Financial System and the Industrialization of Japan: 1900-1970 *

The purpose of this paper is to analyze the relationship between financial development and industralization in Japan during the period 1900-1970. The investigation first discusses how the Japanese economy molded its financial system to the needs of particular historic conditions, second, how successful such a system was in fulfilling its implicitly or explicitly assigned role and, finally, why it did or did not succeed.

It is not easy for an industrializing economy to build up an adequate financial system. The financial system is required to meet at least two basic criteria. First, it is expected to support industrialization by mobilizing savings, allocating investment, and through maturity transformation. Second, the system itself must be safe and efficient in fulfilling the first role, although either safeness or efficiency is normally endangered in the development process. Such a financial system, however, must be established in relatively unfavorable conditions such as prevalence of informal credit markets which tend to limit the capacity to mobilize financial savings, a low degree of ownership-management separation that aggravates the problems of investment allocation owing to informational asymmetry, and a low level of accumulated financial assets making maturity transformation more difficult. Moreover, since these conditions differ widely over different economies, each economy must tailor its financial system to suit its own conditions. A particular financial system may perform quite well in one economy, but may utterly fail in another. The financial system, like any other institution, belongs to a category where the direct transfer of technology without significant adaptations and modifications is most difficult.

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The so-called modern economic growth of Japan, based on technology borrowed from abroad, began around the turn of the century and terminated with the end of postwar high-growth period. During this seventy year period, the Japanese financial system has passed through two phases: the prewar phase relying on the free market mechanism and the high-growth phase characterized by competition-restricting regulations.

The prewar Japanese economy reveled characteristics typical of many contemporary developing countries: the predominance of an informal credit system, family-owned firms, and low accumulation of financial assets. In trying to meet the two basic criteria stated above, the prewar financial system essentially relied on the process of free competition both in terms of entry into the market and interest rate determination. As for the first criteria, the support for development, the system performed quite well as far as resource allocation is concerned; it succeeded in assuring availability of finance for virtually every sector and class of the economy. The system, however, suffered most seriously from a lack of stability throughout this period. Bank runs owing to excessive competition for deposits and excessive lendings to related firms were quite prevalent. The Japanese experience, therefore, is expected to provide some insights into the problem of the adequacy of completely free markets, especially with respect to deposit rates, under conditions similar to those of prewar Japan.

In the postwar high-growth period, informal credit activities were virtually eradicated and managerial control over firms strengthened. The level of financial asset accumulation, however, was still quite low due to hyper-inflation during and immediately after World War II. In sharp contrast to the prewar system, the financial system in the high-growth period was highly regulated both in terms of interest rate determination, and branching and entry into the markets. This characteristic reflects the serious concern for the safety of the financial system as well as an implicit intention to artificially enhance the system's capacity to bring about maturity transformation. Judging from the *ex post* development performance, the system seems to have performed well in contributing to industrialization, especially in dealing with the allocation of financial resources to the modern growing sectors, the small new entrants and the declining industries in need of adjustment assistance. The system has also been quite safe in the sense that no explicit bankruptcies occurred during this period.

However, the efficiency of the system is doubtful, especially in terms of bank management, in view of the high protection accorded by regulation that restricted competiton. The financial system in the high-growth period can provide a good starting point to discuss the adequacy of financial market regulations under the conditions similar to those prevailing in postwar Japan.

The next section is devoted to a brief description of the general conceptual framework of the paper: the relationship between financial conditions and the functional role that the financial system is required to play in the process of industrialization. It is followed by Section II, which discusses the prewar system, and Section III, the postwar system. Finally, Section IV gives concluding remarks.

I. Industrialization and the financial system

The first and foremost role assigned to a financial system, implicitly or explicitly, in an economy embarking on industrialization utilizing borrowed technology is to conduce industrialization by channeling savings into the financial system, converting them into long-term investment funds and allocating these funds to newly introduced industries. However, there are many difficulties in fulfilling each of these functions.

Mobilization of financial savings. In an underdeveloped economy, people tend to hold their wealth in the form of real assets such as jewelry, gold, livestock, cash, and claims in informal credit markets. Mobilization of financial savings implies a shift of savings out of these forms into such modern financial instruments as securities and bank deposits. In the neoclassical world, this could be simply done by raising the relative rate of return from, say, bank deposits above that of traditional financial instruments. But, this prescription is not directly applicable in most of the developing economies. In mobilizing real assets, various cultural and political factors that necessitate real asset holdings tend to hinder a smooth shift. In the case of cash, the fact that cash holdings are related to the needs of real economic activities presents serious obstacles to a smooth portfolio shift. With the low level of asset accumulation, people tend to hold their savings in the form of short-term assets.

Cash is typically held as a precautionary measure to meet any stochastic divergence between receipts and outlays. Since demand for cash comes from "real needs", it is relatively insensitive to changes in the rate of return on other financial assets. An increase in deposits brought about by a shift from cash holdings due to exceptionally high interest rates owing to competition among banks can be highly unstable in these circumstances.

Savings held in the form of claims in informal credit activity is also insensitive to changes in alternative rate of return, and it is usually quite difficult to affect a significant shift from informal financial claims to bank deposits simply by raising the deposit rate. Here, it is important to note that lenders in informal credit markets are not mere asset holders, but professional lenders with highly efficient information processing capabilities with respect to their customers. Not only have they already established information channels with their customers, but they also accumulate information continuously through daily monitoring. For such lenders, it is simply not rational to make a portfolio shift from informal credit claims into deposits, even if the nominal interest rate for bank deposits has been raised considerably. Firstly, the average cost of their operations is considered to be very low since the initial outlays to establish informational channels show sunk cost characteristics. The results is a hysteretic situation as far as exit from the informal credit market is concerned. Second, since information accumulated over many years serves as capital stock for their activity, suspension of operations implies a loss in the value of the total stock. For these reasons, it is highly conceivable that the difference in nominal rates of return is not sufficient to induce significant portfolio shifts from claims in informal credit market into bank deposits. Meanwhile, it is also worth noting that this argument explains why informal credit activity is so persistent in underdeveloped economies in spite of efforts by governments to eradicate it. Establishment of information channels and accumulation of information by modern financial institutions is the only effective way of bringing about a substantial retreat from informal credit activities in such economies.

Efficiency of allocation of funds. The allocational efficiency of credit depends on the information processing capability of the financial system. It is important to note that significant informational asymmetry and related problems arise in any industrializing economy as it is usually quite difficult to expand information production to meet the substantially increased demand for such information.

When an economy is producing and exporting primary commodities, the information requirements are limited because the production unit is the household and technology is a long-inherited, traditional one. When, however, the economy embarks on industrialization using imported technology, information demand increases significantly since modern technology requires division of labor in production. The basic production unit changes from household to factory, and the need for information, especially about the quality of products as well as the financial and other conditions of different production units, rises significantly.[1] In spite of the rapid penetration of the division of labor in the production process, a change in the pattern of ownership of production units usually takes time. The production units continue to be owned by families or family groups. In other words, separation of ownership and management tends to lag behind the division of labor in production. Since the family-owned firms are strongly averse to information disclosure for various reasons, production of public information stays insufficient. As the establishment of informational channels and accumulation of information by modern financial institutions takes time, there is a significant excess demand for information in such developing economies. Moreover, the informal credit markets cannot be expected to fill this gap.[2] This is because their information processing capabilities, based mainly on regional or consanguine relationships, though highly efficient in case of indigenous borrowers, are insufficient for evaluating the financial conditions in the newly imported industries.

Maturity transformation. Industrialization through borrowed technology requires a huge amount of fixed, long-term investment in capital equipment. The supply of funds by asset holders, on the other hand, consists primarily of short-term funds due to the low level of asset accumulation. This makes the problem of maturity transformation – conversion of short-term funds into long-term funds – all the more important in the development process.

The maturity trasformation via secondary securities market is generally handicapped by the fact that the level of private financial asset accumulation is insufficient to allow for diversified security holdings. For effective maturity transformation by the banking sector,

[1] D. North (1984) and R.C.O. Mathews (1986).

[2] In Korea, however, in the 60s and 70s, strict regulation of commercial banking led to an extremely efficient private bond market.

on the other hand, some form of efficient liquidity adjustment either through the short-term money market or through central bank loans and deposits is indispensable. However, excessive central bank loans are liable to induce moral hazard in anticipation of rescue operations. Moreover, in many underdeveloped economies, the money market is used not for adjusting short-term liquidity, but for financing structural deficits by banks inflicted by low deposit absorption capacity.

In trying to fulfil its role as a contributor to development through the three aspects discussed above, the financial system sometimes faces difficulties such as a low level of internal efficiency and a loss of public confidence, frequently leading to financial crises. Therefore, the financial system in the process of industrialization is required to maintain its own efficiency and safety. Under the conditions of serious information asymmetry, excessive concentration of bank loans into related firms often become the source of bank insolvency. When cash holdings set aside for unforeseen outlays are mobilized in the form of deposits by means of high interest rates, the deposits are usually highly sensitive to the signs of bank riskiness, thereby increasing liquidity risk for the banks, and eventually cause bank runs. When some banks with significant arrears in their loan portfolio borrow in the money markets, the lenders are quite sensitive to any sign of their insolvency. A sudden withdrawal of funds often leads to a collapse of the market.

All this suggests serious difficulties in maintaining a safe financial system during the process of industrialization. Of course, it is possible to enhance safety by adopting protective measures, but such measures often result in extreme inefficiency in the system. Governmental regulations such as deposit rate ceilings have often led to a situation where even banks with the highest costs can also earn positive profits. In general, to have both a safe as well as an efficient financial system is not easy.

We have argued that, in the process of industrialization through borrowed technology, the financial system is expected to fulfil two requirements: it must support industrialization and it should be safe and efficient. These two requirements are not easy in view of such unfavorable conditions as a low level of accumulation of wealth, prevalence of informal credit and lack of separation of ownership and management in firms. No doubt, some direct measures to improve these conditions are available; the introduction of mutual funds can

alleviate the problem of a low level of wealth accumulation, usury laws can have some effect on the informal credit system, and legislation to encourage listing of firms on the stock exchange can promote managerial control and disclosure. However, the effectiveness of these direct measures is quite limited, and a lasting improvement can be attained only through a time and resource consuming process of, for example, diversification of financial institutions and instruments, improvement of information processing capabilities of the banks, and promotion of institutional investors.

Since financial conditions change only gradually, it follows that the financial system in each economy should be geared to meet the needs of the times. Since the financial environment in every economy differs, a direct transplant of any system is generally not possible. Significant adaptation may be needed in some cases, and, in principle, the financial system of each economy must be tailored to meet its own needs and conditions.

II. The prewar financial system

The institutional framework for the prewar Japanese financial system is believed to have been established by the turn of the century[3] when the economy embarked on what is usually referred to as the phase of initial export substitution; (i) the number of commercial banks reached a peak of 2,334, and declined thereafter; (ii) the joint stock company system came into existence with the enactment of the Commercial Law in 1893; and, (iii) the degree of regional segmentation of financial markets decreased drastically by 1905, as judged by the coefficient of variation for interest rates.

The system, however, was severely handicapped by such conditions as prevalence of an informal credit system, a lack of separation of ownership and management of firms, and a low level of asset accumulation, which made pursuit of the two basic requirements discussed above difficult.

[3] This early establishment of banks can be understood within the framework of supply leading hypothesis of institutional development. *Cf.* H. PATRICK (1966).

1. *Conditions prevailing in the financial markets*

Let us, first, take a look at various conditions prevailing at that time which form the very basis for the development of the financial sytem.

Tables 1 and 2 document evidence on the prevalence of informal credit in prewar Japan. Table 1 shows that even in 1932, more than half (56.3%) of the loans to the farm sector were supplied by such informal credit sources as money-lenders or relatives and acquaintances. Table 2, on the other hand, reveals that, in 1932, even the largest manufacturing firms borrowed 36.7% of their funds from the informal credit system, and, for small and medium sized firms, the informal system was the most important source of funds.

Tables 3 and 4 provide relevant information on the separation of ownership and management of firms. Table 3 shows the diffusion of the factory system in production, and the company system in the ownership of firms. The former indicates the growth of informational needs as social division of labor in production progresses, and the latter suggests the levels of the information supplied, since companies are less averse to information disclosure than family-owned firms. The difference between the number of production units and companies corresponds to strictly family-owned firms. However, even when a production unit takes the form of a company, it may still be family-owned if the diversification of ownership is not sufficient; this is especially true for unincorporated companies. From the Table, one can see that production in such imported industries as cotton spinning

TABLE 1

PERCENTAGE COMPOSITION OF LIABILITIES OF FARM SECTOR

	1888	1911	1932
(1) Borrowings from modern financial intermediaries	7.2	35.7	43.7
Banks	7.2	32.7	26.7
Credit Cooperatives	–	2.5	16.0
Government Funds	–	0.5	4.6
(2) Borrowings from money-lenders (including merchants)	92.8	21.4	12.2
(3) Borrowings from Relatives and acquaintances		42.9	44.1

Source: TERANISHI, J. (1982).

TABLE 2

COMPOSITION OF BORROWINGS BY TYPES OF LENDERS AND BY SIZE OF FIRMS IN MANUFACTURING

1932		
Size of Firms by Total Assets (hundred yen)	Modern Financing	Traditional Financing
– 1	11.6	88.4
1 – 5	12.5	87.5
5 – 10	15.1	84.9
10 – 20	19.1	80.9
20 – 50	28.9	71.1
50 – 100	36.3	62.7
100 – 500	42.5	57.5
500 – 1000	39.3	60.7
1000 – 5000	52.7	47.3
5000 –	63.3	36.7
Total	60.8	39.2

1957				
Size of Firm by Number of Employees	Modern Financing	Private	Government	Traditional Financing
1 – 3	65.7	56.0	9.7	34.3
4 – 9	74.8	65.0	9.8	25.2
10 – 19	83.2	73.7	9.5	16.8
20 – 29	85.5	76.7	8.8	14.5
30 – 49	86.8	78.7	8.1	13.2
50 – 99	86.7	79.4	7.3	13.3
100 – 199	88.8	82.9	5.9	11.2
200 – 299	86.4	82.6	3.8	13.6
300 – 499	91.1	89.5	1.6	8.9
600 – 999	87.5	85.8	1.7	12.5
1000 –	92.4	89.9	2.5	7.6
Total	89.7	85.9	3.8	10.3

Unit : %
Source : TERANISHI, J. (1982).
Note : 1932 data is for manufacturing firms in Tokyo and Kobe city only.

TABLE 3

NUMBER OF PRODUCTION UNITS, COMPANIES AND FACTORIES FOR 1896 AND 1905

		Number of Production Units	Number of Companies	Number of Factories
Silk	1896	409,799	175	2,684
	1905	411,943	286	2,573
Cotton Spinning	1896	63	58	81
	1905	82	41	214
Weaving	1896	660,409	60	954
	1905	448,609	175	2,397
Ceramics	1896	5,088	11	164
	1905	4,834	29	481
Lacquers	1896	5,016	–	5
	1905	5,442	12	20
Vegetable Oils	1896	9,381	20	30
	1905	10,808	25	–
Matches	1896	210	13	269
	1905	254	31	–
Brewing	1896	25,459	51	603
	1905	33,240	114	703

Source : *Teikoku Tokei Nenkan*, Nos. 16 and 26.
Note : A factory in 1896 was defined as an establishment with more than 10 workers. In 1905 it referred to establishments with more than 20 workers.

and match production is mainly on a factory basis, some companies holding multiple factories. In the case of other industries, mainly indigenous, the growth of the factory system is also rapid; note that the definition of factory changes from more than 10 workers in 1896 to more than 20 workers in 1905. On the other hand, the spread of the company system seems to be very slow, lagging far behind the diffusion of the factory system. In the case of imported industries, the development of the company system is insignificant for the match industry whose minimum required capital is small. Even for the

TABLE 4

PERCENTAGE COMPOSITION OF OWNER-EXECUTIVES

	1900	1928	1962
Fishery	–	25.0	27.3
Mining	45.7	9.1	10.3
Manufacturing	48.3	20.7	13.1
Foods	48.8	26.8	22.8
Textiles	56.7	18.9	9.5
Cotton spinning	50.0	18.9	11.1
Others	64.4	19.1	7.9
Chemicals and Petroleum	40.9	11.1	10.1
Metals and Steel	–	16.7	9.8
Machinery	21.2	23.3	14.2
Others	70.0	–	18.8
Electricity and Gas	36.8	10.3	0.0
Transportation	41.7	8.1	5.8
Commerce	50.5	38.1	10.0
Foreign Trade	62.8	27.2	3.7
Others	39.6	50.0	23.1
Banking	57.1	9.1	0.0
Special Banks	12.5	3.6	0.0
Commercial Banks	59.1	12.2	0.0
Insurance	46.7	14.6	0.0
Others	24.0	37.5	26.3
Total	48.8	17.4	11.5

Source : Y. AONUMA, *Nihon no Keieiso* (1965), Nihon Keizai Shinbunsha.
Note : Sample size is 329 big companies for 1990, 375 for 1925 and 329 for 1962.

cotton spinning industry which requires a huge initial investment, the number of non-company firms seems to have decreased in 1905. The development of the company system is negligible for other indigenous industries.

Table 4 shows the percentage share of owner-executives in the total number of executives in the sample companies. It can be seen that in 1900, an average 48.8% of executives came from owner-families. This tendency is especially prominent in such industries as textiles, commerce and banking. Although these figures generally declined by 1928, they were still relatively high for foods, textiles and

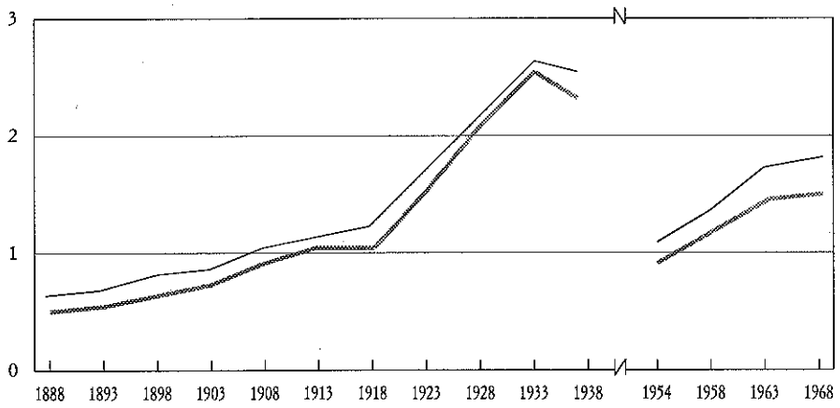
commerce. It is important to note that the sample of this table consists of only large companies. Needless to say, for small and medium sized firms the degree of family ownership would have been much higher.

Third, Figure 1 provides the relevant information on the level of asset accumulation in prewar Japan. One can see that the private assets relative to GNE (Gross National Expenditure) or capital stock (in nominal value) are very small in the early period. Corresponding to this low level of accumulation, the early period was characterized by short-term asset-holdings. Table 5 indicates this. The share of time deposits is very low in early years. However, it is also important to note that the share rose to sufficiently high levels after World War I.

These were the basic conditions that governed the establishment and evolution of the prewar financial system; significant and persistent dependence on an informal credit system; absence of separation of ownership and management in important industries; and a low level of asset accumulation with the resulting short-term assetholdings at least until the end of World War I. Under these conditions, the prewar system was operated basically on the principles of a free market. Entry into the banking industry was almost

FIGURE 1

PRIVATE FINANCIAL ASSETS AS A PROPORTION OF GNE AND CAPITAL STOCK



Source : TERANISHI, J. (1982).
Note : Ratios of nominal figures. Five year averages except for 1954 which is an average for 1953-54. Years indicate the middle of the five year period.
——— private financial assets/GNE (left scale).
wwwwww private financial assets/capital stock (right scale).

TABLE 5

PERCENTAGE COMPOSITION OF TIME AND SAVING DEPOSITS IN TOTAL BANK DEPOSITS

Year	%	Year	%
1883	12.3	1940	41.7
1888	21.8	1945	29.4
1893	26.8	1946	20.2
1898	22.5	1947	14.5
1903	27.9	1948	14.5
1908	33.7	1949	23.9
1913	42.8	1950	28.6
1918	46.6	1955	42.0
1923	42.7	1960	51.8
1928	48.4	1965	50.3
1933	47.1	1970	54.3
1938	45.3	1975	53.8

Source: TERANISHI, J. (1982).

completely free before 1918, and even after 1918, anyone could open a bank provided it satisfied minimum capital requirements, at least until 1933 when the compulsory guideline of one bank in one prefecture was introduced. Interest rates, not only lending rates but deposit rates were also, virtually free before 1918. Existing usury law seems to have been simply neglected. After 1918, agreements on maximum deposit rates with a clause for paying fines for violations were introduced in major urban regions. However, violation in the form of under-the-table payments were frequent, especially by banks with bad loans and the consequent low deposit-absorption capacity. There is evidence that even the largest bank like the Dai 15 bank paid extraordinarily high rates in order to attract deposits. Deposit rates can be considered to have been virtually free at least until the last years of 1930s when administrative-*cum*-military pressure was introduced to lower interest rates.

2. *Supply of funds for industrialization*

The contribution of the prewar financial system to Japan's industrialization can be discussed under three heads – mobilization of financial savings, allocation of funds and term transformation. Below, we examine these in turn.

Mobilization of financial savings. The Japanese cultural traditions and political practices have never favored the use of jewelry and gold as a major store of value. Thus, portfolio shifts from real assets can be neglected. The unavailability of data is also a part of the reason for neglecting this aspect.

Table 6 shows the percentage composition of private financial assets. Reflecting the penetration of the banking system into the economy, the share of cash decreased quite rapidly towards the end of the nineteenth century, and thereafter continued to decrease gradually. The aggregate figures show that the mobilization of cash is no longer important after 1900. However, occasional portfolio shifts, induced by high interest rates offered by banks in difficulty, tended to create unstable and highly sensitive deposits leading eventually to financial crises.

Claims in informal credit presents the most serious challenge to efforts to mobilise savings. We have already discussed why these claims are insensitive to the rate of return on alternative assets. Teranishi (1989) estimates demand and supply functions in the money market using cross-prefectural data in the interwar period. The deposit interest rate was found to have an insignificant effect on the supply function. The demand function, on the other hand, was found

TABLE 6

PERCENTAGE COMPOSITION OF FINANCIAL ASSETS OF PRIVATE NON-BANK SECTOR (EXCLUDING TRADE CREDITS AND CLAIMS IN INFORMAL CREDIT MARKETS)

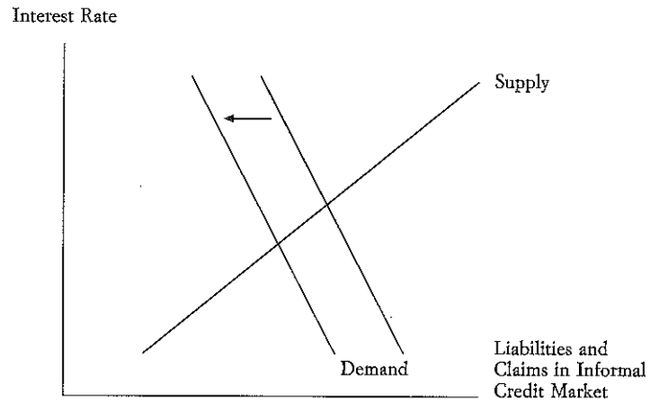
	Cash	Deposits	Insurance and Trust	Securities
1876-80	47.4	2.7	–	49.9
1881-85	29.9	12.4	0.0	57.6
1886-90	21.6	18.6	0.1	57.5
1891-95	21.1	20.9	0.2	51.7
1896-90	15.6	26.2	0.5	50.2
1901-05	10.3	30.6	0.9	47.1
1906-10	8.0	33.9	1.1	43.2
1911-15	6.2	33.5	1.9	42.6
1916-20	4.7	41.0	1.8	37.5
1921-25	3.5	36.1	3.2	41.2
1926-30	2.4	36.2	7.2	36.7
1931-35	2.1	35.5	10.5	36.5
1936-40	2.7	39.6	11.6	33.7

Source: TERANISHI, J. (1982).

to be negatively related to the spread of credit cooperatives and bank branches adjusted for their vintage. These two variables indicate the importance of the establishment of informational channels as well as the accumulation of information by modern financial institutions to counter the information processing capabilities of traditional lenders. Thus, our analysis shows that mobilization of funds from informal credit markets was brought about not by a shift in the supply curve but by a shift in the demand curve caused by the increased availability of alternative methods of financing by the borrowers (Figure 2). Table 2 shows that, from 1911 to 1932, while the share of relatives and acquaintances remained stable, the share of money-lenders, including merchants (whose main side business was money lending), declined considerably. This was matched by a corresponding increase in the share of credit cooperatives.

FIGURE 2

EQUILIBRIUM OF INFORMAL CREDIT MARKET



Allocation of credits. During the early phases of industrialization, firms are normally highly averse to disclosure of information owing to closed ownership by family groups. On the other hand, attaining efficiency in information processing by modern financial institution is a time and resource consuming process. It follows that the financial system is seriously strained in credit allocation, and the emergence of unsound banking due to increased lendings to related firms is a typical consequence. Firms under family ownership prefer to have a relationship with a limited number of, and preferably only a single, lenders in order to avoid information disclosures. The loan

policy of the banks, quite often family owned (Table 4), is usually under the exclusive control of a few owner executives. In such circumstances, it is quite natural for the owner of a firm to consider owning a bank, since by doing so the firm can secure a funding source without disclosing any information.

The related-firm loans, an inevitable outcome of such cross-ownership between firms and banks, was a frequent source of serious risk for the banks. When a firm slumped, the related-firm loans were increased and invariably became overdue. To finance this fixed loan, the bank was obliged to absorb deposits at a high interest rate, and increased interest costs often necessitated further high risk lendings. Table 7 shows the relevant data for a sample of banks that went bankrupt in the financial crisis of 1927. The share of related-firm loans was very high for some of the banks. These loans were granted either without a collateral or with illiquid collateral in the form of real estate.

TABLE 7

FINANCIAL RATIOS OF BANKRUPT BANKS IN 1927

Name of Bank	Paid in Capital (thousand yen)	Share of Loans with Real Estate Collateral (%)	Share of Loans without Collateral (%)	Share of Loans to Related Firms (%)
Kuki	161	61.6	32.7	49.0
Tokatsu	400	–	68.1	30.2
Nishiebara	400	30.7	38.1	16.4
Tokushima	700	19.5	49.8	40.6
Kurita	800	36.1	32.5	22.9
Kurate	1,000	31.4	51.4	–
Nakazawa	1,250	2.7	89.2	94.4
Tokyo-Watanabe	2,000	–	–	73.8
Dai 84	2,200	–	–	18.9
Imabari-Shogyo	2,500	29.9	49.1	28.7
Soda	2,500	9.7	69.8	40.5
Nakai	5,000	25.7	23.4	2.8
Murai	5,125	11.3	66.0	25.8
Dai 65	6,250	10.8	42.5	28.4
Ohmi	9,375	12.3	58.6	7.7
Dai 15	49,750	–	–	40.1
Average for all ordinary banks	1,677	21.0	33.8	–

Source: TERANISHI, J. (1982).

There is no doubt about the fact that these unsound banks, with cross-holdings in particular firms, were the triggers as well as amplifiers of the financial crises. However, such banks were in no way representative of the banking sector in prewar Japan. Even in the turbulent year of 1927, only 42 of banks, comprising only 2.8% of all 1,515 banks, went bankrupt. Most of the other banks were quite sound with a well diversified portolio. For example, of the total loans of 436 million yen by Mitsui Bank in 1930, only 41.52 million was lent to related firms. Moreover, except for 7.78 million to Mitsui Bussan, most of this 41.52 million was lent to second line companies or subsidiaries.[4]

Although the prewar financial system relied primarily on the banking system for credit allocation, other channels complemented the role of the banks. Firstly, for the firms less averse or willing to disclose information, financing through the bond market or money market was quite prevalent (Table 8). The rapidly growing cotton spinning industry, using internal funds to finance its investment needs, took recourse to the bill market to finance its working capital requirements such as imports of raw cotton at a very low interest rate reflecting its high credibility. The newly established conglomerates

TABLE 8

PERCENTAGE COMPOSITION OF FINANCING BY GROUPS OF FIRMS IN 1937

	Borrowings	Bond	Equity	Related Earnings
Mitsubishi (first line)	35	0	39	26
Mitsubishi (second line and subsidiary)	1	25	54	20
Mitsui (first line)	57	–	25	17
Mitsui (second line and subsidiary)	7	12	58	22
Nissan	8	14	69	10
Nichitsu	18	27	48	7
Major cotton spinning companies	6	11	44	39
Major electricity companies	3	35	52	10

Source: K. SHIMURA, *Nihon Shihon Shijo Bunseki* (1969) Todai Shuppankai and K. Shimura ed. *Koshasai Shijo Shi* (1980) Todai Shuppankai.

[4] SHIBUGAKI, K. (1965), p. 372.

like Nissan or Nichitsu relied heavily on financing through the stock market. Electricity companies used bond markets, domestic and foreign, as the main source of financing. Although first-line companies of Zaibatsu groups were reluctant to go public, many of the second-line companies and subsidiaries were listed on the stock market and were actively financed through the new issue of equities. It is well known that in conditions of information asymmetry bank loan rates tend to be disadvantageous to borrowers with high credibility, since banks set an average rate taking customers with high as well as low credibility into consideration. Utilization of security and the money market instead of bank loans by firms in industries such as cotton spinning, heavy industries and electricity was an efficient way of financing as it took advantage of their high credibility.

Secondly, in areas where banks did not have either adequate informational channels or enough information stock, bank credit was usually extended through informal credit channels, utilizing their information processing capabilities. A typical example is the so-called advance loan system by wholesalers, in which bank credit was extended to the wholesalers who, in turn, distributed the funds to the producers. This system was used most extensively in silk production, and was quite common in many other indigenous industries. The large share of commerce in bank loans in Table 9 indicates the importance of this method of financing. In this connection, it is also important to note that during the period of bank crises, the fiscal loan and investment program of the Ministry of Finance was used to finance indigenous sectors. During periods of crisis, deposits fled from risky banks and found refuge either in big Zaibatsu banks or in postal savings. Producers related to such banks, mostly in indigenous industries, suffered from a shortage of funds. However, the savings that flowed into postal savings were recycled to the indigenous sector via special banks and credit cooperatives. This was especially true after 1925 when the fiscal loan and investment program began placing more emphasis on local funds.[5]

Term transformation. The conversion of short-term into long-term funds through the banking sector can be effectively brought about by taking recourse to either the short-term money market or central bank credits. In prewar Japan, the growth of the inter-bank deposit market (call market) which emerged around 1900

[5] TERANISHI, J. (1977).

TABLE 9

PERCENTAGE COMPOSITION OF BANK LOANS AND NET DOMESTIC PRODUCTION BY INDUSTRY

		Agriculture	Industry	Commerce
1893	Bank loans	5.6	1.0	49.2
	NDP	40.6	13.4	–
1926	Bank loans	7.6	18.6	50.4
	NDP	23.6	20.7	–
1933	Bank loans	5.8	22.4	42.1
	NDP	18.8	26.0	–

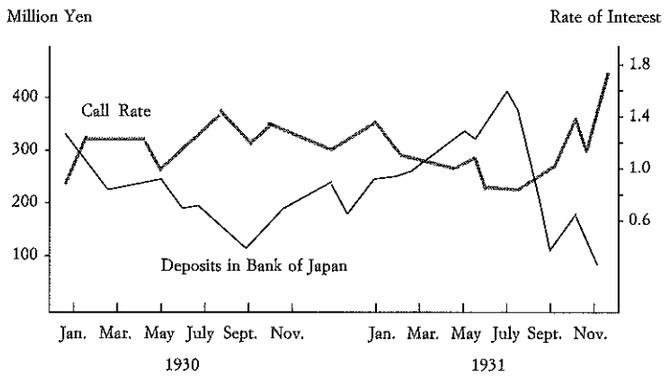
Source: TERANISHI, J. (1982).

faced serious difficulties and, eventually, was replaced by central credit as a means of adjusting liquidity in the banking system.

Major borrowers in the call market were special banks such as Taiwan Bank or Chosen Bank and unsound medium-sized commercial banks with weak deposit bases. These banks usually regarded the call market as a source of long-term funds like time deposits. On the other hand, major lenders in the market comprised large blue-chip banks including Zaibatsu banks. These banks regarded their call loans not as reserves but as lucrative short-term investments. Figure 3 shows the

FIGURE 3

MONTHLY CALL RATE AND DEPOSITS WITH THE BANK OF JAPAN DURING 1930-1931



Source : BANK OF JAPAN, *One Hundred Year History* Vol. 3, p. 465.
Note : Rate of interest is on daily basis.

inverse relationship between the call rate and deposits at the Bank of Japan during 1930-1931 when the banking system was under stress owing to the depression and indicates the portfolio selection by large banks between zero-interest-rate safe assets (Bank of Japan deposits), and high-risk-return assets (call loans).

The call market in prewar Japan, therefore, was structurally weak in the sense that the demand for long-term funds was met by the supply of short-term funds and almost collapsed in the financial crisis of 1927, when a series of bank runs, including that of the Taiwan Bank, hit the market. Although the size of call market recovered to the pre-crisis level in 1929, the growth of the market came to a standstill while total deposits into the Bank of Japan doubled after 1927. At the same time, dependence on Bank of Japan credit rose significantly, especially by unsound banks with weak deposit absorption capacity. Table 10 shows a significant increase in the supply of rescue credits (special loans) on the Bank of Japan's balance sheet.

TABLE 10

BANK OF JAPAN CREDIT

	Special Lendings to Private Sector	Other Lendings to Private Sector	Credit to Government Sector
1910	–	112	87
1915	–	58	66
1920	37	198	214
1925	148	550	295
1930	585	169	799
1935	498	345	1,079

Unit : Million yen.
Source : S. GOTO, *Nihon no Kinyutokei* (1970) Tokyo Keizai Shinposha, and BANK OF JAPAN, *One Hundred Year History*, Vol. 3.

3. *Safety and efficiency of the financial system*

Since the prewar financial system was highly competitive, there seems to be no problem with respect to its organizational or micro-level efficiency. However, with regard to safety, the system had serious drawbacks. Firstly, some of the banks suffered from solvency risks mainly due to an increase in loans to related firms on account of tie-up relationships between firms and banks, and due to the low in-

formation processing capability of the banks. Although only a small proportion of the banks faced actual solvency difficulties, the impact on the system as a whole was significant in causing liquidity risks for other banks. Secondly, some banks suffered from liquidity risk owing to deposit instability. These banks resorted to high deposit rates to absorb deposits in competition with other banks. Since the deposits mobilized in this manner come out of the precautionary cash balances held for real needs, they are highly sensitive to the riskiness of the banks.

Table 11 indicates that industrial organization of the prewar banking sector underwent tremendous change. The number of banks decreased from 2,334 in 1901 to 65 in 1945. During 1920-32, for example, 20 new banks were established, 45 went bankrupt, and 88 vanished through mergers, each year on average.

TABLE 11

CHANGES IN THE NUMBER OF COMMERCIAL BANKS

Period	Number of Banks at the Benning of the Period	Number of Banks at the End of the Period	Annual Average		
			Increase due to New Establishment	Decrease due to Bankruptcy	Decrease due to Mergers
1902-1919	2,334	2,001	15.8	24.6	9.9
1920-1932	2,001	625	19.6	43.5	88.0
1933-1945	625	65	4.2	7.8	39.5

Source: TERANISHI, J. (1982).

Basically, two policy measures were taken to cope with this instability. Firstly, as an immediate therapy, rescue credit by Bank of Japan was extensively utilized. However, the effectiveness of this measure was significantly reduced as it induced moral hazard. For example, it is believed that one reason for the severity of the financial crisis in 1927 was increased risk-taking by banks that were rescued in 1920 and 1922 crises and who were again anticipating rescue credits. Secondly, as a longer-term solution, mergers in the banking sector were vigorously promoted. In particular, the (old) Banking Act enforced after the 1927 crisis was highly effective in this regard; 631 banks, whose paid-in capital was below the new standard, were either closed or merged with other banks within five years. In the 1930s, mergers were promoted through administrative guidance and, after

1937, through military coercion. This ultimately resulted in a state where most of the prefectures had only one bank. This process of bank mergers entailed the following two consequences: (i) the tie-up relationship between particular firms and banks based on cross-holdings disappeared as separation of ownership and management progressed in the banking sector, and (ii) the banking industry became monopolistic, with the consequent emergence of a trade-off between safety with monopoly profits and inefficiency due to lack of competition.

4. *How successful was the prewar system?*

The prewar financial system seems to have succeeded as far as credit allocation is concerned. Although it suffered from excessive bank loans to bank-related firms, the system is considered to have been successful at least in ensuring availability of finance for every sector of the economy. In this sense, the system can be considered to have contributed to industrialization. On the other hand, the system almost failed to fufil the second requirement – that of safety and efficiency. Recurrent bank runs and financial crises amplified business cycles, and posed serious obstacles to the implementation of economic policies.

Two important policy issues remain to be discussed in this connection. The first of these relates to the adequacy of the free deposit rate system. Excessive competition for deposits by means of high interest rates was, no doubt, partly responsible for the financial instability. At the same time, absence of adequate auditing by Bank of Japan and Ministry of Finance and of balance sheet regulations was also responsible for the problem. If the government had resorted to measures like deposit rate regulation, strict auditing and balance sheet regulations, the safety of the system could be significantly improved. However, implicit and explicit resource costs of implementation would have been tremendous.

The second issue pertains to the adequate utilization of security and money markets. In this connection it is important to note the moves to enforce collateral requirements both in money as well as bond markets. In the case of call market, after the collapse of 1927, lenders became highly cautious about call loans without collateral, and the share of collateralized loans increased significantly thereafter.

The 1927 Bank Act introduced an article whereby only collateralized call loans were eligible as reserve assets. As for corporate bonds, the moves for collateral requirements intensified after 1930 when a number of bonds defaulted owing to the economic depression. The Bank of Japan supported these moves by excluding uncollateralized bonds from the list of eligible collaterals for its lendings. This move toward collateral requirement stands in sharp contrast with the US experience, where successive default on bonds during the Great Depression led to moves to encourage disclosures, establish rating institutions, and decollateralize bonds. This indicates that Japan, in the face of default on bonds, tried to decrease the necessity of information disclosure, while the US tried to increase both the demand for and supply of public information. It is important to note that in Japanese case aggregate production of information increased as a result of this policy, though production of public information was reduced. The collateral requirement, implying increased regulation on the flow of funds through security and money markets, had the effect of expanding the flow of funds through the banking sector. Since the banking sector is more efficient in producing information than the rating companies in the security market for various reasons,[6] it can be argued that the policy measures taken in Japan were more conducive to information production and, in this sense, may have been more adequate for the Japanese economic conditions at the time.

III. High-growth period financial system

The prewar system was followed by a brief period of a highly controlled financial system under the military regime. Since the financial system of the high-growth period was highly regulated, it is sometimes said to have inherited the system of wartime controls.

[6] Firstly, banks usually have efficient information channels in the form of lender-customer relationships. Secondly, since the banks use information produced internally, there is no free rider problem. In case of a rating company, selling of information in the market causes serious free rider problems. Thirdly, since the banks can collect monitoring fees from the ultimate lenders, they can produce information on many borrowers, including new and risky ones, whereas, in the case of rating companies, only the borrowers that are willing to pay such fees are targeted for monitoring.

However, it is not right to emphasize the influence of wartime experience. A more natural interpretation is that the high-growth period system was geared towards the needs of its own times, taking into consideration the prewar and wartime experiences.

1. *Conditions prevailing in the financial markets*

Conditions governing the development of the financial system had undergone considerable changes.

Firstly, the informal credit system virtually disappeared. Table 2 shows that even the smallest firms met their financing needs mainly through modern financial institutions. Improved information processing capability of modern financial institutions as well as the effect of hyper-inflation that wiped out the existing debt were two major factors in bringing about this change.

Secondly, the separation of ownership and management of firms progressed considerably. Table 4 captures this trend. The figures for banks were most impressive indicating that banks were able to shed family controls completely.

Thirdly, the level of financial asset accumulation returned to extremely low levels once again (Figure 1). Wartime inflation, of course, was the main culprit. Table 5 shows that the share of time deposits also fell.

It was under these conditions that the high-growth period financial system was established during 1950-55. In hindsight at least, the safety of the system seems to have received the first priority, probably reflecting the memories of the prewar experience. Various regulations reducing competition were introduced, and banks were placed in a highly protected environment, sometimes referred to as a "convoy transportation system". The allocation of long-term funds to the growing areas of heavy industries and to the stagnating sectors like agriculture was intentionally pursued. For this, the government financial system (fiscal loan and investment program) played a crucial role. The corporate bond market was also put under strict controls.

The prewar system of free competition was replaced by a highly regulated system. Entry into the banking industry as well as branching were strictly controlled by the Ministry of Finance. Ceilings were placed on interest rates, both deposit as well as loan rates. Bond issues were also placed under price and volume controls. Although regulation of bank loan rates seems to have been nominal and, virtually, ineffective owing to the compensating deposits, regulation of bank deposits rates had significant influence on the efficiency and safety of the financial system throughout this period.

2. *Supply of funds for industrialization*

Let us discuss the general working of the financial system from the viewpoint of contribution to industrialization.

Mobilization of financial saving. Although the rate of interest on deposits was controlled at a low level, most of financial saving was still mobilized through bank deposits since the availability of other financial assets was also under control. Bonds were not attractive because interest rates on new issues were kept lower than the prevailing rate in the market. Assets in foreign currency were not available due to strict foreign exchange controls.

Although the rate of inflation stayed at a moderate level, some degree of disintermediation, in the form of shifts into real assets (inventory, land and equities), is discernible especially with respect to corporate savings.[7] This partly explains the low rate of growth of financial assets in the postwar period (Figure 1).[8]

Deposits were virtually rationed to each bank by way of branch licensing by the Ministry of Finance. Throughout the period, the licensing was less generous to city banks than "other banks" such as local banks, private banks specialized in small and medium sized firms such as Sogo banks and Shinkin banks, and financial intermediaries for agriculture. On the other hand, these other banks were subject to various types of specialization requirements with respect to their loan supply while no such regulations were imposed on the city banks. As a result, the loan/deposit ratio of city banks has been consistently higher than that of other banks. On the interbank money market (call market), therefore, the city banks have invariably appeared as borrowers and the other banks as lenders. This phenomenon is referred to as *imbalance of bank liquidity*.

Efficiency of credit allocation. As shown in Table 12, bank loans were the main source of investment funds during the high-growth

[7] Teranishi, J. (1982), Ch. 9.
[8] Patrick, H. (1984).

TABLE 12

SOURCES OF FINANCE IN THE PRIVATE INDUSTRIES

Year	Internal Funds	External Funds	Borrowings From Private Financial Institutions	Borrowings from Government Finances	Bonds	Equity	Total
1956-60	42.7	57.3	41.8	4.7	2.7	8.1	100.0
1961-65	41.0	59.0	44.1	4.1	2.6	8.2	100.0
1966-70	49.2	50.8	41.3	4.6	1.6	3.4	100.0
1971-75	41.4	58.6	48.0	5.1	2.3	3.3	100.0

Source: *Showa Zaiseishi*, Vol. 19.

period. Therefore, the efficiency of the financial system in credit allocation hinges on the efficiency of loans allocated by the banks. Although there were two kinds of regulations on bank loans, neither was strong enough to prevent the operation of competitive forces in the loan market. As for the ceilings on loan rates, the effective loan rate adjusted for compensatory deposits is considered to have cleared the market. Moreover, the regulation was applicable only to loans of over one million yen with a maturity period of less than one year and, during the entire period, about 60% of bank loans were beyond the scope of this regulation. The other regulation, specialization requirements on loans extended by "other banks" were also ineffective, since city banks were free from any regulation. More often than not, intrusion by the city banks into loan markets of "other banks" resulted in severe competition. Other banks may also have evaded the regulations by means of agent loans.[9]

We believe that the bank loan market was highly effective in its credit allocation role. There are three reasons for this. First is the laxness or ineffectiveness of regulations, as discussed above. Second, the information processing capability of the banks, based on the improved levels of accumulation since the prewar period. A third reason is the adoption of a special institutional device in the form of the *main bank system*. In the postwar bank loan market, every firm, except for those of extremely small size, maintained special customer relationships with one particular bank called the main bank. In this system, though the main bank is usually the largest lender for the

[9] See KAIZUKA, K. and H. ONODERA (1974) on this point point. SAKAKIBARA, E., FELDMAN, R., and Y. HARADA (1982) also express a similar view.

firm, it does not supply all the required funds. The firm has to borrow from several other banks to cover the shortfall. In terms of information theory, the main bank in this framework may be playing the role of a delegated monitor. By delegating the role of monitoring to the main bank, other banks economize on the costs of information production.[10] On the other hand, it is often believed that when the profits of a firm fall, the main bank comes to the rescue by reducing the interest rate, and then raising it when the rate of profit goes up once again. This implies that the main bank system has another aspect – as a device of risk sharing between the firm and the bank. According to the theory of implicit contracts, this kind of arrangement between a risk-averse firm, and a risk neutral bank, is Pareto improving.[11]

While the banking system served as an effective conduit for funds to the growing market-oriented modern sector, the government rationed credit mainly to the declining traditional sector and social overheads. This is evident in Table 13. The share of fiscal investments and loans allocated to promoting key industries had been quite low at least since 1960. Such areas as agriculture and small and medium

TABLE 13

PERCENTAGE COMPOSITION OF FISCAL INVESTMENTS AND LOANS PROGRAM BY PURPOSE

	1956-60	1961-65	1966-70	1971-75
Promotion of Key Industries	16.6	9.9	6.3	3.7
Foreign Economic Aid and Export Promotion	4.3	7.9	10.4	8.8
Regional Development	9.0	7.5	4.6	3.7
Overhead Capital for Industries	21.6	26.1	24.3	23.2
Modernization of Low Productivity Sectors (Agriculture and Small and Medium-Sized Firms)	20.9	19.9	20.1	19.6
Improvement of Living Conditions	27.6	29.6	34.3	41.0
Total	100.0	100.0	100.0	100.0

Source: OGURA, S. and N. YOSHINO (1984).

[10] HORIUCHI, Y. (1986).

[11] TSUTUSI, Y. (1988, Ch. 3) tries to confirm the existence of such arrangements in Japan.

sized firms have been the main beneficiaries of such low interest credit. The emphasis on industrial adjustment through government funds comes out even more clearly in Table 14, which shows that industries with structural difficulties like mining, agriculture and marine transportation relied heavily on government finances for their investment funds. Emphasis on small and medium sized firms is clear from data by Table 2, which shows high dependence of smaller firms on government funds.

TABLE 14

PERCENTAGE SHARE OF GOVERNMENT FUNDS AND BOND FINANCING IN TOTAL FIXED INVESTMENT BY INDUSTRY

	Government Funds		Bond Financing	
	1954-60	1961-67	1954-60	1961-67
Mining	25.7	39.9	2.3	2.8
Steel	4.6	3.6	6.1	9.2
Machinery	11.3	9.5	5.5	8.9
Chemicals	8.1	7.1	3.6	4.2
Textiles	14.2	14.7	5.0	6.9
Agriculture and Fishery	52.9	47.9	0.5	0.7
Electricity	32.4	19.7	7.0	19.6
Marine Transportation	33.9	50.9	0.1	0.1
Land Transportation	10.4	21.9	10.7	8.5

Source: HORIUCHI, A. and M. OTAKI (1987).

While the government financial system rationed the low interest long-term funds to the industries and sectors facing difficulties, the corporate bond market helped ration similar funds into key industries. Corporate bond issues were put under the strict control of a special committee with representatives from major banks and security companies. The committee decided on the prices as well as size of the issues. These bonds were then rationed to syndicate banks at prices exceeding the market price. While banks suffered from low interest rates on bonds, these bonds were eligible collateral for Bank of Japan credits, that carried a lower rate of interest than the market rate (call rate).

The electricity industry and, to a lesser extent, the steel industry were the main beneficiaries of this system. However, Table 14 shows that the contribution of bond financing to total investment was much

smaller than that of government finances. Moreover, in the total industrial financing, the share of bond financing is very small as compared to that of bank loans (Table 12).

Term transformation. Due to the existence of the phenomenon of *imbalance of bank liquidity* explained above, the only short-term money market during the high-growth period, the call (and bill) market, served as a place to adjust the structural discrepancy of the funds arising on account of the imbalance of bank liquidity. Therefore, short-term liquidity adjustments, crucial for effective term transformation through the banking system, had to depend mainly on the Bank of Japan credits.

Towards this objective, the Bank of Japan usually controlled the call rate, leaving the supply of high-powered money to be automatically determined in the market. With the call rate set at a certain level, demand for call loans was determined by city banks and supply by "other banks", with the gap adjusted by the Bank of Japan loans and deposits with the Bank of Japan. For a higher call rate, the excess of demand over supply would be smaller, and the resulting smaller supply of Bank of Japan credit tightened the financial market, consistent with higher call rate. As the rate of interest on Bank of Japan loans is usually kept below the call rate, the supply of Bank of Japan loans is automatically accepted by city banks, and the amount of high-powered money is passively determined.

Since Bank of Japan loans are automatically supplied in this system, these have served the function of reserve funds for the banks. For this reason, the level of excess reserve holdings by the banking sector has been extremely low; the excess reserve/total reserve ratio was, on an average, 0.08% in the September 1980 to January 1988 period, while the corresponding ratio for the US was 1.14% for November 1981 to March 1984 period.[12]

3. *Safety and efficiency of the financial system*

There have been bank failures in postwar Japan, and competition restricting regulations such as deposit rate ceilings, branch licensing and loan specialization, should be partly credited for this accomplishment.

[12] KURODA, A. (1988), p. 47.

TABLE 15

ESTIMATES OF IMPLICIT SUBSIDIES TO AND TAXATION OF CITY BANKS, AND TOTAL SUBSIDIES TO PRIVATE INDUSTRIES (ANNUAL AVERAGES)

	1966-70	1971-75
(i) Estimated implicit subsidies to city banks due to regulation of official discount rates	20	19
(ii) Estimated implicit taxation of city banks due to regulation of bond yields	17	31
(iii) Estimated implicit subsidies to city banks due to regulation of deposit rates	85	242
Total industrial subsidies	451	1.006

Unit : Billion yen.
Source : TERANISHI, J. (1982) and OGURA, M. and N. YOSHINO (1984).

However, the benefits must be weighed against to costs of distortions arising from reduced competition. Table 15 reports the subsidies to and taxation of city banks implicit in various interest rate regulations. The first row represents the supply of implicit receipt owing to low interest Bank of Japan loans, calculated as (call rate – official discount rate) x Bank of Japan borrowings by city banks. The second row shows implicit taxation owing to forced purchase of bonds, calculated as (market interest rate on bonds – rate of interest for new bond issues) x bond holdings of the city banks. The third row represents implicit subsidies to city banks arising from deposit rate regulation, calculated as [call rate (1 – required reserve ratio) – deposit rate] x deposits at city banks. It is clear that, compared to the size of total industrial subsidies, implicit subsidies accruing to the city banks have been enormous, especially from deposit rate regulations.

There are three possible ways in which these implicit subsidies could be utilized. Firstly, they could be reinvested as business loans as a part of retained earnings providing increased capital base for intermediation. Secondly, they could be spent either on luxury office buildings, or employment of excessive human resources. Thirdly, they could be transferred to bank clients in the form of reduced interest rates. In view of the market determined nature of bank loan rates, the possibility of the third case is doubtful. Since the dividend policy of the banks has been strictly regulated in the form of a maximum dividend ratio, the first possibility cannot be neglected.

4. *How successful was the high-growth period system?*

Judging from the fact that Japan was able to obtain a high rate of growth, it is possible to argue that the high-growth period financial system succeeded in supporting industrialization. The most important point to be noted is the complementarity of the banking sector and government finances: the former supplying credit to growing modern sector and the latter to declining sectors. Since the process of industrialization is not only the process of establishing new industries, but also of shifting resources from indigenous industries, the role played by the government finances in supplying adjustment funds cannot be neglected.

In view of the fact that government finances were concentrated in industrial adjustment and infrastructure investments, and that the bond markets were not a major source of financing even for key industries, it follows that allocation of credit to the modern sectors through the banking sector must have been highly efficient. It is difficult to find any evidence on exclusion of the high-risk, high-return firms from the financial markets, through various regulations.

Although the financial system of the high-growth period has been highly safe, there remain strong doubts about the internal efficiency of the system. For example, excessive employment of human resources for the sake of nonprice competition for deposits may have been a significant source of inefficiency.

Two questions, however, remain to be asked. Firstly, were such extensive regulations restricting competition necessary? If we assume that the high-growth period system was equipped with highly sophisticated information processing capabilities, it is even conceivable that the banks never faced any significant solvency risks. Moreover, it is worth inquiring whether there was room for replacing competition restricting regulations with other forms of regulations such as balance-sheet regulations or stricter auditing.

Secondly, there is the question of adequate use of security and money markets. The regulation and rationing in bond markets seem to have had two consequences: (i) it repressed the development of bond markets, and (ii) it helped the growth of key industries to some extent. However, whether these consequences were desirable or not is a different issue. For example, it could be argued that lower dependence on bond markets contributed to growth in view of the extensive information requirements for industrialization. Productivity

of information is higher in the banking system than in the bond markets.

Due to the existence of the phenomenon of *imbalance of bank liquidity*, the money market could not fulfil its assigned role, and consequently its development lagged considerably, at least in comparison with the US or the UK. However, whether it retarded growth or not is a different story altogether. Despite the underdeveloped money market, the high-growth period financial system seems to have done a pretty good job both in terms of maturity transformation and in terms of the effectiveness of monetary policy.

IV. Concluding Remarks

We have compared two financial systems experienced in Japan: the prewar financial system based on the free market mechanism and the highly regulated system of the high-growth period. Needless to say, it is not our intention to assert that one of these are absolutely better than the other. We have tried to argue, instead, that each system has its own merits and demerits depending on the particular environments upon which it is established and on the task assigned to it. In other words, we consider financial systems should be carefully tailored so as to meet the specific needs of each phase of development of each economy.

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