

---

# **Monetary Policy in Japan: Transmission Mechanism and Effectiveness\***

**YOSHIO SUZUKI\*\***

## **I. Introduction**

The purpose of this paper is to examine the transmission mechanism and the effectiveness of monetary policy in Japan. The financial system of Japan is now at an historical turning point and its rapid evolution has brought about changes in the transmission mechanism of monetary policy. In Section II we review briefly the financial system and the transmission mechanism of monetary policy during the pre-1973 high-growth period when changes had not yet occurred. Then, in Section III, we study the evolution of the financial system since 1974 and consider how the new developments have altered the transmission mechanism. Finally, in Section IV, we examine the effects of interest rate liberalization and financial innovation on monetary policy.

## **II. High-Growth Period: Before 1973**

### **1. Features of the Financial System**

#### **A. Predominance of Indirect Financing**

The postwar Japanese financial system<sup>1</sup> is characterized by 1) the separation of functions among financial institutions and 2) regulations on interest rates. Thus in the case of 1), the banking, securities, and trust businesses are undertaken separately by specialized institutions.<sup>2</sup> Within these divisions, the functions of long- and short-term

\* This paper was presented to the Ausschuss für Geldtheorie und Geldpolitik des Vereins für Socialpolitik held on May 25/26, 1984 at the Deutsche Bundesbank.

\*\* Director, Institute for Monetary and Economic Studies, Bank of Japan.

finance have also been separated among institutions. The joining of banking and securities activities, known as "universal banking", is principally forbidden. In the case of 2), the yields on deposit and saving accounts, newly-issued bonds, and money trust and loan trust\*, as well as prime lending rates (to be referred to collectively as regulated interest rates hereafter) are either regulated or under strong administrative guidance.

- \* "Money trust" and "loan trust" are both variable-yield assets which can be acquired by the the general public from designated "trust" banks. The trust deposits are invested (like a mutual fund) with the discretion of the trust bank in loans and government bonds, etc. In contrast to normal trusts, the invested principal is contractually guaranteed, but the assets are subject to small penalties if withdrawn before the date of maturity. A money trust can be established in principle with any maturity greater than one year, while a loan trust is limited to two- and five-year terms. Both are usually sold with the yield varying every six months, and the yield on loan trust is slightly higher than that on money trust.

Although the interest rates on fund raising instruments were pegged at low rates, there were no regulations on loan rates except for the prime rates. In addition, the effective loan rates (after accounting for the required compensating balances) were higher than the nominal loan rates (including prime rates) suggested. As a result, the margin between the interest rates obtained from the use of funds and the cost of raising funds was wide and banks and other private financial intermediaries earned

1. A detailed description of the features of the Japanese financial system during the high-growth period is given in Suzuki (1980), Part I.
2. The major financial institutions in Japan are:
  - a. Institutions that handle deposit bank business (deposits with terms up to two years and loans): 13 city banks, 63 regional banks, 69 sogo banks, 456 shinkin banks, and 468 credit cooperatives, etc.
  - b. 3 long-term credit banks that handle deposit bank business and at the same time, are permitted to sell bank debentures (1- and 5- year) and engage in long-term lending (above 5-year).
  - c. Trust banks that deal with trust business in addition to deposit bank business. As the center of trust business is jointly invested money trust and loan trust, trust banks are also specialized institutions of long-term finance.

Banks in a., b. and c. are forbidden to handle securities business other than the acceptance of government bonds, sale of underwritten government bonds over their counters (from April 1983), and dealings in government bonds (from June 1984).
  - d. Securities companies dealing with bonds, stocks and investment trusts.
  - e. Insurance companies specializing in life insurance and non-life insurance.

stable profits. This allowed them to extend branches to advantageous regions and to strengthen fund-raising and lending activities. Thus until 1973, 70-80% of the flow of funds from lenders to final borrowers was channeled through private financial intermediaries and the share of funds channeled through the securities markets remained below 10%. The only exception occurred in 1970 and 1971 as a result of a temporary stock market boom and a sharp increase in investment from abroad in Japanese securities (see Table 1). In other words, the predominance of indirect financing over direct financing was a major feature of the Japanese financial system during the high-growth period.

#### B. "Over-Borrowing" in the Corporate Business Sector

The corporate sector was the major final borrower in the flow of funds, as the government deficit was small. As shown in Figure 1, until 1973, while the ratio of business sector's deficit to GNP fluctuated between 6-10%, the deficit of the public sector remained at a low level of 1-4%. In such a situation, as much as 65% of the total funds of the corporate sector relied on external financing and the liquidity of the corporate business sector as a whole was low. Under the predominance of indirect financing, since external financing mainly took the form of borrowing from banks rather than increasing capital or issuing bonds, as much as 60% of the total funds of the corporate business sector was met by borrowing from banks. Such heavy dependence on bank borrowing of the corporate business sector was then called "over-borrowing".

#### C. Well-Developed Inter-Bank Markets and Underdeveloped Open Markets

With the predominance of indirect financing, inter-bank money markets for short-term loans among private financial intermediaries grew rapidly in the form of a call market and a bill discount market (see Table 2). In these markets, city banks were net borrowers and the other financial institutions were net lenders.

While the Gensaki ("repurchase") market came into existence in 1967 as a money market innovation designed to channel funds for direct finance, it remained small in size. Although the stock market was quite active, the bond markets remained underdeveloped (see Table 3). There were three major reasons why open markets such as a TB (Treasury Bills) market or markets for medium- and long-term bonds remained underdeveloped. First, the outstanding amount of public bonds, which have the desirable properties of assets to be traded in open markets (such as low risk and trading in lots) was small because the government deficit had been small (see Figure 1). Second, as yields to subscribers of bonds were pegged to levels below equilibrium rates, sale before maturity usually incurred losses and therefore second-

**Table 1 The Flow of Funds Channels from Lenders to Final Borrowers in the Domestic Financial System**

(%)

Calendar Year	Private Financial Intermediaries	Deposit Banks	Trust Sector, Insurance Companies	Public Financial Intermediaries	Security Market	Domestic			Overseas	Total
						Bonds	Stocks	Investment Trusts		
1965	78.6	63.2	11.3	15.5	5.9	3.5	5.1	Δ3.0	0.3	100.0
1966	78.4	69.6	10.0	19.3	2.3	2.6	2.2	Δ1.7	Δ0.8	100.0
1967	77.4	66.1	12.0	16.2	6.4	3.1	1.0	Δ1.1	3.4	100.0
1968	72.5	58.3	13.0	18.4	9.1	2.5	2.7	Δ0.2	3.7	100.0
1969	73.3	60.3	11.7	16.9	9.8	2.3	2.9	1.1	3.5	100.0
1970	71.0	60.3	12.8	16.7	12.3	3.0	4.8	0.6	3.9	100.0
1971	70.2	57.8	11.7	16.2	13.6	3.4	2.8	1.0	6.4	100.0
1972	77.5	66.2	10.5	16.1	6.4	1.3	2.0	1.4	1.7	100.0
1973	74.6	64.1	10.9	18.6	6.8	3.1	3.6	0.6	Δ0.5	100.0
1974	69.0	58.0	10.7	21.1	9.9	1.7	2.3	0.3	5.6	100.0
1975	69.8	58.8	10.4	23.3	6.9	3.5	2.0	1.6	Δ0.2	100.0
1976	67.4	56.0	10.2	23.7	8.9	3.9	1.8	1.0	2.2	100.0
1977	60.5	49.6	9.5	29.2	10.3	6.6	2.4	0.9	0.4	100.0
1978	62.4	54.2	6.7	25.4	12.2	6.4	1.4	0.7	3.7	100.0
1979	59.3	48.0	9.6	28.6	12.1	6.3	2.2	0.4	3.2	100.0
1980	54.9	41.9	11.6	31.2	13.9	7.6	1.6	Δ0.6	5.3	100.0
1981	61.4	49.8	9.9	25.5	13.1	7.3	2.4	1.9	1.5	100.0
1982	56.1	42.4	12.7	29.2	14.7	5.5	2.9	3.0	3.3	100.0
1983	54.5	41.6	10.0	26.6	18.9	8.5	1.2	5.8	3.4	100.0

**Figure 1 Sectoral Net Investment (Deficit) and Net Savings (Surplus) as a Percentage of GNP**

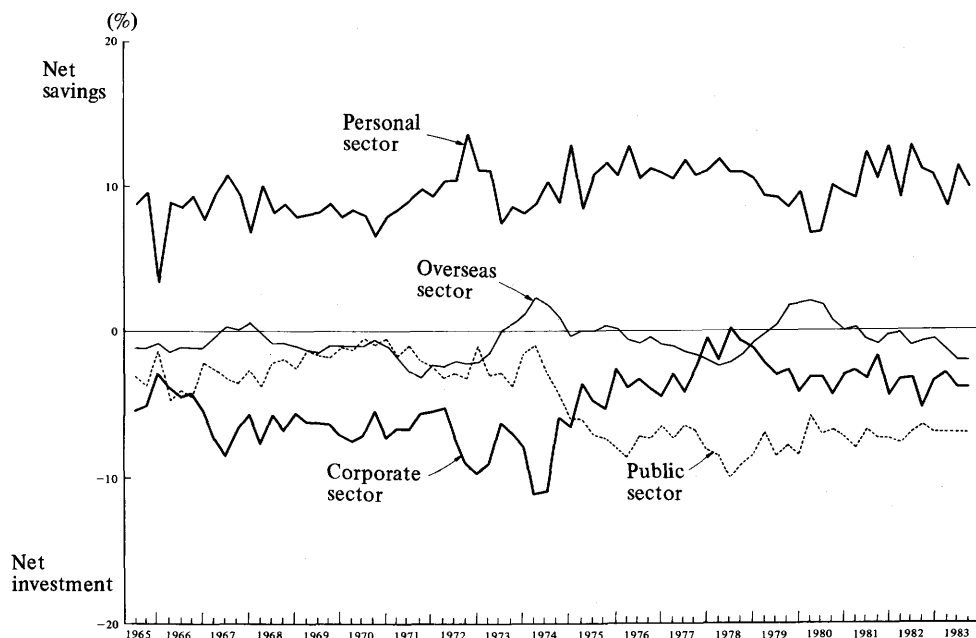


Table 2 Trend in Money Market Transactions

(¥ billion)

Calendar Year	Call Money Market	Percentage of total	Commercial Bills Discount Market	Percentage of total	"Gensaki" Market	Percentage of total	CD Market	Percentage of total	Total	Percentage of total
1965	809	100.0							809	100.0
1966	747	100.0							747	100.0
1967	1,012	86.9			152	13.1			1,164	100.0
1968	985	77.2			291	22.8			1,276	100.0
1969	1,546	79.1			408	20.9			1,954	100.0
1970	1,817	74.6			619	25.4			2,436	100.0
1971	1,472	54.1	369	13.5	882	32.4			2,723	100.0
1972	1,048	25.8	1,792	44.1	1,224	30.1			4,065	100.0
1973	1,227	17.4	4,089	58.0	1,738	24.6			7,053	100.0
1974	2,160	23.9	5,207	57.6	1,673	18.5			9,039	100.0
1975	2,332	27.2	4,403	51.4	1,835	21.4			8,570	100.0
1976	2,567	26.3	5,091	52.3	2,089	21.4			9,742	100.0
1977	2,616	22.7	6,084	51.4	3,136	26.5			11,837	100.0
1978	2,326	17.7	6,590	50.2	4,207	32.1			13,123	100.0
1979	3,473	22.3	6,327	40.6	3,960	25.4	1,820	11.7	15,580	100.0
1980	4,133	24.7	5,738	34.3	4,507	26.9	2,358	14.1	16,736	100.0
1981	4,699	28.5	4,016	24.3	4,481	27.2	3,291	20.0	16,486	100.0
1982	4,494	24.2	5,413	29.2	4,304	23.2	4,342	23.4	18,551	100.0
1983	4,456	21.0	6,763	31.9	4,288	20.3	5,665	26.8	21,172	100.0

Table 3 Transactions in Secondary Markets for Bonds

(¥ trillion)

Year	Government Bonds	Local Government Bonds & Guaranteed Bonds	Interest-Bearing Bank Debentures	Corporate Bonds	Total including Other Bonds	Outright Trading	Trading with Repurchase Agreement
1970	0.4 ( 5)	0.9 (11)	3.3 (43)	0.7 ( 9)	7.7 (100)	n.a.	n.a.
1971	0.3 ( 3)	1.5 (14)	4.3 (40)	0.9 ( 8)	10.8 (100)	n.a.	n.a.
1972	0.4 ( 3)	2.2 (16)	5.9 (41)	0.9 ( 7)	14.3 (100)	n.a.	n.a.
1973	0.9 ( 4)	3.2 (15)	9.6 (45)	1.2 ( 6)	21.2 (100)	n.a.	n.a.
1974	1.6 ( 5)	4.1 (13)	14.0 (43)	1.7 ( 5)	32.3 (100)	11.8 (37)	20.5 (63)
1975	1.1 ( 2)	11.5 (23)	20.4 (40)	2.9 ( 6)	50.9 (100)	22.3 (44)	28.6 (56)
1976	2.4 ( 4)	20.5 (32)	24.4 (38)	3.3 ( 5)	64.9 (100)	27.7 (43)	37.2 (57)
1977	13.6 (12)	34.9 (31)	39.0 (34)	6.2 ( 5)	113.2 (100)	52.4 (46)	60.8 (54)
1978	61.6 (32)	43.9 (23)	52.3 (27)	9.7 ( 5)	193.2 (100)	86.9 (45)	106.3 (55)
1979	91.3 (45)	39.4 (19)	43.2 (21)	6.6 ( 3)	204.2 (100)	87.4 (43)	116.8 (57)
1980	158.8 (58)	41.7 (15)	40.6 (15)	5.5 ( 2)	272.5 (100)	116.5 (43)	156.0 (57)
1981	181.6 (63)	37.3 (13)	39.2 (14)	7.1 ( 2)	288.4 (100)	146.9 (51)	141.5 (49)
1982	203.9 (62)	44.4 (14)	30.9 ( 9)	7.2 ( 2)	327.1 (100)	191.8 (59)	135.3 (41)
1983	247.2 (64)	51.5 (13)	29.5 ( 8)	7.5 ( 2)	385.1 (100)	247.9 (64)	137.2 (36)

Note: Figures in parenthesis are percentage share of individual items in "total including other bonds."

ary markets for bonds other than Gensaki remained underdeveloped (see Table 2 and 3). Third, with the predominance of indirect financing, government bonds were underwritten by syndicates composed of financial institutions while corporate bonds were mostly purchased by the issuer's major client banks. Thus firms and individuals were not familiar with bonds other than bank debentures. In other words, with the predominance of indirect financing, the acceptance of government and corporate bonds was essentially equivalent to lending by financial institutions and the purchase of bank debentures was essentially the same as depositing. Thus, the de facto marketability of bonds was low.

## **2. Transmission Channels of Monetary Policy**

### **A. Daily Operations in Inter-Bank Markets**

The Bank of Japan's principal instrument of daily operations in inter-bank markets was its control over the volume of lending through the loan window. When the bill discount market became well-developed after 1971, operations in bills became another effective instrument of daily monetary control.

As can be judged from the fact that the Bank of Japan's official rate was always lower than the inter-bank money market rates, the Bank of Japan did not lend passively to financial institutions willing to borrow at the official rate. Instead, Bank of Japan credit was allocated through credit rationing to financial institutions, particularly city banks, which were net borrowers in inter-bank money markets. Banks were required to hold an average amount of deposits with the Bank of Japan above a certain level\* for the period beginning the 16th of the current month to the 15th of the following month; thus, as the availability of Bank of Japan lending tightened, it became more difficult for banks to achieve the required average balance and they turned to the inter-bank market for funds, raising the demand and the interest rates there. For similar reasons, interest rates in inter-bank markets declined as the Bank of Japan eased its policy stance.<sup>3</sup>

\* The required levels of deposits with the Bank of Japan are calculated on the average levels of deposits with banks by their customers in the current month.

As Japan's balance of payments had been in equilibrium for a long period of time under the Bretton Woods System, the increasing demand for cash currency

3. For details of this mechanism, see Suzuki (1980), Part III, and Yasuda (1982a).

accompanying economic growth had led to a corresponding increase in Bank of Japan loans. This phenomenon was then called "over-loan". To avoid the build-up of an over-loan situation while supplying the cash currency consistent with optimal economic growth, the Bank of Japan since 1963 had engaged in the bilateral purchase of long-term government bonds from financial institutions experiencing shortage of funds and at the same time imposed ceilings on Bank of Japan loans for each bank.

Since 1971, the formation of the bill discount market has made market operations through brokers possible. As a result, day to day monetary control has been conducted mainly through the purchase and sales of bills, and credit rationing at the lending window has been playing a marginal role.

#### B. Effects of Interest Rates on Bank Behavior and "Window Guidance"

Variations in the inter-bank interest rates, which the Bank of Japan controlled through its daily operations, had a large impact on the lending behavior of banks. On one hand, the inter-bank rates fluctuated flexibly and it was not uncommon for them to reach double digit levels during periods of tight money. On the other hand, the loan rates were sticky since prime lending rates were regulated, and the cost of funds such as interest rates on deposits, bank debentures and loan trust were regulated. Consequently, as the interest rates in inter-bank markets rose, banks cut loans to customers, and instead started to lend or to repay debts in the inter-bank markets. The reverse happened when inter-bank rates declined.<sup>4</sup>

The Bank of Japan exercised "window guidance" to encourage the portfolio adjustment of banks. This amounted to moral suasion limiting the increase in the total loan volume of individual banks. There were two reasons why private banks complied with window guidance. First, as the inter-bank rates rose, it became more profitable to follow window guidance and to cut lending. Second, as all banks cut lending at the same time, it was unlikely that a sharp reduction in bank lending, initiated by window guidance, would harm the long-term good customer relationship. It is not surprising, then, that window guidance that was not accompanied by a sharp increase in inter-bank rates or that did not cover a wide range of banks was not effective enough.<sup>5</sup>

4. For an empirical analysis of the relationship between inter-bank rates and lending to customers, see Suzuki (1980), Part II Chapter 6 and 7.

5. For the effects of window guidance, see Yasuda (1982b).

### C. Effects of Bank Lending on Business Investment

As the business sector was highly dependent on bank loans (so much so that it was termed "over-borrowing") and as the liquidity of the business sector was low, variations in bank loans brought about through the transmission mechanism described in A and B above, had a definite effect on business investment. Furthermore, as business investment had been the main engine of growth during the high-growth period, fluctuations in it had a large impact on aggregate demand. Because the markets for goods and services were competitive (due to the ease of new entry during this high-growth period), and because wages were very responsive to demand and supply conditions in the labor market and to the state of business profit, the policy-induced changes in aggregate demand had a strong effect on the price level, which was the ultimate goal of monetary policy.

### D. Summary

To summarize, monetary policy during the high-growth period was conducted using inter-bank market interest rates as the operating variables and the increase in private banks' lending as the intermediate target. Conditions which contributed to the effectiveness of such policy were:

- a. Through credit rationing and the simultaneous conduct of operation of bills, the Bank of Japan succeeded in controlling the interest rates in the inter-bank markets, the only well-developed market among the financial system.
- b. Since most interest rates were regulated or rigid, changes in the inter-bank rates had a large impact on the lending behavior of banks. This effect was reinforced by the Bank of Japan's window guidance.
- c. Given the predominance of indirect financing and the low liquidity of the business sector (that is, "over-borrowing"), changes in bank lending had a strong effect on business investment.
- d. During the investment-led high-growth period, fluctuations in business investment, through changing aggregate demand, also had a strong effect on the price level as prices and wages were flexible.

## III. Low-Growth Period: Since 1974

### 1. Changes in the Financial System

- A. Increase in the Public Sector Deficit and the Accumulation of Government Bonds



Japan's real rate of economic growth has dropped from an annual average of 10% during the high-growth period (1955-73) to 3-5% after the first oil crisis. At the same time, business investment slackened, while public expenditure (including transfer payments such as social security) expanded rapidly. Consequently, business investment as a proportion of the sum of GNP and public sector transfer payments dropped from 20% in fiscal year 1973 to 13% in fiscal year 1982. In contrast, the proportion of public expenditure increased from 23% to 31%. Viewing the same period from the income side, the corresponding ratio for public sector revenue increased from 22% to 26% as a result of increases in tax and social security contributions; the corresponding ratio for the gross saving of the business sector declined from 11% to 8% as profit declined with slow growth. In the case of the public sector, since the increase in expenditure ratio far exceeded the increase in revenue ratio, the public sector deficit as recorded in the flow of funds table as a ratio of GNP had increased from 1-4% before 1973 to 6-10% after 1975. Turning to the business sector, however, we note that as the decline in the gross saving ratio was much smaller than the decline in the investment ratio, the corresponding deficit ratio for the business sector declined from 6-10% to 0-5% (see Figure 1).

As a result of such structural changes in the sectoral deficits, a large-scale issue of government bonds, mostly long-term government bonds, started in fiscal year 1975. While outstanding government bonds only amounted to 6.5% of GNP at the end of fiscal year 1973, the year that marked the end of the high-growth period, it has increased rapidly since 1975 and has reached 39.4% of GNP by the end of fiscal year 1983.

## B. Development of Open Markets

The rapid accumulation of government bonds promoted the development of open financial markets which until then were largely underdeveloped. Table 3 shows the trend in transactions in the secondary bond markets. Since 1977, two years after the start of the large-scale issue of government bonds, the sale of government bonds underwritten by members of underwriting syndicates has become active. The volume of transactions in government bonds rose sharply and the open markets expanded rapidly. As a result, the volume of transactions in secondary bond markets (of which 65% was in government bonds) in 1983 was twenty times as large as the corresponding figure in 1970-73, the years that marked the end of the high-growth period. Furthermore, while transactions in Gensaki bonds accounted for more than one half of total transactions in secondary bond markets before 1980, the Gensaki market has stopped expanding since 1981. By 1983, ordinary purchases and sales had reached 64% while Gensaki transactions had declined to 36% of the total. In other words, among the open markets, the capital markets had grown larger in size than the money markets.

### C. Decline in Over-Borrowing, Rise in Liquidity, and Diversification of Financial Assets and Liabilities in the Business Sector

As we have seen in A above, in contrast to the public sector, deficit of the corporate business sector as a percentage of GNP has been declining. As a result, the weight of internal funds in total funding has been rising while the degree of dependence on external financing in general and borrowing from banks in particular has been declining. The average shares of internal financing (retained earnings and depreciation) and external financing for the fiscal years 1970-73, at the end of the high-growth period, were 35% and 65% respectively. Of the external funds, 90% was obtained by borrowing from banks, while the remaining 10% was obtained through increases in capital and the issue of bonds. However, this position has been reversed recently, and during the fiscal years 1980-83 the shares of internal and external funds were 51% and 49% respectively. Of the external funds, 16% was obtained by increasing capital and issuing bonds. It is clear, then, that the phenomenon of "over-borrowing" that characterized the financial system of the high-growth period has been disappearing.

In the upper part of Table 4, which refers to the large enterprises, we note a marked trend in the diversification in the channels of raising external funds. Yen-denominated borrowing which accounted for 83% of the total in 1970-74 had declined to 48% by 1981-83, and in its place, the shares of funds raised abroad in the form of untied loans, bond issues, and funds raised in the domestic capital market have been rising.

The increasing dependence on internal funds has improved the liquidity position of the business sector. In addition, as the share of domestic yen-denominated borrowing has declined, the need to maintain compensating balances has declined. As a result, the share of deposits with regulated interest rates in the portfolios of large enterprises has declined from 63% in 1970-74 to 9% in 1980-83. In their place, the total share of CDs, foreign currency deposits, and bonds (including Gensaki), the yields of which are all unregulated, has increased from 8% in 1970-74 to 54% in 1980-83 (see the lower part of Table 4).

### D. Decline in the Predominance of Indirect Financing

As open markets developed, firms shifted funds from deposits with regulated interest rates to markets with unregulated interest rates. To a lesser extent, individuals also shifted funds from deposits to securities and investment trusts. Consequently, the reserve position of deposit banks deteriorated, forcing them to sell government bonds in the secondary market. Furthermore, as we noted above, the share of funds raised through borrowing from domestic banks has also been declining. As a result,

**Table 4 Sources and Uses of Funds of Large Enterprises**

Contribution Ratios\* of Increase in Funds Raised

(%)

	1970-1974 average	1975-1977 average	1978-1980 average	1981-1983 average
Borrowings	83.9	72.1	58.0	60.9
Yen Denominated Borrowings	82.5	68.1	53.2	47.7
Untied Loan	1.4	4.0	4.8	13.2
Corporate Bonds	6.0	14.0	17.1	14.1
Domestic Bonds	6.1	10.7	13.0	4.6
External Bonds	△ 0.1	3.3	4.1	9.5
Stocks	10.1	13.9	24.9	25.0
Domestic Stocks	10.1	13.1	24.1	23.4
DR	0.0	0.8	0.8	1.6
Total	100.0	100.0	100.0	100.0
Funds raised domestically	98.7	91.9	90.3	75.8
Funds raised overseas	1.3	8.1	9.7	24.2

Contribution Ratios\* of Increase in Funds Used

(%)

	1970-1974 average	1975-1979 average	1980-1983 average
Cash Currency and Deposits	61.2	40.4	51.1
CDs	—	3.9	16.6
Foreign Currency Deposits	2.2	1.2	26.7
Short-term Securities	6.7	36.3	11.1
Securities Held for Investment Purpose	32.1	23.3	37.8
Investment in Assets with Regulated Interest Rates	63.0	39.3	9.4
Investment in Assets with Unregulated Interest Rates	8.1	31.3	54.1
Investment in Stocks	28.9	29.4	36.5
Investment in Foreign Currency Denominated Assets	2.8	2.7	34.8

Note: These statistics cover a total of 2270 enterprises (all industries) with capital over ¥1 billion.

\* Contribution ratios are defined as ratios of changes in individual items to total increases, expressed in percentages.

the share of funds channeled through private financial intermediaries from lenders to final borrowers has dropped from 70-80% during the high-growth period to 55-60% recently. Among the funds passing through the private financial intermediaries, the share of "trust" accounts and insurance schemes had declined temporarily, but recently shows an upward trend. Hence the relative decline of the private financial intermediaries was very much the result of the relative decline in the deposit banks whose share has declined from 60-70% during the high-growth period to 40% recently. Thus the predominance of indirect bank-based financing that characterized the Japanese financial system during the high-growth period has been declining.

In contrast, the share of public financial intermediaries that collect funds through the postal savings system and credit through government financial institutions at low interest rates, and the share of securities markets centering on the secondary market for government bonds have been growing (see Table 1).<sup>6</sup>

## **2. Changes in the Transmission Channels of Monetary Policy**

### **A. Decline in the Role of the Traditional Mechanism**

Changes in the financial system in the last ten years (A-D in Section III.1) have modified the transmission mechanism in the following ways. First, as firms' dependence on borrowing declines and their liquidity position improves, variations in the volume of domestic bank lending no longer have as strong an influence on business investment as in the past. Second, as the share of business investment in aggregate demand declines, fluctuations in investment no longer dominate aggregate demand (and the price level) so much as in the past.

Feedbacks in the system have also been altered. For example, the importance of bank loans as a factor determining the money supply has declined, while that of public bonds, particularly government bonds has increased. Therefore, the stock of money held by private economic agents has become a more suitable quantitative indicator for the operation of monetary policy than the change in bank loan volume. It is for this reason that the Bank of Japan has come to emphasize the money supply as an intermediate target since 1975.

### **B. The New Mechanism Functioning via Open Markets**

The development of open markets in the last ten years has made interest rates in

6. For a detailed discussion of the changes in the portfolios of the business and personal sectors, their underlying causes, and the corresponding changes in the channels of the flow of funds reflecting them, see Suzuki (1983a).

those markets more responsive to changes in the interest rates in inter-bank markets brought about by the Bank of Japan's daily operations, because arbitrage takes place between inter-bank and open markets. This has given rise to two new channels of policy transmission.

(a) Financial Dis-intermediation

When the interest rates in open markets rise, the interest rates on fund raising instruments of financial intermediaries such as deposits, bank debentures, money trust and loan trust do not rise as flexibly as open market interest rates because they are regulated. Thus the differentials between these two sets of interest rates widen, and funds flow from financial intermediaries to open markets. As a result, the fund positions of financial intermediaries worsen, and financial institutions have to curtail loans. This financial dis-intermediation provides a new channel through which monetary policy effect is transmitted, for small-and medium-sized firms which are unable to issue bonds and lacking in enough open market assets are denied access to credit through either direct or indirect means.

(b) Effect of Interest Rates on Private Expenditure

As open markets grow, both the business and personal sectors come to make extensive use of these markets, and interest rates in open markets come to be used as indicators of the opportunity cost of spending when using internal funds. Thus, rising interest rates in open markets tend to depress private spending by raising the opportunity cost. The experience of the most recent period of monetary restraint shows that even in the 2nd and 3rd quarters of 1980, when the effect of monetary restraint reached its peak, some banks still had part of their window guidance quotas unused. This can be explained by the fact that as interest rates in open markets such as Gensaki and CD markets rose to 13-14%, private investment as well as the demand for bank loans were curtailed. Thus, the interest rate elasticity of spending has grown more important than the traditional mechanism which suppressed the supply of bank loans.

## IV. Prospects for the Future

### 1. Deregulation in the Financial System

As explained in the first part of A in Section II.1, the postwar Japanese financial system has been characterized by the institutional framework of 1) the separation of

functions among financial institutions and 2) regulation of interest rates. However, the need to revise these regulations has now become pressing.

A. Inefficiency and Unfairness of Interest Rate Regulations and the Liberalization of Interest Rates

The share of private financial intermediaries under interest rate regulations in channeling funds from lenders to ultimate borrowers has been declining in the last ten years (that is, the decline in indirect financing), as we have seen in D in Section III.1 and in Table 1. This has happened for two reasons. First, the development of open markets (the Gensaki market, the new issue market for medium-term government bonds, and the secondary market for long-term government bonds), and the parallel growth in investment trusts have boosted share of direct financing. Second, the share of the Post Office (a public financial intermediary), which provides comparatively high-yield fixed interest rate savings accounts of up to ten years in maturity has been increasing. The private financial intermediaries which are permitted to offer deposit accounts with terms of up to two years, and these supplying bank debentures of up to five years, as well as money trust and loan trust with terms of up to five years have not been able to compete effectively in the regulated environment\*.

- \* Since regulated yields always display an upward "yield curve" and the Postal savings accounts yields are fixed for up to ten years, individuals are inclined to acquire the longest Postal assets in order to maintain the yield advantage when the rate of interest is going to decline. This causes dis-intermediation from the private institutions when a tight money condition is being over.

In order to correct the unfairness and inefficiency generated by interest rate regulations, the issue of CDs by banks was approved in 1979. Thereafter, regulation of the volume of CDs issues has been gradually relaxed, and the minimum unit of issue has been reduced from 500 million yen to 300 million yen and is expected to decline further. Should this trend continue, the CD market will become more and more attractive to investors. At the same time, liberalization of interest rates on large-lot deposits as a whole is expected to restore the competitiveness of large-lot deposits against CDs.

In preparation for the large-scale refunding of government bonds from 1985 and in order to promote the absorption of government bonds by the private sector, banks were allowed to deal in government bonds in June 1984. The introduction of "government bonds time deposit accounts" and "government bonds trust accounts"\* will be equivalent to the setting up of time deposit accounts with interest rates based on open market rates, so long as the accounts are held to maturity of those bonds. In

order to avoid the risk of capital loss associated with the sale of government bonds before maturity, overdraft facilities with "government bonds time deposit (or trust) accounts" as collateral will also be introduced. Time deposits based on open market interest rates will be introduced at the same time to allow for competition with these accounts, and interest rates on medium- and small-lot deposits will also be liberalized in due course.<sup>7</sup>

- \* These are accounts based on the sale of government bonds at the bank counter. The bonds are held for safekeeping by the bank which also credits a time deposit account or a money trust account with the interest payments. In such accounts, automatic transfer of the interest to time deposits or money trust obtained from government bonds enjoys compound interest.

Parallel with the movements in the liberalization of deposit interest rates depicted above, prime lending rates, which are currently based on the official discount rate of the Bank of Japan, will soon be based on open market interest rates, and lending rates as a whole will also become more flexible.

#### B. Revision of Regulations on Financial Business

As we have already noted, banks started dealing in government bonds in June 1984. On the other hand, securities companies have begun to participate in the payment system. Short-term investment trusts called "medium-term government bond funds", which bear interest rates higher than those of six-month time deposits, and which are drawable one month after depositing, started in 1980. Furthermore, the "cash management services" scheme, which ties together demand deposits of banks and "medium-term government bond funds" together has been introduced. In addition, securities companies have started overdraft facilities with deposited government bonds as collateral, and they are planning to transfer such funds to those "cash management accounts". These are innovations to circumvent regulations concerning the separation of banking and securities operations.

At the same time, there is an urgent need to revise the regulations defining banking and trust operations. The regulations concerning entry into the trust business will become increasingly unfair and inefficient as the population ages and the size of pension funds and insurance programs grow.

7. As the Post Office (a public financial intermediary) handles personal saving accounts of less than 3 million yen, the liberalization of interest rates on deposits below 3 million yen in private financial intermediaries will not occur until interest rates offered by both private and public financial intermediaries can be simultaneously determined.

The idea that short-term finance and long-term finance should be separated with the former serviced by ordinary deposit banks and the latter by long-term credit banks and trust banks is also dated. As interest rates on both the fund raising instruments and loans of financial institutions are increasingly based on open market interest rates, and are thus becoming more variable, the demand for and the supply of long-term fixed interest rate financial assets will decline because economic agents will try to avoid the risk associated with interest rate changes. As a result, institutions specializing in long-term finance will also involve themselves in long-term assets with floating interest rates, and the separation of short-term from long-term finance will gradually lose meaning.

### C. Influences of Financial Internationalization

Since Japanese financial institutions operate under the same condition as residents in foreign countries where financial regulation is less stringent, foreign financial institutions tend to demand the same degree of freedom in the Japanese market. Although Japan will not accept such "reciprocal" demands unconditionally, and will certainly reject those demands that are incompatible with the financial system, such pressure from abroad will at least help to promote deregulation in Japan.

## 2. Effectiveness of Monetary Policy in the Future

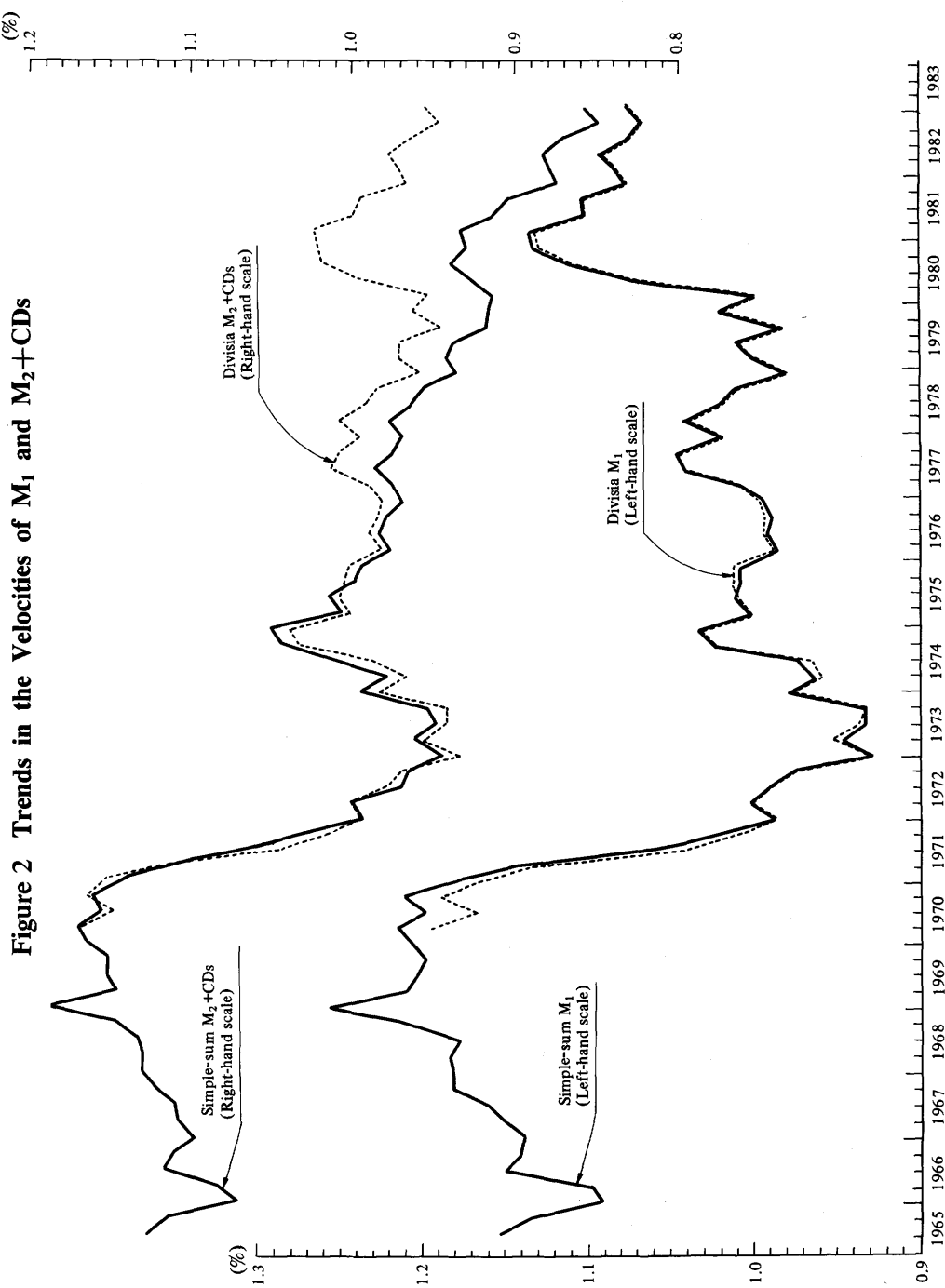
The abolition or relaxation of the regulations on interest rates and financial business have affected and will continue to affect the Central Bank's intermediate targets and the transmission channels of monetary policy in Japan in the following ways:

### A. Structural Shifts in Money Velocity and Money Demand

In view of the changes in the channels of transmission described in Section III.2.A, the Bank of Japan has emphasized the money stock as an intermediate target of monetary policy. However, the velocities of money and near-moneys, and the demand functions relating the money stock and nominal GNP have shown the following structural shifts.

a. As shown in Figure 2, the velocity of  $M_1$  had been declining until 1973, then remained somewhat stable until 1980, following an upward trend thereafter. This trend resulted from the economization of cash currency and demand deposits, made possible by financial innovations such as credit cards, payment of salary through bank remittance, automatic transfer of taxes and charges, installation of CDs (cash dispensers) and ATMs (automatic tellers machines), and the introduction of "deposit com-





bined accounts”\* and cash management services.

- \* A “deposit combined account” is a demand deposit account with overdraft facilities secured against time deposits or loan trust as collateral. This promotes the economization of demand deposit balances.

b. Again in Figure 2, the velocity of  $M_2$ +CDs has been declining until recently. But Divisia  $M_2$ +CDs stopped declining in 1973 and has remained fairly stable thereafter. Here, “Divisia”  $M_2$ +CDs is compiled as a weighted average of the components of  $M_2$ +CDs, using their corresponding degrees of moneyiness as weights.<sup>8</sup> The above observation suggests that within  $M_2$ +CDs, the share of components whose interest rates are high and responsive to variations in open market interest rates, and whose transactions character is limited, has been increasing.

c. Table 5 shows the results of estimating separate money demand functions for the period up to the 1st quarter of 1977, when open markets had remained underdeveloped, and for the subsequent period since the 2nd quarter of 1977, when these markets began to develop. The short-run income elasticity of demand for  $M_1$  and the short- and long-run interest elasticity of demand for  $M_2$ +CDs and  $M_3$ +CDs declined after 1977.<sup>9</sup> The reasons behind such changes are similar to those behind the shifts in the velocities. Thus, in the case of  $M_1$ , this resulted from the economization of cash currency and demand deposits as financial innovation progressed. In the case of  $M_2$ +CDs, it was due to the increasing share of components whose yields were sensitive to open market interest rates.

d. The results of estimating the money demand functions using Divisia monetary aggregates are also shown in Table 5. In comparison with the functions based on simple-sum monetary aggregates, the parameters of the income terms are more significant, the long-run income elasticity comes closer to 1, and the fits are somewhat improved.<sup>10</sup> In other words, despite financial innovation, the relationship between Divisia money stock and nominal GNP seems to be relatively stable.

We have observed above that, with financial innovation advancing, the velocities of money and the money demand functions have shown structural shifts. How-

8. For a discussion of “the Divisia monetary aggregates” in Japan, see Ishida (1984) and Suzuki (1984).
9. For a detailed observation of the structural shifts in the money demand functions, see Ishida (1984) and Suzuki (1984).
10. For a detailed comparison between the demand functions for Divisia money and simple-sum money, see Ishida (1984) and Suzuki (1984).

Table 5 Results of Estimating the Divisia and Simple-sum Money Demand Function

	Dependent Variable	Explanatory Variables					R <sup>2</sup> (S.E.)	D.W. (ρ)	Long-run GNP Elasticity	Long-run Interest rate Elasticity
		CONSTANT	LAG (-1)	GNP	R	r				
'70/IV '77/I	Simple-sum. M <sub>1</sub>	0.2675 ( 4.3021)	0.7663 ( 9.0995)	0.2635 ( 1.8853)	-0.1191 (-4.2048)		0.9726 ( 0.0366)	1.8797 ( 0.0732)	1.128	-0.510
	Simple-sum. M <sub>2</sub> + CDs	0.2274 ( 5.0714)	0.7489 (10.211 )	0.3008 ( 2.5332)	-0.1682 (-5.5825)	0.0816 ( 2.0384)	0.9989 ( 0.0111)	1.8667 ( 0.1420)	1.198	0.607
	Simple-sum. M <sub>3</sub> + CDs	0.3676 ( 3.8064)	0.6332 ( 4.8368)	0.5729 ( 2.5664)	-0.2496 (-2.5792)	0.0918 ( 1.5618)	0.9860 ( 0.0115)	2.1460 ( 0.3578)	1.562	-0.680
'77/II '83/I	Simple-sum. M <sub>1</sub>	0.1871 ( 4.9824)	0.9497 (11.066)	0.1308 ( 1.9956)	-0.0971 (-4.7928)		0.9581 ( 0.0196)	2.1634 (-0.5615)	2.600	-1.930
	Simple-sum. M <sub>2</sub> + CDs	0.0243 ( 2.3118)	0.7836 ( 8.4164)	0.3680 ( 2.5301)	-0.0001 (-0.0487)	-0.0067 (-1.6034)	0.9978 ( 0.0080)	2.1094 (-0.3140)	1.701	0.001
	Simple-sum. M <sub>3</sub> + CDs	0.0576 ( 5.1716)	0.8742 (15.558 )	0.2665 ( 2.5578)	-0.0491 (-4.8852)	0.0230 ( 2.7130)	0.9993 ( 0.0057)	2.2940 (-0.5243)	2.118	-0.390
'70/IV '83/I	Divisia M <sub>1</sub>	0.1620 ( 4.7718)	0.8359 (17.661 )	0.1052 ( 2.1542)	-0.0702 (-4.5884)		0.9874 ( 0.0207)	2.0001 (-0.1910)	0.641	-0.428
	Simple-sum. M <sub>1</sub>	0.1709 ( 4.6724)	0.8250 (16.813 )	0.1051 ( 2.1711)	-0.0748 (-4.5210)		0.9833 ( 0.0213)	1.9859 (-0.1223)	0.600	-0.427
	Divisia M <sub>2</sub> + CDs	0.1356 ( 4.4676)	0.7855 (12.219 )	0.2247 ( 2.8275)	-0.0822 (-2.7311)	0.0284 ( 0.8626)	0.9929 ( 0.0148)	2.0031 ( 0.0912)	1.048	-0.383
	Simple-sum. M <sub>2</sub> + CDs	0.1244 ( 3.5127)	0.8171 (10.174 )	0.2244 ( 2.0010)	-0.0830 (-2.9384)	0.0372 ( 1.1729)	0.9908 ( 0.0126)	2.1867 ( 0.4122)	1.216	-0.453
	Divisia M <sub>3</sub> + CDs	0.1233 ( 4.0888)	0.7819 (10.453 )	0.2627 ( 2.5128)	-0.0347 (-1.2233)	-0.0187 (-0.8669)	0.9949 ( 0.0137)	2.0043 ( 0.1178)	1.204	-0.159
	Simple-sum. M <sub>3</sub> + CDs	0.1170 ( 3.4478)	0.8626 (10.261 )	0.2015 ( 1.4188)	-0.0265 (-0.9133)	-0.0208 (-0.9168)	0.9942 ( 0.0113)	2.2242 ( 0.4566)	1.467	-0.193

Note: The money demand functions are estimated in the form:  $\log(M/P) = \alpha_0 + \alpha_1 \log(M/P)_{-1} + \alpha_2 \log(GNP/P) + \alpha_3 \log R + \alpha_4 \log r$

where M: Divisia or simple-sum M<sub>1</sub>, M<sub>2</sub> + CD and M<sub>3</sub> + CD  
GNP: Nominal GNP

P: GNP deflator

R: Benchmark rate, that is, interest rate on the substitute of money. Instead of the commonly used call rate, Gensaki rate, or yield on interest-bearing Telegram and Telephone Bond (Dendensai), the benchmark rate used in compiling the Divisia index is adopted here in conformity with the theory of Divisia aggregates. For the sake of convenience, it is taken as the average of the firms' benchmark rate R<sup>f</sup> and the households' benchmark rate R<sup>h</sup>. (See Ishida (1984))

r: "own rate," that is, the interest rate on money. For M<sub>1</sub>, it is taken to be 0 (excluded from the estimated equation) and for M<sub>2</sub> and M<sub>3</sub>, it is taken as the interest rates on time deposits and fixed amount postal savings respectively.

ever, in the case of Japan, such structural shifts were not so drastic and unpredictable as to obscure the optimal quantity of money consistent with the appropriate aggregate demand. Specifically, structural shifts in the income elasticity did not greatly alter our estimates of the optimal quantity of  $M_2$ +CDs, the principal indicator used by the Bank of Japan. Whether Divisia  $M_2$ +CDs is useful in determining the optimal quantity of money deserves further study in the future.

#### B. Changes in the Transmission Channels of Policy Effects

Nonetheless, the fact that the interest elasticity has declined in the  $M_2$ +CDs demand function suggests that the transmission channels of monetary policy have been changing. The effect of changing inter-bank interest rates on bank lending, described in Section II.2.B as a traditional channel, depends on the stickiness of the lending rates. The rise of financial dis-intermediation, noted in Section III.2.B.a. as a new channel, also depends on the rigidity of interest rates on deposits, bank debentures, money trusts and loan trusts. As interest rate regulation is relaxed, allowing lending rates and yields on near-moneys to move flexibly in line with the open market interest rates, these channels will probably decline in importance.

On the other hand, the interest rate effect on spending described in Section III.2.B.b. will become more important. This is because, as interest rates on loans, deposits, bank debentures, money trust and loan trust etc. become as flexible as open market interest rates, both the opportunity costs for the fund surplus sector and the financial costs for the fund deficit sector with respect to spending will also become more flexible. Since the interest rate elasticity of spending in Japan is high, the effectiveness of monetary policy as a whole will be maintained.<sup>11</sup>

The fact that the effectiveness of monetary policy is becoming more and more dependent on the interest rate effect rather than the changes in the volume of bank lending or the money stock suggests the following changes. First, the time lags between changes in the volume of bank lending or money stock and the changes in nominal GNP that follow them will shorten. Gradually they will come to fluctuate simultaneously. Second, as diversification takes place in the channels of raising and using funds, and as the mobility of capital between domestic and foreign markets increases, selective financial control of specific sectors will become more difficult. The effectiveness of window guidance will decline. However, so long as yen-denominated monetary base as a whole is properly controlled, the effectiveness of monetary policy through interest rates will remain. Two factors that may harm the effectiveness of monetary policy in the future deserve further discussion. The first

11. For a detailed discussion of the relationship between interest rate liberalization and the effectiveness of monetary policy, see Suzuki (1983).

one is the settlement of domestic transactions among residents using foreign currencies (perfect currency substitution) and the second one is the accumulation of yen-denominated assets by non-residents which disturbs the yen-denominated monetary aggregates held by residents. The former is forbidden by the Foreign Exchange Law. In order to avoid the latter case, it is not desirable to pursue policies that promote the excessive development of the Euro-yen market. Basically, however, so long as control of yen base money by the Bank of Japan remains firm, yen-denominated monetary aggregates held by residents will be controlled, though perhaps with some time-lags caused by Euro-yen flows.

## REFERENCES

- [1] Ishida, K., "Divisia Monetary Aggregates", Bank of Japan, *Monetary and Economic Studies*, Vol.2, No.1, June 1984.
- [2] Suzuki, Y., "*Monetary and Banking in Contemporary Japan*", Yale University Press, 1980.
- [3] ———, (1983a) "Interest Rate Decontrol, Financial Innovation, and Effectiveness of Monetary Policy", Bank of Japan, *Monetary and Economic Studies*, Vol.1, No.1, June 1983.
- [4] ———, (1983b) "Changes in Financial Asset Selection and the Development of Financial Markets in Japan", Bank of Japan, *Monetary and Economic Studies*, Vol.1, No.2, October 1983.
- [5] ———, "Financial Innovation and Monetary Policy in Japan", Bank of Japan, *Monetary and Economic Studies* Vol.2, No.1, June 1984 and in "*Financial Innovation and Monetary Policy*", Bank for International Settlements, March 1984.
- [6] Yasuda, T., (1982a) "A Theoretical Interpretation of the Window Guidance: A Game Theoretic Interpretation", Bank of Japan, *Discussion Paper Series* No. 4, 1982.
- [7] ———, (1982b) "Supply of Legal Reserves and the Short-Term Money Market Rates", Bank of Japan, *Discussion Paper Series* No. 6, 1982.