ECONOMIC GROWTH AND REGULATION OF FINANCIAL MARKETS: JAPANESE EXPERIENCE DURING POSTWAR HIGH GROWTH PERIOD*

JURO TERANISHI

I. *Introduction*

During the period 1953–1972, Japan experienced an exceedingly high rate of economic growth. The annual growth rate of real GNP during the twenty years was 9.2%, exceptionally high when compared to the growth rate of 3.7% for 1910–38 and 3.9% for 1973–81. The change in industrial structure was also drastic. The share of the primary sector in GDP was 36.4% in 1910 and 18.3% in 1938, but fell to 6.1% in 1970. The annual decrease in labor force in the primary sector was 36,500 persons during 1950–65 period, 6 times as high as 6,200 persons during 1910–40 period. It was really a turbulent period.

What was particularly interesting for the researchers in money and banking was that this rapid economic growth had taken place within a highly regulated financial framework. The time deposit rate was regulated, entry into the bond issue market was regulated, international asset transactions were virtually forebidden, and so on. In the prewar period, the financial system was essentially free, both in terms of interest rate movements as well as entry into financial markets. After about 1975, the financial markets have been rapidly deregulated and liberalized, domestically as well as internationally. Therefore, the system during the period of high economic growth was rather exceptional.[1] Moreover, somewhat surprisingly for those who are familiar with McKinnon-Shaw hypotheses, the level of financial intermediation was quite high in spite of the deposit rate regulation. Quoting from Mckinnon's recent paper, the average M_2/GNP ratio for Japan during 1960–75 was 0.832, which was very high when compared with 0.184 for four Latin American countries, 0.247 for four Asian countries, 0.585 for five industrial countries and 0.447 for four rapidly growing countries.[2] How was the high level of intermediation compatible with strict regulations? This question will be dealt with in section (3) as one of the four basic characteristics of the financial system during the period: (i) the high degree of intermediation and the underdevelopment of securities market, (ii) the coexistence and the devision of labor between government finance and private financial institutions, (iii) the accomodating stance of monetary policy, and (iv) the insulation from international financial market. These four characteristics are interrelated with each other since they have the following three conditions

[1] As ot the longterm financial development of Japan, refer to Patrick, H. (1982) and Teranishi, J. (1982).
[2] Mckinnon, R. [7].

as common background: a low level and equitable distribution of financial wealth, a high level of profits and informational needs under rapid growth process, and favorable conditions of world trade. It will be shown that these three conditions together with compatible governmental regulations were mainly responsible for the rise of the four characteristics noted above.

The financial system during the high growth period has often been called the "artificial low interest rate policy." This suggests that there had been a wide-spread belief that the policy of regulating financial markets would have had growth-promoting effects. This view has been criticized by Horiuchi in recent articles ([3] and [4]), but we are still inconclusive as to the final judgement. Section (4) gives an analysis of the possible effects of regulation on economic growth with respect to the following three aspects; macro, micro and two-sector aspects. With regard to macro-aspect, the effect on the overall cost of capital, and with regard to micro aspect, the question of allocational efficiency under uncertainty is considered. From the viewpoint of two-sector development theory, the role of adjustment funds in the change of industrial structure is discussed. Although the result obtained is quite inconclusive, it is hoped that our analysis will cast some light on the further study of this important question.

The following section (2) classifies the financial markets and gives a brief account of the nature of regulations.

II. *Regulation of Financial System*

Let us, for convenience, classify various financial markets in the following manner.
(A) Indirect finance
  1) private financial system
         —deposit market* and loan market
      2) government financial system
         —deposit (postal savings) market* and loan market*
(B) Direct finance
  1) direct lendings (including curb market)
  2) securities market
         —bond (issue*, resale*) market, equity (issue*, resale) market and short-term money market*

The classification is schematic and not intended to be precise. For example, private financial system is mainly composed of commercial banking, but it also includes other financial intermediaries such as trust banks, insurance companies and various institutions for small business or for agriculture. Although the main source of funds for the government finance is postal savings, it also obtains funds from government annuity system and through floatation of government guaranteed bonds.

The markets with an asterisk above indicate the existence of some sort of (effective) official regulations in those markets. Within the intricate structure of implicit and explicit regulations which prevailed during the high growth period, three kinds of regulation have been important.

(A) Regulation of Interest rates
    1) deposit rate (including postal savings rate)
    2) issue rate of bonds
    3) official discount rate
    4) loan rate of government financial system
(B) Regulation of entry into the markets
    1) bond issuance market
    2) short-term money market
    3) listing on stock exchange market
(C) Regulation of international capital movements
    1) inflow of funds
    2) outflow of funds

TABLE 1. INTEREST RATES IN JAPAN AND US

	1953–57	1958–62	1963–67	1968–72	1973–77
Japan					
Official discount rate	6.9	7.1	5.9	5.4	7.1
Call money rate	8.7	9.6	7.4	7.0	8.6
Time deposit rate	5.1	5.3	5.0	5.0	6.0
Rate of return on newly issued corporate bonds	n.a.	7.7	7.4	7.7	8.6
Market rate of return on corporate bonds	n.a.	8.4	8.1	8.0	8.8
United States					
Official discount rate	2.4	3.1	4.2	5.2	6.5
TB rate	2.1	2.7	4.0	5.4	6.2
Time deposit rate	2.6	3.2	5.0	5.0	5.5

Source: Horiuchi, A [3] and Teranishi, J. [21] Figure 8-2.

The state of interest rate regulation can be seen from Table 1. Both the time deposit rate and the official discount rate were consistently lower than the call rates, a typical free market rate in Japan.[3] (Note that there are no such clear-cut differences for the US). Since the official discount rate was low compared to the market rate, Bank of Japan loans were rationed to banks, city banks being exclusive recipients, and have been a major tool of base money control. The continual dependence of the banking sector on Bank of Japan loan implies a loan supply in excess of available deposits. This feature of bank behavior was called *overloan*. Since deposits were cheaper source of funds for banks than money market resources, the supply function of deposits was horizontal at the regulated rate and banks accepted whatever amount of deposits assetholders wanted to hold. The licensing policy of branch offices by the Ministry of Finance was quite effective in controlling the market (deposit) shares among banking institutions. Throughout the period the licencing has been less generous to city banks than other banks such as local banks, Sogo banks, Shinkin banks and financial intermediaries for agriculture. On the other hand, these other banks have been subject to various kinds of specialization requirement, either *de jure* or *de facto*, with respect to their loan supply, and there was no such regulation in the case of city banks,

---

[3] Since average reserve holding by banks was 10–15% of deposits, it can be seen that the deposit rate is still lower than call rate even if adjustment is made for reserve ratio: deposit rate = (1 − reserve rate) × call rate.

which were faced with vast demand for loans mainly from large business firms. As a result of this, the loan/deposits ratio of city banks has been consistently higher than that of other banks, and, on the interbank money market (call market), city bank have always been on the borrower side and other banks on the lender side. This phenomenon was called the *imbalance of bank liquidity.*[4]

The price of newly issued bonds was kept artificially higher than the prevailing price on the market, providing implicit subsidies to the issuer. This entailed two consequences. First, there arose excess supply in the market for bond issue and inevitable rationing by the committee under governmental guidance. Corporate bond issuance was allowed only to firms in basic industries such as electricity with considerably large net worth. Second, bonds purchased by syndicated banks through assignment were rarely resold in the market since doing so would entail losses to the banks. Consequently the resale market for bonds remained extremely underdeveloped throughout the high growth period. Supply of funds by the government finance system is called the Fiscal Investments and Loans Program (*Zaisei-Toyushi*), and rates of interest are kept at preferential low level.

On the other hand, listing on the major stock exchanges was permitted only to relatively stable and large firms. Short-term money market was closed to nonbank economic units until early 1970's, when *Gensaki* (bond transactions with repurchase agreements) market developed through the spontaneous transactions among security companies and business firms. International capital transactions both by banks and nonfinancial institutions were virtually forbidden during the period. Mainly owing to strict control of foreign exchange dealings, residents were unable to transact in foreign-currency-denominated assets or debts, and non residents unable to hold yen-denominated assets or debts.

III. Four Characteristics of Financial System

The main characteristics of the financial system during the high growth period can be summarized in the following four points; (i) high level of intermediation and underdevelopment of the securities market, (ii) coexistence of and division of labor between government finance and private financial institutions, (iii) accomodating stance of monetary policy and (iv) insulation from the international capital markets.

(1) High Level of Financial Intermediation
The high level of financial intermediation in postwar Japan can be traced with the help of Table 2, which shows compositions of sources of private sector finances. It can be seen that a major proportion of outside funds were raised via the private financial system, and only a small proportion, through issuance of bonds and equities. Going back to our schematic representation of financial system, this high intermediation ratio implies two things: a very limited role of direct lendings and an underdeveloped securities market.

The role of direct lendings, a typical method of traditional financing, has decreased considerably after WWII. As Table 3 shows, the share of traditional financing has decreased from 39.2% in 1932 to 10.3% in 1957. After WWII, even the smallest firm obtained 65.7 % of funds through the modern financial system. One of the reasons for this can be found

---

[4] Refer to Suzuki, Y. (1980).

TABLE 2.   SOURCE OF FINANCE IN PRIVATE INDUSTRIES

Year	Inside funds	Outside funds	Borrowings from private finance institutions	Borrowings from government finance	Bond	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* (Shusen kara Kowa made), Vol. 19, pp. 462–463.

TABLE 3.   COMPOSITION OF SOURCES OF BORROWING BY TYPES OF
LENDERS FOR MANUFACTURING BY SIZE OF FIRMS

| 1932			1957				
Size of firms by total assets (hundred yen)	Modern financing	Tradi- tional financing	Size of firms by number of employer	Modern financing	private	govern- ment	Tradi- tional financing
– 1	11.6	88.4	1– 3	65.7	56.0	9.7	34.3
1– 5	12.5	87.5	4– 9	74.8	65.0	9.8	25.2
5– 10	15.1	84.9	10– 19	83.2	73.7	9.5	16.8
10– 20	19.1	80.9	20– 29	85.5	76.7	8.8	14.5
20– 50	28.9	71.1	30– 49	86.8	78.7	8.1	13.2
50– 100	36.3	62.7	50– 99	86.7	79.4	7.3	13.3
100– 500	42.5	57.5	100–199	88.8	82.9	5.9	11.2
500–1000	39.3	60.7	200–299	86.4	82.6	3.8	13.6
1000–5000	52.7	47.3	300–499	91.1	89.5	1.6	8.9
5000–	63.3	36.7	500–999	87.5	85.8	1.7	12.5
Total	60.8	39.2	1000–	92.4	89.9	2.5	7.6
			Total	89.7	85.9	3.8	10.3

Unit: %
Sources: Teranishi, J. [21], Tables 6-21 and 6-24.
Note: 1932 data for manufacturing firms in Tokyo and Kobe city.

in drastic changes in the level and distribution of asset holdings due to hyper-inflation during and immediately after the War.   From 1940 to 1950, every index of prices rose 100 to 300 times.   As a consequence, private financial assets accumulated through the prewar period lost most of their value.   The ratio of private financial assets to GNE fell from 2.49 in 1936–40 to 0.79 in 1953–55 (Figure 1).   Moreover, asset distribution also became more equitable during the process.   Small farmers were emancipated from the heavy burden of prewar agricultural debt, while landlords and other wealthy classes virtually disappeared partly owing to the inflation and partly owing to the land reform and the Zaibatsu dissolution. Since traditional financial methods were essentially means of financing the poor by the rich, it was inevitable that the above mentioned changes in immediate postwar period reduced the role of such direct financing considerably.   Another reason for the decreased share of direct lendings can be found in the informational needs arising with the rapid growth. As we have noted at the outset, this was a period of drastic changes in the industrial struc-

FIGURE 1.   RATIOS OF PRIVATE FINANCIAL ASSETS TO
GNE AND CAPITAL STOCK
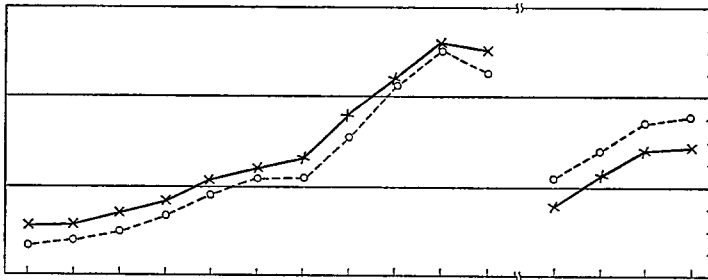
Source: Teranishi, J. [21], p. 3.
Note: Ratios of nominal figures.   Average of five years, except for 1954 which gives an average of 1953–
54 years indicating the middle of the five year period.
— — × — — private financial assets/GNE (left scale). .
———O——— private financial assets/capital stock (right scale)

ture, and the emergence of new firms and products was very rapid.   As a consequence, the information available to individual assetholders was quite limited and insufficient for efficient allocation of assets.   In other words, direct lendings could not keep pace with the massive informational needs due to the rapidly changing environment.

It may be easy to understand why the securities market remained underdeveloped. One reason was, obviously, the governmental regulations explained above.   Another reason lies in the reduced level of asset accumulation.   At low levels of total wealth, assetholders (with utility function characterized by decreasing absolute risk aversion) become less in-clined to take risks and hence reduce their investments in risky assets.

The reduced role of traditional financing, the underdevelopment of security market, and the limited access to foreign asset holdings have been the three major reasons for the high level of financial intermediation.   In other words, since the availability of alternative assets was limited, people had no other choice but to hold deposits in spite of the interest rate regulations on them.   This situation is depicted in Figure 2. S and D are supply and demand functions of deposits, r and i represent rates of interest on deposits and on other assets (securities, direct lendings and foreign assets), respectively, W and W' ($> W$) represent total wealth (deposits, other assets plus base money), and α shows the transaction costs of holding alternative assets (information cost plus imputed cost of decreased availability due to regulation).   When α is zero and total wealth is large, competitive equilibrium is attained at F with the level of intermediation at OB.   With the imposition of regulations ($\bar{r}$ showing ceiling rate) the level of intermediation is reduced to OA.   When α is sufficiently positive and total wealth small, on the other hand, competitive equilibrium is at G and regulated equilibrium at H.   The level of intermediation is OC, greater than either OA or OB.   It is our assertion that the equilibrium in the deposit market during the postwar high growth process in Japan can be represented by a point like H.

The high deposit rate proposition of Mckinnon and Shaw advocates the attainment of point F by liberalizing deposit rates (or a point between K and F by maintaining high

deposit rates).[5]   However, at F, the level of intermediation can be lower than the regulated equilibrium whenever α is large and W' small.[6]

No regulation is free from some kind of side effects, however.   In this case of deposit rate regulations, it is important to note that there was a possibility of huge supply of subsidies to private financial institutions (deposit banks).   In order to understand this, it is necessary to look into the nature of asset-liability management of commercial banks under the system.

On the asset side, a part of the assets was used in the form of compulsory purchase of bonds at lower-than-market interest rate, while remaining major part was devoted to business loans at (effectively) free interest rates.   Although there were nominal ceilings on lending rates based on mutual agreement of all banks, the prevailing view is that effective lending rates were quite flexible and market-determined owing to the regulation-evading movements of compensating deposits and collateral.[7]   On the liability side of banks, a small part of funds were raised in the form of Bank of Japan credits at a preferential interest rate, while a major proportion of liabilities were accounted for by private deposits at regulated rates.   Bank of Japan credits took the form either of rediscounting commercial bills or repurchase of bonds from banks at preferential price (*riron kakaku*).   In the latter case, banks were able to liquidate one-year-old bond without loss.

Within the framework of this system there are three kinds of implicit subsidies and taxation falling on banks.   (i) Implicit subsidies due to Bank of Japan borrowings=(call rate—official discount rate)×Bank of Japan borrowings, (ii) Implicit taxation due to bond

FIGURE 2.   DEPOSIT MARKET
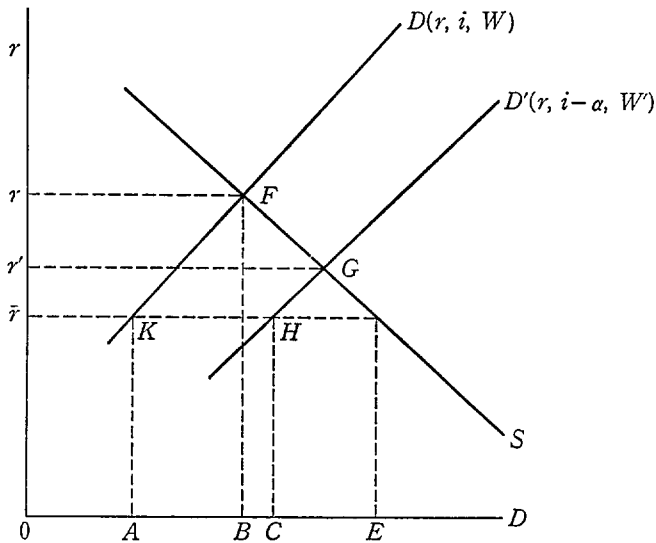
[5] Possible effects on svaing rates are ignored in this argument.
   [6] Similar preverse cases in the presence of curb market are pointed out in Wijnberger, S. Van (1983) and Kosaka, A. (1984).
   [7] Sakakibara, E., R. Feldman and Y. Harada (1980), p. 40.

TABLE 4.   ESTIMATES OF IMPLICIT SUBSIDIES AND TAXATION ON CITY BANKS, AND
TOTAL SUBSIDIES TO PRIVATE INDUSTRIES (ANNUAL AVERAGE)

		1966–70	1971–75
(i)	Estimated implicit subsidies to city banks due to regulation of official discount rates	20	19
(ii)	Estimated implicit taxation to city banks due to regulation of bond yields	17	31
(iii)	Estimated implicit subsidies on city banks due to regulation of deposit rates	85	242
	Total industrial subsidies	451	1,006

Unit: Billion yen
Source: Teranishi, J. [21] Tables 8-14, 8-15, 8-19 and Ogura, M. and N. Yoshino [9] Table 4-1.

holdings=(market rate — issue rate) × bond holdings, (iii) Implicit subsidies due to deposit rate regulation=(call rate (1 — reserve ratio) — deposit rate) × deposits. Table 4 reports estimates of (i)–(iii) for city banks (a major category of commercial bank). Estimates of (i) and (ii) are rather small in magnitude and both seem to be offsetting each other. Estimates for (iii), on the other hand, are quite large,[8] amounting to about one-fifth of the total subsidies (explicitly) supplied to various industries. It is difficult to say how these implicit subsidies (item (iii) above) are spent, however. There are three possibilities. They can be spent inefficiently on gorgeous office buildings, or transferred to bank clienteles in the form of low-interest rate loans, or reinvested into business loans as a part of retained earnings of banks providing increased capital base for intermediation. In view of the market-determined nature of bank loan rates, the possibility of the second case is small. Since dividend policy of banks was strictly regulated (in the form of a maximum dividend ratio) during the period, the third case cannot be neglected.[9]

(2)   Role of Government Finance

Throughout the period of high economic growth, there was a rather clear-cut complementary relationship between the private financial intermediaries and the government finance system.

On the liability side, there was division of labor in terms of the maturity period of deposits. The rates of interest on postal savings have been kept higher for long-term deposits (more than two years) and lower for short-term deposits (six to 18 months) than the deposit rate of private banks.[10] As a consequence, the ratio of average balance to total repayment during a year was much higher for postal savings than private bank deposits; in 1965, 3.84 for the former and 0.85 for the latter.

On the asset side, the major part of funds of private financial intermediaries were directed towards the growing or modern sector. especially those producing investment goods and exportables. This was more or less the consequence of the free play of market forces.

---

[8] Item (iii) is probably overestimated, since it includes the possible value added owing to the information producing activities by banks (a part of α in Figure 2).

[9] Although the deposit (postal savings) rate of the government finance was also regulated, it is clear that the implicit subsidies in this case were largely transferred to the clientele of the government finance as the loan rates were also regulated.

[10] At the level of effective rates. The rate of interest on postal savings is compounded every six months.

TABLE 5.   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 size firms)	20.9	19.0	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

Unit: %
Source: Ogura, S. and N. Yoshino [9].

TABLE 6.   PERCENTAGE COMPOSITION OF GOVERNMENT FUND
IN TOTAL FIXED INVESTMENT BY INDUSTRY

	1954–60	1961–67
Mining (coal mining)	25.7 (37.2)	39.9 (65.9)
Steel	4.6	3.6
Machine	11.3	9.5
Chemical	8.1	7.1
Textile	14.2	14.7
Agriculture & Fishery	52.9	47.9
Electricity	32.4	19.7
Marine Transportation	33.9	50.9
Land Transportation	10.4	21.9

Source: Horiuchi, A. and M. Otaki [4].

Governmental guidance or intervention has never been truly effective.[11]   On the other hand, most of the funds of government finance were supplied to either the declining traditional sector or to social overhead investment.   Table 5, for example, shows that the shares of funds earmarked for the purpose of modernizing the low productivity sector (agriculture and small-and-medium sized firms) and providing overhead capital for industries (mainly railway and electricity) were significant, and that the share set aside for the promotion of key industries was low and decreasing.   Similarly, according to Table 3, smaller firms were more dependent on government finance in 1957 manufacturing sector.   The emphasis on declining sector is more apparent in Table 6.   Such stagnating industries as mining, textiles, agriculture and marine transportation were heavily dependent upon the government finances for their investment activities, while such growing industries as steel, machines and chemicals were not.[12]

To sum up, the pattern of the division of labor was as follows.   The growing, modern sector obtained ample funds from private financial intermediaries at market interest rates, and the declining, traditional sector and provisions of social overhead from government finance at regulated interest rates.

---

[11] Refer to Horiuchi, A. and M. Otaki (1985).

[12] These points were originally suggested by Ouchi and his (1962), and recently confirmed and emphasized by Ogura, S. and N. Yoshino (1984) and Horiuchi, A. and M. Otaki (1985).

Three additional comments are in order. First, although the share of government finance was rather small as revealed by Table 1, the figures were higher in terms of shares in investment funds (excluding the working capital). Moreover, the ratio of postal savings to total private time and savings deposits steadily increased from 15% level of 1950's to 40% in the mid-1970's (levelling off thereafter). Second, although our analysis above is based on quantitative data such as Table 5 and 6, Sakakibara et al regard the qualitative effects of government funds allocation as important. They argue that the government financial system actively sought after strategic industries where both expected profits and risk were high, fulfilling the role of a catalyst to concentrate large amount of funds to specific directions.[13] They conclude "had it not been for public financial intermediation, basic industries such as energy, steel, shipping and petrochemicals would not have developed so smoothly." However, except for petrochemicals, neither of the three other industries seem to belong to high return, high risk category. Moreover, it must be recalled that the three industries have also benefited significantly from government finance and from the rationing system of bond issurance in a quantitative sense. The importance of the qualitative effects is still open to question.

Finally, it must be added that bond issuance was mainly rationed to industrial overhead, so that it was complementary with government finance in its role of fund allocation. Electricity producers were the first and by far the largest issuer of corporate bonds, providing for 43% of total issuance during 1956–74. The steel sector was the second, its average share staying at about 10% level during the period.

(3) Accomodating Stance of Monetary Policy

Since the balance of payments was more or less balanced in the medium-term, and the open security market was not developed sufficiently, base money during the rapid growth period was mainly supplied through Bank of Japan direct credit to (city) banks.

What is particularly interesting in this respect is that Bank of Japan took a quite accomodating stance in its credit supply—increasing credit whenever demand for it increases. As a result of this, Bank of Japan credit supply moved in the same direction with the call money rate. This feature was emphasized in Teranishi, J. [18] and tentatively confirmed by Horiuchi, A. and M. Otaki. In [4], they indicate one-way Granger causality from income (manufacturing production index) and the nominal interest rate (call rate) to currency supply for monthly data from July 1960 to December 1972. Moreover, the call rate has positive and significant effects on currency supply in their estimate of the reaction function (base money supply function) of the Bank of Japan, based on monthly data from February 1961 to December 1971. The reason for the Bank of Japan to have taken this particular policy stance seems to lie in the illiquidity problem of commercial banks. For one thing, a part of their assets was devoted to holding illiquid bonds which could not be resold on the market without loss. For another, they supplied investment funds to growing sectors with their relatively short-term deposits. On this point we have already pointed out the difference in maturity period with postal saving. It must be noted also that the maturity period of deposits has considerably shortened due to the lowering of the wealth/income ratio towards the early period of the rapid-growth era. The share of time and saving de-

---

[13] Sakakibara, E., R. Feldman and Y. Harada (1980). Similar view, especially with respect to the role of Japan Development Bank, has been expressed also by Higano, M. (1981).

posits in total bank deposits was 50.4% in 1935, but fell to 14.5% in 1945, and it was only after 1960 to return to the prewar level. Therefore, it can be conjectured that the accomodating stance of Bank of Japan credit supply was needed to alleviate these illiquidity problems.

The accomodating stance of credit supply is liable to amplify the swings of the business cycle, however. It is worth noting that Bank of Japan has utilized another very direct measure of restrictive policy in combination with this basic stance. This is the so-called "window guidance" which sets ceiling on the quarterly rate of increase of city bank loans. It can be shown that window guidance and the accomodating credit supply are quite complementary with each other in the sense that a sufficient condition for the effectiveness of window guidance is the accomodating stance of the Bank of Japan credit. In order to demonstrate this proposition, let us add call loan market to the asset-market model mentioned above, and decompose the banking system into city and other banks. In the interbank call market, city banks behave as borrowers and other banks as lenders. The portfolio of private assetholders comprises base money, deposits and other assets, as before. The rate of interest rate on other assets i represents the cost of capital of the economy: a decrease in i has expansionary effects on economic activity. In the deposit market, the interest rate is assumed to be fixed and equilibrium to be attained on the demand function of deposits by asset holders. It is also assumed that the deposits of city banks are a fraction β of total deposits, while the remaining fraction $(1-\beta)$ is held with other banks. The coefficient β is a constant, presumably dependent on the branch office licencing policy. For the sake of simplicity, let us delete α, W, and $\bar{R}$ from the demand for asset equations. Then, the demand for deposits and base money by private assetholders are given by $C(i)$ and $D(i)$, respectively, and $dC/di < 0$, $dD/di < 0$. Let us finally assume that the base money is supplied solely through the Bank of Japan credits to city banks.

Denoting the call rate and the Bank of Japan credits by ρ and N, respectively, the demand for call loan by city banks can be written as

$$\bar{A} + \gamma \beta D(i) - N - \beta D(i)$$

where γ is fixed coefficient of bank reserve holding and $\bar{A}$, a constant, represents the constrained demand for other assets by city banks regulated by window guidance. (Here, window guidance is assumed to be related to stock instead of flow of loans for the sake of convenience.) N takes the following values depending on the policy stance,

$$N = \begin{cases} N(\rho) & \text{with } dN/dp > 0 \dots\dots \text{accomodating} \\ \bar{N} & \text{(const.)} \dots\dots\dots \text{otherwise.} \end{cases}$$

The supply of call loan by other banks is represented as

$$(1-\beta)D(i) - A(i, \rho) - \gamma(1-\beta)D(i),$$

where $A(i,\rho)$ is demand for other assets by other banks, and $\partial A/\partial i > 0$, $\partial A/\partial \rho < 0$. (For the sake of simplicity, we have used same coefficient of reserve holding as city banks.)

Equating the supply and demand of call loan, we obtain

(1) $\bar{A} + A(i, \rho) = N + (1-\gamma)D(i)$.

On the other hand, the equilibrium condition in the base money market is given by

(2) $N = \gamma D(i) + C(i)$.

These two equations represent a general equilibrium of assets markets for our model. The equilibrium condition for other assets can be deleted in light of Walras' Law.

At first, let us show that the window guidance is ineffective in the absence of accomodating stance. If $N=\bar{N}$ in (2), it can be readily confirmed that

$$di/d\bar{A}=0,$$
$$d\rho/d\bar{A}>0,$$
$$dA/d\bar{A}=-1.$$

A reduction of $\bar{A}$ due to window guidance is exactly offset by an increase in A, and has no effect on the cost of capital i. This is because a reduction of $\bar{A}$ decreases the demand for call loans by city bank, and the consequent fall of the call rate induces other banks to shift their asset holding from call loan to other assets. This proposition wsa shown by Horiuchi, A. [2]. Next, the effectiveness of window guidance under the accomodating stance of Bank of Japan credit supply can be readily shown. If $N=N(\rho)$ in (2) we have

$$di/d\bar{A}<0,$$
$$d\rho/d\bar{A}>0,$$
$$dA/d\bar{A}>-1.$$

With the accomodating stance, the fall in call rate due to window guidance is smaller owing to the decrease in Bank of Japan credits. Consequently, the offsetting increase of the demand for other assets by other banks becomes smaller in absolute value than the reduction in $\bar{A}$. Therefore there occurs a net decrease in total demand for other assets $A+\bar{A}$, and the cost of capital is increased.

Now, a basic characteristic of monetary policy during the rapid growth period can be summarized as follows. In order to alleviate the illiquidity of banks, Bank of Japan credit was supplied in a passive manner in accordance with the demand by banks. Window guidance was an effective tool of restrictive monetray policy under this accomodating stance of credit supply.

Two additional comments on the above analysis are in order. First, another sufficient condition for the effectiveness of window guidance is the interest elasticity of the demand for reserves by banks. This can be readily confirmed by letting $\gamma=\gamma(\rho)$ in (1) and (2) with $N=\bar{N}$. Owing to the accomodating credit supply by Bank of Japan and to the strong demand for funds by business firms, the reserve holding by banks had a tendency of being kept at a minimum level. Therefore, the author is somewhat skeptical about the elasticity of reserve holding. However, this point must be settled empirically and still open to question (Teranishi, J. [18], pp. 600-603). Second, it can be easily seen that the degree of effectiveness of window guidance is dependent on the magnitude of the partial derivative $\partial A/\partial i$, reflecting the degree of market segmentation of the loan market for other banks. Window guidance is more effective, the more segmented is the loan market. Although most other banks are required to specialize their loan clientele, this enforcement tended to become ineffective owing to the development of arbitrage technique such as lending through agent banks. Since this weakness the effectiveness of window guidance, Bank of Japan have placed some banks in the "other banks" category under window guidance, and the number of such other banks has increased duing the period.

(4) International Capital Movements

The strict regulation of international capital transactions seems to have provided necessary conditions for sustaining the financial system during the period; first, by closing the loopholes of interest rate regulations, and second, by stabilizing the money supply. As for the first point, it is almost apparent that without the restriction of international capital *inflows*, various regulations on bond markets would have been almost ineffective. Since the interest rate in Japan has been comparatively high by international comparison during the high growth period, every business firm would have floated bonds abroad without the restriction, and the rationing system of domestic bond market would have collapsed. As for the international *outflow* of funds, the effect of elimination of restrictions is less clear. There are some who argue that, without the restriction, the outflow of savings would have been larger and the level of domestic investment lower since the rate of interest on domestic assets was regulated.[14] This conjecture, however, neglects the international differences in interest rates. Three points need to be noted. (i) Although the deposit rates were regulated, they were still higher in Japan than in the US (Table 1), (ii) profit rates in Japan were quite high by international standards (Table 7), and (iii) after the exchange rate became flexible after 1971, the yen appreciated almost continuously until 1978. Therefore, if people hold rational expectations and correct perceptions, this would also have raised the expected return of yen-denominated assets. These points seem to be enough to cast doubt upon the effect of the regulation on capital outflow.

Let us move on to the second point. Since the rates of return on domestic assets were high, there was a strong potential tendency for inflating money supply through capital import.[15] Moreover, the accomodating stance of Bank of Japan toward domestic credits also implied possible inflationary pressure. Therefore, for the sake of successful control of money supply, the restriction on foreign capital import seems to have been crucial.

Why, then, was it possible to insulate the economy from the foreign capital inflow? First, the high rate of domestic saving reduced reliance upon foreign capital[16] and, second, the rapid growth of exports, owing to the expansion of world trade under the GATT system and to the high income elasticity of export and low elasticity of import,[17] also reduced the necessity of foreign exchange replenishment by way of capital import.

TABLE 7. GROSS OPERTAING SURPLUS AS A PERCENTAGE OF
GROSS VALUE ADDED IN MANUFACTURING

	1960–67	1968–73	1974–81
Japan	55.7	54.5	43.9
United States	27.0	25.3	24.6
United Kingdom	30.0	27.2	22.0
Germany	36.1	33.9	29.2

Source: OECD, *Economic Outlook* (Historical Statistics, 1960–81).

[14] For example, Sachs, J. (1982).

[15] Recall the Korean experience in mid-1960s, where liberalization of interest rates under the absence of regulation on the import of foreign capital caused significant inflation.

[16] The high rate of profit apparently reflects capital scarcity, but it does not mean the high cost of preventing capital inflow. This is because the rate of capital accumulation remained very high without the reliance on foreign capital.

[17] Houthakker, H.S. and S.P. Magee (1969).

IV. *Financial System and Economic Growth*

It has been shown that the four characteristics of the financial system during the high growth period had been the product of various regulations under such exogenous conditions as (i) the low level and equitable distribution of financial wealth, (ii) the high rate of profit and informational needs of rapid growth process, and (iii) the favorable conditions of world trade.

Our next question concerns with the possible effects of this financial system on the rate of growth of the economy—were they growth promoting, or detrimental to growth on the contrary? In the following pages, the possible effects on the aggregate cost of capital, on competitive efficiency of allocation under uncertainty, and on the adjustment of industrial structure are briefly discussed. The first and the second point are related to macro and micro aspect of the problem, respectively, and the third point is concerned with the two-sector framework of development theory.

(1) Overall Cost of Capital

In a simple Keynesian framework, let us assume that the autonomous component of investment is fixed. Then, regulations on financial markets can reduce the cost of capital if and only if either (i) they increase the autonomous component of saving, (ii) increase the money supply or (iii) decreases the autonomous component of the demand for money.[18] It is quite difficult, however, to give any definite judgements on each of these points. What we can do is simply to make the following casual observations. First, in spite of repeated attempts by various economists, the interest rate has never been found to be a significant variable in the saving function in Japan, so that the effect of deposit rate ceiling on savings still remains an open question. Second, the accomodating stance of credit supply by the Bank of Japan might have had the effects of easing the money supply. Third, the relative underdevelopment of consumer credit might have increased the demand for money. At any rate, nothing definite can be said so far about the possible impact of financial market regulation on the aggregate cost of capital.

(2) Allocational Efficiency under Uncertainty

As we have suggested earlier, the period of rapid growth was characterized by the birth and death of a large number of firms. The problem of informational asymmetry seems to be considerably accute under such circumstances. In the terminology of Jaffee and Russell, the efficiency of the financial system in the allocation of funds is dependent upon how it can effectively distinguish the honest borrowers from dishonest ones. Financial intermediaries (especially banks) seem to be able to claim special merits on this point. This is because they are constantly investing in informational resources in order to maintain proper lender—customer relationships and because they can produce information about borrowers jointly with the provision of other services, such as provision of transaction accounts. Their accumulated informational capacity is most useful in the face of massive emergence of new firms. It can be argued, therefore, that the high degree of financial intermediation during the high growth process has had growth-promoting effects through effi-

---

[18] Horiuchi, A. and M. Otaki (1985), make a similar point mainly in terms of (ii).

cient production of information.[19]

Although the theory outlined above is interesting and insightful, it is still open to the following question. The high degree of financial intermediation means the low degree of development of direct finance, especially of bond and equity markets. Apart from the problem of informational asymmetry, it has been shown that the equity market is more allocationally efficient contrivance than the loan market under the general circumstance of uncertainty.[20] Therefore, without a careful weighing of the informational advantages of intermediation with the allocational efficiency of equity system, nothing definite can be said on this issue.

(3) Adjustment Funds

Since the high growth involved drastic changes in industrial structure, the problem of allocation of funds to various industries, especially to the declining sector, has been important. Generally speaking, the market-oriented private financial system has the following two drawbacks in the adequate supply of funds to the declining sector. First, whenever there is lack of malleability of production factors, the market rate of return of declining sector during the adjustment period tends to be lower than otherwise. In this case, the supply of funds through the free market system, whether of direct or indirect finance type, is liable to be inadequate.[21] Secondly, since the building-up of informational channels between a firm and a bank has the property of fixed investment, it is particularly difficult to be established in the case of declining industries. As a consequence, even if short-term rate of return of some firms within such industries are high, it is frequently possible that adequate information is not conveyed to banks. This is another factor which explains the possible lack of supply of funds to declining sectors.

In the case of Japan during high growth era, the government finance is seen to have played the role of supplying funds to declining sectors. This role can be understood as the remedy for the two market failures cited above. In this sense, the characteristic division of labor between government and private financial systems can claim special merit for its growth-promoting effect.

This is not the end of the story, however. It is worth nothing that the government finance is not immune from its own shortcomings. Since the area of activity of each governmental institution is narrowly specified, and it has not been easy to change the legal stipulation, there occurred significant cases of inefficiencies such as prolonged period of adjustment or excessive investment in declining sectors, possibly due to the inefficient and excessive loan supply by these institutions. This problem became the focus of debate when several major institutions reported significant amount of unused funds in the early 1970s. The reorganization of government finance system has become a serious policy problem since then.

---

[19] To this may be added the possible inefficiency of new issue market of equity due to principal-agent problem (Stigler, J.E. (1985). These points are essentially indebted to discussion with Kermit Schoenholtz. Basic idea is his and possible error is mine.

[20] Tachi, R. and K. Hamada (1972). The transfer of future income through the loan market is done by fixed amount independent from the state nature, while the equity market makes it possible depending on the state of nature. Needless to say, equity is still inferior to the state contingent claim system because the transfer by means of equity is constrained to be a fixed fraction of income of each state.

[21] This is nothing but a part of the general problem of adjustment aid. Cf. Mussa, M. (1982) and Sekiguchi, S. and T. Horiuchi (1984).

V. Concluding Remarks

Our analysis of the relationship between economic growth and financial regulation has been inconclusive. The effect on the level of capital cost was ambiguous. The allocational efficiency under uncertainty is still unclear on the theoretical level. Although the adjustment role of the government finance was theoretically growth-promoting, we cannot neglect the possible cases of waste or inefficient use of funds.

However, after mid 1970's, Japanese economy crossed over from the period of high growth into a phase of stable growth. At the same time, the financial system has undergone drastic changes.[22] On the domestic side, the deposit rate has been virtually liberalized as far as large denomination deposits are concerned. Money and bond markets have developed considerably; there are active nonbank participation and remaining regulations are only nominal. Internationally, foreign direct investment into Japan was virtually liberalized by 1973, except for some special sectoral restrictions. Portfolio transactions both by residents and nonresidents have become almost free of regulations except for medium and long-term transactions of Euro-yen.

It is worthwhile to note that there are three important features in the background of these changes. (i) The accumulation of private financial assets has advanced considerably. This widened the scope for portfolio management by assetholders. (ii) The domestic rate of profit has significantly declined. This seems to be one of the basic reasons for the recent capital account deficits of Japan.[23] (iii) The rapid change in industrial structure seems to have almost come to an end. The share of agriculture in net domestic product has fallen as low as 5.4% in 1975. (iv) Instead of business firms, the government and foreign sector have become the major deficit unit in terms of sectoral I-S balance. Since the government or foreign sector debts are highly homogeneous compared to business debt, this seems to have greatly reduced the informational needs in the economy.

HITOTSUBASHI UNIVERSITY

REFERENCES

Higano, Mikio (1981), "Kinyukikan no Shinsa Noryoku to Kokyaku Kankei [Screening Capacity of Financial Institutions and Lender-Customer Relationship]," *Kikan Gendai Keizai* 45.

Horiuchi, Akiyoshi (1980), *Nihon no Kinyuseisaku* [Monetary Policy in Japan], Toyokeizai-shinposha.

Horiuchi, Akiyoshi (1984), "The 'Low Interest Rate Policy' and Economic Growth in Post-war Japan" *The Developing Economies* (December, No. 4).

Horiuchi, Akiyoshi and Masayuki Otaki (1985), "Sengo Nihon no Kinyuseisaku [Mon-

---

[22] For details, refer to Royama, S. (1983–84) and Suzuki, Y. (1983) with respect to domestic side. For international aspects, Shinkai, Y. (1984).

[23] Other reasons are (1) the difference in the movements of the budget deficits of the US and Japan, and the (ii) difference in the corporate tax system of the two countries.

etary Policy in Postwar Japan]," Paper presented at Zushi Conference, March/April.

Houthakker, H.S. and S.D. Magee (1969), "Income and Price Elasticities in World Trade," *The Review of Economics and Statistics* L1 (May, No. 2).

Kosaka, Akira (1984), "The High Interest Rate Policy under Financial Repression," *The Developing Economies* 22 (December, No. 4).

Mckinnon, Ronald (1981), "Financial Repression and the Liberalization Problem with Less-Developed Countries," in *The World Economic Order—Past and Prospects*, ed. by Sven Grassman and Erik Lundberg, Macmillan.

Mussa, Michael (1982), "Government Policy and Adjustment Process," in J. Bhagwati ed., *Import Competition and Response*, University of Chicago Press.

Ogura, Seiritsu and Naoyuki Yoshino (1984), "Zeisei to Zaisei-Toyushi [Tax System and Fiscal Investments and Loans Program]," in *Nihon no Sangyo Seisaku*, ed. by R. Komiya, M. Okuno and K. Suzumura, Todai-Shuppan.

Ouchi, Tsutomu (1962), *Nihon Keizai-ron* [A Study on Japanese Economy], Todai-Shuppan.

Patrick, Hugh T. (1982), "Postwar Financial Development in Historical Perspective," (mimeo).

Royama, Shoichi (1983–84), "The Japanese Financial System: Past, Present and Future," *Japanese Economic Studies* 12 (Winter, No. 2).

Sachs, Jeffery (1982), "Aspects of the Current Account Behavior of OECD Economies," NBER Working paper No. 859. (February).

Sakakibara, Eisuke, Robert Feldmar and Yuzo, Harada (1980), *The Japanese Financial System in Comparative Perspective* [A Study Prepared for the Use of Joint Economic Committee, Congress of the United States].

Sekiguchi, Sueo and Toshihiro Horiuchi (1984), "Boeki to Choseienjo [Foreign Trade and Adjustment Aid]," in *Nihon no Sangyo Seisaku*, ed. by R. Komiya, M. Okuno and K. Suzumura, Todai-Shuppan.

Shinkai, Yoichi (1984), "Internationalization of Finance in Japan," (unpublished, June).

Stigler, Joseph E. (1985), "Information and Economic Analysis: A Perspective," *Economic Journal* (Supplement) 95.

Suzuki, Yoshio (1980), *Money and Banking in Contemporary Japan*, Yale University Press.

Suzuki, Yoshio (1983), "Changes in Financial Asset Selection and the Development of Financial Markets in Japan," Bank of Japan, *Monetary and Economic Studies* 1 (October, No. 2).

Tachi, Ryuichiro and Koichi Hamada (1972), *Kinyu* [Monetary Theory], Iwanami.

Teranishi, Juro (1982), *Nihon no Keizai Hatten to Kinyu* [Money, Banking & Capital in Japanese Economic Development], Iwanami.

Wijnberger, S. Van (1983), "Interest Rate Management in LDCs," *Journal of Monetary Economics* 12 (September, No. 3).