

SAVINGS IN GERMANY AND THE UNITED STATES

HUBERTUS BARDT AND
MICHAEL GROEMLING*

Not only did private households in the United States save less than German households in the 1990s, their savings rate also decreased faster. If, however, public and business savings are taken into account, the difference between both countries' savings rates seems less significant. Furthermore, the US overall savings rate rose for several years while Germany's declined constantly. Interest rate developments are partly responsible for the diminishing propensity to save of private households in both countries. A better labour market performance, higher and rising wealth, and success in balancing the public budget weakened the savings efforts in the United States. A rising old-age dependency ratio in Germany reduced the savings of private households. Since the United States are highly attractive for international investors, investment there was financed more easily by foreign capital.

While the United States have been very successful in increasing economic growth, fighting unemployment and reducing public deficits during the 1990s, Germany still has to solve fundamental problems regarding all these indicators. At the same time, a brief comparison of both economies shows significantly lower savings in America. Macroeconomic theory offers two perspectives on the impact of savings on economic growth:

- According to Keynesian theory, current savings slow down economic growth. Savings are equated to a lack of consumption and therefore a troublesome lack of demand.
- For neo-classical economists, savings are fundamental to investment. Higher investment boosts growth – in the short run as a part of total demand, in the long term by raising the stock of capital. The new growth theory stresses technical progress initiated by savings.

This survey first focuses on savings and consumption of private households as well as on business investment in Germany and the United States between 1991 and 2002. This will be followed by an analysis of

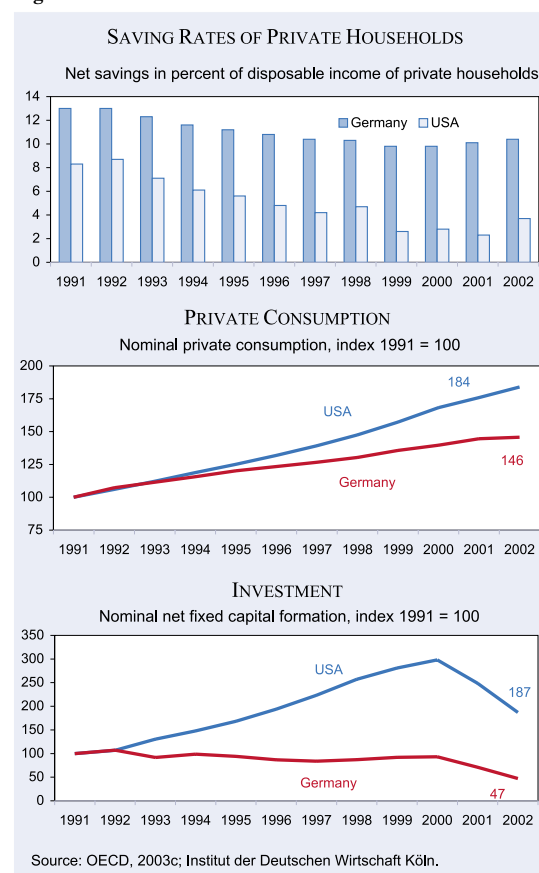
differences in measurement methods and a discussion of potential explanations for differences in both countries' savings behaviour.

Savings, consumption and investment

Most studies on savings behaviour focus on the savings of private households. The savings rate of private households – nominal savings as a percentage of nominal personal disposable income – was significantly higher in Germany between 1991 and 2002 than in the United States (Figure 1a). The difference between both countries' savings rates was 4.7 percentage points in 1991, rose to 7.8 percentage points in 2001 before slightly declining to 6.7 points in 2002.

This difference in levels has to be separated from the diverging development over the period analysed. In Germany, the savings rate was quite stable. Influenced by the tax cuts in 1986, 1988 and 1990 it reached 13 percent at the beginning of the 1990s (Deutsche Bundesbank, 1999) before declining to 9.8 percent in 1999 and 2000. An increase in the sav-

Figure 1



* Institut der deutschen Wirtschaft, Köln.

ings rate to 10.4 percent in 2002 could be observed recently. The situation in the United States was completely different. The savings rate dropped much faster from an already lower level of 8.3 percent in 1991 to its minimum of only 2.3 percent in 2001. A slight recovery took place in 2002, when savings reached 3.7 percent of nominal personal disposable income. As a first result, savings by private households in the United States were lower than those in Germany and there was a stronger reduction of private savings in the United States in the 1990s.

From a Keynesian point of view, the different developments in both countries' private consumption are the expected counterpart of their declining savings (Figure 1b). Nominal consumption expanded much faster between 1991 and 2002 in the United States (84 percent) than in Germany (46 percent). Higher nominal savings in Germany seem to go along with less dynamic nominal consumption compared with the United States. A comparison in real terms shows a huge gap as well: While real consumption rose by 47 percent in America, the increase turned out to be only one third of this in Germany.

According to neoclassical theory, the sharper decline of private savings in the United States should have led to a corresponding low level of capital formation. However, empirical findings show a different picture for the period 1991/2002 (Figure 1c):

- Nominal net investment in the United States rose by almost 90 percent, although the year 2000 was a turning point. While private investment was fostered by rising stock prices during the New Economy era, the fall of stock prices since spring 2000 and the fading information technology boom led to reduced investment.
- In the United States, the decline of nominal fixed capital formation since 2000 (by 37 percent) happened to be less severe than in Germany (by 49 percent). In Germany, investment more or less stagnated from the early 1990s until 2000. After its sharp fall in 2001 and 2002, nominal net investment in fixed capital was not more than half of its 1991 level.

The focus of this analysis is on nominal net investment. There are two reasons for this perspective. First: Saving rates are calculated in nominal terms. Second: Net savings are by definition savings less depreciation. To guarantee comparable results, it is necessary to consider net investment (gross

investment less depreciation). By the way, the development of real gross capital formation shows similar results: While it increased by almost 80 percent in the United States between 1991 and 2002, it stagnated in Germany. The decline of real investment since 2002 has been sharper in Germany (by 11.6 percent) than in the United States (by 4.4 percent).

A positive nexus between capital formation and the savings of private households cannot be deduced from these empirical findings. Rising investment is combined with lower and shrinking savings rates in the United States, while Germany had to face a sharp drop in net investment despite higher and less declining savings efforts. Obviously, high savings of private households do not seem to be a prerequisite for higher investment. Nevertheless, this does neither prove the irrelevance of the neoclassical view on savings and investment nor does it validate the Keynesian connection of savings and consumption. However, two questions emerge:

1. What kinds of methodical empirical problems may be overlooked in a comparison of German and US savings rates?
2. Which macroeconomic determinants can explain the different savings behaviour in Germany and the United States?

Savings rates – a variety of definitions

As a result of various differences in national data, international comparisons are difficult. Data on savings used in this survey are taken from the OECD national accounts. The table gives an overview over commonly used definitions of savings rates. It is remarkable how big the differences are between the various rates for the year 2002. These differences result from gross and net values, different base values and different sectors.

Net savings rates are commonly used in Germany while some other countries prefer gross values. Unfortunately, the OECD mixes savings rates based on net and gross values in an important overview table (OECD, 2003a). The difference between the two concepts is depreciation. Gross savings contain net savings and depreciation and therefore have a systematically higher value than net savings. We will focus on net savings, because funds that must be

Gross and net savings ratios 2002
– in percent –

Gross/net	Sector	Base	Germany	USA
gross savings ratio	all sectors	gross domestic product	20.5	14.5
gross savings ratio	all sectors	disposable income ¹⁾	24.5	16.6
net savings ratio	all sectors	disposable income ¹⁾	6.4	1.9
net savings ratio	government	disposable income ¹⁾	-2.9	-2.5
net savings ratio	business enterprises	disposable income ¹⁾	1.2	1.5
net savings ratio	private households	disposable income ¹⁾	8.2	3.0
net savings ratio	private households	disposable income ²⁾	10.4	3.7

Gross savings = net savings + depreciation. ¹⁾ Disposable income of all sectors. ²⁾ Personal disposable income.

Source: OECD, 2003c; Institut der Deutschen Wirtschaft Köln.

spent for imputed capital consumption during the current production process cannot be interpreted as savings in the conventional sense. Furthermore, the base chosen to calculate the rates is important as well. Macroeconomic savings of all sectors can be related to GDP (OECD, 2003a) or to the disposable income of all sectors which is on a significantly lower level. This explains a discrepancy of 4 percentage points in the case of Germany in 2002.

An enormous difference exists between gross and net savings rates of all sectors related to the disposable income of the whole economy. The gross savings rate amounted to 16.6 percent in the United States and to 24.5 percent in Germany in 2002. At the same time, the net savings rate was only 1.9 percent in the United States and 6.4 percent in Germany. The main reason is the diverging dynamics of capital consumption (depreciation). Besides different methods of calculating capital consumption, growing net investment and a rising capital stock result in higher depreciation in the United States.

Sectoral savings

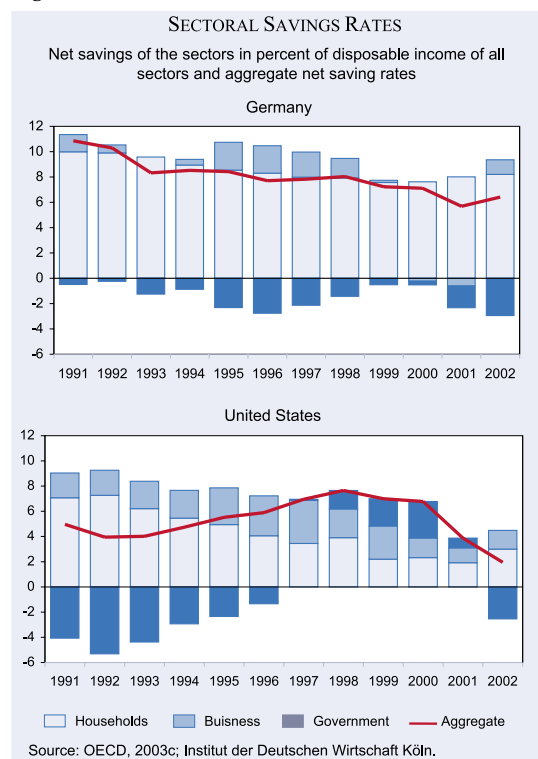
To analyse the sources of the divergence in the savings behaviour between Germany and the United States it is helpful to consider savings rates of the various sectors of an economy – private households, business and the government. This shows the distribution of the macroeconomic net savings among these sectors.

A look at the German and US sectoral savings rates and the resulting macroeconomic net savings rate over the period 1991/2002 shows significant differences in level, already documented in Table 1, but

also differing sectoral profiles during that period. The dominance of consumer savings in Germany is striking. Savings of private households ranged between 7.6 and 10 percent from 1991 until 2002 and represented the bulk of macroeconomic savings, although a moderate downward trend can be noticed (Figure 2). As savings are related to disposable income of all sectors and not to disposable income of households only, the savings rates of private households in Figure 2 differ from those in Figure 1.

The savings rate of the business sector turns out to be less stable than that of the private households. Between 1991 and 2002, it ranged from -0.6 to

Figure 2



2.2 percent of all sectors' disposable income. Current business savings equal the undistributed profits of incorporated firms, not withdrawn profits of unincorporated firms and net current transfers. One reason for the dominance of private households in macroeconomic savings is the development of government savings, which mostly offset corporate savings throughout the period. Government savings equal the disposable income less consumption expenditures of the public sector. In the best case, government reduced the macroeconomic savings rate by 0.2 percentage points only.

The situation is fundamentally different in the United States (Figure 2). Over time, the macroeconomic savings rate is lower than in Germany but the composition of savings is quite different. Private households did not stabilise total savings as they did in Germany. In fact, their savings rate declined from 7.1 percent in 1991 to a minimum of 1.9 percent in 2001 before increasing again to 3.0 percent in 2002. In contrast, business savings grew remarkably more than in Germany. With savings rates between 1.2 and 3.4 percent there was no single year over the business cycle in which business dissaved in contrast to Germany in 2000 and in 2001.

This development was dominated by heavily fluctuating government savings which determined overall macroeconomic savings in the United States. Public saving turned from a negative 5.3 percent in 1992 to positive savings rates at the end of the 1990s, peaking at 2.9 percent in 2000. Rising government spending, large tax cuts and the economic slowdown following the New Economy boom led to a drop of the public savings ratio to a negative 2.5 percent in 2002.

A comparison of German and US savings rates on the macroeconomic level provides a sharper picture than an analysis on the basis of private households alone. However, both perspectives show smaller saving efforts in the United States than in Germany. The difference in the levels of the net savings rate of all sectors between Germany and the United States averages 2.7 percentage points from 1992 to 2002. Savings rates of private households as a percentage of personal disposable income differ by 6 percentage points. The

macroeconomic savings rate in Germany declined slowly but constantly. In the United States, the overall savings rate increased until the end of the 1990s, but tumbled sharply in 2001 and 2002.

Determinants of savings behaviour

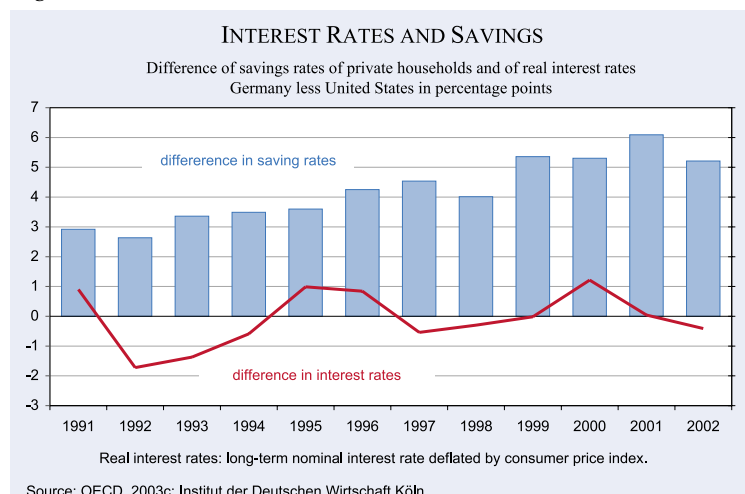
Differences in level, development and composition of the German and US savings rates should be explained by various determinants of savings behaviour. Therefore, six categories will be examined to find some of the reasons for the specific savings efforts in both countries.

Interest rates

Inflation adjusted interest rates are relevant for intertemporal consumption decisions. High real interest rates raise the price of present consumption and foster savings. Furthermore, interest rates have an impact on capital income and therefore on the ability to save. A number of studies covering several (Hussain/Brookins, 2001) or single countries such as Germany (Deutsche Bundesbank, 1996; 1999) or the United States (Kauffmann, 1988; Sherman, 1999; Milleker, 2002) confirm a connection between interest rate developments and savings behaviour:

- In the second half of the 1990s, the level of German real interest rates was slightly higher than in the early 1990s, which were characterised by major fluctuations. But a look at the average hides that real interest rates declined from 5 percent in 1995 to less than 3 percent in 2001. Between 1995 and 2000, US interest rates were on

Figure 3



average 0.4 percentage points lower than during the five preceding years. In both countries, savings of private households followed the development of real interest rates. Diminishing inflation and rising real interest rates in the last few years also coincide with growing savings rates of private households.

- But the constantly growing gap between German and US savings rates of private households cannot be explained by a permanently growing interest rate differential (Figure 3). Between 1995 and 2002, average interest rates after adjustment for inflation were only 0.1 percentage point higher in Germany than in the the United States.

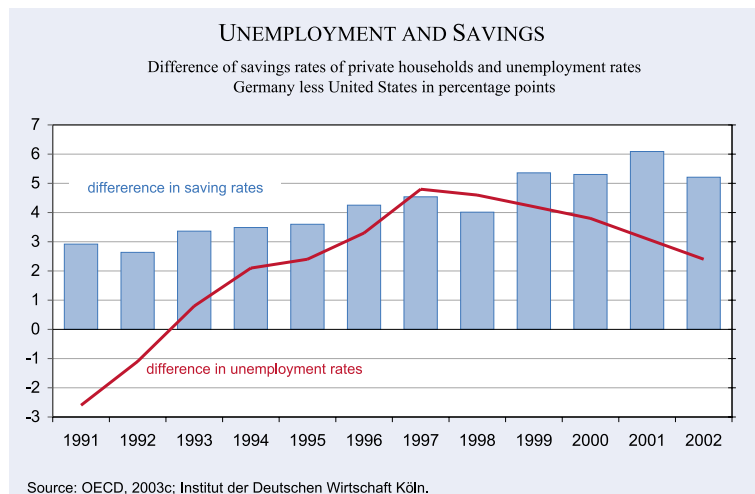
Growth and unemployment

The economic situation may also affect savings behaviour (Ohmayer, 1997). While some economists postulate a positive correlation between income growth and savings, others predict higher savings of private households in times of high unemployment. Although the growing number of unemployed may save less than before, the larger group of the employed may increase their savings efforts to have a nest egg in case of unemployment:

- Economic growth in the United States was substantially higher than in Germany – on average by about 2 percentage points in the period 1992/2000. The shrinking differential between the macroeconomic savings rates – it was only 0.2 percentage points in 1999 – reflects the deteriorating relative growth position of Germany.
- Unemployment dynamics are one of the most striking differences between the two economies (Figure 4). The United States managed to create new jobs and to halve the unemployment rate to a minimum of 4 percent in 2002, while Germany had to face an increase of its unemployment rate to 9.7 percent in 1997 before it slightly decreased to 7.8 percent in 2001. However, cyclical weakness of economic activity since 2001 has led to a significant increase in US unemployment.

Lower and decreasing savings efforts of private households in the United States can be explained by

Figure 4



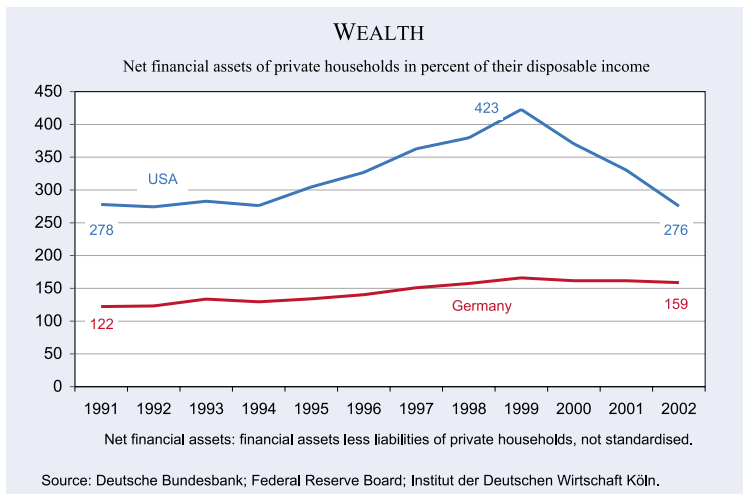
the lower risk of losing one's job and income due to a more favourable development of the labour market. Additionally, more flexible labour markets provide better chances of finding a new job in the United States, which leads to diminished savings efforts as well.

Wealth

An increase in assets can have two causes: Savings out of current income build up wealth, and rising prices of existing assets (e.g. property, stocks) result in a higher value of assets. In the latter case, it can be possible to achieve a certain wealth level without saving more out of current income. Therefore, a higher share of current income could be used for consumption which is equivalent to a decreasing savings rate. A boost to wealth caused by sustainable asset price increases can be interpreted as a substitute for savings out of current income (Davis/Palumbo, 2001; Sherman, 1999).

Capital gains are neither calculated as income or savings in the German nor the US national accounts (Deutsche Bundesbank, 1999; Perozek/Reinsdorf, 2002). In periods of rising capital gains, national accounts calculations come to lower figures for income and savings than if capital gains were considered (Peach/Steindel, 2000; Milleker, 2002). According to OECD data (OECD, 2003b), stock prices rose much faster in the United States (212 percent) between 1991 and 2000 than in Germany (196 percent). However, from 1995 to 2000, German stocks gained about 160 percent while US stocks lagged behind with an increase of 121 percent. But the decline after the peak in 2000 was stronger in

Figure 5



Germany: by 42 percent compared to 18 percent in the United States.

From 1991 to 2002, total financial assets of private households – bank deposits, insurance contracts, securities and company pension reserves less liabilities – rose by 77.5 percent in Germany to €2,195 billion or 159 percent of the annual disposable income of private households. Asset growth was slightly weaker in the United States (73 percent). Despite the massive reduction since its peak in 1999, the wealth ratio (net financial assets in percent of disposable income) was still significantly higher in the United States (276 percent) than in Germany (Figure 5). Although the stock markets were more stable in the United States, the higher commitment to stocks and strongly rising liabilities led to a pronounced reduction of net financial assets there.

Summing up, different levels of German and US wealth ratios can be part of an explanation of the different levels of savings rates. Higher wealth ratios are supposed to reduce savings rates (Milleker, 2002). The relatively strong increase in the US wealth ratio between 1995 and 1999 corresponds to a marked decrease of the savings ratio of private households. Both countries have faced a shrinking wealth ratio since 1999 combined with rising savings rates.

Government

The fundamental influence of government savings on the macroeconomic savings ratio was already shown (Figure 1). Between 1991 and 2002, the aver-

age public deficit in the United States was only 0.2 percentage points lower than in Germany. But a closer look at the public deficits shows a more significant difference. Although the US deficit has grown rapidly recently, a more successful balancing of the government budget was achieved during the 1990s compared with Germany's weak consolidation efforts. Moreover, in the years from 1998 to 2000 the United States realised a budget surplus. This happened only once in Germany: One-time receipts of the G3-auctions led

to the reduction of the total public debt in 2000. As higher deficits today may mean higher taxes tomorrow, private households build up reserves for these expected payments (Hussain/Brookins, 2001). Accordingly, the more comfortable state of public budgets in the United States made a reduction of savings efforts plausible.

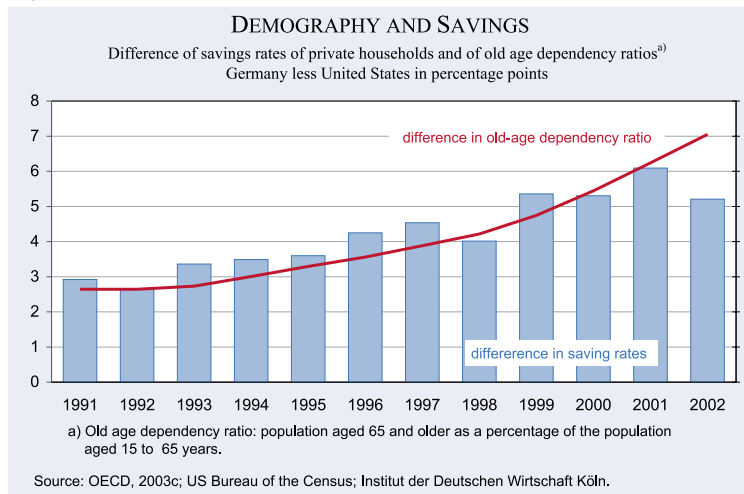
The conditions for economic activity are very different in the United States and Germany (Kauffmann, 1988). The lower US tax burden allows a freer disposition of personal income and provides better opportunities for higher savings. Nevertheless, private savings in the United States were on a much lower level than in Germany. Yet, changes of the savings rate between 1991 and 2000 show the expected connection. The faster increase of the tax burden in the United States (2.8 percentage points) relative to Germany (1.1 percentage points) reflects a corresponding decrease of the differential in the savings rates of private households.

Demography

According to the life-cycle hypothesis of savings, the creation of financial reserves is expected to take place during one's working life. These reserves can be used for consumptive purposes in old age. This combination of saving and dissaving should stabilise personal consumption over the expected lifetime (Doshi, 1994). Therefore, an ageing society is supposed to accumulate more reserves in order to finance a longer period of retirement.

One demographic feature that may partly explain differences in savings between Germany and the United States is the financial burden on employees

Figure 6



caused by a growing proportion of older people. Between 1991 and 2002, the total population grew by 3.0 percent in Germany and by 13.5 percent in the United States. In Germany, the population of working age (15 to 64 years) rose by 1.1 percent only, the number of people above 64 years of age grew by 19.0 percent. In the United States, the fraction of people between 15 and 64 years of age rose by 15.1 percent while the number of people older than 64 years increased by 11.8 percent only. America is much less affected by the ageing of its population than Germany.

An analysis of both countries' old age dependency ratios comes to the same results. From 1991 to 2002 the population above 64 years of age as a percentage of the population between 15 and 64 increased from 21.8 percent to 25.6 percent in Germany. In the United States, this ratio even shrank from 19.1 percent to 18.6 percent. The difference between the two countries' old age dependency ratios almost tripled from 2.6 to 7.1 percentage points, paralleling the difference between the corresponding savings rates of private households (Figure 6).

According to the life-cycle concept, a growing share of older people should have led to a reduced savings rate. A stronger decline of private savings would have been expected in faster ageing Germany (Deutsche Bundesbank, 1999). Institutional factors seem to be a decisive explanation of the differences between the two countries. As a result of the great weight of the statutory pay-as-you-go pension system in Germany, the liquidation of private reserves is less important in one's old age. Therefore, the ageing population had a smaller neg-

ative influence on the total savings of private households.

International capital flows

In an open economy, the volume of investment and savings during a certain time period need not be equal. International capital flows can settle the balance. If the foreign exchange account is balanced, a capital account surplus corresponds to a savings gap. Insufficient domestic savings cannot finance all of domestic investment. In other words: The option to use internationally mobile capital for domestic investment can have a negative effect on domestic savings efforts (Hussain/Brookins, 2001).

The experience of the United States in the 1990s does not contradict the results of Feldstein and Horioka (1980). According to them, a significant correlation between domestic savings and investment existed in the past. In fact, the savings rate of private households declined, which ran counter to the investment boom during that time (see Figure 1). Nevertheless, Figure 2 showed an increase in macroeconomic savings for several years. Furthermore, the United States realised a powerful capital account surplus. Capital imports exceeded capital exports by far, making it possible to finance the investment boom despite the shrinking savings rate of the private households. High growth rates and good domestic business conditions made the United States an attractive location for international investors. On the other hand, despite high German savings rates, investment in Germany remained static because of unsolved structural problems.

In the course of weak world-wide economic growth in recent years, the focus turned back on possible risks of the huge US capital account surplus. A reduction of the corresponding large current account deficit may well trigger declining investment as long as the savings rate stays low. Surveys of the last four decades have come to the result that US capital and current accounts have always been balanced by an adjustment of investment (Olivei, 2000). In this case, the low savings rate limits long-term investment possibilities and therefore potential growth. In Germany, high savings rates should permit a strong increase of domestic investment, if the general business framework can be improved by fundamental reforms.

References

- Davis, Morris A./Palumbo Michael G., 2001, "A Primer on the Economics and Time Series Econometrics of Wealth Effects", Federal Reserve Board, Finance and Economics Discussion Series, No. 2001-09, Washington D.C.
- Deutsche Bundesbank, 1996, "The long-term trends in and the determinants of private consumption in Germany", *Monthly Report*, Vol. 48, No. 7, pp. 17-29.
- Deutsche Bundesbank, 1999, "Income, saving and capital formation in the nineties: results of the new ESA '95," *Monthly Report*, Vol. 51, No. 12, pp. 51-65.
- Deutsche Bundesbank, 2003, "Overall financial flows in 2002," *Monthly Report*, Vol. 55, No. 6, pp. 29-49.
- Doshi, Kokila, 1994, "Determinants of the Saving Rate: An International Comparison", *Contemporary Economic Policy*, Vol. 12, 37-45.
- Feldstein, Martin/Horioka, Charles, 1980, "Domestic Saving and International Capital Flows", *The Economic Journal*, Vol. 90, 314-329.
- Hussain, Mumtaz/Brookins, Oscar T., 2001, "On the Determinants of National Saving: An Extreme-Bounds Analysis", *Weltwirtschaftliches Archiv*, Vol. 137, 150-174.
- Kauffmann, Barbara, 1988, "Zum Sparverhalten der privaten Haushalte in der Bundesrepublik Deutschland und in den Vereinigten Staaten", *Die Weltwirtschaft*, No. 2, 53-62.
- Milleker, David F., 2002, "America's Savings Renaissance?", Dresdner Bank (ed.), *USA Update*, April, Frankfurt am Main.
- Ohmayer, Ernst, 1997, "Das Sparverhalten im internationalen Vergleich", *ifo Studien zur Finanzpolitik* 64, München.
- Olivei, Giovanni P., 2000, "The Role of Savings and Investment in Balancing the Current Account: Some Empirical Evidence from the United States", *New England Economic Review*, July/August, 3-14.
- Organisation for Economic Co-Operation and Development (OECD), 2003a, *Economic Outlook*, Paris.
- Organisation for Economic Co-Operation and Development (OECD), 2003b, *Main Economic Indicators*, Paris.
- Organisation for Economic Co-Operation and Development (OECD), 2003c, *National Accounts of OECD Countries. Detailed Tables*, Paris.
- Peach, Richard/Steindel, Charles, 2000, "A Nation of Spendthrifts? An Analysis of Trends in Personal and Gross Saving", in: Federal Reserve Bank of New York, *Current Issues in Economics and Finance*, Vol. 6, No. 10, 1-6.
- Perozek, Maria G./Reinsdorf, Marshall B., 2002, "Alternative Measures of Personal Saving", Bureau of Economic Analysis, *Survey of Current Business*, Vol. 82, No. 4, 13-24.
- Sherman, Heidemarie C., 1999, "Die amerikanische Sparquote sinkt auf Null", *ifo Schnelldienst*, Vol. 52, No. 8, 10-17.