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The U.S. Balance Sheet: What Is It and What Does It Tell Us?

BUSINESS ANNUAL REPORTS provide two basic accounting statements—a balance sheet, which is also termed a statement of condition, and an income statement. A firm's balance sheet lists the dollar value of its assets and liabilities as of a specific date. A firm's income statement lists its revenues and expenses (the difference being profit) for a year. Similar statements are prepared on a national level in the United States. Analogous to a firm's income statement, a nation's production of goods and services for a year (as well as its spending and saving decisions) are summarized in its gross national product (GNP) accounts. Analogous to a firm's balance sheet, the U.S. balance sheet lists the dollar value of assets and liabilities for U.S. residents. The flows that are identified in the GNP accounts and elsewhere are linked to changes in the levels of assets and liabilities reported in this balance sheet.

The GNP accounts receive the most attention simply because they focus on current production and income, which in turn, affects and is affected by, the level of employment. These accounts provide vital information on the short-run performance of the economy. On the other hand, the U.S. balance sheet generally receives little attention. This might be because it is incomplete, including only nonhuman wealth (see

shaded insert on page 5), and seems to be more appropriate for long-term analysis.

The purpose of this article is to provide an overview of the U.S. balance sheet. Its structure is explained and its usefulness is illustrated by examining trends in some individual balance sheet items. Further examples of its usefulness are given by examining balance sheet ratios such as the financial interrelations ratio, the net foreign balance ratio, the ratio of business capital to household capital and the relation of net worth to inflation.

THE STANDARD U.S. BALANCE SHEET

A balance sheet shows the position that a business or household, or the economy as a whole, has reached as a result of its past activity. It reflects flows of real and financial activity plus any revaluations of stocks because of price changes. Table 1 summarizes the U.S. balance sheet for 1990 as currently prepared by the Board of Governors of the Federal Reserve System.¹

General Definitions

A balance sheet usually shows all assets and all liabilities, with the difference called net worth.

¹Board of Governors (1991). This is called the C.9 release.

Table 1
Standard U.S. Balance Sheet: 1990 (billions of dollars)¹

National Net Assets	Beginning-of-year value	End-of-year value	Percent change
Tangible assets	\$16,017.2	\$16,241.7	1.4%
Reproducible assets	12,163.6	12,501.3	2.8
Residential structures	4,546.0	4,603.9	1.3
Nonresidential structures	4,633.0	4,811.0	3.8
Inventories	1,050.8	1,062.7	1.1
Consumer durables	1,933.8	2,023.7	4.6
Land at market value	3,853.6	3,740.4	-2.9
Net foreign assets	-670.1	-694.5	—
Foreign assets owned by U.S. residents	852.5	941.0	10.4
Minus: U.S. assets owned by foreigners	1,522.6	1,635.5	7.4
U.S. monetary gold and SDRs	21.0	22.0	4.8
NATIONAL NET ASSETS (consolidated)	\$15,368.1	\$15,569.2	1.3%
National Net Worth, by sector			
Private net worth (consolidated)	\$18,104.5	\$18,573.0	2.6%
Household net assets	9,899.3	10,019.6	1.2
Nonfarm noncorporate business	1,949.2	1,919.0	-1.5
Farm business	720.4	758.2	5.2
Nonfinancial corporate business	3,778.4	3,870.8	2.4
Private financial institutions net assets	1,757.2	2,005.4	14.1
U.S. holdings of foreign corporate stock ²	95.8	90.5	-5.5
Minus: Foreign holdings of U.S. corporate stock	257.4	218.4	-15.2
Public sector net assets	-2,323.4	-2,616.5	—
State and local governments	-99.9	-137.8	—
U.S. government ³	-2,223.5	-2,478.7	—
Unallocated financial assets	-251.3	-259.4	—
NATIONAL NET WORTH	\$15,368.2	\$15,569.2	1.3%

¹Source: Board of Governors of the Federal Reserve System (1991).

²All corporate equities were subtracted in calculating net assets of households and financial institutions.

³Includes sponsored credit agencies and monetary authority.

The U.S. balance sheet is unusual, however, because the largest category of assets, human wealth, is not included. National net worth, as currently estimated, is all nonhuman wealth.

For the national balance sheet, assets are divided into two types—tangible and financial. Tangible assets are economic goods that yield a stream of services in kind. Plant and equipment, housing, consumer durables and land are all examples of tangible assets. Financial assets are claims or rights to amounts of money now or in the future. For every financial asset owned by

an economic unit there is a corresponding liability owed by another economic unit. Financial assets can be categorized as fixed claims or variable claims; variable claims are called equities. Currency and deposits, notes, bonds and mortgages are all fixed claims. Corporate stock and the net worth of noncorporate business are equities. For a closed economy, financial assets equal financial liabilities. For an open economy, national net assets, or national net worth, is the total of all tangible assets, U.S. monetary gold and SDRs (special drawing rights created and distributed by the International Monetary Fund)

National Wealth and the U.S. Balance Sheet

A nation's wealth is defined as the value of all resources that contribute to the production of goods and services. The broadest definition would include the goods and services resulting from both market and nonmarket activities. To better understand the process of wealth accumulation, economists have classified wealth as human vs. nonhuman and tangible vs. intangible. The following classification is typical:¹

Tangible wealth
 Human
 Nonhuman
 Intangible wealth
 Human
 Nonhuman

Tangible wealth is material in form, that is, it is "touchable." Its quality, or productivity, depends greatly on intangible factors. Human tangible wealth is essentially a population count, which might also take into account the average age of the population. Nonhuman tangible wealth is most familiar and consists of structures, durable goods, inventories and natural resources. This type of wealth is sometimes classified as reproducible (man-made) and nonreproducible (natural).

For all tangible forms of wealth, it is simply not possible to estimate value without considering the effect of intangible factors. The most fundamental intangible embodied in human wealth is a person's stock of knowledge. Likewise, health conditions or the state of medical knowledge, have an important bearing on the value of society's human wealth. Still another example of intangible human wealth is the mobility of the population which reflects socio-political factors affecting the job market. There are also other forms of intangible wealth that are difficult to classify as human or nonhuman. These include personal and national security, freedom, equity, privacy and a system of property rights.²

Nonhuman tangible wealth is easy to understand, although estimating its value is difficult

because of interaction with the state of technology which is an intangible factor. The value of structures and equipment reflects the state of productive know-how. Similarly, the value of physical resources like land, subsoil assets, forests and water depend on the state of technology.

Because so many forms of wealth are immeasurable (or at least appear to be), wealth estimation has generally been limited to its nonhuman component. Furthermore, such estimates have been generally restricted to market-oriented activities. The importance of human wealth to national wealth has been established clearly, but there is little agreement on how to measure it. Human wealth is not traded in a market in the same sense as property, so its value must be determined indirectly. Two fundamental approaches have been used: (1) accumulate past investments in education and training and allow for depreciation, or (2) estimate the discounted value of future income. Two of the best-known studies of human wealth in the United States are by Kendrick (1976) and Jorgenson and Fraumeni (1989).³ The table below compares their estimates of the distribution of wealth for 1969 (the latest year for which they both provide estimates).

Distribution of Private National Wealth: 1969

	Kendrick	Jorgenson-Fraumeni
Human wealth	69.2%	93.9%
Tangible	21.5	N.A.
Intangible	47.7	N.A.
Nonhuman wealth	30.8	6.1
Tangible	29.0	N.A.
Intangible	1.8	N.A.
Total wealth per capita (1990 dollars)	\$8,572	\$92,540

Kendrick estimates that U.S. human wealth (including both tangible and intangible) is

¹Kendrick (1976).

²Juster (1973), pp. 40-48.

³Also see Eisner (1989), whose estimates of human wealth as a proportion of the total lie between those of Kendrick and Jorgenson and Fraumeni.

about 2.3 times that of total nonhuman wealth. Jorgenson and Fraumeni, on the other hand, estimate that human wealth is 15.4 times that of nonhuman wealth. The methodologies underlying the estimates are very different with the Jorgenson-Fraumeni study including estimates of the value of nonmarket activities such as household production and leisure time.

Despite considerable advances in the understanding of wealth, measurement and estima-

tion of many forms of wealth are still in an early stage of development. As a result, a complete accounting of U.S. wealth is not yet available on a regular basis; published national balance sheets are generally limited to the market value of nonhuman wealth. Depending on the estimates, this portion represents between 6 percent and 31 percent of total national wealth. In this sense, the U.S. balance sheet is far from complete.

and net foreign assets—a balancing item (the difference between foreign assets owned by U.S. residents and U.S. assets owned by foreigners).

The Standard U.S. Balance Sheet in 1990

Table 1 shows 1990 beginning-of-year and end-of-year values in current dollars. The difference reflects saving and investment flows (net of depreciation) during the year plus revaluations of existing assets.²

For the economy as a whole, the bottom line is national net assets, or national net worth. It is clear that national net assets are dominated by tangible assets.³ In fact, with the recent rapid growth in foreign ownership of U.S. assets, the value of tangible assets on U.S. soil has exceeded the value of the nation's net assets (owned by U.S. residents) since 1983.

On the net worth side of the standard balance sheet, no liabilities are shown. National net worth is defined as the sum of private net worth, public sector net assets and unallocated financial assets (plus a balancing item for foreign and U.S. holdings of each other's corporate stock).

Private net worth is broken down further by sector. Household "net assets" and private finan-

cial institutions sector "net assets" are presented along with the net worth of each type of business.⁴ This is useful for analysis, but one must keep in mind that households are the ultimate owners of businesses.

Our focus below is on long-term trends in the United States, but one development in 1990 is worthy of mention. As shown in table 1, national net worth grew only 1.3 percent or, given the increase in GNP prices (GNP implicit price deflator) of 3.9 percent, it declined 2.6 percent in real terms. This weak performance is attributable, in part to, declines in real estate prices.

Trends in National Net Worth and GNP

One possible use of balance sheet information is to view national net worth as a measure of macroeconomic performance over time. Does it yield information that differs from that of GNP? Many years ago, Raymond Goldsmith and Robert Lipsey concluded that "National balance sheets are not intended as a device to measure economic growth over time, but they are essential to study the relations between the financial superstructure and the real infrastructure, which constitute an important aspect of economic growth."⁵ With 30 years of new data, does this conclusion still hold?

²The Board's C.9 release also contains sector balance sheets for households, farm, nonfarm, noncorporate and corporate business, private financial institutions and the rest of the world. For definitions of sectors, see Board of Governors (1980).

³Tangible assets for federal, state and local governments are not included in the C.9 release. For further discussion of the government balance sheet, see Boskin, Robinson and Huber (1989).

⁴Equities and pension fund reserves are subtracted from household net worth to obtain net assets. Private financial institutions' net assets are obtained by subtracting corporate equities and adding pension fund reserves to their net worth.

⁵Goldsmith and Lipsey (1963), p. 25. Also, see Goldsmith (1985, 1982, 1969, 1966).

Figure 1
GNP and National Net Worth

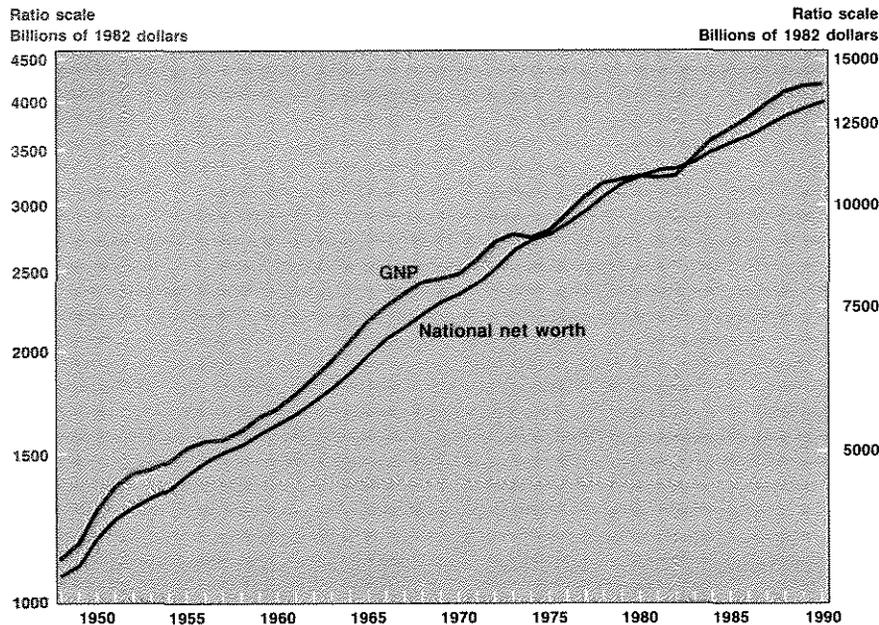


Figure 1 shows real national net worth (NNW) and real GNP from 1948 to 1990.⁶ Over the full period, the growth rates are the same—3.2 percent. Real NNW is a relatively smooth series, while real GNP displays considerable volatility. Real NNW shows little cyclical movement, indicating that tangible assets are valued over a long horizon, even if they are utilized more or less intensively during the business cycle.

Table 2 summarizes and compares GNP and NNW during the 1948-90 period. The reference periods were chosen to conform with different inflation experiences. The 1948-64 period was one of relatively low inflation, averaging 2.2 percent per year. From 1964 to 1981, inflation accelerated; it was 3.1 percent in 1965 and 9.4 percent in 1980. The 1981-90 period is more difficult to define—disinflation from 1981 to 1985 and then moderately accelerating inflation over the past five years.

During the period of relatively low inflation from 1948 to 1964, GNP and NNW grew at simi-

lar rates in both nominal and real terms. Periods of accelerating or decelerating inflation, however, produced differing growth rates for the two measures. From 1964 to 1981, both nominal and real NNW grew faster than GNP. During the 1980s, the opposite occurred; NNW growth slowed relative to that of GNP in both nominal and real terms.

Based on the post World War II experience, NNW shows the same long-term trends as GNP. While the growth rates of NNW and GNP can deviate for several years, for purposes of long-term analysis they appear to give the same answers. Goldsmith's and Lipsey's conclusion from almost 30 years ago appears to be confirmed.

AN ALTERNATIVE VERSION OF THE U.S. BALANCE SHEET

Since GNP accounts are limited to data on the current production of goods and services and generally omit financial transactions, they are of

⁶The C.9 release also includes data for 1945-47, but these years are omitted because of distortions caused by the transition to peace from World War II. Real NNW was calculated by using the Department of Commerce

constant-cost net stock of fixed private capital, assuming that the real value of land changed at the same rate as real GNP and deflating all other components with the GNP deflator.

Table 2

A Comparison of GNP and NNW as Measures of Macroeconomic Performance (compounded annual rates of change)

Measure	1948-64	1964-81	1981-90	1948-90
GNP	6.1%	9.4%	6.7%	7.6%
GNP deflator	2.2	6.5	3.6	4.2
Real GNP	3.9	2.7	2.9	3.2
Population	1.7	1.1	1.0	1.3
Real GNP per capita	2.1	1.6	1.9	1.9
NNW	5.8	10.9	4.2	7.5
NNW deflator	2.1	7.2	2.0	4.1
Real NNW	3.6	3.4	2.2	3.2
Population	1.7	1.1	1.0	1.3
Real NNW per capita	1.9	2.3	1.2	1.9

little use in studying financial superstructure and the relation between real and financial assets.⁷ To achieve the purpose of understanding relations between financial and real assets, the national balance sheet has to be viewed more broadly than NNW.

Financial assets play a key role in the economic development of market economies, enabling the transfer of lenders' excess purchasing power to finance spending for borrowers. If an economic unit consumes less than its income, it accumulates assets or retires debt, thereby adding to its net worth. If an economic unit chooses to accumulate tangible assets less than its saving, it must accumulate financial assets or reduce liabilities. Similarly, if an economic unit chooses to accumulate tangible assets in excess of saving, it must borrow or sell off financial assets.

Because of this fundamental role for financial markets, it is useful to focus on national balance sheets that include the financial asset-liability structure.⁸ A full understanding of the forces that are driving NNW requires a supplementary analysis of financial assets and liabilities.

A Goldsmith-Type U.S. Balance Sheet in 1990

Table 3 summarizes the U.S. balance sheet in a Goldsmith-type format. It uses the same data that are in the Board of Governors report, but

⁷The term "financial superstructure" is attributable mainly to Goldsmith. It refers to all aspects of the system of financial markets that channels the funds of savers into investment. For more detailed discussion, see Board of Governors (1980).

sums the assets and liabilities for the separate sectors—households, businesses and private financial institutions. Even though there is double counting, this procedure preserves detailed information about financial assets and liabilities.

Although the approach used here follows Goldsmith in principle, it is incomplete because the Board of Governors report does not provide estimates of tangible assets held by governments. By adding privately held financial assets to tangible assets, the value of tangible assets held by business and the equity claims on business held by households are both included.

The assets and liabilities are for the private sector, so the balancing item is really a meaningless residual that includes government liabilities, rest-of-world liabilities, as well as equities and net worth of the private sector. Consequently, this balance sheet is not offered as a substitute for the standard Board of Governors version, but as a supplementary summary of the Board's report with a focus on private sector assets and liabilities.

The 1990 values in table 3 indicate that private sector holdings of financial assets were 1.68 times the value of tangible assets at the beginning of the year and 1.70 times at the end of the year. The sector breakdown of this ratio summarizes the structure of the U.S. economy. The household sector's holdings of financial assets are about twice their holdings of tangible assets.

⁸For a discussion of the importance of keeping financial assets and liabilities on the national balance sheet, see Goldsmith and Lipsey (1963).

Table 3
Goldsmith-Type U.S. Balance Sheet: 1990 (billions of dollars)¹

Assets	Beginning-of- Year value	End-of- year value	Percent change
Tangible assets	\$16,000.8	\$16,223.2	1.4%
Reproducible assets	12,147.2	12,482.9	2.8
Households	5,598.7	5,760.2	2.9
Nonfinancial business	6,271.3	6,417.9	2.3
Private financial institutions	277.2	304.8	10.0
Land	3,853.6	3,740.3	-2.9
Households	1,458.6	1,315.8	-9.8
Nonfinancial business	2,376.5	2,404.4	1.2
Financial institutions	18.5	20.1	8.6
Financial assets	26,813.6	27,571.8	2.8
Households	13,854.5	14,091.4	1.7
Nonfinancial business	2,434.5	2,566.1	5.4
Private financial institutions	10,524.6	10,914.3	3.7
TOTAL ASSETS	\$42,814.4	\$43,795.0	2.3%
Liabilities, Equities and Net Worth			
Liabilities (private sector)	\$18,510.0	\$19,390.3	4.8%
Households	3,620.7	3,961.3	9.4
Nonfinancial business	4,634.3	4,840.4	4.4
Private financial institutions	10,255.0	10,588.6	3.3
Other liabilities, equities and net worth ²	24,304.4	24,404.7	0.4
TOTAL LIABILITIES, EQUITIES AND NET WORTH	\$42,814.4	\$43,795.0	2.3%

¹Source: Board of Governors of the Federal Reserve System (1991). Follows Raymond Goldsmith's procedure of combining (adding) sector balance sheet items to derive a 'total' balance sheet. This balance sheet is incomplete, however, because it omits assets held by government and foreigners.

²Calculated as a residual. Reflects considerable double counting and also includes liabilities of government and foreigners.

The nonfinancial business sector, on the other hand, holds financial assets equal to about 30 percent of its tangible assets. Financial institutions, almost by definition, hold very few tangible assets.

Financial assets can be compared with liabilities to show the net monetary creditor status of the different sectors. Households hold financial assets about 3.7 times as large as their liabilities, with fixed claims almost 1.5 times as large as liabilities. Nonfinancial businesses have liabilities almost twice as large as their financial assets, with the ratio about the same when variable claims and liabilities are subtracted. Private fi-

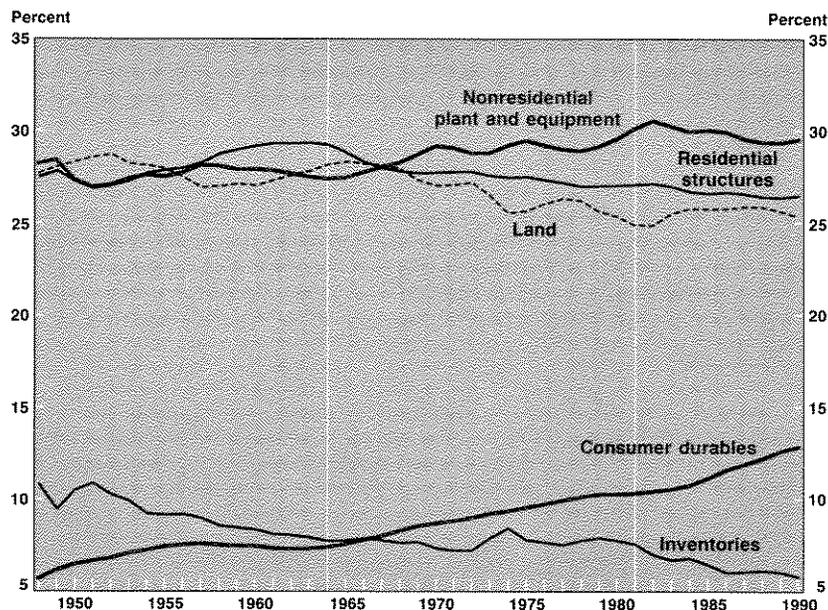
ancial institutions are net monetary creditors, although not to the extent that households are.

Reproducible assets are divided into the same categories as in table 1 and in the GNP accounts—residential structures, nonresidential plant and equipment, inventories and consumer durables. Financial assets can be divided into many types, but here they are grouped into five categories—currency and deposits, credit market instruments, equities (both corporate equities and the net worth of noncorporate business), reserves (pension fund and life insurance) and other (which includes security and trade credit).⁹

⁹"Credit market instruments is a core group of debt claims that is the principal medium used by nonfinancial sectors in raising funds through formal credit channels." [Board of Governors (1980), pp. 42-43.] It includes all government

securities, corporate and foreign bonds, mortgages, consumer credit, bank (not elsewhere classified) and other loans.

Figure 2
Distribution of Tangible Assets



Trends in Total Assets

Postwar trends in total assets are summarized by charting the components of both tangible assets and financial assets relative to their respective totals.

Tangible assets—Figure 2 summarizes the major components of tangible assets in 1982 dollars relative to the total of tangible assets, but broken down by type of asset as in table 1 (the same as in the GNP accounts). Vertical lines (1964 and 1981) correspond to the inflation episodes in table 2. For inventories and land, the trend generally has been downward throughout the postwar period. In the case of consumer durables, the trend is upward throughout the period. For fixed residential investment, the trend was upward before 1964 but has been downward since then. Fixed nonresidential investment has trended upward, although there appears to be a flattening in the 1980s.

The relationship between the growth of real reproducible tangible assets and inflation was examined.¹⁰ The conventional wisdom is that investors view tangible assets as a good hedge against inflation.¹¹ Table 4 shows the correlation coefficients for the year-to-year percent change in reproducible tangible assets and inflation. None of the coefficients is significant and positive for each of the subperiods. Explaining trend movements in the components of tangible assets is apparently much more complex than indicated by a simple inflation model.

Financial assets—Privately held financial assets were collected into categories as shown in figure 3. Currency and deposits (broadly defined) drifted downward from the end of World War II until the early 1960s, stabilized until 1972, shifted to a higher level and then fell from 1984 to 1990. This category reflects a number of financial innovations throughout the period, notably certificates of deposit in the

¹⁰Land was not included because it is fixed and nonreproducible. Its real value can change but not its quantity.

¹¹Higher rates of inflation increase the uncertainty associated with rates of return on financial assets, making tangible assets more attractive to investors. See Cagan and Lipsey (1978).

Table 4

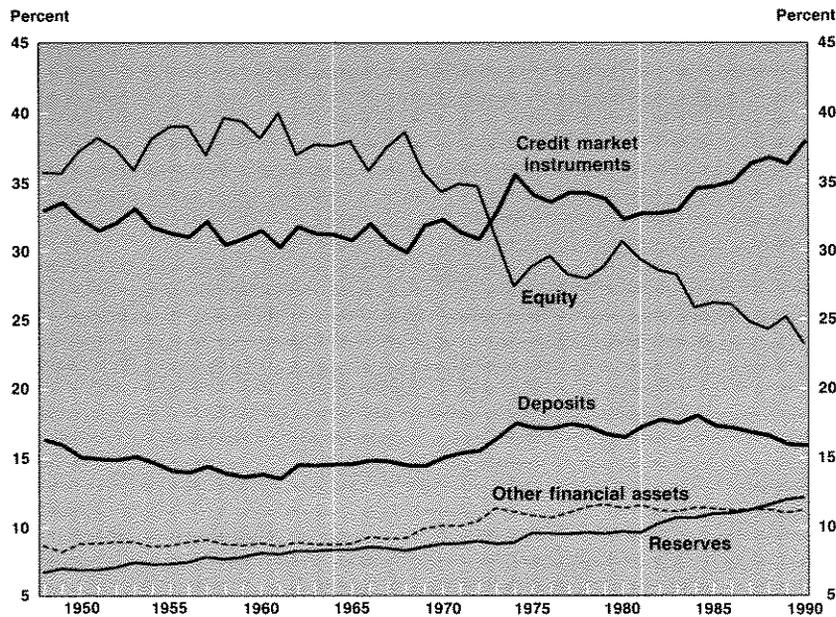
Correlation Coefficients: Percent Change in Reproducible Tangible Assets (1982 dollars) and Inflation¹

	1948-90	1948-64	1965-81	1982-90
Consumer durables	-.16	.30	-.64*	-.86*
Residential structures	-.42*	.60*	-.28	-.88*
Nonresidential plant and equipment	.08	.52*	-.50*	-.57
Inventories	.23	.66*	.04	-.35

*Significant at the 5 percent level

¹Inflation is year-to-year percent change in GNP deflator.

Figure 3 Distribution of Financial Assets



1960s, money market mutual funds in the 1970s and the payment of interest on checkable deposits in the 1980s.¹²

The trend of credit market instruments was quite flat until the mid-1970s, shifted to a higher level until the early 1980s and rose sharply from 1982 to 1990. Because federal securities are an

important component of credit market instruments, about half of the increase in the 1980s can be traced to the rapid growth in the federal debt.

The equity portion of financial assets shows a pattern generally the opposite of that for credit market instruments. The downward trend in

¹²For a brief financial history of the United States, see Council of Economic Advisers (1991), chapter 5.

Table 5

Correlation Coefficients: Percent Change in Financial Assets (1982 dollars) and Inflation¹

	1948-90	1948-64	1965-81	1982-90
Currency and deposits	-.13	-.41	-.26	-.19
Credit market instruments	-.42*	-.69*	-.31	-.84*
Life insurance and pension fund reserves	-.38*	-.56*	-.18	-.03
Equities	-.20	.15	-.15	-.28
Other financial assets	-.15	.57*	-.37	-.83*

*Significant at the 5 percent level

¹Inflation is year-to-year percent change in GNP deflator.

equities began in the high-inflation 1970s, but continued through the disinflation of the 1980s.¹³ These trends suggest a complementary relation between equities and credit market instruments (including government securities). The total of these two categories has varied between 60 and 70 percent of all financial assets since World War II.

Life insurance and pension fund reserves rose gently until 1980, and then accelerated in the 1980s. This recent acceleration is consistent with a number of explanations. One would be that it represented a favorable long-term planning response to the deceleration of inflation. Another would be the demographics of the decade which included a rise in the average age of the population.¹⁴

The residual component of financial assets, called "other," reflects mainly trade and security credit. This category moved upward slowly but steadily until the mid-1970s and then stabilized.

As with reproducible tangible assets, coefficients were calculated for the correlation between the percent change in financial assets in 1982 dollars and inflation. These results are summarized in table 5. Most of the coefficients are negative, although most are insignificant. Even though nominal financial assets tend to increase with inflation, their growth is generally outpaced by inflation so that in real terms there is an inverse relationship.

SOME USES OF THE BALANCE SHEET

The U.S. balance sheet covers a relatively small portion of the nation's wealth. However, it can yield insights into particular relationships that cannot be fully analyzed using information only from GNP accounts. The accumulation of flows into stocks provides a built-in long-term perspective that is generally missing with GNP accounts. By lengthening the time perspective, balance sheet information can shed new light on some commonly held perceptions about economic trends.

Financial Interrelations Ratio

One of the most important applications of balance sheet information is the calculation and analysis of the financial interrelations ratio.¹⁵ This ratio measures the size of the financial superstructure relative to the real infrastructure. Specifically, it is the ratio of the value of financial assets to the value of tangible assets.

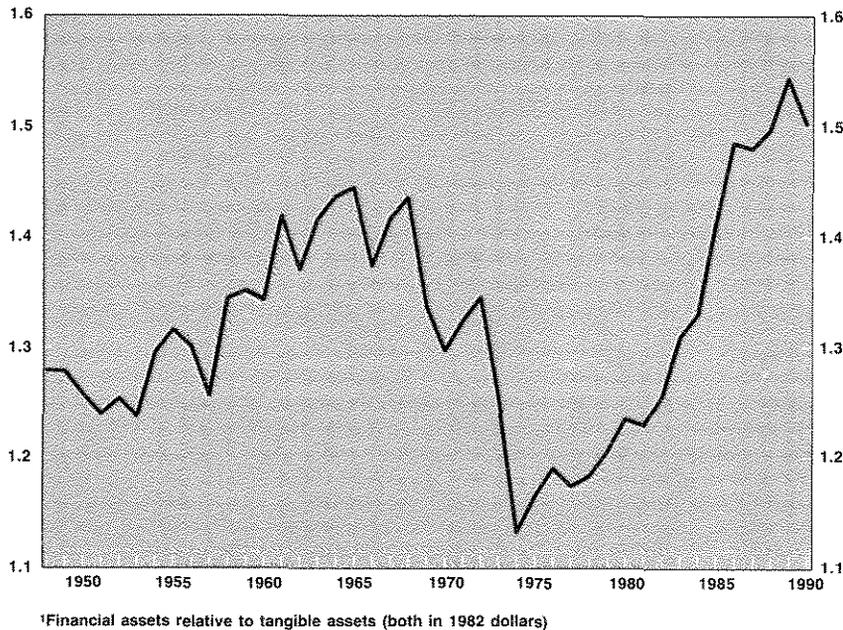
The financial interrelations ratio provides a framework for the analysis of the relationship between financial development and economic growth. However, as Goldsmith points out, "Economic growth is so complex a phenomenon, obviously determined or influenced by basic factors of a physical, technological, and mass-psychological nature, that an attempt to isolate the effects of apparently secondary forces such

¹³It was formerly believed that corporate stocks were a hedge against inflation. Fischer and Modigliani (1978) suggest that this changed when investors realized that higher inflation carries with it a higher real tax burden.

¹⁴Carlson (1990).

¹⁵Goldsmith (1966).

Figure 4
Financial Interrelations Ratio¹



as the character of financial institutions and the nature of credit practices does not promise success."¹⁶ Generally, the argument is that a rise in the interrelations ratio indicates a broadening of the range of financial assets and institutions. This promotes the flow of saving into its most productive uses which stimulates economic growth and increases productivity.¹⁷

Figure 4 shows the interrelations ratio for the 1948-90 period. The factors influencing its movement are numerous and complicated, although inflation appears to have played a role. Prices of tangible assets, the denominator in the ratio, tend to increase more than other prices during periods of accelerating inflation, and by a lesser amount when it decelerates. The ratio fell to its postwar low during the high-inflation period of the 1970s before rising during the disinflation of the 1980s. Such an explanation is simplistic because a full analysis of the interrelations ratio would consider all other factors entering into its

determination. Nonetheless, inflation is a factor influencing the ratio.¹⁸ On the other hand, real GNP growth does not appear to be related systematically to the ratio, especially since the mid-1970s. Thus, even though the financial interrelations ratio shows interesting movements in the postwar period, it is only a starting point in the analysis of financial structure and economic growth.¹⁹

One facet of the interrelations ratio that has produced concern in the 1980s is the rapid growth of credit market debt in the private sector. Expansion of debt permits more spending than otherwise, but adds to the severity of a recession when the pace of economic activity slows. To maintain debt payments, households and businesses have to restrain their spending or default on their loans. Widespread loan defaults could endanger the economic health of the financial system.

¹⁶Goldsmith (1969), p. xi.

¹⁷For more detailed discussion of this theory, see Goldsmith (1969), pp. 390-401. Also see Shaw (1973).

¹⁸Goldsmith (1969), p. 97.

¹⁹Recently an argument has been offered challenging the

notion that growth in financial structure is always beneficial. See Fingleton (1991).

Figure 5
Credit Market Debt Relative to Tangible Assets

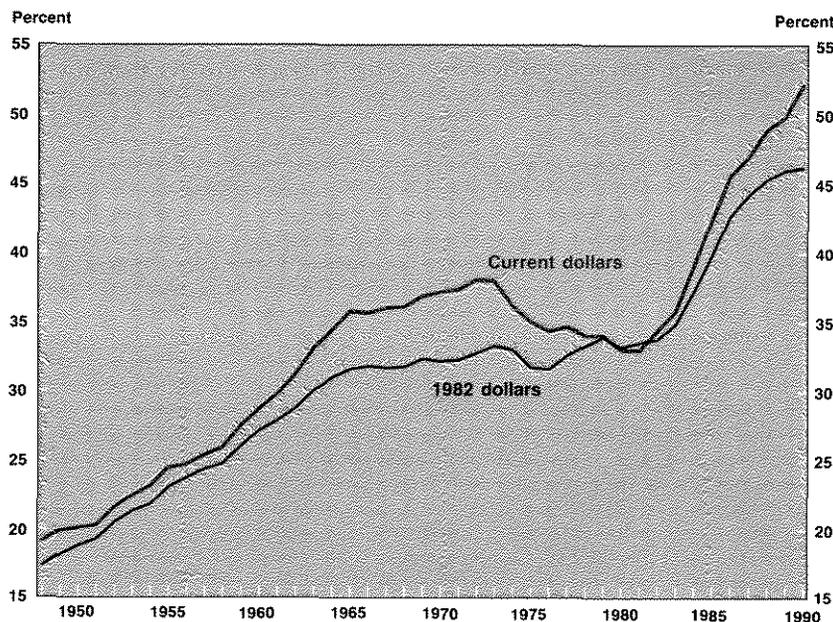


Figure 5 puts the 1980s expansion of debt into perspective. All credit market debt of households, private nonfinancial business and private financial institutions is included and measured against total privately held tangible assets. Debt expanded at an 11 percent annual rate from 1983 to 1990, pushing the ratio of debt to tangible assets to a historical high of 0.52. The extent of the increase is dampened somewhat when the ratio is calculated with 1982 dollars, but 1990 is still at a historical high; it appears to be leveling off, however. Whether this debt burden is "too high" will probably not be answered until the strength and duration of the recovery from the recent recession is clear.

Inflation and the Distribution of Net Worth

An additional use of balance sheet information is to analyze the effect of inflation on the net worth of various sectors. The standard theory of such effects is outlined in the shaded insert

at right.²⁰ Figure 6 shows the distribution of private net worth among sectors.

The proportion of private net worth held by households gradually increased from 1948 until inflation accelerated sharply in the mid-1970s; it then declined until 1981. Since then, households' share of net worth has risen as the disinflation continued through most of the decade. These responses are typical of a sector that is a net monetary creditor.

The nonfinancial business sector has shown a variety of long-term trends, but the response to the acceleration and deceleration of inflation is similar for the three subsectors because they are all monetary debtors. Farm business has been in a long-term decline throughout the post-war period, interrupted by a slight increase from 1971 to 1980 which primarily reflected a rise in farm real estate values. Nonfarm noncorporate business declined as a share of private net worth until 1976, increased until 1980, and

²⁰No attempt is made here to measure anticipated inflation. However, based on current procedures, the variances of change in inflation and the unanticipated change have been found to be similar. See Ball and Cecchetti (1990), p. 242.

Inflation and the Balance Sheet

Inflation has many effects, but most discussed are its effects on the distribution of income and wealth.¹ If inflation were fully and correctly anticipated, nominal interest rates on fixed claim assets would adjust to compensate for the declining purchasing power of the principal. Generally, however, interest rates have not completely compensated for inflation. As a result, periods of inflation have been accompanied by arbitrary transfers of real net worth from net monetary creditors to net monetary debtors when inflation is accelerating, or vice versa when it is decelerating.

The key factors in determining whether economic units will benefit from, or be harmed by, inflation are (1) whether the inflation is anticipated and (2) whether the economic

units are net monetary creditors. Net monetary creditors are harmed by unanticipated inflation because the purchasing power of their monetary assets declines more than the real value of their monetary liabilities. Similarly, net monetary debtors benefit from unanticipated inflation. These effects take place without any action on the part of the economic unit and represent a passive redistribution of wealth.

Even if inflation is anticipated and reflected in nominal interest rates, added uncertainty about future prices can affect economic decisions.² As a result, economic units will attempt to redistribute their assets for protection from inflation. This will elevate prices of tangible assets relative to financial assets.

¹See Bach and Stephenson (1974), Cagan and Lipsey (1978), Conard (1964), Fischer and Modigliani (1978) and Kessel and Alchian (1962).

²See Cagan and Lipsey (1978).

Figure 6
Distribution of Private Net Worth

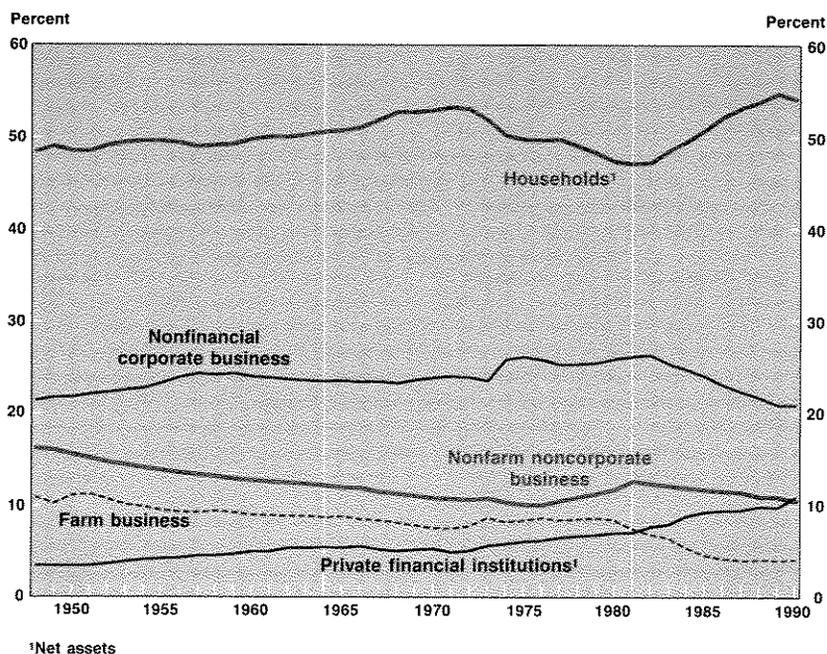
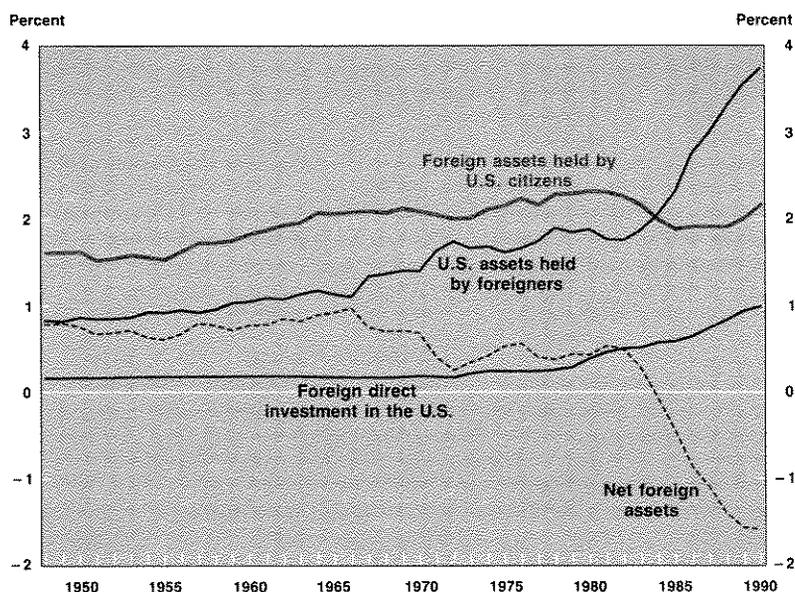


Figure 7
Net Foreign Assets Relative to Total Assets Held
by the Private Sector



since then has moved back to its 1976 level. Nonfinancial corporate business is difficult to characterize for the full period. Its response to the acceleration and deceleration of inflation seems quite clear, with its net worth proportion increasing during the acceleration and then falling back during the disinflation.

The net worth of private financial institutions does not seem to be affected much by swings of inflation, contrary to the well-known problems of the savings and loan industry. Private financial institutions are net monetary creditors, but the difference between their financial assets and their liabilities is very small.²¹

Foreign Ownership of U.S. Assets

Another application of the U.S. balance sheet is to examine concern about the accumulation

of U.S. assets by foreigners during the 1980s. A common perception is that foreigners could eventually own more than 50 percent of business capital leading to the potential for foreign control of the U.S. economy. This would threaten U.S. economic sovereignty and national security.²² Balance sheet data can be used to examine this concern.

Figure 7 shows net foreign assets as a percentage of total assets in the United States. It is clear that the proportion of U.S. assets held by foreigners has increased sharply since the early 1980s. Foreign direct investment, however, has increased from only 0.4 percent in 1980 to about 1 percent of U.S. total assets in 1990. With continued growth at this pace, foreign ownership would not exceed 50 percent for 800 years.²³ Rather than "signaling an economy in decline,

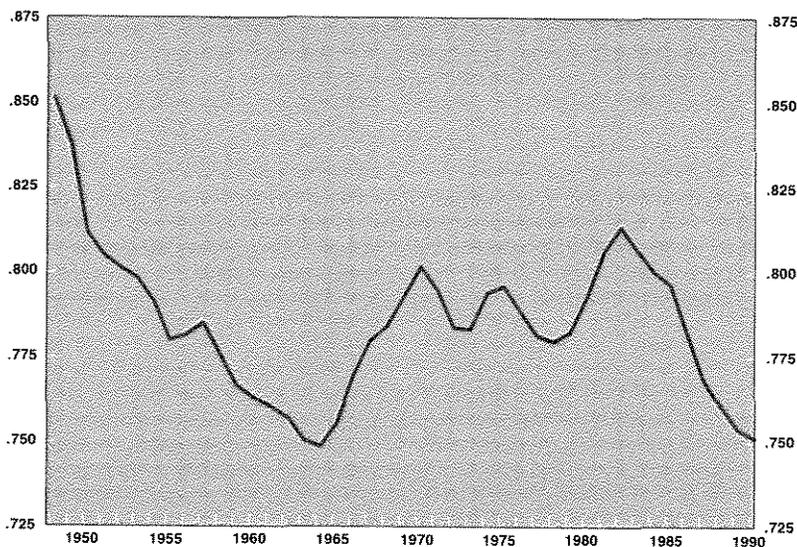
²¹It is difficult to relate to the private financial sector because of its heterogeneity. It consists of commercial banking, savings institutions, insurance (including private pension funds and state and local government retirement funds) and other (including finance companies and mutual funds).

²²This concern and several others are examined in Ott (1989).

²³These trends in foreign ownership are unlikely to continue. For example, assets of U.S. business acquired or

established by foreign investors dropped by 25 percent from 1989 to 1990. See Fahim-Nader (1991).

Figure 8
Ratio of Business Capital to Household Capital¹



¹Nonresidential plant and equipment divided by residential structures plus consumer durables (all in 1982 dollars)

such investment by foreigners is a measure of the economy's vigor."²⁴ On a worldwide basis, foreign direct investment increases economic welfare by moving resources from less to more productive uses.

Ratio of Business Capital to Household Capital

Another concern that developed in the 1980s was that the United States was not channeling its saving into the "right" kind of investment.²⁵ Mainly because of a combination of inflation and tax shelters, savings were directed toward household capital rather than productive business capital.²⁶ Business investment in plant and equipment is a major vehicle for increasing economic growth. It boosts productivity by providing more capital per worker and also embodies technological improvements. Household capital, on the other hand, provides services to consumers but does not add directly to productive capacity. Figure 8 shows the ratio of nonresi-

dential plant and equipment to household capital—the sum of consumer durables and residential structures.

Following World War II, households enlarged their stock of capital until 1964. From 1964 to 1970, growth of business capital stock exceeded that of household capital stock. For the next 12 years, business and household capital grew at roughly the same rate. Since 1982, however, the growth of household capital has exceeded that of business capital. Boosting the overall level of saving is the primary vehicle for stimulating economic growth. There is also potential for faster growth by designing policies that direct the flow of saving away from household capital into business capital.²⁷

SUMMARY

Economic analysts rely mainly on the nation's GNP accounts as a source of information on economic performance. For purposes of under-

²⁴Ott (1989), p. 63.

²⁵This view is developed in Rutledge and Allen (1989).

²⁶For a discussion of the effects of the Tax Reform Act of 1986, see Fazzari (1987) and Slemrod (1990).

²⁷For a more complete discussion of saving and its role in economic growth, see Cullison (1990) and Harris and Steindel (1991).

standing the forces at work in the determination of current production, GNP accounts are indispensable. Generally overlooked, however, is another source of information—the nation's balance sheet. Business accounting relies greatly on the balance sheet as a tool for analyzing a firm's financial health. Similar practices do not prevail in national economic accounting.

What would appear to be one of the most important items in the U.S. balance sheet is the measure of national net worth. When compared with GNP as a measure of long-term economic performance, however, it does not seem to offer much added information.

Probably the most important use of balance sheet data is to analyze the role of financial structure in the process of economic growth. A variety of other questions, however, can also be examined by developing ratios of particular balance sheet items. The chief benefit of the U.S. balance sheet, as it is currently prepared, seems to be that it forces the user to take a long-term perspective to detect changing trends. What appeared to be major concerns during the 1980s sometimes took on a different interpretation when viewed from the perspective of the U.S. balance sheet over the entire post-World War II period.

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