

Will Japan Turn to a Deficit Country in the Near Future?

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At Peterson Institute, February 2007

Abstract

The United States is considered by many economists, to be trapped in an excessive debt position, while China is accumulating excessive foreign reserves. Japan is in a delicate situation in between, because, in spite of indicators like the declining household savings rate that predicts Japan to be a debtor country in the future, the current account of Japan still shows a solid surplus.

The principal purpose of this paper is to review Japan's current situation of account surplus and international credit position, to analyze the factors affecting them, and finally to speculate on the future courses of its current account and its international asset position. The most important factor affecting Japan's large current account was its extremely high savings rates. The paper analyzes the factors that are reducing Japan's high savings rates and explores the reason that a significant level of the current account surplus still continues.

The paper argues, at least tentatively, that Japan could be a debtor country in the long future, but that it would take some time for Japan's substantial current account to disappear. The main reason for this conclusion is the existence of conflicting effects on absorption of the national economy that come from the rapidly declining and aging population in Japan. Declining and aging populations will make Japan a less attractive land in which to invest, and this effect works to increase the current account. On the other hand, however, declining and aging populations will reduce the Japanese household savings and this effect will eventually discourage the outflow of capital.

The secondary, though by no means less interesting, purpose of this paper is to grasp in a simple macroeconomic framework, the direction of international capital movements in a growing world. Flows of capital movements are explained by the differences among macroeconomic variables of relevant countries, such as labor growth rates, technological growth rates, and savings ratios or underlying rates of time preference. From a theoretical consideration, one cannot preclude a substantial current account imbalance and a large credit or a large debt from the macroeconomic factors that govern the savings-investment process. From this perspective, a large deficit of the United States or the large current account surplus of China may not be dismissed as an outlier in the sample of macroeconomic observations.

I. Introduction ¹

It may be the most appropriate time to discuss the issue of international indebtedness in major countries, because important changes are quietly making epochs in the world economy. The savings rate of United States, households crossed the threshold of zero savings rate in 2005, and the Japanese population growth changed from positive to negative in 2006. The exchange rate of the Yen hit the lowest value in the past four years. In spite of the plea from the United States government to float the Yuan to mitigate the continuing current account surplus of China, the Chinese government does not allow substantial appreciation of the Yuan.

In the past decade, the current account deficit of the United States is growing tremendously, while now China is accumulating a substantial current account surplus, and joining the group of large surplus countries including Japan. Table 1 and Figure 1 indicate the current account of United States, China, Japan and some other major economies. Table 2 and Figure 2 show the current accounts of these countries divided by their GDP as the indicator of the size of those countries. The balance of payments surplus of Japan in 2006 increased to 3.7 percent of the GDP, while that of China reached 7.2 percent of its GDP. As the counterpart, the United States accumulates a current account deficit nearing 6.9 percent of its GDP².

The dramatic progress of divergence in international debt credit position is also illustrated by the amount of outstanding debt and credit as well as the ratios of those values to its GDP (Figures 3 and 4). At the end of 2005, Japan as a nation holds net assets of about \$1,532 billion, which is about 33.5 percent of its GDP during the year of 2005 that had the GDP of \$4,570 billion. On the other hand, the United States had the liability of \$ 2,546 billion at the end of 2005. Since the U.S. has roughly a population twice as large as Japan, the per capita value of the net asset held by a Japanese person

¹ This paper was commissioned with a short notice of less than one month before the dead line, though I do not wish to use it as the excuse for the quality of the paper. I thank Xu Cheng and Eiji Kozuka for their devoted research assistance to ease the time pressure, by engaging in collecting data as well as materials, discussing theoretical points, and clarifying institutional details.

² These figures do not add consistently, aside from the effects of the rest of the world countries, because the denominators, GDP figures are different.

can be regarded as slightly larger than that of the net liability held by an American.

Thus, by many economists, the United States is considered to be trapped in an excessive debt position, while China is accumulating excessive foreign reserves. The United States can be construed to be an unhealthy debtor, while Japan is now, and China is emerging as, extreme or abnormal creditors. One of my main points, as an unorthodox reaction to these conventional views, is that this situation may not be an unusual but often a reasonable situation from the viewpoint of the world welfare.

The state of the current account of Japan longer warrants necessarily the conventional view that Japan will be a permanent surplus country, because a basic component of Japan's current account, the household savings rate is steadily declining. In spite of this trend, the savings-investment balance, or the financial surplus of the private corporate business sector continues to be positive, and, in its recent movement, it counteracts the fluctuating variation of the government deficit. As a whole, Japan has continued and still continues at present to be a substantially current-account surplus country. Naturally, a task requested in this paper is, by exploring the prospect of relevant determinants, to answer the question as to whether Japan will continue its status as a current account surplus country or become a current account deficit country in the near future.

The primary purpose of the paper is to review Japan's current situation of current account surplus and international credit position (Section II below), to analyze the factors affecting them (Section III), and finally to contemplate the future courses of the balance of its current account and its international asset position (Section IV). The most important factor affecting Japan's large current account was its high savings rate. I analyze the reasons for the high savings rate and the factors that brought about the levels of Japan's real exchange rates that sustained a high export import balance. Tentatively, I may conclude that Japan could be a debtor country in the long- term, but that it would take some time for Japan's substantial current account to disappear. The main reason for this conclusion is as

follows. First, the conflicting effects emerge from rapidly declining and aging populations in Japan. On the one hand, declining and aging populations will make Japan a less attractive land in which to invest and reinforce the surplus of current account. On the other hand, however, declining and aging populations will reduce Japan's household savings and may eventually restrict the outflow of capital. A supplementary reason for the conclusion is that the financial surplus in the non-financial corporate sector in Japan is substantial and even increasing in these years³. In sum, the household saving ratio will decline at a moderate pace, but the pace of decline may be curtailed. Since the financial surplus of non-financial corporate sector is somewhat unpredictable, I came to this rather eclectic conclusion.

The second, though for me more curious, purpose of the paper is to sketch a simple analytical macroeconomic framework of international capital movements that would shed light on the international indebtedness in the world (Section V). Flows of capital movements are explained by the differences among macroeconomic variables of relevant countries, such as labor growth rate, technological growth rate, saving ratios and underlying rates of time preference. A substantial current account imbalance and a large credit or a large debt national position cannot be precluded from the growth or optimal growth perspective as long as two nations have different savings behaviors based on the underlying different rates of time preference. In my opinion, the large deficit of United States or the large current account surplus of China may not be treated merely as an outlier.

Before going into the main discussions, please be aware of the national account identity that the current account surplus is equal to the net saving or domestic savings minus domestic investment of the economy, and, at the same time, to the current account trade surplus (export minus import). Any genuine theory of current accounts should be able to explain the current account balance consistently either from the side of net savings as well as from the side of trade balance. By the same token, a policy remedy of the imbalance of current accounts through one channel should be working through

³ In the past few years, the financial surplus of non-financial corporate sector moves in the opposite directions of the general government deficit. As will be seen, some statistical relocating of the High-Speed Road Corporation from the government sector to the corporate sector explain the very recent mutually offsetting moves of the financial surpluses in these sectors.

the other channel at the same time (Ito, 1991; Fukao et.al.).

As an illustration, consider the remedy of an “excessive” (at least so regarded) current account by aiming increasing domestic absorption through effective demand by the macroeconomic policy on total absorption, the same policy should work on export or import in such a way so as to reduce the difference between them. Similarly, the policy of affecting the balance of export minus import by the appreciation of the real exchange rate of the domestic currency should work through the change in such a way so that the same policy works through the savings-investment behavior. For example, this effect through the real exchange rate should work if the domestic public regards the current prices of import goods relatively cheaper in contrast to the future prices; then the public will choose to consume more of foreign goods now relative to future than in the situation where the real exchange rate is kept constant.

Since most of the discussions of the current account below will be conducted in terms of what the savings-investment balance is, we would like to remind the reader that, when we examine the effect of macroeconomic factors, other factors such as real exchange rates are simultaneously at work through trade activities to realize the export-import balance that is consistent to the savings-investment balance.

II. The Present State of the Current Account Imbalance and the International Indebted Position.

To begin, let us illustrate the situation of the current account of Japan by statistical tables and graphs. In this section, I will give first hand explanations of the trends and, in the next section, will develop more analysis of the factors that affect those trends by referring to literature.

Japan's surplus was historically substantial and recently consistent over time. After the late 1960s,

Japan's current account showed substantial surplus except for a few years during the two oil crises, which rendered the current account in a deficit. These steady series of surpluses in the past could be explained by the two sides of the identity that indicate the equality of the Savings-Investment balance and the Export-Import balance. In the global picture, the driving force of the left hand of the equality is the high savings rate in Japan, and the driving force of the right hand of the identity was the growth of successful export supported by favorable real exchange rates.

IIA: Let us start with the approach through macroeconomic factors, that is, savings-investment approach. It is useful to decompose the saving-investment balance by sector-wise savings-investment balances. In more recent years, the high savings rate is going to disappear in the household sector. Still, the savings-investment imbalance surplus in the private corporate sector remains so high that it more than compensates for the high government deficit in Japan.

Table 5 and Figure 5 illustrate the financial surplus (net savings, or savings-investment balance) of major sectors of Japan normalized by the value of its GDP. We see a consistent trend of a declining financial surplus of the household sector. For a long time, the Japanese savings rate was a keen object of attention and admiration of the students of the Japanese economy. Now the financial surplus of the household sector has been coming down steadily, and touched the value of 1.1 percent in 2003. Does it mean that the total domestic savings-investment will become smaller and eventually turn to negative? It is difficult to give a definite answer to this question because the financial surplus of the non-financial corporation, which is roughly equal to the private business sector, tended to increase since 1990 and particularly since 1998. It is moving as if the S-I balance of the non-financial corporation sector were countervailing the increase in the deficit in the general government sector.

The non-financial corporation sector was an investing sector and it was the strong pulling power of Japanese growth. The recent large surplus means either that they keep their profits in the form of liquid assets without distributing to their stock holders, or they do not invest the earning at home

but invest abroad. A large retained earning without rewarding the stock holders with dividends is to be reflected, at least in theory, in the capital gains of stockholders and eventually counted as household income that would affect the household sector's behavior. Therefore, the main component of the increase in the non-financial sector's net saving seems to indicate that Japanese firms are outsourcing its production and accordingly its new investment.

There are more technical, statistical problems. By the prompt reply of the Bank of Japan statistical bureau to our inquiries⁴, we have learned that the drastic move of the financial surplus of non financial corporations reflect the reclassification of a part liabilities of the account of the Highway Public Corporation (Nihon Doro Kodan) from the non-financial private corporation to the general government. The move toward structural reform, recently highlighted by the name of Premier Jun'ichiro Koizumi, gives an interesting byproduct in flow of funds statistics.

The other important factor is the declining population growth rate, which is a startling phenomenon in Japan (Hamada and Kato eds., 2007). In 2006, Japan's population finally crossed the line of stationary population and recorded a 0.03 percent of decline (Table 6 and Table 6). This is an exceptional occurrence even in developed countries, though England had a short episode, and Germany, with a series of years with negative population growth, is now coming close to Japan's case.

The mere fact that the population growth rate is smaller than other countries will warrant a tendency for the country to import capital, as implied from the result a two-country growth model to be introduced in Section IV. The primary effect of a slower or even a negative growth of population is that it will create a shortage of labor so that savings move out of the country in the absence of sufficient domestic investment opportunities. There is a secondary effect of a declining population, that is, almost equivalent of an aging population. The savings rate of the household sector in Japan is declining recently, and the household sector may turn into a deficit sector soon. As the life-cycle savings process

⁴ I am indebted to Hiroyuki Fujiwara of the Research and Statistics Department, Bank of Japan, for his prompt reply for my inquiry about the Flow of Funds after the Plaza Accord statistics

easily indicates, aging will increase the number of people who spend at older ages and decrease the number of people who save at younger ages. The remaining puzzle is that in both Germany and Japan the current account surplus remains high in spite of rapidly aging populations and this puzzle can be solved only when we clarify the nature of the surplus in the non-financial corporate sector.

IIB: Exports/Imports Discrepancy

The same statistics of current account surplus must be a mirror image of the trend of exports minus imports. The driving force of the movements in exports-imports discrepancy must be also the driving forces of the movement in terms of trade and the real exchange rates.

Table 7 and Figure 7 indicate the terms of trade, which is, the ratio of the export price index to the import price index facing Japan. During the 1970s, exporters had an easier environment, relative to importers, in which to sell Japan's products. In spite of appreciating value of the Yen, they could sell their products with relatively less expensive prices than those of imports. The graph shows that, after the Plaza Accord in 1985, trading sectors faced a sudden steep hike in the terms of trade. The increase was close to 40 percent appreciation of the terms of trade, and this high hurdle for traders persisted until very recently. Indeed, the Plaza Accord had its genuine effect. The balance of payments of Japan reduced from the peak of 4.3 percent of GDP in 1986 to 1.4 percent of GDP in 1990. The increase in terms of trade of about 40% decreased the ratio of current account surplus to one third as measured by a ratio to GDP. This shows that the strategy of appreciating the nominal Yen exchange rate from outside Japan, in particular, from the United States did pay off by the work of accompanying the terms of trade for Japan.

Incidentally, this theoretical exercise of measuring the response of the trade balance would make sense when one can assume that the relative ratios of non-traded goods to traded goods within the two countries remain more or less constant. The case of the Keynesian model with the single good assumption is the simplest example of this case.

Another method of measuring the effect of the appreciation of the nominal exchange rate of the Yen, is through the effect of the real exchange rate. In the model of real exchange rate developed by Mundell and others, often the effect of the terms of trade is neglected by the assumption that the export good and the import good can be treated as the single traded good. Table 8 and Figure 8 depict the movements of the nominal exchange rate and the real exchange rates of the Yen. The nominal rate kept increasing after 1980 until 1995, when the Yen hit the lowest mark of 80Yen/dollar. The real exchange rate also increased about 50 percent by 1989 and the current account per GDP decreased from 4.3 percent to 1.4 percent. The real exchange rate has its own effectiveness.

Incidentally, this experiment of measuring the effect of real exchange rates to the current account is relevant if the relative price of exports and imports are constant, and the real exchange rate measures the relative price of domestic and traded goods that are assumed variable.

In any case, those casual observations refute the claim that the price effects through either terms of trade or the real exchange rates on the current account are negligible because the current account is a macroeconomic phenomenon indicating the saving-investment balance of a nation. If a change in the nominal exchange rate were to induce corresponding changes of price levels in both countries so that the real exchange rate as well as the terms of trade remain the same, then the nominal exchange rate would not exert any changes in the current account. The actual data seems to be in strong contradiction with this statement. Instead, the data suggest that so many kinds of price rigidities exist in the world that a nominal exchange rate can exert various effects on the real economic activities. For example, a more expensive export from Japan could have made a U.S. citizen refrain from consuming Japanese goods at present relative to the future, and could have changed the savings behavior of U.S. citizens to save more than otherwise.

Some economists argue that persuading China to revalue the Yuan will not change the savings-investment balance of China presumably because the former reflects Chinese consumers' inter-

temporal decisions for smoothing consumption. It is a single-minded view. It will certainly change the total absorption pattern of China and reduce China's balance of payments, at least in the medium term after the J-curve expires.

It is one thing to say that the coerced changes in the nominal exchange rate after the Plaza Accord were effective. It is completely another to assert that it is worthwhile to attempt the forced appreciation of the Yuan as in the case of the Yen after the Plaza Accord. The Plaza Accord and the consequential appreciation of the Yen invited the "en-daka (expensive Yen)" recession to Japan, the reaction of macroeconomic policies to result in the bubble of an asset market, and the final over-kill contraction of money that made Japan suffer the long Heisei recession for more than a decade.

III. Factors that Cause a Large Amount of Current Account Surplus.

We examine in this section the factors determining saving-investment imbalance as well as those determining the export-import balance more in detail, dwelling on the research in the past, and exploring the ways of influencing the trend in macroeconomic balance in the future.

IIIA. Macroeconomic factors:

First, it is desirable, but hardly feasible, to change the trend of declining population growth. Even if we succeed in influencing the current propensity of people to marry and to have few children, by using various means such as tax measures and better child care facilities, it will affect the supply of labor only in twenty years down the road. As Goto (2007) argues, the initial effect may not be an increase in the labor force but rather a decrease in it because of the necessity of increased child care for newborns. The extending of working years is another effective measure for increasing labor participation.

More substantial is the change in the female labor participation rate, which is compared with other countries in Table 9 and Figure 9. Given a relatively low female participation rate in Japan, certainly Japan can hope to increase the female participation rate by better child care and other measures. The effect of this change is a onetime occurrence and it cannot be exploited repeatedly as if it were an increase in the birth rate that can continue.

The most direct and natural remedy for stationary or declining populations is admitting immigration much more liberally. The recent trend in legal migration to Japan is shown in Table 10 and Figure 10. These numbers for Japan include the workers who are illegal migrants many of whom engage in jobs that require hard labor activities and entertaining services. These small numbers of existing migrants preclude any possibility of substantial reduction in Japan's current account surplus. At present, not only the ratio of legal and illegal (or informal) migration in Japan to the total working force is minimal, but also public sentiment shows strong resistance to allowing immigration that brings heterogeneity to the population.

Unless there is a drastic change in Japan's immigration policy, which is quite unlikely, the demographic trend is rather well predicted but it is difficult to avoid the consequences. Like the Titanic cruising into an iceberg, the future difficulty is well forecasted but little can be done to prevent the problem to be caused by the impact.

On the other hand, Japan seems to have more flexible choices to cope with the movement in the saving ratios and household financial surplus, and more policy opportunities to expect a more flexible response of saving ratios to the government policy.

In order to obtain an overview, it may be appropriate here to look back for a while, to review some of the hypotheses raised to explain an extraordinarily high saving rate of Japan (Horioka, 2004 , Flath, 2005).

First, we start with the cultural heritage of the Japanese family where the family seems to pay more attention to its ancestors than its western counterpart. This attention suggests that Japanese households could be postulated as the optimizers over dynasty until eternity, while western households could be postulated as the optimizer in an overlapping generation model where they have limited time horizons. Westernization of Japanese families would bring household saving ratios down. As a by product of their test of the Ricardian equivalence in Japan, however, Ihori et.al (2002) could not reject the hypothesis that Japanese households are regarded as the lifetime optimizer without altruistic attitudes towards their heirs. Thus the family story sounds appealing to Japan observers but still lacks empirical support.

Second, Japan had a labor force that was growing rapidly. This meant that more of the population lived in the generation that saved for the future than those in the generation that overspent from their accumulated assets. In the historical perspective, Japan caught up from a relatively insufficient living standard to a higher level of living. This catch-up effect is one of the reasons for the extremely high household savings particularly during the rapid growth era of the 1960s and the 1970s (Hayashi, 1986).

Third, institutional factors count. The bonus system of giving lump sum additional benefits biannually to workers may have contributed to the higher saving rate (Ishikawa and Ueda, 1984). This can be contradicted by the permanent income hypothesis unless workers are under credit constraints, because the permanent income is the same regardless of the existence of the bonus system. Now that the role of psychological factors and perception of agents is considered more seriously, the role of bonus could be reexamined. In the early days of research, the lack of social securities is considered as one of the factor of increasing saving rate, but this factor is at present no longer important to explain the situation in Japan where the social net is rather well established.

Now the trend is completely reversed. There are more people in the older generation that outspends

its income. The breakdown of saving rate by cohort and age explains quite very well the trend that recent household savings are declining (Koga, 2004; Doihara et. al., 2006). Figure 11 from Doihara et. al. (2006) dramatically illustrates how the savings of each cohort is declining over time. The sector-wise breakdown of net savings would predict that Japan will be a current account deficit country unless the corporate savings increase as they did in recent years. While household savings are declining, the high non-financial sector savings are now the main factor of overall saving-investment balance. A new element in here could be that, in order to locate business earnings, firms do not distribute earning to shareholders (households) but rather attempt to invest abroad.

From the point of the supply of labor, declining labor has conflicting effects to savings: Younger labor induces a smaller amount of the aggregate savings consisting of cohort savings as explained, and this effect will work to reduce the outflow of capital. The shortage of young labor, however, implies the lack of investment opportunities at home. This may work towards increasing outward investment by countervailing the effect of reduced savings.

Moreover, elderly people need more care from the younger generation. This effect works towards increasing the savings in the young years to be prepared for the future. This extracts more young labor to nursing service and makes the labor shortage more acute (Hamada and Raut, 2007⁵). From this perspective, the rise of Japan's saving in the past years could be considered as a precautionary move of Japanese households to prepare for the future. Once people know that they will be old and need care, people may be prepared to save in order to command better treatment and better human services in the future⁶.

In addition, tricky issues emerge from the financial surplus of Japan's non-financial corporation that seems to support the high level of the surplus of current account. The surplus of non-financial

⁵ All the problems due to a smaller population can of course be handled if one allows substantial immigration. The obstacle is a national reaction to immigration in Japan.

⁶ If there are fewer people in the younger generation in the future, the current younger generation must save more to be able to buy more expensive services of old age care in the future. If robots can serve you when you are senile, it would suffice for the individual to prepare by higher savings, but if she or he does not like, the remaining way is to import young immigrants and rely on them for care.

corporations increased dramatically in the last few years, especially in 2005. To make the reason for this increase clear, one can decompose this increase into two parts – one, the private non-financial corporation and the other, the public non-financial corporation. The graph and data of this decomposition are presented in Table 11 and Figure 12. In the previous years except 2005, private non-financial corporations contributed to most of the increase, but the sharp increase of 2005 is mainly due to public non-financial corporations, as is seen in the graph. The mirror image movements of the general government financial deficit and the non-financial corporation are very interesting, but for 2005 the movement is only the change of the location where you record financial activities. A part of the coincidence came from the statistical or accounting problem we already mentioned.

An academically subtle and intriguing discussion that affects our future prospect of Japan's net savings is how valid the Ricardian equivalence is in the Japanese economy. If Japanese nationals are regarding the welfare of their descendents at the full value, then the government borrowing will be neutralized by the increase in savings by private sector that is afraid of the future tax burdens. Ihori, et.al, test this hypothesis by using the inter-temporal framework by Blanchard, and conclude that the null hypothesis of altruistic households in Japan is rejected and that the combination of the life-cycle hypothesis and the non-altruistic family to descendents cannot be rejected. Asako et. al. (1993) and Hamori et. al. (1993) ask a similar question and find some degree of substitution between government savings and private savings, but the degree of substitution is very small. In other words, an increase in government deficit increases a very limited amount of savings that are very short of compensating for the government deficit. From these scientific papers, one may conclude that if the government were ever to succeed in reducing its budget deficit, it would be definitely a factor to increase the current account of Japan.

To sum up the factors that affect savings in various sectors in Japan. In the absence of at least strong evidence for the Ricardian equivalence, government net savings will count to influence the current account. The state of government deficit appears to be improving, and, if not improving,

not dramatically deteriorating. The component will not help to reduce the current account of Japan. The household saving is definitely on the declining trend, and it will be a factor for reducing the net surplus of household sector. From 1990 to 2004, the household savings rate declined almost steadily from 11 percent to 1 percent. If this trend continues for another decade, and if the other sectors' financial saving remain the same, Japan is entitled to be a genuine current account deficit country. The household savings rate would not follow the linear trend as will be expected by Figure 11, so let us say, very boldly, that it will decline 5 %. Other things being equal, this will possibly eliminate a substantial part of surplus that is about 6.9% of Japan's GDP⁷.

The flow of international capital in equity and bond markets is virtually free to Japan and also conducted in a well organized market. Inward foreign direct investment in Japan is still without informal barriers, however, in contrast to the outflow of direct investment from Japan to other countries. Language, social custom and possibly remaining red tape of the government may be reasons to restrain the inflow of capital⁸. There may still be room for the Japanese government to relax or at least to make transparent the capital account regulations. This will help to ease the difficulty in achieving inflow of funds to Japan, and will help appreciate the Yen and the saving-investment gap.

The resulting large flow of savings to the United States and other countries is not determined by Japanese factors alone. For example, through deregulation and selective immigration that encourages competition and the human capital formation, the United States created a genuinely competitive and creative business environment that appears to be a cradle for future technological and managerial development. In addition, the United States is regarded as a safe haven for funds relative to other alternatives. Thus, other things being equal, the flow of funds moves to the United States. This seems, at least so far, to save the risk of the precipitous drop of the dollar and the outflow of capital from the United States just as Jakarta unfortunately experienced the capital flight when the credibility

⁷ This inference is not completely scientific because the chart concerns the household survey data, and the SNA is based on a broader sample of households.

⁸ Recent news reports on the existence of price rigging (dango) in the government procurement process suggest that the investment process in government project is still limited only to insiders. Foreign investors may be sometimes unwelcome because of the nature of the project for security and political reasons, but these incidents give the impression that Japan's foreign direct investment market will be capable to be more open. Also restriction on the financial transactions conducted by nonresidents is still quite rigid.

of the country's repaying capacity was in danger. American people are wary of the current account deficit because it can be a sign of living beyond their means, but they could also be blessed that they can afford to live beyond means because other countries are willing to allow it.

The channel through the saving investment and capital movements work only when rates of returns to capital tend to equal each other. A strong doubt about this approach is raised as the Feldstein-Horioka puzzle that world capital does not move sufficiently smoothly to equal the rate of returns to capital. Still, I regard that the force of saving-investment works to explain a substantial part of current account imbalances. If there is little tendency for the capital market to function, all the explanations should be provided by the exports-imports side, to which we turn.

IIIB: Factors affecting Trade Gap

As already explained in Section II, the effect on the trade gap through the terms of trade and through the real exchange rate effect are working. The Plaza Accord that distorted the nominal exchange rate through the commitment of finance ministers in G5 (and later G7 or 8) countries did change the real exchange rate, and demonstrated that the world is not neutral with regard to the nominal exchange rate change because prices were sticky at various part of the world economy.

Many authors address this question in the form of how much appreciation is required for the real exchange rate of the Yen in order to balance the current account balances of Japan. The effect of appreciating the Yen was well illustrated by the period after the Plaza Accord. The first question to be asked about the results of this most conspicuous coordination attempt, the Plaza Accord, was why the attempt succeeded to change the nominal exchange rate to such a wide extent. Indeed, monetary authorities really coordinated well to realize the change in the nominal exchange rate, but the cheap talk element can neither be neglected. As already explained as the relationship between the terms of trade or the real exchange rate and the current account, we admit that the tour de force policy by exchange rate adjustment did work. At the same time, the side effects of exchange manipulation

policies on the macroeconomic domain were quite serious.

The Plaza Accord type of adjustment is not to be recommended because Japanese macroeconomic fluctuations after the accord show that the tour de force of exchange rate manipulation is nothing but unhealthy. Japan first experienced the drastic contraction of monetary policy and that brought a recession. Japan then over stimulated the economy and that led to a period of asset bubbles. Suddenly, the Bank of Japan started to adopt a drastic contracted policy which led to a deflationary economy. The prolonged recession of Japan is attributable to the mismanagement of monetary policy after the Plaza agreement.

Obstfeld and Rogoff pursued the link between the real exchange rate and estimated the necessary real exchange rate appreciation (Obstfeld, 2006; Obstfeld and Rogoff, 2005). Their estimates vary depending on the elasticity of substitution between traded goods and non traded goods, but, in the absence of asset effects of Yen appreciation, the required appreciation of the Yen real exchange rate ranges from 18 percent to 37 percent. If the wealth effect is taken into account, the required appreciation is 14 percent to 23 percent. To eliminate the current account, in any case, large changes in exchange rates are needed. The twist of arms like after the Plaza Accord cannot be avoided.

The conventional position of the profession, perhaps including that of Obstfeld and Rogoff, would be that a large discrepancy of current account balances is undesirable. Therefore authors will try to find the equilibrium exchange rate to close the gap. My position is different, echoing the earlier research by Buiter (1981), and will be explained in the next section. It is not unhealthy to record a substantial international debt position when the two nations have different time preference. If there is a difference in time preference, or difference in the profile of labor growth rate, some current account imbalance is the norm and suppressing current account imbalance is not efficiency enhancing. Aside from the undesirable cyclical effect on the macroeconomic side of the economy, currency management should be the last tool among alternative remedies.

IV A Simple Formulation of the Global Imbalance

In this Section, I present a simple two-country model that shows the existence of a substantial international debt at the balanced growth. Buiter (1981) showed in a framework of two country overlapping generation model that the younger generation of a more patient nation extends credit to a less patient nation. This section indicates that his result can be extended to the economy where agents live forever. In the following, I will describe the property of the balanced growth path, which was called "quasi golden rule" by Phelps.⁹ It will need another theory paper to explore its dynamic implications and the possibility of extending it to a two-good model that explicitly deal with trade and the real exchange rate.

Consider a single good growth model of two economies, Country I and Country II, whose levels of labor endowment at time t are denoted $L_I(t)$ and $L_{II}(t)$, each of which is growing at rate n_I and n_{II} . Let $K_I(t)$, $K_{II}(t)$ and $C_I(t)$, $C_{II}(t)$ denote the capital stock and consumption level in country I and country II at time t . $B(t)$ denotes the level of the debt of country I to country II at time t . Let us assume that the identical (well behaved) linear homogeneous production function.

$$P_j(t) = F(K_j(t), L_j(t)), \quad j = I, \text{ and } II, \quad (1)$$

where P_j is the amount of output for country j ($j=I$ and II). We neglect the rate of depreciation for both countries. Capital moves freely between the countries so that the marginal productivity of capital between the two countries be equated at the level of

$$r(t) = f'(k_I(t)) = f'(k_{II}(t)), \quad (2)$$

where $f(k_j(t))$ is a per capita production function defined by $f(k_j(t)) \equiv F(k_j(t), 1) \equiv F(K_j(t)/L_j(t), 1) = F(K_j(t), L_j(t))/L_j(t)$. Let us denote the saving ratio out of net income in the two countries as s_I and s_{II} , which are assumed to be constant for the time being, and $s_I < s_{II}$.

⁹ Fortunately, my dissertation committee at Yale consisted of Richard Cooper, Edmund Phelps and James Tobin (Chair). I was towed by so to speak by a golden Troika.

This is the framework analyzed in Hamada (1966), where capital movements are explaining solely from by saving-investment process and trade flows are assumed to accommodate the inter-temporal choice. In the actual world economy, both this kind of inter-temporal choice and trade activities are taking place in a consistent manner. Let $B(t)$ and $\frac{d}{dt}B(t)$ denote the stock of foreign indebtedness of country I to country II, and its increase, namely, the net capital inflow to country I from country II. The amount of the capital flow from country II to country I that is required to keep the equality of the rates of returns in the two countries is then:

$$\mathbf{D}B(t) = (s_{II} - s_I) \frac{K_{II}}{K} P_I(t) + (n_I - n_{II}) \frac{K_I K_{II}}{K} + s^* r B(t), \quad (3)$$

where \mathbf{D} is the operator of taking derivatives such that $\mathbf{D} = (d/dt)$. and $K = K_I + K_{II}$. We also define

$$s^* = (s_I K_{II} + s_{II} K_I) / K, \text{ and, for later reference, } s = (s_I K_I + s_{II} K_{II}) / K. \quad (4)$$

The third term is the effect of savings on the remuneration to lending and could be neglected. Thus *capital flow moves from a higher saving country to a lower saving country, and from a country with a lower labor growth rate to a country with a higher growth rate.*

Next consider the simpler case where the natural growth rates are identical across the countries, namely, $n_I = n_{II} = n$. In this case, reminding the definition of s as the average saving ratio defined in eq. (4) above, we can trace the stationary state where the system converges and calculate the debt capital ratio at the stationary state.

$$B/K_I = n(s_{II} - s_I) \ell_{II} / (sn - s_I s_{II} r), \quad (5)$$

which can be approximated, when saving ratios are small and r is close to n , by neglecting the second term of the denominator, as

$$B/K_I \doteq \frac{(s_{II} - s_I)}{s} \ell_{II}. \quad (6)$$

Thus, assuming the equal labor growth rate in both countries. the converging debt capital ratio is approximately proportional to the difference in savings rates and to the relative size of the neighboring

country. Suppose hypothetically that the world consists of Japan and the United States where the United States is twice as large as Japan in its economic scale, and where the saving ratio of the United States is 0.05, that is, as half as that of Japan, and that of Japan is 0.1 so that $s_I = 0.1$ and $s = 0.05$ and $\ell_{II} = 1/3$, then, in this single world of perfect capital mobility, at the equilibrium state the American debt-capital ratio will be approximately equal to

$$(0.1 - 0.05) / [\frac{2}{3} \times 0.05 + \frac{1}{3} \times (0.1)] \times \frac{1}{3} = (0.05 \div \frac{0.2}{3}) \times \frac{1}{3} = 0.25 \quad (7)$$

In this hypothetical, extreme, case, a quarter of the U.S. capital will be owned by the Japanese. This example is not for prediction but to illustrate the impact of the saving ration difference in the long run.

Modern readers will be unsatisfied because the difference in saving ratios are ad hoc, given exogenously. Let us assume two countries have the identical size, the identical technology. Both have identical population that is stationary at this time, though the extension of the world where two populations grow at the same rate is quite easy. People in country I has a larger time preference than those in country II. Or, nation II is more time patient than nation I. In country I agents have a higher rate of time preference ρ_I than those in country II where agents have a smaller rate of time preference ρ_{II} so that $\rho_I > \rho_{II}$.

Suppose that, in this single good world, the international world market operate in such a way that the rate of returns in the two countries are equalized and that the international debt, $B(t)$, which denotes the borrowing of country I from country II, will yield the rate of return $r(t)$ to be defined below in equation (12). The agents in both countries maximizes the discounted sum of the future consumption streams.

$$U_I = \int_{t=0}^{\infty} u(C_I(t)) \exp\{-\rho_I t\} dt \quad (8)$$

and

$$U_{II} = \int_{t=0}^{\infty} u(C_{II}(t)) \exp\{-\rho_{II} t\} dt. \quad (9)$$

Also, the movement of $K_I(t)$, $K_{II}(t)$ and $B(t)$ are described by

$$\mathbf{D}K_I(t) = F(K_I(t), L_I(t)) - r(t)B(t) + \mathbf{D}B(t) - C_I(t), \quad (10)$$

$$\mathbf{D}K_{II}(t) = F(K_{II}(t), L_{II}(t)) + r(t)B(t) - \mathbf{D}B(t) - C_{II}(t), \quad (11)$$

and the rate of return equality, by normalizing the labor in both countries as unity.

$$r(t) = f'(K_I(t)) = f'(K_{II}(t)). \quad (12)$$

Since the labor endowment is identical between the countries, we can normalize them as unity. Since technology is identical, the equality of the returns to capital means the equality of capital used in both countries. That is,

$$K_I(t) = K_{II}(t). \quad (13)$$

Define the net wealth of both countries as

$$X_I(t) = K_I(t) - B(t), \quad X_{II}(t) = K_{II}(t) + B(t), \quad (14)$$

then

$$K_I(t) = K_{II}(t) = (X_I(t) + X_{II}(t))/2, \quad (15)$$

and

$$B(t) = (X_{II}(t) - X_I(t))/2 \quad (16)$$

Then the system is described as the following differential equations in terms of $X_I(t)$ and $X_{II}(t)$.

$$\mathbf{D}X_I(t) = f[(X_I(t) + X_{II}(t))/2] - r(t)[(X_{II}(t) - X_I(t))/2] - C_I(t), \quad (17)$$

$$\mathbf{D}X_{II}(t) = f[(X_I(t) + X_{II}(t))/2] + r(t)[(X_{II}(t) - X_I(t))/2] - C_{II}(t), \quad (18)$$

where $r(t)$ is defined by

$$r(t) = f'(K_I(t)) = f'(K_{II}(t)) = r[(X_I(t) + X_{II}(t))/2]. \quad (19)$$

Then the problem is reduced to the simultaneous dynamic control problem over time to maximize U_I and U_{II} . This is a standard simultaneous optimization problem and the Euler equations become for the two country, denoting the (again assumed identical) elasticity of substitution of utility as θ .

$$\theta \frac{DC_I(t)}{C_I(t)} = r[(X_I(t) + X_{II}(t))/2] - f''[(X_I(t) + X_{II}(t))/2][(X_{II}(t) - X_I(t))/2] - \rho_I, \quad (20)$$

$$\theta \frac{DC_{II}(t)}{C_{II}(t)} = r[(X_I(t) + X_{II}(t))/2] + f''[(X_I(t) + X_{II}(t))/2][(X_{II}(t) - X_I(t))/2] - \rho_{II}, \quad (21)$$

The pair of equations (17) and (20) is optimization conditions for $X_I(t)$, given the path of $X_{II}(t)$. So is the pair of equations (18) and (21) the optimization conditions for $X_{II}(t)$, given the path of $X_I(t)$. Because of the time constraint, today I limit myself to the analysis the steady state of the system to which the optimal behavior will converge over time. this is exactly the state Phelps called "the golden rule" state, or later as "the quasi golden rule" state in presence of time discount.

At the stationary point, by subtracting (20) from (21),

$$B(t) = (X_{II}(t) - X_I(t))/2 = -(\rho_I - \rho_{II})/[2f''[(X_I(t) + X_{II}(t))/2]] \quad (22)$$

The stationary level of $B(t)$ is nontrivial, and at the long run equilibrium capital move from the more patient country to the less patient. At the stationary state with optimizing two nations, accumulation of substantial international debt can be expected in the long run. The larger the elasticity of the production function, the larger is the stationary level of international debt. If the production function has a smaller elasticity of substitution, the amount of debt will be smaller because the absolute value of $f''[(X_I(t) + X_{II}(t))/2]$ will be larger.¹⁰ We may conclude *If two nations have different rate of time preference, then the quasi golden rule paths of the two nation choose the state of capital movements such that a patient nation extends the credit to a less patient nation.*

Our approach is in a sense antipodean to the conventional approach. Conventional approach, for example, Obstfeld (2006) and Obstfeld and Rogoff (2005) start from the current situation with global

¹⁰ This model can be extended to the model where there are trade and the real exchange rate is determined by the relative price of the non-traded home good and the traded good. There can be an equilibrium without capital movements, but such an equilibrium is dominated by the equilibrium with international lending and borrowing.

imbalance and ask how much is required in the real exchange rate adjustment. We take the rather unbalanced state as a norm rather than an exception of the world economy where the intertemporal trade of goods will benefit the nations that have different rates of time preference.

Suppose next $\rho_I = \rho_{II}$, but the government of country I always spend $G(t) = G$. Equations (10) and (11) becomes

$$\mathbf{D}K_I(t) = F(K_I(t)) - r(t)B(t) + \mathbf{D}B(t) - G - C_I(t), \quad (23)$$

$$\mathbf{D}K_{II}(t) = F(K_{II}(t)) - r(t)B(t) + \mathbf{D}B(t) - C_{II}(t), \quad (24)$$

Then it can be shown that the stationary state is where $B(t) = 0$. if the rate of time preference is the same.

V. Concluding Remarks

Let us concede first to the conventional view that the current account should be more or less balanced. Reconciling myself to the conventional view, let us ask what Japan and other countries can do to ameliorate the imbalance. The following is a summary of possible solutions that I discussed above.

(1) In the field of trade, there is little room for more openness. Japan should make, for example, tariff barriers to rice much lower to allow Japan's consumers to enjoy less expensive rice. Very few cases for these kinds of policy proposals now remain, however.

(2) Japan has a notoriously unbalanced record of magnitudes between the inward direct investment and the outward direct investment. Reducing informal barriers and red-tape as well as creating a more inviting atmosphere for inward direct investment will certainly reduce the net amount of capital

outflows.

(3) Prolonging the working age is attempted and adopted for male employees. Increasing the labor participation ratio of women by improvement in day-care facilities and by changing the perception of female labor is an effective way to cope with labor shortage.

(4) Increase in immigration will substantially improve the (foreigners') investment opportunity in Japan. The problem is how to encourage the political atmosphere to allow immigration in the menu of policy choices in rather xenophobic Japan.

(5) Declining population growth has two conflicting ways to affect the current account. A smaller population and labor force will be detrimental to the business activities at home and to the loss of investment opportunities, so that the increase in the current account is reinforced. On the other hand, a declining population will tend to reduce the saving rate, and the increase in the current account will be moderated. So far, we observe both factors are working, but the first effect still seems to be dominating.

(6) In the very near past, somehow non-financial corporations are saving a lot in such a way to compensate the decrease in household savings and the increase in the general government deficit. Some of the savings come from the shift in statistical recording of savings. This point should be studied further because in Germany we also find the similar phenomenon that the corporate sector saves in such a way so as to compensate government deficit.

(7) Exchange rate manipulation can be quite effective if the manipulation is at all possible. A considerable extent of appreciation should be required, though, to balance or substantially reduce the imbalance. The adoption of this option needs to occur for its macroeconomic impact because this will rise to the possibility of recession. The tour de force operation by exchange rate realignment may repeat the failure of the Plaza Accord in that the real appreciation of the Yen brings recession to the

Japanese economy and the reaction to recession may invite a wild variation of monetary policy.

(8) All the international economic transactions are the results of the forces at home and abroad. Japan or China need not unilaterally take the blame about its economic situations and policies. Deficit countries like the United States could also adjust to the factor of the large international indebtedness.

Finally, theoretical consideration of sustaining debt balance needs some attention. Though I admit that a large current account deficit can be a destabilizing factor, in a political as well as in an economic sense, particularly to a highly indebted developing country, I do not consider that the current account balance is the norm for a growing economy. A slight difference in the natural rate of growth, a slight difference in the saving rates or in the underlying time preference, will create rather substantial capital flows between the countries, and be mostly beneficial to the welfare of the world economy.

In general, capital moves from a higher saving country to a lower saving country and from a more patient country to a less patient country. Capital moves from a country with a slower labor growth (in terms of efficiency unit) to a country with a faster labor growth. The simple model in the previous section tells us that the efficient state of the growing countries in the world economy, if it exists, will indicate a rather high level of foreign lending. What policy makers should aim for is not to manipulate the real exchange rate to discourage capital flows as well as international lending but to encourage rational or natural international lending and borrowing by deregulating the capital market.

Consider the regional flow of funds in the United States. I do not know where, and whether or not, the regional flow of funds table is still calculated, but at least there must be heavily indebted states and heavily investing states. No one needs to talk about balancing them.

Incidentally, psychological and experimental studies of time preference suggest that the rate of time preference itself is endogenous. When a nation is poor, it tends to be less patient, that is, with a higher rate of time preference, and when it becomes richer, it tends to be more patient, that is, with a

lower rate of time preference. Then the important task for the policy makers in developing countries is to devise an effective way of eliminating the stage with lower savings so that there is a quicker shift to the stage with higher savings.

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Table 1 Current Account Balance (Billions of US Dollars)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Japan	-10.8	4.8	6.8	20.8	35.0	51.2	86.1	84.5	79.3	63.2	43.9	68.4	112.3	132.0
US	2.3	5.0	-5.5	-38.7	-94.3	-118.1	-147.2	-160.7	-121.2	-99.5	-79.0	2.9	-50.1	-84.8
China	0.3	2.3	5.6	4.1	1.9	-11.5	-7.2	0.3	-3.8	-4.3	12.0	13.3	6.4	-11.9
UK	4.0	9.8	3.9	1.9	-1.7	-0.7	-5.3	-12.4	-35.4	-43.2	-39.8	-18.9	-22.7	-17.7
Germany	-15.9	-4.6	4.6	4.1	9.3	17.0	38.5	43.8	50.8	55.4	45.3	-24.3	-22.7	-19.0
	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Japan	130.6	111.4	65.7	96.6	119.1	114.5	119.6	87.8	112.6	136.2	172.1	165.7	167.3	162.9
US	-121.6	-113.6	-124.8	-140.4	-213.5	-299.8	-415.2	-389.0	-472.4	-527.5	-665.3	-791.5	-869.1	-959.1
China	7.7	1.6	7.2	34.4	31.6	15.7	20.5	17.4	35.4	45.9	68.7	160.8	184.2	206.5
UK	-10.2	-13.4	-10.5	-1.4	-5.3	-35.1	-37.6	-31.5	-24.8	-24.4	-35.4	-48.3	-55.9	-58.0
Germany	-30.5	-29.6	-14.0	-10.0	-16.3	-26.9	-32.6	0.4	41.0	45.6	101.9	114.9	120.6	120.7

Data: IMF, International Financial Statistics

Table 2 Current Account (Percent of GDP)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93
Japan	-1	0.4	0.6	1.8	2.8	3.8	4.3	3.5	2.7	2.1	1.4	2	3	3
US	0.1	0.2	-0.2	-1.1	-2.4	-2.8	-3.3	-3.4	-2.4	-1.8	-1.4	0	-0.8	-1.3
China	0.1	0.8	2	1.4	0.6	-3.8	-2.4	0.1	-0.9	-1	3.1	3.3	1.3	-1.9
UK	0.8	1.9	0.8	0.4	-0.4	-0.2	-0.9	-1.8	-4.2	-5.1	-4	-1.8	-2.1	-1.8
Germany	-1.9	-0.7	0.7	0.6	1.5	2.7	4.2	3.9	4.1	4.6	2.9	-1.3	-1.1	-0.9
	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Japan	2.7	2.1	1.4	2.3	3.1	2.6	2.6	2.1	2.9	3.2	3.8	3.6	3.7	3.5
US	-1.7	-1.5	-1.6	-1.7	-2.4	-3.2	-4.2	-3.8	-4.5	-4.8	-5.7	-6.4	-6.6	-6.9
China	1.4	0.2	0.8	3.6	3.1	1.4	1.7	1.3	2.4	2.8	3.6	7.2	7.2	7.2
UK	-1	-1.2	-0.9	-0.1	-0.4	-2.4	-2.6	-2.2	-1.6	-1.3	-1.6	-2.2	-2.4	-2.3
Germany	-1.7	-1.5	-1.6	-1.7	-2.4	-3.2	-4.2	-3.8	-4.5	-4.8	-5.7	-6.4	-6.6	-6.9

Data: IMF, International Financial Statistics

Table 3 International Net Asset (Billions of US Dollars)

	80	81	82	83	84	85	86	87	88	89	90	91	92
Japan	13	13	26	38	75	130	181	242	293	294	329	384	515
US	366	356	236	257	134	97	101	51	10	-47	-164	-261	-452
UK	43	62	70	81	91	102	147	94	89	84	-24	-5	19
Euro Area	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
China	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	93	94	95	96	97	98	99	00	01	02	03	04	05
Japan	612	690	818	891	959	1154	829	1158	1360	1462	1614	1784	1532
US	-144	-135	-306	-360	-823	-1071	-1037	-1581	-2339	-2454	-2340	-2449	-2546
UK	46	38	-20	-94	-91	-194	-88	-36	-85	-58	-79	-214	-294
Euro Area	NA	NA	NA	NA	NA	NA	-379	-421	-352	-648	-1021	-1293	-1252
China	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120	287

Data: IMF, International Financial statistics; IMF, World Economic Outlook; OECD, Statistics

Table 4 International Net Asset (Percent of GDP)

	80	81	82	83	84	85	86	87	88	89	90	91	92
Japan	1.18	1.09	2.44	3.22	5.96	9.61	9.02	9.96	9.96	9.99	10.86	11.13	13.66
US	13.10	11.38	7.25	7.28	3.41	2.30	2.26	1.07	0.20	-0.86	-2.83	-4.35	-7.14
UK	8.04	12.13	14.47	17.54	20.88	22.25	26.25	13.64	10.64	9.95	-2.44	-0.47	1.79
Euro Area	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
China	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	93	94	95	96	97	98	99	00	01	02	03	04	05
Japan	14.11	14.48	15.50	19.27	22.62	29.91	19.00	24.90	33.25	37.38	38.08	38.90	33.54
US	-2.17	-1.91	-4.13	-4.61	-9.91	-12.24	-11.19	-16.10	-23.10	-23.44	-21.35	-20.91	-20.44
UK	4.81	3.65	-1.78	-7.88	-6.82	-13.61	-5.99	-2.46	-5.90	-3.71	-4.34	-9.94	-13.17
Euro Area	NA	NA	NA	NA	NA	NA	NA	NA	-5.58	-9.46	-12.07	-13.36	-12.51
China	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.23	12.87

Data: IMF, International Financial statistics; IMF, World Economic Outlook; OECD, Statistics

Table 5 Surplus/Deficits of All Sectors (Percent of GDP)

	80	81	82	83	84	85	86	87	88	89	90	91	92
General Government	-4.4	-4.7	-3.5	-5.4	-2.5	-1.1	-0.6	0.1	1.7	1.3	2.9	3.5	-0.1
Financial Institutes	0.3	1.0	0.8	1.3	0.5	0.2	0.1	-0.4	-1.2	0.0	-3.0	-2.6	0.6
Private Nonprofit Institutes	-0.1	0.1	0.7	0.3	0.3	0.3	0.0	0.5	0.6	0.4	0.2	-0.5	0.2
Nonfinancial Corporations	-7.3	-6.0	-6.9	-4.0	-5.0	-5.5	-6.8	-6.9	-5.8	-8.6	-9.8	-7.8	-8.4
Households	10.8	10.1	9.8	9.8	9.7	10.0	11.6	9.8	7.3	9.0	10.9	9.8	10.8
Overseas	0.7	-0.5	-0.8	-2.0	-2.9	-3.8	-4.3	-3.1	-2.6	-2.1	-1.2	-2.4	-3.1
	93	94	95	96	97	98	99	00	01	02	03	04	05
General Government	-1.6	-3.5	-3.5	-4.4	-3.8	-11.3	-7.0	-6.6	-7.8	-7.0	-7.5	-6.3	-12.8
Financial Institutes	-0.9	-0.9	1.1	0.1	1.8	1.4	-1.5	1.3	5.7	2.1	2.0	2.6	1.4
Private Nonprofit Institutes	0.4	-0.1	0.1	0.1	0.3	-0.8	1.0	-0.6	0.4	-0.2	0.9	0.5	0.8
Nonfinancial Corporations	-5.1	-1.1	-2.5	0.1	-2.2	5.8	4.7	4.7	2.1	5.9	6.9	4.6	12.1
Households	10.1	8.2	6.7	5.5	6.3	7.4	5.2	3.5	1.9	1.9	1.1	2.2	2.2
Overseas	-2.9	-2.5	-1.9	-1.4	-2.4	-2.6	-2.4	-2.3	-2.3	-2.7	-3.4	-3.6	-3.7

Data: Bank of Japan, Statistics

Table 6 Population Growth Rate

	81	82	83	84	85	86	87	88	89	90	91	92	93	94
Japan	0.73	0.70	0.69	0.65	0.62	0.53	0.48	0.42	0.39	0.33	0.40	0.35	0.32	0.28
US	1.01	0.96	0.91	0.88	0.89	0.91	0.90	0.91	0.95	1.12	1.34	1.34	1.31	1.22
China	1.38	1.58	1.33	1.31	1.43	1.56	1.67	1.58	1.51	1.45	1.30	1.16	1.15	1.12
UK	0.05	-0.12	0.04	0.17	0.26	0.23	0.21	0.20	0.28	0.28	0.35	0.25	0.22	0.26
Germany	0.19	-0.07	-0.35	-0.40	-0.25	0.07	0.02	0.61	1.00	1.92	1.30	0.76	0.73	0.30
	95	96	97	98	99	00	01	02	03	04	05	06	07	
Japan	0.26	0.22	0.24	0.27	0.19	0.19	0.24	0.21	0.18	0.08	0.01	-0.03	-0.01	
US	1.19	1.17	1.20	1.17	1.15	1.11	1.04	1.01	0.99	0.97	0.94	0.91	0.99	
China	1.06	1.05	1.01	0.92	0.82	0.76	0.70	0.65	0.60	0.59	0.59	0.50	0.50	
UK	0.28	0.24	0.26	0.28	0.36	0.34	0.39	0.35	0.39	0.47	0.64	0.52	0.50	
Germany	0.29	0.29	0.19	-0.03	0.07	0.21	0.22	0.12	-0.02	-0.02	-0.04	0.07	0.06	

Data: IMF, World Economic Outlook

Table 7 Terms of Trade (Index, 2000 = 100)

70	71	72	73	74	75	76	77	78	79	80	81
178.8	176.4	178.4	162.0	129.4	115.7	109.2	109.0	123.4	106.3	79.8	79.4
82	83	84	85	86	87	88	89	90	91	92	93
76.5	78.0	81.2	82.1	108.6	112.3	115.0	111.7	105.0	108.1	111.0	114.0
94	95	96	97	98	99	00	01	02	03	04	05
117.3	114.9	109.7	104.0	110.8	109.8	100.0	100.6	100.9	97.6	92.5	83.3

Data: IMF, International Financial Statistics. Calculated by index of export price /index of import price

Table 8 Nominal and Real Exchange Rate of Yen

	80	81	82	83	84	85	86	87	88	89	90	91	92
Nominal (Yen/Dollar)	226.7	220.5	249.1	237.5	237.5	238.5	168.5	144.6	128.2	138.00	144.8	134.7	126.7
Real (Index,2000=100)	57.1	60.9	55.2	59.8	62.4	64.0	82.0	86.4	92.2	84.4	77.3	83.3	85.9
	93	94	95	96	97	98	99	00	01	02	03	04	05
Nominal (Yen/Dollar)	111.2	102.2	94.1	108.8	121.0	131.0	114.0	107.8	121.5	125.4	116.0	108.2	110.2
Real (Index,2000=100)	101.4	106.5	108.2	90.7	85.3	85.3	94.8	100.0	89.0	83.0	83.6	84.5	79.4

Data: IMF, International Financial Statistics

Table 9 Female Labor Force/Total Labor Force (%)

	15~19	20~24	25~29	30~34	35~39	40~44	45~49	50~54	55~59	60~64	65~69	70~74	75~
Japan	48.31	48.37	42.93	37.89	39.02	41.64	42.60	41.69	39.33	37.03	36.19	37.50	41.05
US	49.60	47.03	45.33	44.83	45.39	46.84	47.88	47.81	47.57	46.48	44.39	42.57	43.90
Germany	42.95	45.99	45.63	44.11	44.41	45.26	46.24	46.09	42.59	33.99	37.81	33.98	37.93
UK	48.34	46.63	46.72	45.26	46.26	46.65	47.35	47.00	45.22	34.51	37.29	33.33	28.57

Data: The Japan Institute for Labor Policy and Training

Table 10 Foreign Labor Force/Total Labor Force

Foreign Labor Force/Total Labor Force (%)						
	97	98	99	00	01	02
Japan	0.16	0.18	0.19	0.23	0.25	0.27
(including illegal labor)	(0.98)	(0.99)	(0.99)	(1.05)	(1.1)	
US	11.86	12.33	12.12	12.82	13.41	14.47
Germany	9.00	8.81	8.92	8.93	9.05	9.08
UK	3.23	3.53	3.42	3.76	4.15	4.35

Data: The Japan Institute for Labor Policy and Training

Table 11 Decomposition of Surplus/Deficits of Nonfinancial Corporations (Percent of GDP)

	80	81	82	83	84	85	86	87	88	89	90	91	92
All Nonfinancial Corporations	-7.3	-6.0	-6.9	-4.0	-5.0	-5.5	-6.8	-6.9	-5.8	-8.6	-9.8	-7.8	-8.4
Private Nonfinancial Corporations	-5.6	-3.8	-4.9	-1.9	-3.4	-5.4	-5.0	-9.6	-4.6	-6.1	-9.1	-8.7	-6.4
Public Nonfinancial Corporations	-1.7	-2.2	-2.0	-2.1	-1.6	-0.1	-1.8	2.7	-1.3	-2.5	-0.6	0.9	-2.0
	93	94	95	96	97	98	99	00	01	02	03	04	05
All Nonfinancial Corporations	-5.1	-1.1	-2.5	0.1	-2.2	5.8	4.7	4.7	2.1	5.9	6.9	4.6	12.1
Private Nonfinancial Corporations	-3.4	1.0	-0.6	1.6	-1.1	1.2	5.5	5.6	1.3	6.6	6.2	4.4	2.4
Public Nonfinancial Corporations	-1.8	-2.1	-1.9	-1.5	-1.1	4.6	-0.8	-0.8	0.8	-0.7	0.8	0.2	9.7

Data: Bank of Japan, Statistics

Figure 1 Current Account Balance

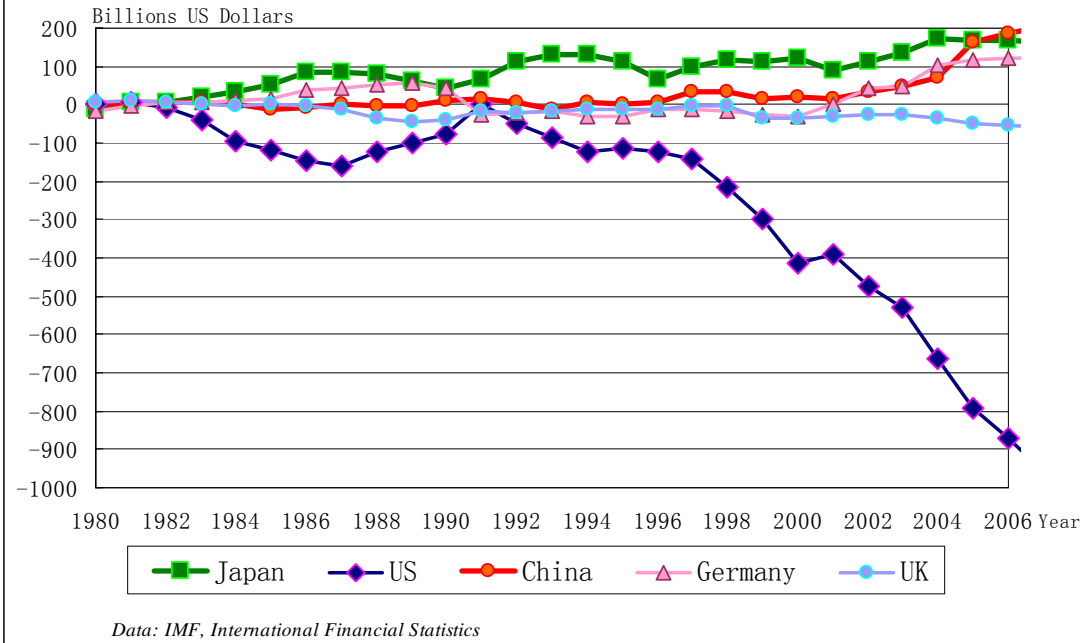


Figure 2 Current Account Balance (Percent of GDP)

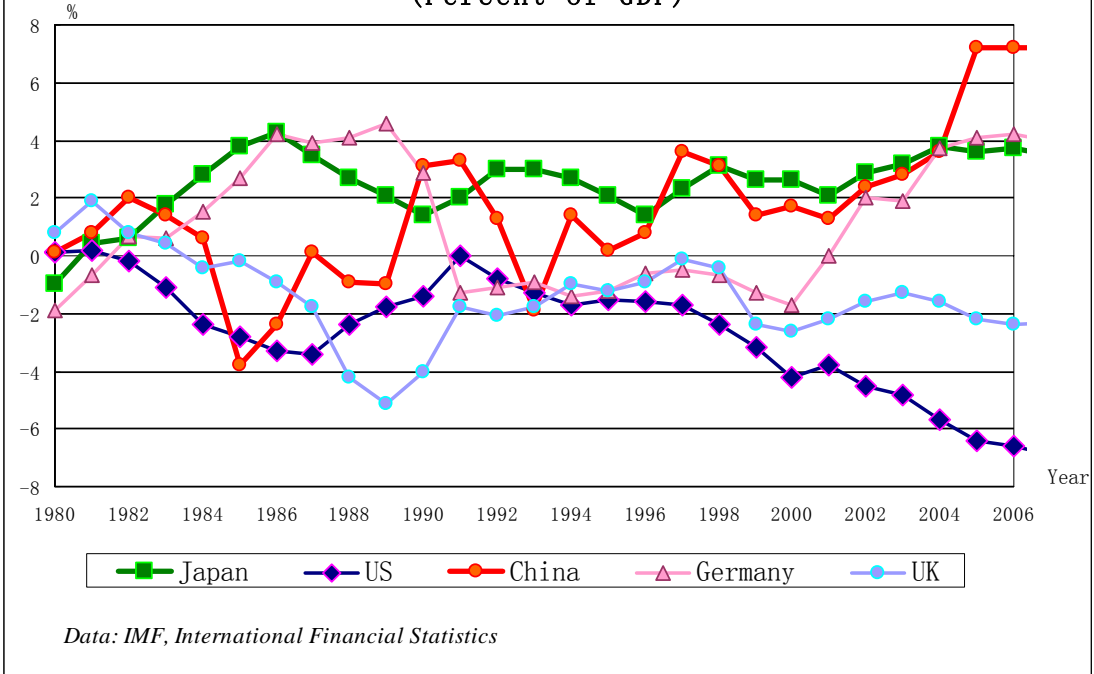
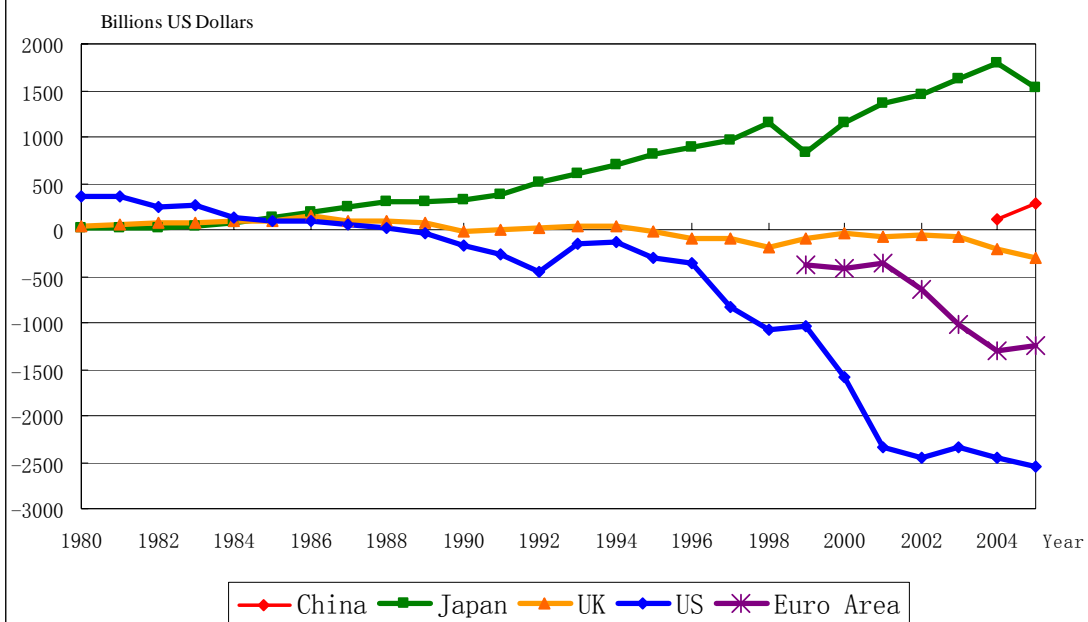
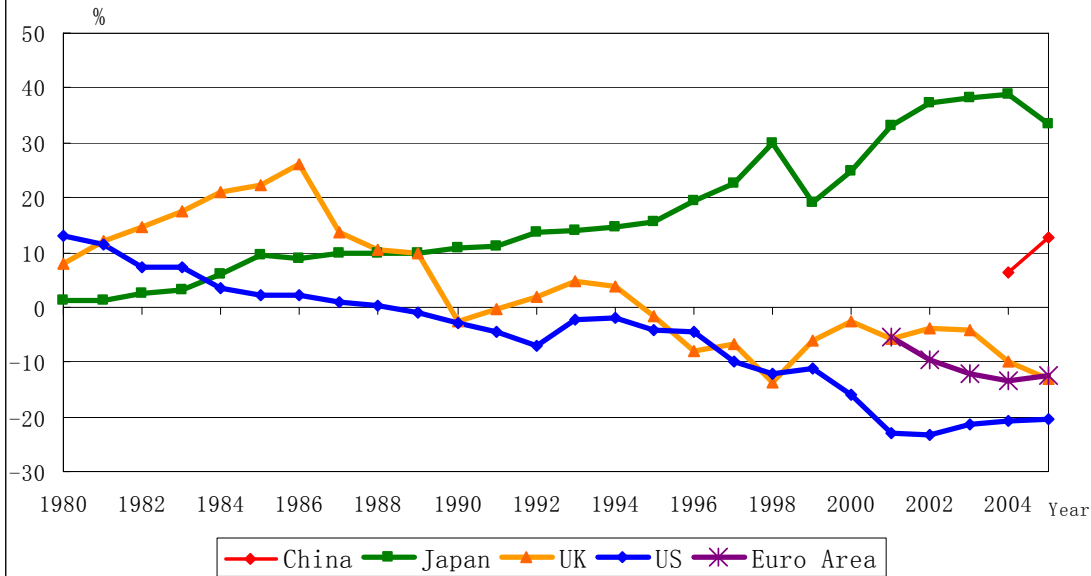


Figure 3 International Net Asset



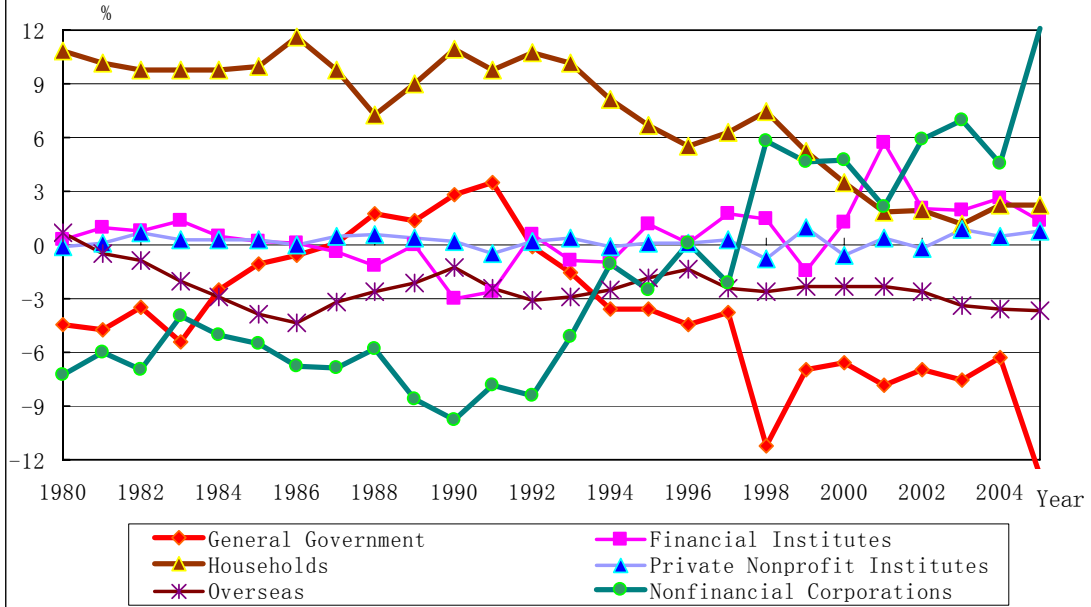
Data: IMF, International Financial Statistics

Figure 4 International Net Asset (Percent of GDP)



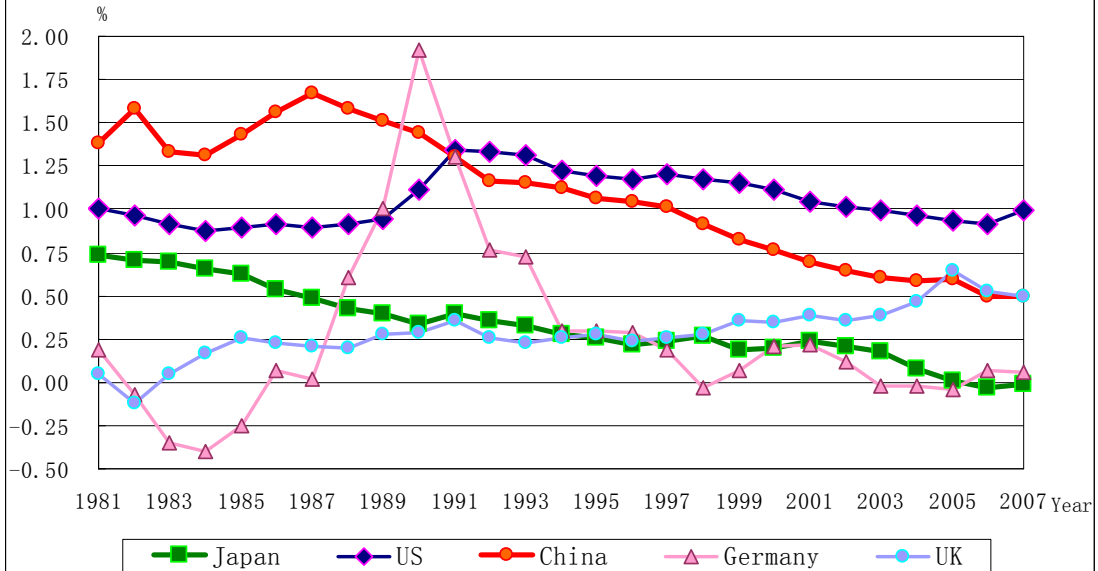
Data: IMF, International Financial statistics;
IMF, World Economic Outlook; OECD, Statistics

Figure 5 Surplus/Deficits of All Sectors (Percent of GDP)



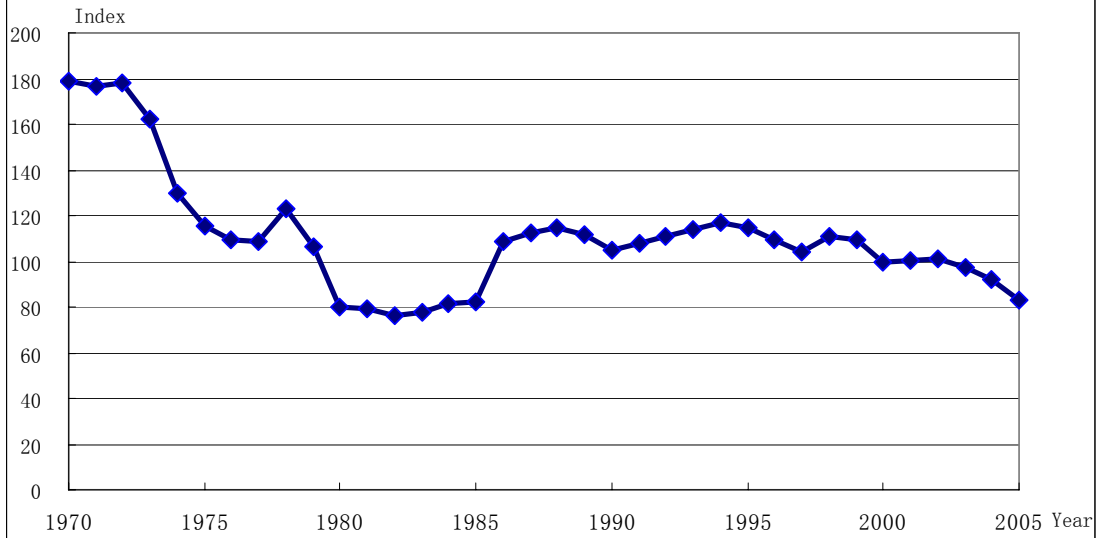
Data: Bank of Japan, Statistics

Figure 6 Population Growth Rate



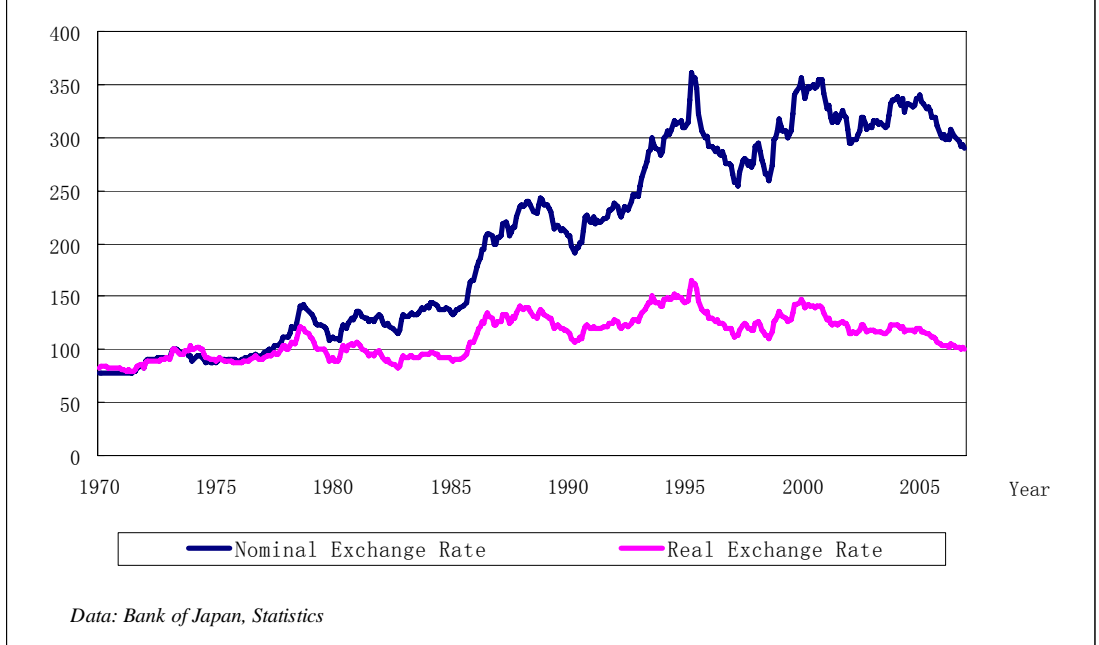
Data: IMF, World Economic Outlook

Figure 7 Terms of Trade (Index, 2000=100)



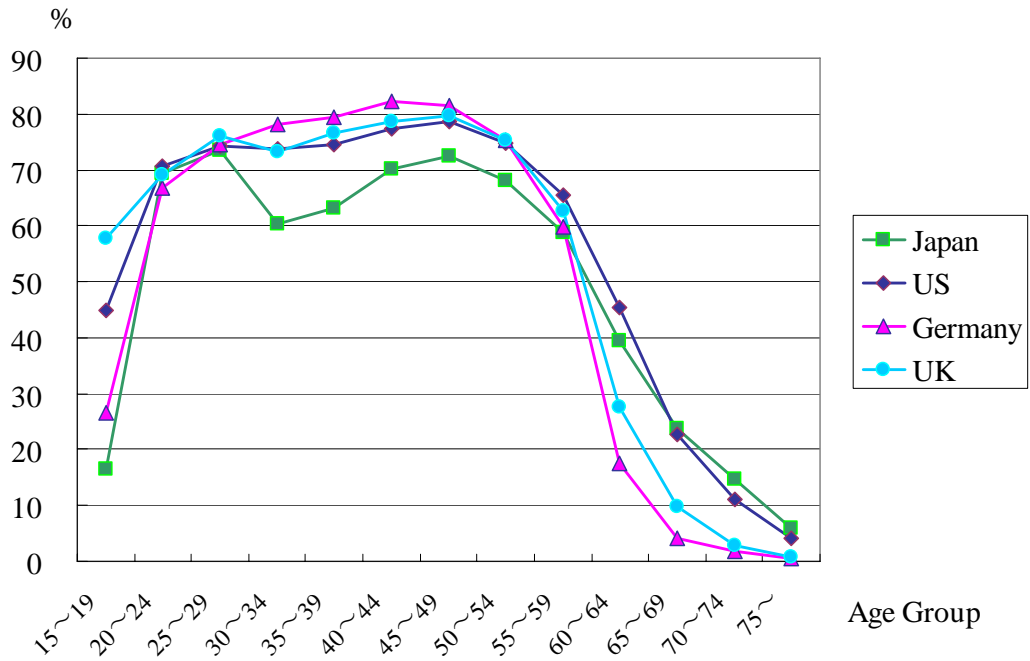
Data: IMF, International Financial Statistics.
Calculated by index of export price / index of import price

Figure 8 Exchange Rate (Relative Value of Yen)



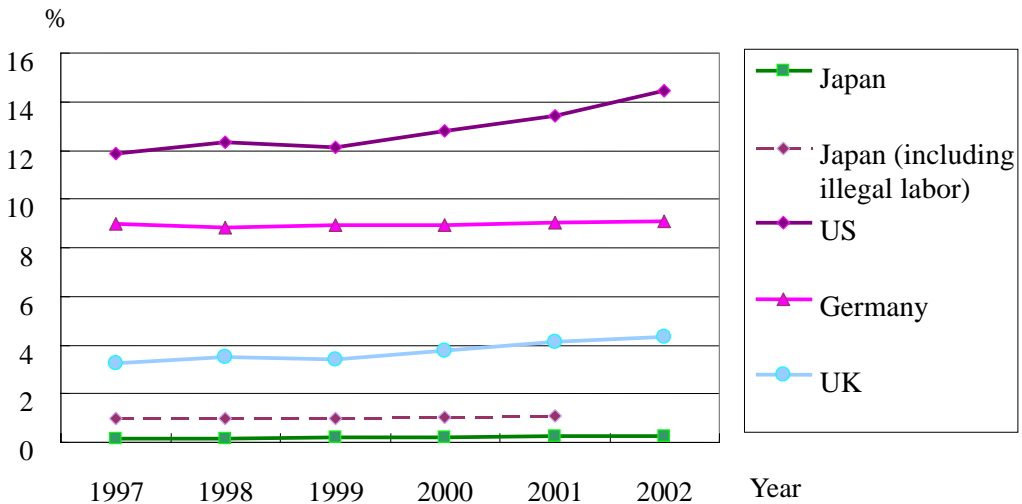
Data: Bank of Japan, Statistics

Figure 9 Female Labor Force/Female Population by Age Group



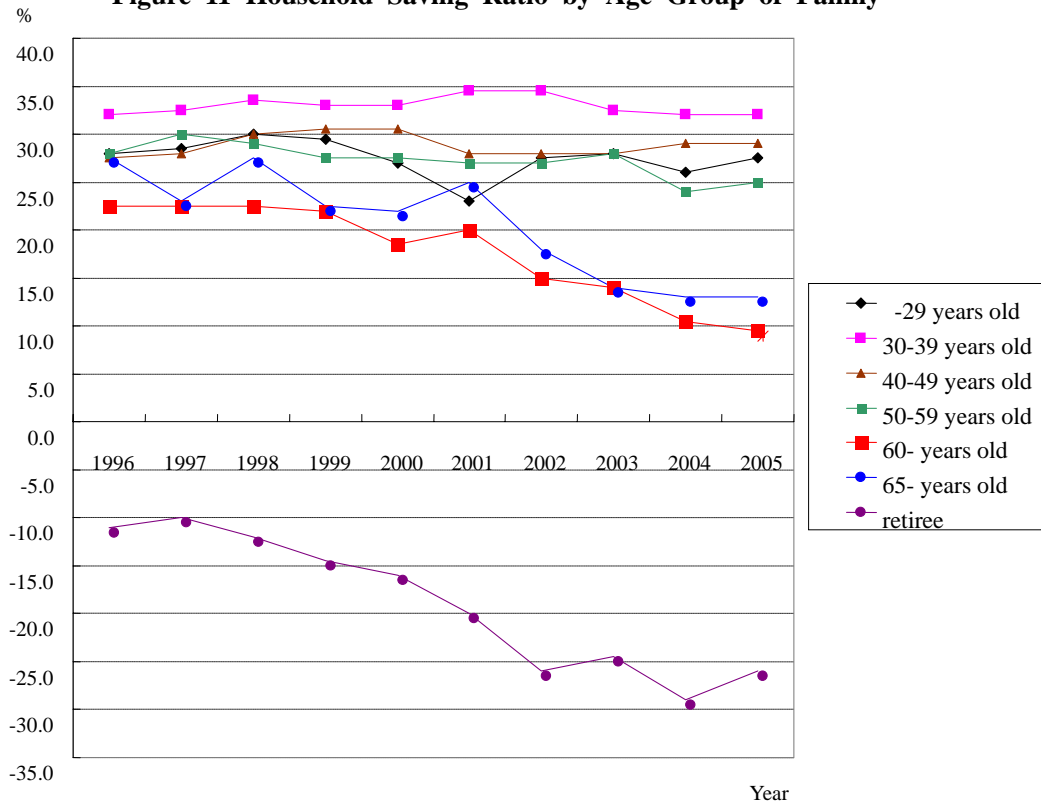
Data: The Japan Institute for Labor Policy and Training

Figure 10 Foreign Labor Force/Total Labor Force



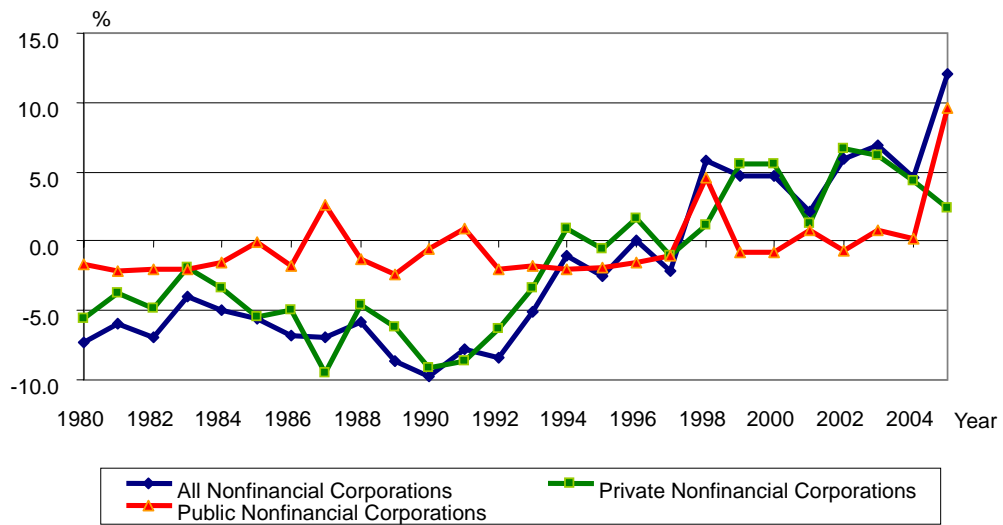
Data: The Japan Institute for Labor Policy and Training

Figure 11 Household Saving Ratio by Age Group of Family



Source: Doihara et al (2006)

Figure 12 Decomposition of Surplus/Deficits of Nonfinancial Corporations (Percent of GDP)



Data: Bank of Japan, Statistics