

Chapter 5

Meiji (3): Development of Major Industries



The model of the traditional, manually operated *Garabo* spinning machine, 1873.



Modern Ring spinning frame made by Platt, U.K., 1896.

In this chapter, we will examine three important industries in detail. As noted earlier, *raw silk* was the top export commodity throughout Meiji and beyond. The *cotton industry* was the most dynamically emerging manufacturing industry; it successfully achieved import substitution and became Japan's major industry far beyond Meiji. Meanwhile, the *machinery industry* was taking root but still relatively weak. During Meiji, Japanese machines were cheap but in low quality, and could hardly compete with American or European products.

1. The silk industry

Silk production has been a traditional industry in Japan dating back to ancient times, perhaps to the 4th or 5th century AD. During the Edo period, many hans produced cloth and kimono made of high quality silk. When Japan opened its ports and resumed foreign trade in the mid 19th century, Japanese silk suddenly found an enormous overseas demand, especially in the United States. This silk boom had several important effects.

First, naturally, silk production—mulberry cultivation, silkworm raising and silk spinning—was greatly stimulated and spread to all over Japan, especially in the eastern regions. Virtually all farmers and villages which could produce silk tried to do so. This raised rural income significantly. Today, you can hardly see mulberry trees or silk production in Japan. But in those days, they were observed everywhere.

In many developing countries today, rapid industrialization and external liberalization often impoverish farmers and widens the income gap between urban rich and rural poor (UNCTAD, 2004). In the case of Meiji Japan, however, international integration did not increase the income gap thanks to the silk boom. The tea export boom and rice inflation also contributed to this trend. But at the same time, rural prosperity now depended critically on the price trends of primary commodities such as silk and rice. When these prices were high, enriched farmers and landowners enjoyed higher consumption, low tax rates (since the amount of land tax was nominally fixed) and staged a political movement demanding a national constitution and criticizing the government. When these prices plummeted, however, their movement lost momentum and many indebted farmers became landless. This can be called the risk of international

integration arising from domestic and global market fluctuation, which is present in any country even today.

Second, a new class of merchants emerged. As foreigners were confined to the designated foreign settlements and their surrounding areas (the largest foreign settlement was Yokohama), they could not build their own distribution network in Japan (this would violate the requirement of national treatment under WTO today). Thus they had to rely on Japanese merchants to procure silk and tea for export and supply British clothes to local markets. Japanese merchants who played this role were often new people unconnected with big merchant families in the Edo period. They communicated price information, provided short-term trade credit to producers, established marketing channels, and even assisted in installing new machines and acquiring new technology. Those who did business directly with foreigners were called *Yokohama merchants*, but there were also other types of new merchants as well. Renowned silk-producing localities included Nagano, Yamanashi, Gunma and Tohoku Region (all Eastern Japan) where merchants played critical roles in restructuring the producers. When successful, merchants made huge profits together with producers. Quick and spontaneous emergence of a merchant class with highly productive functions as described above, instead of simply exploiting producers, was a unique Japanese feature not always visible in other countries.

To be fair, however, it must be said that Meiji merchants were far from perfect. Foreigners often bitterly complained about the dishonesty and corruption of some Japanese merchants. Silk was sold by weight, so water was often added before weighing. Foreigners had to check if the merchandise was dry inside. At one time, the quality of Japanese silk became so low that its demand and price fell significantly in the global market. In response, the government was forced to impose quality standards.

Third, continued silk exports were accompanied by the transformation of production methods and organization. Manual labor was gradually replaced by machine spinning ($I \cdot M^*$; see chapter 4 for notation). At first, silk production used to be farmers' side job, but later it was undertaken by factories ($M^* \cdot M$). More precisely, silkworm raising still remained family-based and decentralized across the country, but silk spinning became automated in modern factories.

Silk remained the top export item for nearly a century. Silk exports were a stable source of foreign exchange for Japan, contributing to industrialization.

2. The traditional cotton industry

Roughly speaking, the production of cotton contains the following steps: (i) cotton harvest; (ii) ginning and cleaning; (iii) spinning (yarn); (iv) weaving (cloth); and (v) sewing and cutting (garment). Other processes such as dyeing may be added. As Konosuke Odaka emphasized (chapter 4), indigenous and modern sectors often co-existed in Meiji industrialization, and the cotton industry was no exception. For this reason, we will discuss the traditional and modern cotton industry separately. This section looks at the traditional production.

Like silk, the cotton industry has a long history in Japan. But the indigenous method of using wooden looms and household labor was far less productive than Western technology. The traditional production was often organized as a *putting-out system*, where a merchant had contracts with individual farm households to produce specified goods. The merchant provided all materials and sometimes even tools, received finished products and paid commission. Production took place in each farmer's house using family labor (usually that of the wife). The question is: how could this antiquated mode of production survive the onslaught of British imports and modern technology? Why were they not wiped out?

There are several reasons. First, domestic demand for cotton products rose so fast that, while imports increased, domestic production could also expand. Domestic demand was rising because (i) farmers were enriched by the silk and tea booms as noted earlier, and they switched from homemade or second-hand clothes to external purchase; (ii) new merchants succeeded in establishing a nationwide sales network; and (iii) the price of clothes relative to the general price level declined, which further stimulating demand.

Another important reason was that Japanese and British cotton products were differentiated and not easily substitutable. Japanese cotton used low-count fibers and was thicker, while British cotton used high-count fibers and

was thinner. These products had different uses and did not compete directly. This is a point much stressed by Kawakatsu (1991).

However, even though the traditional cotton industry survived, the impact of international integration significantly reorganized its production. Vertically integrated producers which combined the production of raw cotton, yarn and fabric declined, while specialized weavers using imported yarn prospered. Demand for plain white cloth fell while high-value, more differentiated products such as creased, patterned and colored cotton found a larger customer base. Some cotton villages disappeared while new ones popped up. Whether or not traditional cotton regions survived the integration shock depended very much on the existence of helpful merchants who introduced imported materials and developed new domestic markets for the producers (Saito and Tanimoto, 1989). Again, the merchant's role was essential in adjusting to a new environment.

Toward the end of the Meiji period, machines began to be introduced even in the traditional sector. This was prompted by the need to improve efficiency in the face of (i) rising wages; (ii) the worsening of the *terms of trade*, namely, the falling price of output (fabric) relative to input (yarn); and (iii) textile recessions. Even though machines were introduced, they were not exactly the same as the Western original. Production scale was smaller and modifications were often made, including the use of as much wooden parts as possible in place of steel. These can be considered modifications of the indigenous method (I → I*).

3. Modern cotton industry

We now turn to the modern cotton industry. This industry had to be introduced as an entirely new technology (M → M).

In early Meiji, Japan imported a large amount of cotton yarn as an input to domestic cotton cloth production. The government considered *yunyu boatsu* (import substitution) of cotton yarn to be an important national goal. Model factories in cotton spinning were established in the 1870s, but these state-owned enterprises (SOEs) did not succeed commercially. The reasons for the failure included: (i) lack of capital; (ii) small capacity of only 2,000 spindles; (iii) use of water power which was constrained by location and operation

time; and (iv) lack of expertise.

The turning point came when the private Osaka Spinning Company (*Osaka Boseki Kaisha*) was established in 1883 by the strong initiative of Eiichi Shibusawa, the super businessman (chapter 3). Worried about rising cotton yarn imports, Shibusawa decided to create a new company that could overcome the defects of SOEs. In particular, Osaka Spinning Company introduced the following innovations (Abe, 1990):

- It was a joint stock company subscribed by big merchants and former daimyos who were personally persuaded by Shibusawa to invest. As to working capital, loans from the First “National” Bank, at which Shibusawa was the president, were made available.
- It boasted a sufficiently large capacity of 10,500 spindles to enjoy economies of scale.
- Use of the steam engine which permitted 24-hour operation.
- Located in an urban area, which facilitated worker recruitment.
- Takeo Yamanobe was hired as chief engineer (see box below).
- Use of low-cost Chinese cotton instead of domestic cotton.
- Use of more advanced machinery, especially the adoption of the Ring model rather than the Mule model.

Osaka Spinning Company was an instant success. Although 1883, the year of its establishment, was a recession year (Matsukata Deflation, chapter 4), the company was profitable from the outset. The lesson we can draw from the experience of Osaka Spinning Company is that competitiveness depends critically on the choice of appropriate technology which includes the size, location and mode of operation. In addition, the combination of strong managerial leadership (Shibusawa) and deep practical knowledge (Yamanobe) was instrumental. Without these, purchasing expensive machines alone would not have achieved efficiency.

The success of Osaka Spinning Company had a powerful demonstration effect. Soon, several spinning factories modeled after Osaka Spinning Company were established. Largest among them were the spinning companies of Hirano, Amagasaki, Settsu, and Kanegafuchi (later renamed to Kanebo). These large-scale cotton spinning factories were concentrated in the Kansai area in Western Japan. Initially, the product of these companies (i.e. yarn) was sold



Modern Spinning—The Sangenya Factory of Osaka Spinning Company in late Meiji.

to domestic traditional weavers and contributed to import substitution. Later, their product was also exported, as well as used internally to weave cloth within these factories. Young female workers were recruited to work in these factories often under inferior working conditions. Factories competed fiercely to hire and keep these workers. As to competent engineers, they were in even greater shortage.

As the modern cotton industry became the pillar of Japanese manufacturing, it faced two problems. The first was the recession which peaked around 1900 forcing even large factories to restructure, merge or even close. The number of modern spinning factories declined from 78 in 1899 to 49 in 1904. After the shakeout, the three largest spinners, Osaka, Toyobo and Dainihon, began to dominate the industry.

Another problem was the conflict of interest between ownership and management. The shareholders of spinning companies were rich merchants and former daimyos who were not interested in the textile business per se and only wanted quick and high returns on their investment. By contrast, top managers and high-level engineers were well-informed about technology and market conditions. Their priority was to expand the business in the long run through investment and technical innovation. Thus, the former demanded large dividends while the latter preferred retained profits for re-investment. This tension sometimes escalated to the level where shareholders demanded the resignation of the management.

4. The machinery industry

Meiji industrialization was basically light industry industrialization, especially in textiles, while the machinery industry was still feeble and internationally uncompetitive. Japanese machines were imitations of western models. In Meiji, “Made in Japan” meant low price and low quality. The machinery industry still heavily depended on foreign technology and imports. During Meiji, machinery was only imported; there were virtually no exports. Nevertheless, technology was being absorbed, and preparation for the giant leap in the Taisho and Showa periods was being made (Sawai, 1990).

Initially, military SOEs dominated the machinery industry. Backed by the government, they were large in size and equipped with the newest machines imported from Europe and America. By contrast, private companies were smaller and less modern, and used second-hand or Japanese machines.

But private-sector manufacturing was also growing, albeit gradually. Largest among private companies were shipyards and railroad carriage factories. Medium-sized ones included electrical companies such as Shibaura (now Toshiba), NEC, Oki and Hitachi. Meanwhile, small companies produced various parts and devices. The input-output linkage between large and smaller firms was still weak. Large factories imported most machines and produced the remaining machines and inputs internally. Domestic procurement from other Japanese companies was insignificant at first. In other words, *supporting industries* did not exist during Meiji.

Engineers preferred to move among factories for experience and skill building. Inter-firm migration of engineers facilitated technology transfer and absorption. Graduates from the Institute of Technology and technical high schools (chapter 4) first worked at SOEs or at relatively large private companies. After acquiring skills and knowledge, many of them moved to smaller private companies or established their own factories. In this way, Western technology was diffused widely within the machinery industry.

In Tokyo and Osaka, small and medium enterprises (SMEs) began to be concentrated in certain areas and formed industrial districts. They tended to gather around large factories. In Shiba area in Tokyo, near Tokyo Tower and Hamamatsu-cho Station today, large factories such as Shibaura Engineering

Table 5-1 Largest Factories by Employment Size (1902)

Ranking	Enterprise	Number of workers	Ownership
1	Kure Naval Factory	12,378	State
2	Yokosuka Naval Factory	6,761	State
3	Tokyo Military Factory	6,452	State
4	Mitsubishi Shipbuilding	5,058	Private
5	Sasebo Naval Factory	3,612	State
6	Osaka Military Factory	3,120	State
7	Kawasaki Shipbuilding	3,060	Private
8	Shimbashi Factory (railroad cars)	1,721	State
9	Japan Railroad Omiya Factory	1,700	Private
10	Osaka Steel	1,623	Private
11	Kobe Factory (railroad cars)	1,566	State
12	Uraga Shipbuilding	1,522	Private
13	Naval Weapons Factory	1,521	State
--	Shibaura Engineering Works (Toshiba)	502	Private
--	Seikosha (Seiko Corporation)	211	Private
--	Nippon Electric Company (NEC)	150	Private

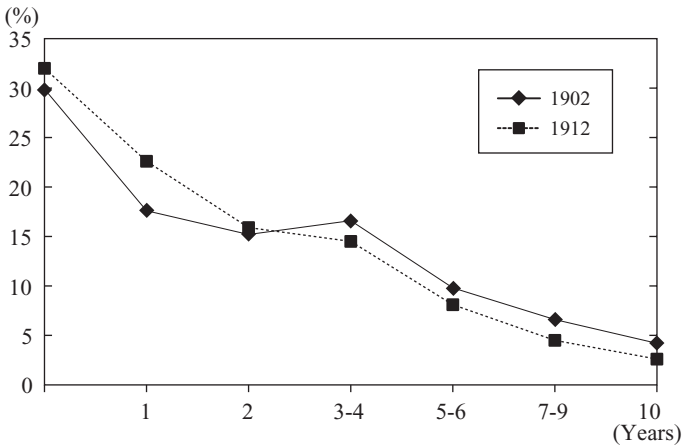
Source: Sawai, 1990, p.221.

Works (private; “Shibaura” means Shiba Beach), Naval Weapons Factory (SOE) and Mita Manufacturing (SOE) were located. Around them, private companies were established to produce mechanical devices and parts¹. Another industrial district in Tokyo was the Honjo-Fukagawa area on the left bank of the Sumida River. This district specialized in metal products like nuts, bolts, springs and so on. In these industrial districts, SMEs not only competed but also cooperated with each other. If one factory did not have the right machine to do a certain work, it was possible to ask the neighbor to do it, and vice versa. Some of the SMEs became subcontractors of larger firms. However, the accounting method of SMEs long remained imprecise and pre-modern.

Japanese managers and engineers were generalists rather than specialists, and job-hopping was very common. Workers were also characterized by their lack of discipline and low savings. The Japanese labor force at that time was more “neoclassical” and quite different from the labor force in the post

¹ Later, in 1939, Toshiba was created by merging Shibaura Engineering Works and Tokyo Electric. Even today, one can see Toshiba Head Office from *Yurikamome* train; that is where Shiba industrial district used to be. However, the area was completely destroyed by the earthquake in 1923 and the US aerial bombing in 1945, so no sign of Meiji industrialization remains.

Figure 5-1 Duration of Male Employment in Manufacturing



Source: Sawai, 1990, p.218.

WW2 era. To further promote industrialization, Japan had to transform these light-footed engineers and workers to stay in one factory in order to absorb and develop firm-specific knowledge and skills. Japan later succeeded in doing this during war time (1937-45)—see chapter 9.

Let us look at some of the large private firms.

5. Railroad carriages and locomotives

Railroad carriages and locomotives are quite different in their required technology. The latter are far more difficult to manufacture than the former. As for carriages, about 25 percent was imported and the rest was domestically produced throughout Meiji. Among domestic producers, Shimbashi Factory (SOE) and Kobe Factory (SOE) were the largest, which together accounting for 64 percent of domestically produced carriages.

As for locomotives, all had to be imported at first. The government wanted to promote domestic production (i.e. import substitution). In 1900, the first locomotive was test-produced through the cooperation of the state and private sector. Shimbashi Factory, an SOE, provided the blueprint to Japan Railroad and Kansai Railroad (two private companies), and engineers were mutually exchanged. In 1912, the Railroad Agency nominated four private companies

to copy-produce locomotives. But since these companies were still technically incompetent, the government provided them with technology, material inputs, production management, training (which included opportunities to study abroad), and the promise of official procurement. Hence the market was secured. In this way, the government pampered the burgeoning railroad industry which, thanks to such assistance, eventually came to possess world-leading technology during the inter-war period.

During the Meiji period, both state-owned and private companies laid railroads. However, in 1906, the government nationalized virtually all railroad companies. Nationalization was carried out partly for military reasons and partly because many of the private railroad companies were unprofitable. One serious problem with railroads was over-building; local politicians maneuvered to construct too many railroads to please rural voters for the next election. This kind of vote-buying remains a big problem even today.

6. Shipbuilding

Among domestic shipyards, Mitsubishi Shipbuilding in Nagasaki (private) and Kawasaki Shipbuilding in Kobe (private) dominated. Both were former SOEs sold to influential businessmen. In the early days, ship repairing was more profitable than building new ships.

About half of the newly built ships were purchased by domestic private customers. The rest were produced for the navy or exported to China, Thailand, and other countries. The government supported the shipbuilding industry by offering subsidies for building large-sized ships above 700 tons (later, above 1,000 tons). The construction of naval ships was not very profitable but the government supplied materials for them. Due to the lack of supporting industries, shipbuilders produced most parts internally.

7. Electrical machinery

Shibaura Engineering Works (later Toshiba) was founded by Hisashige Tanaka, the inventor. Initially, it was a relatively small operation with 502 workers, producing military goods. When naval factories stopped procuring

from Shibaura since they now could produce the parts internally, Tanaka's factory shifted to the production of electrical machines for private use such as generators and transformers. When Shibaura Engineering Works faced a financial crisis, Mitsui Zaibatsu came to the rescue. Shibaura also established business cooperation with General Electric (USA). Similarly, Mitsubishi Electric Company cooperated with Westin House (USA) and Furukawa Electric Company cooperated with Siemens (Germany).

Even with efforts for domestic production, imports still dominated the Japanese market of generators and transformers. Foreign products, mainly from the US, accounted for about 75 percent of the total in 1911. Toshiba's market share was 16 percent and concentrated in low capacity generators compared with US products.

There was a debate within the Japanese government as to whether the national telephone network should be laid privately or publicly. The government finally decided to build it by itself. The supply of telephone equipment was considered highly lucrative. To win this business, Oki Electric was approached by Western Electric to produce needed equipment but Oki refused. Western Electric then set up Nippon Electric Company (NEC), a joint venture with Japanese partners, in 1898 with the capital share of Western Electric being 54 percent. Oki and NEC subsequently competed for the official procurement of telephone equipment.

NEC was initially only a sales agent for Western Electric products, but soon began to produce its own products and became more independent from Western Electric. NEC's success was due to foreign technology and capital, secured markets through government procurement of telephone equipment, and the company's high technical absorptive capacity.

Shibusawa and Yamanobe

In 1877, Takeo Yamanobe was a 26-year-old student majoring in economics and insurance theory in London. One day he received a letter from an unknown gentleman in Japan. The sender's name was Eiichi Shibusawa. The letter said something like this: "Dear Yamanobe, your name was mentioned by a friend of mine. Japan imports too much cotton yarn today. We need to establish a domestic spinning industry. We need people who know both management and technology. Will you please study the cotton industry? I will create a company."



Eiichi Shibusawa (1840-1931)



Takeo Yamanobe (1851-1920)

Perhaps Yamanobe was annoyed. Who is this man to tell me to change my subject? But after thinking a bit, he decided to follow Shibusawa's advice. He went to King's College where he studied textile industry theory. But theory alone was not enough. He moved to Manchester, the capital of global textile industry. He posted ads in newspapers: HIRE ME AS COTTON INDUSTRY TRAINEE, WILL PAY, but no company responded. Finally, he met Mr. W. E. Braggs who allowed him to work and absorb practical knowledge in his factory for eight months. Learning included technology, marketing and shipping. He worked very hard. Shibusawa sent him 1,500 yen to support the study. Shibusawa later recollected that this was a huge sum even for him and he sent it as if he jumped off the stage of Kiyomizu Temple (a phrase implying a bold and risky decision).

When the study ended, Yamanobe placed an order to buy textile machinery and

steam engines from manufacturers such as Platt and Hargreaves, and returned to Japan. In 1882, Shibusawa and Yamanobe selected an appropriate factory site. To establish the company, 250,000 yen was collected from rich merchants and friends of Shibusawa. Shibusawa's bank, First National, would lend working capital. Osaka Spinning Company was successfully launched in 1883. Yamanobe became the chief engineer of the factory.

Around 1900, there was a severe textile recession. Shareholders demanded higher and quicker returns. But Yamanobe insisted on long-term development of the company. Even the General Director criticized him. Being desperate and wanting to quit, Yamanobe visited Shibusawa's residence. Shibusawa assured that he would support Yamanobe 100 percent and requested him to continue to work for the company. So Yamanobe stayed. After a while, the recession ended and Yamanobe was promoted to the President of Osaka Spinning Company.

Let us introduce one more person. Masazumi Fuji was a super factory manager of Kanegafuchi Spinning Company (Kanebo). He graduated from Keio University and worked in the sales department of Suminodo Factory of Kanebo. This factory was facing obsolete machines, lack of work discipline and low capacity utilization. He worked 18 hours a day to replace or repair old machines and recruited 500 new workers. He restored the factory to full operation in three months. He was then promoted to the Managing Director of Kanebo's Tokyo Factory. This factory was another disaster. He repaired, invested, and improved. He reduced the work force from 4,000 to 1,620. After three years, the factory became very profitable. If Mr. Fuji were still alive, I would like to send him to your country as a JICA expert.

What do we learn from these stories? Meiji industrialization was achieved by these powerful and risk-taking individuals with energy, vision and leadership. Meiji was full of such people, and Japan relied on them for industrial revolution. New laws, deregulation and level playing fields are perhaps not enough. If Shibusawa did not write the first letter to Yamanobe, Japan's textile industry may not have started. If so, the real question is, how can we generate such wonderful people continuously in a society?

Chapter 6

Meiji (4): Budget, Finance and the Macroeconomy



The picture of the completed Bank of Japan building.

1. Two wars and Postwar Management

One of the national goals of Meiji was external expansion. To be more precise, Japan felt it necessary to create an area of influence around its territory to protect its interests against the West. During Meiji, the greatest potential threat to Japan was the eastward expansion of Russia's Romanov Empire. To guard its national interests, Japan wanted to construct its "line of interest" beyond its national border. That specifically meant placing Korea under Japanese influence.

In his famous speech at the first imperial parliament (1890), Prime Minister Aritomo Yamagata argued as follows:

There are two ways to secure national independence and defense. The first is to protect the line of sovereignty. The second is to protect the line of interest. The line of sovereignty means the nation's border and the line of interest includes the area closely related to the safety of the line of sovereignty. There is no country that does not try to defend both lines. Under the present circumstance, to maintain our independence and stand against the Western powers, defending the line of sovereignty is not enough. We need to protect our line of interest as well.

But China's Qing Dynasty considered Korea as its protectorate. Japan's ambition over Korea naturally clashed with Chinese interests. In Korea, the political situation became unstable, as the Japanese army staged military provocation and the assassination of a Korean queen. Finally, Japan and China opened fire over Korea (Japan-China War, 1894-95). Japan's new battleships and military strategy won over China's older method of fighting. Although the Chinese equipment was also modern, its strategy was poorly designed. After this victory, Japan obtained reparations amounting to 310 million yen in gold, the territory of Taiwan as Japan's first major colony, and China's Liaodong Peninsula. But shortly after, Japan was forced to return the Liaodong Peninsula to China under the joint pressure from Russia, Germany and France. Japan felt deeply humiliated at this because it meant it was still a weaker power than the West.

Even after Japan's victory over China in 1895, Korea and the North-eastern region of China remained under Russian influence. This inevitably collided with Japan's expansionist policy and, within ten years, the Japan-Russia



The Japanese Colonial Administration in Korea, located in the center of Keijo (Seoul).

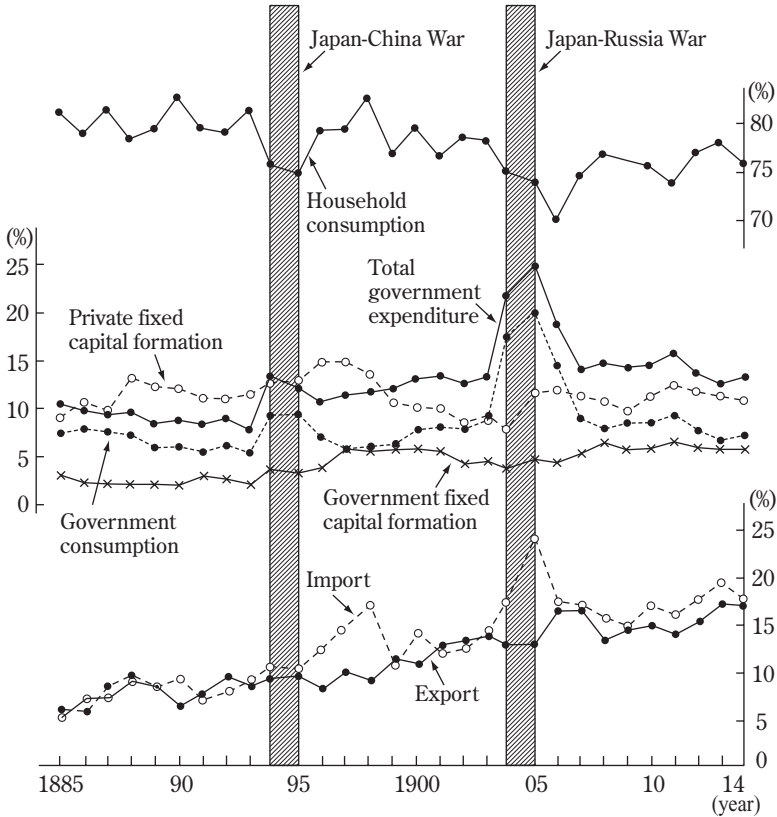
War broke out (1904-05). Most foreign observers predicted an easy Russian victory. But surprisingly, the Japanese navy decisively defeated Russia's Baltic Fleet. Immediately after this naval triumph, the Japanese government asked the United States to mediate a peace treaty between Japan and Russia since the continuation of the war would surely lead to a fiscal crisis (the approach to the US government had been made in advance). The victory over Russia was considered to be a proof that Japan had finally become a first-class country on a par with the West. National pride ballooned. But at the same time, the Japanese people and media were infuriated because Russia paid no reparations. By contrast, the Japanese government was happy simply because the war ended before Japan went bankrupt.

Japan annexed (colonized) Korea in 1910. Meanwhile, Russia's Romanov Empire collapsed in 1917 and a communist regime was established (Russian Revolution).

What impact did the two wars have on Japan's macroeconomic policy stance? To consider this, we need to look back a little.

When the first imperial parliament was convened in 1890, the key

Figure 6-1 Structure of Gross Domestic Expenditure



Source: Nishikawa and Yamamoto, eds, 1990, p.5.

issue was whether Japan should adopt fiscal expansion or fiscal austerity. The government wanted to accelerate spending for industrialization and military buildup, but the opposition parties demanded tax and spending cuts. The latter reflected the voice of voters, most of whom were rich farmers obliged to pay the land tax. But gradually, some opposition parties changed tactics and began to cooperate with the government. Instead of demanding a small government, they asked for more rural public spending (in their constituencies).

During the two wars, military spending sharply increased. In the case of the Japan-Russia War, foreign bonds were floated in America and Europe to cover roughly half the war expense. This practically terminated the debate over



In 1896 the parliament approved the budget for building a modern state-owned steel plant. Yahata (also pronounced Yawata) Steel was completed in 1901. Initial technical difficulties were overcome by adjusting German technology to local requirements. Yahata Steel was later merged several times to become Nippon Steel Corporation.

the fiscal policy stance as budget spending increased in reality. Fiscal activism became generally acceptable.

Moreover, after each war, fiscal activism was adopted instead of macroeconomic contraction. For this reason, the size of government did not shrink after each victory but continued to expand (the fiscal ratchet effect). The term *Postwar Management* refers to the aggressive public investment and spending programs of the central and local governments after the Japan-China and Japan-Russia Wars, which included:

- Continued military spending, especially battleship construction
- Railroad construction
- Integrated steel works in Yahata (SOE, established in 1901—see photo)
- Building of the national telephone network
- Taiwan Management—administration of and investment in the newly acquired colony
- Infrastructure building, such as roads and water supply, which was undertaken mainly by local governments
- Education spending undertaken mainly by local governments

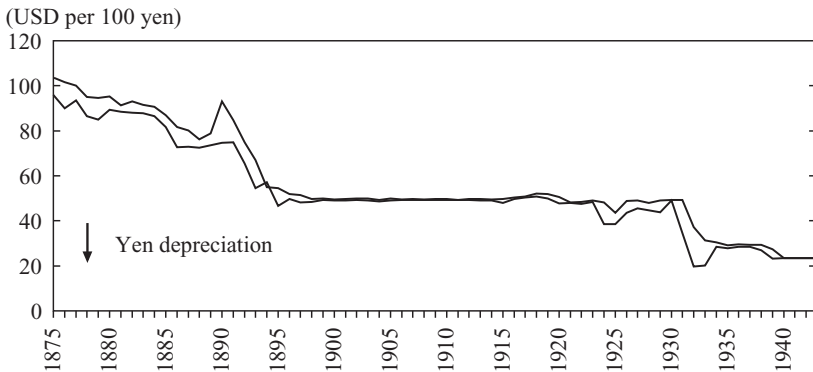
As a result of continued fiscal expansion, the balance-of-payments pressure mounted and the Bank of Japan quickly lost gold reserves. It can be said that Japan prior to WWI was facing an increasingly serious macroeconomic crisis.

2. Exchange rate policy

Britain adopted the gold standard in 1821 and all other major Western countries, including the United States, shifted to the gold standard by the end of 1870s. While the West was on the international gold standard, Japan remained externally on the silver standard—gold, silver and copper coins circulated internally but silver was the means of international settlement. This in turn was mainly because the silver standard was dominant in East Asia. Shanghai (China) was the center of Asian foreign exchange markets.

The price of silver gradually declined against gold in the late 19th century. This meant that the Japanese yen, tied to silver, automatically depreciated against the world's major currencies, which provided a favorable condition for export promotion. However, Finance Minister Matsukata, the man who previously generated what was called Matsukata Deflation in the early 1880s, now insisted that Japan should adopt the gold standard as soon as possible because it was the standard practice among first-class countries. Ignoring opposition, Matsukata introduced the gold standard in 1897. The initial gold reserves were secured by the reparation gold paid by China after the Japan-China War. From then on, the Japanese yen was fixed against major currencies at the parity of 2 yen to the US dollar.

Figure 6-2 Yen-Dollar Exchange Rate



Source: Management and Coordination Agency, *Historical Statistics of Japan*, Vol. 3, 1988.
 Note: Two lines indicate highest and lowest for each year.

As a consequence, the automatic depreciation of the yen ended. Japanese inflation converged to world inflation, which was close to zero. Due to the absence of the exchange risk, it became easier for the central and local governments to issue foreign currency-denominated bonds.

3. Creating modern banking

In early Meiji, the Japanese banking system was chaotic, to say the least. The initial policy of creating “national” banks (1872), copied from the US system, was not very successful (“national” here means “chartered by the state”; these banks were actually private). This decentralized system had no central bank, and each “national” bank could issue bank notes with the backing of gold reserves. But holding gold reserve was costly and only four banks were set up. Later, the gold reserve requirement was relaxed and the total of 153 banks were created. But eventually, this system was regarded as ineffective and later abolished.

The modern banking system began to take root with the creation of a central bank (Bank of Japan) in 1882, which became the only entity to issue the national currency. In addition to commercial banks, the following specialized banks were created to fund investment projects:

- Japan Kangyo Bank (later, Daiichi Kangyo Bank; now part of the merged Mizuho Financial Group created in 2000. Kangyo means industrial promotion.)
- Hokkaido Takushoku Bank (bankrupted in 1997; Takushoku means opening new land for cultivation)
- Industrial Bank of Japan (now part of the Mizuho Financial Group)
- Agricultural and Industrial Bank (set up in each prefecture; merged into Japan Kangyo Bank by 1944)

In addition, postal savings began to collect people’s savings. Insurance companies, agricultural credit unions and urban credit unions also functioned as financial intermediaries.

But until late Meiji, Japanese banks were not true financial intermediaries in the sense of taking deposits and making loans. At first, paid-in capital, reserves and government deposits dominated the liabilities of the banks. For

Table 6-1 Sources of Borrowing by Farm Households and Manufacturing Enterprises

(%)

Borrowing from:	Farmers			Manufacturers
	1888	1911	1932	1932
Modern financial institutions	7.2	35.7	47.3	60.8
Banks	7.2	32.7	26.7	59.8
Cooperatives	--	2.5	16.0	1.0
Official low-interest credit	--	0.5	4.6	--
Traditional institutions	92.8	64.3	52.7	39.2
TOTAL	100.0	100.0	100.0	100.0

Note: Prof. Juro Teranishi's estimates (1990). Manufacturers' data are for Tokyo and Kobe only. Traditional institutions include money lenders, merchants, relatives, and mutual financing.

early banks, designation as the government's fiscal depository was very profitable, because they did not have to pay interest on official deposits between the time taxes were collected and the time they were transferred to the government. Only towards the end of Meiji, banks began to rely more on private-sector deposits. But even then, many banks remained unsound with the general lack of information disclosure, risk management, portfolio diversification or project evaluation. Banks were often captured by one or a few business enterprises, providing financing exclusively for them. Such banks were called *kikan ginko*, which literally means "institution banks." This situation subsequently caused an enormous bad debt problem in the 1920s (chapter 8).

All this points to the fact that creating a sound banking system in a developing country is a very difficult and long-term endeavor. New banking laws and financial deregulation will not be enough to achieve this.

As for the capital market, stock exchanges were created in Tokyo and Osaka in 1878. But initially, few stocks were traded and these exchanges functioned mainly as a secondary market for government bonds. Former samurais who received government bonds in exchange for the previous rice salary often wished to sell them as they faced financial distress. In the 1880s, as many railroad companies were established, railroad bonds gradually became the most important instruments for trading. In the 1890s, the shares of maritime transportation companies became popular. After 1906, when private railroads were nationalized, the shares of textile and food companies replaced railroad stocks.

4. Savings mobilization

Where did the funding for Meiji industrialization come from? Data are incomplete, economic historians are still debating, and we do not have a definite answer. Here, let us look at the estimates provided by Juro Teranishi (1990).

Teranishi estimates the savings-investment balance of Japan from 1899 to 1937. He does not have data for early Meiji, before 1899. He classifies the economy into four sectors: private farms, non-farm private enterprises, government, and the external sector. He additionally estimates the size of agricultural taxes. The following interpretation by Teranishi is consistent with his estimates (although other interpretations may be possible).

First, in pre-WW2 Japan, the largest funds for industrialization came from private enterprises themselves. Retained profits, family savings, and the resources of rich merchants seem to have financed private investments within the business sector through self-finance, the creation of joint stock companies and so on. The role of banks as a financial intermediary did not appear very great, especially in the early periods.

Second, in addition, the fiscal transfer mechanism from agriculture to industry must have played an important role to the extent that land taxes paid by rural communities were used to finance public investment and various subsidies. But Teranishi somewhat downplays the role of landlords as major contrib-

Table 6-2 Savings-Investment Balance by Sector

(In millions of yen)

	1899-1902	1903-1907	1908-1912	1913-1917	1918-1922	1923-1927	1928-1932	1933-1937
Private farms	1	13	4	43	207	23	-12	222
Savings	121	159	175	240	657	523	402	580
Investment	120	146	171	197	450	500	414	358
Non-farm private sector	62	123	-87	175	81	-290	631	931
Savings	180	310	212	752	1724	858	1498	2637
Investment	118	187	299	577	1643	1148	867	1706
Government	-59	-233	15	120	-146	-112	-626	-1162
Savings	24	-142	205	317	441	801	251	-298
Investment	83	91	190	197	587	913	877	864
External sector	5	-97	-68	338	143	-380	-6	-10
Memorandum item: Agricultural taxes	104	115	154	166	290	291	188	145

Note: Prof. Juro Teranishi's estimates (1990). Private farms' S-I balance shows transfer of surpluses to the non-farm sector through the financial system while agricultural taxes are transfer of surpluses through the government budget.

utors to saving mobilization since the ratio of agricultural tax to total investment declined over time. Nevertheless, such fiscal transfer may well have played a crucial role in early Meiji, for which Teranishi does not have data.

Third, foreign savings played some role toward the end of Meiji as foreign-currency denominated bonds were issued by the central and local governments—see the next section.

5. The role of external funds

Quantitatively speaking, the contribution of foreign savings to industrialization was relatively small during the Meiji period. Almost all necessary funds were raised domestically. Meiji Japan did not welcome FDI or foreign loans for industrialization, except for the public-sector borrowing in late Meiji for the purpose of war execution and Postwar Management as mentioned above. Initially, as a matter of principle, the government rejected external liabilities for fear of foreign control. This was in sharp contrast to other latecomers, such as Russia and Italy. Russia borrowed heavily from London's financial markets to build railroads during the 1860s and 70s. Italy also accepted large amounts of foreign investment in all sectors in the late 19th century.

However, the reliance on foreign saving did increase in late Meiji. Let us see what happened step by step.

In early Meiji, the government issued foreign bonds twice. After that, there was some internal debate on the desirability of further borrowing for the purpose of creating a modern monetary system. But actual borrowing was not considered or made until the mid 1890s.

After the victory in the Japan-China War (1894-95), the situation changed. With the introduction of a fixed exchange rate and the gold standard which was made possible by the receipt of reparation gold from China, it became easier for Japan to issue foreign bonds. The policy of fiscal activism also required additional financial sources. The establishment of the Rikken Seiyukai Party, which strongly supported spending policy, and its assumption of power in 1900 accelerated this trend. In order to ameliorate financial crises and credit shortage, the business community also began to call for external borrowing.

During the seven years following the end of the Japan-China War, the Japanese government issued foreign bonds in three installments, totaling 190 million yen (\$95 million) to fund its public investment. During the Japan-Russia War (1904-05), the government again issued foreign bonds worth 800 million yen (\$400 million) in four quick installments to execute the war. These bonds were denominated mainly in British pound or US dollar (the exchange rates were 2 yen per dollar and 4.87 dollars per pound). Between this war and the outbreak of WW1, the bond issue was repeated seven more times, mainly to redeem domestic government bonds and release more funds for domestic industries.

After the Japan-Russia War, local governments also began to actively borrow abroad. Local government bonds and corporate bonds issued by local SOEs were the two major forms of such borrowing. Funds raised through these instruments were used for building infrastructure, such as railroads, gas and water supply, electricity and so on.

Both Teranishi (1990) and Kamiyama (2000b) interpret the external public borrowing of this period as a way to finance the balance-of-payments deficit while continuing fiscal activism. Without it, macroeconomic policies had to be tightened but Japan did not want to do this.

As for FDI, inflow remained negligible in terms of both establishment of new enterprises and purchases of existing stocks by foreigners. As the unequal commercial treaties with the West were revised, foreigners were allowed to invest in Japan. The restriction of foreign investment to the designated foreign settlements was lifted in 1899. But that did not cause any increase in FDI inflow. There were only two companies in which foreign ownership exceeded 50 percent.

After successful modernization, Japan becomes a new threat to East Asia and the world

By the 1910s, the three national goals of early Meiji—namely, industrialization, political reform, and military expansion—were more or less achieved, and Japan began to consider itself to be part of the first-class world. Achievements by the end of Meiji can be summarized as follows:

- Industrial revolution was achieved in light industries, especially cotton textiles, although machinery and chemical industries were still embryonic.
- Japan now had a Western style legal system equipped with a constitution, necessary laws, and a functioning parliament.
- As the unequal treaties were revised step by step, Japan regained tariff rights and the right to judge foreign criminals. Taiwan and Korea were colonized, and the threats of China and Russia were repelled.

After WW1, Japan began to attend important international conferences as a member of the “Big Five.” The other members were US, Britain, France and Italy. But Japan’s accomplishments and emerging assertiveness created new doubts among both the West and the Asian neighbors. For the West, Japan was now a dangerous military power which might imperil their interests. For the rest of East Asia, Japan acted as a new imperial invader in the region threatening their independence.

During WW1, while Europeans and Americans were absorbed in fighting, the Japanese government issued the “Twenty-One Demands” to China in 1915. These included the demand for transferring German-occupied Chinese territory (Shandong Peninsula) to Japan, expansion of Japanese interests in Southern Manchuria and Eastern Inner Mongolia, a new industrial joint venture, prohibition of yielding Chinese territories to other countries, acceptance of Japanese advisors, and others (“Manchuria” is a term then used to refer to the Northeastern Region of China). The Chinese government first resisted the Twenty-One Demands, but with an ultimatum from Japan, it finally accepted them. When China’s protestations against the Japanese demands were rejected at the Paris Peace Conference, a large-scale anti-Japanese movement erupted in China in 1919 (May 4 Movement).

After the Russian Revolution, the major powers sent troops to topple the new communist government, but the attempt was eventually unsuccessful. Japan sent the

largest number of troops to Siberia and kept them there the longest, after all other countries ended intervention.

These actions increased global suspicion against Japan. Even the United States, a traditional ally and the largest trading partner of Japan, began to express displeasure. Another thorny issue with the United States was the mistreatment of and discrimination against Japanese immigrants in the United States. Thus, during the 1920s and 30s, Japanese diplomacy was facing a grave choice: whether to restore friendship with the West and East Asia or continue to assert its way against global criticism.

Figure 6-3 Japan's Territorial Expansion



Note:

After the Japan-China War, Japan received Liaodong Peninsula from China in 1895 but was forced to return it in the face of diplomatic pressure from Russia, Germany and France in the same year. After the Japan-Russia War, Japan obtained the southern half of Liaodong Peninsula from Russia, and named it Guandong (Kanto-shu). Guandong included the military port of Lushun and the commercial city of Dalian.