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ABSTRACT

A review of the Japanese National Accounts reveals that the Japanese household sector has apparently suffered a capital loss of some 400 trillion-yen in 1990 consumption prices since 1970. This loss is large enough to explain most of the Japanese recession of the 1990's. We can trace some three-fourths of this capital loss to the loss in the market value of Japanese corporations relative to their accounting value (at reproduction cost). While some plausible explanations for this loss can be offered, they are subject to serious doubts because of difficulties encountered in working with the Japanese National Accounts data.

Similarly, we find total government expenditures reported in Japanese fiscal statistics difficult to interpret, and the difference between this total and total expenditures for the general government sector in the National Accounts hard to identify and understand. Until the relationship between the budget totals and the corresponding figures in the National Accounts is fully clarified, we are unable to say what the actual history of Japanese fiscal policy has been.

We conclude the paper with a set of suggestions for improving the Japanese government's fiscal statistics and its National Income Accounts. We also hope that our discussion will serve as a guide for users of these statistics as to where they must be cautious.

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I. Introduction

The national accounts are by far the most important representation of the macroeconomic conditions of a country. The Japanese accounts follow the specifications of the SYSTEM OF NATIONAL ACCOUNTS prepared by the United Nations in 1968 (United Nations)¹. Japanese national income statisticians, however, like their counterparts in other countries, have had to introduce many adjustments and modifications into the system in order to take account of special features of the Japanese economy and to work with the data available to them. The result is a system of national accounts which is quite sophisticated in design and execution interspersed with many curious problems, with which make it an exceptionally difficult data system to work and to interpret. Most critically, the publicly available description of how figures reported in the National Accounts are derived from their original sources is often not concrete and detailed enough. The relationship among figures in different parts of the National Accounts, for example, the relationship between a flow variable and its counterpart in a stock account, is also in many cases quite difficult to decipher. As a result, when an analyst finds some pattern of data in the accounts puzzling, it is often impossible for him to trace back its causes and arrived at an informed judgment on whether such a puzzling pattern represents reality or is a consequence of some unusual handling of the source data.²

I have encountered many instances of these difficulties in my recent attempt to understand the current conditions of the Japanese economy. In the process, I have become convinced that it is essential to clarify these data problems in Japan before we can hope to arrive at a common understanding of the causes of the relatively poor performance of the Japanese economy in the 1990's. For the purpose of this presentation, I will deal with two examples from the National Accounts. First, I take up once again the question of why the saving rate of the Japanese households has remained apparently so high in recent years in spite of the aging of the population and the slow growth of income. I suggest that it is because households have suffered large and steady capital losses in their financial position for a fairly long time. I will then try to show that this capital loss by the household sector is closely related to the valuation of Japanese corporations. In the process, I will point to the presence of many data problems that make it extremely difficult to reformulate my analysis into a sequence of empirical propositions that can be tested explicitly.

I will first observe that the net worth other than the value of land for the Japanese household sector is unusually small, especially in view of the high saving-income ratio

maintained by this sector since at least 1960. We then exhibit that the household sector has suffered major real capital losses in their net financial position since at least 1970. These losses are apparently related to the ever-shrinking market value of corporate equity in comparison with their accounting net worth, and the corresponding increases in the market valuation discrepancy for corporations.

At this point, however, our analysis cannot proceed, because the corporate accounts in the Japanese National Accounts are fraught with so many difficulties that it is essentially impossible to infer the behavioral pattern of private corporations from the available data³. I believe there is a strong suggestion in the pattern of the data that private non-financial corporations in Japan have over-invested in plants and equipment using funds retained through a very high rate of depreciation and the large savings of households channeled to them through financial institutions. This pattern of their behavior has persisted for a long time, and has resulted in an apparently very high level of the capital-output ratio and a very low rate of return, and finally in a very low market valuation of capital relative to its reproduction cost. This in turn has caused households to suffer large capital losses in their ownership of corporations and induced households to maintain their high saving rate. Even in the 1990's, given the relatively slow rate of growth of output, investment in fixed capital by corporations was sufficiently large so that the capital-output ratio has continued to rise, while the market value of their equity shares has continued to decline. We can observe a parallel pattern in individual company data as well⁴, suggesting that there is a reasonable possibility that these data represent an element of the reality.

If our interpretation of the national account data has some validity, then the analysis and policy recommendation offered by a number of American economists appear to be incomplete⁵. They stress the observation that the maintenance of the nearly zero nominal interest rate has not succeeded in stimulating the real economy sufficiently, while the rate of inflation also remained near or below zero depending on the choice of the price index. They interpret this situation as an indication that the Japanese economy is facing the liquidity trap and recommend that Japanese monetary authority inject more money into the economy to induce mild price inflation. The liquidity trap, however, presupposes a very low level of investment as the basic cause of a recession. In Japan, on the other hand, investment by corporations appears to be too large if anything, and it is the deficiency of spending by households that is the basic problem. This in turn appears to be caused at least partly by hoarding of resources by business firms rather than distributing them to households, when the internal rate of return appears to be very low.

Since a lower real rate of interest should in principle stimulate not only business investment but also spending by households, especially on housing, I am sympathetic to the recommendation referred to above. If my interpretation of data is correct, however, the policy package must include the means of inducing business firms to distribute more of their cash flow, to households, and this would involve serious structural reforms. For the immediate purpose, the government should review the schedule of depreciation allowances in the corporate tax structure; it might exempt dividends from corporate profit tax or unify its treatment in corporate and personal tax systems. Ultimately, some fundamental reform of corporate governance must be considered, such as establishment of more rigorous accounting standards, prohibition of mutual share holding arrangement among corporations and introduction of some form of holding company structure to take its place, and possibly the requirement of the cumulative voting rule on election of directors (in order to control the power of inside managers with relatively small stakes in equity shares of the firm, who find the largest possible retention of gross cash flow to be in their best interests).

In order to recommend such basic reforms, however, we must be on a firmer ground than we are in our interpretation of the pattern of data we observe, and this in turn makes the clarification, elaboration, and reform of national accounts data essential both for an understanding of the Japanese economy and for a formulation of policy recommendations. By focusing on those features of the accounts that make its use as a representation of the behavior of basic sectors of the economy (households, private non financial corporations, private financial institutions, government, and financial and non financial public enterprises) especially difficult, I hope this essay will contribute to identifying where the reform of accounts is most urgently needed.

The second point that I wish to raise is the virtual impossibility (at least for analysts operating outside Japan) of establishing the correspondence between revenues and expenditures in the government budget and their counterparts in the general government sector of the National Accounts⁶. After having wasted many days poring over the data in an attempt to understand this seemingly obvious connection, I believe that most of the blame must be assigned to the chaotic government accounting system. This situation has been compounded by two technical decisions by Japanese national income statisticians. The first was a quite reasonable decision (in my view) to move a number of so-called “special accounts” of the national government and “business accounts” (Jigyo Kaikei) of provincial and local governments to the category of government

enterprises. The second, disastrous decision was to integrate government enterprises into the non-financial corporate and financial institutions sectors, thus rendering two critically important sectors into mixtures of government enterprises and private businesses, making it impossible to separate them from each other.

This is an extremely important issue for two reasons. First, until the behavior of the enormous government enterprise sector is clearly identified and described independent of the private business sector, we are unable to have an intelligent public discussion of the role of the fiscal activities of the government on the performance of the Japanese economy. I will attempt to exhibit, in Section III below, the enormous discrepancy between the somewhat incomplete government expenditures from the budget documents and the expenditures of the general government sector of the National Accounts. Second, because it is impossible to split the so-called “Non-financial Corporate” and “Financial Institutions” sectors into genuinely private sectors and public enterprises, such critical measures as total accumulated capital and the rate of return on capital for the genuinely private corporate and financial sectors cannot be identified. As a consequence, we are unable to evaluate the performance of private business firms meaningfully. I believe that this situation is one of the critical bottlenecks in understanding the current condition of the Japanese economy.

II. Savings by the Household Sector and the Value of Corporations

A. Saving and Net Worth of Households

Table 1 presents abbreviated balance sheets for the household sector for the ends of 1970, 1995, and 1998 (consolidated with non-profit institutions; hereafter, whenever we refer to the “household” sector, we mean this consolidated sector unless otherwise specified). Although the non-profit institution sector in Japan is very small and its behavior does not significantly affect our understanding of the relationship between the household sector and the corporate sector in Japan, it is cleaner to work with this consolidated sector for our purposes. All items are deflated to 1990 prices using the implicit deflator of total private consumption. At the bottom of the table, we also show disposable income of the household sector, adjusted for capital consumption adjustments and including retained corporate profits after taxes. Figures in parentheses are the ratios of total net worth and of net worth excluding land to disposable income. Note that, in this context, we neglect the question of social security wealth, since its estimation is a major subject in itself, and the point discussed below is largely independent of the social security question.

For 1970, the ratios are remarkably small, especially the ratio of net worth excluding land to disposable income. Even for 1995 and 1998, the latter ratio remains extremely small given that the household sector of Japan has maintained a consistently high saving-income ratio and that the household sector has been a net seller of land since 1970. (Note that when land is sold, some other component of net worth must increase by the value of the sold land). The pattern of data suggests that the household sector must have suffered a significant real capital loss in its asset position excluding land. We know that the relative price of land compared to the implicit deflator of total private consumption rose substantially during this period, and therefore households acquired significant capital gains on land.

However, the implications of these capital gains on the well being of households are not at all clear. For a household living on a very small piece of land, an increase in the price of land may be viewed as increasing the total resources available to it for consumption. The cost of occupying this land, however, has also increased, so that one may argue that, if the implicit deflator for consumption reflected the increase in the price of land properly, for most households who own their home but no other piece of land, their welfare is virtually unchanged. Of course, for those who do not own any land but wish to acquire it, when the price of land rises, their resources are reduced significantly, while for those who own extra pieces of land, their total resources are substantially increased. The implication of this observation is that for a majority of families who own their primary residence and no other land, consumption excluding imputed rent on their residence is unlikely to change much when the relative price of land increases or decreases. For those contemplating purchase of land, saving is likely to increase; while for those who own extra parcels of land in addition to their primary residence, consumption is likely to increase. For Japan this issue is important because the price of land is very high, and such a large fraction of total net worth of households is the value of land. For our present purposes, however, I believe it is best for us to proceed excluding land owned directly by households from our discussion. To provide the point of comparison, I present the balance sheet of households for the U. S. at the end of 1995 in Table 1B.

In Table 2, in row (1), I show the cumulated net saving of the household sector plus the net sale of land between 1970 and 1998 to have been 1,250 trillion-yen. This figure can be compared with the change in net worth excluding land for the same period, shown to be 860.7 trillion yen for the same period in row (2) of Table 2. This implies that the household sector suffered a real capital loss of 389 trillion yen.

To appreciate the potential importance of this observation, suppose that the marginal propensity to consume out of net worth is .05. Had households not suffered the capital loss just described, their consumption would have been larger by roughly 20 trillion yen in 1990 prices. Even with the multiplier as small as 1.5, it would have generated additional consumption of some 30 trillion yen in 1990 prices for the year 1998, 6% of GDP in 1998! Such a large addition to consumption surely would have induced a significant positive response of investment, and allowed some adjustments of fiscal and monetary policies. We can easily visualize the Japanese economy in a normal, healthy state in 1998 with nearly full utilization of capacity, without fiscal deficits, and with the rate of interest closer to the world average.

The obvious question is where in the balance sheet of households such a large capital loss originated. Going back to Table 1A, I classify total assets of the household sector into four groups: reproducible tangible assets (which consists of residential structure and producers' durable plant and equipment), land, net financial assets, and corporate equities. On the first of these, capital gains or losses are due to different movements of their own prices relative to the price of consumption. From other parts of the National Accounts, we know that the price of producers' durable goods has risen considerably less than the price of consumption goods in the period 1970- 98, while the price of residential structures has moved almost exactly the same as the price of consumption. Unfortunately, the National Accounts do not provide data to show how much of the reproducible tangible assets of this sector is residential structures and how much is producers' plants and equipment, so we cannot compute the capital loss associated with row I.1 of Table 1A. We know, however, that the maximum possible capital gain associated with this item cannot be more than 20 or 30 trillion yen. We are excluding land from our analysis. The remaining possibility, therefore, must be associated with net financial assets and corporate equities.⁷

B. Loss of Market Value by Corporations

The net financial and equity positions of the household sector are almost entirely against the corporate business sector⁸, that is, the non-financial corporate sector and the financial institutions sector consolidated. In order to gain some insight into the process by which the household sector suffered such a large capital loss, it is useful to establish the relationship between capital gains and losses incurred by the household sector on its net financial and equity position on the one hand, and the capital gains and losses in terms of items on the balance sheet of the corporate sector on the other. Let us first look at an abbreviated balance sheet for the

corporate sector for the ends of 1969, 1990, 1995, and 1998 given in Table 3Aa. Because there are substantial cross holdings of each other's equities by financial and non-financial corporations, and unfortunately the National Accounts do not provide the critical division between these holdings, my netting process for equities is of doubtful validity for the financial and non-financial corporate sectors separately, but it is fully valid for the two sectors combined. We will therefore focus our attention on the combined sector most of the time.

There are two striking features in these balance sheets. First, the value of land is more or less equal to the reproduction cost value of reproducible tangible assets (plants, equipment, and inventory combined). For U. S. corporations, the value of land is not accurately known, but it is estimated to be less than one-tenth of the reproduction cost value of reproducible tangible assets. Second, the accounting net worth of these corporations is much larger than the market value of their equities, more than 5 times in 1990, roughly 4.5 times in 1969 and 1995, and 6.5 times in 1998. Consequently, what we would call the market valuation discrepancy is 3 to 5 times the size of the market value of equities for these corporations.⁹

In Appendix, I establish by working through a set of accounting identities that the net capital gain of the household sector in terms of the base year consumption price is given by either side of the following expression:

$$\Delta \left(\frac{NWA_t}{P_t^C} \right)^{CG} - \Delta \left(\frac{DMV_t}{P_t^C} \right) + \frac{1}{P_t^C} \left(\frac{P_t^C - P_{t-1}^C}{P_{t-1}^C} \right) NF_{t-1} = \left(\frac{P_t^R}{P_t^C} - \frac{P_{t-1}^R}{P_{t-1}^C} \right) ARR_{t-1}^* + \left(\frac{P_t^L}{P_t^C} - \frac{P_{t-1}^L}{P_{t-1}^C} \right) LAND_{t-1}^* - \Delta \left(\frac{DMV_t}{P_t^C} \right) \quad (1)$$

Symbols are defined at the end of this note. The first term on the left hand side of the identity is the real capital gains or losses (in terms of consumption goods in 1990) on the accounting net worth of the corporate sector, and the second term is the change in the real value of the market valuation discrepancy. These two terms together represent the real capital gain or loss associated with the market value of the equity of corporations owned by the household sector¹⁰. The third term on the left hand side is the real capital gain on net financial assets held by households. Thus, the left-hand side of the above identity represents the total capital gains and losses incurred by the household sector on its ownership of corporations. On the right hand side, the first term represents real capital gains on reproducible tangible assets when they are

given their reproduction cost as the price; the second term is the real capital gain on land; and the third item is again the change in the real value of the market valuation discrepancy.¹¹

The reader may wonder why the right hand side of the identity (1) does not contain capital gains or losses on net financial positions. The reason is because the capital gain on this item by the household sector is exactly the capital loss of the corporate sector, and this must be reflected in the market value of equities. That is, the households sector gains back in its equity position what it lost on its net financial position.

Returning to Table 2, row (3) of this table records the real capital loss of the household sector, while row (7), which is the same as the right hand side of identity (1) above, represents the capital loss of the household sector in its net financial position and equity position against the corporate sector. We see, then, that of the total capital loss suffered by the household sector in the period between 1970 and 1998 of 389 trillion yen in the 1990 consumption price, 290.8 trillion yen is due to the loss of value in its ownership of corporations through equities and net financial assets. The remainder presumably is due to capital loss on other assets, but as I have noted earlier, information given in the National Accounts is not sufficient to identify the exact allocation of the remaining capital losses to specific assets and liabilities¹². In any case, we have established that roughly three-fourths of this huge capital loss is attributable to the loss of market value by corporations. Given that corporations had net capital gains of 115.7 trillion yen on their ownership of plant, equipment and land, we are confronted with the question of how corporations managed to incur real capital losses of 405.5 trillion yen in their market value.

In Table 3Ba, Part 1, I reproduce the cash flow for corporations for 1996¹³ as reported in the National Accounts, except to subsume various minor payments and receipts under one of the categories shown in the table. Note that operating surplus after tax (*OSAT*) is equal to the sum of net interest paid (*INT*), net dividends paid (*DIV*), and retained earnings after tax (*ECR*). From Table 3Aa, we also know that the sum of reproducible tangible assets at reproduction cost (*ARR*) and the market value of land (*LAND*) is equal to the sum of net financial liabilities (*LF - LA*) and accounting net worth (*NWA*). In evaluating the rate of return in this set-up, then, the ratio $OSAT / (ARR + LAND)$ is the same as $(INT + DIV + ECR) / (NWA + LF - LA)$. This ratio is 4.1% for non-financial corporations and 1.6% for the combined sector for 1996 using figures of Table 3Ba, Part 1. This is an extraordinary low rate of return.

We know, however, that figures in Part 1 must be corrected for the capital consumption adjustment and imputed banking services. CCA raises the estimate of depreciation for the non-financial corporate sector by 6.5. Total imputed banking service is 20.6, which we arbitrarily allocate 14.1 to the non-financial corporate sector and 6.5 to the household sector. The result is shown as Part 2 of Table 3Ba. The rate of return for non-financial corporations now goes down to 2.3%, while the rate of return for non-financial and financial sectors combined remains at 1.6%. Clearly, these are not rates of return that can be sustained in the market, even in Japan. One explanation of the rise of such a large market valuation discrepancy, then, is that the market is reacting to the very small flow of operating surplus generated by the corporate sector by reducing the total value of corporations. As I have indicated before, netting equities outstanding of corporations against their ownership of equities is a doubtful operation for the financial and non-financial corporate sectors separately, because the National Accounts do not provide information to separate equities owned by either sector into those of financial and non-financial corporations. This is especially so in the case of financial institutions, because they own more shares than the value of their own shares outstanding. In terms of the combined sector, then, if we replace the accounting net worth by the market value of equities, then the rate of return net of tax and depreciation is 2.9%. This is still amazingly low but higher than the 1.6% obtained using the accounting value of net worth.

In making these computations, one notices that the depreciation rate of *ARR* in the Japanese National Accounts is extremely high. Adjusted for CCA (our estimate), the depreciation for the non-financial corporate sector is 58.9 trillion-yen. The corresponding figure for the U. S. is \$393.4 billion. If we assume that the reasonable exchange rate for this purpose is 120 yen to a dollar, the Japanese figure will become \$490.8 billion, making the depreciation in Japan roughly 1.25 times that for the U. S. Surely the estimate of one or the other country, or both, is unreasonable. Let us take as a temporary hypothesis, in order to move with our analysis a little further, that the U. S. figure can serve as the starting point. An estimate of the balance sheet for U.S. non-financial corporations is given in Table 3Ab, where the value of the net stock at the reproduction cost of reproducible tangible assets is reported at \$6,743 billion.

Using again the exchange rate of 120 yen to a dollar, the corresponding Japanese figure is \$4,963. From these figures and the amount of depreciation cited above, we can see that the rate of depreciation in Japan is much higher than in the U. S. This may be reasonable for residential structures where the nature of the structure is completely different between the two countries, but

it does not seem reasonable for producers' equipment and structures. If we apply the U. S. depreciation rate to the estimate of the Japanese stock at the end of 1995, then the depreciation for the non-financial corporate sector for 1996 turns out to be 42.3 trillion yen as shown in Part 3 of Table 3Ba, which also shows that such an adjustment will raise the estimate of the rate of return for Japanese non-financial corporations. However, figures in Part 3 contain a serious self-contradiction and cannot be taken seriously. The problem is that, when we take the value of *ARR* as given for the end of 1995, this stock has been constructed using the rate of depreciation, which we have now discarded. If we are serious about using the depreciation rate taken from the U. S., then we should have used this rate to build up the net stock of reproducible tangible assets. Had we done so, then the estimated net stock of reproducible tangible assets would have been considerably larger. The question then arises whether such a result is reasonable.

I am afraid that the answer to this question is almost surely no. At this point, however, the incomplete reporting of the condition of non-financial corporations becomes very critical. I would suppose that the scale of the non-financial corporate sector in Japan is something like a half of the corresponding sector in the U. S., since the Japanese economy is roughly one-half of the U. S. economy. If so, the fact that the net stock of reproducible tangible assets of corporations in Japan is 74% (= 4,963/6,743) of the corresponding stock for the U. S. suggests that the Japanese stock is too large already. If the true Japanese stock turns out to be even larger than that because a lower rate of depreciation should have been used to construct the estimate of the stock of tangible capital at its reproduction cost, then the case that the Japanese corporations have accumulated too much capital becomes quite strong. The problem, however, is that the Japanese National Accounts do not provide information on the value added measure of output, the size of employment, or the compensation of workers in the non-financial corporate sector. Nor do the Accounts provide information on the precise procedure by which an estimate of the capital stock is calculated. Without such information, it is difficult to construct a comprehensive description of the behavior of Japanese non-financial corporations, and hence we will not be in the position to judge whether or not the size of productive capital is too large or too small.

At this point, we need to comment on the position of the corporate sector against the external sector¹⁴. Using the tables "External Transactions" on pages 252-3 and "Balance Sheet of Foreign Financial Assets and Liabilities" on pages 344-5 in the Annual Report on National Accounts, 2000 edition, we can compute the apparent capital loss that the Japanese private sector suffered in its position against the external sector in terms of yen (that is, excluding the loss on

the official reserve position). We follow a procedure similar to the one we have used in estimating the capital loss suffered by the household sector, that is, we compare the accumulated net foreign investment in base year prices for the period 1970-1998, against the change in the net financial asset position against the external sector for the same period. The result of this calculation shows that the Japanese private sector has suffered a capital loss of some 46 trillion-yen in terms of the 1990 private consumption price. Presumably, most of this loss is due to the appreciation of yen against other currencies during this period. I believe that we can attribute more or less the entire amount to the corporate sector, so we may conclude that, of the increase of the market valuation discrepancy of 405.5 trillion yen, 46 trillion yen is due to the net foreign asset position of these corporations, leaving 359 trillion yen, presumably attributable to the insufficient growth of net revenue.

It may be useful to add one additional perspective on the condition of non-financial corporations in Japan. In Table 3C, I present in column [1] the income statement for U. S. non-financial corporations as reported in the U. S. National Income and Product Accounts and its Japanese counterpart in column [2], converting the Japanese figures into dollars at the exchange rate of 120 yen to one dollar. The U. S. figures come already adjusted for CCA, IVA, and imputed banking services. For the Japanese data, I have made the adjustments described earlier. Since for Japan we do not have value added, compensation of employees, and indirect business taxes for the sector, I add column [3] to Table 3C, which includes both incorporated and unincorporated businesses but excludes the financial sector and the real estate industry (largely residential houses). This addition provides us with some indirect information on the scale of the Japanese economy.¹⁵

Unlike my earlier calculations, the rates of return shown in the last two rows of the table are gross of corporate profit taxes, but the qualitative result is the same. The rate of return for Japanese corporations is extremely low. One feature, however, makes itself more apparent here, namely, that gross income on capital is quite large. If we suppose that the scale of the Japanese corporate sector is roughly a half of its U. S. counterpart, then gross income for capital is extremely large. This is confirmed by column [3], where the share of gross income accruing to capital is 34% against 29% in the case of the U. S. corporations. Thus, the low rate of return on capital for Japanese corporations is not due to a low share of income accruing to capital. It is instead due largely to an extremely large depreciation, a very large capital stock and to the very high value of land.

It is also worth noting that dividends paid to equity owners is extremely small, \$25 billion in Japan compared with \$202 billion in the U.S, while retained profits and the depreciation allowance are both larger than for U. S. corporations¹⁶. Thus, Japanese corporations are keeping virtually all of their available cash flow internally. If they have good investment opportunities and the retention of earnings enhances their market value, this policy may be perfectly appropriate. We have seen earlier, however, that Japanese households suffered major capital losses through ownership of these corporations, because their investment has an extremely low return.

We may note an additional reason why the rate of return for Japanese corporations may be overestimated significantly, as low as it is. If the rate of depreciation used in the National Accounts has been much higher than it should have been for a long time, it must be the case that the stock of capital valued at reproduction cost is grossly underestimated as a result. If this is so, the stock of tangible assets shown in row (15) for Japan may be grossly underestimated, and therefore the rate of return may be significantly overestimated.

Finally, we must note a potentially most important reason why we should not base our understanding of the behavior of private non-financial corporations and financial institutions on figures reported in these sectors in the Japanese National Accounts. In the Japanese National Accounts, figures reported in these sectors are the aggregate not only of private non-financial corporations and financial institutions, but they also include public enterprises. It should also be remembered that, in the Japanese National Accounts, some accounts of government budgets are reclassified as public enterprises. Thus, the corporate sector of the Japanese National Accounts includes not only genuine public enterprises but also some government activities.

Public enterprises, of course, behave differently from private enterprises, and they have a different relationship with the household sector. For instance, public corporations, at least in Japan, do not issue equity shares. In the present context, then, we should be interested in the behavior of private corporations and financial institutions. Unfortunately, however, the Japanese National Accounts do not make it easy for us to isolate the data for them. I believe that, with a good deal of detective work and occasional luck, we can construct somewhat abbreviated income and outlay tables and balance sheets for public non-financial corporations and for public financial institutions, but it does not seem to be the case that we can construct capital finance accounts for these sectors¹⁷. In any event, as in the case of private non-financial corporation and private financial institutions, we do not have any information on gross output, total compensation

and employment for the public enterprises sector. It is, therefore, hard to obtain a comprehensive picture of the activities of the public enterprises sector¹⁸. It is my general impression, however, that the public enterprises in the non-financial corporate sector are relatively small though by no means negligible. In terms of fixed capital, the total held by non-financial corporations of 573.8 trillion yen at the end of 1998 is split into 93.9 trillion yen for public corporations and 479.9 trillion yen for private corporations¹⁹. On the other hand, a very large fraction of financial institutions is public enterprise. Of total financial assets held by financial institutions (excluding the Bank of Japan) of 1,896.6 trillion yen at the end of fiscal year 1998, public institutions accounted for 580.7 trillion yen.²⁰

We should have constructed then, our own estimates of the private non-financial corporate sector and the private financial institutions sector for the discussion in this section. We have not done so, because we are unsure in several places whether or not our interpretation of the figures are correct, and we thought for our purposes it is best not to include too many adjustments that are unfamiliar to the general reader. We believe that, while specific numerical results of the analysis may change significantly, the qualitative conclusions of this section will not be affected if we attempt to work with carefully isolated private corporations. The question of public enterprises will reappear again in our discussion of the government activities in the next section.

Let us summarize our narrative. We began with the observation that the market value of equities of the corporate sector in Japan is extraordinarily small compared to the accounting net worth of these corporations. Our inquiry into the causes of this condition led us to the next observation, namely, that the rate of return on investment in these corporations as reported in the Japanese National Accounts is extraordinarily low, especially if we take CCA and adjustments for imputed banking services into account. We also observe that the size of depreciation is extremely large.

The whole picture suggests a condition in which non-financial corporations in Japan have accumulated too much capital. They did so partly through the device of retaining an exceptionally large fraction of their revenue in the form of depreciation reserves and of retained profits and by distributing very little to owners of equities and holders of their financial liabilities. They have also taken advantage of the structure of the Japanese economy in which most households had little choice but to invest their savings, at a low rate of return, in financial institutions, who in turn placed these funds at the disposal of non-financial corporations. This

process resulted in over-investment by these corporations and very low rates of return on the investment, thus reducing the market value of their investment much below their reproduction costs, resulting in large capital losses by the household sector. Households then find themselves with a net worth much lower than they had intended, and they attempt to correct the situation by continuing to save more.

While this story has some plausibility, we cannot make it into a series of empirical hypotheses and test them. This is partly because the National Accounts are missing critical information such as the value added measure of output and employment for the corporate sector, the division of reproducible tangible assets of the household sector into residential structures and producers' equipment and structures, and others. In other cases, critically important steps in data construction have not been carried out, such as the distribution of imputed banking services to major sectors of the economy. Perhaps even more important is the lack of a detailed description of the procedure by which published figures in the National Accounts are derived and transformed into other concepts. Thus, we do not know how depreciation recorded in the flow part of the accounts (apparently at original costs) is transformed into depreciation recorded in the stock part of the accounts (apparently at reproduction costs). This type of problems appears to be especially serious in the government sector, perhaps because financial records of the government are themselves full of ambiguities. We now turn to a review of the government sector.

III. Description of Government Activities

In this section, I will focus my attention on the expenditure side of the government fiscal activities, leaving the consideration of revenues for another occasion. I assume that the document published by the Ministry of Finance called "Zaisei Tokei" (Statistical Report on Fiscal Activities) is the most comprehensive report of the fiscal activities of the central government. This document contains only a very brief summary of the fiscal activities of the provincial and local governments. The basic source of information on provincial and local governments is a massive document called "Chiho Zaisei Tokei Nenpo" (Annual Statistical Report on Provincial and Local Fiscal Activities) published by the Ministry of Provincial and Local Governments.²¹

The structure of the Japanese government is extremely complex, and I am far from having mastered its intricacies. It is, however, important to recognize a few basic features as

described in the introduction to the Fiscal Statistics volume²². First, the central government budget is divided into the general account and a number (currently 38) of special accounts. There is a complex system of transfers among these accounts, so that it is extremely important, for the purpose of estimating the total central government expenditures, that duplications be eliminated. The Statistical Report on Fiscal Activities indeed records the net total expenditure of these accounts. Second, the Japanese government is required to record all purchases of goods and services and current transfers in these accounts and have them approved by the Diet, but they do not necessarily have to record capital transfers. Since the distinction between current transfers and capital transfers can be quite ambiguous, this feature of the law in the Japanese Budget can create significant uncertainties in interpreting figures in the budget.

Third, provincial and local governments also have complex transfer systems among themselves, but the Annual Statistical Report on Provincial and Local Fiscal Activities does report the net total for all provincial and local governments. Fourth, provincial and local government budgets are also administered through “ordinary accounts (futsu kaikei)” and “business accounts (jigyo kaikei)”, and here again there appears to be an intricate system of transfers among them. I presume that the net total presented in the Annual Statistical Report includes these business accounts and eliminates duplications. Fifth, there is also a significant system of transfers between the central government and provincial and local governments, but neither of the volumes cited above touch on this question. Until 1997, the Economic Statistics Annual published by the Bank of Japan contained a net total of the general account and special accounts of the central government and the ordinary accounts of the provincial and local governments. It is my understanding that the table in question in the Economic Statistics Annual did not contain the business accounts of provincial and local governments, but the point became irrelevant because the Bank of Japan ceased the publication of the Economic Statistics Annual, and the table in question has not been available since 1997.

Sixth, both the central government and provincial and local governments have associated with them numerous public enterprises, and neither the Statistical Report nor the Annual Statistical Report contain comprehensive records of activities of these public enterprises. Thus, it is essentially impossible for anyone outside the government bureaucracy to construct a comprehensive record of total expenditures controlled by the Japanese government.

It is my understanding that, in dealing with this situation, the Japanese National Accounts have adopted two sets of rules. First, the national account statisticians have reviewed the central

government special accounts and provincial and local government's business accounts, and they have assigned some of them to the general government sector and the remaining ones to public enterprises sector. Thus, what is labeled as the general government in the National Accounts is a significantly narrower definition of the government accounts in the budget. Second, a part of the public enterprises sector thus enlarged has been merged with the private non-financial corporate sector, and the remainder has been merged with the private financial institutions sector. In Section II above, we discussed the extent to which we can separate public and private enterprises in the non-financial corporate sector and financial institutions sector. In the end, we have neither the total value added nor the compensation of employees for each of the sectors, and hence we are unable to determine, in the context of the National Accounts, what is the relative size of the public enterprises compared to the genuine private sector in Japan.

Keeping these caveats in mind, let us compare the government budget expenditure taken directly from the Statistical Report on Fiscal Activities and the Annual Statistical Report against government expenditure recorded for the general government sector in the National Accounts. Table 4 presents, in column (1) and (2), expenditures by the central government through the general account and special accounts. Special accounts are, as their name implies, a separate category of revenues and expenditures that are associated with a specific purpose or activity, and as we can readily see from Table 4, the latter is by far the larger of the two. However, as we have noted above, there is a great deal of transfers of funds between the general accounts and special accounts as well as among special accounts, so that for the present purposes, the relevant figures are in column (3), which nets out these overlaps. Columns (1) and (3) can then be added together to obtain the total net expenditures of the central government. There are also further transfers of funds between the central government and the provincial and local governments, which should be netted out in order to arrive at total government expenditures. It is my understanding that the relevant final expenditures that we should be looking at are in column (7).²³

We should observe two specific features of the figures reported in column (7). First, they do not include the budget of government enterprises. Actually, the Statistical Report on Fiscal Activities provides information on revenues and expenditures of the so-called "government affiliated institutions", but these are 11 financial institutions wholly owned by the government, and they constitute a small fraction of government enterprises owned by the central government. The reason these institutions are singled out is simply a legal one, namely, that their budgets,

unlike those of other government enterprises, must be submitted to Parliament for approval. However, the budget that must be submitted to Parliament for any account covers only current income and expenditure flows (including current transfers) such as interest paid and received, compensation of employees paid, and so on. It does not cover capital transactions such as outlays due to loans granted or receipts associated with their repayment. While this definition of the budget seems reasonable for some purposes, an analyst cannot gain a meaningful understanding of the nature and scale of those components of the government budget involving capital transactions without comprehensive information of their balance sheets, especially for financial institutions. Since the Statistical Report of Fiscal Activities reports budgets for all accounts containing current transactions, the information contained in the Report is seriously incomplete for those accounts involving capital transactions, including the so called “government affiliated institutions”.

The same situation prevails for information provided for a number of special accounts in the Statistical Report. I will briefly review the records of the Treasury Investment and Loan Program, in view of its size and importance. This is the well-known, unusual program of Japanese government finance which provides vast loans and investments for a number of specialized government programs, public enterprises, and others. Its sources of funds are primarily deposits received in the Postal Savings System from individuals in small amounts, premiums received in Postal Life Insurance Programs, and the surplus of the social security pension programs. Most of the funds is administered by the Trust Fund Bureau of the Ministry of Finance, while a smaller pool of funds is allocated directly by the Postal Life Insurance Program of the Ministry of Post and Telecommunications.

Since transactions related to loans and investment are considered capital transactions, they are not formally included in the budget of the central government. Because of their size and importance, however, the Statistical Report presents a separate table in which the gross current allocation of funds to government accounts, agencies and organizations is given (Statistical Report of Fiscal Activities, Fiscal Year 1998, Table 33, pp. 310-323). The Report also gives an abbreviated table of the sources of these funds for this program. The balance sheet for this program is now available on the web site of the Trust Fund Bureau. The absence of a transparent accounting design and the lack of adequate explanation make interpretation of these sets of data difficult, and it appears to contain some inconsistencies, as documented in Table 4C. In this table, I reproduce the balance sheet of the Trust Fund Bureau, Ministry of Finance, for the end of

fiscal years 1994 and 1995. The net increase in the balance is 26.4 trillion-yen. We should expect that this amount should match the sum of net new injections of funds from all sources. This latter amount, however, is reported to be 24.1 trillion, thus leaving an apparent discrepancy of 2.3 trillion yen. It may be net interest earned less expenses, but I have not been able to confirm this possibility. In addition, the Bureau received the repayment of outstanding loans and investment in the amount of 18.3 trillion yen during fiscal year 1995. Thus, the funds available for disbursement should have been 42.4 trillion-yen. The actual disbursement, on the other hand, is reported to be 31.6 trillion yen, leaving 10.8 trillion yen unexplained, since the Bureau's cash position is unchanged at zero.²⁴

For fiscal year 1998, the change in the total balance from the beginning of the year to the end of the year is 6.8 trillion-yen. Gross disbursement of new funds is 44.6 trillion yen, while repayments are 37.9 trillion yen, making the net new disbursement 6.7 trillion yen very close to the change in the balance cited above. However, new funds made available to the Bureau from the Postal Saving System and Pension Fund System are 17.9 trillion yen. I am sure there is a perfectly good explanation of what happened to the missing 11.1 trillion yen, but I cannot find it in the documentation available on the web site. What is needed here is a fully consistent set of annual gross flows and the end of the fiscal year balance sheet, so that we can trace changes in the balance sheet back to the inflow and outflow of funds as it would be in a well designed accounting report of a large organization.

Under the circumstances, in Table 4B, column (9), I record what I understand to be the gross disbursement of funds by the Treasury Investment and Loan program as an indicator of the scale of the program²⁵. It should be emphasized that at least a part of the disbursement of these funds is very similar in its function to government expenditures or subsidies financed by government borrowing. Take, for example, loans granted to the Japan Railway Construction Public Corporation financed by deposits from the Postal Savings System. It is in effect the construction of a railway facility using funds borrowed from depositors in the Postal Savings System. It differs from the bonds sold to the public by a private railway company, because, in the former, the investment decision is in effect made by the government, whereas, in the latter, the investment decision is private, presumably motivated by an attractive rate of return.

Provincial and local governments also own a large number of government enterprises, and their budgets are not integrated into the central government's budget. We do have records of expenditures by these government enterprises, but I do not know what expenditure this record

covers, nor do I know how many subsidies these enterprises received from governments. Hence I do not know how to construct the proper net sum of expenditures of the total government including these government enterprises.²⁶

Given this state of our knowledge of the government's fiscal activities, especially activities of government enterprises, there seems no alternative except to use figures in column (7) of Table 4B as the best indicator of the scale of government fiscal activities in Japan. In doing so, we must remember that figures in this column underestimate government expenditures by a significant fraction, since they do not include some important activities of government, such as those undertaken by at least some government enterprises.

In column (10), I present the total expenditures of the general government sector reported in the National Accounts. Compared to column (7), column (10) is much smaller. For 1995, column (10) is only 77% of column (7). Remembering that column (7) is a very narrow definition of government expenditures excluding all government enterprises and capital transfers, this result seems surprising, but we know the basic reason why figures reported in column (10) are much smaller than those in column (7). National income statisticians have reviewed special accounts of the central government and business accounts (*Jigyo Kaikei*) of provincial and local governments and reclassified a substantial part of them as government enterprises. Since government enterprises are, in the Japanese National Accounts, a part of the corporate sector, this part of government activities is moved to the corporate sector in the National Accounts²⁷. The decision to do so appears to be based on the observation that activities of these accounts are more naturally viewed as the production of private goods and services rather than production of public goods and services.

The reasoning may be sound, and it may have been a decision which would have enhanced information provided by the National Accounts - if government enterprises were treated as a separate sector of the economy along with the existing five sectors. Unfortunately, they are made a part of the non-financial and financial corporate sectors. There exists a set of tables in the National Accounts which provides information on the division of income and outlay accounts of the non-financial and financial corporate sectors between private and public components, but information is heavily truncated. I believe that a significant amount of additional information on conditions of public enterprises is presented in the National Accounts so that with a good deal of effort and ingenuity we can probably construct approximate full accounts for the public enterprises sector. We can never be sure, however, that we have not

committed major errors in the process, while I am sure that the EPA could have provided such an information with relatively little effort.

Even if they did, however, we are still left with the major problem that the Japanese National Accounts do not record the compensation of employees for corporate accounts, and hence, we do not know the value added measure of output for any of the corporate sectors. It is hard to believe that this information should be difficult to obtain for these sectors, since it should be a by-product of the collection of social security contributions or of corporate profit taxes.

IV. Conclusions

There are at least two major consequences of these difficulties in the government fiscal records and in the Japanese National Accounts. First, when we wish to analyze the macroeconomic effects of government fiscal activities on the Japanese economy, we are faced with the situation in which the readily available measure of government expenditures is column (10) of Table 4B. Column (7), which includes all special accounts of the central government and business accounts of provincial and local governments, is some 30% larger than column (10), and the extra part of column (7) is likely to have a similar macroeconomic impact on the economy as some elements of column (10) do. We also know that the difference between column (7) and column (10) does not include outlays of those government enterprises, which are formally government enterprises to begin with. The presumption is that the difference between the two columns represents expenditures of only those which were shown as special or business accounts of the government in the budget but that were reclassified by national income statisticians as expenditures of government enterprises. Thus, the total difference between the total expenditures controlled by the government including those of government enterprises and the expenditures of the general government sector in the National Accounts is significantly larger than the difference between columns (7) and (10). Since there does not appear to exist a readily available, well designed consolidated accounting statement representing activities of all government enterprises, it is not at all clear how anyone can define and measure total outlays controlled by government.

Second, it is clear that we cannot treat the data presented in the non-financial and financial corporate sectors in the National Accounts as representing a collection of business firms. Indeed, a reader of this note may now look at the discussion presented in section IIB of

this note with serious skepticism and say that it is largely irrelevant, because all unusual patterns in the data that I have discussed in that section may very well be the result of the behavior by government enterprises included in the non-financial and financial sectors. After all, government enterprises appear to constitute a substantial part of these sectors, perhaps 10% to 20% in the case of the non-financial sector, and perhaps as much as 50% in the case of the financial sector. Since we know nothing about their objectives or their modes of operation, it is natural that the data for these sectors do not look reasonable if one approaches them with the preconception that business firms generate them.

Such a criticism is justified. I have suggested in Section II above that the basic cause of the Japanese recession of the 1990's has been a steady loss in the market value of private corporations in relation to their accounting values (at reproduction costs). This in turn resulted in a huge real capital loss by households with a consequence that they maintained an unusually high rate of saving. This chain of behavior has been the primary cause for the substantial deficiency of effective demand in the Japanese economy in the 1990's. This deficiency of demand accompanying a lowered potential growth rate has not only manifested itself as a prolonged recession in Japan, but it has also posed a threat to the orderly functioning of the world economy.

If this identification of the causes leading to the Japanese recession is correct, then stimulative macroeconomic policies alone will not be sufficient to place the Japanese economy back on a full employment growth track, however desirable such policies may be. They must be accompanied by a set of serious structural reforms, especially aimed at encouraging more rational investment decisions by firms, and a major shift of resources from firms to the household sector. To justify such recommendations convincingly, however, the Japanese National Accounts must provide information on the conditions of corporations divided into private non-financial, private financial and public (preferably also divided into financial and non-financial) sub-sectors, so that each sub-sector's behavior can be clearly described.

I have stated the case for improving the government accounting and the National Accounts in Japan from the specific perspective of gaining a better understanding of the current economic conditions in Japan, but the set of improvements under discussion is clearly needed for any use of these statistics. Economic policies of the Japanese government in the 1990's have often appeared puzzling and hesitant to outside observers. The lack of accurate and well-designed statistical information may well have been an important cause of the apparently inept design and performance of the policies. Let us therefore recapitulate those improvements in the

Japanese government accounting system and the National Accounts, which we have deemed essential for understanding better some important aspects of the Japanese economy.

A. Government Budget

At the present time, we do not have a clearly defined measure of the total revenue or expenditures of the Japanese government, either in the National Accounts or in the budget documents published by the Ministry of Finance (for the national government) and by the ministry of Provincial and Local Governments (for provincial and local governments). We have reviewed the issues on the expenditure side, and we believe that the following improvements in statistical records are essential.

- (1) The Ministry of Finance and the Ministry of Provincial and Local Government must prepare unified, consistent records of expenditures according to a well defined accounting principle, including the purchase of goods and services as well as current and capital transfers²⁸. These expenditures should be attributed to the three main types of government agencies, namely, the national government, the provincial and local governments, and the government enterprises. (The social security system may be the fourth separate branch). Records of government enterprises are especially important, because there are a large number of them and the scope of their activities is extremely large, especially in financial activities.
- (2) For transfers, the records must clearly show their originating and receiving types of agencies or sectors of the economy, so that, for example, when the three types of agencies are aggregated, the net transactions between the total government and the private sector of the economy can easily be calculated.
- (3) In view of the fact that the Japanese government conducts large financial operations both directly (for example, the Trust Fund Bureau of the Ministry of Finance) and indirectly (for example, the so-called “government related institutions”), we believe that the transactions of financial assets and liabilities must also be fully recorded.
- (4) There should be a comprehensive government balance sheet for each of the three types of government agencies listed above. As in the case of transfers, for financial assets and liabilities, the originating type of agency or the sector of the economy should clearly be indicated so that the user should be able to net appropriate items when consolidating two or more types of agencies. Once the broad reforms described here are completed, all changes in the proposed balance sheets from the end of one fiscal year to the next should

be fully matched with flow transactions. The question of government responsibility for the liabilities of its agencies and government enterprises, such as future obligations of the social security system, the liabilities of the Postal Savings System, and those of the Postal Life Insurance System should be addressed explicitly. Recently, the Ministry of Finance has circulated documents entitled “The Japanese Government Balance Sheet (Preliminary Trial)” and “Provisional Concepts and Standards for the Japanese Government Balance Sheet” Ministry of Finance (2000a) and (2000b). While this is a praise-worthy attempt to improve the information on the fiscal condition of the Japanese government, a cursory examination of the documents suggests that the proposed balance sheet is highly restricted in scope, and its relationship to flow accounts does not seem to be fully described.

- (5) The decision by the National Income Division of the EPA to exclude some special accounts of the national government and the business accounts of provincial and local governments from the General Government Sector and make them a part of the government enterprises sector may be justified. The complete list of special accounts and business accounts so moved and the description of the exact and detailed accounting procedure for accomplishing the move is essential. In doing so, however, the National Income Division must keep the government enterprises sector separate from the private business sector. That is, instead of one non-financial corporate sector and one financial institutions sector, the National Accounts should have four sectors, namely, the private non-financial corporate sector, the non-financial public enterprises sector, the private financial institutions sector, and the public financial institutions sector. The complete list of the original government enterprises included in this sector is also needed.
- (6) Once reforms of the government fiscal records and the National Accounts along the lines of (1) through (5) are undertaken, and similar work is also carried out for the revenue side, it should be possible, at least for the total government, to define exactly what is the difference between the revenue and expenditure totals recorded in the government fiscal records and their counterparts shown in the National Accounts, perhaps in a form similar to the U. S. National Income and Product Accounts, Tables 3-18 and 3.19.

B. Private Non-Financial Corporations and Financial Institutions²⁹

- (1) As we have already discussed in A. (5) above, the separation between the private non-financial corporate sector and the non-financial public enterprises sector and between the

private financial institutions sector and the public financial institutions sector are of fundamental importance. Without such a separation of the data, we are unable to study the behavior of private businesses meaningfully.³⁰

- (2) Sectoral accounts in the current version of the Japanese National Accounts do not contain compensation of employees for the sector, and hence there is no national income or gross domestic product originating in each sector. This is a serious drawback of these accounts for those who wish to study the behavior of agents represented by these accounts. Moreover, it is hard to imagine that compensation of employees is difficult information to obtain, especially for corporations and financial institutions, since their tax returns must contain this information. It should be trivially easy for the National Tax Office to tabulate it for any group of corporations.³¹
- (3) It has been well known for some time that, in the current version of the Japanese National Accounts, depreciation in the flow part of the Accounts is computed on an original cost basis, whereas in the stock part of the Accounts it is estimated on a replacement cost basis. The difference between two estimates (capital consumption adjustment, or CCA) is never explicitly shown, and it is impossible to recover explicitly the replacement cost depreciation used to construct the stock of fixed capital, because the appropriate item in the reconciliation table contains unspecified additional items. This leaves us in an unsatisfactory state in which we cannot obtain the economically relevant depreciation for businesses and hence the conceptually correct operating surplus for them. I have shown in the text, using approximate values of replacement cost depreciation that I have constructed, that the use of the replacement cost depreciation instead of the original cost depreciation reduces the estimate of operating surplus for the non-financial corporate sector by almost 25%. The lack of exact information on replacement cost depreciation is deeply regrettable, since the National Income Division clearly has this information and can readily make it available. Moreover, we have shown that the rate of depreciation used in the National Accounts appears to be very large. Given that the stock of reproducible fixed capital reported in the National Accounts is extremely large, the amount of depreciation for non-financial corporations is enormous, making their operating surplus quite small. These are important issues since they dramatically affect our estimate of the rate of return on capital for Japanese corporations. A careful review of the depreciation process is needed.

- (4) In the Japanese National Accounts, total imputed banking services (IBS) is estimated and therefore the operating surplus of financial institutions can be adjusted for it, but it is not allocated to sectors using IBS with complex and sometimes major consequences for these sectors. For the non-financial corporate sector, it results in a very large overestimate of its operating surplus. Although its exact magnitude is obviously unknown, we estimate it to be more than 25% of the reported operating surplus. A serious attempt must be made to allocate IBS at least to major sectors, namely, the non-financial corporate, non-corporate business, and consumer sectors.³²
- (5) In Japan, corporations, both financial and non-financial, own equity shares of other corporations, and in the balance sheets for two sectors representing these two types of corporations, it is important that we net out the value of equity shares owned by corporations in each sector against the value of total equity shares outstanding for that sector. We are unable to do so for each of these two sectors separately, because their ownership of equity shares are not split between those of financial institutions and non-financial corporations. This split may be a difficult task for the National Income Division, and it may take a revision of the reporting requirements for corporations. I believe, however, that it is a critically important piece of information for understanding the behavior of these two sectors.
- (6) The reported dividends paid by financial institutions appear to be relatively large. Indeed, financial institutions own 122 trillion yen of equities while their total equities outstanding is only 45 trillion yen at the end of 1998 --- yet during the calendar year 1998, the sector paid 4.3 trillion yen of dividends while receiving only 2.4 trillion yen. Upon inquiry, it turns out that dividends paid by financial institutions includes “dividends” paid by life insurance companies on the accumulated value of life insurance policies and interest paid on other types of financial instruments. The National Accounts must show dividends paid on equities separately in order for us to be able to estimate the rate of return on capital for financial institutions.

This paper has reported the difficulties that I have encountered in my attempt to understand the current condition of the Japanese economy primarily through information provided in the Japanese National Accounts, and concluded with a set of suggestions for improvements on the government accounting system as well as in the National Accounts. For

the government, I believe the construction of unified and comprehensive accounting records based on well understood accounting principles is absolutely essential. For the National Accounts, I believe that what is most urgently needed is a precise and detailed description of the source data and the procedure by which all entries in the National Accounts are derived from the source data. Once such a description is available, we can then understand figures reported in the National Accounts much better, and if there are problems and difficulties, users of the accounts and the National Income Division can carry on exchanges and discussions much more intelligently, effectively, and efficiently. I sincerely hope that the day when we can base our discussion of the latest release of the National Accounts on such full description is not too far in the future.

Endnotes

¹The UN prepared and published a substantially revised version of the System of National Accounts in 1993, and I understand that an effort is being made at the Economic Planning Agency to restructure the national accounts to conform to the 1993 revision, but the work is not complete yet.

²Until very recently, the only available description of the procedures used to produce the National Accounts is a book published in 1978 by the Economic Planning Agency titled “Shin Kokumin Keizai Keisan no Mikata, Tsukaikata”. In my view, this document did not provide a sufficiently detailed description of the source data and the procedures for processing the source data to construct the National Accounts for a full understanding of the system even at the beginning, but now it is quite old and in many respects badly out of date. This is especially true in the handling of the government sector in the accounts, where many changes of institutional arrangements have occurred. In March, 2000, National Income Division of EPA has published QE-HANDBOOK, which is primarily concerned with the description of how the division prepares preliminary estimates of quarterly GDP and its components, but it also contains some information on basic conceptual problems and data sources, and it is a useful document. It still does not enable us to begin with the original data source and trace the detailed and concrete procedure used by the division to arrive at the published figure even on those items explicitly discussed in this new handbook. There are, of course, many basic issues of the national accounts not dealt in this new handbook since it is meant to cover one particular issue, namely, preliminary estimates of GDP and its components.

³ We may view this analysis as an extension of the well known work of Hayashi (1988) on adjusting the aggregate Japanese saving-income ratio, and of a series of papers by Ando and Auerbach (1988a), (1988b), and (1990), and Ando, Hancock and Sawchuk (1997) on the measurement of the cost of capital and the valuation of corporations in Japan.

⁴ See Ando, Hancock, and Sawchuk, (1997)

⁵ See, for example, Krugman (1999) and chapters 7 through 10 in Posen (2000).

⁶While I am prepared to concede that the national accounts for the United States may not be a panacea, on this issue it is very clear, thanks largely to the well constructed and comprehensive Unified Budget of the Federal Government. See Dept. of Commerce, Bureau of Economic Analysis, National Income and Product Accounts, Tables III.16 through III.19.

⁷ It would have been extremely helpful if the balance sheet tables in the Annual Report of National Accounts, 2000 edition, pp. 322-331 had a full explanation of exactly how each item in the Reconciliation Account are constructed.

⁸Both the household sector and the corporate sector have positions against the general government and also against the external sector, and to make our computations exact, we have to have details of these positions that are not provided in the National Accounts. Fortunately, however, net positions of the combined household and corporate sectors to both government and external sectors are quite small as shown at the bottom of Table 2. This is partly a result of the definition of sectors used in the National Accounts. Large public financial institutions such as the Postal Saving System is included in the Financial Institutions sector, not in the Government sector. In any case, we can take advantage of the fact that as accounts are organized in the National Accounts, the net financial positions of the household sector against government and the rest of the world sector are quite small, and proceed with our analysis ignoring these positions.

⁹ It is worth noting here that the item which is called “market valuation discrepancy” in English is referred to in Japanese as “shomi shisan”, which can be literally translated as “true net worth”. I do not believe that this is merely a matter of terminology. In talking with Japanese accountants and statisticians, there are strong indication that they believe corporations to be independent entities, and that equity holders are creditors. Thus, in their view, the market value of equities is a part of the liabilities of corporations, and the “shomi shisan” represents the net worth belonging to corporations. To be sure, Japanese analysts are likely to resist such a stark formulation of their position, but the picture of corporations in their mind carries a strong flavor of this formulation.

¹⁰ This statement ignores the net equity position of the external sector, but we know that it is relatively small and does not change our analysis materially.

¹¹ For this proposition to be strictly valid, we need two conditions. First, the private holdings of net government debt must be very small. The National Accounts report the net financial liability of the general government sector at the end of 1995 at only 63 trillion yen. Second, the net financial position of

the private sector of Japan against the external sector must be relatively small. On this point, see our discussion in Section III, p. below.

¹²In the case of the net worth of the household sector, it is not true that the change in net worth from one period to the next is equal to savings plus the appropriate item in the reconciliation table.

¹³ This is to match the balance sheet for the end of 1995 given in Table 3Aa. Figures for 1999 to match the balance sheet for the end of 1998 are not available yet.

¹⁴ I believe that the net balance sheet position of the Japanese household sector against the external sector is still quite negligible.

¹⁵ We could look at this problem using individual firm data for those firms listed on major stock exchanges. For these firm data, we can easily calculate value added and the compensation of employees, but the value of land owned by these corporations is hard to estimate. I have tried to carry out such an analysis using individual firm data and then to compare the result with that obtained using aggregate National Accounts data. I must say that the result was not very informative. See Ando, Hancock and Sawchuk (1997). I believe, however, that if a parallel analysis were to be carried out at the EPA where the procedure to generate figures for the non-financial corporate sector in the National Accounts is fully known, the result would be much more informative.

¹⁶ I found it surprising that net dividends paid by financial institutions is, at 4.8 trillion yen, much bigger than net dividends paid by non-financial corporations, 1.4 trillion yen, for 1995, especially because net equity outstanding (their own equity less equities owned by them) for financial institutions is negative (- 62.5 trillion yen in 1995). I have subsequently learned that the term “dividends” paid by financial institutions includes dividends paid on life insurance policies and other financial instruments, and gross dividends paid on their own equities is roughly one-third of the total reported. If this information is correct, then net dividends paid by financial institutions on equities is -0.4 trillion yen, making it consistent with other patterns in the accounts.

¹⁷ For the income and outlay accounts, the Annual Report on National Accounts (2000) presents Part 1, Flow, [3], Supporting Tables, 20, Income and Outlay Accounts of the Private and Public Institutions, though information presented here is severely abbreviated. For the balance sheet, the Annual Report, in Part 2, III, Supporting Tables, 2, Closing Stocks of Assets and Liabilities of Private and Public Institutions, presents the balance sheet of the public sector, but here the public sector means the sector including general government and public enterprises. Since, however, the balance sheet of the general government is separately presented, by subtraction, we can obtain the balance sheet of the public enterprises, financial and non-financial combined. Since financial institutions own very little tangible assets, we do not error much by assuming that all tangible assets in this balance sheet belongs to non-financial public enterprises. See, however, endnote 18 below. Financial assets and liabilities are further subdivided into sub-sectors in Part 2, III, Supporting Tables, 5, Closing Stock of Financial Assets and Liabilities by Sub-sectors. Thus, we can construct nearly complete balance sheets for financial and non-financial public enterprises, subject to the observation discussed in endnote 18 below.

¹⁸ In a series of Tables starting with Part 1, Flow, [3], Supporting Tables, 2, Gross Domestic Product and Factor Income by Kind of Economic Activity, one of the economic activities listed is “Government Production”. Matching figures reported in these tables and corresponding figures in the General Government Sector, for example those for depreciation, it is clear that Government Production in these tables refer to production by the General Government Sector as defined in the National Accounts, and does not include government enterprises.

¹⁹ The Japanese National Accounts do not include in the balance sheet of the government the value of social overhead capital, such as improvements at ports, airports, highways, etc. Some of these, undoubtedly belong to public enterprises rather than the general government. Consequently, it is possible that the tangible assets of public enterprises may be severely underestimated.

²⁰ Economic Planning Agency, Annual Report on the National Accounts, 2000, pp. 356-357.

²¹ The Economic Statistics Annual of the Bank of Japan used to contain a useful, though incomplete, summary of government fiscal activities from these two volumes. Unfortunately, the Bank has decided to eliminate this set of information in the process of changing the format of its monthly and annual statistical reports.

²² The introduction to the Statistical Report on Fiscal Activities (page 10) contains an extremely useful chart showing which accounts and organizations of the government are included in the General Government Sector of the National Accounts, and the list of others that are considered to be public enterprises in the National Accounts. Unfortunately, this table is incomplete in three ways. First, it does

not list all accounts of the government explicitly. Second, its not contain information on the size of the expenditure by each accounts shown. Third, it does not list all those agencies that have been organized as public enterprises from the beginning. With these three sets of information added, this table could be a starting point in constructing a reasonably complete description of public enterprises in Japan.

²³ Unfortunately, figures for columns (6) and (7) in Table 4 have been taken from the Economic Statistics Annual, Bank of Japan, which has been discontinued, and we are unable to reconstruct the procedure used by the Bank of Japan for generating figures in these columns to continue them after 1995. Figures for 1996 and 1997 are preliminary initial budget figures given in the last issue of the Economic Statistics Annual, and they seem implausible.

²⁴ Until very recently, I did not realize that this set of information has become available at the web site of the Trust Fund Bureau, and my calculation in this paragraph is based on information presented in the Economic Statistics Annual of the Bank of Japan, now discontinued. Fortunately, relevant parts of the information from these two sources appear to be identical except for most recent years.

²⁵ By far the largest operation in this program is the one administered by the Trust Fund Bureau of the Ministry of Finance, with a balance at the end of the fiscal year 1995 of 373 trillion yen. (Bank of Japan, Economic Statistics Annual, 1997, pp.301-302) The second operation of substantial size in the Treasury Investment and Loan program is the direct allocation of funds by the Postal Insurance System. Its balance at the end of 1995 fiscal year was 92.4 trillion-yen (Bank of Japan, Economic Statistics Annual, 1997, pp. 299-300). The remaining two operations in the Treasury Investment and Loan Program are very small and can be ignored for the present purposes.

²⁶ In the U. S. National Income and Product Accounts, government enterprises are considered to be unincorporated businesses owned by the government. Hence, their value added and their components are treated like ordinary private businesses, except that their operating surplus less interest payments to the private sector is attributed to the government. We can easily reconstruct most components of the table showing "GDP originating in Government Enterprises".

²⁷ The original description by EPA on which special accounts are moved to the private sector is no longer very useful, partly because the list of existing special accounts has changed substantially since then, and partly because it did not give the list of all genuine government enterprises. (See EPA, Shin Kokumin Keizai Keisan no Mikata, Tsukaikata, 1978, pp. 133-142) The best brief description of the general government sector and public enterprises is now given in the Ministry of Finance, Statistical Report of Fiscal Activities, 1998, page 10. I am aware of some public enterprises not included here, so this table cannot be considered complete.

²⁸ The reason often cited for excluding some expenditure items from statistics in, for instance, the Statistical Report of Fiscal Activities, is that the excluded items are not required by law to be reported to the DIET. If this is the reason, in order for the Statistical Report to be useful both for administrative purposes as well as for an analysis of the economic impacts of fiscal activities, these items should be shown as a separate line.

²⁹ Some of the points discussed below are also present in accounting reports of individual corporations. For instance, the average rate of depreciation reported by those companies included in the Nikkei-Needs tape for the period 1985-93 was more than 20% (Ando, Hancock, and Sawchuk, 1997, p.91). This suggests that, at least some of the difficulties discussed here are partly due to questionable accounting practices followed by Japanese corporations.

³⁰ As discussed in the text, it appears that the current form of the National Accounts contains almost but not fully complete data needed to construct the four sectors in question. To do so, however, involves extremely complex detective work and some crude approximations.

³¹ The United Nations (1993) clearly recommends that sectoral accounts should start with GDP originating in the sector. See, for instance, pp. 60-61 and p. 158.

³² The United Nations (1968) suggested the procedure followed by the Japanese National Accounts as a temporary alternative for countries, which found the proper allocation of IBS difficult. The United Nations (1993, Annex III, pp.563-568, and p.140, paragraph 6-126) no longer list this procedure as an official alternative, but states that some countries may prefer to continue following the procedure if they find the allocation too difficult. I believe, however, that a very crude allocation at least for major sectors as mentioned in the text is far more preferable than no allocation at all. We should note that the Japanese procedure results in a 20%-25% overestimate of the operating surplus for the non-financial corporate sector, and an underestimation of consumption by an amount between 5 to 10 trillion yen.

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APPENDIX

We can write the balance sheet of corporations (in current prices) in a slightly altered form

$$P_t^R ARR_t^* + P_t^L LAND_t^* + NF_t = NWA_t \quad (A.1)$$

where $NF_t = AF_t - LF_t$

and in term of the consumption price in the base year as

$$\frac{P_t^R}{P_t^C} ARR_t^* + \frac{P_t^L}{P_t^C} LAND_t^* + \frac{NF_t}{P_t^C} = \frac{NWA_t}{P_t^C} \quad (A.2)$$

and

$$\begin{aligned} \frac{NWA_t}{P_t^C} - \frac{NWA_{t-1}}{P_{t-1}^C} = & \left(\frac{P_t^R}{P_t^C} ARR_t^* - \frac{P_{t-1}^R}{P_{t-1}^C} ARR_{t-1}^* \right) + \\ & \left(\frac{P_t^L}{P_t^C} LAND_t^* - \frac{P_{t-1}^L}{P_{t-1}^C} LAND_{t-1}^* \right) + \left(\frac{NF_t}{P_t^C} - \frac{NF_{t-1}}{P_{t-1}^C} \right) \end{aligned} \quad (A.3)$$

we can decompose each of three terms on the right hand side of (A.3) as follows

$$\frac{P_t^R}{P_t^C} ARR_t^* - \frac{P_{t-1}^R}{P_{t-1}^C} ARR_{t-1}^* = \left(\frac{P_t^R}{P_t^C} - \frac{P_{t-1}^R}{P_{t-1}^C} \right) ARR_{t-1}^* + \frac{P_t^R}{P_t^C} (ARR_t^* - ARR_{t-1}^*) \quad (A.4.a)$$

$$\frac{P_t^L}{P_t^C} LAND_t^* - \frac{P_{t-1}^L}{P_{t-1}^C} LAND_{t-1}^* = \left(\frac{P_t^L}{P_t^C} - \frac{P_{t-1}^L}{P_{t-1}^C} \right) LAND_{t-1}^* + \frac{P_t^L}{P_t^C} (LAND_t^* - LAND_{t-1}^*) \quad (A.4.b)$$

$$\frac{NF_t}{P_t^C} - \frac{NF_{t-1}}{P_{t-1}^C} = -\frac{1}{P_t^C} \left(\frac{P_t^C - P_{t-1}^C}{P_{t-1}^C} \right) NF_{t-1} + \frac{1}{P_t^C} (NF_t - NF_{t-1}) \quad (A.4.c)$$

The second term of the right hand side of each of (A.4.a) through (A.4.c) represents the allocation of the real saving given to the corporate sector by households and others, while the first term of the right hand side is capital gains associated with these three components of the balance sheet.

Let us define

$$\Delta \left(\frac{NWA_t}{P_t^C} \right) = \frac{NWA_t}{P_t^C} - \frac{NWA_{t-1}}{P_{t-1}^C} \quad (\text{A.5})$$

$$\Delta \left(\frac{NWA_t}{P_t^C} \right)^S = \frac{P_t^R}{P_t^C} (ARR_t^* - ARR_{t-1}^*) + \frac{P_t^L}{P_t^C} (LAND_t^* - LAND_{t-1}^*) + \frac{1}{P_t^C} (NF_t - NF_{t-1}) \quad (\text{A.6.a})$$

$$\Delta \left(\frac{NWA_t}{P_t^C} \right)^{CG} = \Delta \left(\frac{NWA_t}{P_t^C} \right) - \Delta \left(\frac{NWA_t}{P_t^C} \right)^S \quad (\text{A.6.b})$$

In view of (A.4), we can also write

$$\Delta \left(\frac{NWA_t}{P_t^C} \right)^{CG} = \left(\frac{P_t^R}{P_t^C} - \frac{P_{t-1}^R}{P_{t-1}^C} \right) ARR_{t-1}^* + \left(\frac{P_t^L}{P_t^C} - \frac{P_{t-1}^L}{P_{t-1}^C} \right) LAND_{t-1}^* - \frac{1}{P_t^C} \left(\frac{P_t^C - P_{t-1}^C}{P_{t-1}^C} \right) NF_{t-1} \quad (\text{A.6.c})$$

The households saving allocated to the corporate sector, in terms of the base year consumption unit, then consists of

$$\Delta \left(\frac{NWA_t}{P_t^C} \right)^S - \frac{1}{P_t^C} (NF_t - NF_{t-1}) = \frac{P_t^R}{P_t^C} (ARR_t^* - ARR_{t-1}^*) + \frac{P_t^L}{P_t^C} (LAND_t^* - LAND_{t-1}^*) \quad (\text{A.7})$$

Since $(1/P^C)(NF_t - NF_{t-1})$ is also an increase in financial liability of households. On the other hand, the change in net worth of households in terms of the base year consumption unit attributable to the corporate sector is given by the left-hand side of (A.8) below, and (A.8) holds because of the identity $NWA = NWM + DMV$.

$$\Delta \left(\frac{NWM_t}{P_t^C} \right) - \left(\frac{NF_t}{P_t^C} - \frac{NF_{t-1}}{P_{t-1}^C} \right) = \Delta \left(\frac{NWA_t}{P_t^C} \right) - \Delta \left(\frac{DMV_t}{P_t^C} \right) - \left(\frac{NF_t}{P_t^C} - \frac{NF_{t-1}}{P_{t-1}^C} \right) \quad (\text{A.8})$$

The real capital gain of households due to ownership of corporations is therefore given by

$$\begin{aligned}
& \Delta \left(\frac{NWA_t}{P_t^C} \right) - \Delta \left(\frac{DMV_t}{P_t^C} \right) - \left(\frac{NF_t}{P_t^C} - \frac{NF_{t-1}}{P_{t-1}^C} \right) - \Delta \left(\frac{NWA_t}{P_t^C} \right)^S - \frac{1}{P^C} (NF_t - NF_{t-1}) \\
&= \Delta \left(\frac{NWA_t}{P_t^C} \right)^{CG} - \Delta \left(\frac{DMV_t}{P_t^C} \right) + \frac{1}{P_t^C} \left(\frac{P_t^C - P_{t-1}^C}{P_{t-1}^C} \right) NF_{t-1} \\
&= \left(\frac{P_t^R}{P_t^C} - \frac{P_{t-1}^R}{P_{t-1}^C} \right) ARR_{t-1}^* + \left(\frac{P_t^L}{P_t^C} - \frac{P_{t-1}^L}{P_{t-1}^C} \right) LAND_{t-1}^* - \Delta \left(\frac{DMV_t}{P_t^C} \right)
\end{aligned} \tag{A.9}$$

The second equality in (A.9) holds in view of (A.6.c)

DEFINITION OF VARIABLES

AF = Gross financial assets excluding equities of other corporations owned
(accounts payable are netted against accounts receivable here)

ARR* = The value of reproducible fixed capital at the reproduction cost.

ARR = $ARR^* * P^R$

DEP = Depreciation reported (apparently on an original cost basis).

DIV = Net dividends paid.

DMV = Market value discrepancy (defined by the second identity in (1)).

ECR = Retained earnings.

INT = Net interest paid.

LAND* = The value of non-reproducible assets (virtually all land) at the market price.

LAND = $LAND^* * P^L$

LF = Gross financial liabilities excluding equities outstanding (accounts payable is moved to AF as a negative item)

NF = $AF - LF$.

NWA = Accounting net worth at reproduction cost (defined by other corporations).

$\Delta\left(\frac{NWA}{P^C}\right)$ = Change in accounting net worth of corporations in terms of base year consumption price, defined by (A.5)

$\Delta\left(\frac{NWA}{P^C}\right)^S$ = Saving component of $\Delta\left(\frac{NWA}{P^C}\right)$, defined by (A.6.a)

$\Delta\left(\frac{NWA}{P^C}\right)^{CG}$ = Capital gains component of $\Delta\left(\frac{NWA}{P^C}\right)$, defined by both (A.6.b) or (A.6.c)

NWM = Net equity outstanding; that is, gross equity less equities owned by other corporations.

OSAT = Operating surplus net of depreciation and net of corporate profit tax.

P^C = Price Index for total private consumption, $P^C = 1.0$ for 1990.

P^L = Price Index for LAND, $P^L = 1.0$ for 1990.

P^R = Price Index for ARR, $P^R = 1.0$ for 1990.

Table 1A

**BALANCE SHEET OF HOUSEHOLDS AND NON-PROFIT INSTITUTIONS
JAPAN**

End of Calendar Year (In Trillions of 1990 Yen)¹

Item	1970	1995	1998
I. TOTAL ASSETS	626.8	2,506.7	2,413.7
1. Reproducible Tangible Assets	82.9	282.5	280.7
2. Land	331.4	1,105.1	995.3
3. Financial Assets other than equities	181.1	1,007.9	1,068.7
4. Corporate Equities	31.4	111.2	69.1
II. TOTAL LIABILITIES	85.9	379.2	371.3
III. NET WORTH	540.9 (3.51) ³	2,127.5 (6.96) ³	2,042.4 (6.36) ³
IV. NET WORTH EXCLUDING LAND	209.5 (1.36) ³	1,022.3 (3.35) ³	1,047.1 (3.26) ³
(Disposable Income Adjusted)²	153.9	305.6	320.9

1 Deflated by Total Private Consumption Deflator

2 Corrected for Capital Consumption Adjustment of the household sector, and includes retained corporate profits after tax with CCA

3 Figures in Parenthesis are Ratios to Disposable Income

Source: EPA, Annual Report of National Accounts, 2000

Table 1B

**BALANCE SHEET OF HOUSEHOLDS AND NON-PROFIT INSTITUTIONS
USA**

End of Calendar Year (In Billions of 1990 dollars)¹

Item	1995
I. TOTAL ASSETS	28,403
1. Reproducible Tangible Assets	9,387
2. Land	1,580
3. Financial Assets other than equities	9,302
4. Corporate Equities	9,714
II. TOTAL LIABILITIES	4,339
III. NET WORTH	24,064 (5.10) ²
IV. NET WORTH EXCLUDING LAND	22,484 (4.76) ²
Disposable Income	4,723

1 Deflated by Total Private Consumption Deflator

2 Figures in Parenthesis are Ratios to Disposable Income

Source: Board of Governors of the Federal Reserve System, Flow of Funds Accounts of the United States, Federal Reserve Statistical Release Z1, March 10, 2000, p. 102.

Table 2

**CAPITAL LOSS BY HOUSEHOLDS AND
CAPITAL LOSS OF THE CORPORATE SECTOR**
(In Units of 1990 Consumption)

(1)	Cumulated Value of Adjusted Saving less Net Sale of Land, 1970-98	1,250.0
(2)	Change in Net Worth of households excluding Land, 1970-98	860.7
(3)	(1) - (2)	<u>389.3</u>
(4)	Change in Market Valuation Discrepancy of Corporations, 1970-98	405.5
(5)	Real Capital Gains on Land by Corporations, 1970-98	264.0
(6)	Real Capital Gains on Reproducible Tangible Capital by Corporations, 1970-98	-149.3
(7)	(4) - (5) - (6)	<u>290.8</u>
(8)	Note: Real Capital Gain by Government on its Debts (1970-98), based on the Balance Sheet of General Government Reported by National Accounts	15.6

Table 2A

**SAVING ADJUSTED AND CHANGE IN NET WORTH EXCLUDING
LAND FOR HOUSEHOLDS AND NON-PROFIT INSTITUTIONS**

(In Trillions of 1990 Yen)

	(1)	(2)	(3)	(4)	(5)
Year	Saving Adjusted for CCA and Retained Earnings plus Net Sale of Land	Change in Net Worth Excluding Land	(2)/(1)	HH and NP Real Disposable Income, Adjusted for CCA and Retained Earnings	(1)/(4)
Stock at the end of 1969		194.2			
1970	50.8	15.3	0.30	153.93	0.33
1971	48.1	22.7	0.47	154.47	0.31
1972	55.7	76.0	1.36	169.71	0.33
1973	60.9	39.1	0.64	183.16	0.33
1974	41.2	-17.0	-0.41	171.43	0.24
1975	36.9	1.0	0.03	175.46	0.21
1976	40.4	29.4	0.73	184.09	0.22
1977	38.5	16.5	0.43	189.10	0.20
1978	42.3	37.2	0.88	202.65	0.21
1979	40.6	48.5	1.19	208.66	0.19
1980	38.0	6.4	0.17	206.34	0.18
1981	39.1	21.3	0.55	209.63	0.19
1982	36.1	21.6	0.60	215.25	0.17
1983	35.5	31.4	0.88	220.68	0.16
1984	36.7	33.6	0.92	227.38	0.16
1985	41.0	29.9	0.73	235.56	0.17
1986	44.7	61.7	1.38	246.15	0.18
1987	45.3	66.8	1.47	252.43	0.18
1988	51.4	85.3	1.66	266.20	0.19
1989	50.8	122.2	2.40	274.61	0.19
1990	52.1	-47.0	-0.90	283.49	0.18
1991	45.6	27.2	0.60	291.30	0.16
1992	43.1	-17.9	-0.42	295.88	0.15
1993	40.6	29.6	0.73	299.77	0.14
1994	31.3	39.2	1.25	301.95	0.10
1995	36.6	48.2	1.32	305.61	0.12
1996	44.8	36.4	0.81	327.02	0.14
1997	43.5	-8.2	-0.19	326.36	0.13
1998	38.3	4.4	0.11	320.91	0.12
Cumulated Value 70-98	1250.0	860.7			
Average for 70-98			0.68		0.19

Table 2B

**CAPITAL LOSS OF HOUSEHOLDS AND THE MARKET
VALUATION DISCREPANCY OF CORPORATIONS**

(In Trillions of 1990 Yen)

	(6)	(7)	(8)	(9)
Year	Capital Loss of Households (1) - (2)	Change in Market Valuation Discrepancy of the Corporate Sector	Capital Gains on Corporate Land	Capital Gains on Reproducible Tangible assets Corporations
1970	35.5	39.2	11.6	-4.6
1971	25.4	20.1	11.1	-10.2
1972	-20.3	27.3	36.0	-4.7
1973	21.8	82.7	22.4	11.4
1974	58.3	-12.4	-45.1	9.1
1975	35.9	-11.0	-7.1	-20.9
1976	11.0	-8.9	-6.6	-14.0
1977	22.0	-4.8	-4.1	-7.4
1978	5.1	10.0	15.0	-5.3
1979	-7.9	47.9	29.3	9.3
1980	31.6	37.0	20.3	3.2
1981	17.7	11.5	13.8	-9.8
1982	14.5	14.2	9.5	-5.3
1983	4.1	-8.7	4.5	-7.4
1984	3.1	-2.1	1.9	-5.1
1985	11.1	17.3	16.5	-5.8
1986	-17.0	27.0	75.7	-5.7
1987	-21.5	91.2	132.5	-5.0
1988	-33.9	7.0	52.2	-0.4
1989	-71.4	10.2	75.6	-0.9
1990	99.2	166.4	67.2	1.5
1991	18.4	-87.5	-84.1	-1.0
1992	61.0	-32.7	-81.8	-3.1
1993	11.0	-46.6	-32.0	-8.1
1994	-7.9	-38.5	-7.4	-13.1
1995	-11.7	-12.2	-11.0	-5.3
1996	8.4	-7.9	-25.8	-20.9
1997	51.7	41.1	-12.7	-12.4
1998	34.0	28.8	-13.3	-7.6
Cumulated Value 70-98	389.3	405.5	264.0	-149.3

Notes on Table 2a and 2b

Nominal magnitudes are deflated by total private consumption deflator, EPA, Annual Report on National Accounts, 2000, pp. 106-107.

Source:

(1) Equals household and non-profit institutions' saving (from EPA, Annual Report on National Accounts, 2000, pp. 74-77.), minus their CCA (following the real perpetual inventory procedure as closely as possible) minus net purchases of land by households (from EPA, Annual Report on National Accounts, 2000, pp. 88-89.) plus retained earnings of the corporate sector (from EPA, Annual Report on National Accounts, 2000, pp. 72-73.) adjusted for CCA.

(2) From EPA, Annual Report on National Accounts, 2000, pp. 328-331.

(4) Disposable Income is taken from EPA, Annual Report on National Accounts, 2000, pp. 74-77., adjusted for CCA, plus corporate retained earnings after tax, also adjusted for CCA.

(7) From EPA, Annual Report on National Accounts, 2000, pp. 322-325. Note that Market Valuation discrepancy in Japanese is called "Shomi-Shisan".

(8) Change in the value of land owned by corporations less net purchase of land.

(9) Due to change in the ratio of investment goods price to consumption price. EPA, Annual Report on National Accounts, 2000, pp. 323-325

Table 3Aa

**BALANCE SHEET OF CORPORATIONS
JAPAN**

(In trillions of Yen)

End of 1998

	ARR	LAND	AF	= LF	+ NWA	= LF	+ NWM	+ DMV	(1)
Non Financial	642.0	450.0	403.1	743.3	751.9	743.3	188.2	563.7	(1a)
Financial	23.5	42.9	1863.2	1960.1	-30.5	1960.1	-77.0	46.5	(1b)
TOTAL	665.5	492.9	2266.3	2703.4	721.4	2703.4	111.2	610.2	(1c)

End of 1995

	ARR	LAND	AF	= LF	+ NWA	= LF	+ NWM	+ DMV	(1)
Non Financial	595.6	500.7	365.3	765.0	696.7	765.0	212.5	484.2	(1a)
Financial	20.7	52.2	1704.6	1791.4	-13.9	1791.4	-62.5	48.6	(1b)
TOTAL	616.3	552.9	2069.9	2556.4	682.8	2556.4	150.0	532.8	(1c)

End of 1990

	ARR	LAND	AF	= LF	+ NWA	= LF	+ NWM	+ DMV	(1)
Non Financial	504.5	669.3	375.0	661.3	887.5	661.3	259.7	627.9	(1a)
Financial	15.8	72.2	1427.7	1506.1	9.5	1506.1	-83.9	93.4	(1b)
TOTAL	520.3	741.5	1802.7	2167.4	897.0	2167.4	175.8	721.3	(1c)

End of 1969

	ARR	LAND	AF	= LF	+ NWA	= LF	+ NWM	+ DMV	(1)
Non Financial	55.0	36.7	35.1	65.7	61.1	65.7	19.0	42.2	(1a)
Financial	1.2	2.2	92.8	91.6	4.5	91.6	-5.4	9.9	(1b)
TOTAL	56.2	38.9	127.9	157.3	65.6	157.3	13.6	52.1	(1c)

Source: EPA, Annual Report on National Accounts, 2000, pp. 332- 325 A number of smaller items are subsumed under one of major items shown in the Table to make tables as transparent as possible.

Table 3Ab

BALANCE SHEET OF NON-FINANCIAL CORPORATIONS

USA

(In Billions of Dollars)

End of 1995

	ARR	+	LAND	+	AF	=	LF	+	NWA	=	LF	+	NWM	+	DMV	(1)
Non Financial	6,745		3,0 ₁		3,842 ₂		5,132 ₂		5,484		5,132 ₂		6,035		-551	

1. The direct market value of land owned by non-financial corporations is not known. The figure shown here is the difference between the market value of the total real estate (including land and structures) and the reproduction cost of structure.

2. We include the net trade receivables as a part of financial assets, and exclude gross trade payables from financial liabilities.

Source: Board of Governors of the Federal Reserve System, Flow of Funds Accounts of the United States, Federal Reserve Statistical Release Z1, March 10, 2000, p. 103.

Table 3Ba

**CASH FLOW FOR CORPORATIONS
JAPAN**

(In trillions of Yen)

For Calendar Year 1996

Part 1. AS REPORTED IN NATIONAL ACCOUNTS ¹

	OSAT	+ TCP	+ DEP	=	INT	+ DIV	+ ECR	+ TCP	+ DEP	(1)
Non Financial	45.5	17.3	52.4		22.9	3.0	19.6	17.3	52.4	(1a)
Financial	-27.2	2.7	1.4		-24.8	2.5	-4.9	2.7	1.4	(1b)
TOTAL	18.3	20.0	53.8		-1.9	5.5	14.7	20.0	53.8	(1c)

Part 2. ADJUSTED FOR CAPITAL CONSUMPTION ADJUSTMENT AND FOR IMPUTED BANKING SERVICES ²

	OSAT	+ TCP	+ DEP	=	INT	+ DIV	+ ECR	+ TCP	+ DEP	(1)
Non Financial	24.9	17.3	58.9		8.8	3.0	13.1	17.3	58.9	(1a)
Financial	-6.6	2.7	1.4		-4.2	2.5	-4.9	2.7	1.4	(1b)
TOTAL	18.3	20.0	60.3		4.6	5.5	8.2	20.0	60.3	(1c)

Part 3. ASSUMING THE SAME DEPRECIATION RATE AS OBSERVED FOR THE U.S. CORPORATIONS

	OSAT	+ TCP	+ DEP	=	INT	+ DIV	+ ECR	+ TCP	+ DEP	(1)
Non Financial	41.5	17.3	42.3		8.8	3.0	29.7	17.3	42.3	(1a)
Financial	-6.6	2.7	1.4		-4.2	2.5	-4.9	2.7	1.4	(1b)
TOTAL	34.9	20.0	43.7		4.6	5.5	24.8	20.0	43.7	(1c)

Source:

¹ EPA, Annual Report on National Accounts, 2000, p. 72-73

² Capital consumption adjustment is imputed following the perpetual inventory procedures as closely as possible. The result is very similar to that generated by the procedure suggested by F. Hayashi. Adjustment for imputed banking services is based on the total amount reported in Annual Report on National Accounts, 2000, p. 175. The allocation is our own trial values.

Table 3Bb

CASH FLOW FOR NON-FINANCIAL CORPORATIONS U.S.A.

(In Billions of Dollars)
For Calendar Year 1996

	OSAT	+	TCP	+	DEP	=	INT	+	DIV	+	ECR	+	TCP	+	DEP	(1)
Non Financial	422.7		151.5		393.4		101.2		217.1		104.4		151.5		393.4	

Source: Bureau of Economic Analysis, National Income and Product Accounts, Table 1.16 (Survey of Current Business, August, 1998, p. 47).
Note that these figures are already adjusted for capital consumption adjustment, inventory valuation adjustment and for imputed banking services by BEA. They are therefore, more or less comparable to Part 3 of Table 3Ba.

Table 3C

**INCOME STATEMENT FOR NON-FINANCIAL CORPORATE SECTOR
U.S. - JAPAN COMPARISON
1996**

In billions of Current dollars (120 Yen = 1 Dollar)

	[1]	[2]	[3]
	U.S. ¹	JAPAN ²	JAPAN ³
(1) Value Added (GDP Originating)	4,160	-	2,993
(2) Indirect Tax	412	-	268
(3) (1) - (2)	3,748	-	2,725
(4) Compensation of Employees ⁵	2,667	-	1,793
(5) Gross Income on Capital	1,081	843	932
(6) (5) / (3)	0.29	-	0.34
(7) Depreciation with CCA ⁴	463	491	542
(8) Operating Surplus ⁵ (5) - (7), also (13) + (14)	618	352	390
(9) Dividends	202	25	
(10) Retained Profits ⁵	108	163	
(11) Profit Tax Liability	150	144	
(12) CCA & IVA ⁴	49	-54	
(13) Corp. Profits with CCA & IVA ⁵ (9) + (10) + (11) + (12)	509	278	
(14) Net Interest ⁵	109	73	
(15) Tangible Assets at Replacement Cost, end of 1995	6,745	4,963	
(16) Land at Market Value end of 1995	30	4,173	
(17) (8) / [(15) + (16)]	0.091	0.039	
(18) (5) / [(15) + (16)]	0.160	0.092	

1 Figures are taken directly from NIPA Table 1.16, Non-Financial Corporations.

2 Non-financial corporate Sector of the Japanese National accounts, and contains non-financial government enterprises. Taken from Annual Report on National Accounts, 2000, pp. 72-73, 80-81, and 322-323.

3 Taken from annual Report on National Accounts, 2000, pp.174-175. Our figures are computed as the National Account Table row 1 less rows 1.(7) and 1.(8), and adjusted for imputed banking services. They include both corporate and unincorporated business, as well as government enterprises.

4 U.S. figures are adjusted for CCA and IVA. Japanese figures are adjusted by our own estimates of CCA.

5 Japanese figures for profits, operating surplus, and interest are adjusted for imputed banking services.

Table 4A

I. RECORDS OF FISCAL ACTIVITIES
(In trillions of Yen)

	Central Government				Provincial and Local Government	
	(1)	(2)	(3)	(4)	(5)	(6)
Fiscal Year	General Accounts	Special Accounts (gross)	Special Accounts (net)	(1) + (3)	General Accounts (gross)	General Accounts (net)
1991	70,547.1	177,879.3	50,074.8	120621.9	83,806.5	55,727.7
1992	70,497.4	188,798.2	59,065.1	129562.5	89,559.7	62,220.6
1993	75,102.4	202,241.1	62,809.2	137911.6	93,076.3	65,292.5
1994	73,613.6	214,245.1	71,464.6	145078.2	93,817.8	67,859.2
1995	75,938.5	232,465.9	79,386.7	155325.2	98,944.5	71,459.6
1996	78,847.9	245,210.5	83,113.4	161961.3	99,026.1	58,565.6**
1997	78,470.3	247,036.0	91,469.3	169,938.6	97,673.8	56,836.5**
1998	89,649.4 *	283,481.6 *	122,416.9	212,066.3 *	-	-

Source: Fiscal Statistics, Ministry of Finance (1998) (F.S) and Economics Statistics Annual, Bank of Japan (1997) (E.S.A)

(1) F.S. pp. 185 - 86, line 9.

(2) F.S. pp. 185 - 86, line 10.

(3) F.S. pp. 185 - 86, line 16 - line 9.

(5) F.S. p. 342, Table 53, last line. These figures are net of transactions between provincial and local governments, but are not adjusted for duplication between provincial governments and the national government.

(6) E.S.A. p. 284, Table 99, Column (3) - Column (1).

* Final Budget Plan.

** Initial Budget Plan.

Table 4B

II. FISCAL RECORDS AND "GENERAL GOVERNMENT" IN NATIONAL ACCOUNTS
(In trillions of Yen)

Fiscal Year	Fiscal Record Summary				
	(7) = (4) + (6) Total Government Accounts Central and Local	(8) Local Public Enterprises	(9) Treasury Investment and Loans New gross Pay-outs	(10) National Accounts Total General Government Outlay*	(11) Government Capital Transfers
1991	176349.6	31,826.0	38,153.5	142,987.9	1,357.1
1992	191783.1	33,612.1	46,130.2	152,567.9	-404.0
1993	203204.1	35,020.9	52,457.7	162,602.3	216.1
1994	212937.4	36,113.4	50,323.7	161,441.4	506.8
1995	226784.8	37,794.1	42,188.6	174,255.6	1,120.8
1996	220,527**	-	45,901.0	180,416.7	2,288.2
1997	237,233.1**	-	46,639.8	179,952.3	1,499.0
1998	-	-	49,959.2 **	183,328.5	29,630.6

Source: Fiscal Statistics, Ministry of Finance (1998) (F.S) and Economics Statistics Annual, Bank of Japan (1997) (E.S.A)

(8) E.S.A. p. 296, Table 108, Column (11) + Column (12).

(9) F.S., pp. 310-321. Figures reported are the total given at the bottom of the table. I interpret these figures to be gross new payments excluding purchase of marketable securities, but I am not sure that I am correct in my interpretation.

(10) EPA, Annual Report on National accounts, 2000, pp. 74 - 75, Table 3, Total Outlay minus Saving, plus gross investment, plus purchase of land from pp. 84 - 85 Table 3.

Thus, figures in column (10) do not include government capital transfers, though they do include current transfers. Capital transfers are shown separately in column (11). We can see that, in 1998, the government's bail-out of financial institutions suddenly begin to appear in column (11). Since the distinction between current and capital transfer is often arbitrary it is probably better to define the sum of columns (10) and (11) as total government outlay, except that government budget figures in columns (1) through (8) do not include capital transfers.

* Final Budget Plan.

** Initial Budget Plan.

Table 4C

**III. BALANCE SHEET FOR TRUST FUND BUREAU MINISTRY OF FINANCE
(A MAJOR PART OF TREASURY INVESTMENT AND LOAN PROGRAM) ¹**

(End of the Fiscal Year in Trillions of Current Yen)

	Year		Change
	1994	1995	
Assets			
Securities			
Long Term Government Bonds	55.9	62.4	
Short Term Government Bonds	0.9	4.3	
Bonds of Government Related Organizations	20	21.3	
Bank Debentures	7.1	8.7	
Total	83.9	96.7	
Loans			
Loans to General and special Accounts	58.8	68.3	
Loans to Local Government Enterprises	45.4	49	
Loans to Government Related Organizations	158.7	159.1	
Total	262.9	276.4	
Other	0.1	0.1	
Grand Total	346.9	373.3 ²	26.3
Liabilities			
Deposits From Postal Savings System	195.2	211.6	
Deposits From Postal Insurance System	7.4	8.5	
Deposits of Social Security Funds	111.2	115.9	
Deposits of Others	32.3	32.1	
Other	0.5	5.1	
Total	346.6	373.2	26.6
Flow of Funds into and out of the Balance			
Actual Receipts from Sources of Funds, Fiscal Year 1995 ³			24.1
Repayments of Outstanding Loans and Investment ³			18.3
Total			42.4
Gross Non Desbursement ⁴			31.6

1 Bank of Japan, Economic Statistics Annual, 1997, pp. 301-2

2 Cash Position is explicitly reported to be zero.

3 Ministry of Finance, Statistical report of Fiscal Activities, 1998, p. 325

4 Same as above, p. 317