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FINANCIAL INTERMEDIATION IN JAPAN

by

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I. Introduction

This paper presents some preliminary ideas and data on the role of financial intermediation in postwar economic growth in Japan. The approach here is essentially empirical: to present past aggregate flows and to determine, or at least to hypothesize about, some of the important behavioral and institutional relationships of the Japanese financial system. My presumption is that Japanese financial intermediaries have in fact participated importantly in attracting savings, in facilitating private business fixed investment, and in allocating among alternative investment uses.

There are two general approaches to the appraisal of a financial system: micro-analysis of individual financial institution units, extending to homogeneous groups of financial institutions (such as the theory of commercial bank behavior, and of the banking system); and macro-analysis of the system as a whole. To understand the relationship between real and financial variables for the process of economic growth both methods are desirable; research should proceed interactively at both macro and micro levels, each moving toward the other. The approach here

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is essentially aggregative--an appraisal of the entire financial system--though to some extent various categories of financial institutions and financial instruments are treated.

II. Alternative Sources for Financing Investment

We must admit frankly that our theoretical tools for empirical analysis of the dynamic process of economic growth in real world economies are still weak. When we consider the implications of external economies and diseconomies, input-output relationships, public goods, and of not-well-specified possibilities of technological change, it becomes more difficult to determine in much detail what constitute efficient or inefficient investment allocations for growth, and to appraise the efficacy of actual allocations in a given historical experience of a country's growth. Nonetheless, some sorts of broad conclusions can emerge. These difficulties are magnified when the relationship between finance and growth is analyzed; here too our theoretical tools for empirical application are still weak, despite recent advances in the theory of portfolio selection by Tobin and others, and in the theory of financial structures by Gurley and Shaw, and Goldsmith. That literature, and the emphasis here as well, focuses on the impact of finance on saving and investment, excluding other possible impacts on growth-causing forces.

The first step in evaluating the role of financial intermediation is to appraise how important it actually is relative to the alternative means of financing investment. The various mechanisms include: private

self-finance from saving; government taxation and saving to finance government or private investment; the market-oriented financial technique of assets and debts based on, and encouraging, the separation of saving (and wealth) and investment (and the management of wealth); and reliance on foreign sources. Each device has its own merits and defects; frequently all are used simultaneously, intermingling real and financial assets and claims; empirically it is difficult to determine social trade-offs among them.

Self-finance without supplement by external borrowing or lending is inefficient: it unduly restricts the investment of efficient entrepreneurs; the pattern of investment is almost certainly less than optimal; the incentive to save for the wide range of savers with limited investment opportunities is reduced, outweighing probably the increased saving incentive for those who want to invest more. Saving through government taxation (or de facto taxation by inflation), because of its involuntary, non-market nature, may have political limits in a democratic society, as well as disincentive effects on private saving. Foreign borrowing can be an important supplementary source, particularly for an economy suffering a balance of payments constraint on growth, but may also have high political costs. The financial intermediation mechanism may have defects too: markets may be imperfect; financiers may be unduly conservative, willing to take less risk than socially desirable, or allocating to socially non-optimal projects.

Any spending unit (defined as a purchaser of real goods and services) can have four activities: saver, investor, lender, borrower. On a gross

basis spending units frequently engage in all four. On a net basis, however, they are only net savers or net investors, i.e., surplus or deficit spending units. The net lending-borrowing activity, while in one sense a mirror image of the net saving-investing activity, is not that alone because spending units usually have independent reasons for wanting financial flows as well as real flows--i.e., to increase financial assets as well as real capital.

In macro-analysis we face the dilemma between the need to aggregate and the loss of information as inter-unit transactions cancel out in the process of consolidation. This has been a problem for finance both in theory and practice. Frequently macro-analysis at the most aggregative level forgets finance altogether, simply equating ex post (and sometimes ex ante) saving and investment, ignoring the alchemy by which the one is transmuted into the other. This difficulty can be met in part by combination rather than consolidation, by not netting our inter-unit or inter-sectoral flows. A practical problem is that one must work with available data, relying frequently upon the aggregated estimates provided by official and other sources.

The estimation procedure in this essay is to aggregate domestic spending units into three sectors, government, private corporate business, and the personal sector.¹ In addition there is a domestic financial sector (which for our aggregative purposes is not defined as a spending unit). The rest-of-the-world sector enters the financial data only. This sectoring is determined essentially by the limitations of Japan's national

¹A more detailed discussion of estimation methods and sources appears in the appendix on data.

accounts and flow of funds data. The government sector includes central and local government and government corporations; it excludes government financial institutions, which are included in the financial sector. Given the degree of centralization of government decision-making in Japan it is not unreasonable to regard the government sector as relative homogeneous. The corporate sector is somewhat less so; the most important heterogeneity, in terms of finance, is the differential access to the financial system of large and small firms, or firms of different degrees of risk. Unsatisfyingly heterogeneous is the personal sector, including as it does farmers, other unincorporated enterprises, wage-earners, capital-share recipients, and self-employed professionals--each presumably with somewhat different saving, investment, wealth, and portfolio composition goals and differential borrowing access to the financial system. Under present data collection methods it is difficult to divide this sector further, particularly on the financial side.

The three spending sectors do all the saving and investing in the domestic economy. As is discussed below, they utilize to one degree or another all the mechanisms for financing their investment. They need funds not just to finance their own investment, but also to maintain or enhance their own liquidity (relative to real capital), and to support the expenditures of other spending units. To obtain funds they issue primary claims--i.e., borrow by stock or bond issue, loans, etc.² All their liabilities (excluding retained earnings and earnings-related reserves) are in principle their primary liabilities, held as primary assets by other spending

²I use the standard Gurley-Shaw terminology in referring to primary and indirect claims.

units and by the financial system. The financial sector's liabilities (money, time deposits, insurance, etc.) are entirely classified as indirect claims, including their stock issue. Thus, though both the financial sector and the spending sectors can hold both primary and indirect assets, only the financial sector can issue indirect liabilities and only the spending sectors can issue primary liabilities. The rest-of-the-world sector's assets and liabilities, in relation to Japan, are regarded by convention as primary securities (the sole exception to the rule that the financial sector cannot create primary liabilities).

Table 1 provides data on the relative importance of alternative sources of the financing of investment for the three spending sectors for the period 1954-1967. It is a sources and uses flow accounting. Annual savings and investment flows have been cumulated, and the net change in financial assets and liabilities outstanding between December 31, 1953 and December 31, 1967 estimated. (This understates the effect of finance because the issuance of primary and indirect claims is net of retirement of such claims during the period). Indirect claims are, slightly underestimated because intrafinancial sector claims are somewhat netted out in available flow of funds data. A number of conclusions, many well known, are supported by the data.

First, the total increase in primary debt between 1954-1967 equalled the cumulated gross investment for the period. This is a high ratio as compared with other countries.³ Similarly in stock terms Japan has a high

³For international comparisons see Raymond W. Goldsmith, The Determinants of Financial Structure (Paris: Development Centre, OECD, 1966), and his Financial Structure and Development (New Haven: Yale University Press, 1969). That the ratio in Japan is almost unity is a curious coincidence, for which I have no explanation.

Table 1

SOURCES AND USES OF FUNDS BY SPENDING SECTOR, 1954-1967
(billion yen)

<u>Sources of Funds (Liabilities)</u>		<u>Corporate Sector</u>	<u>Personal Sector</u>	<u>Government Sector</u>	<u>Financial Sector</u>	<u>Total Domestic Economy</u>
(S)	Internal-Gross Domestic Saving	32,589.1	42,342.0	21,232.8	-	96,163.9
	Net Saving	12,117.2	32,611.5	18,550.1	-	63,278.8
	Capital Consumption Allowances	20,471.9	9,730.5	2,682.7	-	32,885.1
(P ₁)	External-total	67,546.3	15,941.2	10,228.6	67,505.7	161,221.8
	Primary Security Issue	67,546.3	15,941.2	10,228.6	1,556.3	95,272.4
	Stock Issue	6,698.3	0	0	-	6,698.3
	Bond Issue	2,069.4	0	6,502.8	-	8,572.2
	Loans-domestic	33,663.7	9,446.0	3,373.2	-	46,482.9
	Loans-foreign	2,021.6	0	191.3	1,556.3	3,769.2
	Trade Credit	22,599.1	6,409.9	0	-	29,009.0
	Other	494.2	85.3	161.3	-	740.8
	Indirect Security Issue	0	0	0	65,943.4	65,949.4
Total		100,135.4	58,283.2	31,461.4	67,505.7	257,385.7
<u>Uses of Funds (Assets)</u>						
(I)	Gross Domestic Investment	48,925.6	20,258.6	26,004.1	-	95,188.3
	Fixed	40,435.2	19,359.6	25,071.4	-	84,866.2
	Plant and Equipment	38,793.1	7,513.8	23,802.3	-	70,109.2
	Housing	1,642.1	11,845.8	1,269.1	-	14,757.0
	Inventories	8,490.4	899.0	932.7	-	10,322.1
	Financial-total	50,099.2	38,857.3	4,465.3	67,442.4	160,864.2
(P _a)	Primary Claims	32,415.5	4,006.7	723.0	57,769.6	94,914.8
	Stock	1,638.8	2,698.9	100.5	2,260.1	6,698.3
	Bonds	534.2	854.9	61.8	7,121.3	8,572.2
	Trade Credit	29,009.0	0	0	0	29,009.0
	Loans-domestic	0	0	0	46,482.9	46,482.9
	Loans-foreign	1,131.0	0	366.4	1,914.2	3,411.6
	Other	102.5	452.9	194.3	-8.9	740.8

Note: Primary assets differ from primary liabilities by the difference in foreign loans, since the rest-of-the-world sector is excluded; similarly saving differs from investment, due also to statistical discrepancies in estimation.

Source: See Appendix on Data.

Table 1 (continued)

	Corporate Sector	Personal Sector	Government Sector	Financial Sector	Total Domestic Economy
(F) Indirect Claims	17,683.7	34,850.6	3,742.3	9,672.8	65,949.4
Money	5,925.8	6,777.5	336.6	525.0	13,564.9
Time and Saving Deposits	8,417.6	17,411.2	479.6	212.2	26,520.6
Trust	736.2	2,237.3	28.1	143.8	3,145.4
Insurance	0	4,975.3	0	0	4,975.3
Bank Bonds	271.2	1,294.3	0	2,269.4	3,834.9
Securities Investment Trust	17.8	795.8	0	51.3	864.9
Stock and Equity in					
Financial Institutions	339.9	444.0	316.6	0	1,100.5
Other	1,975.2	915.2	2,581.4	6,471.1	11,942.9
Total	99,024.8	59,115.9	30,469.4	67,442.4	256,052.5
Discrepancy: Sources-Uses	1,110.6	-832.7	992.0	63.3	1,333.2

ratio of primary securities to real national wealth. The financial interrelations ratio (the ratio of all financial assets--both primary and indirect securities--to real national wealth) is also very large, at a level shared only by England (a legacy of its government war debt) and Switzerland (as international financial intermediary). About 70 percent of the increase in Japanese primary debt was issued by corporate business, and only slightly over 10 percent by the government sector.

Second, the foreign sector has been unimportant either as a source of financing of domestic investment or as a use of domestic saving. The small influence of foreign financing is true for each of the spending sectors, and for the financial sector too. This is not inconsistent with the view that foreign borrowing has been important for Japan's postwar growth by easing the balance of payments constraint, or significant for certain firms or industries.

Third, the taxation method of accumulating saving has been of some importance, accounting for almost one-fifth of gross saving and almost one-third of net saving. While substantial, these ratios are not unusual; for example, they are higher in France and West Germany. The presumption is that government saving has been used virtually entirely to finance government investment--in large part directly but to some extent also by the transfer of government sector saving to government financial institutions to be lent to government sector institutions. Typically the central government saves enough to finance more than its own investment, transferring the remainder by a bewildering variety of routes to finance (part of) the excess investment of local governments and public corporations. Thus the

taxation mechanism has financed about four-fifths of government sector investment, but none of the economy's private investment. Rather government financial institutions (part of the financial sector) issued indirect liabilities (mostly postal savings deposits and life insurance) to private spending sectors, and lent to all three spending sectors.

Fourth, self-finance by capital consumption allowances has been substantial, amounting to one-third of gross investment (and gross saving) for the economy as a whole and to more than 40 percent of the corporate sector's gross investment. As in the United States and West Germany, Japanese corporate depreciation is almost double its net saving by retaining profits. Though capital consumption allowances were about the same proportion of GNP in the early 1950's as in the United States, the ratio in Japan has subsequently increased substantially (from 7.0 percent of GNP in 1952 to 12.8 percent in 1967). While Japan's depreciation laws are somewhat more lenient than in the United States, the main reason for the increase in the ratio has been the continuing surge of private fixed investment.

Fifth, trade credit has been large--30 percent of total primary security liabilities and 33 percent of corporate sector borrowing. Significantly, the increase in trade credit was more than 2 1/2 times as great as corporate investment in inventories (and a substantially larger multiple in the case of the personal sector, mainly for unincorporated business). Trade credit has been used in Japan not simply to finance inventories, but also for fixed investment and the increase in financial assets.

While foreign financing can be dismissed as unimportant and financing by taxation, while not trivial, relegated to the government sector, it is

much more difficult to determine the relative importance of self-finance and of financial intermediation. For the economy as a whole saving necessarily equals investment,⁴ which tends to obliterate the real importance of financial intermediation. On the other hand, Japan has had a very large increase in spending unit primary liabilities. As a first approximation, the range within which a sector's investment has been financed internally or externally can be estimated by making the following two hypotheses which determine the upper and lower limits: savings are used entirely for self-finance of investment, and any excess in investment and increase in financial assets is financed by borrowing (issuance of primary liabilities) or, savings are used first to **reduce** primary liabilities and to increase financial assets, while investment is financed out of new borrowing (issuance of primary liabilities). Symbolically, the upper limit on self-finance is $\frac{S_i}{I_i}$, and the corresponding lower limit on external finance is $1 - \frac{S_i}{I_i}$; the lower limit on self-finance is $1 - \frac{Pl_i}{I_i}$ and the upper limit on external finance is $\frac{Pl_i}{I_i}$, where

I_i = investment of spending sector i

S_i = saving of spending sector i

P_{li} = issuance of primary debt of spending sector i

P_{ai} = holding of primary assets of spending sector i

F_i = holding of indirect assets of spending sector i

and by definition $S_i + P_{li} = I_i + P_{ai} + F_i$.

⁴Plus net foreign investment (small for Japan) and statistical discrepancy (also small, ¥979.0 billion cumulatively for 1954-1967).

These maximum and minimum limits of external financing of investment by sector are given in Table 2.

Table 2
Maximum and Minimum Limits of the External
Financing of Investment, 1954-1967
(in percent)

	Gross Investment		Net Investment	
	Maximum	Minimum	Maximum	Minimum
Corporate	138.0	33.3	236.0	57.6
Personal	78.3	-108.4	151.4	-126.4
Government	39.2	18.5	43.9	20.4
National Economy	100.1	-1.1	153.0	-1.6

Any value greater than 100 indicates borrowing (primary security issue) greater than investment; any negative value indicates saving greater than corresponding investment. For example, at a minimum one-third of corporate sector gross investment was financed externally, and at a maximum it all was, while in addition financial assets were increased (by 38 percent of gross investment) by borrowing. The upper and lower limits are at a lower level for the government sector than in some other countries, but considerably higher for the corporate sector.

Another measure of the degree of reliance upon external finance for the economy as a whole is the ratio of the sum of the cumulation of the absolute value of the annual saving-investment gap by sector to twice the cumulated total investment, e.g., $\frac{\sum_t \sum_i |(I_i - S_i)|}{2\sum I}$.⁵ The corporate

⁵ If all investment were self-finance, $I_i - S_i = 0$, then the ratio would be 0; if all investment were externally financed, the ratio would be 1.

sector consistently invested more than it saved between 1954-1967, the personal sector consistently saved more, while the government sector usually, but not always, invested more than it saved. The ratio is 23.1 percent. This is a minimum estimate of the economy's degree of reliance on external finance because it is based on the assumption that all saving in a sector is used for self-finance by individual spending units. This assumption may be reasonable for the government sector, (which I regard as a single, homogeneous, decision-making unit), though of course central government does finance local government and government corporations. But in the corporate and personal sectors there occurs both direct intra-sectoral lending by surplus to deficit units (such as trade credit, stock purchase of related firms, or individuals lending to unincorporated enterprises or to relatives to finance housing investment); and inter-sectoral lending, either direct (trade credit) or through the financial system (some individuals depositing at banks, others borrowing from the banks). In other words, even within a surplus (deficit) spending sector there are likely to be individual deficit (surplus) spending units. Further sectoral disaggregation would result in a higher estimate of the minimum share of external financing of investment.

In practice it is unlikely that any spending units behave according to either of the extreme hypotheses underlying Table 2. (I suspect that they think more in terms of first using saving, rather than primary debt issue, to finance investment, while recognizing that internal sources are completely inadequate to finance desired expansion). Firms and individuals desire to increase both their real capital stock and their portfolio of financial assets, and to do so are willing both to save and to borrow. The

problem is to determine whether there are stable behavioral patterns which determine choices among these alternatives, to specify them, and to measure them; however, that task is beyond the scope of this paper.

The degree of reliance upon, of utilization of, financial intermediation depends both upon the preferences of spending units and the availability of finance. The external financing of a deficit spending unit by a surplus spending unit can occur in three ways: direct borrowing (issuance of primary securities) by deficit to surplus units without any intermediary; sale of new primary security issue, notably stocks and bonds, to spending units through financial markets, involving intermediation but no creation of indirect claims; and investors borrowing from (issuing primary securities to) financial institutions, which make payment in their indirect liabilities either directly or by exchanging those liabilities for the cash of surplus spending units.

Of the total increase in primary claims the financial sector absorbed almost two-thirds, and the corporate sector slightly more than a third, while the personal and government sectors purchased only small proportions. As already noted trade credit looms large in the total issuance of primary claims and constitutes 90 percent of corporate sector primary assets. For individual firms its importance as a source of working capital often exceeds that of financial institution loans; in order to compete in sales no firm could dispense with trade receivables. The financial system's increase in primary assets has been predominantly in loans (80 percent) another 12 percent was in corporate and government sector bonds.

Let us examine the alternative means of external finance. First,

the primary claims issues transferred directly from the issuing spending unit to a financing spending unit, without recourse to financial intermediation, are the following: trade credit, corporate and government sector holding of stocks and equity other than stocks (assumed to be in affiliated and subsidiary companies), corporate and personal sector holding of public corporation bonds (such as purchase of Telephone and Telegraph and Japan National Railway bonds by users), and government sector holding of government sector bonds. The direct financing share of total primary security issue between 1954-1967 was 33.7 percent, almost all in the form of trade credit.

Second, the share of primary security financing through purchase in financial markets (stocks and bonds) by spending units was small, only 3.3 percent. Almost all (87 percent) of this was in purchase of new stock issue.⁶ The complete unimportance of organized capital markets as a mechanism whereby some spending units rather directly financed others is somewhat surprising even though the small reliance on stock and bond issue is well known. Overall, stock and bond issue comprised only 16.1 percent of primary security issue. Of this, 2.8 percentage points was directly placed, 3.3 percentage points sold to other spending units through the capital markets, and 10.0 percentage points purchased by financial intermediaries (not always willingly). The generally unattractive pegged yields on new bond issues have restricted demand. The system of issuance of stocks at par rather than market, corporate tax advantages for interest relative to dividend payments, and corporate policy of fairly high dividend rates

⁶ As noted in the appendix, stock is valued at issue price rather than subsequent market price because this represents the funds issuing corporations received and buyers paid.

relative to par, all restrict the supply of new stock issue.

Third, external finance by financial intermediaries has been of dominant importance; they provided 63 percent of all the external funds obtained (net primary securities issued) by spending units between 1954 and 1967. Financial institutions financed these asset holdings by issuing their own indirect liabilities to spending units (and themselves). About one-fifth of the increase in financial system liabilities consisted of money, and another two-fifths of time and savings deposits; insurance, 7.6 percent of the total increase, was in third place. Layering (the proportion of total indirect claims held by financial institutions themselves) amounted to 14.6 percent.⁷ The main components of layering have been private financial institution purchase of long-term credit bank bonds, Government Trust Fund Bureau loans to government banks, Bank of Japan loans to commercial banks, and call loans.

III. Characteristics of the Japanese Financial System

This description of the relative importance of financial intermediation in postwar Japan has concentrated mainly on a quantitative delimitation of the alternative sources of financing investment, and particularly on the importance of external finance and financial intermediation. We need to consider also the role of external finance from the viewpoints of the three spending sectors. Before turning to that--and then only in a preliminary way--it is desirable to appraise, or at least to suggest hypotheses

⁷ Layering and total indirect security issue are slightly understated because certain transactions among financial institutions--notably between agricultural and other credit cooperatives and their prefectural and national institutions--have been netted out in the flow of funds data.

about, the characteristics of Japan's financial system.

The most important feature of Japan's financial system is that most of its components are in disequilibrium most of the time; it is a disequilibrium system. By this I do not mean simply that the dynamics of rapid growth, and the considerable cyclical fluctuations in growth, sharply and repeatedly alter the desired optimal portfolios of real and financial wealth so that the system is never in static or dynamic equilibrium, though this is true. Rather, a structure of interest rates has been imposed by the monetary authorities (including the government), and on the whole supported by oligopolistic financial institutions, which results in demand for credit in various forms greater than supply. Financial institutions cannot borrow as much as they want at given interest rates from (surplus) spending units; investors (deficit spending units) cannot borrow as much as they want from financial intermediaries. Since the price mechanism does not clear most Japanese financial markets,⁸ the system relies importantly on credit rationing; for many types of financial claims it is availability rather than the interest rate which determines the allocation of credit. This situation results from the fact that in Japan's rapid-growth economy ex ante investment has tended to be greater than ex ante saving. While availability (credit rationing) dominates interest rates as the mechanism for financial allocation more in Japan than in other countries, I suspect that in the actual dynamics of rapid growth in many countries--developed

⁸ A number of grey market practices, such as under-the-table additional interest payments on large time deposits, have naturally developed but they are not sufficiently large to achieve equilibrium in most financial markets. See H.T. Patrick, "Interest Rates and the Grey Financial Market in Japan," Pacific Affairs, Winter 1965-66.

and underdeveloped--credit availability rather than cost is considerably more important than usually recognized.

The relative importance of rationing versus market (flexible interest rate) mechanisms of determining the flow of financial claims varies considerably by type of security. The interest rate on virtually all indirect securities is fixed; financial institutions scarcely use price competition at all in trying to attract asset holders to hold their liabilities. In other words there is no flexibility in price competition; what price competition exists comes from differences in maximum rates by maturity or type.

The maximum interest rates on bank and postal short-term, time and savings deposits and trust deposits are relatively low and almost completely unchanging; they have been the actual rates. Even financial institution stock, the price of which is market-determined, has been constrained by restrictions on dividend pay-out rates. The only indirect claim which has had its yield determined primarily by market forces is call money. Even it is not fully market-determined since the Bank of Japan directly if informally influences movements in the rate in tight money periods, notably in 1967-68. Moreover, entry into the market, either as lender or borrower, is restricted to financial institutions.

Primary security issues on the whole are influenced somewhat more by interest rates and market forces, but far less so than in most other industrial countries. Stock prices are fully market-determined,⁹ but as

⁹Though there may be imperfect knowledge, manipulation, high transactions costs, and other practices which make the market imperfect.

noted the historical institutional convention of issuing at par rather than market and differential tax treatment of interest and dividend payments make stock issue a relatively expensive source of corporate funds. The demand and supply of foreign loans are equilibrated in foreign markets; however, the Japanese government restricts private and government entry both as demanders and suppliers.

The most important market sources of spending unit external funds are loans from private and government institutions. Government loans are typically at uncompetitively low rates in order to encourage certain specified activities; demand far exceeds supply so that credit rationing is fully operative. Government loans comprised 16.5 percent of the total net increase in loans between 1954 and 1967; of these 39 percent went to the government sector, 43 percent to corporate business, and 18 percent to the personal sector.

Some market-determined flexibility in effective interest rates exists for private loans, but not sufficient to equilibrate demand with supply completely except perhaps in very easy money periods. Maximum legal interest rates on loans determine de facto nominal rates which are maintained by cartel arrangements through bank national associations. These rates move in small amounts with changes in the Bank of Japan discount rate, insufficient to provide much flexibility in nominal rates. Effective interest rates on loans are somewhat more flexible because of the widespread use of required compensatory deposits (kosoku yokin, including

buzumi and ryodate).¹⁰ This enables banks both to raise effective rates and, more important, to discriminate among borrowers of different risk classes by effective interest rate differentials rather than simply by credit rationing. This function of kosoku yokin is desirable, because otherwise financial institutions would have no incentive to lend for riskier but potentially highly efficient and profitable investment activities. However, the actual differential application of kosoku yokin has apparently been primarily between large and small borrowers. Existing effective interest rate differentials greatly exceed the differences in creditworthiness as measured by actual loan losses. Even with high effective interest rates on loans to small borrowers their demand for funds tends to be greater than supply (for any given risk category); in the rationing of credit, small firms are discriminated against, even though it is more profitable to make loans to them. This is because city bank, long-term credit bank, and trust bank policies are to lend primarily to large borrowers even though it is less profitable.¹¹ In general, it is the availability of bank loans, rather

¹⁰ The amount of kosoku yokin overstates both loans and time deposits of commercial banks; no adjustment has been made in the tables above. Applying the Ministry of Finance's somewhat low estimates of kosoku yokin rates as of May 1968 for city banks, local banks, mutual banks, and credit associations corporate deposits as of March 1968 indicates that on average (weighted) about 10 percent of total deposits, and 20 percent of time deposits, are an overstatement of actual effective loans and deposits.

¹¹ This poses a major problem for analyses based on the assumption of bank profit-maximizing behavior. I am attracted to the theory of Professor Suzuki Kinzo (in his Ginko Kodō no Riron) that city banks try to maximize market share (loans or deposits), subject probably to a profits constraint. I also find attractive Professor Komiya's theory that an important objective of management is to develop and maintain stable and close relations with as many large, prestigious corporations as possible, in order to provide job opportunities for senior management upon retirement. A more accurate characterization of financial institution lending behavior is probably

than their cost, which constrains demand to the amounts banks are able to supply.

There is even less flexibility in the interest rate on government industrial, and bank bonds and government short-term securities. The coupon interest rate and the issuance terms are in effect fully controlled. Interest rates are low relative to loan and call money rates; moreover, they moved seldom and only slightly over the past decade. Most bond issues have been forced upon financial institutions--it is one of the prices they have had to pay for government cooperation in other areas. To prevent discrepancies between fixed issuance yields on new bonds and freely market-determined yields (at higher yields and lower prices) on already issued bonds it has been necessary to restrict the development of a real bond market. It has informally but effectively been made clear to financial institutions, which hold almost all bonds not directly placed, that they are expected to hold newly purchased bonds to maturity, rather than sell them in the open market. The Bank of Japan has in effect intervened to peg the price of national bonds since they are held by individuals as well as financial institutions. Since 1967 there has been some trading in bonds and changes in yields, particularly for long-term credit bank debentures. The only

Footnote 11 continued

in terms of different credit risk categories rather than borrowing firm size, though the two are highly correlated. If financial institutions divide borrowing customers into, say, three credit categories of prime risk, intermediate risk, and higher risk, they may well behave as risk averters by fully supplying prime borrower demand for credit at all times and at relatively low effective interest rates. In contrast, the highest risk category is almost always subject to credit rationing despite high effective rates (and higher profitability after considering actual losses and associated costs). Whether credit rationing prevails for the intermediate category depends upon the general ease or tightness of credit.

debentures which have been traded freely over a long period of time are Telephone & Telegraph discount bonds (dendensai) sold to users at the time of telephone installation. Given the tight controls over the bond market it is not surprising that bonds have been only a negligible source of spending unit external finance.

Trade credit is arranged directly between borrower and lender committant with sales transactions, so it does not go through an organized financial market. Data are not readily available on the structure of effective interest rates on trade credit or on the use of flexible changes in effective interest rates as an equilibrator of changes in supply and/or demand. Presumably demand and supply are equilibrated not so much by effective interest rate changes as by agreement based on purchase and sale amounts. Even so the extension of trade credit maturities beyond "normal" length by strong borrowing firms versus weak sellers constitutes an important mechanism for passing on the burden of a tight money period. Once again it is availability that counts.

The interest rate structure--with the exception of call money and dendensai rates--has not changed much over the course of the business cycles of the past fifteen years even though there have been major shifts in both supply and demand schedules for financial claims. Consequently the excess of demand over supply has fluctuated substantially, being greatest in the late stages of a boom and early stages of the tight money-induced recession, and least in the bottom phase of recession and beginning phase of the next boom. In brief periods of easy money the financial system's structure of interest rates may have been determined by market

demand and supply; most of the time, however, rationing and direct controls have been highly influential in financial markets.

IV. Criteria of a "Good" Financial System and Japan's Performance

There are numerous criteria for a "good" financial system. Six important criteria are listed below, together with a general assessment of the performance of the Japanese financial system in terms of these criteria.

1. To provide the means of payment (money) cheaply, efficiently and elastically in order to satisfy the transactions demands of the economy consonant with overall economic policy objectives.

Japan has had a very elastic supply of money, well meeting transactions and liquidity demands. The means of effective payment for transactions is only moderately efficient however, since payment by check, giro transfers, or bank credit cards are scarcely used at all by individuals and small businesses. The time spent in making payment by currency is excessive and involves external diseconomies, exemplified by the mid-month and month-end and year-end scurrying around, and resultant traffic jams, to settle accounts. In addition large banks have hired a disproportionate share of the country's best university graduates and kept them too long in such menial tasks as counting money and door-to-door soliciting of deposits.

2. To raise the saving rate and to mobilize the savings of surplus spending units by offering a wide spectrum of financial claims--differing in liquidity, maturity, risk, yield and special service characteristics (such as insurance)--to satisfy the various demands of savers.

Japanese financial institutions do indeed offer a wide range of indirect securities to asseholders and have well mobilized the saving of surplus spending units. Nonetheless, while the financial system does exist in complex and manifold form, more important in the mobilization of saving are the facts that individual saving in Japan has been such a large proportion of disposable income; that individuals have preferred (or have been constrained) to hold financial rather than real assets; and that the corporate sector has desired to hold indirect securities in addition to money. The supply of indirect securities has followed the demand of asseholders.

It is difficult to judge the extent to which the activities of the financial system have enhanced the saving rate in the economy. By and large I regard it as presenting an opportunity rather than a direct cause. Probably not much of the major increase in the saving rate of individuals or the total economy since 1953 can be attributed to improvements in the financial system; on the other hand the saving rate would have been considerably lower if the financial system had not been able to increase the supply of safe, liquid indirect securities under conditions of reasonable price stability. Indeed, certain deficiencies of the financial system may have raised the saving rate, notably of those who wanted to make lumpy expenditures and hence became target savers. Financial intermediaries have not made much credit available for purchase of consumer durables, the higher education expenses of an individual, or housing. Lack of availability and high cost of credit to small business, unincorporated and incorporated, plus high profit opportunities, have provided incentives to self-finance by increasing saving. This argument should not be pushed too

far, since it implies that all investment should be self-financed to maximize the saving rate.

3. To allocate funds efficiently for growth by meeting the lending needs (i.e., purchasing the primary securities) of a wide spectrum of good borrowers (deficit spending units), through differentiation of primary securities in terms of risk, yield, liquidity, maturity. It is particularly important that long-term investment demand be adequately financed. In this way the financial systems lengthens the maturity of primary claims, overcomes indivisibilities, provides diversification, and reduces risk by pooling--thus intermediating between the different liquidity and risk preferences of savers and borrowers.

It is extremely difficult to appraise empirically the efficiency of finance in determining the size and pattern of investment, particularly since we do not know in concrete detail what constitutes the most efficient investment pattern for Japanese growth. In a very crude sense we must say that the Japanese financial system has been extraordinarily successful: economic growth has been rapid, the contribution of investment to growth has been important, external finance has been vital for corporate investment. The financial system has discriminated against the financing of consumption, of the production of many consumer personal services, and of housing investment in favor of private business fixed productive investment with its low capital-output ratio.¹² In a high aggregate demand

¹²The system has discriminated against small business despite its even lower capital-output ratio. Whether this was harmful to growth cannot be answered until the relationship of technological induction and innovation by scale of firm has been adequately analyzed.

economy this has promoted growth, though at some expense in welfare per unit of growth.

More empirical research on the efficiency of financial system allocation among alternative industries is needed. So-called "key industries" have been financed adequately, in substantial part by government financial institutions. Mr. Kosai's study¹³ indicated that rapidly growing industries did indeed obtain a rapid growth of external financing as compared with more slowly growing industries, but the cause and effect relationship remains somewhat unclear.

4. To maintain efficient, closely interconnected financial markets whereby changes in supplies of or demands for certain primary or indirect securities can quickly be reflected in the prices and/or yields of all securities. This can be achieved either by sufficient overlapping of specialized financial institutions' activities along the spectrum of alternative securities, or by a number of financial institutions which operate over a wide range of the spectrum (such as mixed banking).

Japan has a relatively wide range of financial intermediaries well covering the spectrum of risk and maturity of primary security issue. Early postwar Japanese government policy was to continue the development of a series of specialized financial institutions differentiated by type of indirect claim issued, type of customer (both borrower and saver), and/or maturity, with relatively little overlap. Gradually commercial banks have come to operate over a wider range of the spectrum, a favorable

¹³Y. Kosai et al., "Shikin Haibun Mechanism no Kento," Keizai Geppo (Economic Planning Agency, July 1964).

development which probably should be encouraged further. Moreover, groups of financial intermediaries of different types--such as a city bank, trust bank, insurance company, long-term credit bank, and correspondent local banks--coordinate their lending to individual borrowers to provide both short-term and long-term loans. The inefficiency in the system lies not in a lack of institutions, or an undue degree of risk avoidance, but in the restriction of the market mechanism due to controlled interest rates.

5. To protect the financial system against the risks of sharp changes in assestholder portfolio preference, default, and debilitating inflation.

a) Sharp shifts in portfolio preference, notably increased demand for money and decreased demand for deposits, can lead to liquidity crises and monetary panics involving loss of confidence and bank runs. This problem is most appropriately met by a central bank as lender of last resort; the social cost of bearing this risk is negligible while the benefits of panics foregone are very large. Where capital markets do not operate well and financial institutions (notably banks) are to be encouraged to have an asset portfolio of much longer average maturity than liabilities, assurance of central bank willingness to discount a wide range of securities in a crisis is vital.

b) Default risk due to the bankruptcy of an individual financial institution is important not only because of the effect on depositors but the impact on assestholder confidence in the financial system. The cost of default risk to holders of financial institution liabilities is appropriately borne by them, through deposit insurance schemes and regulation and inspection provisions (though these services can probably be

best supplied by government agencies, with costs borne by the beneficiaries). A further question is whether society (through the central bank) should bear part of the default risk of individual financial institutions, and especially of large business borrowers from these institutions. This is particularly important in highly leveraged situations such as in Japan. When the socially optimal degree of risk-taking for growth is greater than that dictated by the private market mechanism (usually the case), then it is desirable for the central bank to absorb part of this risk.

c) Protection of the financial system against erosion due to substantial, sustained inflation depends upon the effectiveness of monetary policy. While theoretically it is possible to devise a financial system impervious to inflation (through price index pegging of the nominal prices of financial assets and liabilities and their returns), in practice this has been seldom achieved. Virtually all financial claims other than stock have principal value and yield set in nominal terms. Inflation is a competitive alternative to finance.

The Japanese system is well protected against risks of monetary panics and of default. The Bank of Japan operates effectively as lender of last resort. All large financial institutions are in fact guaranteed against risk of bankruptcy: the Bank of Japan, concerned over the impact on public confidence, will undoubtedly rescue any financial institution in risk of default and bankruptcy with massive loans. This includes even the major security brokerage firms. It has also supported the stock market when prices declined sharply, and presumably would do so again in the future.

Because large corporations are typically such large borrowers from

financial institutions (relative to the net worth of each), the Bank of Japan also in effect absorbs a substantial portion of their risk of default. This guarantee does not extend to smaller borrowers. Probably the assurance that bankruptcy due to illiquidity is highly unlikely has been an important encouragement to large corporate enterprises to undertake new, risky investment projects.¹⁴

While consumer prices have risen at 5-6 percent annually for the last decade, this has not been sufficient to arouse widespread distrust of the financial system, to discourage spending units from demanding indirect claims. Apparently liquidity and safety of principal nominal amount dominate yield considerations for most individuals within the range of rate of inflation of the past decade. The demand for money and deposits (including time and saving deposits) appear to be rather inelastic to nominal and real (price-deflated) interest rate yields within the range that has prevailed.

6. To be an effective vehicle for fiscal and monetary policy. The financial system can normally handle the technical financial side of fiscal policy fairly easily since the central bank usually acts as agent on behalf of the government and since government debt is regarded as the most riskless of all domestic primary securities (this does not hold for certain local governments and perhaps certain government corporations). An effective monetary policy requires the timely knowledge and will of the monetary authorities to use their instruments of control, and the rapid and substantial impact of changes in financial assets and debts on real expenditures

¹⁴ Management has been constrained from taking on as much risk as possible by the knowledge that in event of failure or even serious difficulties they will be replaced at the instigation of financing institutions.

on goods and services by spending units.

Because of strong private aggregate demand until the 1965 recession, the government did not have to rely upon deficit financing substantially, so that its demands upon the financial system for the implementation of fiscal policy have been relatively limited in amount. Yet the demands in terms of the implications for the rigidity of the interest rate structure, and for the ways in which monetary policy is implemented, have been severe; and they have existed for the entire period, not just since 1965. The government insistence on pegging the rate on government securities while assuring a market for them has meant that all other bond rates had to be pegged as well--with the result that the bond market is virtually non-existent. In recent years the Bank of Japan has had to purchase government bonds as interest rates firm up in order to peg their price. This could undermine a tight monetary policy; thus far it has not been a really serious problem because the Bank can adjust down its large portfolio of loans to commercial banks. More important, government pressure to constrain call money increases in the 1967-68 period of restriction seriously undermined the effectiveness of monetary control.

Once the Bank of Japan has decided to implement a restrictive monetary policy, it has been quite effective in reducing (the rate of growth of) corporate and personal expenditures, mainly by restricting inventory investment, but also business fixed investment. However, the Bank of Japan's implementation of monetary policy does not rely primarily upon the cost effect of interest rate changes; rather it depends upon rationing, of both its own credit to the financial system and city bank and

other large bank loans to business. This is both a cause and consequence of having a disequilibrium financial system. In the very short run the Bank of Japan cannot restrict its supply of credit to borrowing banks because that might produce a liquidity crisis at daily closing; the Bank has not seized the opportunity at such times to use the cost effect of interest rates by imposing very high marginal interest rates on loans to banks.

The Bank of Japan's system of rationing the availability of credit worked well until the 1967-68 period of restriction. Then the pressure to keep call rates low meant that lenders in the call market made loans directly to business instead; the Bank of Japan's mechanism of direct controls extended over an insufficient portion of the financial system. The Bank of Japan was saved by the unanticipated surge of exports over the period which obviated the need for a really tight money policy.

Some Further Thoughts

The above discussion does not go very far in making precise the nature, much less the quantitative estimation, of the interrelationships among macro-financial and real variables for Japanese growth. We need an integrated theory which is both applicable to Japan and empirically testable. The most sophisticated approach would be a good macro-econometric model, but there are real problems of specification. We are dealing with dynamic growth, not stable equilibrium. I am not convinced that Japanese spending unit, or financial unit, behavior over the past fifteen years is appropriately characterized as engaging in saving, investment and financial flows primarily in order to achieve equilibrium desired stock levels

of capital and wealth. Indeed, I am not sure that Japanese spending units think in terms of adjusting to equilibrium growth rates of desired capital and wealth. I suspect that desired stock positions have been altered by the unexpectedly rapid growth and by cyclical fluctuations. It may be preferable simply to concentrate directly on the explanation of flows, with causal factors other than desired equilibrium stock positions relatively more important.

I am concerned about the direction of causation between real and financial variables, particularly in a disequilibrium system in which rationing rather than prices clear the market. In a market system, the net issuance of primary securities would depend on spending unit investment, saving, and its desire for liquidity (indirect assets) and primary assets. In the most simple case of self-finance $P_1 = f(I - S)$; where saving is divided among investment and increase in financial assets, then $P_1 = f(I, F, P_a)$, perhaps in the form

$$(1) \quad P_1 = a_0 + a_1 I + a_2 P_a + a_3 F$$

The interest rate enters indirectly, in explanations of I , P_a , and F . Both F and P_a (mainly trade credit) can be regarded as depending mainly on increase in sales (O), so that

$$(1a) \quad P_1 = a_0 + a_1 I + a_2 O.$$

However, in an availability system of credit rationing, the causal order may be reversed: the level of investment is determined by the availability of funds (demand for primary liabilities). In such a case, with the marginal

efficiency of investment considerably above the effective market interest rate but credit not available, spending units try both to increase their own saving and to minimize the holding of primary and indirect assets. Thus, $I = f(P_1, S)$ and the demand for financial assets $(F + P_a)$ is an inversely related function of the gap between desired and actual investment at the given effective borrowing rate. In an availability model we must concentrate much more upon finance supply functions and allocation procedures. Whichever the case--interest cost or credit availability as a determinant of investment--any comprehensive theory of finance must be integrated with a theory of investment and saving.

To do so we need to disaggregate into relatively more homogeneous sectors; indeed much research has already been done. It is beyond the scope of this paper to explore the theories of business, personal, or government financial behavior, but some general comments are warranted.

Individuals have had a strong preference for financial assets relative to capital goods (due in part to lack of housing finance). Among financial assets, they apparently have a strong preference for safety and maintenance of nominal value of principal (risk aversion, as evidenced by preference of one-year time deposits to shares with relatively little price fluctuation and higher yields), aversion to extreme illiquidity (unwillingness to hold bonds--or money in trust--with higher yields than one-year time deposits), and where willing to bear risk in financial assets it is mainly in stocks in expectation of capital gains rather than dividend yield. Convenience of location and other financial services are also important.

Analysis of the financing of personal sector investments makes clear the heterogeneity of the sector. Housing investment has been fairly large despite the scarcity of housing mortgage funds and their high cost from private sources. Farmers have been able to finance agricultural investment rather readily from agricultural cooperative and other local financial institution loans, in addition to government agricultural financial institutions loans on preferential terms. Agriculture is one sector where demand and supply of private funds are equilibrated by market forces because of the existence of specialized financial institutions and because of the tendency for farmers to save more than they invest. Least is known about the financing of unincorporated business investment. The organized financial system discriminates against it, so financing must come either from internal sources or direct borrowing from relatives, friends, and moneylenders.

The corporate sector should be disaggregated further, at least into large firms with highly diversified stock ownership and others. Most large firms are not solely interested in maximizing profits. Ownership and control are sufficiently separated that management has its own objectives, such as growth of the firm, relative ranking in the industry, and leadership. Profits are one among several goals, or may be viewed as a constraint: some minimum rate is required in order to quell stockholder and lending financial institution discontent. Similarly because management has less interest in maximizing the present market value of the firm a la Modigliani-Miller, it is not indifferent to alternative forms of raising capital; indeed it regards stock issue as the most

expensive source of external funds. (One question is why such firms issue new shares at all. I suspect it is a combination of (a) pressure by lending institutions and the Ministry of Finance, concerned about minimum net worth ratios, and (b) some rule of thumb reasoning by management that it is natural to increase stock issue every few years as total liabilities and profits rise.

The substantial increases in both indirect and primary assets, as well as investment and saving, by the corporate sector, are impressive. Primary security issue by the corporate sector to finance investment and increases in financial assets is large indeed. The minimum reliance on external finance of investment (given in Table 2) is high. Corporate primary asset holding is almost completely in trade credit, while stock and bond holdings are predominantly in related firms; the reasons for this pattern are straightforward. The increases in indirect claims, notably money and time deposits need further, detailed analysis. My view is that money is for transactions purposes, has been already economized upon, and hence is relatively interest-inelastic. Corporate time deposits are explained by a mixture of motives: liquidity and timing imbalances between receipts and expenditures; precautionary balances built up in easy money periods when additions to loan balances are readily available and spent in tight money periods when net additions to loan balances are difficult to obtain; and required compensatory balances (kosoku yokin).

The financial side of the government sector is perhaps somewhat less interesting. The government, given its system of receipts, disbursements and banking at the Bank of Japan, and its ability to create money, has no

need for liquidity. Its holdings of both primary and indirect claims are negligible.¹⁵ Government issuance of primary securities is for two quite distinct purposes: to finance deficits generated by fiscal policy in periods of insufficient aggregate demand; and to obtain private saving to finance government investment in a full employment economy. The former case--of excessive private saving relative to investment demand--has generally not been a problem in postwar Japan; private demand has been so strong that the government has not required a vigorous deficit-financed aggregate demand policy. Hence it has not needed to issue primary securities for this purpose in any quantity except in 1965-66.

Even in a full employment economy it may be desirable for the government to compete with private investors for private saving as an alternative to raising public saving by taxation. This too the Japanese government has not done to any great degree; in the competition for resources it has deferred to business fixed investment. Thus, while engaging in 27 percent of gross domestic investment between 1954 and 1967, government sector saving was 22 percent of total saving, and primary security issue only 11 percent of the total net increase in primary securities. In the case of the government sector, neither availability nor cost of funds has to be a direct constraint upon investment: it is omnipotent relative to the financial system. Its constraints are political and bureaucratic. Policymakers have to determine the relative share of government in total resources, and the extent to which the government's expenditures will be financed by taxes or

¹⁵ This is especially true if the "other" indirect claims are ignored; this is a mixed bag of transactions with government financial institutions and various balancing accounts, with little economic meaning.

by primary security issue. Bureaucracy exerts power not only by its recommendations on these issues, but also by supporting certain rules of thumb ("taxes no more than 20 percent of national income," "the government's prestige suffers if it has to borrow at an interest rate greater than 7 percent," etc.).

One final comment. By the six criteria listed earlier Japan's financial system ranks rather well. This is supported by the substantial degree of financial institution purchase of primary securities and issuance of indirect liabilities. However, the basic strength of the financial system lies in the high rate of personal saving, personal sector preference for financial assets, and the high rate of desired investment by business. It would have taken a very bad financial system not to have intermediated actively between the two.

Appendix on Data

This appendix describes the methods by which the estimates in Table 1 and in the text were prepared. Essentially I have relied upon the official national accounts of the Economic Planning Agency (EPA) and the flow of funds data of the Bank of Japan (BOJ).

The basic national accounts source was EPA, Annual Report on National Income Statistics, 1968 (Tokyo, 1968) and BOJ, Research Department, Keizai Shobumon no Toshi Chochiku to Shikin Kabusoku (July, 1968). The latter contains detailed calendar year data (1957-1967) for the corporate and personal sectors not published in the National Accounts Statistics, as

well as the calendar 1967 estimates. Calendar year estimates are not available separately for corporate and personal sector investment components for 1954-1955; these were estimated by applying the appropriate fiscal year ratios to the calendar year data for the private (corporate plus personal) sector. For 1954-1955 dwelling depreciation was attributed 90 percent to the personal sector and 10 percent to the corporate sector (based on 1956 and 1957 ratios), and damage was distributed among corporate, personal and government sectors in proportion to their respective depreciation allowances; the amounts are small.

The flow of funds estimation method does not perfectly match that of the national accounts. There are minor differences in sectoral definitions. Flow of funds is on a cash basis, national income on accrual basis; use of calendar year data overcomes the fiscal year difficulty that certain government budgetary disbursements carried over to April or May are included in the previous fiscal year in the national accounts but in the current fiscal year in flow of funds. The major difference lies in the treatment of the net sale or purchase of land and used capital goods. These transactions are excluded from investment and saving flows, but are included in financial transactions. Due mainly to land purchase, the statistical discrepancy between the investment-saving gap and the financial surplus or deficit has been negative and increasing over time for the corporate and government sectors, and positive and increasing over time for the personal sector. Thus the sectoral discrepancies noted in Table 1 are smaller than they probably should be.

The main adjustments in the flow of funds data involved the

inclusion of government financial institutions in the financial sector, and local government and public corporations in the government sector; grossing of items netted out in sectoral columns; separation of certain row items into their primary and indirect claim components; estimation of foreign assets and liabilities by sector; adjustment for minor differences in asset and liability valuation of certain claims; and adjustment of the "others" item in the classification of financial assets and liabilities. Flows over the period 1954-1957 were estimated as the difference between assets and liabilities outstanding on December 31, 1967 and December 31, 1953 (the first year end for which flow of funds data are available), except for foreign borrowing and lending.

Most intra-sectoral financial transactions among financial institutions are netted out in the flow of funds data. I have made gross estimates to the extent that the sub-sector detail in the published flow of funds data allow, with the exception of money supply in order to maintain the standard definition of money. Gross estimates are provided for call loans, government financial institutions loans to each other (notably Trust Fund Bureau loans to government banks), private financial institution loans to each other, and to some extent interfinancial institution time deposits and money in trust. Agricultural cooperative and credit cooperative deposits at their prefectural federation institutions and these in turn at the central level remain on a consolidated basis.

The flow of funds column and row classification intermingles certain primary and indirect securities. Public corporation bonds (mostly primary securities) include some issued by government financial institutions

(indirect securities); I arbitrarily assume that one-half of the latter amount outstanding is owned by other government financial institutions (Trust Fund Bureau mainly) and the other half by private financial institutions--and none by spending units. Government short-term security issue includes Foreign Exchange Special Account bills (indirect securities); I assume they are all held by the Bank of Japan. The stock and equity other than stock of spending units are primary, of financial institutions are indirect. I assume that the latter are all held by the corporate and personal sectors in proportion to their total respective holdings of stock; financial institution other equity is distributed to the government sector as well. Loans of both private and public financial institutions include loans to financial institutions (indirect securities) in addition to loans to spending sectors. In the process of including loans on a gross rather than net basis the indirect security component was estimated separately.

The estimation of foreign flows is more difficult because of lack of published Bank of Japan stock data. Foreign exchange was taken from published year-end stock figures, the Bank of Japan's holdings estimated from its published balance sheet, and the remainder attributed to the government foreign exchange special account. The annual foreign loan flows by sector can readily be estimated from annual flow data in the flow of funds accounts. The 1953 stock figures are my own rough estimates; the 1967 stock is derived by adding the 1954-1967 flow to my 1953 stock estimate. The data are somewhat rough because of changes in measurement and definition which may not show up fully in annual flow data (for example,

inclusion of the gold tranche in foreign exchange reserves was not reflected in foreign exchange flow of funds data). The flows between Japan and the rest of the world are of the correct order of magnitude.

I value stock issue at purchase price since my purpose is to analyze sources and uses of funds by sector, and since this procedure reflects the funds actually received by issuers. There remains a small difference in stock valuation, as total stock assets are slightly greater than corporate and financial institution stock liabilities. The difference is added entirely to corporate liabilities on the assumption that stockholders actually paid the amount their records show, while part of the proceeds went into corporate capital surplus accounts. There is also a minor difference in government securities; liabilities are slightly greater than assets. Some bondholders evidently purchased their bonds at prices below par. Since redemption is at par, assets of each sector of bondholder have been increased, in proportion to the share of total government bonds, to increase assets to the level of the bond liabilities.

The "others" category by sector is a residual of all other financial accounts. As such it is a hodgepodge. It also contains all foreign assets and liabilities in stock data, as well as reflecting change in method of data. In the processing of making all the adjustments above, I found that "other" assets did not exactly equal "other" liabilities, usually being larger, and that the financial sector consistently had an "others" liabilities position while spending units had an "others" as an indirect security (issued by the financial system and owned by spending units), to reduce the asset total to the smaller liability estimate,

and to distribute it among spending sectors in proportion to their initial relative shares of "others" assets. This seems preferable to leaving out the "others" category altogether, though it does seem to distort government sector indirect asset holdings substantially.

In summary, the flow of funds data are somewhat incomplete for my purposes. Indirect claims among financial intermediaries remain on a less than fully gross basis. The personal sector is insufficiently homogeneous, and needs to be further disaggregated. Direct financial flows within the personal sector are not estimated, so it is impossible to obtain a quantitative picture of the unorganized financial market. Deposits of individuals with employer corporate enterprises are included among "others" for both; this is a small but not insignificant item. Corporate and unincorporated business holdings of time deposits and hence amount of loans are overestimated because of financial institution requirements of compensatory deposit balances. There are other minor problems: securities companies are included in the corporate rather than financial sector because of lack of data for the early years; and the economic meaning of the "others" items for financial analysis is unclear, though probably unimportant.