their name from *jiki torihiki* to *genbutsu torihiki*, as stated above. Also, the TSE set up the Monitoring Department (*Kansatsu-bu*) to ensure that spot transactions were conducted in an appropriate fashion (TSE 1928, p.46; TSE 2002, p.30; Association of the TSE *Saitori* Members 1975, p.72). This implies that the TSE internalized spot transactions which had formerly flourished outside. Whereas the spot market of the TSE expanded sharply in terms of the number of listed names, the turnover rate of the spot market was relatively low, and the scale of the futures market was far larger in terms of trading volume. In particular, the volume traded on the short-term spot market grew very rapidly (Figure 4b).

Figure 4c denotes the increase of listed stocks in terms of the total face value. While it is similar to Figure 3a, the rate of increase was higher, due to the growth of each company. Also, the relative scale of the futures markets was larger. As stated below, on the futures markets, especially on the short-term futures market, relatively large firms were listed.

In Figure 5, we compare the total face value of the TSE listed stocks and the total capital of all the joint-stock companies in Japan. As only the data of paid-in capital are available for the period prior to 1914, we estimated the capital by applying the ratio of the paid-in capital to the capital in 1915 (68.1%), to that period. According to Figure 5, the share of the TSE listed stocks was 30-40% until World War I, except for the short period after the Russo-Japanese War. In the late 1910s, the share went up to around 50%, and it continued to rise until the 1930s. Although the position of the TSE listed companies was very small in terms of number, it was substantial in terms of capital.

Next we examine the composition of the TSE listed companies and how this changed over time. Here, we deem that a company was listed if at least one of the names of the stocks the company issued was listed. We focus on the years, 1878, 1885, 1900, 1915, 1925 and 1935. 1885 was the year just before the first wave of corporate

establishments. 1900 was the year after that wave and the boom in the late 1890s. 1915 was the year between the boom after the Russo-Japanese War and World War I boom. 1925 was the year during the depression after World War I. 1935 was the year after the Great Depression and the recovery from it.

A complete list of the listed stocks and their face values is available in the business reports of the TSE from 1900 to 1918. So, we take the data on the listed names and capital for the years 1900 and 1915 from this source. The information on the listed names in 1878 and 1885 was taken from the TSE[1928]. The TSE[1928] tell us the date when each name was listed and the date when it was unlisted for the companies whose stocks were traded on the futures market. On the other hand, there was no name listed solely on the spot market until 1896. Therefore, with respect to 1878 and 1885, we can make a list of listed names based on the data. The information on the capital of each company was taken from various government reports, including the Bank Section of the Ministry of Finance, *Ginko-ka Hokoku (The Report of the Bank Section)*, the Bank Bureau of the Ministry of Finance, *Ginko-kyoku Nenpo (Annual Report of the Bank Bureau)*, the Statistics Bureau of the Cabinet, *Teikoku Tokei Nenkan (The Imperial Statistical Year Book)*, the Ministry of Agriculture and Commerce, *Noshomu Tokei Hyo (The Statistics of Agriculture and Commerce)*. With respect to 1925 and 1935, we take the data on the listed names and their face value from the original TSE business reports, held at the TSE.

In terms of the attributes of a listed company, other than its capital, we focus on the district where its headquarters were located, establishment year and type of industry. The information on the location and establishment year for 1878 and 1885 is taken from the government reports mentioned above. With respect to the other years, we obtained the information from the Commercial Credit Bureau, *Zenkoku Shogaisha Yakuinroku (Directory of Corporate Directors)*, 1900 and 1912 issues, the Tokyo Credit Bureau, *Ginko Kaisha Yoroku (Directory of Banks and Companies)* 1925 and 1935 issues, the Teikoku Credit Bureau, *Teikoku Ginko Kaisha Yoroku (Imperial Directory of Banks and Companies)* 1925 issue, and Osakaya Shoten, *Kabushiki Nenkan (Year Book of Corporate Stocks)* 1926 and 1936 issues. The business reports and their associated original documents held by the TSE do not show the industry classification, but it seems that the names are arranged according to the order of industry. So we identify the industry referring to this order and the name of the company. We use the industry classification employed by the TSE [1938].

First, we look at the composition of the TSE listed companies by industry. At the end of 1878, just after the establishment of the TSE, only four companies were listed

(Table 2). In 1885, the number of listed companies increased to 24 (Table 3a). It is notable that those companies were concentrated within a single industry, that is, banking. Twenty out of the 24 listed companies were banks, and in particular 19 of them were national banks. This characteristic arguably reflects the legal environment. As is well known, there was no general corporate law until the Commercial Law was enacted in 1893. In this situation, the National Bank Act prescribed the limited liability and the right of shareholders (Miyamoto 1990, Takamura 1996; Yoshida 1998, p.28). The fact that most of the companies listed on the TSE were national banks suggests that the National Bank Act provided the legal framework that allowed many minority shareholders to invest in national banks.

In 1890, the number of listed companies increased to 96. While the number of listed banks declined due to the abolition of the national bank system, many railway companies were newly listed. However, the share of the railway companies was not so high (30.2%), compared with the banks in 1885. Unlike the situation in 1885, companies of various industries, including coal and petroleum, cotton spinning, other textiles and foods, were listed. In 1915, the types of industries represented by the listed companies had become even more diversified. There were 160 listed companies, and the information on their attributes is available for 151 of them. The share of the railway companies declined to 21.2%. While new companies running electric railways in the urban areas emerged, large railway companies disappeared due to the nationalization of the main lines in 1906 (Noda 1980, pp.310-313). The electricity industry saw its share go up sharply from 1900 to 1915. The electricity companies, which were in the early stages of development and needed large-scale investment, actively raised funds from the stock market (Kikkawa 1995, chapter 1). Besides electricity, the shares of such industries as coal and petroleum, sugar, and gas, also went up in this period.

In 1925, the number of listed companies reached 712, due to the expansion of the spot market after 1918. Information on company attributes is available for 695 of these. The industries had become even more diverse than they were in 1915. The share of the railways, which still had the largest share, was only 8.3%. The shares of such industries as insurance, machinery, chemistry and metal, which developed during World War I, went up. In 1935, 919 companies were listed, and information on attributes is available for 899. The composition by industry was similar to that in 1925.

Table 3b shows the composition of the companies listed on the futures market, by industry. We focus on 1925 and 1935, because most of the companies listed on the spot

market were also listed on the futures market prior to the late 1910s. Comparing the composition in 1925 with the composition in the same year in Table 4a, we find that in the futures market, the shares of railway and electricity were higher, and in this sense the composition of the listed companies on the futures market was close to the composition of all the listed companies in 1915. This is because the major increase of listed companies in the late 1910s occurred on the spot market, as stated above. On the other hand, compared with the composition in 1915, the shares of such industries as shipping, insurance, chemical, and metal were higher in the composition of the futures market in 1925. This implies that companies in these newly developing industries were listed not only on the spot market, but also on the futures market, which was more liquid. The composition of the companies listed on the futures market in 1935 was similar to that in 1925.

Second, let us look at the composition of the listed companies by location of the headquarters. Although, all of the four listed companies in 1878 were located in Tokyo, the proportion of the companies in Tokyo declined to 50% in 1885 (Table 4). After that, the share of the companies in Tokyo increased slowly, but from 1925 to 1935 it declined again. In 1885, as the shares for Kanto region excluding Tokyo and Chubu region were also high, the total share for the eastern regions (Hokkaido, Tohoku, Kanto and Chubu) was higher than 90%. It is noteworthy that from that date the total share for the eastern regions continued to decline until 1935. Meanwhile, the shares for the other regions, especially Kinki region, went up. The decline of the share for the eastern regions implies that the whole country came to fall under the TSE umbrella.

Third, Table 5 shows the basic statistics on scale distribution in terms of capital. The table confirms that the average capital continued to increase from 1878. It should be noted that whereas the maximum value of capital also increased, the minimum value of capital stayed at around the same level. This implies that relatively small companies could make use of the TSE market until the 1930s, while existing companies grew and large companies were newly listed. Comparing the scale of the listed companies between the spot market and the futures markets, we find that the average capital of the companies listed on the long-term futures market was 2-3 times larger than that of the companies listed on the spot market, and the average capital of the companies listed on at the short-term futures market was several times still larger than the former group. The differences of scale between the markets become clearer in terms of the minimum value of capital. Actually, the companies listed on the short-term futures market were the largest companies of each industry. As is shown in the next section, the TSE set higher listing criteria for the futures markets, especially for the

short-term futures market.

Finally, the basic statistics on the age distribution of the listed companies are shown in Table 6. In 1878, the average age was as low as 1.50 years. This is because the company system itself had just been introduced. After that, the average age went up to 16.6 years in 1915, but declined in 1925. This is probably because many young companies were listed in the wave of new listings after 1918. After 1925, the average age rose again. As in the case of scale, whereas the average displayed an upward trend, the minimum age did not change. Except for 1885, companies which had been established in the same year or one year before were listed. To put it differently, newly established companies could make use of the TSE market.

#### **4. Listing system and determinants of new listings**

How and why did the listed companies increase in number? In order to answer this question, we need to understand the listing system including the listing criteria. Because systematic materials, which show the history of the listing system of the TSE, are not available at this moment, we are going to create an outline of the listing system by bringing together a range of scattered information. The internal rules of the TSE enacted in 1915 prescribed as follows (Research Bureau of the Bank of Japan 1916, p.93).

When a joint-stock company requests the TSE to start trading its stocks or debentures, the TSE should examine its articles of incorporation as well as its assets and business status to decide whether the request should be approved or not (Article 1).

Also, the Exchange Act, which was drawn up according to the revision of the Exchange Law in 1922, obliged the exchange to set up a council to decide on when a trading item could be listed or removed.

What criteria were used by the TSE when carrying out an examination to decide on a listing? As stated below, the Ministry of Agriculture and Commerce set the listing criteria for the futures market in 1914. Concerning the criteria used before 1914, the TSE[1928] provided the following.

When the Exchange Law was passed in 1893, the government instructed the TSE to increase the number of names traded as much as possible. Consequently, the TSE replaced the existing criteria (number of stocks no fewer than 4 thousand, total face

value not less than 200 thousand yen, and total paid-in face value not less than 100 thousand yen) with the new criteria (number of stocks no fewer than 3 thousand, total face value not less than 150 thousand yen, and total paid-in face value not less than 75 thousand yen). The TSE decided that the stocks under the new criteria should be traded only on the spot market. The new criteria were used from May 1894 (pp.33-34).

The quote above implies that with respect to the spot market no concrete listing criteria existed. As TSE [1963] records show that there was no legal regulation covering listing until 1914, we can infer from the above quote what the listing criterion for the futures market was. In 1914, when the Exchange Law was revised, the detailed enforcement regulations of the Law prescribed that the listing of securities on the futures market should be approved by the Minister of Agriculture and Commerce. Accordingly, the Ministry of Agriculture and Commerce determined the listing criteria for the futures market (i. Not less than 2 years since establishment, ii. Total paid-in face value not less than one million yen for the Tokyo and Osaka stock exchanges, and not less than 500 thousand yen for other stock exchanges). In 1915, the Ministry of Agriculture and Commerce added the criterion for new stocks of a company whose stocks had already been listed on the futures market. In this case, the criterion for the total paid in face value was “not less than 500 thousand yen for the Tokyo and Osaka stock exchanges, and not less than 250 thousand yen for other stock exchanges (TSE 1963, Chapter on Institutions, p.3).

Based on the regulations, the TSE determined the following listing criteria. Until May 1921, the criteria of the TSE were number of stocks no fewer than 40 thousand as well as the three conditions prescribed by the government (i~iii). In May 1921, the criteria of the TSE were revised to the following

- a. Not less than 2 years since establishment,
- b. Total face value not less than 3 million yen  
Total paid-in face value not less than one million yen  
Number of stocks no fewer than 60 thousand
- c. In the case of new stocks of a company whose stocks have already been listed on the futures market  
Total face value not less than 2 million yen  
Total paid-in face value not less than 500 thousand yen  
Total number of stocks no fewer than 40 thousand

These new criteria were used at least until the beginning of the Sino-Japanese War in 1937 (The Research Section of the TSE [1932]; Hatano[1938]). With respect to the listing criteria for the spot market, TSE [1932] records state, “Unlike the futures market, we do not impose any condition on the listed names.” We can infer that no concrete listing criteria existed for the spot market.

What kind of companies were listed, and when? As mentioned in Section 1, Pagano et al.[1998] explored this issue. They analyzed the determinants of IPOs by referring to the panel data of Italian firms in 1982-1992. Using the firms that conformed to the listing criteria for the Milan Stock Exchange, and at the same time were not listed, as samples, they regressed the dummy variable denoting IPO to several explanatory variables on corporate attributes and the environment. It was found that some variables including sales, sales growth, ROA, average market-to-book ratio of the public firms in the same industry, had a positive effect on the decision to go public. Here, we analyze the determinants of new listing on the TSE, referring to the framework of Pagano et al.[1998], as well as the characteristics of the prewar Japanese stock market, its institutional environment and the available data.

We focus on cotton spinning companies from 1905-1936. As is well known, the cotton spinning industry was a leading industry in pre-war Japan, and therefore relatively many of these companies were listed on the TSE. Also, it is notable that systematic data are available on both unlisted and listed companies. The data on cotton spinning firms are taken from the various issues of the *Menshi Boseki Jijo Sankosho (Reference Book on the Japan Cotton Spinning Industry)* published by the Japan Cotton Spinning Association. We start our analysis from 1905, because it was from this year that the financial data in the *Menshi Boseki Jijo Sankosho* was presented in systematic form. We take all the companies whose financial data are available in the *Menshi Boseki Jijo Sankosho* as the primary samples, and checked whether they were listed on the TSE or not at the end of each year by referring to the materials used in Section 3. Figure 6a presents an overview of the samples. The number of sample firms in each year was 25-35 until the late 1910s, and 50-70 after that. Of these, the number of firms listed on the TSE was 5-6 until the late 1910s, and it increased to more than 20 in the late 1920s and 1930s. The number of firms listed on the long-term futures market was nine at the peak (1933-35). Until 1932, the only firm listed on the short-term futures market was Kanegafuchi Boseki, and Nisshin Boseki was listed in 1933.

The geographical distribution of the cotton spinning companies and those listed on

the TSE should be noted. It is well known that the center of the cotton spinning industry in Japan was Osaka (Takamura 1971). The samples here reflect this fact (Figure 6b). The proportion of companies located in the eastern regions (Hokkaido, Tohoku, Kanto and Chubu) was 42% at the peak (1936) and 14% at the bottom (1914). However, companies from the eastern regions nevertheless represented a higher proportion of listed companies. Actually, comparing the ratio of listed companies between the eastern and the other regions, we find that eastern regions were far more highly represented among listed companies. This suggests that there was a kind of home bias with respect to listing on the TSE. At the same time, the difference in the ratios of the listed companies declined after the late 1910s, which is consistent with the facts shown in Table 4. Using this data set, we estimate the following equation.

$$\Pr(L_{it}=1)=F(\alpha_0 + \alpha_1 NPCAP_{it-1} + \alpha_2 AGE_{it-1} + \alpha_3 ROE_{it-1} + \alpha_4 EAST_i + \alpha_5 REFORM_{t-1} + \alpha_6 EAST_i * REFORM_{t-1} + \alpha_7 LAW_{t-1})$$

$L_{it}$  is the dummy variable which equals 1, if firm  $i$  was newly listed on the TSE in year  $t$ , and 0, otherwise. As the number of sample firms which were listed on the futures market was small, we focus on the spot market. In estimating this equation we use the data on the firms which were not listed in year  $t-1$ , following Pagano et al[1998]. As stated above, there was no concrete listing criterion for the spot market.  $F(\cdot)$  refers to a cumulative distribution function. NPCAP is the paid-in capital normalized by the average paid-in capital of the total joint-stock companies in Japan. AGE is the firm age. We have normalized these variables because we used the long-term data for a 32-year period and there are upward trends in these variables. ROE is the return on equity. EAST is the dummy variable which equals 1, where the headquarters of the firm was located in the eastern regions, and 0, otherwise. Our intention is to capture the home bias mentioned above. REFORM is the dummy variable which equals 1 in 1918 and after. This is a variable to capture the effect of the organizational reform in 1918, and we intend to capture the effect of this reform on the home bias by the interaction term of REFORM and EAST.

LAW is the dummy variable which equals 1 in 1911 and after, and 0, otherwise. It is the variable to capture the revision of the Commercial Law in 1911. After the Commercial Law was passed in 1893, it was substantially revised in 1900 and again in 1911. The background to the 1911 revision was that numerous bubble companies emerged in the boom after the Russo-Japanese War. Major revisions directly relating



to corporate governance were as follows. First, an article on the joint responsibility of the directors was added. Second, whereas a director was exempt from responsibility if he opposed a decision and advised the auditors of this fact, before the revision, the article containing this exemption was deleted. Third, for the case where a director inflicted damage on the company through illegal actions such as the issuing of bogus dividends or speculation, criminal punishment was introduced (Fujii 1999 pp.134-146). If these revisions were effective in protecting minority shareholders, we can expect the coefficient of LAW to be positive. We estimate the equation by LOGIT model. Also, taking the fact that the number of positive observations of L is as small as 18, we run Poisson regressions. The estimation results are reported in Table 7. The results of the Logit and the Poisson regressions are qualitatively the same. The coefficients of NPCAP and NAGE are positive and statistically significant. The probability of listing was higher for those firms who were older and whose paid-in capital was larger, compared with the averages of each year. The sign of ROE is not stable or significant. On the other hand, the coefficient of EAST is positive and significant. This suggests that there was home bias in listing on the TSE. The sign of REFORM is positive as expected, and it is significant, if we exclude LAW. Also, the coefficient of the interaction term of REFORM and EAST is negative and significant. We can say that the reform in 1918 contributed to reducing the home bias. Finally, the coefficient of LAW is positive and significant, which suggests that the revision of the Commercial Law in 1911 was effective in protecting minority shareholders, and thereby promoted company listing.

## **5. Concluding remarks**

The scale of the stock market relative to the scale of national economy was large in late 1920s and 1930s Japan, compared with the scale in post-war Japan, with that in 1930s US, and also with those in most other countries at the time. This fact supports the view that the pre-war Japanese financial system was market-oriented, which we have stressed elsewhere, and at the same time it raises the question how and why the stock market grew to be so large in pre-war Japan. This paper has been an attempt to shed some light on this question.

In this paper, we confirmed the [dominant] position of the TSE in the Japanese stock market, and constructed a comprehensive list of the companies listed on the TSE since its establishment, matching this with other information on corporate attributes. Through this analysis, the following facts became clear. The TSE grew as a result of the increase in the number of listed companies. Many companies in the newly

developing industries came to be listed on the stock exchange. Also, companies in regions other than the eastern regions came to be listed. In other words, the bias in the geographical distribution of the listed companies, which was large at first, declined over time. Furthermore, the TSE was open to relatively small and young companies. Although scale and age of the listed companies increased continuously, the minimum scale and age remained stable. One of significant background factors was the organizational reform carried out in 1918. Through this, the spot transactions being conducted outside were absorbed into the TSE, and the spot market of the TSE was substantially expanded.

Based on descriptive observations, we analyzed the determinants of new listings on the TSE, using the panel data of the cotton spinning industry. Several interesting points were confirmed. There was a home bias that the provability of new listing[s] was higher for the firms in the eastern region, but this bias was reduced by the organizational reform of the TSE. Also, the revision of the Commercial Law had a positive effect on the provability of new listings, which implies the revision contributed to the protection of minority shareholders and promoted new listings. These points confirm the effectiveness of our approach which utilized long-term historical data going back to the early stages of stock market development. However, many issues remain to be investigated. One of the issues is to explore the effects of listing on the TSE. Through this, we will be able to find out why it was that companies wanted to be listed on the TSE.

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Figure 1 Intertemporal Comparison of the Stock Market Development in Japan

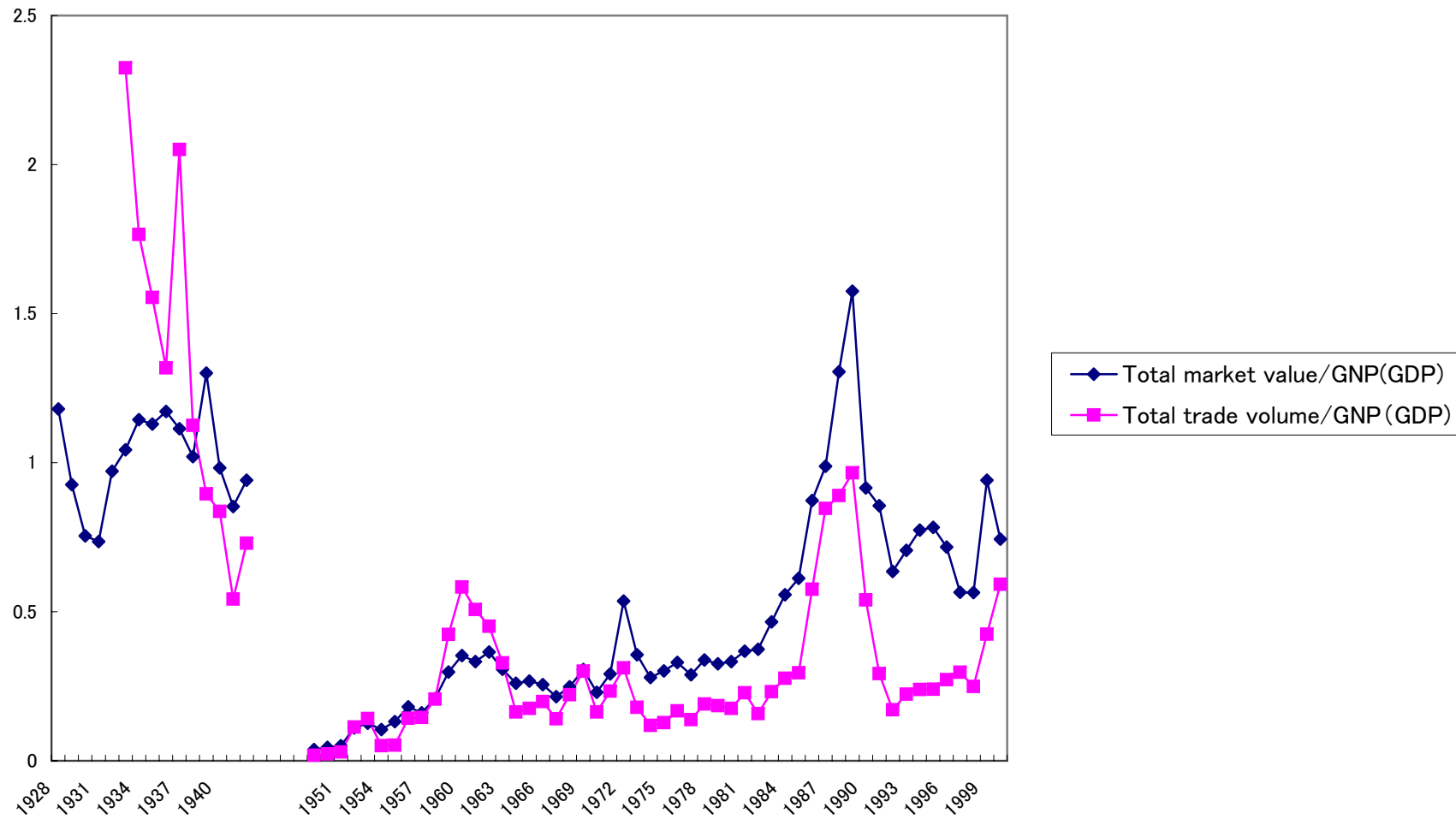
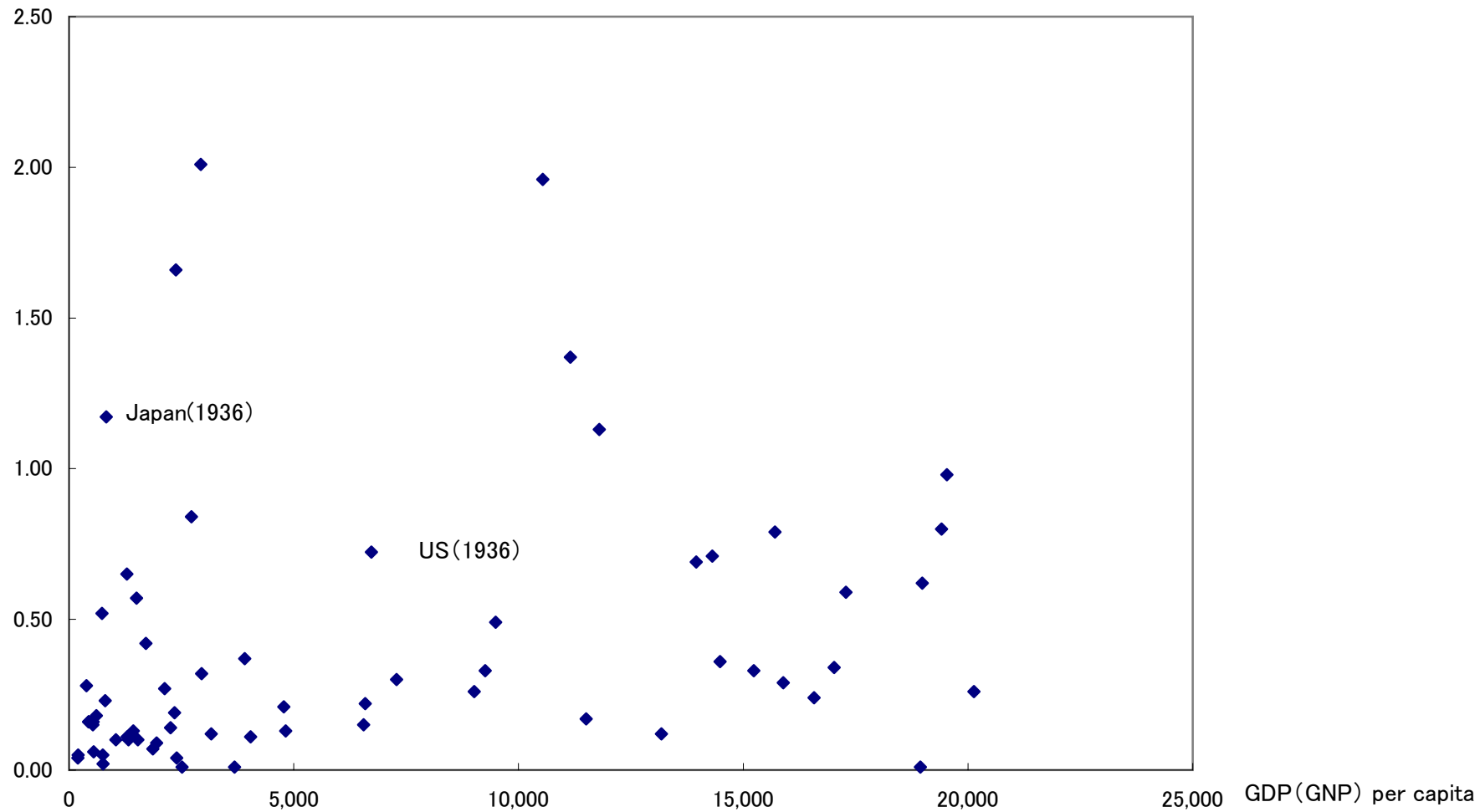


Figure 2a International Comparison of the Stock Market Development

A

(Total market value of the listed stocks)/GDP (GNP)



Total value traded/GDP

Figure 2b International Comparison of the Stock Market Development R

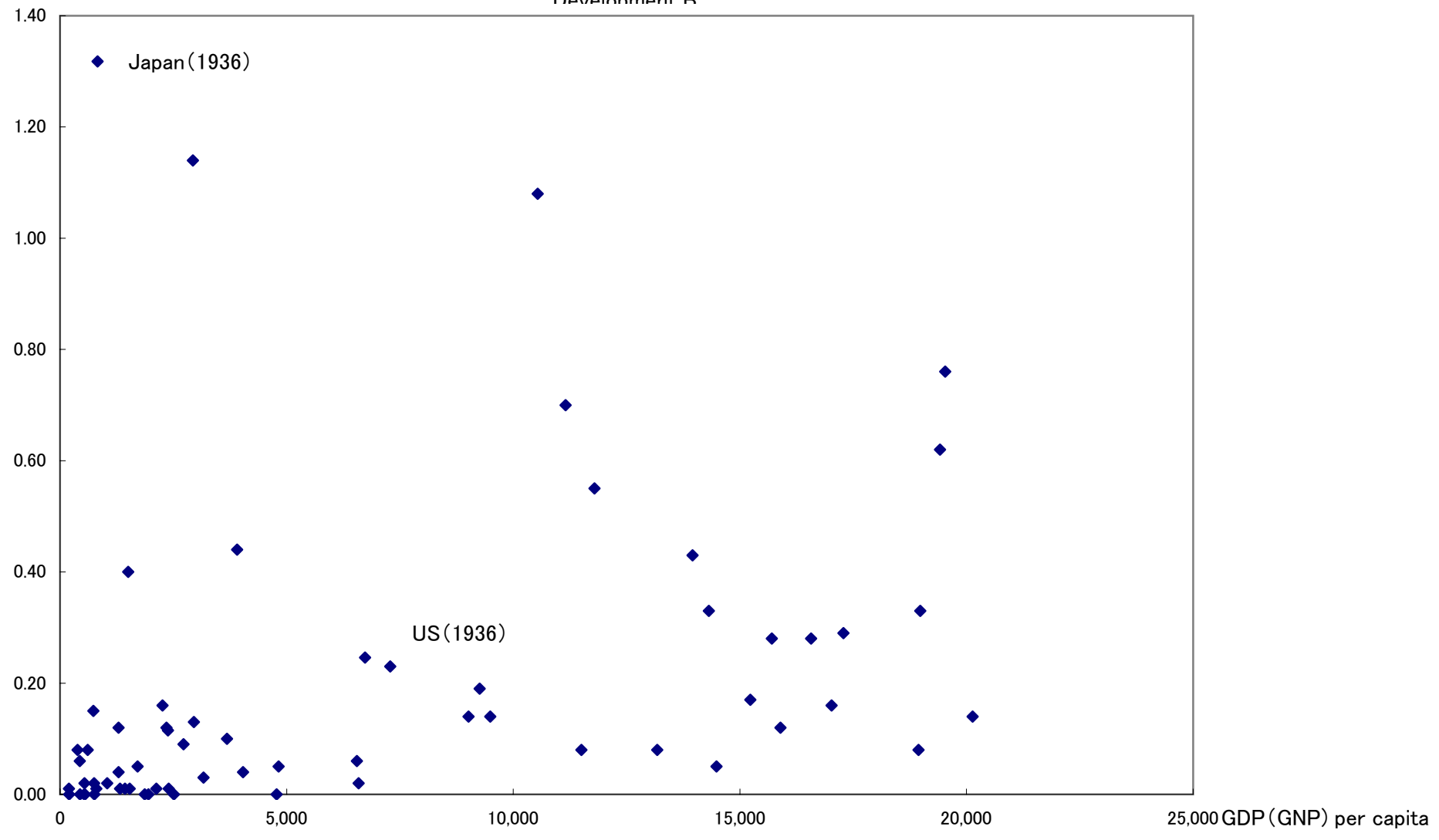




Table 1 Sources of fund for the corporate sector

	Amount (million yen, 100 million yen)				Percentage		
	Total	Stock	Debenture	Borrowing	Stock	Debenture	Borrowing
1886-1890	162	68	0	94	42.0	0.2	57.9
1891-1895	175	85	11	79	48.6	6.3	45.2
1896-1900	717	226	4	487	31.5	0.6	67.9
1901-1905	458	111	30	317	24.2	6.5	69.4
1906-1910	1,016	270	112	633	26.6	11.1	62.4
1911-1915	1,567	420	121	1,026	26.8	7.7	65.5
1916-1920	10,107	4,542	264	5,301	44.9	2.6	52.5
1921-1925	5,958	1,778	1,220	2,961	29.8	20.5	49.7
1926-1930	5,187	2,430	1,414	1,343	46.9	27.3	25.9
1931-1935	1,210	1,629	69	-488	134.6	5.7	-40.3
1936-1940	24,476	10,538	1,641	12,297	43.1	6.7	50.2
1941-1945	100,373	16,794	6,378	77,201	16.7	6.4	76.9
1946-1950	16,350	2,134	574	13,642	13.0	3.5	83.4
1951-1955	42,308	5,955	1,592	34,761	14.1	3.8	82.2
1956-1960	98,783	14,029	4,652	80,102	14.2	4.7	81.1
1961-1965	241,680	33,697	10,559	197,423	13.9	4.4	81.7
1966-1970	430,294	29,161	13,203	387,930	6.8	3.1	90.2
1971-1975	954,042	53,736	36,872	863,434	5.6	3.9	90.5
1976-1980	846,570	59,756	36,321	750,493	7.1	4.3	88.7
1981-1985	1,147,714	88,586	40,254	1,018,874	7.7	3.5	88.8

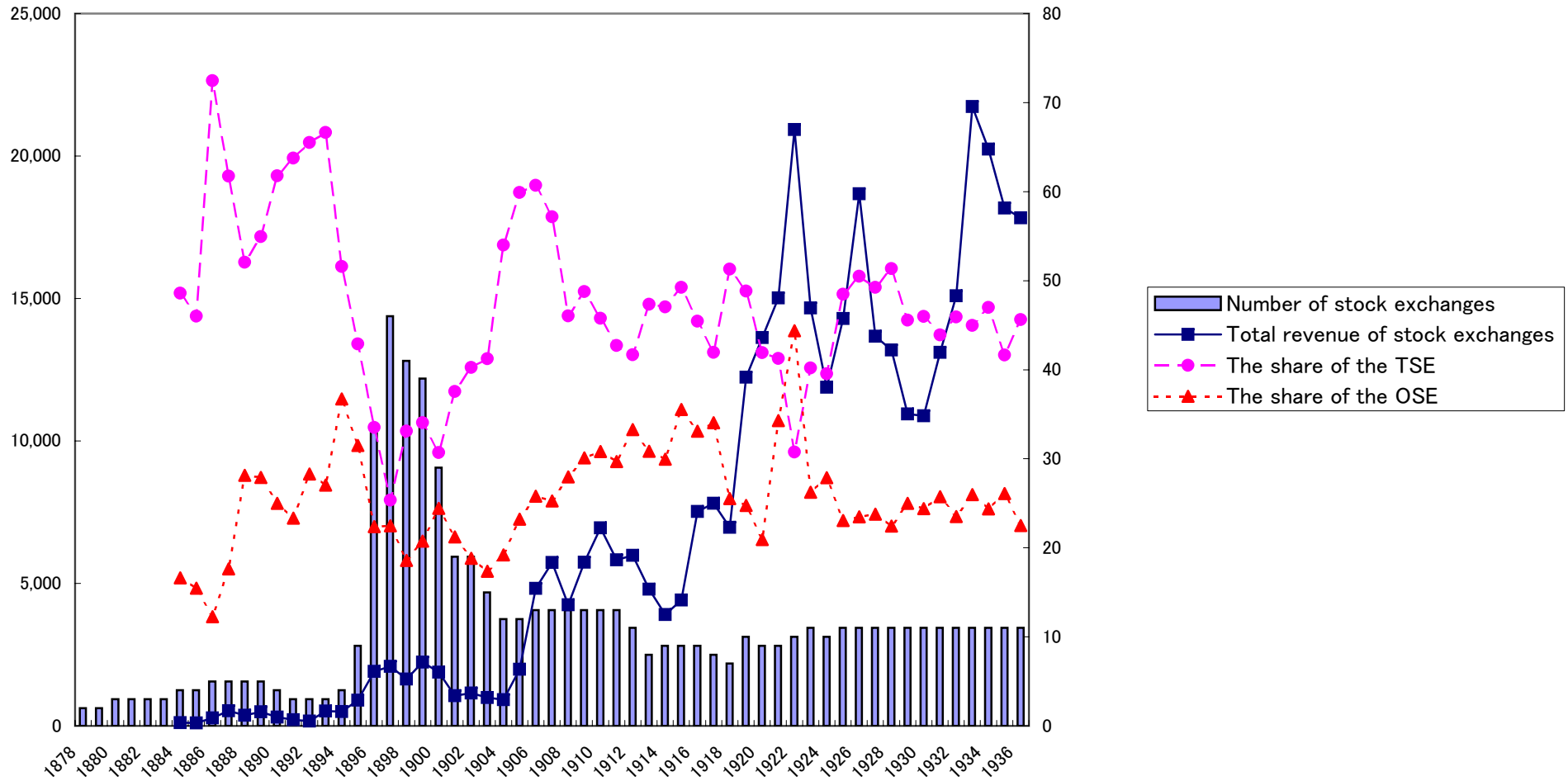
Source: Fujino and Teranishi[2000] pp.546-547; Toyo Keizai Shinposha[1991] p.356.

Note: The units of amount are million yen until 1945, and 100 million yen after that.

thousand yen

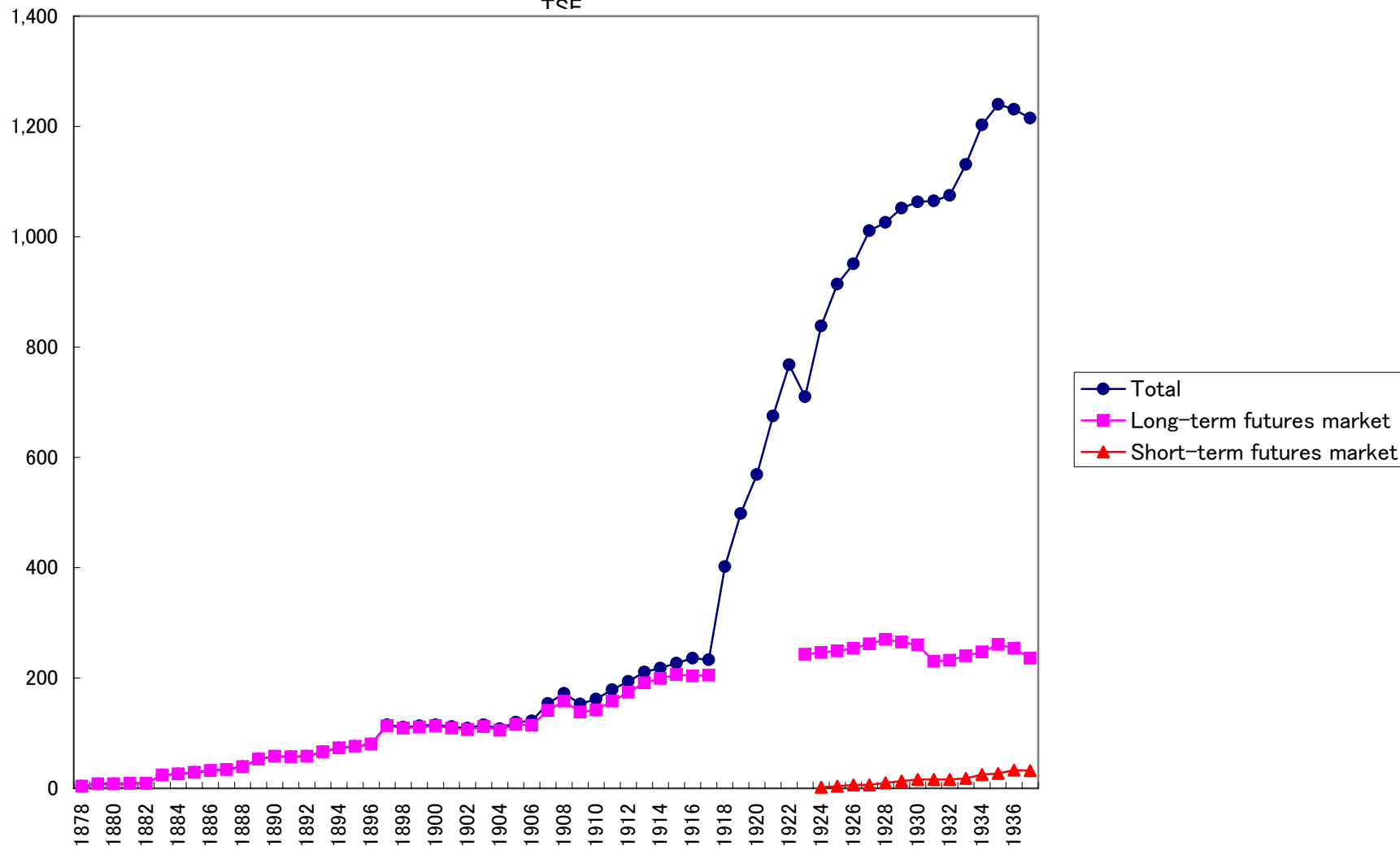
Figure 3 The position of the TSE: A long-term trend

number of stock exchanges, %



Source: Toyo Keizai Shinposha[1927]; Ministry of Commerce and Industry, *Handbook of exchanges*, various issues

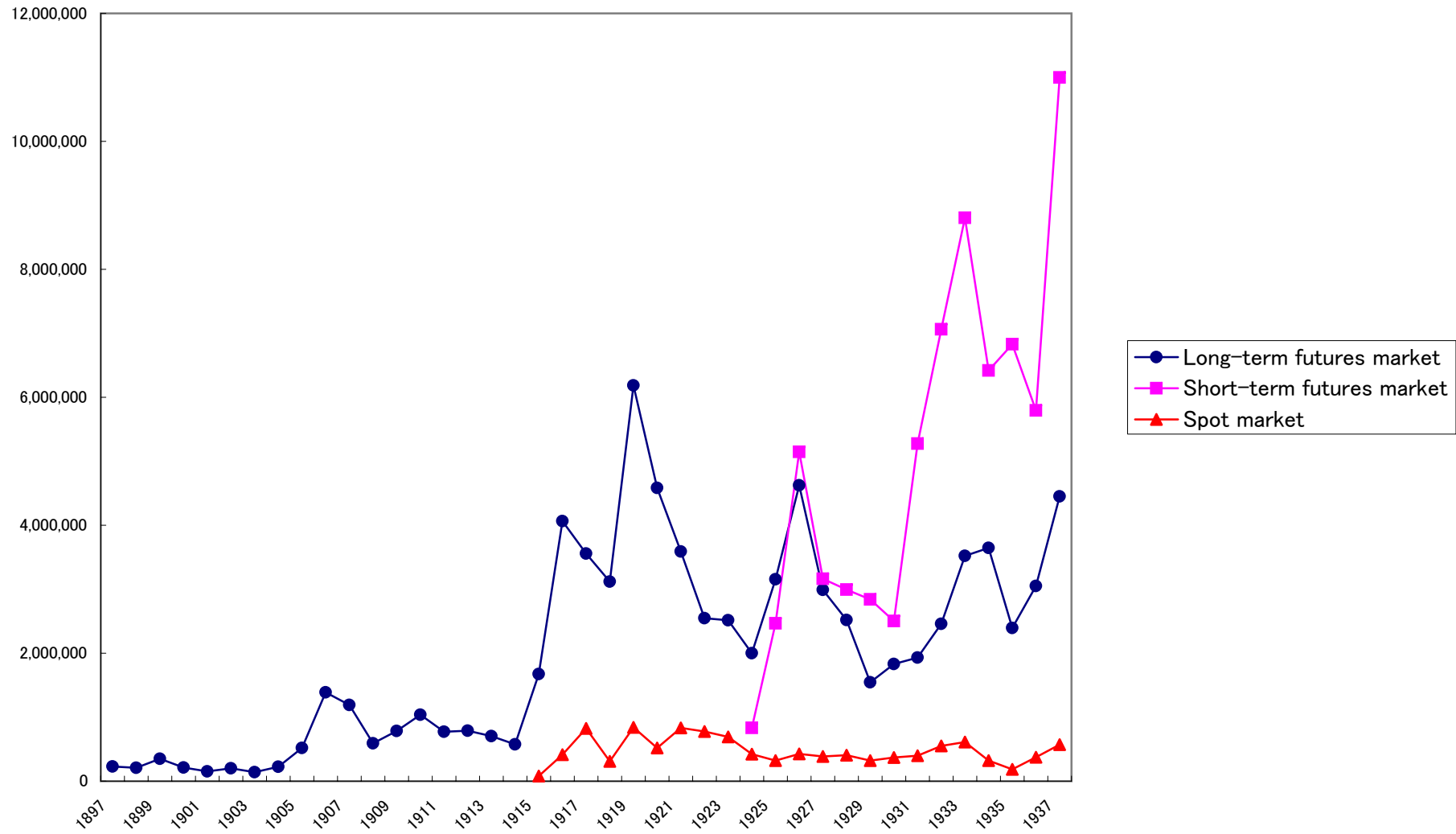
Figure 4a Number of the listed names at the TSE



Source: TSE[1938].

thousand yen

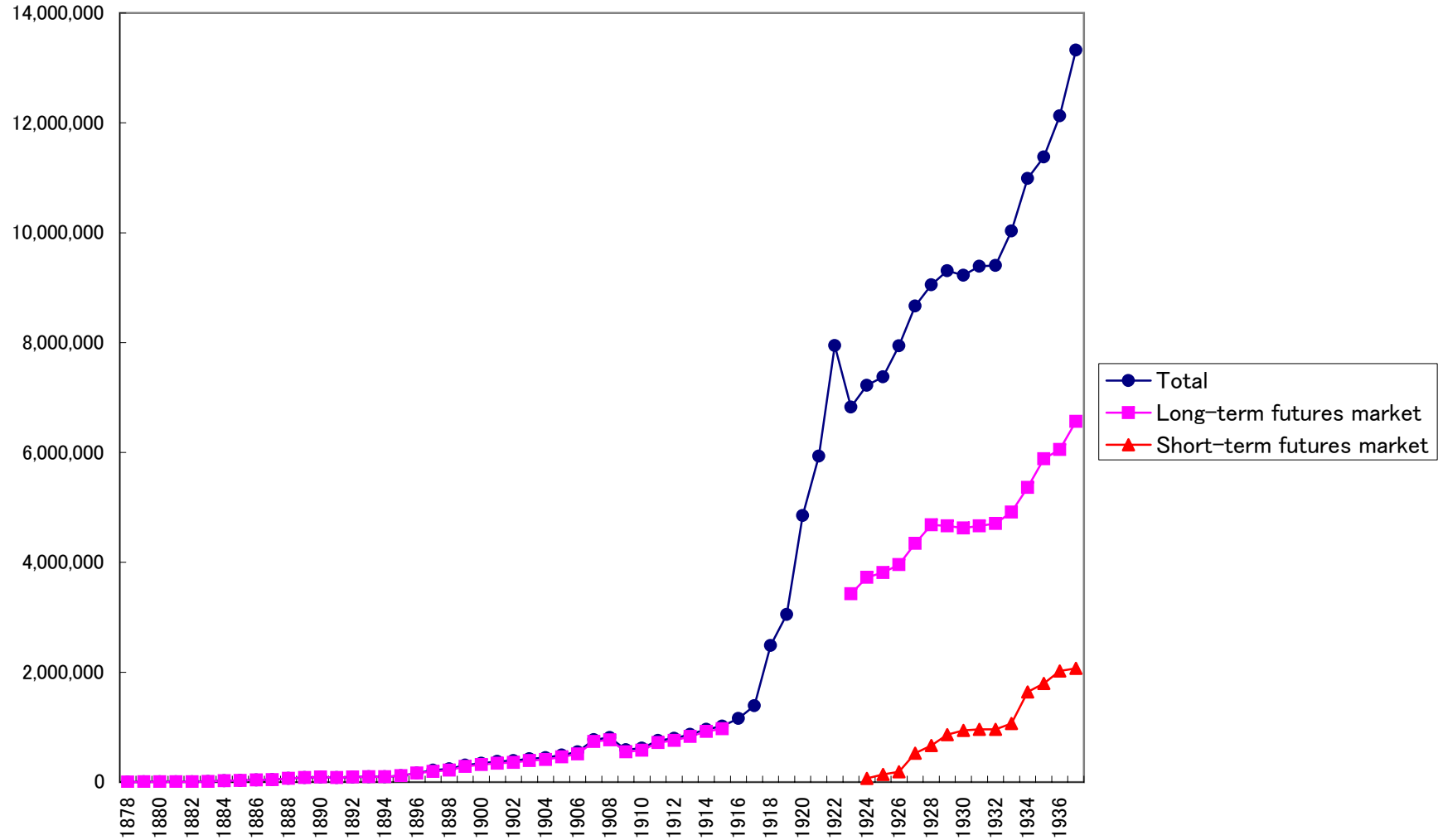
Figure 4b Value of traded stocks at the TSE



Source: TSE[1938].

thousand yen

Figure 4c Total face value of the stocks listed at the TSE



Source: TSE[1938].

Figure 5 (Total face value of the TSE listed stocks)/(Total capital of all the joint-stock companies in Japan)

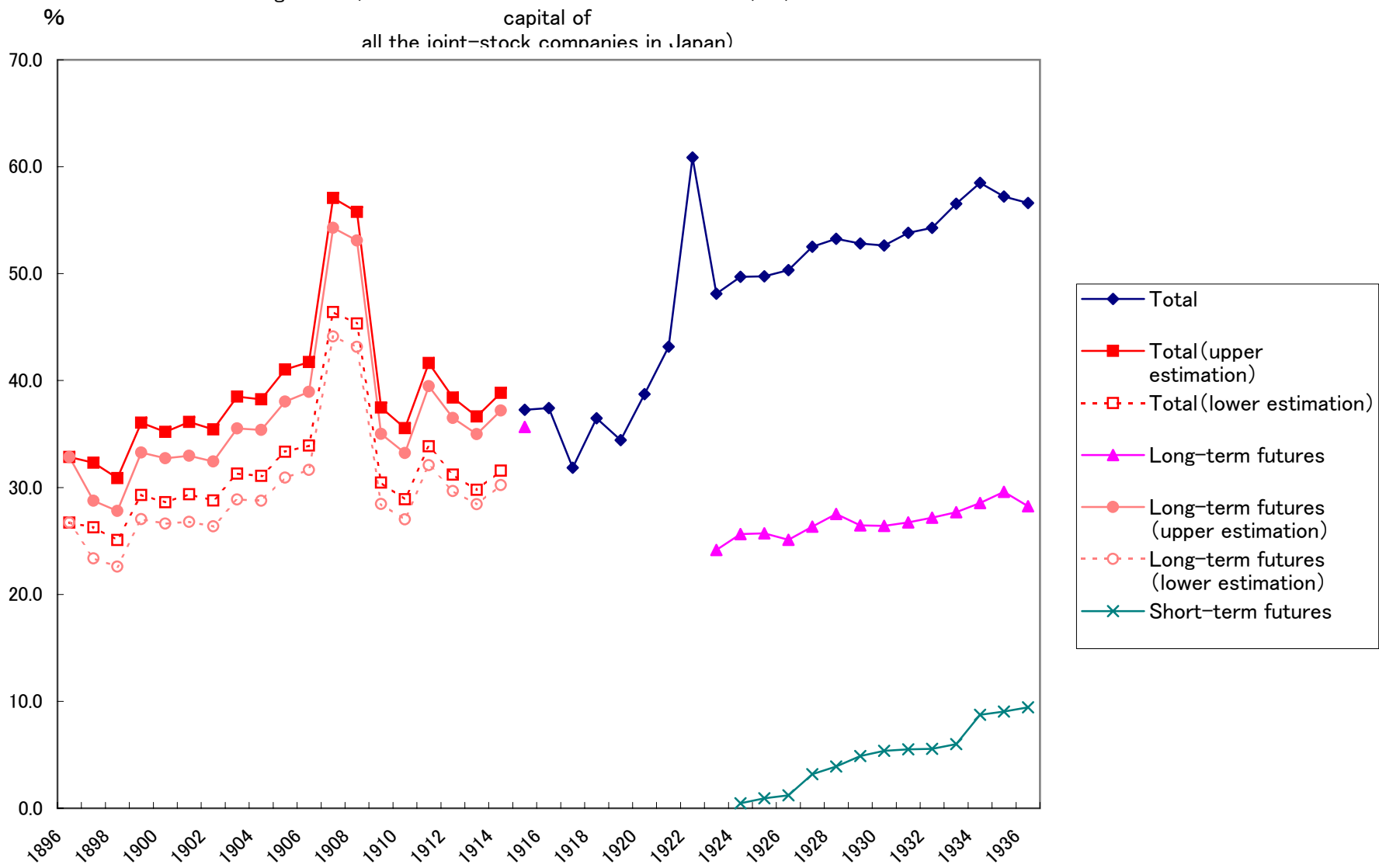


Table 2 Listed companies at the end of 1878

Name of the company	Industry	Prefect	Capital	Establishment year
Daiichi Bank	Bank	Tokyo	1,500,000	1876
Tokyo Kabutocho Rice Exchange	Exchange	Tokyo	40,000	1876
Tokyo Kakigaracho Rice Exchange	Exchange	Tokyo	50,000	1876
Tokyo Stock Exchange	Exchange	Tokyo	200,000	1878

Source: See the text.

Table 3a Composition of the TSE listed companies by industry (Total TSE listed companies )

	1885		1900		1915		1925		1935			
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage		
	Total	24	100.0	Total	96	100.0	Total	151	100.0	Total	899	100.0
1	Bank	20	83.3	Railway	29	30.2	Railway	32	21.2	Railway	84	9.3
2	Exchange	2	8.3	Coal and petroleum	6	6.3	Electricity	15	9.9	Electricity	52	7.5
3	Railway	1	4.2	Cotton spinning	6	6.3	petroleum	11	7.3	Insurance	52	7.5
4	e	1	4.2	Other textiles	6	6.3	Bank	9	6.0	Bank	47	6.8
5			Bank	5	5.2	Sugar	9	6.0	Commerce	44	6.6	
6			Foods	5	5.2	Foods	7	4.6	Foods	37	6.3	
7			Commerce	5	5.2	Cotton spinning	6	4.0	Chemical	36	6.0	
8			Shipping	4	4.2	Exchange	6	4.0	Machinery	35	5.7	
9			Insurance	4	4.2	Other textiles	6	4.0	Cotton spinning	33	4.7	
10			Exchange	4	4.2	Gas	5	3.3	Other textiles	30	4.7	
11			Paper	3	3.1	Commerce	5	3.3	petroleum	27	4.3	
12			Electricity	3	3.1	Shipping	4	2.6	Real estate	27	3.7	
13			Sugar	3	3.1	Insurance	4	2.6	Miscellaneous manufacturing	25	3.4	
14			Shipbuilding	2	2.1	Miscellaneous manufacturing	4	2.6	Development	23	3.2	
15			Fertilizer	2	2.1	Paper	3	2.0	Metal	20	3.1	
16			transportation	2	2.1	Fertilizer	3	2.0	Ceramics	18	2.7	
17			Fishery	2	2.1	Machinery	3	2.0	Exchange	17	2.3	
18			Gas	1	1.0	Shipbuilding	3	2.0	Sugar	15	2.2	
19			Entertainment	1	1.0	Chemical	3	2.0	Shipping	14	1.9	
20			Ceramics	1	1.0	Ceramics	3	2.0	Paper	13	1.8	
	Others	0	0.0	Others	2	2.1	Others	10	6.6	Others	72	1.8
											110	12.2



Table 3b Composition of the TSE listed companies by industry (Futures market)

Long-term futures market 1925				Short-term futures market 1935				
Industry	Number	Percentage	Industry	Number	Percentage	Industry	Number	Percentage
Total	160	100.0	Total	152	100.0	Total	24	100.0
1 Railway	26	16.3	Electricity	26	17.1	Metal	3	12.5
2 Electricity	21	13.1	Railway	22	14.5	Coal and petroleum	3	12.5
3 Coal and petroleum	11	6.9	Cotton spinning	9	5.9	Exchange	3	12.5
4 Sugar	11	6.9	Exchange	8	5.3	Electricity	2	8.3
5 Foods	8	5.0	Coal and petroleum	7	4.6	Sugar	2	8.3
6 Shipping	7	4.4	Chemical	7	4.6	Cotton spinning	2	8.3
7 Other textiles	7	4.4	Other transportation	6	3.9	Rayon	2	8.3
8 Exchange	7	4.4	Sugar	6	3.9	Railway	1	4.2
9 Cotton spinning	6	3.8	Machinery	6	3.9	Paper	1	4.2
10 Chemical	6	3.8	Ceramics	6	3.9	Ceramics	1	4.2
11 Insurance	5	3.1	Foods	5	3.3	Other transportation	1	4.2
12 Bank	4	2.5	Metal	4	2.6	Foods	1	4.2
13 Paper	4	2.5	Fertilizer	4	2.6	Fishery	1	4.2
14 Metal	4	2.5	Rayon	4	2.6	Fertilizer	1	4.2
15 Machinery	4	2.5	Shipbuilding	4	2.6			
16 Shipbuilding	4	2.5	Other textiles	4	2.6			
17 Miscellaneous manufacturing	4	2.5	Insurance	4	2.6			
18 Fishery	4	2.5	Gas	3	2.0			
19 Ceramics	3	1.9	Bank	3	2.0			
20 Gas	3	1.9	Miscellaneous manufacturing	3	2.0			
Others	11	6.9	Others	11	7.2	Others	0	0.0

Table 4a Geographical distribution of the TSE listed companies (total listed companies)

	Number					Percentage				
	1885	1900	1915	1925	1935	1885	1900	1915	1925	1935
Total	24	96	151	695	899	100.0	100.0	100.0	100.0	100.0
East	22	77	121	536	650	91.7	80.2	80.7	77.1	72.3
Hokkaido	0	4	2	7	9	0	4.2	1.3	1.0	1.0
Tohoku	2	0	0	8	16	8.3	0.0	0.0	1.2	1.8
Kanto	17	67	110	487	569	70.8	69.8	73.3	70.1	63.3
Tokyo	12	54	89	440	506	50.0	56.3	59.3	63.3	56.3
Chubu	3	6	9	34	56	12.5	6.3	6.0	4.9	6.2
West	2	19	22	105	171	8.3	19.8	14.7	15.1	19.0
Kinki	2	11	16	82	135	8.3	11.5	10.7	11.8	15.0
Osaka	2	4	13	66	105	8.3	4.2	8.7	9.5	11.7
Chugoku	0	3	2	11	17	0.0	3.1	1.3	1.6	1.9
Shikoku	0	0	0	1	5	0.0	0.0	0.0	0.1	0.6
Kyushu	0	5	5	11	14	0.0	5.2	2.7	1.6	1.6
Colonies	0	0	7	32	42	0.0	0.0	4.7	4.6	4.7
Overseas	0	0	0	22	36	0.0	0.0	0.0	3.2	4.0

Table 4b Geographical distribution of the TSE listed companies (futures market)

	Long-term				Short-term	
	Number		Percentage		Number	Percentage
	1925	1935	1925	1935	1935	1935
Total	180	152	100.0	100.0	24	100.0
East	127	121	70.6	79.6	18	75.0
Hokkaido	2	2	1.1	1.3	0	0.0
Tohoku	3	2	1.7	1.3	0	0.0
Kanto	117	111	65.0	73.0	18	75.0
Tokyo	104	102	57.8	67.1	17	70.8
Chubu	5	6	2.8	3.9	0	0.0
West	20	21	11.1	13.8	4	16.7
Kinki	15	17	8.3	11.2	4	16.7
Osaka	13	15	7.2	9.9	4	16.7
Chugoku	2	3	1.1	2.0	0	0.0
Shikoku	0	0	0.0	0.0	0	0.0
Kyushu	3	1	1.7	0.7	0	0.0
Colonies	11	8	6.1	5.3	1	4.2
Overseas	2	2	1.1	1.3	1	4.2

Table 5 Scale distribution of the TSE listed companies (in terms of capital)

	Total						Long-term futures		Short-term futures
	1878	1885	1900	1915	1925	1935	1925	1935	1935
Obs.	4	24	96	151	698	899	160	152	24
Max(1000 yen)	1,500	20,000	66,000	200,000	440,000	800,000	440,000	800,000	800,000
Min(1000 yen)	40	70	80	50	63	20	250	500	3,625
Mean(1000 yen)	448	1,302	4,216	8,141	11,705	13,816	27,589	45,549	121,325
Stdev(1000 yen)	705	4,033	9,000	18,405	27,108	39,368	47,302	84,385	168,737
Coefficient of variance	1.58	3.10	2.13	2.26	2.32	2.85	1.71	1.85	1.39

Table 6 Age distribution of the TSE listed companies

	Total						Long-term futures market		Short-term futures market
	1878	1885	1900	1915	1925	1935	1925	1935	1935
Obs.	4	24	96	151	698	899	160	152	24
Max(year)	2	9	28	43	53	63	53	63	63
Min(year)	0	4	0	1	0	0	3	1	6
Mean(year)	2	7	10	17	14	20	21.53	28.17	33.67
Stdev(year)	1	1	6	10	11	13	11.97	13.87	16.60
Coefficient of variation	0.67	0.17	0.59	0.59	0.79	0.62	0.56	0.49	0.49

Number of  
companies

Figure 6a Number of cotton spinning companies listed at  
the TSF

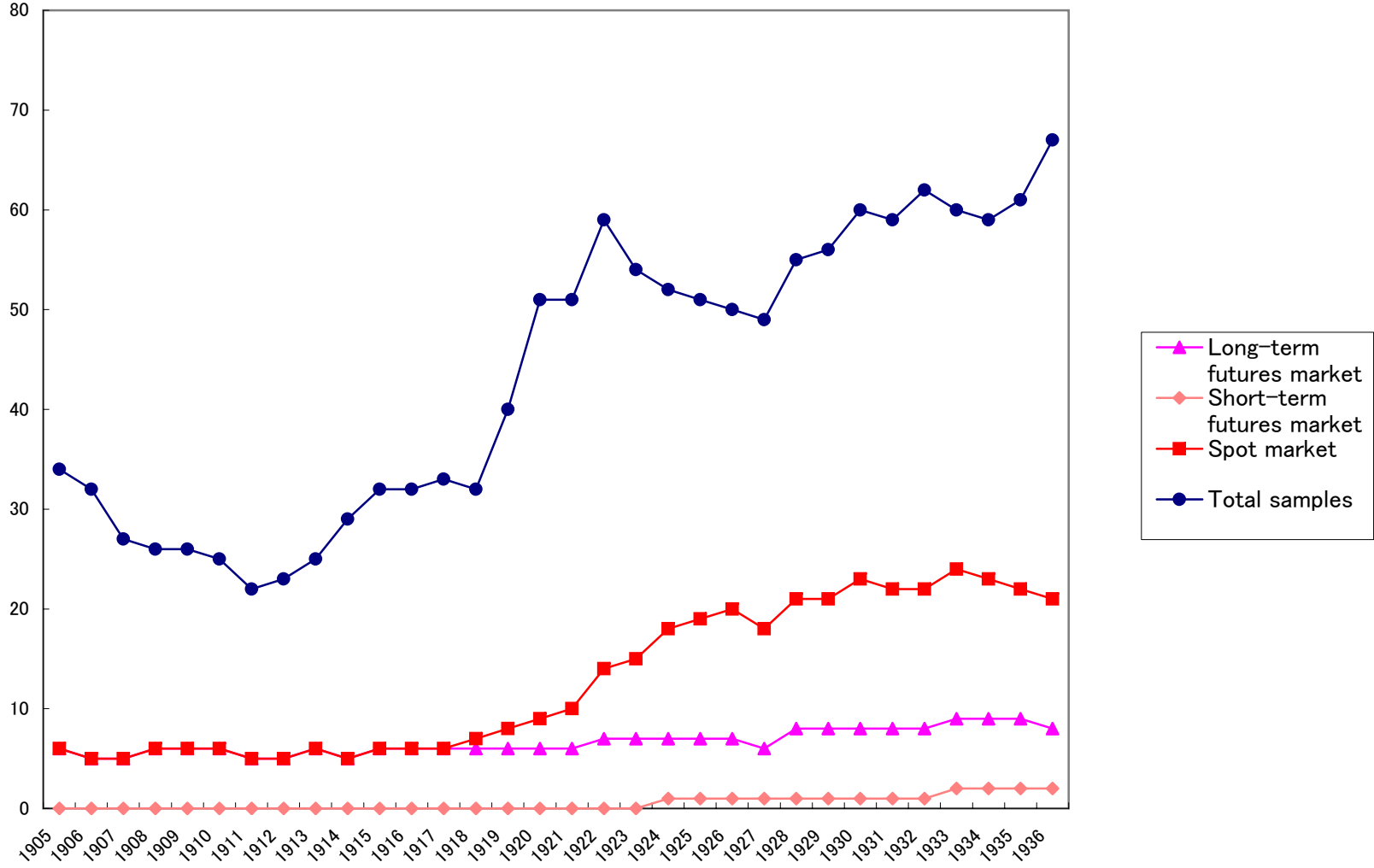


Figure 6b Eastern district bias and its decline in the cotton spinning companies listed at the TSE

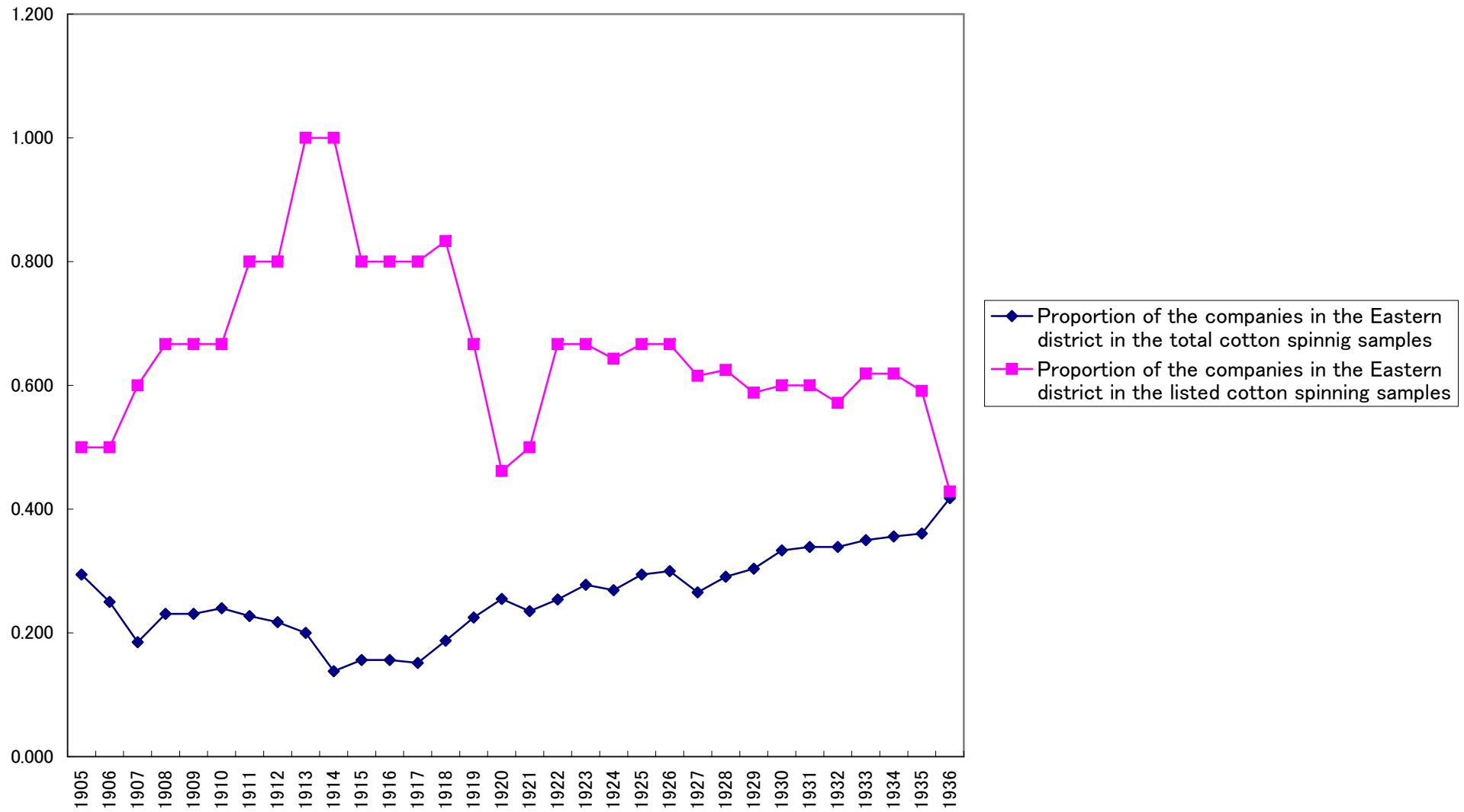


Table 7 Determinants of new listing at the TSE

Dependent variable:  $L_{it}$

Estimation methodes	LOGIT		LOGIT		POISSON		POISSON	
Constant	-11.545	(-5.041) ***	-0.713	(-5.808) ***	-10.872	(-5.571) ***	-7.012	(-5.992) ***
NCAP	0.075	( 3.333) ***	0.063	( 3.000) ***	0.0668	( 4.245) ***	0.056	( 3.715) ***
AGE	0.044	( 1.936) *	0.037	( 1.671) *	0.0431	( 1.982) **	0.037	( 1.759) *
ROE	1.409	( 0.733)	0.900	( 0.554)	1.402	( 0.982)	0.912	( 0.857)
EAST	6.413	( 3.960) ***	3.759	( 3.021) ***	5.835	( 3.938) ***	3.476	( 3.038) ***
REFORM	2.121	( 1.645) *	2.266	( 2.003) **	2.091	( 1.464)	2.175	( 1.907) *
EAST*REFORM	-6.418	(-3.648) ***	-3.844	(-2.636) ***	-5.821	(-3.540) ***	-3.543	(-2.543) **
LAW	4.260	( 2.796) ***			3.659	( 3.654) ***		
R <sup>2</sup>	0.071		0.035		0.071		0.0336	
Log likelihood	-72.040		-76.521		-73.179		-77.352	
Obs.	938		938		938		938	
Positive obs.	18		18		18		18	

t-values in parentheses

\*\*\* significant at 1% level

\*\* significant at 5% level