

Converging Household Debt Ratios of Four Industrial Countries

U.S. households traditionally have borrowed substantially more in relation to income than their counterparts in other major industrial countries. It has been suggested that this pattern helps explain the low personal savings rate and high consumption propensity here compared with abroad. The relations between debt and spending have raised increasing concern in recent years, as a sharp decline in the U.S. personal saving rate accompanied by a surge in consumer borrowing has added to this country's unprecedentedly large external payments deficit.

Differences between the United States and other industrial countries in the use of household credit have declined markedly over the last two decades, however. In Japan and Germany, primarily during the 1970s, and in the United Kingdom during the 1980s, household debt grew much more rapidly relative to income than in the United States. As a result, personal debt ratios in the three foreign countries are now between 70 and 90 percent of the U.S. ratio, compared with 30 to 60 percent in the late 1960s. The trend toward convergence in the debt ratios, to the extent that it reduced disparities in national spending rates, probably helped moderate imbalances in these countries' external accounts. Since 1983, however, debt growth in the United States has accelerated above that in Japan and Germany, bringing the prior trend toward convergence to at least a temporary halt. These changing debt ratio patterns raise questions about their underlying determinants and their implications for macroeconomic performance, past as well as future.

This article argues that both economic forces and

government policies have contributed to debt ratio convergence in the 1970s and 1980s. Among economic influences, rapid growth in real per capita income and thus in the ability to service debt is identified as an important source of stronger debt growth in Japan and Germany in the 1970s. And in the 1980s, stronger growth in net wealth relative to income and hence in the ability to take on new debt emerges as a likely stimulus to debt growth in Japan, Germany, and the United Kingdom.

Important policy influences on the evolution of debt ratios have included tax law, credit controls, interest rate regulations, government lending, and insurance of home mortgage debt instruments. The analysis suggests that the effect of these policies was strongest in the decade immediately following their initiation. For the United States, positive policy effects were most evident in the early postwar years and again in the mid-1980s. In Japan and Germany, positive policy initiatives were most influential in the 1970s, and in the United Kingdom, in the 1980s.

Future debt ratio convergence could contribute to a reduction in external payments imbalances if lower debt growth in the United States and a continued rise in the debt-income ratios of Japan and Germany combine to reduce disparities in national spending rates. The analysis suggests, however, that the prospects for such debt convergence over the next five years or so are mixed. Economic forces, mainly wealth effects, will probably tend to reduce disparities in debt ratios. But the net effect of country policies now in place depends in part on the as-yet-uncertain U.S. household response to the

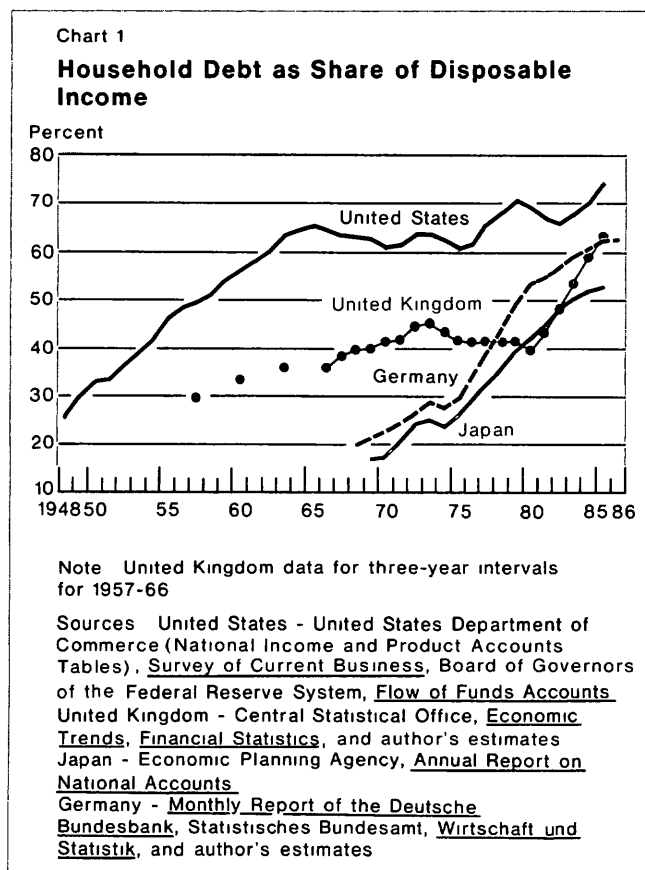
Tax Reform Act of 1986.

Trends in household debt ratios

Household debt is defined here as home mortgage debt and consumer debt incurred by households to finance the acquisition of their own homes, consumer durables, and other consumer goods and services.¹ Such debt is mostly accumulated in the first half of the adult life cycle in order to finance consumption expenditures and investment in housing and durable goods at an earlier age than would otherwise be possible.

Chart 1 shows the postwar behavior of household debt relative to disposable income in the four countries. In the first two decades, U.S. household debt grew very rapidly, from about 20 percent of personal disposable income to 65 percent in 1965. Little information is available on household debt in that earlier period for the other three countries, especially in the case of Japan and Germany. But by 1969, the first year for which data exist for all four countries, the household debt ratio in the United Kingdom was a little less than two-thirds, the

¹See Appendix for data sources



German ratio only one-third, and the Japanese ratio a little more than one-fourth of the U.S. debt ratio.

While all four debt ratios have converged since then, the character of this convergence has changed over time: from stronger to weaker convergence among U.S., German, and Japanese debt ratios; and from divergence to strong convergence between the U.K. and U.S. ratios. In analyzing these changing trends and economic and policy contributions to them, it is useful to break the period into two, with 1979 as the dividing line. That year, a cyclical peak for the U.S. debt ratio, represents the best point for comparison with more recent high points; it was also the last year before a major policy change in the United Kingdom and a breakpoint year for Germany's debt ratio trend.

In the 1970s, both Japanese and German debt ratios more than doubled, advancing to 56 and 70 percent of the U.S. ratio, respectively, while the U.K. debt ratio remained little changed and thus lost ground relative to the other three. But in the 1980s, the British ratio shot ahead to within 90 percent of the U.S. ratio in 1986 while the Japanese and German ratios showed smaller net gains, ending the period at about 70 and 80 percent, respectively, of U.S. levels. In 1985 and 1986, Germany and probably Japan lost ground relative to the United States. Given the cyclical character of the U.S. debt ratio, it is too early to conclude that the trend toward convergence has actually been reversed, but it does seem to have been temporarily arrested.

The ratios of home mortgage debt to disposable income, shown in Chart 2, have displayed somewhat similar growth patterns. However, the U.K. ratio has risen especially strongly in the 1980s, reaching levels higher than in the United States in both 1985 and 1986. Consumer debt ratios have also converged, as Chart 3 reveals. In this case, Japan has been a star performer.²

The relative importance of economic and policy influences

The striking convergence in household debt ratios leads one to ask what economic and policy forces were responsible and what their relative importance may have been. This section investigates these broad questions; the succeeding two sections describe economic and policy influences in greater detail.

Among economic factors likely to affect the ratio of household debt to disposable income, two stand out as especially important. First, as family budget studies have shown, the debt ratio rises as household income

²The lower level of consumer debt in the United Kingdom is at least in part attributable to the omission of charge account debts due in full monthly at retail stores

increases (up to the median income range).³ One apparent reason is that the portion of income available for discretionary expenditure, including debt service, rises faster than total disposable income. Second, increases in household net wealth relative to disposable income are likely to spur household debt since they increase creditworthiness in the eyes of both the lender and the borrower.⁴ Such increases in net wealth relative to income are normally the cumulative result of household savings; however, they may also be significantly affected by inflation-related increases in the prices of housing, land, and equities, and in the value of equity in unincorporated business relative to outstanding debt and to income. Increases in both real per capita income and net wealth relative to income may also generate expectations of future increases and thus add to households' appetite for debt.

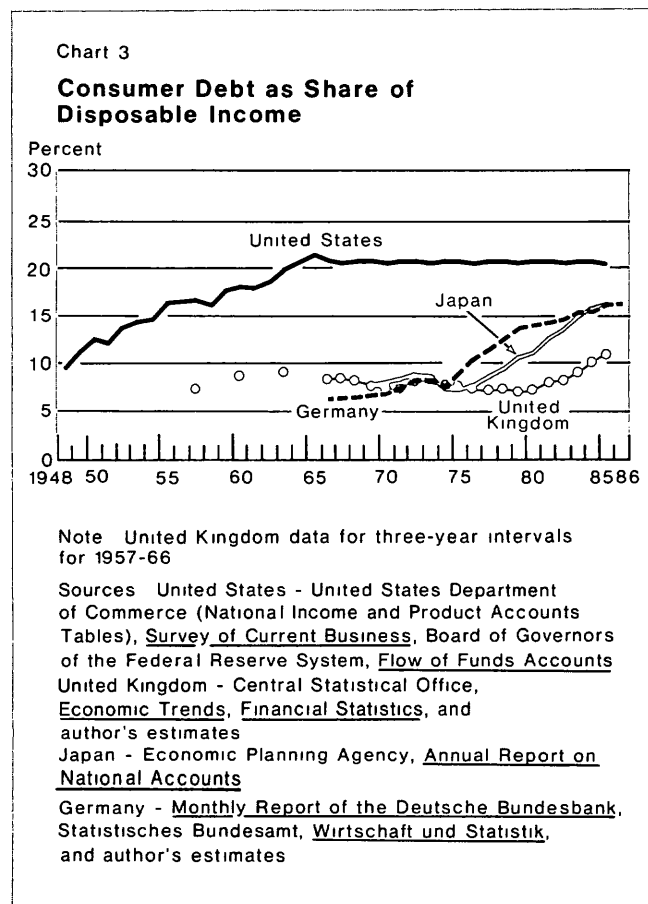
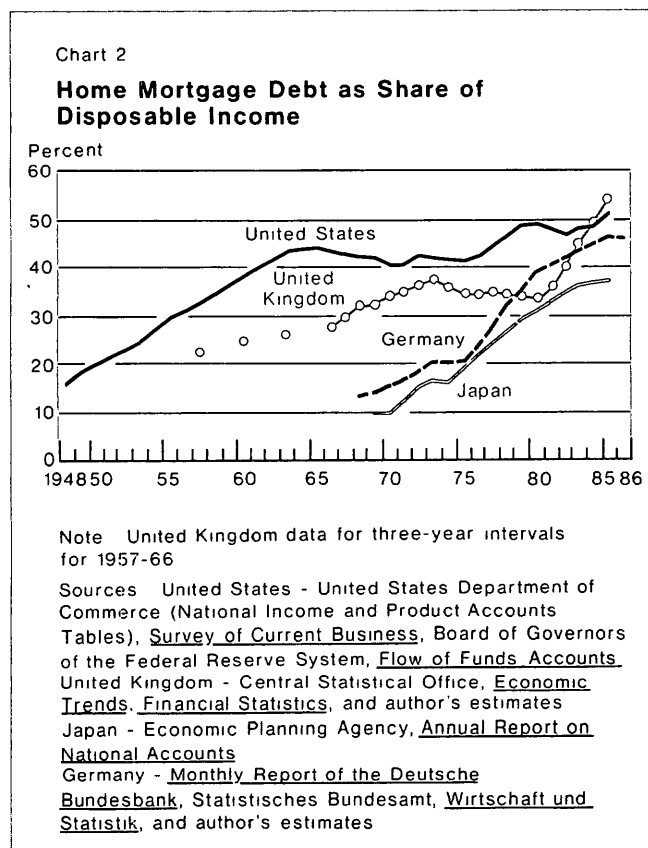
³For a recent example, see Robert B. Avery, Gregory E. Elliehausen, and Arthur B. Kennickell, "Changes in Consumer Installment Debt: Evidence from the 1983 and 1986 Surveys of Consumer Finances," *Federal Reserve Bulletin*, October 1987.

⁴Donald D. Hester, "An Empirical Examination of a Commercial Bank Loan Offer Function," in Donald D. Hester and James Tobin, eds.,

Country policies likely to influence the growth of household debt relative to income are those which, by accident or design, affect the availability or cost of credit to households relative to other borrowers. Examples of such policies are controls on consumer lending as such, interest rate ceilings on household debt, and tax concessions related to interest on or amortization of household debt. Included as well are regulations giving preferential treatment to business borrowers relative to households. The effective impact of such provisions can vary with macroeconomic conditions; for example, ceilings on consumer loan rates pose more of a constraint on consumer lending when market interest rates are high than when they are low.

The response of the household debt ratio to changes in policy may be played out over a considerable number of years. When a new policy supportive of borrowing is introduced, households in their early high-borrowing

Footnote 4 continued
Studies in Portfolio Behavior, Cowles Foundation Monograph no. 20, 1967.



years are likely to borrow substantially more relative to income than their predecessors, thus raising the total household debt/disposable income ratio. The upward adjustment will continue for a number of years as new adults borrow at similarly higher rates. But ultimately the entire borrowing household population will have completed the adjustment, leaving the household debt ratio at a higher level but no longer rising in response to that particular policy.⁵

It is possible to estimate the relative contribution of the various influences very roughly by applying standard regression analysis to the relation between debt-income ratios and the economic factors mentioned above. However, any conclusions suggested by such analysis are subject to several reservations. One is that the existence of a statistical relationship between a presumed cause and effect does not prove causality. Second, when presumed causes are numerous and changing, specifying each one separately can become unmanageable, especially when the number of observations is limited. Third, other forces not specifically taken into account—acting alone or in combination with specified factors—may be largely responsible for observed changes in household debt. Finally, the quality of the data varies considerably. Except for the United States, the countries examined here have only recently developed official estimates of household debt and household net wealth, and their estimates cover only a limited period of time. In fact, for Germany, the absence of official estimates of household net wealth rules out this approach.

For the three countries for which reasonably comparable estimates of the relevant economic variables are available—the United States, the United Kingdom and Japan—the first step was to compute the statistical relationship between the household debt/disposable income ratio and the economic factors assumed to be most important (that is, per capita real income and the net wealth/income ratio). An additional variable, representing adjustments to a major policy change in 1980, was added to the equation for the United Kingdom. The results are shown in Table 1. (Note that because of an apparent shift in the relation in the mid-1960s, separate estimates for the United States for 1948-65 and 1966-85 are presented.)

Perhaps the most remarkable feature of the results is the substantially lower response of the debt ratio to income for the later U.S. period as compared with the estimates for Japan and the United Kingdom and with

the estimate for the United States in the earlier period. Budget studies show that the household debt response falls at higher income levels, although not by an amount sufficient to account for more than a small portion of the differences in the Table 1 coefficients. A more plausible explanation, supported by the analysis in the next section, is that differences across countries and over time in government policies and other institutional factors largely account for the differences in the response of debt ratios to income and wealth.

If this assumption is adopted, the contribution of the economic variables to debt convergence can be measured using the responses (coefficients) from the U.S. relation, the procedure amounts to estimating what the effect of the two economic variables on the debt ratio in each country would have been if policies and all other unspecified economic and noneconomic conditions had been the same as in the United States in 1966-85. The differences between the estimated growth in the U.S. household debt ratio in response to the two economic influences and the hypothetical responses for the other two countries are taken to represent the contribution

Table 1

Household Debt Response to Economic and Policy Influences*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Deregulation Effect†	R-squared
United States					
1948 to 1965	-15.35	1.899 (0.153)	2.000 (0.439)	—	0.967
1966 to 1985	-0.33	0.403 (0.067)	0.595 (0.161)	—	0.706
Japan					
1969 to 1985	-12.66	1.681 (0.245)	1.069 (0.316)	—	0.884
United Kingdom					
1957 to 1985‡	-2.84	0.653 (0.100)	0.641 (0.178)	0.148 (0.031)	0.933

*The household debt ratio, real per capita disposable income, and the net wealth ratio are entered in logarithmic form. Thus the income and net wealth coefficients signify the percent increase in the household debt ratio associated with a 1-percent increase in income or net wealth to income.

†The dummy variable representing the effects of deregulation in the United Kingdom is given a value of 1 for 1981. This is increased by 10 percent in each succeeding year.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

⁵Alain Enthoven traces these developments in "The Growth of Installment Credit and the Future of Prosperity," *American Economic Review*, December 1957. Consumer debt had responded strongly to deregulation and new tax incentives, and Enthoven was seeking to quiet fears that this response would continue indefinitely.

made by the specified economic factors to the convergence of country debt ratios. Debt ratio convergence not thus accounted for is attributed to differences in policy and other influences.

This calculation is made for two periods, 1969-79 and 1979-85 (1985 is the latest date for which full information is available). The results, shown in Table 2, suggest that in 1969-79, economic factors may have been responsible for about 60 percent of the convergence of Japanese and U.S. debt ratios and 40 percent of the divergence between U.S. and U.K. debt ratios. In the 1980s, by contrast, differences in policy and other influences appear to have been the main contributor to convergence between the U.S. and U.K. ratios. Eco-

nomics factors continued to be the dominant influence on U.S.-Japan debt ratio convergence.⁶

This exercise, by itself, provides at best a rough and suggestive guide to the importance of policy influences on debt convergence. A more reliable determination requires a closer look at the policies themselves and the likelihood that they contributed to debt convergence. It also requires consideration of any other factors equally or more likely to have produced such results.

In particular, one influence that cannot be ignored is demographic changes. Since debt/disposable income ratios are higher among households in the 20-44-year age groups than they are in older age groups, changes in the proportion of the population in the high-debt age groups will clearly affect the household debt ratio for the country as a whole. However, the demographic trends of the 1970s and 1980s, shown in Table 3, have been working against, rather than in favor of, convergence of the U.S. debt ratio with the ratios of Germany and Japan. In the United States, where debt ratio growth has been slowest, the importance of high-borrowing age groups in the total adult population has been rising; in Germany and Japan, where debt ratio growth has been fastest, the relative importance of younger adults has been falling. In the United Kingdom, demographic trends have been quite similar to those in the United States

Table 2

Estimated Contribution of Economic Factors and Policy and Other Influences to Convergence of Foreign Household Debt Ratios with U.S. Ratio

(In Debt Ratio Percentage Points)

	1969 to 1979		1979 to 1985	
	United Kingdom	Japan	United Kingdom	Japan
Convergence due to differences in *				
Real per capita disposable income	-0.4	5.4	-0.6	0.0
Net wealth/disposable income	-2.0	2.9	4.1	6.3
Both†	-2.7	8.9	3.6	6.4
Actual convergence	-7.0	15.2	20.2	9.2
Inferred contribution of policy differences and other factors	-4.3	6.3	16.6	2.8
Memorandum				
Estimated percent contribution of Specified economic factors	38.6	58.6	17.8	69.6
Policy differences and other factors	61.4	41.4	82.2	30.4

*Estimates based on country data and estimated U.S. relationships for 1966-85. Convergence is measured by the percentage point change in the foreign ratio minus the percentage point change in the U.S. ratio.

†Does not necessarily equal the sum of the two determinants considered separately because the logarithmic form of the estimating equation implies a multiplicative relationship among the economic determinants.

⁶An alternative approach would be to estimate the contribution of economic factors to each country's debt ratio growth using its own equations (rather than those for the United States as in Table 2). In the Japanese case, this alternative would imply that economic influences would have produced more convergence than actually occurred, suggesting that policy and other factors made a modest negative contribution. For the U.K.-U.S. convergence, the alternative calculation produces results quite similar to the estimates in Table 2. In any case, calculations based on each country's equations are probably misleading, since the text analysis shows that differences in country policies and other institutional factors appear to be at least partly responsible for the estimated differences in the debt responses to economic factors.

Table 3

Percent of Adult Population in the 20-44 Years Age Group*

	1970	1980	1985
United States	51.0	54.5	56.4
United Kingdom	46.5	47.4	49.0
Germany	49.3	48.9	48.0
Japan	62.5	55.7	52.3

*For Germany, the percentage in the 1970 column refers to 1973 and the percentage in the 1985 column refers to 1984.

Table 4

Changes in Economic Determinants of Household Debt Ratios

(1969 to 1985)

	Real per Capita Disposable Income (Percent Change, Annual Rate)	Net Wealth/ Disposable Income (Percent Change, Annual Rate)
1969 to 1979		
United States	2.4	-0.2
United Kingdom	2.6	-1.0
Germany	3.8	n a
Japan	5.7	0.6
1979 to 1985		
United States	1.0	0.2
United Kingdom	0.8	2.3
Germany	0.6	n a
Japan	1.1	3.1

and thus have had no effect on the earlier divergence and more recent convergence of the two nations' debt ratios

Thus, unless some other important influences have been overlooked, it seems reasonable to regard policy differences among countries as responsible for at least some of the convergence among country debt ratios not explainable in terms of economic influences. In the following two sections, economic and policy influences are examined in more detail.

Economic influences

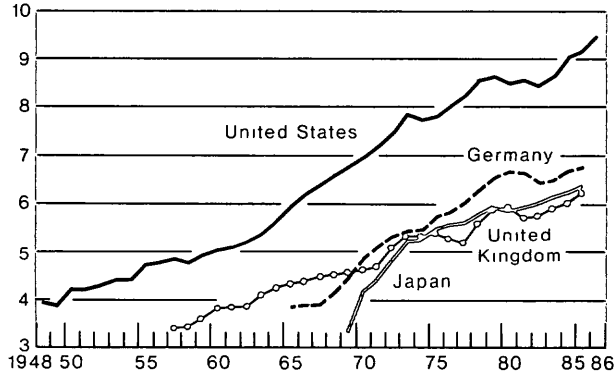
In order to understand the contribution to household debt convergence made by per capita income and the net wealth/income ratio, it is useful to look at their behavior, shown in Charts 4 and 5. Table 4 supplements the charts, comparing the changes in the two variables in the 1970s and in the 1980s

Chart-4 shows real per capita disposable income in the four countries expressed in 1980 consumption purchasing power parity (PPP) dollars. Consumption PPP exchange rates between the currencies of any two

Chart 4

Real Per Capita Disposable Income

Thousands of 1980 dollars*



* Calculated using 1980 purchasing power parity exchange rates computed by OECD staff

Sources United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business

United Kingdom - Central Statistical Office, Economic Trends, Annual Supplement

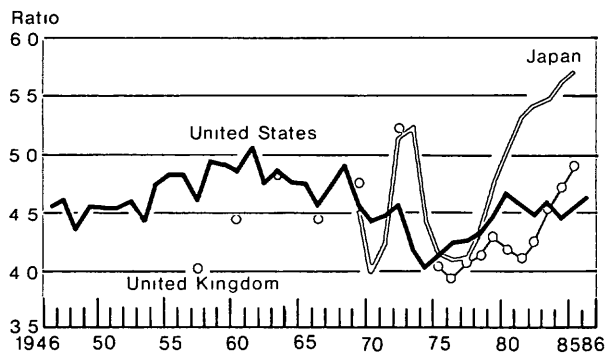
Japan - Economic Planning Agency, Japanese Economic Indicators Quarterly

Germany - Statistisches Bundesamt, Wirtschaft und Statistik

For all countries - OECD staff estimates, OECD National Accounts, vol 1

Chart 5

Household Net Wealth as Ratio of Disposable Income



Note United Kingdom data for three-year intervals for 1957-75

Sources United States - United States Department of Commerce (National Income and Product Accounts Tables), Survey of Current Business, Board of Governors of the Federal Reserve System, Flow of Funds Accounts

United Kingdom - Central Statistical Office, Economic Trends, Financial Statistics, and author's estimates

Japan - Economic Planning Agency, Annual Report on National Accounts

countries are those rates which would, on average, equalize the price of consumption goods and services in those countries.⁷ The high costs of residential land in Germany and Japan and of food in Japan relative to the United States are reflected in these PPP exchange rates.

Converting real per capita income of each country in domestic currencies into consumption PPP dollars permits the levels of real per capita income in the four countries to be compared. Given the evidence that the ratio of household debt rises as real income rises, differences in levels of country real per capita income help to explain differences in household debt levels. In the 1970s, stronger growth of real income in Japan and Germany—5.7 percent and 3.8 percent per annum, respectively, as compared with 2.4 percent per annum in the United States—helps to explain the stronger growth in their debt ratios. In the 1980s, however, real per capita income growth was quite similar in all four countries and thus contributed little to debt convergence.

The pronounced fluctuations in the net wealth/disposable income ratios evident in Chart 5 are largely due to rising and falling inflation, which (because of its strong impact on asset prices) affects the value of large segments of existing wealth relative to household debt and to disposable income. These fluctuations primarily reflect differences in the timing of asset and income responses to inflation and thus tend to be of a temporary, self-reversing nature. The resulting cyclical swings in the net wealth ratio, possibly reinforced by expectations of further changes in the same direction, have apparently contributed to cyclical swings in the household debt ratio.

The level and long-term trends in the net wealth ratio, of chief interest here, depend largely on the cumulative effect of past and current savings out of income. Although savings rates in all four countries are lower in the 1980s than they were in the 1970s, differences among them have been very large at all times. In 1980-85, the ratio of savings to disposable income averaged about 6 percent in the United States, 17 percent in Japan, 13 percent in Germany, and about 12 percent in the United Kingdom.

Although the 1970s witnessed very large swings in net wealth/disposable income ratios in the United States, Japan and the United Kingdom, the *net* changes between 1969 and 1979 were rather small. In the U.S. case, there was a long downswing in the net wealth ratio from the early 1960s until 1974, and this trend in turn apparently helped to arrest the growth of the household

debt ratio during that period. But rising inflation in the later 1970s led to a partial recovery of the net wealth ratio, and the household debt ratio apparently responded. Thus the net change in the U.S. net wealth ratio from 1969 to 1979 was negligible. In Japan and the United Kingdom, the year-to-year swings in the net wealth/disposable income ratio were larger than in the United States, mainly because inflation in those two countries was higher and more variable. But on balance, the Japanese net wealth ratio rose, thus contributing modestly to debt ratio convergence, while the British net wealth ratio fell, producing the opposite result.

In the more recent and shorter period, 1979-85, the net wealth ratio rose in the United Kingdom and Japan (and probably in Germany as well) as the U.S. wealth ratio changed little on balance. These developments very likely contributed to debt convergence. But given the strong cyclical swings characteristic of net wealth relative to disposable income, some of the gain may prove transitory.

Policy contributions to debt ratio convergence

A comparison of U.S. and foreign policies toward debt over the last two decades underscores their increasing similarity. Indeed, the timing of policy changes helps to explain the timing of debt convergence. In the latter half of the 1960s, U.S. policies were more supportive of household borrowing and had been established for a much longer period than those of the other three countries. Thus it is very likely that borrowers and lenders had already completed their adjustments to these policies, leaving the U.S. debt ratio higher but no longer growing on that account. But measures adopted in the 1960s and after in the other three countries brought the net thrust of their policies closer to U.S. policy. The time at which new policies were introduced varied from country to country. In Germany and Japan, incentives to household borrowing introduced in the 1960s contributed to the very strong debt growth of the 1970s. But by the 1980s, the strong initial responses to these policies seem to have played themselves out, while new initiatives were fewer and/or weaker and hence contributed less on balance to debt ratio growth and convergence. In the United Kingdom, by contrast, restrictive policies dominated until 1980, the response to financial deregulation in 1980 was the main force driving the subsequent relatively rapid growth of the U.K. debt ratio. In the United States, the interaction of inflation and a wide variety of policies resulted in moderate debt growth during the 1970s and early 1980s. More recently, however, renewed stimulus from policy and other factors has led to an acceleration in debt growth here.

Such are the broad outlines of the movement toward policy convergence. A more detailed examination of

⁷Real per capita income in dollars was computed from local currency real income using 1980 PPP exchange rates estimated by the Organization for Economic Cooperation and Development (OECD). See OECD, *National Accounts, 1972-1984*, vol. 1

policy developments in each of the four countries follows.

The United States

At the end of the 1960s, long-established policies provided encouragement and support for both consumer and home mortgage debt in the United States. Tax deductibility for interest on all household debt, in effect since the introduction of the income tax in 1916, became a particularly important incentive to household borrowing when the Revenue Act of 1942 expanded the range of taxable income into middle and low income ranges. An elaborate support system for home mortgage finance was initiated in the 1930s to avoid repetition of the banking collapse of 1930-33 and to assure a ready source of home mortgage loans. Twelve Federal Home Loan Banks met the short-term liquidity needs of member savings and loan associations (S&Ls) specializing in home mortgage lending. Government insurance of home mortgages reduced credit risk for lenders and thus encouraged the supply of home mortgage credit.⁹ The insurance of deposits at S&Ls protected the ability of the thrifts to attract retail deposits by making them more competitive with insured bank deposits.

These well-established policies contributed to the strong growth of the U.S. debt ratio in the 1950s through the first half of the 1960s; after the mid-1960s, however, their impetus to debt growth abated. More recent policy developments affecting debt growth in the 1970s and 1980s have included additional support for home mortgage debt, as well as policies designed to reduce the uneven impact of inflation on households relative to other borrowing sectors. Most recently, the Tax Reform Act of 1986 has reordered priorities among borrowers once again.

Beginning in the late 1960s, the government stepped up its efforts to encourage development of a secondary market for home mortgages. Government agencies and federally sponsored government agencies purchased mortgages from primary lenders, financing the acquisitions by issuing various forms of mortgage-backed securities. Some of these agencies also insured mortgage-backed securities issued by private financial institutions.⁹ The development of these new markets has encouraged primary mortgage lenders by providing a

⁹While this insurance was limited to mortgages of moderate size, its influence was far wider because standards required for insured loans (including longer maturities and amortization) were adopted by all mortgage lenders. For an account of these early developments, see John C. Weicker, *Housing: Federal Policies and Programs* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1980), chap. 7.

⁹For a summary description of these agencies and their activities, see Michael J. Moran, "The Federally Sponsored Agencies: An Overview," *Federal Reserve Bulletin*, June 1985.

ready source of liquidity and an opportunity to reduce the interest rate risk inherent in holding long-term fixed-interest-rate assets. Securitization of mortgage debt enjoyed moderate growth in the 1970s as the share of total home mortgages outstanding held by federally sponsored agencies and by mortgage pools issuing agency-guaranteed securities rose from 4.5 percent in 1969 to about 16 percent in 1979. However, the inflationary experience of the late 1970s and early 1980s and the related volatility of interest rates have greatly increased the appeal of these instruments in the 1980s. Largely as a result, the share of home mortgages held by the federally sponsored agencies and guaranteed pools approached 40 percent in September 1987, more than double the 1979 ratio.

During the late 1970s and early 1980s, a number of policy changes were made under the pressure of rising rates of inflation that had mixed effects on household borrowing. These policy changes related to the interest rates lending institutions could pay to attract funds, the rates they could charge consumer borrowers, and tax law provisions influencing the channeling of credit among competing groups of borrowers.

Federal and state restrictions on certain interest rates have tended to restrict the supply of credit to households, especially during periods of rising inflation and higher market yields. During the 1960s and much of the 1970s, ceilings on deposit interest rates in the face of rising market rates on other instruments available to small investors (such as Treasury bills and money market funds) reduced the supply of funds to banks and thrifts, the major lenders to households. However, by the late 1970s, the growing secondary mortgage market greatly reduced the vulnerability of home lenders to such conditions because it enabled them to originate mortgages without having to provide long-term funding. At the state level, usury laws limiting rates charged on personal loans seriously limited lenders' ability to extend consumer loans when funding costs were high. These distortions were reduced temporarily when the more restrictive state interest limits were raised periodically during the 1970s. But the extraordinarily high interest rates of 1979-82 created a problem much more severe and widespread than before.¹⁰ The problems created by deposit interest ceilings and state usury laws were substantially resolved during the 1980s by gradual deregulation of interest rates on retail deposits, culminating in the Depository Institutions Deregulation and Monetary Control Act of 1980, and the revision of state usury laws applying to consumer lending. This dereg-

¹⁰For an account, see Charles A. Lockett, "Recent Developments in Mortgage and Consumer Credit Markets," *Federal Reserve Bulletin*, May 1982, and Charles A. Lockett and James D. August, "The Growth of Consumer Credit," *Federal Reserve Bulletin*, June 1985.

Table 5

Household Debt Response to Economic and Policy Influences: Home Mortgage Debt*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Selected Policy Influences†	R-squared
United States					
1966 to 1985	-1.12	0.361 (0.126)	0.859 (0.158)	0.093 (0.044)	0.855
Japan					
1969 to 1985	-18.44	2.340 (0.269)	0.894 (0.347)	—	0.907
United Kingdom					
1957 to 1985‡	-5.06	0.892 (0.119)	0.614 (0.211)	0.144 (0.037)	0.931

*See footnote * in Table 1

†For the United States, response to change in ratio of house price index to industrial share price index. For the United Kingdom, response to change in monetary control methods. See footnote † in Table 1.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

Table 6

Household Debt Response to Economic and Policy Influences: Consumer Debt*

	Intercept	Real per Capita Disposable Income	Net Wealth/ Disposable Income	Selected Policy Influences†	R-squared
United States					
1966 to 1985	1.37	0.174 (0.157)	0.168 (0.281)	-0.083 (0.049)	0.154
Japan					
1969 to 1985	-4.37	0.513 (0.235)	1.454 (0.304)	—	0.781
United Kingdom					
1957* to 1985‡	2.67	-0.201 (0.099)	0.747 (0.176)	0.153 (0.031)	0.829

*See footnote * in Table 1

†For the United States, response to the U.S. Treasury bill rate. For the United Kingdom, response to change in monetary control methods. See footnote † in Table 1.

‡At three-year intervals until 1975.

Note: Figures in parentheses are standard errors of the coefficients.

ulation was largely completed by 1982, just as inflation was declining.

A second area of policy change that may have affected the growth of household debt involved the tax system. During the high and rising inflation of the 1970s, existing tax laws effectively favored investment in owner-occupied housing over corporate investment in plant and equipment. For corporations, the depreciation of plant and equipment deductible from taxable income is based on original cost. Inflation causes depreciation allowances to fall relative to income, and corporate after-tax earnings suffer correspondingly. For homeowners, imputed income from owner occupancy is not taxed and rises with inflation. Thus, inflation-related increases in actual and expected rates of return on housing relative to corporate investment, reflected in the rise of house prices relative to industrial share prices during the 1970s, tended to encourage investment in housing and, therefore, home mortgage borrowing.¹¹

A new tax law enacted in 1981 provided a correction for this inflation-related bias, not by altering the original-cost basis for depreciation but by shortening the depreciation period through the Accelerated Cost Recovery System. The 1981 law is estimated to have reduced the marginal effective corporate tax on new investment in equipment from over 20 percent (in 1973-80) to a negative 14 percent and that on investment in structures from about 50 to 36 percent.¹² No doubt both the new tax law and subsiding inflation contributed to the rise in industrial share prices relative to house prices after 1982.

The effects of the interest regulations and tax policies were estimated from regressions of U.S. consumer and mortgage debt on the income and wealth variables used in the prior (Table 1) results. The index of house prices relative to industrial share prices was added to the home mortgage equation to capture the effects of the interaction between tax policy and inflation described above, the U.S. Treasury bill rate was added to the consumer debt relation as proxy for the spread between the cost of funds to lenders in unregulated markets and regulated consumer loan rates. As the results in Table 5 show, the home/industrial share price ratio is positive and significant in the mortgage equation, suggesting that tax

¹¹Two contributions to an extensive literature on this problem are Martin Feldstein, "Inflation, Tax Rules, and the Accumulation of Residential and Nonresidential Capital," paper presented at conference on "Allocation and Structural Consequences of Short-Run Stabilization Policy in Open Economies," Stockholm, 1981, and Patrick H. Hendershott and Sheng Cheng Hu, "Inflation and Extraordinary Returns on Owner-Occupied Housing: Some Implications for Capital Allocation and Productivity Growth," *Journal of Macroeconomics*, Spring 1981.

¹²Charles R. Hulten, "Tax Policy and the Investment Decision," *American Economic Review*, May 1984.

policy and inflation did encourage household borrowing in this category. Likewise, the yield on U.S. Treasury bills is negative and marginally significant in the consumer debt relation (Table 6), this result provides some support for the hypothesis that interest regulations discouraged household borrowing. (The bill rate was tested in the mortgage debt equation but was not statistically significant, possibly because of the development of the secondary mortgage market and gradual deposit deregulation in the late 1970s.) Thus interest regulation and tax policy in an environment of high inflation appear to have had opposing impacts on household debt as a whole, and their net effect may have been small.

The more recent policy changes, however, appear on balance to have encouraged household borrowing, at least prior to the Tax Reform Act of 1986. The deviations of actual debt ratios from the estimated ratios generated by the U.S. equation for 1966-85 in Table 1 describing economic influences on total household debt may provide a rough indication of the net impact of all policy developments in the 1980s. This deviation was somewhat cyclical and averaged less than 3 percent through 1984. But in 1985 it widened to a positive 5½ percent while the 1986 debt ratio was 8 percent above the equation projection for that year. This suggests that the cumulative thrust of the government's support for securitized mortgages and deregulation of interest rates may have outweighed any negative effects of tax concessions to corporations in 1981 and indeed provided a strong positive boost to the growth of the household debt ratio.

The provisions of the Tax Reform Act of 1986 reflect concern over the rising growth of household debt. The act phases out deductibility from taxable income for interest on consumer debt, places limits on the deductibility of home mortgage interest, and reduces personal tax rates, thereby reducing the value of mortgage interest deductibility. However, the new law has already led to some substitution of "home equity" mortgage loans for consumer loans. In addition, students of corporate taxation have concluded that the new law reduces incentives to corporate investment relative to investment in owner-occupied housing.¹³ If their assessment is correct, the new law may tend to boost home mortgage debt. Thus the net effect of the contrasting influences of the 1986 law on household debt as a whole is not yet clear.

Germany

While Germany has never offered any positive encouragements to consumer borrowing, possible constraints were removed with the abandonment of interest rate

ceilings on all loans and deposits at deposit-taking institutions in 1967. These ceilings had been adjusted upward and downward with changes in central bank discount rates and were considered as an aid to enforcing monetary policy. But they may have inhibited the growth of consumer debt since ceilings on personal loans had been set relatively low in order to discourage riskier loans.¹⁴

Policies on home mortgage debt, however, have been strongly positive since the 1960s. The initial focus was on bonuses and deductibility from taxable income for savings placed in low-interest deposits with building and loan associations. These deposits were a prerequisite to low-interest loans from the associations and were committed for use as downpayments when the house purchase was made. These measures not only encouraged savings tied to later home mortgage borrowing but also assured the associations of a ready source of low-cost funds.

In the late 1970s and 1980s, these concessions were reduced, but new tax inducements to home mortgage borrowing were introduced. House buyers were permitted to deduct from taxable income an amount equal to house depreciation in the first eight years of ownership, and purchasers of new houses were given temporary exemptions from property tax.¹⁵

The cumulative effect of these policies is reflected in the strong rise in German home ownership. While the percentage of families owning their own homes has remained lower in Germany than in the other three countries (where it has averaged over 60 percent), the German ratio has risen continuously from 30 percent in 1965 to 43 percent in 1983. These policy influences are no doubt also reflected in the rising household debt ratio in Germany.

It is difficult to judge whether the most recent changes in German tax law have strengthened incentives to incur home mortgage debt. But if they have, the overall impact is probably small. With the initial strong household borrower response to policy changes in the 1960s clearly complete and further portfolio adjustment in response to the more recent incentives likely to have been small, it is not surprising to find a slowdown in the growth of German home mortgage debt in recent years.

Japan

During much of the 1960s in Japan, household bor-

¹³For a useful analysis, see Alan J. Auerbach, "The Tax Reform Act of 1986 and the Cost of Capital," *Economic Perspectives*, Summer 1987

¹⁴"Regulation of the Terms for Banking Business under Article 23 of the Banking Law (Interest Rates Order)," *Monthly Report of the Deutsche Bundesbank*, March 1965

¹⁵"Recent Developments in the Building and Loan Association Business," *Monthly Report of the Deutsche Bundesbank*, April 1983, and A. Andrzejewski and M. Lujanen, *Major Trends in Housing Policy in ECE Countries*, Committee on Housing, Building and Planning, Economic Commission for Europe (New York: United Nations, 1980)

rowing enjoyed none of the privileges accorded to industry, and especially to export sectors, which received preferred tax treatment and preferential Bank of Japan discount rates. This was a period of strong industrial and export growth and tight official control of the growth of bank credit, and consequently nonpreferred lending tended to suffer. In addition, constraints on banks discouraged loans to consumers; the banks were not permitted to make consumer installment loans and were subject to loan interest rate ceilings too low to make most consumer lending profitable.

In the 1970s and 1980s, the growth of home mortgage debt has benefited from the reduced industrial demand for bank lending associated with lower economic growth and the elimination of the Bank of Japan's low discount rates on export paper. Further, from the late 1960s on, the government has offered encouragement to home mortgage borrowing. Since 1967, home mortgage borrowers have been permitted tax deductions on combined interest and amortization payments in excess of specified amounts in the first three years of the life of the mortgage. Over the past two decades, the government's Housing Loan Corporation (HLC) has been making low-interest mortgage loans to moderate income families. HLC has played a strong supportive role in home finance and by 1985 held 28 percent of all home mortgage debt outstanding.

While restrictions on bank lending to consumers remain, their effectiveness began to diminish in the 1960s and by now is modest. The restrictions had been effective in the early postwar period when there were few alternative sources of funds for consumers. But by the mid-1960s, the gap began to be filled by the growth of other lending institutions: several varieties of sales finance companies that made secured consumer installment loans and consumer loan companies (the "sarakin," or salary-man's lenders) that offered a wide variety of unsecured and riskier loans.¹⁶ The relaxation of pressures on banks to lend to priority sectors helped not only mortgage lending but also consumer lending since bank credit became more available to sales finance and consumer loan companies.

The changing character of Japanese consumer finance has been recognized by the authorities, who have moved to regulate the new lenders as they assumed importance. The latest such move occurred in 1983, when the consumer loan companies, whose share of consumer lending had reached 20 percent compared to 1 percent in 1969, became subject to Ministry of Finance regulation. Many of the smaller loan companies had made highly risky loans at annual interest rates exceeding 100 percent and had used very questionable

¹⁶For a brief description, see "Changing Consumer Finance Market in Japan," *Tokai Monthly Economic Letter*, Tokai Bank, Ltd., June 1982.

tactics to force repayment. Legislation enacted in 1983 provided for a gradual reduction of maximum allowable interest rates to 73 percent in 1983, 54³/₄ percent within three years, and a goal of 40 percent at some unspecified future date.¹⁷ This new element of regulation and consumer protection has not curbed the strong growth of consumer debt relative to income, but the consumer loan company share of this debt appears to have leveled off.

A consideration of the effects of Japanese policy developments in the past two decades suggests that household responses are still being felt but may have lost some of their forward momentum. Because the modest tax incentive to home mortgage debt was introduced in 1967, initial borrower adjustment was probably completed some time ago. However, the share of mortgages held by the government's HLC has continued to grow and averaged 7.5 percentage points more in 1980-85 than in 1970-79; thus HLC may still be contributing to the rise in the home mortgage debt ratio. Further, deregulation of banks' direct consumer lending is reportedly under consideration.

United Kingdom

Until 1980, the growth of household debt in the United Kingdom was subject to both encouraging and discouraging forces. The principal policy of encouragement was tax deductibility of interest on mortgage debt (and, until 1967, consumer debt). These elements of British policy were probably at least partly responsible for debt ratios in the United Kingdom that exceeded those in Japan or Germany in the 1960s and early 1970s. The element of British policy that discouraged further growth of household debt in the 1960s and 1970s was the discriminatory impact of the British postwar system of credit controls.

The constraints were especially heavy on consumer installment debt. Growth in this form of debt was limited by regulations governing down payment and maturity similar to U.S. wartime controls. The growth of home mortgage debt was constrained by the Bank of England's practice of implementing its monetary restraint policies by imposing tight ceilings on the growth of bank credit whenever needed from 1947 to 1971 and on the growth of interest-bearing liabilities from late 1972 until 1980. Those ceilings caused banks to avoid home mortgage lending in order to make sure that they could accommodate their business borrowers at times of monetary restraint.¹⁸ This practice left mortgage lending mainly in

¹⁷*Monthly Finance Review*, Japan Ministry of Finance, May 1983.

¹⁸A brief experiment with deregulation in 1971, cut short by inflation and a secondary banking crisis in 1972, was largely responsible for

the hands of the long-established building societies, thrift institutions specializing in home mortgage lending and depending for funds exclusively on savings deposits and shares.¹⁹ It may well be that barring household borrowers access to banks limited the total availability of funds to them.

In 1980, in line with the deregulatory program of the Conservative government, limits on bank liabilities were lifted. Soon after, consumer credit was deregulated, and building societies were allowed to borrow in wholesale markets and to offer checking accounts.²⁰

The home mortgage and consumer debt ratios appear to have responded to this major and abrupt deregulation by rising at an accelerating rate. In the case of home mortgage lending, most of the increased lending came from banks, whose share in mortgages outstanding increased from 5 percent in 1979 to well over 15 percent in 1986. However, if experience in other countries is any guide, this strong borrower and lender response to a new policy environment should begin to subside in the early 1990s. Whether this will leave the British ratio even closer to the U.S. ratio remains to be seen.

Conclusion

Over the past two decades, there has been a striking convergence among the household debt ratios of the United States, Japan, Germany, and the United Kingdom. Convergence among the first three was strongest in the 1970s; it has become increasingly weaker in the 1980s as debt ratio growth has accelerated in the United States while slowing in Japan and Germany. By contrast, convergence between the U.S. and U.K. debt ratios has been confined to the 1980s.

The relative importance of economic and policy influences in bringing about this convergence has varied with the countries concerned. For the United Kingdom, Japan, and Germany, economic influences were probably responsible for at least 60 percent of the debt ratio convergence. In the 1970s, faster growth of real per capita income in Japan and Germany was the prime impetus while in the 1980s stronger growth of household net wealth relative to income appears to have played a

Footnote 18 continued

the upsurge in home mortgage debt in 1972. See E P Davis and I D Saville, "Mortgage Lending in the Housing Market," *Bank of England Quarterly Bulletin*, September 1982, for comments on the effect of bank credit restraints on bank mortgage lending and on the 1972 episode

¹⁹For a comprehensive description of the building societies' operations up to 1980, see *Report of the [Wilson] Committee to Review the Functioning of Financial Institutions*, Cmnd 7637, HMSO, 1980

²⁰For commentary on recent changes, see "The Future of the Building Societies: A Central Banker's View," *Bank of England Quarterly Bulletin*, June 1983

similar role. But country policies have also been important. In the 1970s, Japan and Germany were introducing new policies encouraging household borrowing at a time when the initial impetus of similar U.S. policies adopted decades earlier had abated. In the 1980s, however, U.S. deregulation of interest rates and the cumulative effect of government support for securitized mortgages seem to have given a boost to U.S. debt ratio growth while the initial impetus of earlier Japanese and German policies has begun to subside. The convergence of the U.S. and the U.K. debt ratios in the 1980s was primarily related to the strong U.K. deregulation moves in 1980.

The slower growth of the household debt ratio in the United States and its faster growth elsewhere probably made a positive contribution to international payments equilibrium, which depends on a reasonable balance between domestic saving and borrowing in each country. In the United States, domestic saving, especially household saving, has tended to be low, both absolutely and, in recent years, relative to domestic investment and government sector borrowing. Thus, slower household debt growth, to the extent that it encouraged saving relative to spending, tended to promote domestic and international equilibrium. In the other three countries, particularly Japan and Germany, domestic savings rates have been higher than in the United States and thus capable of absorbing substantial growth in household debt. Especially in the 1970s, when economic growth and business investment and borrowing in Germany and Japan declined, growth in household debt provided a welcome counterbalance, contributing to internal and external equilibrium. Thus, the recent acceleration of household debt growth in the United States and deceleration in Japan and Germany may be a cause for concern since these developments come at a time of exceptionally large payments imbalances among the three countries.

International recognition of the potential problems associated with household debt is beginning to produce new policy initiatives. In the United States, the Tax Reform Act of 1986 removes tax incentives to the growth of consumer debt, although its net impact on household debt as a whole remains uncertain. In Japan, more careful regulation of consumer credit may affect credit growth positively in the long run. In addition, Japan's elimination of the tax exemption for interest on small savings accounts, effective this April, attacks the savings-debt imbalance from another angle, and deregulation of direct consumer lending by commercial banks is reportedly being studied. But the evidence thus far suggests that further policy changes may need to be considered.

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Appendix: A Note on the Data

Data on household debt, personal disposable income, and household net wealth are largely drawn from official sources in the countries concerned

However, adjustments or supplementary estimates have been made in the following cases:

(1) It was necessary to estimate U.K. consumer debt for the years before 1975. The procedure was to apply the ratio of consumer debt to the total nonmortgage debt of the personal sector (including unincorporated business) in 1975-80 to official estimates of total nonmortgage debt of the personal sector in the earlier years.

(2) British estimates of household net wealth, available for only every third year from 1957 to 1975, are adjusted for level differences among successive official estimates that are evident in overlap years.

(3) For Germany, Bundesbank data on the banking sector's holdings of home mortgage debt of the household sector were tripled in 1980, reflecting a much needed change in definition. Their data for 1969-79 are therefore multiplied by three before being added to mortgage debt held by building and loan associations and to the small amounts estimated to be held by insurance companies. These adjustments obviously have a wide margin of error.

Net wealth estimates, all official, refer specifically to the household sector in U.S. data and to the personal sector (including unincorporated business) in the Japanese and British data. But since the U.S. estimates include household equity in unincorporated business, household net wealth and personal sector net wealth are conceptually identical.