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THE YEN-DOLLAR RELATIONSHIP: A RECENT HISTORICAL PERSPECTIVE

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ABSTRACT

This paper explores the interaction between exchange rate alignment and external balance for Japan and the United States. The analysis highlights the influence of current account developments on the yen-dollar exchange rate, as well as the reverse, and the interaction between the capital account and the exchange rate. We first sketch the broad outlines of the factors driving medium-run swings in the yen-dollar exchange rate over the floating rate period. After a brief consideration of the implications of financial liberalization for the yen-dollar exchange rate, the paper takes a more detailed look at the secular developments underlying movements in the yen-dollar relationship, tracing the evolution over the past two-and-a-half decades of some of the more salient structural features of the American and Japanese economies. Developments in each economy related to productivity, the composition and regional pattern of trade, real wages, the terms of trade and the savings-investment balance provide insights into the longer-run trends of the Japanese current account and associated pressures for yen appreciation over time. Finally, we weigh the relative contributions of changes in the exchange value of the yen and other economic factors in fostering more balanced trade between Japan and its major trading partners, including the United States. Evidence from the Multi-Country Model indicates that a 35 percent appreciation of the yen against the dollar over time will reduce Japan's surplus with the United States by \$20 billion.

The Yen-Dollar Relationship: A Recent Historical Perspective

by

Manuel H. Johnson* and Bonnie E. Loopesko**

At the center of the current debate on international policy coordination lies the question of how to foster and sustain a configuration of exchange rates that contributes to stability in the world economy. Underlying this debate are more fundamental issues: How are exchange rates determined? What forces induce exchange rate movements that ex post are judged to result in misalignments? Common to many recommendations for reform of the exchange rate system is the notion that exchange rates should move so as to promote better external balance. In this context, the question often raised concerning the yen-dollar relationship is: What level of the yen-dollar exchange rate would be consistent with a more balanced trade relationship between Japan and the United States? Posing the problem in this manner, however, belies the complexity of determining a more appropriate alignment of exchange rates.

Because the issues of the alignment of exchange rates and of external balance are inextricably linked in public debate, this paper explores their interaction. The analysis highlights the influence of current account developments on the yen-dollar exchange rate, as well as the reverse. In light of the simultaneous determination of current and capital accounts, it will also be useful at times to consider the interaction between the capital account and the exchange rate. There is no presumption that bilateral exchange rates should move solely to achieve bilateral trade balance. While promotion of a reduction of Japan's record surplus vis-a-vis the United States is clearly an important, even pivotal,

concern with respect to the yen-dollar exchange rate, key structural differences between the Japanese and American economies suggest that balanced trade between them may be improbable and even undesirable for some time.

Section I sketches the broad outlines of the factors driving medium-run swings in the yen-dollar exchange rate over the floating rate period. The interplay of domestic and foreign macroeconomic policies and developments, major global supply shocks, and the liberalization of Japanese financial markets has produced periods of more-or-less sustained yen appreciation or depreciation. After a brief consideration in Section II of the implications of financial liberalization for the yen-dollar exchange rate, Section III takes a more detailed look at the secular developments underlying movements in the yen-dollar relationship, tracing the evolution over the past two-and-a-half decades of some of the more salient structural features of the American and Japanese economies. Developments in each economy related to productivity, real wages, the terms of trade, the composition and regional pattern of trade, and the savings-investment balance provide insights into the longer-run trends of the Japanese current account and associated pressures for yen appreciation over time. Section IV weighs the relative contributions of changes in the exchange value of the yen and other economic factors in fostering more balanced trade between the Japan and its major trading partners, including the United States. A concluding section distills the analysis of the paper and comments on recent and prospective developments in the yen-dollar relationship.

I. An Historical Overview of the Yen-Dollar Relationship

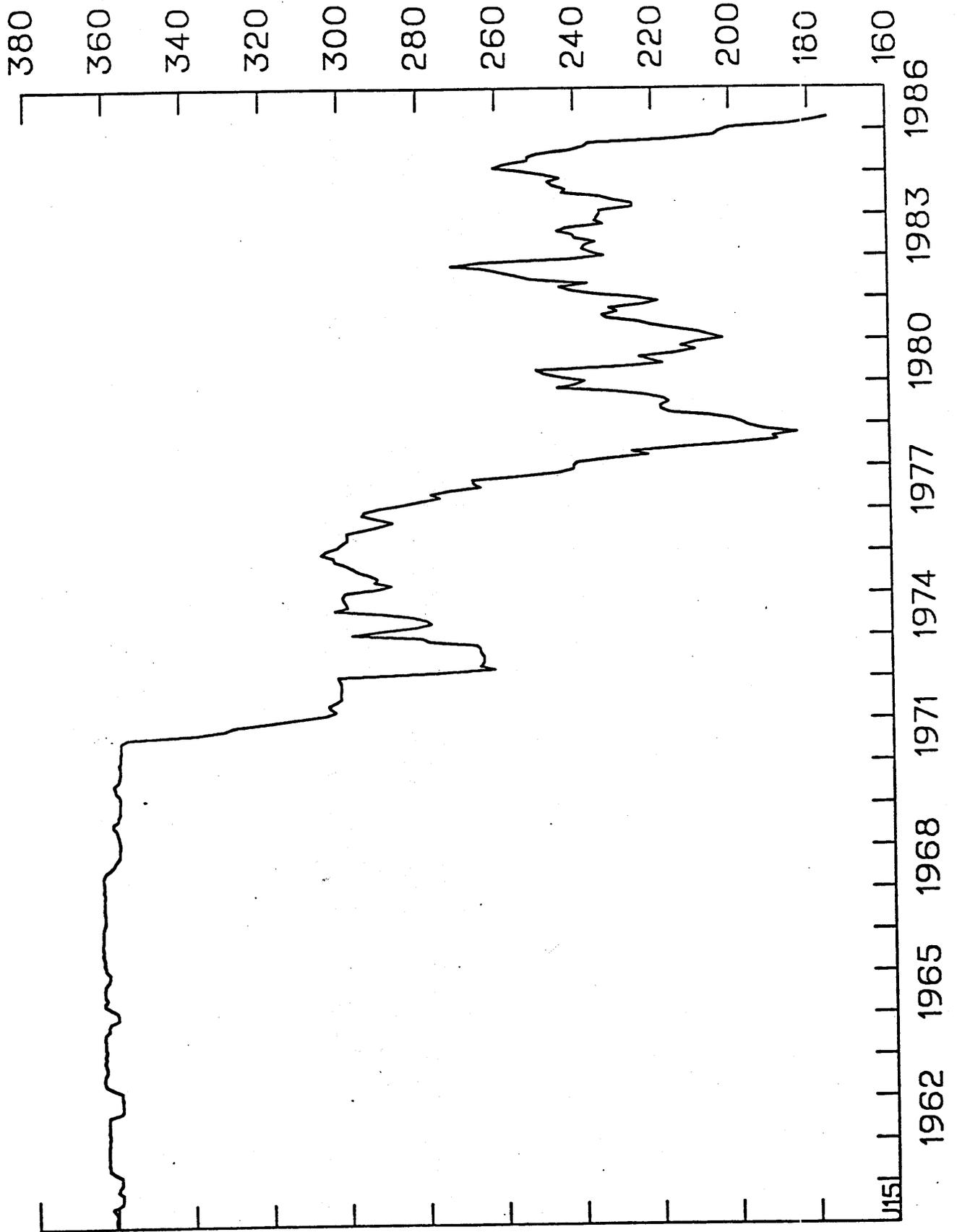
In April 1949, the official Japanese exchange rate was established at 360 yen = US\$1, and in May 1953 this rate was agreed with the International Monetary Fund as the par value. It was not until December 20, 1971, after four months of floating following the suspension in August of the dollar's convertibility to gold, that the yen exchange rate was revalued to a central rate of 308 yen = US\$1 and wider fluctuation margins were set.

During the preceding 22 years of an unchanged exchange rate of the yen against the dollar, the Japanese economy had undergone a dramatic structural transformation. While in the 1950s Japanese exports were widely viewed as being of such inferior quality that they could not compete successfully with products from the major industrial economies, by the early 1970s Japan had developed burgeoning trade surpluses with many of these same economies. The implied undervaluation of the yen together with the fundamental disequilibrium in the U.S. external accounts were two principal elements of the international imbalance that led to the demise of the Bretton Woods system. After the failure of measures in mid-1971 aimed at diminishing Japan's rapidly increasing trade surplus, the yen was again revalued in early 1972, this time to yen 301 = US\$1 where it remained until the advent of floating in February 1973. In the early months of floating, the yen strengthened further against the dollar, for a total appreciation of 27 percent since 1971.¹ Chart 1, which traces movements in the yen-dollar exchange rate since 1960, shows the yen's steep appreciation over this period.

YEN/DOLLAR EXCHANGE RATE

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CHART 1



From 1973 to 1975, the yen depreciated irregularly against the dollar. Throughout 1973, Japan experienced a worsening inflation that was initially due to an unusual degree of synchronization of the expansions in Japan, the United States and many other economies. During this period, the strongest O.E.C.D.-wide boom in 20 years, prices of certain raw materials imports surged, including the October 1973 oil price explosion. The ensuing large wage settlements in Japan set off a wage-price spiral that sent Japanese prices soaring, with wholesale and consumer prices jumping at respective rates of 37 and 26 percent (on a year-over-year basis) at their peaks in February 1974. This was the worst episode of inflation in Japan since the early 1950s. Inflation in the United States, while also accelerating, peaked at 19 percent for wholesale prices and 12 percent for consumer prices (on a year-over-year basis) in November 1974.

The period of adjustment to the first oil shock in Japan lasted several years. The oil price hike hit Japan just as the economy was showing signs of overheating and the Japanese authorities were already concerned about accelerating inflation. In 1974, the Japanese economy entered an 18-month recession, the most severe recession in Japanese post-war history. In response to accelerating inflation, stagnating growth and a deteriorating balance of payments, the yen depreciated 16 percent against the dollar between June 1973 and December 1975. After running a record current account surplus of \$6.6 billion in 1972, Japan ran a string of current account deficits from 1973 through 1975, the first such deficits since 1967.

fiscal restraint. These policy actions were instrumental in promoting the moderate nominal wage settlements in the spring 1980 wage round. Although the current account deteriorated further in 1980 to an annual deficit of \$10.7 billion, the turn-around in both inflation and the external balance was already evident by late 1980.

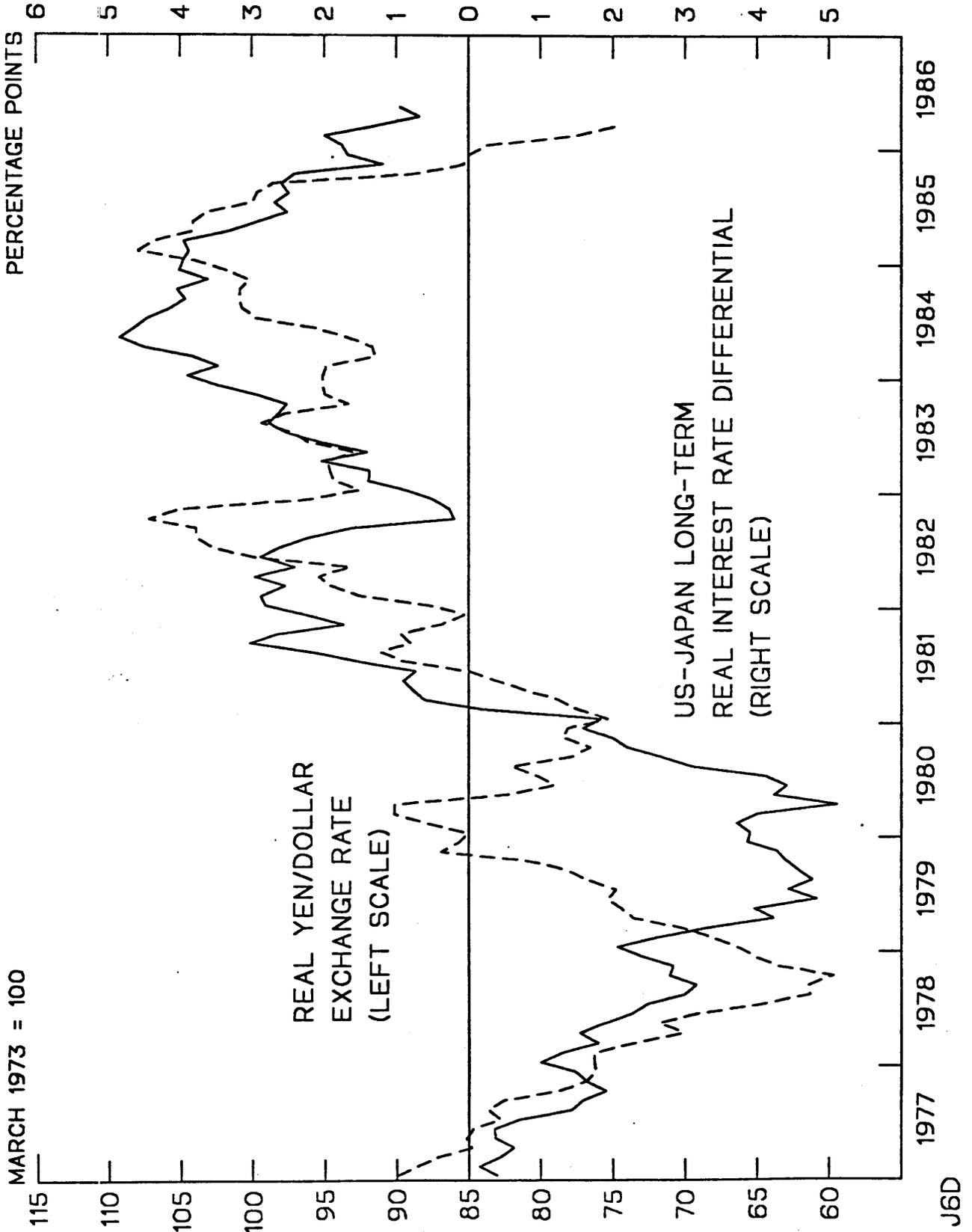
The Japanese current account moved back into surplus in 1981. As the current account surplus increased more than tenfold from \$4.8 billion in 1981 to \$49.3 billion in 1985, the yen strengthened substantially on a weighted-average basis but passed through two periods of substantial rises and declines against the dollar. From January 1981 through February 1985, the dollar rose steeply against many major currencies, gaining 39 percent on balance against the German mark and 42 on an effective basis. The dollar's net appreciation over those four years against the yen was less, amounting to only 29 percent.

Starting in about 1981, movements in the yen-dollar exchange rate frequently corresponded to changes in the interest differential between yen and dollar securities. In particular, movements in the differential between real returns on yen and dollar-denominated securities, particularly at the long end of the maturity spectrum, started to correlate more closely, though it is important to note far from perfectly, with fluctuations in the real yen-dollar exchange rate. These two series are displayed in Chart 3.³

That this correlation between interest differentials and exchange rate movements became more evident in the early 1980s may not be a coincidence: it coincides closely with the substantial liberalization of

CHART 3

REAL YEN/DOLLAR EXCHANGE RATE AND LONG-TERM REAL INTEREST RATE DIFFERENTIAL



Japanese capital markets that picked up momentum starting in 1979. Prior to that time, controls on capital inflows and outflows were instituted or relaxed as a direct means of reversing sharp sustained movements in the exchange value of the yen. Liberalization measures of particular importance were the opening of the Gensaki (government bond repurchase) market to non-resident investors in 1979, which offered a powerful channel for international interest arbitrage, and the December 1980 Foreign Exchange and Foreign Trade Control Law which established the general principle that external transactions should be decontrolled subject to prudential guidelines, emergency clauses and certain residual restrictions that would gradually be relaxed. The 1980 law marked the end of the discretionary use by the Japanese authorities of restraints on capital inflows and outflows to influence the yen exchange rate.

Since February 1985, the yen has strengthened about 35 percent against the dollar as part of a generalized decline of the dollar against the major currencies. In the eight months since the September 22, 1985 Plaza meeting of the G-5, the yen's appreciation has been particularly sharp, rising nearly 30 percent against the dollar and about 20 percent on a weighted-average basis. This most recent period of yen appreciation was initially encouraged by coordinated intervention and monetary policy actions in Japan and other G-5 countries, as well as by a widespread perception in the exchange markets that economic factors, such as those discussed in Section III below, warranted a stronger yen.

From this overview of the yen-dollar relationship under floating exchange rates, five main points emerge. First, while day-to-day gyrations

in exchange rates may defy explanation in terms of fundamental economic factors, the broad swings in the yen-dollar exchange rate are consistent with our general theories of the relationship between domestic and global economic developments and exchange rate movements. For example, periods of high inflation tend to correspond with episodes of yen weakness

Second, the steep and rapid appreciation of the yen that has occurred in the past 15 months is not entirely outside the range of historical experience. For example, from the third quarter of 1977 through the fourth quarter of 1978, the yen appreciated about 30 percent. It is important to note, however, that such sharp exchange rate movements over relatively short periods do impose considerable burdens of adjustment on Japanese industry.

A third point is that, for Japan, movements in interest differentials began to correlate more closely with exchange rate swings starting in the 1980s after significant financial liberalization had occurred in Japan. Thereafter, short-run movements in the yen's foreign exchange value are probably best viewed from the standpoint of asset market models of exchange rate determination.⁴ In these models, short-run exchange rate fluctuations result from the rapid equilibration of supply and demand in the markets for foreign exchange. Because current exchange rates determined in an efficient financial market already summarize all known relevant information, it is primarily unanticipated developments in a wide spectrum of macroeconomic and financial variables that influence exchange rate changes in these models.

A fourth feature of the floating rate period is that there appears to have been a strong positive correlation between Japanese current account surpluses and yen appreciation. Japan has run current account surpluses almost continuously since 1965, except during the years immediately following the two oil shocks of the 1970s. Periods of strong yen appreciation have tended to correlate closely with periods of growing current account surplus, although the appreciation eventually induces a reduction in the surplus as shifts in demand occur in response to the associated relative price changes. In a period of low international mobility of capital, such as that prior to 1979, so-called "flow" models of exchange rate determination would predict that trade flows may have a substantial impact on the exchange rate. If strict capital controls prevent a capital account surplus from emerging to finance a current account deficit, then the exchange rate will have to depreciate in order to foster a reduction of the current account imbalance. That link becomes more complicated when financial liberalization permits a high degree of capital mobility across borders.

With capital mobility, current account developments can still influence the exchange rate through a variety of channels. Unanticipated current account developments may affect the exchange rate by revealing new information about changes in long-run competitive positions among countries. This channel is discussed further in Section III. In addition, current account movements may influence the exchange rate through a portfolio balance channel: current account imbalances result in a redistribution of wealth among countries, and because investors in different countries may

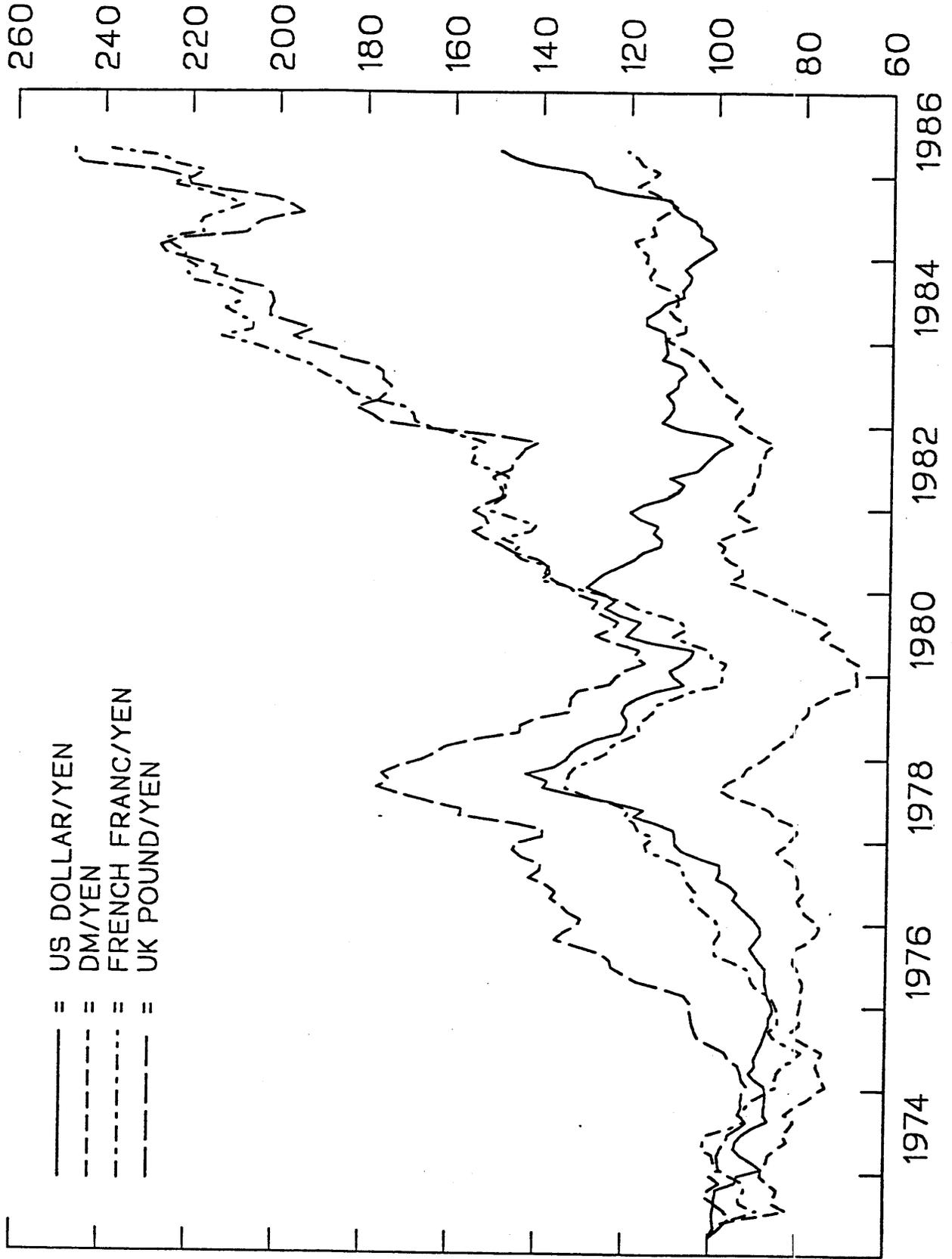
have different preferences with respect to the currency denomination of their investments, exchange rates will move to re-equilibrate asset markets. Another channel emphasizes intertemporal considerations and argues that the exchange rate will gradually adjust to prevent current account imbalances from becoming unsustainably large. This latter hypothesis has received considerable attention in recent years in light of the record U.S. and Japanese trade imbalances.⁵ Finally, there are a number of underlying economic developments which influence both exchange rates and current accounts, and which may at time cause them to respond together. Shifts in productivity growth across countries are one example of this type of phenomenon.

The exchange rate, in turn, also influences the current account over time through its impact on the relative price of national outputs. Relative prices of domestic and foreign goods are strongly affected by exchange rate movements in the short-run due to slower adjustment of prices in goods markets relative to asset markets. The impact of the exchange rate on current account adjustment is discussed in Section IV.

As a fifth and final point, it is worth highlighting the differences between the yen's movements in the past 12 years against the dollar and against other currencies. Chart 4 shows the widely diverging paths of bilateral yen exchange rates against four major currencies. While the yen has made net gains of about 140 percent against the French franc and pound sterling over the floating rate period, it has only appreciated 50 percent against the dollar on balance and just 20 percent against the mark. Of course, differences in inflation and other macroeconomic

YEN BILATERAL EXCHANGE RATES (MARCH 1973 = 100)

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developments across countries account for much of these diverging movements. From 1973 through the present, cumulated consumer price inflation has been 72 percent in Germany, 137 percent in Japan, 155 percent in the United States, 250 percent in France, and 330 percent in the United Kingdom.

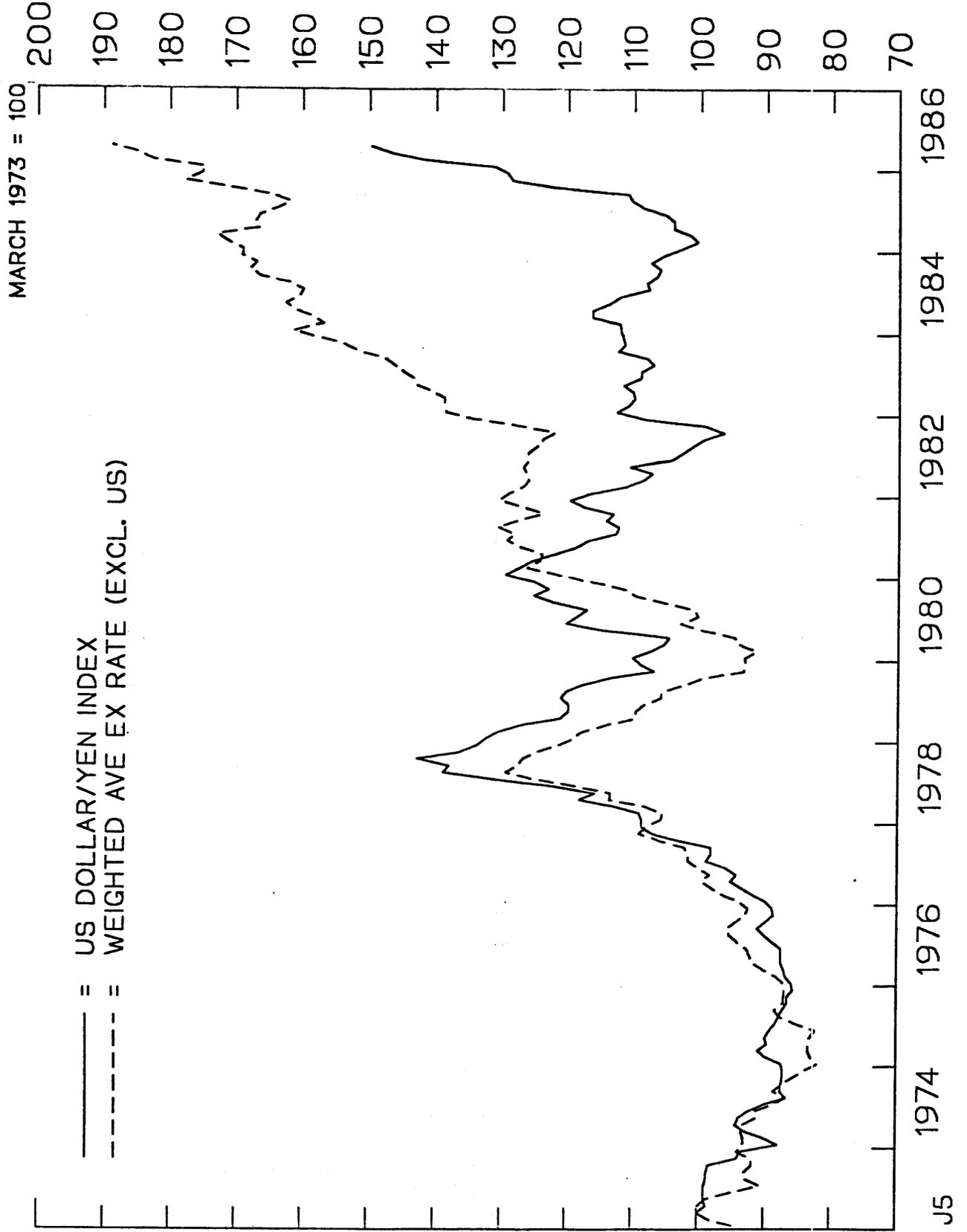
While developments within the various countries influenced the extent of the individual bilateral gains, it is clear that, overall, the yen has made sizable net gains against virtually all the major currencies over the floating rate period. Chart 5 compares the yen's movements against the dollar and against a basket of nine other major currencies.⁶ Because of the yen's relatively uninterrupted rise against the nine currencies as a group in the 1980s while it rose and fell against the dollar, the net appreciation of the yen on an effective basis (excluding the dollar) has been about 90 percent since the start of floating exchange rates in 1973, nearly twice its net gain against the dollar over that period. The remainder of the paper will explore some of the sources of the yen's remarkable strength.

II. The Impact of the Financial Liberalization Process on the Yen-Dollar Exchange Rate.

Over the past decade, Japan has made substantial progress in opening up its capital markets. As the pace of financial liberalization in Japan has accelerated in recent years, Japan's financial markets have acquired breadth and depth, making yen-denominated securities increasingly attractive to foreign investors. Whereas in the 1970s, capital controls were used extensively to influence the yen, liberalized markets were not restricted anew when exchange market pressures emerged in the 1980s.

WEIGHTED-AVERAGE YEN (EXCL US) AND DOLLAR/YEN EXCHANGE RATES

CHART 5



As a general point, it is difficult to determine the contribution of liberalization to the most recent rise of the yen because liberalization has been occurring gradually for years. Many studies have demonstrated that a high degree of interest arbitrage has existed in at least some Japanese financial markets since the late 1970s.⁷ Consequently, it was to be expected that further liberalization would probably have little impact on arbitrage opportunities other than to broaden the menu of possible instruments for investment. In part for this reason, there is little evidence to date directly linking financial liberalization and exchange rate appreciation. For example, the yen weakened against the dollar after the May 1984 Yen-Dollar Agreement announcing further planned liberalization measures in Japan. A strong upward move of the yen did occur starting in February 1985, however. It is, of course, clear that factors other than liberalization also contributed to the most recent rise of the yen.

Other considerations complicate an evaluation of the effect of liberalization on the exchange rate. The impact of liberalization at a particular point in time will depend on whether an excess demand or supply of yen assets relative to foreign-currency denominated assets has developed as a result of the controls in place. For example, it has been argued that the reason for the yen's decline following the 1984 Yen-Dollar agreement was that Japanese investors at that time had a pent-up demand for foreign-currency denominated assets, and that restrictions were removed on both capital inflows and outflows.⁸ While these considerations complicate the analysis of the short-run impact of liberalization measures on the

yen's exchange value, it is still clear that, over the longer-run, financial liberalization will allow and encourage wider use of the yen in international transactions.

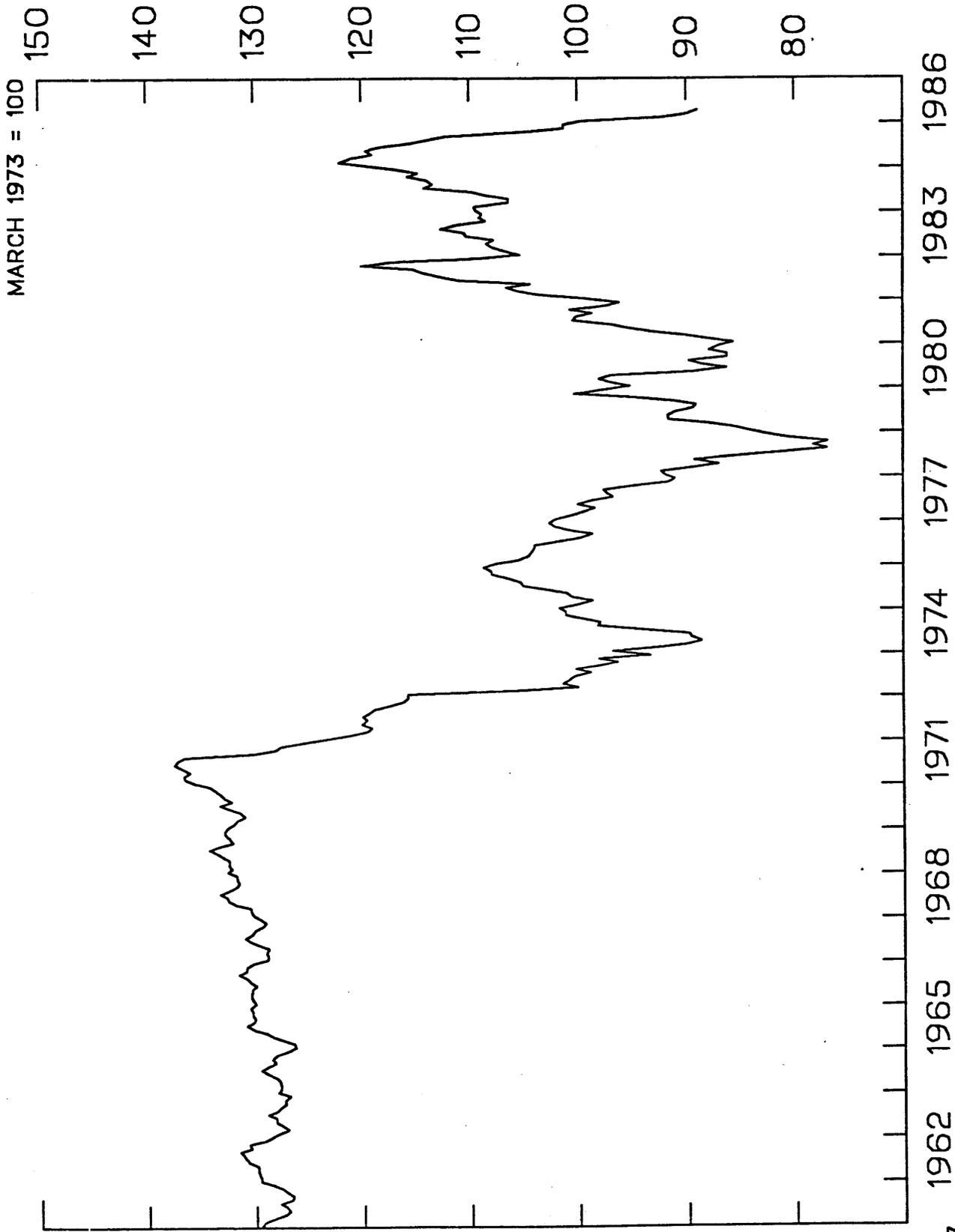
III. Secular Influences on the Yen-Dollar Relationship

Much of the descriptive analysis of movements in the yen-dollar exchange rate in Section II has focused on relating medium-run movements in the exchange rate to macroeconomic, financial and balance-of-payments developments. But the yen has exhibited a tendency over the past 15 years to strengthen on balance against the currencies of all its major trading partners. The question inevitably arises as to what longer-term influences might be generating this secular appreciation of the yen.

Differences in relative prices across countries provide a starting point for evaluating longer-run trends in exchange rates. According to the purchasing power parity (PPP) theory, if consumers have similar tastes across countries, international arbitrage in goods markets will lead prices of identical goods in different countries, expressed in a common currency, to be equalized over time. From a position of initial equilibrium, if the exchange rate exactly followed a PPP path, the real exchange rate would be constant.

A rough illustration of the deviations from PPP is provided in Chart 6, which displays the path of the yen-dollar exchange rate adjusted for changes in relative wholesale prices in Japan and the United States. It is evident that the yen-dollar exchange rate has not closely followed relative price movements over the floating rate period. However, such evidence should not be construed as necessarily implying an inappropriate

WPI-ADJUSTED YEN/DOLLAR EXCHANGE RATE



path of the yen-dollar exchange rate. Measurement problems caused by differences in composition of price indices across countries complicate PPP calculations. Moreover, a number of factors can warrant sustained deviations from PPP, and this section will examine some of these factors.

Productivity growth. One of the primary factors contributing to improved competitiveness in Japan is that Japanese productivity growth has outpaced that of its major trading partners, including the United States. Chart 7 illustrates Japan's sharp gains in productivity in manufacturing relative to the United States. The chart focuses on productivity in the manufacturing sector since a growing percentage of Japanese exports are manufactured goods -- about 85 percent in 1985.

Japan's rate of productivity growth has slowed considerably since the 1960s, as can be seen in the table below.

Productivity Growth in the United States and Japan

(annual percentage growth in output per hour in manufacturing)

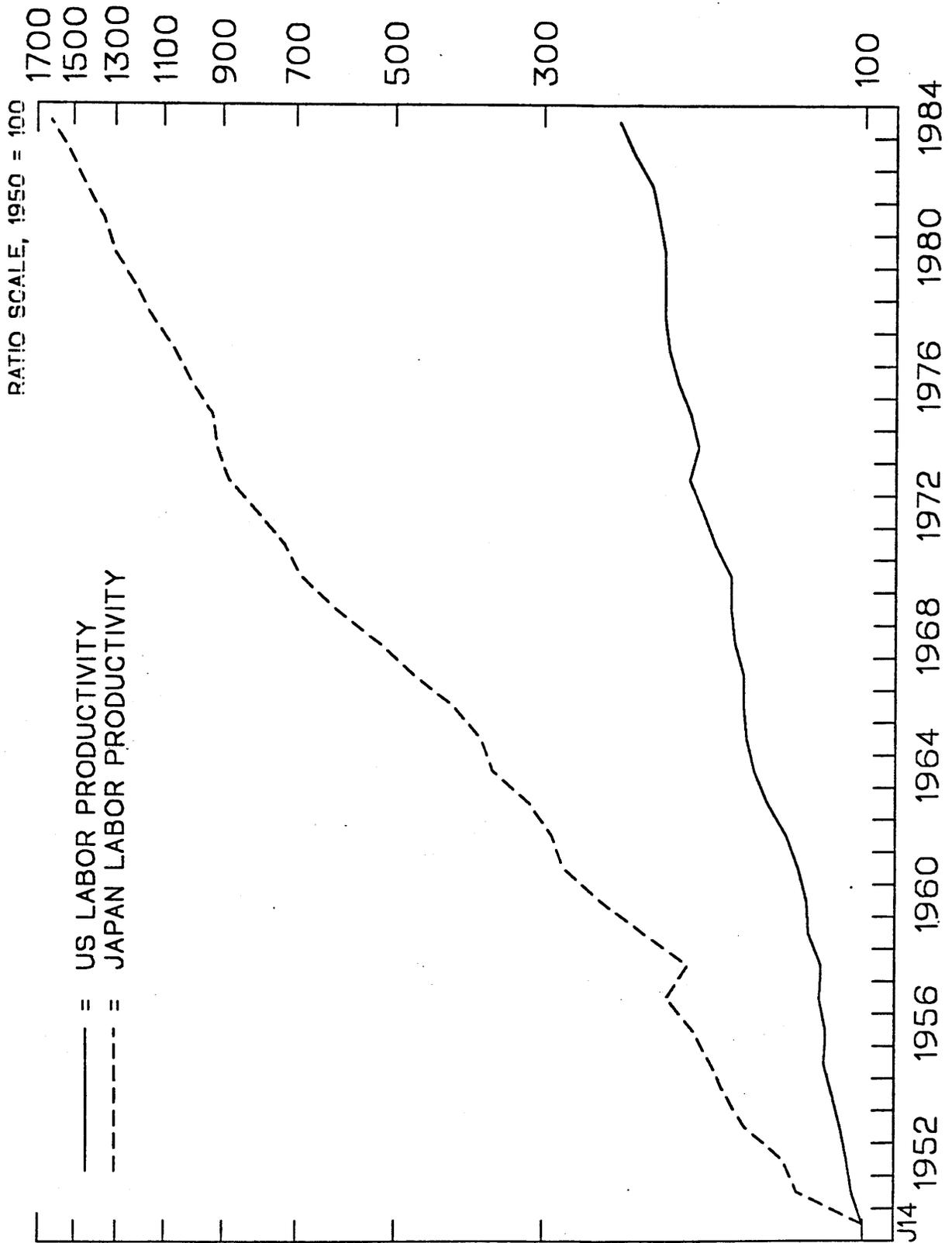
<u>Period</u>	<u>Japan</u>	<u>United States</u>
1950-59	11.4	2.1
1960-69	14.8	3.0
1970-79	7.7	2.5
1980-84	4.8	3.4

Source: Bureau of Labor Statistics, March 1986.

The remarkably rapid growth in Japanese productivity in the 1950s and 1960s reflected in part the fast pace of technological innovation deriving from a backlog of exploitable foreign technologies. The slowdown in productivity growth in Japan's manufacturing sector over the past 15 years reflects in

Chart 7

OUTPUT PER HOUR IN MANUFACTURING



part the elimination of ready opportunities to adopt foreign technologies and in part structural changes in the composition of investment. As Japan became a more mature industrial economy in the 1970s, a greater share of investment was geared towards the service sector (where productivity was lower), social welfare, anti-pollution and other activities.⁹ Still, Japan has maintained faster productivity growth in manufacturing than her major trading partners, while the United States and Germany, for example, have had slower productivity growth in manufacturing than their respective trading partners, as can be seen in the table below.¹⁰

Changes in Productivity Growth in Manufacturing
Relative to 11 Trading Partners
(relative annual percentage changes in output per hour)

<u>Period</u>	<u>Japan</u>	<u>United States</u>	<u>Germany</u>
1960-73	5.9	-3.9	-0.3
1973-84	3.0	-1.7	-0.5

Source: Dean et al, Monthly Labor Review, 1986.

In fact, of the 12 countries considered in the BLS study from which the above table is taken, Japan had the most rapid increases in relative productivity growth in both the fixed and floating exchange rate periods. Japan's exceptionally large gains in productivity relative to its major trading partners in the decade prior to the advent of floating exchange rates probably contributed to its growing external surplus and associated pressures for revaluation of the yen in the early 1970s. The sharp appreciation of the yen at the start of the floating rate period was in part an adjustment to these cumulated pressures. The yen has continued to

exhibit a tendency towards appreciation over the floating rate period even as the productivity gap has narrowed.

Regional pattern and composition of trade. An important impetus to Japan's rapid productivity gains in manufacturing has been the need to develop a surplus in manufacturing trade to offset a persistent deficit on energy and raw materials trade. Given an extreme dependence on imported raw materials, Japan typically has run trade deficits vis-a-vis countries classified as developed primary producers (such as Australia, Canada, New Zealand and South Africa) and vis-a-vis oil exporting nations (particularly Saudi Arabia, Indonesia and Iran). To offset this persistent deficit on primary commodity trade, Japan typically runs a surplus on its manufacturing trade. The dramatic gains in productivity in manufacturing that Japan has achieved relative to its major trading partners, including the United States, have helped Japan achieve a substantial surplus on its trade in manufactured goods.¹¹

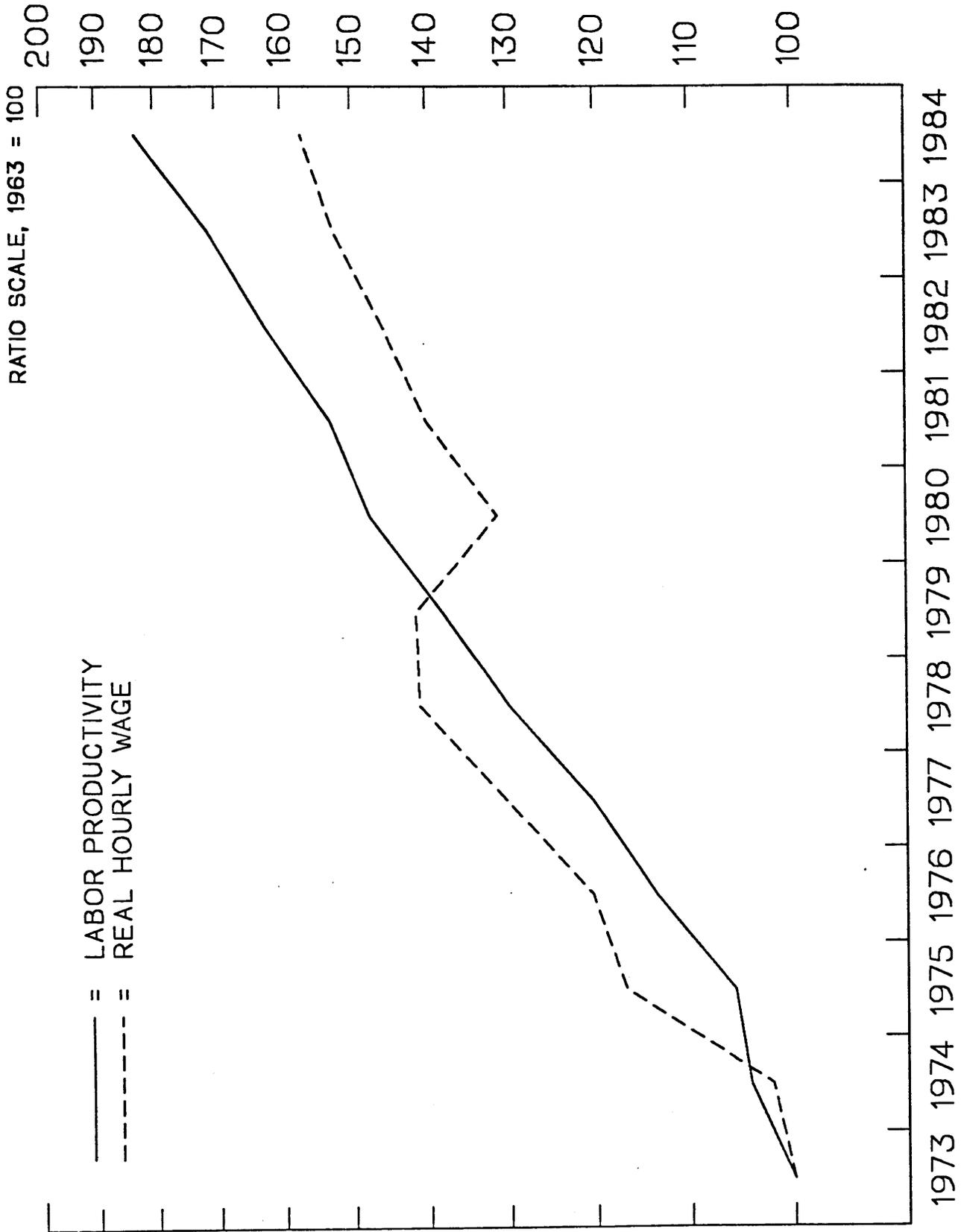
While Japan exports a growing amount of manufactures to the United States, its imports of food, raw materials and other commodities from the United States have not kept pace, leading Japan to run a trade surplus with the United States every year since 1968. A similar situation currently exists with many of Japan's European trading partners and is a primary source of recent trade frictions. Thus, Japan's longer-run tendency towards trade surplus with the United States and her European trading partners is in part the counterpart of her deficit on raw materials. Still, Japan's gains in competitiveness appear to have surpassed those required just to achieve balance between its deficit on primary commodities

and its surplus on manufactures. The result has been persistent current account surpluses and associated upward pressure on the yen.

Real wage growth. Chart 8 illustrates another factor that, combined with rapid productivity growth, has resulted in improved cost-competitiveness of Japanese exports: real wage growth in the Japanese manufacturing sector has tended to lag behind labor's productivity gains in the most recent years, except following the first oil shock.¹² This relatively slow growth of real wages is related to the system of industrial relations that prevails in the large Japanese firms. As is well-known, lifetime employment, seniority wage setting, bonuses linked to profits, and company-based unions are key factors contributing to real wage flexibility in Japan. This system appears to strengthen employees' commitment to the company and its long-run vitality, leading to wage settlements that are relatively compatible with company interests. During the annual Spring wage negotiations -- the so-called "Shunto" initiated in 1955 -- company performance is a primary consideration recognized by both labor and management. As was noted earlier, Japanese labor's willingness to accept moderate wage increases in the aftermath of the second oil shock in 1979 despite rising inflation helped prevent the unleashing of a prolonged wage-price spiral.

Looked at from a different perspective, the recent slow growth of real wages can inhibit growth of domestic demand and hence limit the derived demand for imports. This phenomenon was an issue in this spring's wage round, when some recommendations for measures to stimulate domestic demand included references to the need for faster wage growth to spur

REAL WAGE AND PRODUCTIVITY GROWTH IN THE JAPANESE MANUFACTURING SECTOR



consumer spending. Ultimately, the detrimental influence of the yen's sharp rise on profitability of many firms proved the dominant concern; the actual average private sector nominal wage increase is reported to be about 5 percent, little gain relative to the two preceding years. This recent episode provides yet another example of how wage restraint has helped foster secular gains in Japan's competitive position.

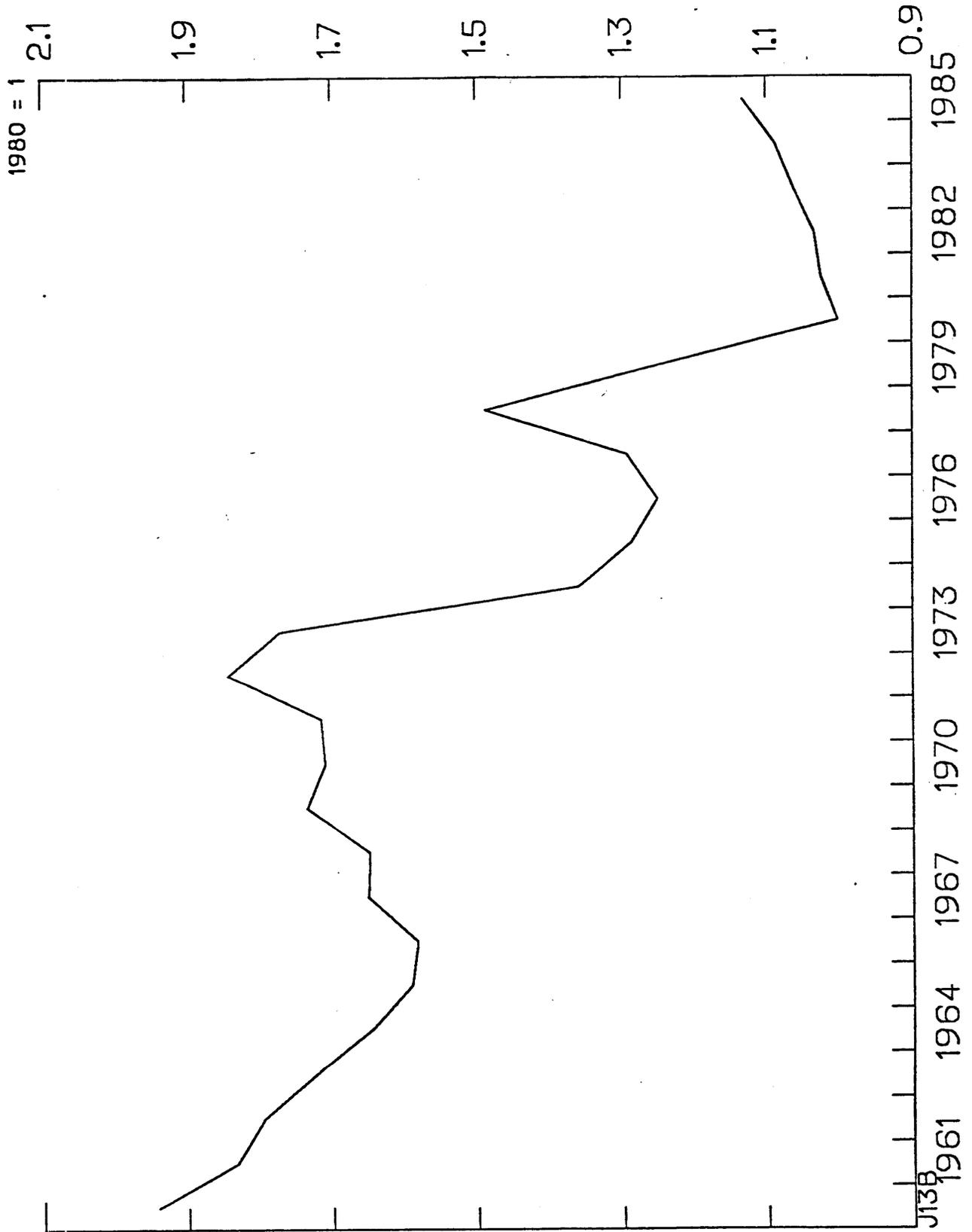
Terms of trade. Japan's terms of trade has declined substantially since the 1960s, as can be seen in Chart 9. This decline is composed of a relatively slow increase in export unit values and a more rapid rise in import unit values, especially during the periods in the 1970s in which prices of raw materials rose sharply. Of course, some of the movement in the terms of trade reflects exchange rate changes, but price developments also play a role. A sizable share of Japan's imports consists of raw materials that are purchased in relatively competitive world markets in which discriminatory pricing is not practiced.

In contrast, the pricing strategy of Japanese exporters has tended to enhance Japan's competitiveness. Japanese wholesale prices often increased more rapidly in the 1950s and 1960s than export prices, suggesting that export profitability was squeezed over much of the period while Japanese exporters expanded their world market share. In more recent years, that gap has tended to narrow. Still, Japanese exporters have tended to accept lower profit margins rather than to resort to sharp increases in export prices during periods of rapid yen appreciation. This pricing response has helped improve Japan's competitive position and preserve or increase the global market share of Japan's exporters.

Chart 9

JAPANESE TERMS OF TRADE

EXPORT UNIT VALUE/IMPORT UNIT VALUE



Savings-investment balance. In addition to these factors that have influenced Japan's international competitiveness, secular developments in Japanese savings and investment have contributed to the tendency towards persistent current account surpluses and associated upward pressure on the yen. From the national income accounting identity, the total of private savings plus government net savings less domestic private investment represents net national savings, which must equal net foreign investment or, equivalently (abstracting from official intervention), the current account balance. This identity does not, of course, indicate direct causality between any of the elements; for example, shocks to any one of the components must be reflected in the others. But the identity does serve to highlight the fact that a country that saves more than it invests domestically must have, ex post, a net capital outflow and a corresponding current account surplus.

The Japanese savings rate is remarkably high by comparison with most other countries, although this has been true only since the mid-1950s.¹³ The private savings rate began to rise in the 1950s as the business sector saved after the initial reconstruction process following the war, and as households sought to restore their financial positions in the aftermath of a period of high inflation. The savings rate might have been expected to stabilize after the reconstruction process was complete, but instead continued to rise in the 1960s, albeit at a slower pace. Private investment, in contrast, has not continued to climb along with private savings. During the boom years of the 1950s and 1960s, growth of Japanese private sector investment was extremely rapid, with investment as

a share of GNP rising from 8 to 20 percent over the two decades. The government ran a small net surplus over that period, thereby partly financing the corporate borrowing requirement, while the external sector was in rough balance until the late 1960s. Thus, the strong and rising household savings were absorbed by corresponding increases in the corporate borrowing requirement.

As Japanese growth slowed in the 1970s, the share of private investment in GNP fell back to around 15 percent and has remained stable at about that level in recent years. The private savings ratio did not decline in the 1970s, however, and even increased temporarily in the aftermath of the 1973 oil price hike as the heightened uncertainty and rising inflation led households to save more in order to rebuild the real value of their financial assets. The table below presents household savings as a percentage of personal disposable income for 1985 for five countries.

1985 Personal Savings Ratios

(percent of personal disposable income)

Japan	22
Germany	13
Canada	12
United Kingdom	12
United States	5

Public sector spending in Japan generally increased over the 1970s. By 1979, the general government deficit as a share of GNP had reached 4.8 percent, thereby absorbing some of the private sector savings. Since 1979, however, Japanese fiscal policy has been oriented towards reducing the level of the fiscal deficit, largely by reducing government

spending, with the goal of eliminating bond financing of the central government deficit by fiscal year 1990. The Japanese government views fiscal reconstruction as a prerequisite for sustainable noninflationary growth, and for providing scope for the future budgetary demands that will be associated with the aging of the population.

The prospect that this gap between total Japanese savings and domestic investment will be completely eliminated in the near future is small, although some factors may lead to a decline in savings over time. Most studies indicate that demographic factors are key determinants of the high savings ratio in Japan. With the rapid aging of the Japanese population (the share of the population over 65 is projected to rise to 16 percent by the year 2000 and to 22 percent by 2020), those currently in an earlier stage of the life-cycle are saving for retirement. It is likely that, in the future, this factor would imply some reduction in the savings rate; with a larger share of the population over 65, the savings rate should decline. Other reasons cited for the current high savings rate may change less over time. These include precautionary motives (savings for unexpected disasters), housing (the average Japanese home costs nearly eight times average annual income and mortgage interest is not tax deductible), children's education and marriage, and tax-free interest on small savings accounts.

Of these factors, government policy can have most direct influence on housing investment and the preferential tax treatment of savings. Indeed, a report on possibilities for medium-term structural change aimed at reducing the Japanese external imbalance -- the so-called

Maekawa report released last April -- recommended abolition of the tax exemption on small savings accounts and urged a sweeping reform of Japanese housing policy (through tax deductions for housing, stabilization of land prices, and easing of regulations hampering real estate development). The recommendations of the Maekawa Commission are currently under review by the Japanese authorities.

Is Japan a "Natural" Capital Exporter? Japanese and foreign proposals for measures to reduce Japan's yawning current account surplus often have acknowledged the importance of both competitiveness factors and the underlying imbalance between savings and domestic investment in Japan. Japan has been urged to stimulate domestic demand, including investment, by taking expansionary fiscal and monetary actions and by adopting measures to discourage household savings. The Japanese authorities have responded recently by promoting a sharp appreciation of the yen to foster improved external balance, and by three 1/2 percentage point reductions in the discount rate since January to stimulate domestic demand. So far, however, they have refrained from significant fiscal stimulus in light of their deficit reduction goals. On the United States side, the low U.S. savings rate also contributes to its trade imbalance with Japan, and the Gramm-Rudman-Hollings act is seen as an important step towards reducing United States government dissaving. Still, the recent plunge in oil prices together with the J-curve effects of the yen's appreciation have more than offset the short-run impact of these measures on Japan's current account, and Japan is expected to run an even larger current account surplus (measured in dollars) this year than last.

The structural features of the Japanese economy highlighted above suggest that Japan will tend to be a net exporter of capital in the years to come. There are few signs that household savings will decline substantially; growth and investment are unlikely to reaccelerate to the fast paces experienced in the 1960s; and some degree of fiscal restraint is likely to be maintained in the near term. The yen's recent substantial gains will probably result in a sizable reduction of the surplus below the current level, although the size of the reduction will hinge in part on developments in the oil market as about one-third of Japan's imports are petroleum and petroleum products. Nevertheless, the remaining surplus deriving from the structural features of the Japanese economy could be quite large.

The concept of a structural surplus in a country's external accounts is rather vague; it is intended to highlight the importance for the path of the current account of differences across countries in endowments, preferences, and other fundamental characteristics of an economy. As a consequence, there is no precise way to calculate the size of the structural surplus, nor does the assertion that a surplus is structural imply that it is not influenced by policies. As suggested above, structural adjustment policies are being discussed. Moreover, the influence of macroeconomic policies on exchange rates, interest rates and other variables will strongly influence the actual path of the current account and can offset some of the underlying structural forces. Abstracting from these considerations, simulations by the staff of the O.E.C.D. suggest that half of the present Japanese current account surplus

may be structural in nature, while the Japanese authorities have argued that the structural surplus is much smaller.

Should we be concerned that Japan is a net capital exporter? Are measures to reduce savings in Japan really desirable from the standpoint of world welfare? Forcing a reduction in Japanese savings would tend to reduce Japanese net foreign investment and hence to raise the level of interest rates abroad. Instead the focus should be on encouraging the most efficient and equitable global redistribution of Japanese savings. If real returns in the United States continue to decline and the fiscal deficit narrows, it is likely that Japanese foreign investment will gradually diversify away from U.S. investments. It might be hoped that rates of return on investment in developing countries would be attractive enough to draw a substantial portion of these Japanese funds.

An interesting recent analysis from WIDER (World Institute for Development Economics Research) suggests that since Japan will be unable to absorb fully its domestic savings, it will need to continue to rely on current account surpluses in order to continue channeling excess savings abroad.¹⁴ WIDER proposes that to counteract the global contractionary impact of any reduction in the United States' fiscal and trade deficits, Japan should "redirect" the surplus towards financing productive capital formation in the developing countries. Japan's savings represents a large potential source of investment in developing countries. If the Baker Plan is followed, Japanese funds could be drawn to the Third World as more coherent macroeconomic policies help attain such goals as sustained lower

inflation and enhanced use of market pricing which in turn promote more attractive investment opportunities.

IV. The Role of the Yen Exchange Rate in Japanese Current Account Adjustment

For the part of the Japanese current account surplus that is not structural in nature, the issue arises of how best to encourage rapid adjustment. The Plaza meeting last September recognized the importance of both yen appreciation and stimulation of Japanese growth in promoting more balanced trade between countries. So far, a substantial yen appreciation has been the principal outcome of this process. To obtain an idea of the relative importance of income and relative price influences on Japan's trade balance, we have gathered evidence from the Federal Reserve Board staff's Multi-Country Model (MCM).¹⁵

According to the parameters of the MCM, the price elasticities for Japanese trade indicate that Japanese exports are highly responsive to relative price changes, while Japanese imports are much less responsive to relative price movements. In fact, of the five country models included in the MCM (the United States, Japan, Germany, the United Kingdom and Canada), Japan faces the highest price elasticity of demand for its exports and has the lowest price elasticity of import demand. This would suggest that the recent sharp yen appreciation, if allowed to be fully reflected in prices, will result over time in a sizable reduction in Japanese exports but a less substantial increase in imports.

The estimated relatively weak response of Japanese imports to exchange rate-induced relative price changes is probably related to the

commodity composition of those imports: 60 percent of total imports are fuel and raw materials that are relatively difficult to substitute away from in the production process when their relative prices rise. Consistent with this view, estimates from the Japanese Economic Planning Agency's macroeconomic model indicate that the relative price elasticities of fuel and raw materials imports are about one-sixth the size of the relative price elasticity of manufactured imports for Japan.¹⁶ In contrast, nearly 90 percent of Japan's exports are manufactured goods, including 70 percent machinery and industrial equipment, for which relatively close substitutes exist in the world market. As a result, importers of Japanese goods can more easily switch to cheaper alternative sources of manufactured goods.

What impact will the 35 percent appreciation of the yen against the dollar in the past 15 months have on Japan's bilateral trade surplus with the United States? A very rough calculation based on the MCM equations suggests that the yen's recent 35 percent rise against the dollar could over time result in as much as a \$20 billion reduction in Japan's current \$50 billion trade surplus with the United States.¹⁷ (J-curve effects lasting up to one year, according to MCM simulations, would prevent this improvement from becoming apparent immediately.) This simple calculation assumes that the yen appreciation occurred as a deus ex machina, so that other effects of any policy changes that may have encouraged the appreciation are not considered. Also the calculation assumes that the Japanese authorities take the policy steps required to maintain real income growth. To the extent that real income growth in

Japan slows, the reduction in the surplus will be less. Of course, any estimates based on historical experience provide at best a rough guide to the current situation, when we may well be in previously uncharted territory. Still, this calculation illustrates that the yen's recent rise could make an important contribution towards reducing Japan's current account surplus.

Efforts to stimulate domestic income growth in Japan and thereby to induce an increased demand for imports could also help foster external adjustment. However, while the effect of Japanese domestic demand expansion on overall imports may be sizable, results from the MCM suggest the effect may not be as great on Japan's imports from the United States: the estimated income elasticity of demand for imports from the United States is quite low, while the income elasticity of demand for total Japanese imports is greater. In particular, the responsiveness of Japan's imports from developing countries to increases in Japanese real income is substantial, roughly twice that of imports from the United States.

Part of the explanation for these results again derives from the commodity composition of imports from the two areas. Fuel and primary commodity imports are a large share of imports from the developing world, and such imports are highly sensitive to changes in the pace of industrial production in Japan. The share of these commodities in total imports from the United States is much smaller.

On the export side, Japan's exports to the United States are highly responsive to changes in U.S. income. However, one would hardly want to recommend a recession in the United States to improve our bilateral

trade balance with Japan. Still, these results may help explain why Japan's trade surplus with the United States soared in recent years as the United States economy grew rapidly.

V. Concluding Remarks

The interaction between the exchange value of the yen and the Japanese current account has served as a unifying thread throughout this paper. The yen's exchange value appears to have played a potent role in fostering current account adjustment in Japan, but exchange rate movements have not sufficed to maintain external balance. Another central theme of this paper has been that developments affecting Japan's current account have had an important influence on the longer-run course of the yen-dollar exchange rate. The sizable gains in competitiveness and the tendency for total savings to exceed domestic investment have contributed to a tendency towards persistent Japanese current account surpluses and an associated tendency for the value of the yen to rise, except in the wake of major disruptions such as the oil price shocks of the 1970s.

It is interesting to note that an examination of policy analyses in 1972, just prior to the commencement of floating exchange rates, points to a striking parallel between the adjustments recommended for the Japanese economy at that time and those offered today, almost 15 years later. For example, the 1972 OECD Economic Survey stated:

A determined policy of import stimulation would seem an indispensable complement to the revaluation...It would take the wind out of protectionist sails in foreign markets and contribute to welfare....It could also assist growth in many of Japan's developing partner countries...While it is clear that relative cyclical positions played a large role in explaining the record current surplus last year, the striking tendencies registered in the Japanese trade balance with Western industrialized countries

from about 1964 onwards pointed clearly to a growing fundamental disequilibrium. A sizeable and timely revaluation was; in these conditions, a prerequisite for Japan's continuing integration in world trading relations. The revaluation was also desirable from a domestic standpoint...The effects of the revaluation may, however, take some time to come through...It is in the interest of both the international economic scene and the domestic economy that quick progress should be made in reducing domestic slack and increasing the weight of social consumption. Given such progress, the revaluation is likely to prove a major act of post-war Japanese economic policy, rather than an unavoidable short-term move. (pp. 44-45)

The tendencies in Japan towards growing trade surpluses and insufficient domestic absorption were thus already apparent in the early 1970s. The subsequent decade was punctuated by periods of prolonged adjustment to the two oil price shocks. Now those same tendencies have resurfaced. Despite the initial hopes of some proponents of floating exchange rates, the move to flexible rates has not resulted on average in a reduction in external imbalances between Japan and her major trading partners, although sizable adjustments have tended to occur with rather long lags.

All of this points to the need to rely on factors other than just exchange rates to bring about better balance in the world economy. Measures to stimulate income growth in Japan could make an important contribution to improved external balance. The more income expansion the Japanese authorities can encourage, the less further yen appreciation will be required to foster more balanced trade. In light of the strains already imposed on Japan's industries by the yen's appreciation to date, income expansion represents an important potential impetus to further external adjustment. There currently appears to be scope for both monetary and fiscal actions. Given the recent strength of the yen, further reductions

in the Japanese discount rate could probably have a salutary influence on the domestic economy without adverse exchange market effects. Also, temporary fiscal stimulus could be provided without severely compromising Japan's longer-run commitment to reducing the central government budget deficit, since the fiscal measures could help set in train a self-sustaining recovery in domestic investment and spending. Whatever the medicine, it is clear that actions to stimulate domestic demand would provide some boost to imports and help lift Japan's economy from its current doldrums.

FOOTNOTES

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1. Throughout this paper, we adopt the convention of calculating percentage changes in exchange rates based on rates expressed as the domestic currency price of foreign currency, e.g., yen/dollar.
2. In chart 2, the current account is expressed at a quarterly rate, and the effective exchange rate index is the Federal Reserve Board's 10-country trade-weighted average exchange rate.
3. The real exchange rate and real interest rate paths are obtained by adjusting the nominal values for movements in the consumer price index. In this way, we abstract from the influence of differential inflation in the United States and Japan on the two series.
4. For an exposition of models of this kind, see Frenkel and Mussa (1985).
5. See, for example, Paul Krugman (1985).
6. In chart 5, the index of the yen's value against a basket of 9 currencies is calculated based on the Federal Reserve Board's trade-weighted index, dropping out the United States trade share and renormalizing on the 9 remaining shares.
7. Recent studies include Richard Freeman (1984), Jeffrey Frankel (1984) and Sumimaru Odano (1986).
8. Freeman (ibid) provides a useful discussion of the impact of liberalization on the yen exchange rate.
9. Richard Marston (1986) studies trends in productivity in different sectors of the Japanese economy over the floating rate period.

10. The BLS calculates relative productivity as the ratio of the productivity index of the reference country to the trade-weighted average index for 11 trading partners. Rates of change are computed from the least-squares trend of the logarithms of this ratio.
11. Paul Krugman (1986) provides additional details on the manufacturing surplus-primary commodities deficit phenomenon in Japan, and compares it to a similar situation in Germany.
12. This section draws on the interesting study of Japanese savings by Randall Jones (1986).
13. The real wage in chart 8 is hourly compensation in manufacturing, national currency basis (BLS, March 1986), divided by the wholesale price for manufacturing industry products (BIS tape, 1986). The productivity data come from the same source as in the table on page 13 (BLS, March 1986).
14. For a more detailed description of this proposal, see the WIDER Report (1986).
15. Sean Craig of the Federal Reserve Board's Division of International Finance kindly provided the estimates and calculations from the Japan sector of the MCM model.
16. See "EPA World Economic Model" (1984).

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