

Discussion Papers In Economics And Business

The Restructuring of Cotton Spinning Companies in Postwar Japan

Takeshi Abe

Discussion Paper 05-19

Graduate School of Economics and
Osaka School of International Public Policy (OSIPP)
Osaka University, Toyonaka, Osaka 560-0043, JAPAN

The Restructuring of Cotton Spinning Companies in Postwar Japan

Takeshi Abe

Discussion Paper 05-19

June 2005

この研究は「大学院経済学研究科・経済学部記念事業」
基金より援助を受けた、記して感謝する。

Graduate School of Economics and
Osaka School of International Public Policy (OSIPP)
Osaka University, Toyonaka, Osaka 560-0043, JAPAN

The Restructuring of Cotton Spinning Companies in Postwar Japan¹

Takeshi Abe

Graduate School of Economics
Osaka University²

Abstract

Since the mid-1960s, the Japanese cotton spinning industry has experienced steady decline. However, the whole process of this decline was the synthesis of several different firm strategies within the industry. If we look at this process, three types of firm strategies can be found; (1) positive restructuring from textiles to non-textiles (Kanebo, Nittobo, and Nisshinbo), (2) adherence to textile manufacturing (three *shinbo*: Kondobo, Tsuzukibo and Omikenshi), and (3) inactive restructuring in some large companies (such as Toyobo).

JEL Classification: N65, N85

Keywords: cotton spinning companies, postwar Japan, restructuring, Nisshinbo, *shinbo*, Toyobo

¹ An early version of this article was presented at the 27th Fuji Conference, 'Restructuring of Firms in Mature Industries' held by Business History Society of Japan at Fuji Kyoiku Kenshu-jo in Susono-shi, Shizuoka Prefecture, Japan, on 5th-7th January, 2003. The author would like to thank Dr. Annette C. Wright for her valuable comments. Needless to say, the author is solely responsible for any remaining errors.

² Address: 1-7, Machikaneyama-cho, Toyonaka-shi, Osaka Prefecture, 560-0043 Japan. E-mail: abe@econ.osaka-u.ac.jp

The Restructuring of Cotton Spinning Companies in Postwar Japan

Takeshi Abe

Introduction

The purpose of this chapter is to describe the process of restructuring of Japanese cotton spinning companies after the Second World War. This research is divided into three stages to consider the features of this particular sector; that is, the High-Growth Era (1955-1973); the long depression from the first Oil Crisis in 1973 to the mid-1980s; and the Bubble Economy (1987-1990) and its aftermath. This article will focus especially on the first and second stages.

According to the ranking lists of the total assets of Japan's top one hundred companies in 1955, sixteen companies belonged to the textile industry; and of those, ten were cotton spinning companies. Toyobo, Kanebo, and Dai Nihonbo ranked, respectively, the eighth, eleventh and twelfth in this list. However, in 1990 only three firms in the textile industry were left on the list, and among the cotton spinners only Kanebo (at 88th) was found there¹. Although Japanese textile firms, particularly cotton spinners, were proud of their strong competitive advantage in the world market until the early 1960s, after this period they lost that advantage and began to decline. But the decline of Japanese cotton textiles was a mild, slow and long-term process, which signified that the industry had persistent countervailing power against the developed countries.

Japan's industrialization started in the early 20th century led by such labor-intensive industries as textiles and mining. But the remarkable development of the heavy industries, such as metals, machinery, and chemicals had to wait until the 1960s, though it had begun to develop during and after the First World War. On the other hand, the textile industry in the pre-First World War period mainly consisted of cotton and silk. Silk reeling and sericulture were heavily damaged during the Great Depression after 1929. However, in contrast to this sector, cotton spinning and weaving maintained their top position in the world and even in 1933 surpassed the cloth exports of Lancashire (UK) in volume². And in spite of its total destruction after the Second World War, the Japanese cotton industry was miraculously reconstructed in about 1950 and retained its powerful position in production and exports until the early 1960s³.

In pre-war days, the Japanese cotton industry was composed of several different firm groups. The first group was the large spinning companies. Each company had modern machinery in many factories, and the larger companies within this group integrated weaving and finishing. In particular, the big three of Toyobo⁴, Kanebo, and Dai Nihonbo, became among the biggest such businesses in the world⁵. The second group was the many small- and medium-sized independent weaving firms in the local *sanchi* (producing centers). Most *sanchi* weavers, by introducing the factory system and mechanized power looms, could survive the cutthroat competition of the long depression after the First World War. Consequently, they coexisted with the integrated large weaving mills in the first group through the

segmentation of cloths, and became the consumer of 60 or 70 per cent of the cotton yarn spun by the spinning companies. The third group was the various merchants, most of whom dealt in yarn and cloth, while some large ones imported raw cotton from countries such as India and the USA. Such a functional industrial structure and the respective firms' or *sanchi*'s' efforts to improve the quality of products and cost cutting, brought about the industry's powerful competitive advantage. After the Second World War, while these three groups still remained, the fourth group, apparel firms (including not only manufacturers but also distributors), emerged in accordance with the downstream development of knitting, sewing, and designing. Among these four groups, this chapter will concentrate on the pillar of the Japanese cotton industry – the spinning companies.

1 Changes in the Japanese cotton spinning industry in wartime and the postwar occupation period

The Japanese cotton industry reached its zenith in the mid-1930s. However, as the Japanese economy was rapidly reorganized for war after 1937, the industry was put under direct government regulations. At first, the regulations were limited within such fields as price control and the enforcement of mixed yarn spinning with raw cotton and rayon staple fibre. But in July 1938, the use of imported raw cotton was restricted for the production for export goods, and as a result only rayon staple fibre was used for domestic textiles for daily wear. Through this process, the cotton industry was drastically re-organized. On the one hand, spinning companies were allotted raw cotton by the Japanese government. On the other, *sanchi* weavers became solely sub-contractors for spinning companies, and trading companies were also transformed into only a part of the governmental network of distribution. In order to allot the scarce foreign exchanges into the strategic heavy weapons industries, the cotton industry, which had consumed much imported raw cotton, came to be deemed a useless one. In the early 1940s, spinning companies were often horizontally integrated by the government. And the total number of firms, which had been sixty or seventy in the interwar period, decreased. Finally, ten large companies were established in 1943⁶, and each of which had respectively about one million spindles. Around the end of the war, they were obliged to deliver most of the spindles and looms to the government as the materials for weapons, and many spinning and weaving mills became the factories producing aircrafts or ships.

The defeat of Japan in August 1945 did not change the situation of the Japanese cotton industry in a favourable direction. The spinning companies had lost four-fifths of ten million spindles through the delivery of machinery to the government. They were worried about the shortage of raw cotton, electricity and workers, most of whom returned to their homeland in order to secure food. Hyperinflation was also a heavy blow for the companies. Consequently, they faced severe difficulties in producing yarn and cloth during the postwar period.

However, the US government, which had amassed huge surpluses of raw cotton under the New Deal in the Great Depression, was seeking a market and noticed that the Japanese cotton industry was

potentially a good consumer. The US government started to ship old raw cotton to Japan in June 1946. In addition, between December 1946 and February 1947 the General Headquarters of Supreme Commander for the Allied Powers (GHQ/SCAP) publicly permitted that the former ten large spinning companies could have spinning and weaving machines. About four million spindles were permitted, of which the ten companies had 3,680,000, with the difference (340,000 spindles) being allotted to twenty-five newly-founded companies (*shinbo*⁷). Amongst these were such dynamic companies as Kondobo, Tsuzukibo and Omikenshi. Nevertheless, it was not until 1950 that Japanese cotton spinning firms began enlarging their facilities. After the outbreak of the Korean War in June 1950, the upper limit of four million spindles was immediately removed. The industry dramatically developed within a year, adding many new entrants called *shin-shinbo*⁸ during this *itothen* (textile-related) boom.

The Japanese cotton industry was, however, thrown into turmoil earlier than any other industry, as overproduction and excess equipment became a serious problem. The Ministry of International Trade and Industry (MITI), established in 1949, tried to solve this problem by allowing the cotton spinners to refrain from expanding their investment into fixed capital through the allotment system of foreign exchanges relating to the import of raw cotton. In addition, MITI began to adopt the method of *Kankoku Sotan*, by which the ministry ‘recommended’ the curtailment of operation not to the whole cotton spinning industry (via the Japan Spinners’ Association) but to each of the spinning companies. This encouraged the spread of cartel activity that evaded the regulation of Anti-Trust Act in 1947, and was later to appear in other industries besides spinning. The first *Kankoku Sotan* continued between April 1952 and May 1953, indicating that the problem of overproduction or excess capacity became apparent in the early 1950s. In this period, the Japanese cotton spinning industry became a genuinely mature industry.⁹

2 Decline in the Japanese cotton spinning industry

Japan’s cotton industry soon recovered from the slump of the early 1950s, and increased production and exports. Between 1955 and 1970, the volume of cotton fabric production was kept at over 2.5 billion square meters. Although Japanese cotton spinning companies were often worried about the short depressions in the High-Growth Era, the cartel activities led by MITI eased their minds. *Kankoku Sotan* was instituted twice; first between May 1955 and June 1956, and second between April 1958 and July 1960. Additional curtailment of operation was conducted twice; first between August 1960 and March 1962, and then between April 1962 and September 1964. Because of these interventions, the Japanese cotton industry was able to survive until 1964.

The real crisis of the industry appeared in the depression of 1965. *Kankoku Sotan*, by which MITI could regulate the supply of raw cotton to cotton spinners, had already lost its impact after the deregulation on raw cotton imports in 1961. Nevertheless, after the promulgation of the Revised Temporary Measures for Textile Industry Equipment Law in 1964, a ‘depression cartel’ actually operated in cotton spinning as an exception to the Anti-Trust Act; first between October 1965 and

March 1966, second between April and December 1966, and finally between January and March 1967. After 1971, when the appreciation of the yen started under the pressure of US President Nixon's 'New Economic Policy', the volume of cotton fabric production decreased. In addition, the first Oil Crisis further aggravated the situation, and a 'depression cartel' was again organized between January and April 1975, and between April 1977 and June 1978. Finally, in 1985, when the Plaza Agreement was signed and the yen drastically appreciated, cotton fabric production became less than 2 billion square metres, and dwindled quickly thereafter. In 1995, only 1 billion square metres was produced.

In 1955, in the initial stage of the High-Growth Era, Japan's exports of textiles also prospered. The data shows that although the largest export item was iron/steel (12.9%), it was followed by cotton cloth (11.5%), and third was rayon filament and rayon staple (7.2%). The volume of exported cotton fabric from Japan remained at 1 billion square metres between 1956 and 1963. But after the depression around 1965, the volume quickly reduced. In contrast, imports, which were negligible in the 1950s, increased remarkably after the 1960s. The years when Japan became a net importer in volume for certain textile goods are as follows; silk yarn in 1966, cotton yarn in 1967, natural fibre yarn including cotton, silk, hemp and wool in 1970, silk fabric in 1970, total of natural fibre fabric in 1978, cotton fabric in 1984, and total of yarn including man-made fibre in 1987. Therefore, before the end of the High-Growth Era, the Japanese cotton industry had already lost its competitive advantage.

In this contraction, most Japanese cotton spinning and weaving firms were obliged to reduce their facilities and workers. The number of workers is shown on Figure 1, and the number of cotton spinning companies also diminished as follows: 134 in 1955, 93 in 1973, 84 in 1980, and 72 in 1985.

The textile industry of the Asian countries, which used to be the largest export market for Japan's cotton industry in the prewar years, developed spectacularly after the Second World War and soon accomplished import substitution. Consequently, as shown in Table 1, Japan's textile industry gradually shifted its export markets from Asian to advanced countries, such as the US and the Western European countries.

However, harsh criticism from the US government with regard to the inflow of Japan's cheap garments ('one dollar blouses') was already apparent in 1955 and MITI ordered the Japanese cotton firms to accept 'spontaneous restraint' (*Jishu Kisei*) on cotton goods exports to the US, with the firms finally agreeing to the proposition within a year. This measure prevented the expansion of Japan's exports of cotton goods to the US. In contrast to exports, which rapidly increased from 28 million square metres [m.s.ms.] in 1953 to 117 m.s.ms. in 1955, the volume of exports of Japanese cotton fabrics to the US dropped to 102 m.s.ms in 1956 and to 68 m.s.ms. in 1957. After the introduction of this policy, only in 1962 and between 1965 and 1969 did exports surpass 100 m.s.ms. before 1985¹⁰. Between 1969 and 1972 the US again attacked the Japanese textile industry, because it was concerned about the inflow of woolen and synthetic textiles (not cotton goods). To solve this conflict, MITI and

the Japanese textile industry finally accepted further *Jishu Kisei*¹¹. On the other hand, the US government succeeded in enforcing a Short-term Arrangement (STA) and a Long-term Arrangement (LTA) at the international conferences on cotton products organized by GATT in 1961, which aimed to regulate strictly the imports of cotton goods from the advanced countries to the US, while the US government helped the developing areas to export cotton products. In 1974, with political assistance from the EC countries, the US government also succeeded in enforcing a Multifiber Arrangement (MFA) at GATT, which related not only to cotton products but also to woolen and man-made fibre goods¹². Although these arrangements were apparently against the spirit of GATT and free trade, the MFA in particular became a measure for the protection of advanced countries' textile markets from the inflow of cheap goods made in the developing countries¹³.

Thus, Japan's textile industry lost its last hope of penetrating the large US market. Instead, Asian countries such as Hong Kong, Taiwan, and South Korea not only accomplished import substitution but also came to capture the foreign fabric markets in the 1960s. In the 1970s, these three areas encroached on the domestic textile markets in the US and the Western European countries, which used to be important to the Japanese textile industry. Adding to the Asian Newly Industrializing Economies (NIEs) including Hong Kong, Korea, Taiwan, Singapore, and Pakistan, which was separated from India in 1947, became very strong in cotton yarn exports. Moreover, from the end of the 1970s, mainland China's textile industry also recovered and enjoyed an economic 'miracle'. In the 1980s, particularly after the mid-1980s, as a result of the drastic appreciation of the yen, China spectacularly encroached on the Japanese domestic textile market.

Nevertheless, it is noteworthy that Japan did not relinquish easily her domestic textile market to the Asian countries, compared with the US and Western Europe, and the decline of Japan's textile industry was gradual and mild. Although the industry certainly became mature and contracted overall, it never resulted in heavy unemployment in a short period. During the long slump, some firms were able to preserve their strong competitive advantage, and the others steadily succeeded in changing from a typical labour-intensive structure to a capital intensive one, such as chemicals.

3 General conditions of the restructuring of Japanese cotton spinning companies

3.1 Condition of the labour market

One of the characteristics of Japan's cotton spinning labour-force in the prewar period – the preponderance of young unmarried female employees – was retained in the postwar period. As Figure 1 shows, in the decline after the 1960s, cotton-spinning companies had to reduce the numbers of workers. However, the feature mentioned above in addition to the inelasticity of the labour market in the High-Growth Era, greatly favoured the companies. Most of the female workers were teenagers and usually quit after a few years of working. From 1945 to the mid-1950s, there were so many young people who urgently required jobs soon after finishing compulsory education at the age of fifteen (after six years in primary school and three years in junior high school).¹⁴ But in the late 1950s, many

Japanese firms became worried about the shortage of such young workers in the process of rapid economic growth. While the average age of male workers rose from 31.3 in 1951 to 37.3 in 1961, female workers' ages, after rising from 19.8 in 1951 to 22.4 in 1955, dropped from 22.4 in 1955 to 20.8 in 1961. And while male workers' average working years experienced a steady increase from 7.3 in 1951 to 14.9 in 1961, the increase of female workers' average working years was relatively slow from 2.7 in 1951 to 5.3 in 1955, before falling to 4.2 in 1961.¹⁵ These data indicate that a young female worker soon left a cotton-spinning mill, while a male worker tended to stay in a firm for a long period. Although many Japanese companies began to look for graduates from senior high schools in the 1960s, and soon suffered from the shortage of a well-educated labour force, the cotton spinning companies continued to search after young graduates from junior high schools from border areas throughout Japan. Their intellectual level gradually deteriorated, but the companies had to do it.¹⁶ In addition, the young female workers earnestly desired to elevate their social status in this period. Some wanted to complete their higher education from about 1960, when many graduates of junior high schools were entering senior high schools¹⁷. Therefore, many cotton spinning companies had to let the young workers attend senior high schools. Other female workers hoped to find interesting new jobs, such as working as 'transistor girls' in the emerging electric equipment manufacturing companies (such as Sony, Panasonic, and Sanyo). Thus, in the 1960s the cotton spinning companies were worried about the shortage of young female workers and the costs of hiring them.

However, the shortage of young female workers was gradually becoming rather favourable to the cotton spinning companies. Figure 1 shows that from the 1960s (at the latest, the mid-1960s), the textile industry lost its competitive advantage and was obliged to reduce the number of workers. Certainly a contributory cause was the supply side condition of the labour market: it was too difficult for the spinning companies to recruit easily the young workers they needed. But the companies had to resist recruiting them sooner or later because of the coming depression.

During the long slump from the end of 1973 to the mid-1980s, the unemployment problem emerged. The unemployment rate rose from 1.1 per cent in 1970, to 1.9 per cent in 1975, 2.0 per cent in 1980, and 2.6 per cent in 1985¹⁸. In this situation, Japan's cotton spinning companies had to reduce the number of workers. However, the unemployment rates in this period were never as high as in the recent depression caused by the collapse of the Bubble Economy, when the level reached 5.6 per cent in January 2002. Before the Bubble Economy, most young females could eventually find new jobs after a few years' working in spinning or weaving mills.

The coal mining industry also experienced a decline after the late 1950s, but it was different from cotton spinning industry in the degree of its impact on the regional economies. As shown in the famous Miike dispute in Fukuoka Prefecture of Kyushu in 1960, serious conflicts between a firm and its workers often occurred, and business uncertainty resulted in the quick decline of the regional economy. However, such a situation did not appear in the cotton spinning firms, possibly because the collapse of

coal industry – precipitated by a drastic change in the government’s industrial energy policy that shifted from coal to petroleum – was too rapid. Another reason was in the labour force. While most workers in the cotton spinning were young unmarried female workers, the coal industry depended on middle-aged male workers, who usually had families and could not easily change their jobs due to age. In Table 2 we can see that, while the cotton spinning mills were dispersed in various regions, the coal mines were heavily concentrated in Hokkaido and Kyushu. This was another reason why the restructuring of Japanese spinning companies was so gradual and mild.

3.2 Policy of the Ministry of International Trade and Industry

In the restructuring of the Japanese textile industry, government policies, particularly the strategy of the Ministry of International Trade and Industry, were significant besides the labour market. With assistance from the powerful and well-organized Japan Cotton Spinners’ Association, which provided essential information and advice, MITI accelerated the restructuring of the textile industry. Firstly, MITI let the government promulgate four acts:

(1)Temporary Measures for Textile Industry Equipment Law (Old Textile Act: in 1956-64). The purpose of this act was to register all spinning machines, control their operation, abolish any excess weaving looms through buying them, and concentrate the production of yarn into highly effective facilities which could continue to absorb workers. Briefly, it was the regulation of facilities in expectation of the introduction of highly effective machinery¹⁹.

(2)Revised Temporary Measures for Textile Industry Equipment Law (New Textile Act: in 1964-1970). By this act, a textile firm was obliged to dispose of two old machines if it introduced a new one. In other words, it aimed at a combination of scrapping and modernization. If the firm introduced a new machine, the Japan Development Bank guaranteed funding at low interest rates, and with a low tax rate for special depreciation.

(3)Temporary Measures for Structural Improvement of Specified Textile Industries Law (in 1967-2001). In order to improve the structure of textile industry, this aimed at the modernization of facilities, adjustment of scale of production or administration, and planned disposal of excess equipment.

(4)Temporary Measures for Stabilizing Specified Depressed Industries Law (in 1978-1983). It ordered the industries which suffered from structural depression, including synthetics manufacturing and textiles spinning, to take various actions for the disposal of excess facilities, curtailment of operation and delivery as a premise of disposal. This act also prescribed security of funding, stabilization of employment, the guaranteeing of loans from a special fund, and cooperative actions instructed by MITI. Under this act, the spinning industry was obliged to dispose of about 60 million spindles by October 1979.

To some extent, these acts were effective in the elimination of excess capacity. But MITI often resorted to enforced cartel activities, which risked the positive effects of eliminating surplus textile capacity. In the prewar period the Japanese cotton spinning industry often curtailed operations. But such activities were spontaneously conducted at the behest of the Japan Spinners' Association, which skillfully adjusted various interests among many companies²⁰. In contrast, the postwar *kankoku sotan* and 'depression cartel' were led by MITI, and the ministry did not pay sufficient attention to each firm's interests. The number of cotton spinning companies was 134 both in 1955 and in 1964, when the Old Textile Act was valid. This suggests that the excessive and bureaucratic protection by *kankoku sotan* helped the weak firms survive in this period.

Secondly and conversely, MITI did not object to the free trade policy operating in the textile industry. It is well known that MITI adopted many policies to restrict imports and to accelerate exports especially in the period of the 1950s and 1960s²¹. But the ministry's aim was consistently to foster the emerging heavy industries, and its attitude to the textile industry may have been rather unique. MITI certainly recognized that the industry generally tended to decline because of the catching-up by developed countries. However, the ministry firmly believed that Japan's industrial growth was mainly dependent on the development of heavy industries. Thus in spite of several requests from the Japanese cotton spinners, MITI never asked GATT to apply the MFA to Japan against the inflow of textiles from some Asian countries. Although, in general, the Japanese government was obedient to the US government in the postwar days, MITI seems to have dared to expose Japanese textiles to the world competition.

It seems that MITI's cartel policy let the weak firms survive. But the measures promoted by the ministry for eliminating excess capacity were effective and MITI's free trade policy in textile products also contributed to the decrease of weak firms. As a whole, one can say that MITI's policies towards Japanese textile industry would have accelerated its restructuring²².

4 Strategies of cotton spinning companies

4.1 Outlook of the leading companies

Although the favourable condition of labour market and MITI's policy supported the restructuring of postwar Japanese cotton spinning companies, strategies of the respective companies were important and some patterns are found in their activities.

Table 3 displays the transition of the main Japanese cotton spinners in the postwar years. Most of the former ten large companies, which held the highest rank until 1964, gradually declined after this period. However, Nisshinbo was apparently the exception. Although Nisshinbo finally decreased the number of spindles in 1985, it continued to move up the ranking and to increase the number of spindles until 1980. In contrast, three *shinbo*, Tsuzukibo, Kondobo and Omikenshi, constantly increased their facilities and developed remarkably, especially after the end of the High-Growth Era. In 1985,

Tsuzukibo (and also Kondobo if the subsidiaries' spindles were included) surpassed Toyobo with regard to size, and was proud of its performance. Since these *Shinbo* are typical family firms, only scattered information of these firms is available. Nevertheless, it is impressive that in the case of Japanese cotton spinning companies, aggressive firms were not rare even if their businesses were stagnating generally.

Ten large spinning firms had already vertically integrated weaving and finishing cotton, and they further diversified into manufacturing various textiles such as silk, wool and rayon. Although they expanded in those businesses in the postwar period, a new feature is found in the case of firms engaged in synthetic fibre manufacturing. While this industry was deemed as 'chemicals' rather than 'textiles' in countries such as the US and Germany, it was treated as a textile industry in Japan (and in the UK) because many cotton spinners had added rayon manufacturing to their businesses in the interwar period²³. Six of the former ten large companies (that is, Toyobo, Kanebo, Dai Nihonbo, Kurehabo, Daiwabo and Nittobo) were eager to participate in the fierce competition in this new business and invested heavily in new facilities around the 1960s. However, the other four never entered the business. Nisshinbo and Kurabo are examples. And three *shinbo* also did not enter synthetic fibre manufacturing.

Diversification of cotton spinning firms in postwar Japan was not limited to the entry into synthetic fibre manufacturing. In the High-Growth Era (as Table 4 shows) Kanebo, Nisshinbo, and Nittobo conspicuously diversified into the non-textile sector. Kanebo had already experienced non-textile diversification and Nittobo had diversified into special textiles before the war.

4.2 Positive promoters of restructuring: Kanebo, Nittobo and Nisshinbo

Kanebo, which was established in Tokyo in 1887,²⁴ was quickly transformed from a textile firm to a large arsenal under the strong leadership of the president Shingo Tsuda between the 1930s and the end of the war. It collapsed after the war,²⁵ but restarted as a company engaged in the integrated manufacture of cotton, silk, wool, and rayon textiles. With the saturation of textile markets in the late 1950s, Kanebo started a radical diversification of its business. Firstly, Kanebo integrated backwards into apparels; secondly it engaged in the production of synthetics (nylon in 1963, polyester in 1969, and acrylic in 1970); and thirdly again began diversifying into non-textile products. In 1962, Kanebo re-purchased its former toiletry manufacturing business and developed a network of stores to market its goods. The company also moved into food processing through the purchase of the Harisu Company. Cosmetics became a famous example of diversification, and Kanebo gradually became recognized as a chemical company rather than as a textile manufacturer²⁶.

Nittobo was established in Fukushima Prefecture of Tohoku in 1923 for silk spinning. The founding Katakura family was world famous for its silk reeling business. But it began to worry about its rapid decline during the Great Depression after 1929. Restructuring the Nittobo business became a big challenge for the family and in 1933 it initiated the first and full-scale production of rayon staple

fibre in Japan. In 1937 the company merged with Nagoyabo and started cotton spinning and weaving. In the following year, it entered the production of rock wool and glass fibre, further diversifying throughout the wartime into hosiery, machinery, lumber and bricks, and mining.²⁷ Although Nittobo succeeded in non-textile diversification in the postwar period, the basis of this had already been established before the war. In the case of Nittobo, most of the wartime businesses were sold and closed, but rock wool and glass fibre were kept and became important products. In 1949, the company started researching acrylic, and then fibre-reinforced plastic (FRP) in 1952. In 1959, the new president Eiichi Shimada launched a Five-Year Plan, in which he insisted on diversification based on three pillars – textiles, rock wool for fire-resistance and sound absorption, and glass fibre insulation. Although it is difficult to determine whether or not the entry into synthetics (acrylic in 1956 and polypropylene in 1964) was successful, these diversifications – in addition to fine chemicals and the business of protection from environmental pollution – and the withdrawal from textiles continued after the Oil Crisis²⁸.

We would like to pay particular attention here to Nisshinbo, which had much less historical experience of non-textile diversification. If the real meaning of ‘restructuring’ is the transformation of a business into a completely different one, Kanebo, which energetically conducted non-textile diversification, may be the best example of restructuring. But in this article we prefer to select Nisshinbo (established in 1907), as a very important example of a firm, which recognized the significance of restructuring in the High-Growth Era.

Nisshinbo continued to produce cotton yarn and cloth as its main products within textiles, maintaining since the prewar days high profits through its sales of the highest quality goods at competitive prices. On the other hand, in the postwar period, this company came to promote non-textile manufactures, such as automobile brakes, machine tools, polyurethane foams, paper products, and so on. Table 5 shows that Nisshinbo exceptionally increased the number of male workers a few years after the first Oil Crisis, though it reduced the number of female workers from the end of the High-Growth Era. The executives of Nisshinbo, including its renowned president Takeshi Sakurada, expected even in the High-Growth Era that Japanese textiles might lose their competitive advantage and so the future of Nisshinbo depended on developing non-textile businesses. Its Five-Year Plan of 1960 projected that between 1959 and 1965 the percentage of textiles sales would fall from 93 per cent to 81 per cent and that cotton products in particular would decline from 74 per cent to 51 per cent, but that the percentage of non-textiles would increase from 7 per cent to 19 per cent²⁹. This perfectly illustrates the strong intention to shift from textiles to non-textiles. Table 5 confirms an excellent performance in financial ratios: fixed assets to capital remained at less than 100 per cent after the first Oil Crisis. It indicates that the investment in facilities did not depend on loans but was funded from company capital. The ratios of capital to total assets were around 40 per cent in the High-Growth Era, and even after that continued to rise to about 60 per cent. The profit rates rose after the Oil Crisis. Although in 1975 the company was in the red, it kept stable figures thereafter. Yonekawa pointed out

that Nisshinbo, as well as Kurabo, did not integrate synthetic fibre manufacturing, but purchased nylon and polyester from another company (Teijin³⁰) and spun good yarns by blending them with cotton yarn³¹. This is surely an important reason why Nisshinbo avoided excessive investment relating to synthetic fibre manufacturing. In addition to promoting non-textile diversification, Nisshinbo continued to cut costs and avoid excessive investment in textile manufacturing. The cost cutting strategy was common among the prewar Japanese cotton spinning companies³², and some *shinbo* also adhered to it.

4.3 Profit seekers in textiles: three *shinbo*

Three *shinbo* were reluctant to adopt the strategy of the non-textile diversification and clung to textiles. In particular, Kondobo persisted in specializing in cotton spinning and weaving. First, let us look at a short history of Kondobo.

In 1877 Shigehachi Kondo, a cotton cloth weaver and trader, established Kondo Shoten in the city of Nagoya, Aichi Prefecture. In 1914, he established at Nagoya, Kondo Bosekijo (Kondobo), which had 4,000 spindles and 60 power looms. When Shigehachi died in 1929, his son Nobuo Kondo (1903-1973), who was a student of Keio Gijuku University, inherited the Kondobo business. Despite the serious depression, in 1931 Nobuo reaped an enormous profit through speculation in American raw cotton, and thus rebuilt the business of declining Kondobo. Although Nobuo once closed Kondobo in protest at militarism in 1943, he secretly kept the spindles and looms and energetically bought subsistence commodities during the wartime.

In 1946, Nobuo purchased the Tsushima Mill of Howa Kogyo Company, an established textile machinery maker in Aichi Prefecture, and started weaving with 480 newly-installed power looms. In 1948, Kondobo was re-established in Nagoya with 10,000 spindles and 400 power looms by Nobuo as *shinbo*. Since Nobuo actively purchased the shares of Toyoda Automatic Power Loom Company – the core company of Toyoda Group and of Howa Kogyo – he could secure many spinning and weaving machines from those companies. In 1949, Kondobo increased the capital from 1 million yen to 12 million yen. In the following year, Nobuo acquired Toyohashi Mill of Hiyoshi Boshoku Company, and established Toyohashibo Company, which became a subsidiary of Kondobo with a capital of 30 million yen and 44,400 spindles. In 1951, Nobuo established Otsubo in Nagoya with 83,840 spindles, and acquired Okada Mill of Nakashichi Momen Company in Chita-gun of Aichi Prefecture and installed there 434 automatic power looms made by Enshu Power Loom Company. This mill later became Okada Mill of Kondobo. In 1952, Kondobo founded Sakurai Mill at Anjo, Aichi Prefecture, with 90,720 spindles. In that year, Tsushima Mill and Toyohashibo respectively increased spindles: the former had 62,936 spindles and the latter 60,780 spindles. In 1954, Nobuo acquired the land and buildings of Kato Bussan Company at Handa, Aichi Prefecture, and installed 219 power looms. In the same year, Tsushima Mill increased its spindles to 72,440. In 1955, Nobuo purchased Osaka Spinning Company, and established Ishizubo with 140 million yen and 84,800 spindles. In 1956, Sakurai Mill

and Tsushima Mill, respectively, increased spindles to 115,920 and to 83,780. In that year at Toyohashi, a second mill with 40,800 spindles was founded. And Kondobo purchased Nishiharu Mill of Daito Boshoku Company, installed 31,426 spindles and named it Nishiharu Mill. In 1962, Kondobo further purchased Sanyo Spinning Company with 53,800 spindles at Tamashima, Okayama Prefecture. In 1967, Kondobo established Hamamatsu Mill with 64,000 spindles, and founded Hamamatsu Second Mill with 48,000 spindles in the following year. In 1969, Kondobo further expanded Hamamatsu Third Mill with 64,000 spindles. In 1970, Nobuo again speculated on American raw cotton with over 20,000 million yen, and received a 10 per cent profit.

In 1973 when Nobuo died, his son-in-law, Sadao Kondo, succeeded to Nobuo's business. In 1981, Kondobo began to spin synthetic fibre, and established an unmanned spinning mill in Nagano Prefecture in 1982. In 1983, Kondobo officially declared itself to be 'the department store of various yarns', and completed a high-technology mill with the most advanced labour-saving automation. In 1987, Kondobo first merged with a foreign mill in Europe, and then acquired two spinning mills in the US in the following year³³.

A significant feature of the prewar Japanese cotton spinning companies was the strategy of purchasing raw cotton as cheaply as possible. Prices fluctuated violently largely due to unstable foreign exchange rates and also changes in raw cotton supply, because it was an agricultural product. Therefore buying up lots of raw cotton was risky and speculative. Nevertheless, it often brought enormous profits to the cotton spinning companies. Expertise in the speculation of raw cotton, such as that shown by Keizo Seki in Toyobo and Gengo Koderu in Dai Nihonbo, was applauded as a business success³⁴. Seki, the chairman of Toyobo, insisted that:

'The Japanese cotton industry since its inception has borne the risks of market fluctuations almost in their entirety. Because of this factor, many Japanese firms were abandoned businesses from the Meiji period to this time and day. Since most of these mills were transferred to new owners their facilities remained intact, but the fact remains that they were forced into bankruptcy or, if not bankruptcy, at least were transferred to the hands of new management. Because of these reasons, cotton spinning was considered an extremely risky industry until the time of the First World War.

Unlike the British or American cotton industries, the Japanese counterpart is a manufacturing industry, which has the misfortune of bearing huge commercial risks. It is not only a major manufacturing industry but it also has features and characteristics of financial trading. Since the industry has had to bear these enormous commercial risks, it is readily understandable that it was important not to remain in simple trembling fear of these crises, but to exploit negative economic situations, such as price fluctuations, to gain commercial profits. The Japanese cotton spinning industry, therefore, gave much more importance to the business of purchasing raw cotton. In every firm, managing executives

spent all their energies in studying and investigating raw cotton market conditions, in evolving ways, for purchasing cotton effectively and profitably.

During the early years of the industry's development, these research studies had not yet been pursued, and the mills had no knowledge of what reasons laid behind the worldwide market fluctuations. Naturally, management was unavoidably carried out in a trial-and-error fashion on information, furnished by foreign traders; consequently, fluctuations in the raw cotton market also led to the failure of uncountable companies. Eventually, however, along with the advancing research in this field and the amassing of capital funds after the First World War, many of the powerful firms earned enormous commercial profits. And some firms actually earned greater profits from commercial trading rather than from manufacturing.

Criticisms have been lodged, it is true, that it is both improper and going too far astray for a manufacturing industry to aim at commercial profits. If, however, commercial risks are actually being borne by the mills, simply waiting in idle inaction for these dangers to befall would only result in the industry's losing out in international competition. Therefore, it is but natural and realistic for management to exert itself to attain commercial profits. The important thing is that these efforts be carried out on a rational, well-laid plan, and essentially not be speculative. Personally, I am firmly convinced that these commercial profits have made enormous contributions to the growth of the Japanese cotton industry, along with the many practical rationalization measures carried out in the mills.³⁵

After the Second World War, it was said that the opportunities to reap enormous profits through speculative purchases of raw cotton diminished. But the case of Nobuo Kondo is an excellent illustration that this tradition survived even into the postwar period.

Tsuzukibo's history shows the significance of another legacy of the prewar days. In 1928 Ryohei Tzuzuki (1908-1982) succeeded to a weaving mill in Chita in Aichi Prefecture, which was founded in 1909 by his father, Kichitaro Tsuzuki. The mill had only 96 looms in 1927, but Ryohei increased the wide power looms for exports in 1936, becoming one of the largest weavers in Chita with 904 looms in 1939, and establishing Tsuzuki Weaving Company with 1 million yen capital in 1940. Although he was obliged to lend Nakajima Aircraft Company his mill until 1945, Ryohei changed the company's name to Tsuzukibo in 1948 and started cotton spinning with a capital of 30 million yen as *shinbo*. The growth of Tsuzukibo was remarkable. In 1959 the capital increased to 100 million yen. The number of spindles also increased from 10,000 at the beginning to 213,088 in 1955, 356,000 in 1965, 530,120 in 1975 and 812,032 in 1982. Apparently Ryohei avoided speculation and instead pursued technological improvement. He developed the innovative Tsuzuki New Spinning (TNS) system, a type of super-high draft spinning system, and succeeded in saving labour and in automating cotton spinning. In 1972, Tsuzuki's 20-count yarn spun at Izumo Mill with the TNS system was praised by Osaka Cotton Exchange (Osaka Sanpin Torihikijo) as equal to the products of the large spinning companies. Ryohei

was eager to have foreign subsidiaries, purchasing a mill in Brazil in 1960 and then six mills in the US. In 1979, Tsuzukibo had eleven mills in Japan and introduced air-jet looms into its weaving mills. In those days Tsuzukibo was proud to hold the strongest competitive advantage in the world. Tsuzukibo's success seems to have been based on technological innovation and offshore production, while utilizing the low costs of raw cotton and labour in the USA. Cost cutting through high technology, especially, was an important aspect of the prewar Japanese cotton spinning. When Ryohei died in 1982, the Tsuzuki family inherited his business.³⁶ Some financial data about Tsuzukibo is shown in Table 6. Although the assets and sales expanded remarkably, the ratios of fixed assets to capital were extraordinarily high, and those of capital to total assets extremely low. Tsuzukibo depended greatly on loans, and this may be a new feature of the postwar Japanese firms.

Omikenshi was established as a *peigne* (a sort of silk goods) manufacturing company, Omikenmen, in Hikone, Shiga Prefecture,³⁷ in 1917 by the Natsukawa family. The latter changed the name to Omikenshi and began silk spinning in 1919. In 1936, the company started to manufacture rayon staple fibre yarn, and the founder's son, Tetsunosuke Natsukawa, began to manage the company in the following year. In 1941 and 1943, Omikenshi merged with four spinning or weaving firms. In 1948, Omikenshi restarted as *shinbo* and engaged in cotton spinning. After its entry into worsted yarn spinning in 1953, the company experienced a notorious industrial dispute in 1954. In 1956, it founded a rayon staple manufacturing mill at Kakogawa, Hyogo Prefecture, and had eight mills by 1965. In 1969, Omikenshi separated the apparel division as Micalady Company, and constructed a mill at Iida in Nagano Prefecture in 1971. Furthermore, Omikenshi began to construct a cotton spinning mill in Brazil in 1973, and started another cotton spinning mill in the US in 1978. After the first Oil Crisis, Omikenshi reduced the number of workers and diversified into non-textiles: housing in 1976, printed base board manufacturing in 1983, employment agencies in 1985, though these were not so well promoted (see Table 4)³⁸. Table 7 shows that the ratios of fixed assets to capital were always over 100 per cent, and those of capital to total assets were less than 20 per cent compared with the end of the High-Growth Era. Omikenshi, besides Tsuzukibo, could only continue its operations through loans. Although the assets and sales tended to increase, Omikenshi did not expand so quickly as Tsuzukibo.

As a result, three *shinbo* succeeded in rapid expansion even in the period of depression after the Oil Crises. Kondobo's case shows the importance of skillful speculation in textile materials. The significance of technological innovation can be found in Tsuzukibo's case. Their successes depended on the heritage of prewar Japanese cotton spinning companies and the pursuit of cost cutting through technological improvement (as seen also in the case of Nisshinbo). It is certainly apparent that there was no restructuring in the *shinbo* case, and company strategies were based on the historical heritage of the Japanese cotton industry.

4.4 Inactive restructuring: Toyobo

Some of the former top ten spinning companies seem to have been typical mature firms of the

High-Growth Era. Certainly Toyobo and Unitika experienced slow or inactive restructuring. One of their strategies was the diversification from textiles to non-textiles, especially to chemicals³⁹. However, Fujibo and Daiwabo hardly changed their fully integrated production of textiles, and Shikibo clung alone to manufacturing rayon and cotton textiles. Nevertheless, before the High-Growth Era, all of them had diversified within textiles. Most of them produced not only cotton goods but also woolen and rayon products. In the High-Growth Era Nichibo (later Unitika), Toyobo and Daiwabo invested in facilities to integrate backwards into synthetic fibres such as nylon, acrylic, and polyester. Finally, at about the time of the first Oil Crisis, Toyobo and Unitika slowly entered such new fields as plastics and biotechnology. But in contrast, the remaining three companies never pursued the same strategy. The restructuring of these large companies was generally slow, and it might be difficult to find the proof of restructuring in Fujibo, Daiwabo and Shikibo. However, these large firms seem to have set the trend for the Japanese cotton spinning – that is, gradual decline since the 1960s.

The characteristic of inactive restructuring is well shown in the case of Toyobo. The company was established in 1914 through the amalgamation of Osakabo and Miebo, was world famous as one of the largest companies before the Second World War, and was proud of manufacturing various textile products with high quality and value-added before and after the war. In October 1965, Toyobo was operating 22 domestic mills with 19,329 workers, had 32 affiliated or subsidiary companies in Japan, in addition to the management of three overseas companies (Toyobo New York, Daito Boshoku Company in Hong Kong, and Toyobo Brazil).⁴⁰ Toyobo developed such excellent technologies as CAS (Continuous Automated Spinning System). CAS, invented by Howa Kogyo in 1960, was the first system in the world which made ginned cotton directly into yarn. This technology was further diffused into the other Japanese spinners: NASS of Nittobo, DAS of Daiwabo, KMS of Kurehobo, KATS of Kurabo, and KAPS of Kanebo. Labour relations at Toyobo were excellent, partly because of sufficient welfare provision.⁴¹ Toyobo's assets were plentiful (see Table 8). In short, Toyobo seems not to have had any problems in the early 1960s. However, this situation changed when the company started to produce synthetic fibres (acrylic in 1956, spandex in 1960, polypropylene in 1961 and polyester in 1962), which needed heavy investment. In addition, in 1966 Toyobo merged with the large company Kurehobo, which had suffered from the depression after its entry into nylon manufacturing in 1964. This merger meant that Toyobo was deeply involved in the financial burden of synthetics production (as Table 8 suggests), although Toyobo acquired ten mills with 10,471 workers from this merger.

Toyobo's business of synthetics was the first step for manufacturing chemicals and the sign of further diversification into non-textiles. One new business was the manufacture of film for wrapping and of plastics. Although the introduction of polypropylene as a material for textiles in 1961 resulted in failure, the production of film after 1963 was successful. In 1965, polyester plastics began to be produced, followed by nylon in 1970. In 1968, a plastics division was established in Toyobo. The company had a biotechnology division in 1972, built on the site of the old pulp manufacturing Inuyama Mill (demolished in 1968) in Aichi Prefecture. These new businesses gradually developed in

Toyobo after the first Oil Shock, but the result was not dramatic. The main interest of Toyobo was still in high-quality textile products.⁴² According to Table 8, Toyobo's profit rates after the Oil Crises were not too bad, but the other financial ratios worsened during the period.

The restructuring strategy of large cotton spinning companies, such as Toyobo, also explains how their historical legacy exercised a significant influence on their business. With the confidence borne of their memories of their great successes in textile manufacturing, their restructuring from textiles to non-textiles consequently became very lethargic.

Concluding remarks

Since the mid-1960s, the Japanese cotton spinning industry has experienced steady decline. However, the whole process of this decline was the synthesis of several different firm strategies within the industry. If we look at this process, three types of firm strategies can be found; (1) positive restructuring from textiles to non-textiles (Kanebo, Nittobo, and Nisshinbo); (2) adherence to textile manufacturing (three *shinbo*: Kondobo, Tsuzukibo and Omikenshi), and (3) inactive restructuring in some large companies (such as Toyobo).

Strategy (2) shows clearly that competitive advantage is supported by continuous efforts and aspirations to improve the quality of products and to reduce the costs. The framework for this strategy was very strong and effective by the mid-1980s. Three *shinbo* firmly retained speculation in raw cotton and cost-cutting through technical improvement that had been developed by the prewar cotton spinning companies, and could still enjoy a strong competitive advantage doing so.

However, even for such firms, it seems to have been impossible or very difficult to survive in an era of cutthroat competition, when their businesses were faced with globalization after the Plaza Agreement in 1985. In this new and difficult environment, strategy (1) became particularly effective, and the farsightedness of some companies such as Nisshinbo should be praised highly.

Finally, although strategy (3) is conservative and inactive, it seems to have set the trend for the Japanese cotton spinning industry's gradual decline since the 1960s. But it may also be a historical inheritance of the industry. It seems that their past memory – i.e., the confidence derived from great success in textile manufacturing – has influenced the attitude of companies to restructuring.

Bibliography

Abe, T. (1992a). 'The Development of the Producing-Center Cotton Textile Industry in Japan between the Two World Wars'. *Japanese Yearbook on Business History*, 9: 3-27. (Reprinted in W. Lazonick and W. Mass (eds.). (1995) *Organizational Capability and Competitive Advantage*. Aldershot: Edward Elgar Publishing Ltd., 426-50.)

- Abe, T. (1992b). 'Kei-kogyo no Saiken'[Reconstruction of Light Industry], in Tsusho Sangyo-sho and Tsusho Sangyo Seisaku-shi Hensan Inkai (eds.), *Tsusho Sangyo Seisaku-shi* [History of International Trade and Industry Policy], Vol.3. Tokyo: Tsusho Sangyo Chosa-kai, 565-612.
- Abe, T.(1995). 'Mengyo' [Cotton Industry], in Haruhito Takeda (ed.), *Nihon Sangyo Hatten no Dainamizumu*[Dynamism of the Development of Japanese Industry]. Tokyo: Tokyo Daigaku Shuppankai, 35-77
- Abe, T.(2004). 'Organizational Changes of the Japanese Cotton Industry during the Inter-war Period: From Inter-firm-based Organization to Cross-sector-based Organization', in D.A.Farnie and D.J.Jeremy (eds.), *The Cotton Industry in International Perspective, 1600-1990*. Oxford: Oxford University Press, 461-93.
- Desler, I.M., H. Fukui and H. Sato. (1979). *The Textile Wrangle: Conflict in Japanese-American Relations, 1969-1971*. Ithaca: Cornell University Press.
- Farnie, D.A. and S. Yonekawa. (1988). 'The Emergence of the Large Firm in the Cotton Spinning Industries of the World, 1883-1938'. *Textile History*, 19/2: 171-210.
- Fletcher III, W. M.(1998). 'Co-operation and Competition in the Rise of the Japanese Cotton Spinning Industry, 1890-1926'. *Asia Pacific Business Review*, 5/1: 45-70.
- Fletcher III, W. M.(2000). 'Economic Power and Political Influence: The Japan Spinners Association and National Policy, 1900-30'. *Asia Pacific Business Review*, 7/2: 39-62.
- Fujikawa, W. (1967). *Omikenshi Gaishi*[History of Omikenshi]. Osaka: Omikenshi Kabuski-gaisha.
- Fujino, J.(1974). *Tenka no Sobashi, Ningen Kondo Nobuo* [Great Speculator, Nobuo Kondo] . Tokyo: New Japan Press Co.
- GHQ/SCAP(ed.).(c.1951). 'Textile Industries', *History of the Non-Military Activities of the Occupation of Japan, 1945-1951*.
- Ishida, H. and Y. Murao. (2000), 'Joshi Chusotsu Rodo Shijo no Soshikika'[Institutionalization of Labour Market with reference to Female Workers Graduating from Japanese Junior High Schools], in T. Kariya, S. Sugayama and H.Ishida (eds.), *Gakko, Shokuan to Rodo Shijo : Sengo Shinki Gakusotsu Shijo no Seidoka Katei* [Schools, Public Employment Offices, and the Labour Market in Postwar Japan: Institutionalizing Process of Labour Market of New Graduates] . Tokyo: Tokyo Daigaku Shuppan-kai, 2000, 155-192.
- Johnson, C.(1982). *MITI and the Japanese Miracle: the Growth of Industrial Policy, 1925-1975*. Stanford, California: Stanford University Press.
- Joung, A. (1997). 'Senji-ki "Kanebo Gurupu" no Henyo to Kanegafuchi Kogyo no Setsuritsu' [The Reorganization of "Kanebo Group" and the Establishment of Kanegafuchi Kogyo Company in the Wartime Economy]. *Keiei Shigaku* [Japan Business History Review], 32/3, 25-54.
- Kaiko 30 Nen' Henshu Inkai (ed.).(1953). *Kaiko 30 Nen* [30 Years History]. Tokyo: Nitto Boseki Kabushiki-gaisha.
- Kanebo Co.(ed.). (1988). *Kanebo 100 Nen-shi* [100 Years History of Kanebo]. Tokyo: Kanebo Kabushiki-gaisha.
- Kase, K.(1997). *Shudan Shushoku no Jidai: Kodo Seicho no Ninaite-tachi* [The Age of Collective Recruitment: Actors of the High-Growth Era]. Tokyo: Aoki Shoten.
- Kataoka, E.(1993). 'Sengo no Boseki ni okeru Romukanri / Kyoiku Mondai' [Labour Management and Educational Problem in the Postwar Cotton Spinning] (2). *Nihon Boseki Geppo*, 554: 46-50.
- Kodera Gengo O Denki Kanko-kai(ed.).(1960). *Kodera Gengo O Den* [The Biography of Gengo

Kodera]. Osaka: Kodera Gengo O Denki Kanko-kai.

Murakami, Y., T.Abe and S.Higashiguchi.(2000). 'Sengo Men-boseki ni okeru Romu Kanri: Ichi Romu Kanrisha no Kaiko[Labour Management of the Cotton Spinning Industry in the postwar Japan: Memoirs of a Labour Manager]' (1)(2). *Osaka Daigaku Keizaigaku*, 51-1, 51-2: 111-35 and 308-31.

Nakamura, S.(1993). 'Kigyo Rankingu no Hensen' [Transition of Firms' Ranking], in H.Itami et al. (eds.), *Nihon no Kigyo Shisutemu* [System of Japanese Firms], Vol.4. Tokyo: Yuhikaku: 341-379.

Nihon Boseki Kyokai (ed.). *Menshi Boseki Jijo Sankosho* [Reports on Cotton Spinning].(After 1964 *Boseki Jijo Sankosho*).

Nihon Keizai Shinbunsha (ed.). *Kaisha Nenkan* [Nikkei; Annual Corporation Reports]. Tokyo: Nihon Keizai Shinbunsha.

Nihon Keizai Shinbunsha (ed.). *Kaisha Sokan* [Nikkei; Annual Corporation Reports <Unlisted>]. Tokyo: Nihon Keizai Shinbunsha.

Nisshin Boseki Kabusiki-gaisha (ed.).(1969). *Nisshin Boseki 60 Nen-shi* [Sixty Years History of Nisshinbo]. Tokyo: Nisshin Boseki Kabushiki-gaisha.

Nisshin Boseki Kabusiki-gaisha. *Yuka Shoken Hokokusho* [Company Report].

Omikenshi's Homepage on Internet (<http://www.omikenshi.co.jp/>)

Research and Statistics Department, the Bank of Japan (ed.). *Keizai Tokei Nenpo* [Economic Statistics Annual].

Seki Keizo-shi Tsuikai-roku Kanko-kai (ed.).(1965). *Seki Keizo-shi Tsuikai-roku*[Memoirs of Mr.Keizo Seki]. Osaka: Seki Keizo-Shi Tsuikai-roku Kanko-kai.

Seki, K. (1956). *The Cotton Industry of Japan*. Tokyo: Japan Society for the Promotion of Science.

Shashi Henshu Iinkai & Shashi Henshu Jikko Iinkai (eds.).(1979). *Nittobo Han-seiki no Ayumi* [50 Years History of Nittobo]. Tokyo: Nitto Boseki Kabuski-gaisha.

Shigen-cho Chokan Kanbo Tokei-ka [Statistics Division, Director-General's Secretariat, Agency of Natural Resources] (ed.).(1949). *Honpo Kogyo no Susei* [Mining Yearbook of Japan].

Shimazu, C.(1953). *Joshi Rodosha: Sengo no Men-Boseki Kojo* [Female Workers: Postwar Cotton Spinning Mills in Japan]. Tokyo: Iwanami Shoten.

Shindo, T.(1961). *Labour in the Japanese Cotton Industry*. Tokyo: Japan Society for the Promotion of Science.

Singleton, J.(1997). *The World Textile Industry*. London & New York: Routledge.

Sugihara, K.(1997). 'Sengo Nihon Mengyo wo meguru Kokusai Kankyo'[International Circumstances surrounding the Japanese Cotton Industry, 1946-1960]. *Kindai Nihon Kenkyu* [Journal of Modern Japanese Studies], 19. Tokyo:Yamakawa Shuppansha: 84-110.

Sumiya, M.(ed.).(2000). *A History of Japanese Trade and Industry Policy*. Oxford & New York: Oxford University Press.

Takamura, N.(1971). *Nihon Boseki-gyo-shi Josetsu* [An Introduction to the Japanese Spinning Industry] , two volumes. Tokyo: Hanawa Shobo.

Tawa, K.(ed.). (1962). *Sengo Boseki-shi*[History of Spinning Industry in Postwar Japan]. Osaka: Nihon Boseki Kyokai.

Tawa, K.(ed).(1979). *Zoku Sengo Boseki-shi* [History of Spinning Industry in Postwar Japan, Vol.2] . Osaka: Nihon Boseki Kyokai.

Toyo Boseki Kabuski-gaisha Shashi Henshu-shitsu(ed.). (1986). *Hyaku Nen-shi: Toyobo* [100 Years History of Toyobo], two volumes. Osaka: Toyo Boseki Kabuski-gaisha.

Toyobo. *Yuka Shoken Hokokusho* [Company Report].

Tsuji, S. (1990). 'Tsuzuki Ryohei no Kigyosha Katsudo: Shin Tsuzuki Boseki no Hatten to Datsu-Seijyukuka' [Entrepreneurship of Ryohei Tsuzuki: Development and Strategies to Overcome Maturity of New Tsuzukibo], Paper Presented to the 26th Annual Meeting of Business History Society of Japan (November 17, 1990, Meiji University, Tokyo).

Tsusho Sangyo Daijin Kanbo Chosa-tokeibu [Research and Statistics Department, Minister's Secretariat, Ministry of International Trade and Industry] (ed.). (1973). *Honpo Kogyo no Susei* [Mining Yearbook of Japan].

Tsusho Sangyo Daijin Kanbo Chosa-tokeibu (ed.). *Sen'i Tokei Nenpo* [Textiles Statistics Annually].

Tsutsumi, S. (1996). '80 nendai iko no Beikoku Sen'i Seisaku to Sen'i Boeki' [Policies for the Textile Industry and Trade of the Industry in the USA after the 1980s] (1) (2). *Nihon Boseki Geppo* [Monthly Report of Japan Spinners' Association], 596 and 597: 18-32 and 32-41.

Watanabe, J.(1996). 'Senjiki Nihon no Sangyo Tosei no Tokushitsu: Sen'i Sangyo ni okeru Kigyo Seibi to '10 Dai-bo' Taisei no Seiritsu'[Governmental Industrial Control in Japan during the Wartime (1937-1945): The Case of the Textile Industry]. *Tochi Seido Shigaku*, 150: 1-17.

Yamazaki, H.(1997). 'Competition and Cooperation in the Japanese Textile Industries' in Hans Pohl (ed.), *Competition and Cooperation of Enterprises on National and International Markets*. Stuttgart : Franz Steiner Verlag: 147-68.

Yonekawa, S.(1991). 'Men Boseki[Cotton Spinning]' in *Sengo Nihon Keiei-shi* [Business History in Postwar Japan], Vol.1. Tokyo: Toyo Keizai Shinposha: 55-116.

¹ Nakamura (1993).

² After the First World War some new textile companies in wool spinning and weaving, and rayon manufacturing rapidly emerged in Japan.

³ On the development of the Japanese cotton industry in the pre-war period, see Seki(1956); Takamura (1971) ; Abe(1992a); Yamazaki(1997).

⁴ 'Bo' means 'spinning' in Japanese.

⁵ Farnie and Yonekawa(1988).

⁶ Watanabe(1996). The ten companies are Toyobo, Dai-Nihonbo, Kanebo, Daiken Sangyo (formerly Kurehabo), Daiwabo, Shikibo (formerly Fukushima), Kurabo, Fujibo (formerly Fujigasubo), Nisshinbo and Nittobo.

⁷ New spinning companies.

⁸ Even newer spinning companies.

⁹ GHQ/SCAP(ed.)(c.1951); Tawa(ed.) (1962); Abe(1992b).

¹⁰ Nihon Boseki Kyokai (ed.).

¹¹ On this political conflict, see Desler *et al.*(1979).

¹² STA was valid for one year. LTA was abolished at the establishment of MFA.

¹³ Tawa (ed.)(1979); Tsutsumi(1996).

¹⁴ On the labour condition of the postwar textile industry, see Shimazu, (1953); Shindo, (1961); Kase (1997); Ishida and Murao (2000) ; Murakami *et al.* (2000).

¹⁵ Tawa(ed.)(1962: 468).

¹⁶ Kataoka,(1993).

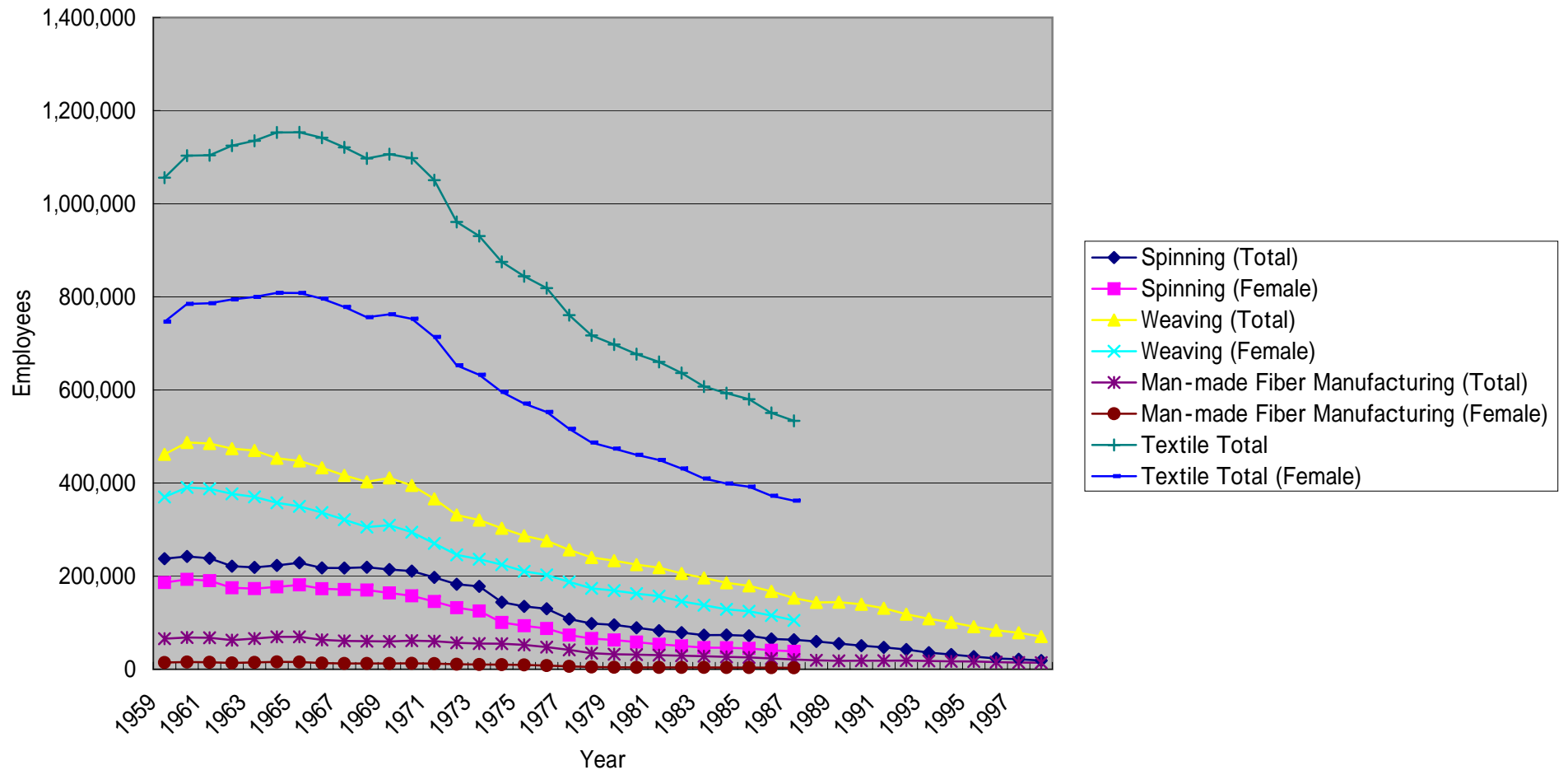
¹⁷ *Ibid.*

¹⁸ Research and Statistics Department, the Bank of Japan (ed.).

¹⁹ Similar acts were promulgated in fertilizer manufacturing in 1954 and coal mining in 1955.

-
- ²⁰ Fletcher (1998; 2000).
- ²¹ Johnson(1982); Sumiya(ed.)(2000).
- ²² A similar argument is found in Sugihara (1997: 105).
- ²³ Singleton (1997).
- ²⁴ The original name was Tokyo Men Shosha, but was changed into Kanegafuchi Boseki Kabushiki-gaisha in 1893.
- ²⁵ Joung(1997).
- ²⁶ Kanebo Co.(ed.)(1988).
- ²⁷ 'Kaiko 30 Nen' Henshu Iinkai (ed.)(1953).
- ²⁸ Shashi Henshu Iinkai & Shashi Henshu Jikko Iinkai (eds.)(1979).
- ²⁹ Nisshin Boseki Kabushiki-gaisha (ed.) (1969: 793-98).
- ³⁰ *Ibid.* Kurabo had an affiliated company, Kuraray, which supplied Kurabo with synthetic fibres.
- ³¹ Yonekawa (1991).
- ³² Yamazaki(1997); Abe(1995; 2004).
- ³³ Fujino(1974); Yonekawa(1991: 112).
- ³⁴ Seki Keizo-shi Tsuikai-roku Kanko-kai (ed.)(1965: 10); Koderu Gengo O Denki Kanko-kai, (1960: 283-303).
- ³⁵ Seki(1956: 122-23).
- ³⁶ Tsuji(1990); Yonekawa(1991, 110-12); Nihon Keizai Shinbunsha (ed.), *Kaisha Soka*.
- ³⁷ The headquarters moved to the city of Osaka in 1950.
- ³⁸ Fujikawa(1967); Nihon Keizai Shinbunsha (ed.), *Kaisha Nenkan*; Omikenshi's Homepage on Internet.
- ³⁹ The second strategy was foreign direct investment especially to Asia and Latin America in the early days, and later to European countries and the USA.
- ⁴⁰ Toyobo.
- ⁴¹ Murakami, *et al.*(2002).
- ⁴² Toyo Boseki Kabushiki-gaisha Shashi Henshu-shitsu(ed.)(1986).

Figure 1
Number of Employees of Japanese Textile Industry



(Note) 'Spinning' includes Japanese traditional spinning.

(Source) Tsusho-sangyo Daijin Kanbo Chousa-tokeibu(ed.), *Sen'i Tokei Nenpo*.

Table 1 Japanese Exports of Cotton Fabric by Countries

(%)

Region	Country	1934-36 Average	1949	1955	1964	1973	1980	1985
Asia	Korea			0.2%		6.6%	5.5%	5.9%
	China	12.3%	0.0%	0.2%	0.0%	0.0%		
	Hong Kong	2.1%	1.5%	5.4%	9.5%	8.8%	26.7%	32.1%
	Singapore*	2.3%	5.8%	6.4%	3.7%	2.4%	2.2%	5.5%
	Indonesia	14.5%	11.9%	9.5%	2.2%	1.4%	0.2%	0.2%
	Pakistan		10.8%	2.8%	0.2%	0.0%	0.0%	
	India		4.4%	0.1%	0.0%	0.0%	3.0%	
	Total	64.3%	54.4%	53.2%	35.1%	34.0%	62.4%	59.5%
Europe	United Kingdom	0.5%	22.0%	4.5%	2.4%	1.7%	1.4%	2.9%
	Total	2.8%	27.5%	11.6%	9.8%	12.0%	16.9%	7.9%
America	United States	1.8%	0.7%	12.4%	10.0%	14.1%	6.1%	19.7%
	Total	11.4%	2.3%	19.6%	23.2%	16.9%	8.0%	22.2%
Africa	Total	18.2%	14.5%	9.0%	20.0%	9.9%	5.5%	2.0%
Oceania	Australia	2.9%	1.3%	6.2%	10.0%	23.9%	6.2%	6.9%
	Total	3.3%	1.4%	6.6%	11.9%	27.2%	7.3%	8.3%
World Total		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(a million square meter)		(2,233.1)	(654.9)	(952.2)	(991.2)	(246.7)	(316.4)	(445.6)

(Notes) * Data of 1964 is Malasia's figure.

Blanks are not available.

(Sources) Up to 1955, Tawa(ed.)(1962: 926-27); after 1964, Nihon Boseki Kyokai (ed.).

Table 2 Geographical Distribution of Cotton Spinning and Coal Mining

(1) Cotton Spinning Mills

(2) Coal Mine Lots

Region	End of 1949			End of 1973			End of 1949			End of 1973		
	Mills	1,000 Spindles		Mills	1,000 Spindles		Mine Lots	Area (1,000 Ares)		Mine Lots	Area (1,000 Ares)	
Hokkaido	1	11 (	0.3%)	0	0 (	0.0%)	536	14,667 (	40.7%)	700	16,363 (	37.5%)
Tohoku	2	24 (	0.6%)	2	106 (	1.1%)	244	3,226 (	8.9%)	291	4,536 (	10.6%)
Hokuriku	10	555 (	14.8%)	13	882 (	9.2%)	11	200 (	0.6%)	16	225 (	0.5%)
Kanto	5	78 (	2.1%)	2	38 (	0.4%)	59	830 (	2.3%)	61	863 (	2.0%)
Chubu	27	1,107 (	29.6%)	79	4,914 (	51.1%)	12	70 (	0.2%)	14	157 (	0.4%)
Kinki	25	886 (	23.7%)	54	1,987 (	20.7%)	8	103 (	0.3%)	6	99 (	0.2%)
Chugoku	8	307 (	8.2%)	24	874 (	9.1%)	134	1,716 (	4.8%)	0	0 (	0.0%)
Shikoku	14	557 (	14.9%)	11	518 (	5.4%)	6	124 (	0.3%)	7	142 (	0.3%)
Kyushu	7	212 (	5.7%)	6	300 (	3.1%)	848	15,117 (	41.9%)	987	21,129 (	48.4%)
Japan Total	99	3,736 (	100.0%)	191	9,620 (	100.0%)	1,858	36,054 (	100.0%)	2,082	43,614 (	100.0%)

(Sources) (1)Nihon Boseki Kyokai(ed.); (2)Shigen-cho Chokan Kanbo Tokei-ka (ed.) (1949) and Tsusho-sangyo Daijin Kanbo Chosa-tokeibu (ed.)(1973), Sen'I Tokei Nenpo.

Table 3 Top Japanese Spinning Companies by Number of Spindles

Dec., 1935			Dec., 1949			Dec., 1955			Dec., 1964		
Order	Company	Spindle	Order	Company	Spindle	Order	Company	Spindle	Order	Company	Spindle
1	Toyobo	1,476,080	14.3%	1	Toyobo	479,800	12.9%	1	Toyobo	615,576	7.5%
2	Kanebo	928,384	9.0%	2	Dai Nihonbo	462,532	12.5%	2	Dai Nihonbo	595,216	7.3%
3	Dai Nihonbo	922,760	8.9%	3	Daiken Sangyo	429,840	11.6%	3	Kanebo	573,002	7.0%
4	Fujigasubo	675,764	6.5%	4	Shikibo	343,364	9.2%	4	Kurehabo	562,708	6.9%
5	Nisshinbo	503,496	4.9%	5	Fujibo	323,300	8.7%	5	Nisshinbo	549,400	6.7%
6	Kurabo	500,348	4.8%	6	Kanebo	308,852	8.3%	6	Kurabo	466,780	5.7%
7	Kinkabo	445,960	4.3%	7	Kurabo	300,652	8.1%	7	Shikibo	448,788	5.5%
8	Kurehabo	439,484	4.3%	8	Daiwabo	291,780	7.9%	8	Daiwabo	433,880	5.3%
9	Hukushimabo	324,704	3.1%	9	Nisshinbo	284,016	7.6%	9	Fujibo	391,360	4.8%
10	Kishiwadabo	321,132	3.1%	10	Nittobo	181,048	4.9%	10	Omikenshi	268,496	3.3%
11	Tenma Orimono	246,928	2.4%	14	Kondobo	10,000	0.3%	11	Nittobo	245,080	3.0%
12	Toyoda Boshoku	181,368	1.8%	14	Omikenshi	10,000	0.3%	13	Tsuzukibo	192,560	2.4%
13	Hinode Boshoku	172,492	1.7%	14	Tsuzukibo	10,000	0.3%	14	Kondobo	163,160	2.0%
Subtotal (13 Firms)		7,138,900	69.1%	Subtotal (13 Firms)		3,435,184	92.5%	Subtotal (13 Firms)		5,506,006	67.4%
				Subtotal (except 3 <i>Shinbo</i>)		3,405,184	91.7%	Subtotal (except 3 <i>Shinbo</i>)		4,881,790	59.8%
Total (60 Firms)		10,330,452	100.0%	Total (35 Firms)		3,714,548	100.0%	Total (134 Firms)		8,167,754	100.0%
								Subtotal (except 3 <i>Shinbo</i>)		5,532,520	48.8%
								Total (134 Firms)		11,329,011	100.0%
Dec., 1973			Dec., 1980			Dec., 1985			1985/1949		
Order	Company	Spindle	Order	Company	Spindle	Order	Company	Spindle			
1	Toyobo	1,082,600	10.5%	1	Nisshinbo	985,108	10.9%	1	Tsuzukibo	812,032	10.1%
2	Nisshinbo	685,668	6.7%	2	Toyobo	888,680	9.9%	2	Toyobo	702,280	8.7%
3	Kanebo	616,080	6.0%	3	Tsuzukibo	806,860	9.0%	3	Nisshinbo	685,108	8.5%
4	Unitika	566,176	5.5%	4	Unitika	461,332	5.1%	4	Omikenshi	431,416	5.4%
5	Tsuzukibo	521,688	5.1%	5	Kondobo	450,008	5.0%	5	Daiwabo	423,408	5.3%
6	Daiwabo	482,982	4.7%	6	Daiwabo	428,444	4.8%	6	Kurabo	386,486	4.8%
7	Kondobo	450,008	4.4%	7	Omikenshi	408,140	4.5%	7	Kondobo	380,092	4.7%
8	Fujibo	448,692	4.4%	8	Kurabo	400,648	4.4%	8	Shikibo	373,340	4.6%
9	Kurabo	445,436	4.3%	9	Kanebo Cotton Yarn	390,580	4.3%	9	Fujibo	345,784	4.3%
10	Omikenshi	398,240	3.9%	10	Fujibo	385,308	4.3%	10	Unitika	320,972	4.0%
11	Shikibo	396,612	3.9%	11	Shikibo	373,340	4.1%	11	Kanebo Cotton Yarn	304,240	3.8%
13	Nittobo	317,916	3.1%	13	Nittobo	323,500	3.6%	12	Nittobo	296,544	3.7%
Subtotal (12 Firms)		6,412,098	62.4%	Subtotal (12 Firms)		6,301,948	69.9%	Subtotal (12 Firms)		5,461,702	67.8%
Subtotal (except 3 <i>Shinbo</i>)		5,042,162	49.1%	Subtotal (except 3 <i>Shinbo</i>)		4,636,940	51.5%	Subtotal (except 3 <i>Shinbo</i>)		3,838,162	47.7%
Total (93 Firms)		10,275,894	100.0%	Total (84 Firms)		9,011,099	100.0%	Total (72 Firms)		8,052,105	100.0%
										2.2	

(Notes) Spindles in 1935 include those for rayon staple (39,934 spindles). Spindles in 1949 and 1955 are only for cotton spinning. Spindles after 1964 include those for rayon staple. Dai Nihonbo changed the name into Nichibo in 1964. Nichibo and Nihon Rayon merged, and Unitika was established in 1969. Daiken Sangyo was Kurehabo. Kurehabo was merged with Toyobo in 1966. Kanebo Cotton Yarn was separated from Kanebo in 1977. Three *Shinbo*: Kondobo, Omikenshi and Tsuzukibo.

(Source) Nihon Boseki Kyokai(ed.).

Table 4 Diversification of Main Cotton Spinning Companies

Company	1964	1973	1985	
Kanebo	Textiles Cosmetics Food	86.4% Textiles 10.4% Cosmetics 3.2% Food Others 5)	74.7% Textiles 10) 13.2% Cosmetics 3.3% Pharmaceuticals 8.8% Industrial materials Electronics	56.9% 35.3% 3.6% 2.9% 1.3%
Nisshinbo	Textiles Asbesto Plastics Paper goods Polyurethane form Others 1)	87.7% Textiles 3.6% Automotive brakes 2.5% Polyurethane foams 1.9% Paper goods 1.8% Plastics 2.5% Others 6)	84.3% Textiles 4.9% Automotive brakes 3.5% Paper goods 3.3% Polyurethane foams 1.4% Machine tools 2.7% Labels	75.8% 9.2% 5.7% 4.5% 4.2% 0.6%
Nittobo	Textiles 2) Vynyl chloride resin tile Plastics Sound absorption ceiling board	91.6% Textiles 4.2% Chemical goods such as boards 2.8% Glass fiber goods 1.4%	67.3% Textiles 16.4% Glass fiber goods 16.3% Chemical goods such as boards Rock wool goods Property development	58.4% 19.0% 16.0% 4.1% 2.6%
Kurabo	Textiles Plastics	95.1% Textiles 4.9% Plastics and others 7)	93.4% Textiles 6.6% Plastics and other non-textiles	88.9% 11.1%
Toyobo	Textiles 3)	100.0% Textiles Plastics	97.8% Textiles 2.2% Plastics	82.2% 17.8%
Unitika (Nichibo)	Textiles	100.0% Textiles Others 8)	94.7% Textiles 5.3% Plastics Construction & engineering Other non-textiles	78.8% 9.1% 7.1% 5.0%
Fujibo	Textiles 4)	100.0% Textiles ERP ship manufacturing Electronics	99.4% Textiles 0.3% Electronics, sanitary goods and so on 0.3%	96.1% 3.9%
Daiwabo	Textiles	100.0% Textiles 9)	100.0% Textiles 9)	100.0%
Shikibo	Textiles	100.0% Textiles	100.0% Textiles	100.0%
Omikenshi	Textiles	100.0% Textiles	100.0% Textiles Others 11)	94.6% 5.4%

(Notes) 1) includes machines & tools manufacturing, and printing.

2) includes rock wool and glass fibers.

3) includes pulp (0.4%).

4) includes chemicals.

5) includes fashion, housing and pharmaceuticals.

6) includes machinery and labels.

7) includes environmental controlling equipments and sale of information.

8) includes glass fiber, plastics, housing and engineering.

9) includes such service as golf playing and hotel.

10) except cotton goods.

11) includes electronics and employment agencies.

Percentages show the ratios in sales.

1964 and 1973: April-September in respect years. 1985: April, 1985-March, 1986.

Kurehobo, which was merged in 1966 by Toyobo, did not diversified into non-textiles in 1964.

(Source) Nihon Keizai Shinbunsha(ed.), *Kaisha Nenkan*.

Table 5 Nisshinbo

(100 million yen)												
Year/month	Fixed Assets	Capital	Total Assets		Profits	Sales	Employees					
	A	B	A/B	C	B/C	D	E	D/E	Male	Female	Total	
1960	4	12,397	10,422	119.0%	19,514	53.4%	3,038	21,870	13.9%	2,216	6,560	8,776
1961	4	13,384	10,986	121.8%	22,122	49.7%	2,582	23,131	11.2%	2,246	6,837	9,083
1962	4	14,510	11,378	127.5%	25,215	45.1%	1,562	23,104	6.8%	2,285	6,602	8,887
1963	4	14,930	12,307	121.3%	27,153	45.3%	2,597	27,095	9.6%	2,302	6,519	8,821
1964	4	16,571	14,141	117.2%	33,955	41.6%	2,025	30,982	6.5%	2,296	6,513	8,809
1965	4	17,702	15,032	117.8%	36,266	41.4%	1,805	34,134	5.3%	2,351	6,685	9,036
1966	4	17,933	15,752	113.8%	40,203	39.2%	1,891	38,353	4.9%	2,459	6,683	9,142
1967	4	19,863	16,516	120.3%	42,691	38.7%	3,043	42,900	7.1%	2,569	6,691	9,260
1968	4	21,235	17,431	121.8%	47,503	36.7%	4,280	49,544	8.6%	2,754	7,992	10,746
1969	4	21,202	18,879	112.3%	47,095	40.1%	4,790	54,867	8.7%			
1970	4	24,371	21,522	113.2%	55,094	39.1%	5,219	61,262	8.5%	3,181	8,062	11,243
1971	4	26,263	23,186	113.3%	57,171	40.6%	4,309	68,431	6.3%	3,359	7,789	11,148
1972	4	27,991	24,799	112.9%	58,534	42.4%	5,372	72,948	7.4%	3,319	6,875	10,194
1973	4	31,473	28,477	110.5%	66,666	42.7%	14,442	92,944	15.5%	3,331	6,426	9,757
1974	4	37,208	36,392	102.2%	90,538	40.2%	14,163	118,370	12.0%	3,445	5,997	9,442
1975	4	36,050	39,335	91.6%	79,398	49.5%	-2,343	41,404	-5.7%	3,053	4,168	7,221
1976	4	35,114	41,372	84.9%	83,716	49.4%	4,571	95,206	4.8%	2,848	3,700	6,548
1977	4	34,215	44,437	77.0%	83,982	52.9%	6,501	111,317	5.8%	2,752	3,424	6,176
1978	4	34,016	47,105	72.2%	81,108	58.1%	4,862	115,565	4.2%	2,737	3,400	6,137
1979	4	33,775	53,731	62.9%	90,404	59.4%	10,320	126,925	8.1%	2,767	3,367	6,134
1980	4	34,043	58,751	57.9%	97,373	60.3%	9,687	149,490	6.5%	2,860	3,350	6,210
1981	4	35,353	61,930	57.1%	99,499	62.2%	6,634	162,972	4.1%	2,978	3,271	6,249
1982	4	38,657	64,763	59.7%	106,889	60.6%	6,585	170,303	3.9%	3,072	3,328	6,400
1983	4	46,940	68,147	68.9%	112,486	60.6%	5,824	176,396	3.3%	3,174	3,344	6,518
1984	4	48,129	71,859	67.0%	125,399	57.3%	8,020	190,288	4.2%	3,289	3,320	6,609
1985	4	55,923	80,703	69.3%	138,871	58.1%	7,922	210,153	3.8%	3,386	3,259	6,645
1986	4	59,769	90,206	66.3%	155,017	58.2%	6,170	212,279	2.9%			

(Note) Blanks are not available.

(Sources) Nisshin Boseki Kabusiki-gaisha (ed.), (1969); Nisshin Boseki Kabusiki-gaisha, *Yuka Shoken Hokokusho*; Nihon Keizai Shinbunsha(ed.), *Kaisha Nenkan*.

Table 6 Tsuzukibo

(100 million yen)												
Year/month	Fixed Assets	Capital	Total Assets		Profits		Sales		Employees			
	A	B	A/B	C	B/C	D	E	D/E	Male	Female	Total	
1970 5	15,535	5,018	309.6%	30,694	16.3%	2,033	32,417	6.3%				
1971 5	17,543	6,038	290.5%	36,460	16.6%	3,110	32,529	9.6%	1,508	3,425	4,933	
1972 5	20,693	7,133	290.1%	44,394	16.1%	2,187	35,118	6.2%	1,454	3,070	4,524	
1973 5	28,979	9,879	293.3%	73,454	13.4%	5,873	50,821	11.6%	1,562	2,990	4,552	
1974 3							55,270					
1975 3	43,404	10,117	429.0%	92,092	11.0%	-8,617	64,109	-13.4%				
1976 3	47,561	10,200	466.3%	100,658	10.1%	-166	77,047	-0.2%	1,483	2,027	3,510	
1977 3	48,712	11,424	426.4%	108,914	10.5%	4,042	89,962	4.5%	1,573	1,887	3,460	
1978 3	47,167	10,263	459.6%	108,110	9.5%	-919	77,419	-1.2%	1,446	1,822	3,268	
1979 3	50,605	11,705	432.3%	98,718	11.9%	6,947	80,202	8.7%	1,609	1,978	3,587	
1980 3	54,752	13,280	412.3%	106,889	12.4%	7,578	95,027	8.0%	1,038	1,687	2,725	
1981 3	60,209	11,922	505.0%	114,769	10.4%	1,648	94,821	1.7%	1,074	1,445	2,519	
1982 3	62,408	11,917	523.7%	121,422	9.8%	976	108,847	0.9%	1,223	1,653	2,876	
1983 3	65,415	10,955	597.1%	127,423	8.6%	2,871	113,917	2.5%	2,203	2,177	4,380	
1984 3	68,586	12,842	534.1%	130,171	9.9%	4,866	128,297	3.8%	2,327	2,310	4,637	
1985 3	75,353	15,627	482.2%	139,006	11.2%	8,658	148,919	5.8%	2,306	2,377	4,683	
1986 3	78,101	17,626	443.1%	134,265	13.1%	4,332	136,676	3.2%	2,295	2,494	4,789	

(Note) Blanks are not available.

(Source) Nihon Keizai Shinbunsha(ed.), *Kaisha Sokan*.

Table 7 Omikenshi

(100 million yen)												
Year/month	Fixed Assets	Capital	Total Assets			Profits	Sales	Employees				
	A	B	A/B	C	B/C	D	E	D/E	Male	Female	Total	
1961	4	5,184	3,672	141.2%	11,964	30.7%	12,682		1,586	4,850	6,436	
1962	4	5,096	3,446	147.9%	11,810	29.2%	11,693		1,551	4,343	5,894	
1963	4	5,294	3,383	156.5%	12,221	27.7%						
1964	4											
1965	4	6,360	3,495	182.0%	14,282	24.5%			929	4,501	5,430	
1966	4											
1967	4											
1968	4	7,877	3,768	209.0%	19,929	18.9%	2,173	28,766	7.6%	963	4,830	5,793
1969	4	8,427	4,116	204.7%	23,134	17.8%	1,232	32,254	3.8%	1,018	5,177	6,195
1970	4	8,630	4,411	195.6%	24,620	17.9%	1,701	33,561	5.1%	965	4,980	5,945
1971	4	9,293	4,818	192.9%	27,764	17.4%	1,783	36,417	4.9%	1,261	4,791	6,052
1972	4	10,481	5,074	206.6%	30,307	16.7%	1,211	34,665	3.5%	1,313	4,836	6,149
1973	4	11,770	5,824	202.1%	38,617	15.1%	4,651	46,021	10.1%	1,350	4,775	6,125
1974	4	15,979	8,171	195.6%	53,703	15.2%	4,903	56,563	8.7%	1,535	4,839	6,374
1975	4	17,247	6,944	248.4%	52,955	13.1%	-3,989	20,620	-19.3%	1,417	4,535	5,952
1976	4	16,100	7,485	215.1%	55,713	13.4%	236	50,697	0.5%	1,280	4,001	5,281
1977	4	15,076	8,025	187.9%	56,164	14.3%	1,409	57,898	2.4%	1,407	3,604	5,011
1978	4	13,151	7,755	169.6%	49,434	15.7%	-1,955	54,298	-3.6%	1,212	3,371	4,583
1979	4	14,944	9,909	150.8%	53,254	18.6%	3,969	53,596	7.4%	1,325	3,225	4,550
1980	4	14,287	10,439	136.9%	56,203	18.6%	2,584	59,223	4.4%	1,311	3,198	4,509
1981	4	14,171	9,160	154.7%	56,764	16.1%	-1,686	60,164	-2.8%	1,282	3,167	4,449
1982	4	14,014	8,979	156.1%	58,338	15.4%	-791	64,680	-1.2%	1,238	3,016	4,254
1983	4	14,935	9,068	164.7%	56,695	16.0%	-640	66,430	-1.0%	1,175	2,805	3,980
1984	4	14,671	10,297	142.5%	56,284	18.3%	2,057	70,417	2.9%	1,177	2,727	3,904
1985	4	14,363	10,546	136.2%	56,330	18.7%	2,491	74,264	3.4%	1,203	2,768	3,971

(Note) Blanks are not available.

(Source) Nihon Keizai Shinbunsha(ed.), *Kaisha Nenkan*.

Table 8 Toyobo

(100 million yen)												
Year/month	Fixed Assets	Capital	Total Assets		Profits	Sales	Employees					
	A	B	A/B	C	B/C	D	E	D/E	Male	Female	Total	
1960	4	25,571	26,384	96.9%	50,663	52.1%	4,620	52,563	8.8%			
1961	4	28,755	26,562	108.3%	61,324	43.3%	3,438	58,264	5.9%	8,870	12,954	21,824
1962	4	32,518	29,975	108.5%	70,992	42.2%	1,931	62,441	3.1%	8,867	12,459	21,326
1963	4	34,228	28,918	118.4%	71,656	40.4%	3,554	67,265	5.3%	8,882	12,617	21,499
1964	4	38,014	29,125	130.5%	86,978	33.5%	4,124	81,990	5.0%	8,912	13,685	22,597
1965	4	43,217	28,479	151.8%	96,114	29.6%	3,850	84,192	4.6%	8,568	13,538	22,106
1966	4	44,102	27,354	161.2%	99,053	27.6%	5,561	111,632	5.0%	9,870	18,280	28,150
1967	4	70,013	33,589	208.4%	150,908	22.3%	11,402	149,502	7.6%	9,619	17,230	26,849
1968	4	70,370	35,413	198.7%	157,906	22.4%	13,863	161,805	8.6%	9,509	18,896	28,405
1969	4	74,326	46,101	161.2%	177,741	25.9%	13,293	184,278	7.2%	9,588	18,858	28,446
1970	4	77,382	47,458	163.1%	180,749	26.3%	15,004	196,010	7.7%	9,690	18,077	27,767
1971	4	81,522	48,467	168.2%	197,683	24.5%	10,907	207,474	5.3%	9,928	17,066	26,994
1972	4	90,500	47,784	189.4%	208,100	23.0%	6,639	230,056	2.9%	9,960	15,788	25,748
1973	4	95,311	49,336	193.2%	224,454	22.0%	27,435	262,179	10.5%	9,742	14,870	24,612
1974	4	112,268	53,447	210.1%	297,274	18.0%	20,455	304,224	6.7%	9,754	14,258	24,012
1975	4	145,291	45,456	319.6%	314,799	14.4%	-8,323	280,347	-3.0%	9,100	9,975	19,075
1976	4	142,155	46,720	304.3%	307,174	15.2%	188	238,038	0.1%	8,574	8,763	17,337
1977	4	135,570	43,268	313.3%	286,001	15.1%	-4,777	211,776	-2.3%	7,609	7,767	15,376
1978	4	128,580	45,528	282.4%	280,536	16.2%	14,508	214,916	6.8%	7,273	7,126	14,399
1979	4	132,782	48,814	272.0%	290,272	16.8%	15,320	247,573	6.2%	7,029	6,863	13,892
1980	4	134,902	49,072	274.9%	305,250	16.1%	8,684	263,940	3.3%	6,662	6,574	13,236
1981	4	139,144	53,621	259.5%	330,086	16.2%	14,708	316,828	4.6%	6,068	6,402	12,470
1982	4	141,740	53,102	266.9%	328,928	16.1%	16,457	353,992	4.6%	6,049	6,264	12,313
1983	4	129,683	55,371	234.2%	311,859	17.8%	16,754	348,950	4.8%	5,332	5,785	11,117
1984	4	129,300	60,200	214.8%	301,721	20.0%	18,094	342,903	5.3%	5,282	5,334	10,616
1985	4	137,707	63,046	218.4%	302,610	20.8%	15,948	316,722	5.0%			
1986	4	140,907	74,815	188.3%	298,409	25.1%	9,321	261,884	3.6%	4,097	4,712	8,809

(Note) Blanks are not available.

(Sources) Toyo Boseki Kabusiki-gaisha Shashi Henshu-shitu (ed.)(1986), Vol.2; Toyo Boseki Kabusiki-gaisha; Nihon Keizai Shinbunsha (eds.), *Kaisha Nenkan*.