

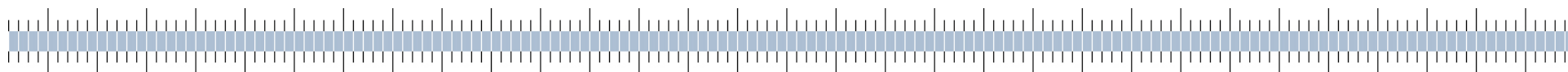
Part II

The compilation of integrated sectoral balance sheets in Germany and their use for economic analysis

Marc Peter Radke

Monetary Policy and Analysis Division
Deutsche Bundesbank

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1. Background information and starting point



- There is growing importance of wealth in economic analysis (example: IMF's balance-sheet-approach to macroprudential surveillance, IMF worldwide project on Financial Soundness Indicators)
- Growing importance of wealth in economic analysis leads to growing need for sectoral and overall balance sheet data; moreover, the European System of Accounts (ESA 1995) makes explicit provision both for sectoral balance sheets and for the economy as a whole
- In Germany, the construction of sectoral and overall balance sheet based on ESA 1995 has not been possible until recently since the Federal Statistical Office's fixed assets accounts and the Bundesbank's financial accounts were hitherto mutually incompatible
- However, the introduction of complete fixed assets accounts by the Federal Statistical Office in autumn 2007 led to a closure of the information gap regarding produced non-financial assets

1. Background information and starting point (cont'd)



- Moreover, the Bundesbank has supplemented the sectoral fixed assets accounts by the introduction of new sectoral building land accounts (land underlying dwellings and other buildings and structures)
- Consequently, the combination of the Federal Statistical Office's new sectoral fixed assets accounts, the Bundesbank's financial accounts and the Bundesbank's new sectoral building land accounts has allowed for the introduction of the

New integrated sectoral and overall wealth accounts, i.e. the compilation of integrated sectoral and overall non-financial and financial balance sheets according to ESA 1995

(See Deutsche Bundesbank, Integrated sectoral and overall balance sheets for Germany, Monthly Report, January 2008)

2. Methodological aspects of the integrated wealth accounts



- Definition of a “balance sheet” according to ESA 1995:

“A balance sheet is a statement, drawn up at a particular point in time, of the values of assets owned and of liabilities outstanding. The balancing item is called net worth.

The stock of the assets and liabilities recorded in the balance sheet is valued at the market prices prevailing on the date to which the balance sheet relates.”
- ESA 1995 provides for the compilation of balance sheets for
 1. the four domestic sectors:
 - non-financial corporations
 - financial corporations
 - general government
 - households including non-profit institutions serving households (NPISH)
 2. the total economy
 3. the rest of the world (mirror image of the total economy balance sheet’s financial assets and liabilities vis-à-vis the rest of the world)

2.1 Specific aspects of sectoral balance sheets (cont'd)



- Components of own funds and borrowed funds of the different domestic sectors

1. non-financial and financial corporations:

own funds = shares and other equity + net worth

borrowed funds = liabilities – shares and other equity

Note:

net worth = “self-financing component” of own funds (predominantly accumulated retained earnings (savings) and holding gains)

shares and other equity = “equity financing component” of own funds (accumulated issuances of quoted and unquoted equity)

2. general government and households including NPISH:

own funds = net worth

borrowed funds = liabilities

2.2 Specific aspects of the total economy balance sheet



- The total economy balance sheet is calculated by consolidating the balance sheets of all domestic sectors (netting out of sectoral domestic financial assets and liabilities)
- The total economy balance sheet comprises aggregated non-financial assets of all domestic sectors and financial assets and liabilities vis-à-vis the rest of the world
- Net worth of the total economy balance sheet is called “national wealth”

3. Data basis for the integrated wealth accounts

(1) Fixed assets accounts (German Federal Statistical Office)

(2) Financial accounts (Deutsche Bundesbank)

- Compilation of sectoral and overall stocks and flows of financial asset and liabilities for the period from 1991 to 2007 on an annual and quarterly basis according to ESA 1995; compilation of sectoral and overall financial balance sheets
- Majority of tradable stocks of items securities other than shares, shares and other equity, and monetary gold and SDRs are principally valued at market prices
- Non-tradable financial assets and liabilities, as e.g. items loans and currency and deposits, are shown at nominal, book or fair value

(3) Statistics on building land (Deutsche Bundesbank)

- Bundesbank has made estimates on the basis of two statistics (Bodenfläche nach Art der tatsächlichen Nutzung, Kaufwerte für Bauland) of the Federal Statistical Office of the overall and the sectoral market values of the stocks of building land corresponding approximately to ESA 1995 item land underlying buildings and structures
- Sectoral and overall estimates of the market values of building land were broken down into land underlying dwellings and land underlying other buildings and structures

3. Data basis for the integrated wealth accounts (cont'd)



Summary on the data basis

Assets	Households (including NPISH)	Liabilities
Non-financial assets Fixed assets Land underlying buildings and structures	Borrowed funds Loans Other accounts payable	
Financial assets Currency and deposits Securities other than shares Loans Shares and other equity Insurance technical reserves Other accounts receivable	Own funds Net worth	

Assets	General government	Liabilities
Non-financial assets Fixed assets Land underlying buildings and structures	Borrowed funds Currency and deposits Securities other than shares Loans Insurance technical reserves Other accounts payable	
Financial assets Currency and deposits Securities other than shares Loans Shares and other equity Insurance technical reserves Other accounts receivable	Own funds Net worth	

Assets	Total economy	Liabilities
Non-financial assets Fixed assets Land underlying buildings and structures	Financial assets vis-à-vis the rest of the world Monetary gold and SDRs Currency and deposits Securities other than shares Loans Shares and other equity Insurance technical reserves Other accounts receivable	Liabilities vis-à-vis the rest of the world Currency and deposits Securities other than shares Loans Insurance technical reserves Other accounts payable Shares and other equity
		National wealth Net worth

Assets	Non-financial corporations	Liabilities
Non-financial assets Fixed assets Land underlying buildings and structures	Borrowed funds Securities other than shares Loans Insurance technical reserves Other accounts payable	
Financial assets Currency and deposits Securities other than shares Loans Shares and other equity Insurance technical reserves Other accounts receivable	Own funds Shares and other equity Net worth	

Assets	Financial corporations	Liabilities
Non-financial assets Fixed assets Land underlying buildings and structures	Borrowed funds Currency and deposits Securities other than shares Loans Insurance technical reserves Other accounts payable	
Financial assets Monetary gold and SDRs Currency and deposits Securities other than shares Loans Shares and other equity Insurance technical reserves Other accounts receivable	Own funds Shares and other equity Net worth	

Caption:

Fixed assets accounts (German Federal Statistical Office); net stock of fixed assets valued at replacement costs

Financial Accounts (Deutsche Bundesbank); tradable financial assets and liabilities primarily valued at market values; non-tradable financial assets and liabilities valued at fair, book and nominal values

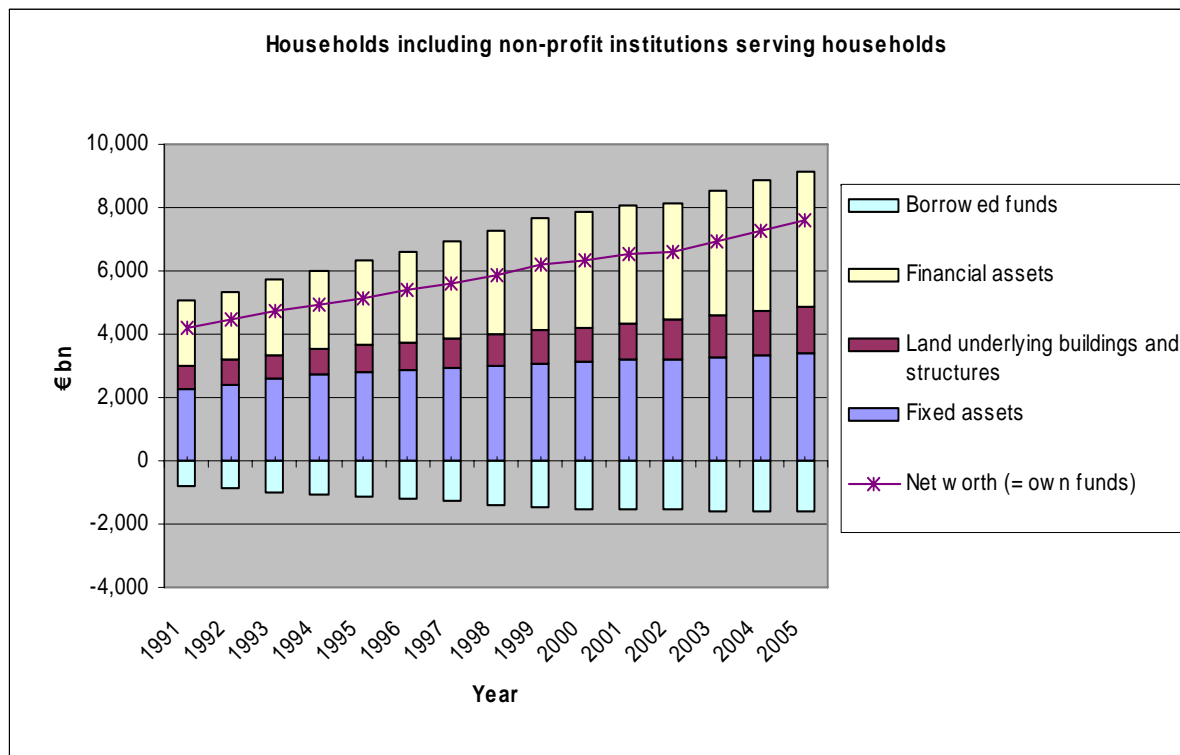
Statistics on building land (Deutsche Bundesbank); estimates valued at market prices

Compiled as residual

4. Results of the integrated wealth accounts

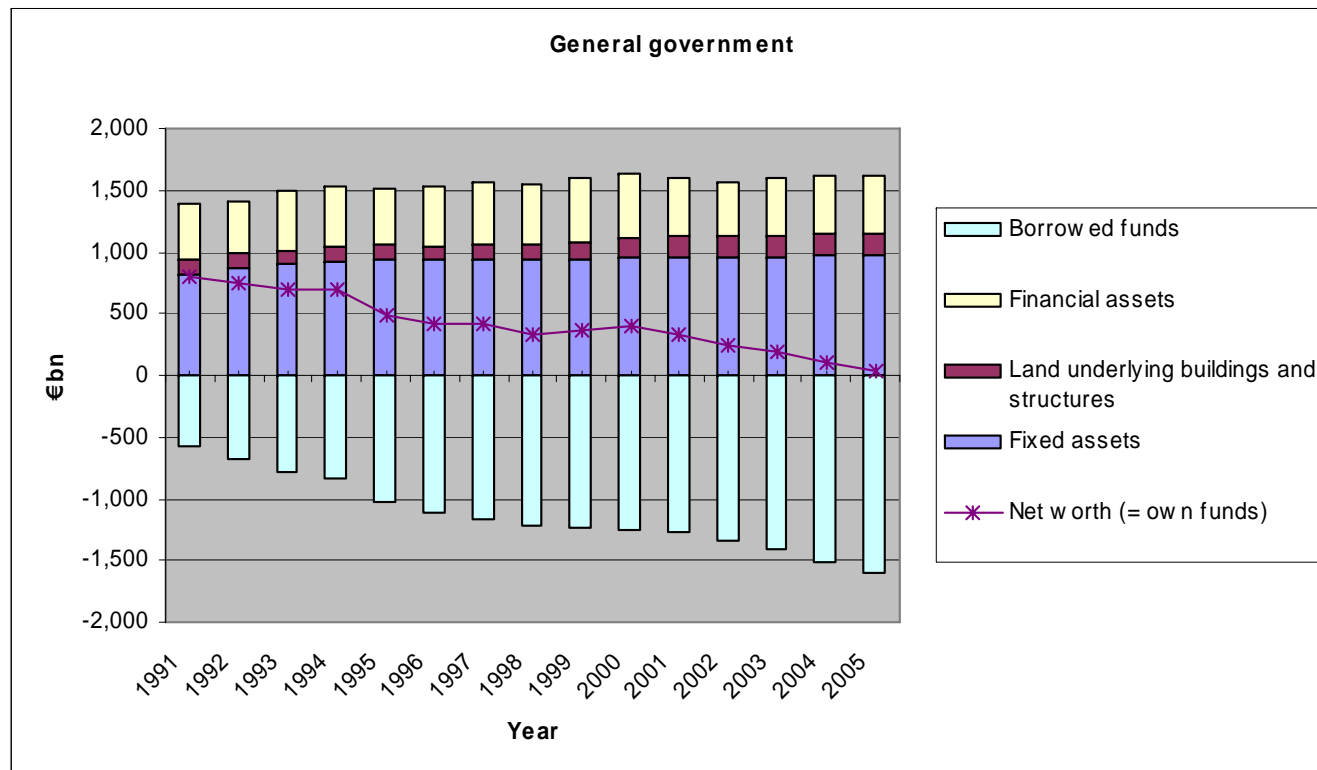
4.1 Households including NPISH

- Steady increase in net worth; peak of nearly €7.6 trillion in 2005; corresponds to net worth per household of around €200,000 in 2005; at the end of 2005, non-financial assets reached almost €4.9 trillion, financial assets €4.3 trillion, and borrowed funds almost €1.6 trillion
- Increase in net worth since 1991 by €3.4 trillion corresponding to a nominal y-o-y growth rate of roughly 4.5%; increase in net worth from 1991 to 2005 was due to a €1.8 trillion increase in non-financial assets, a €2.3 trillion increase in financial assets, and a €740 billion increase in borrowed funds



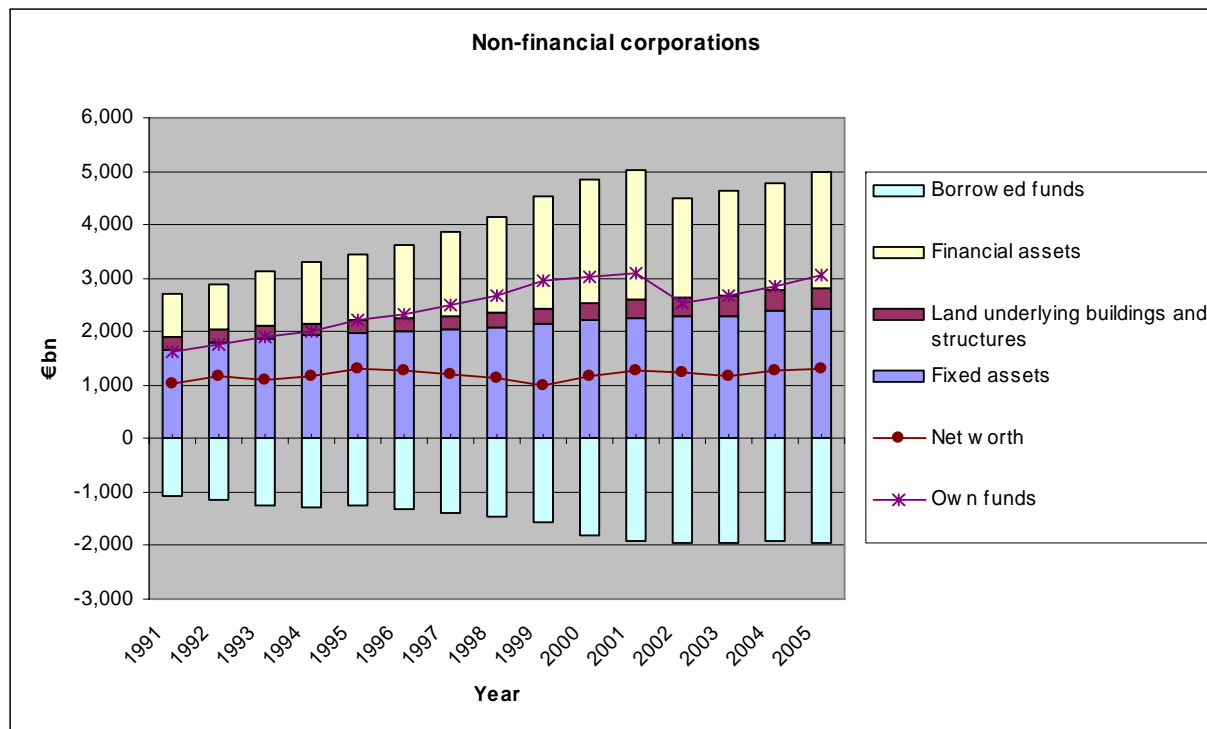
- Stock market slump in 2001 and 2002 caused a y-o-y fall in 2002 in financial assets for the first time mainly due to losses in item shares and other equity; however, equity markets and therefore financial assets recovered quickly in the following period
- Development of borrowed funds was subdued during the last third of the reporting period due to slowdown in construction of owner-occupied housing

4.2 General government



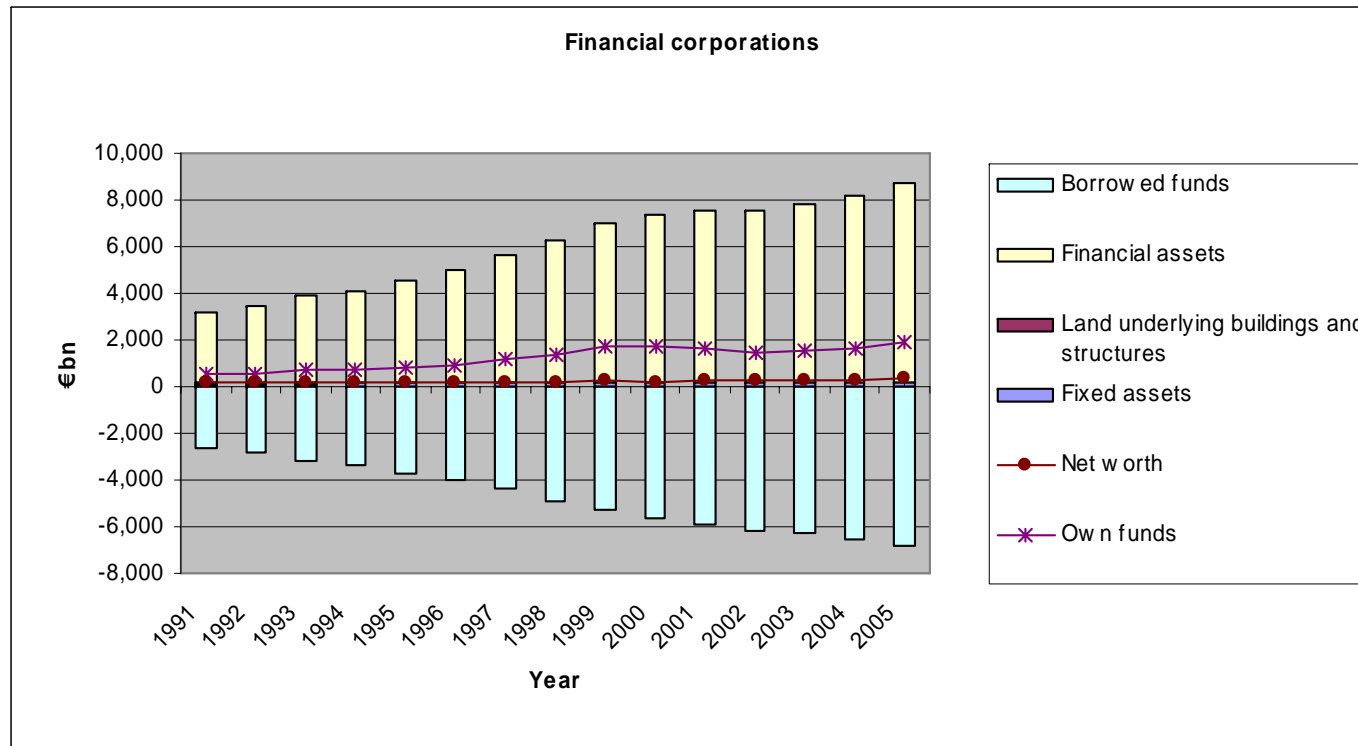
- Sharp decline in net worth during the reporting period; caused by increase in borrowed funds which was not accompanied by matching build-up of non-financial and financial assets
- However, interpretation of general government's net worth should be carried out with caution due to understatement of market value of non-financial assets being more relevant than in other sectors; key parts of non-financial assets in the form of undeveloped land (forest, agricultural areas) and subsoil assets and water resources are not taken into account due to lacking statistical information

4.3 Non-financial corporations



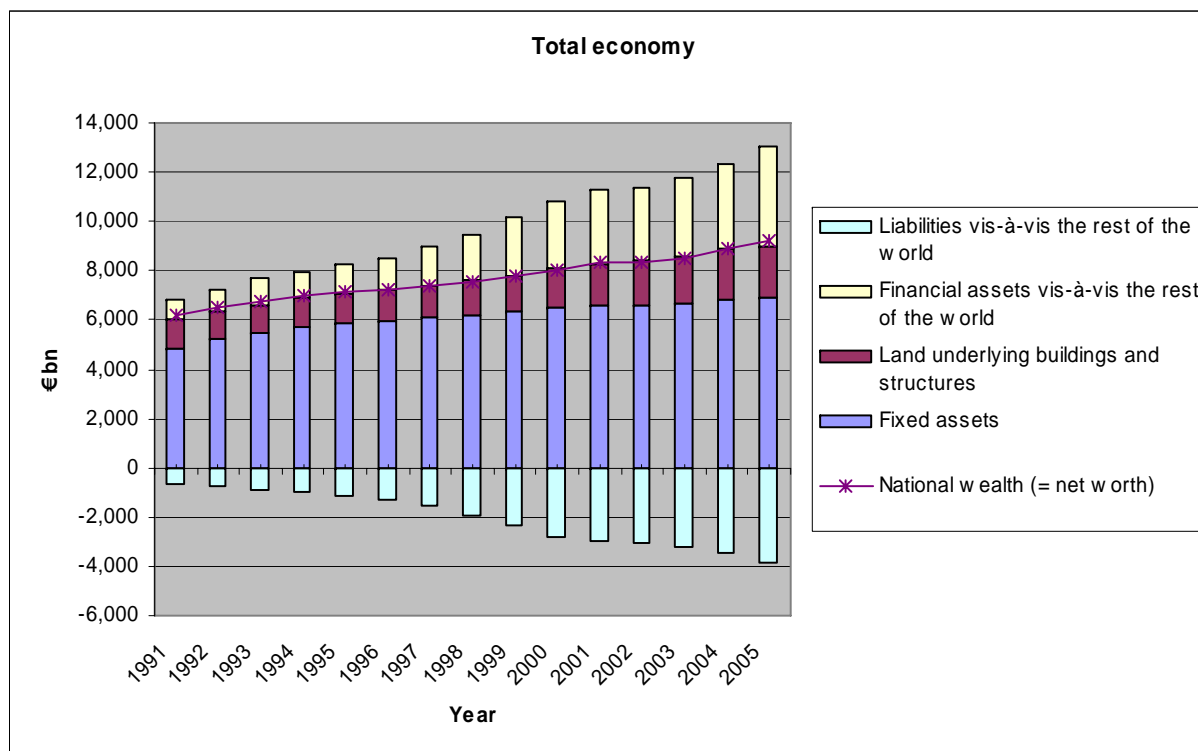
- Own funds were heavily influenced by stock market developments (item shares and other equity on the liabilities side) throughout the reporting period; however, though stock market slump caused a reduction in own funds of about €565 billion in 2002, there was and accumulated increase own funds of more than €1.4 trillion during the reporting period which stood at more than €3 trillion at the end of 2005
- NFCs invested heavily both in non-financial and financial assets which stood at €2.8 trillion and €2.2 trillion in 2005, respectively; investment in financial assets was more dynamic than investment in non-financial assets (increase in non-financial assets of €900 billion vs. increase in financial assets of almost €1.4 trillion from 1991 to 2005) which was mainly due to NFCs forging ahead with external corporate growth at home and abroad; such activities are often associated with higher borrowing and new issuances of equity; increase in borrowed funds of nearly €840 billion which was lower than issuance and valuation gains in shares and other equity of more than €1.1 trillion throughout the reporting period

4.4 Financial corporations



- Own funds were also heavily influenced by stock market developments; strong increase in shares and other equity from 1991 to 1999 due to valuation gains; reversal in own funds from 2000 to 2002, but afterwards strong rebound to new peak of almost €1.9 trillion in 2005; increase in own funds of about €1.4 trillion from 1991 to 2005 mainly due to growth in shares and other equity; development of net worth was more muted
- Little importance of non-financial assets amounting to just under €200 billion in 2005; financial assets and borrowed funds stood at €8.5 trillion and €6.8 trillion in 2005, respectively

4.5 Total economy

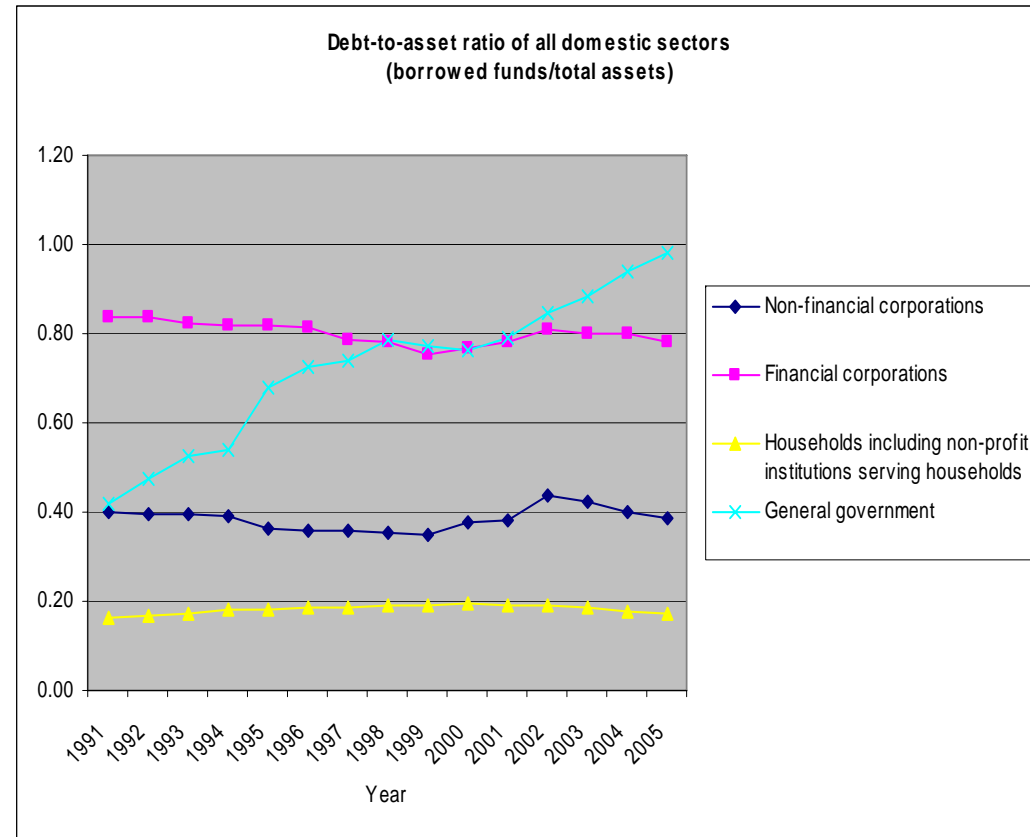


- In 2005, Germany's financial assets and liabilities vis-à-vis the rest of the world amounted to €4 trillion and €3.8 trillion, respectively, resulting in a net creditor position which amounted to €200 billion being relatively small in comparison with the total stock of non-financial assets which stood at around €9 trillion; consequently, national wealth which reached a peak of more than €9.2 trillion in 2005 consisted mostly of non-financial assets
- National wealth performed a steady increase of about €3 trillion during the reporting period which was almost solely due to an increase in non-financial assets; the most important items among non-financial assets were dwellings and other buildings and structures which amounted to nearly two-thirds throughout the reporting period; the share of land underlying buildings and structures amounted to roughly one-fifths of total non-financial assets

5. Application I: Financial Stability Indicators

5.1 Debt-to-asset ratio

- Debt-to-asset ratio provides information on leverage in relation to total assets; an increase/decrease can indicate an increased/decreased risk of insolvencies within the respective sector in the case of real and/or financial shocks
- Regarding levels, households including NPISH recorded lowest leverage; non-financial corporations' leverage was twice as high as households' leverage; financial corporations' leverage was twice as high as non-financial corporations' leverage; in contrast to the sideways motion of leverage of the private sectors, the public sector's leverage was characterised by a marked increase
- Households' leverage showed only marginal volatility; significant increase in general government's leverage was caused by sharp rise in borrowed funds whereas assets increased only slightly



- Decrease of corporations' leverage from 1991 to 2000 was caused by significant rise in financial assets due to dot-com-boom (especially item shares and other equity on assets side); subsequent rise until 2002 was caused by burst of stock market bubble which induced a reduction in financial assets, and by an contemporaneous significant rise in borrowed funds; decline in corporations' leverage since 2003 was mainly due to recovery of stock markets and valuation gains of item shares and other equity (assets side)

6. Application II: Breakdown of changes in own funds and net worth



6.1 Definitions and principles

- Breakdown provides important information on the weights of the determinants of the sectoral own funds and net worth positions over time
- Breakdown of changes in net worth according to ESA 1995:

$$\begin{aligned} \Delta \text{ net worth}_t &= \text{ net saving}_t \\ &\quad + \text{ net capital transfers}_t \text{ (rec.-pay.)} \\ &\quad + \text{ net nominal holding gains}_t \text{ (gains – losses)} \end{aligned}$$

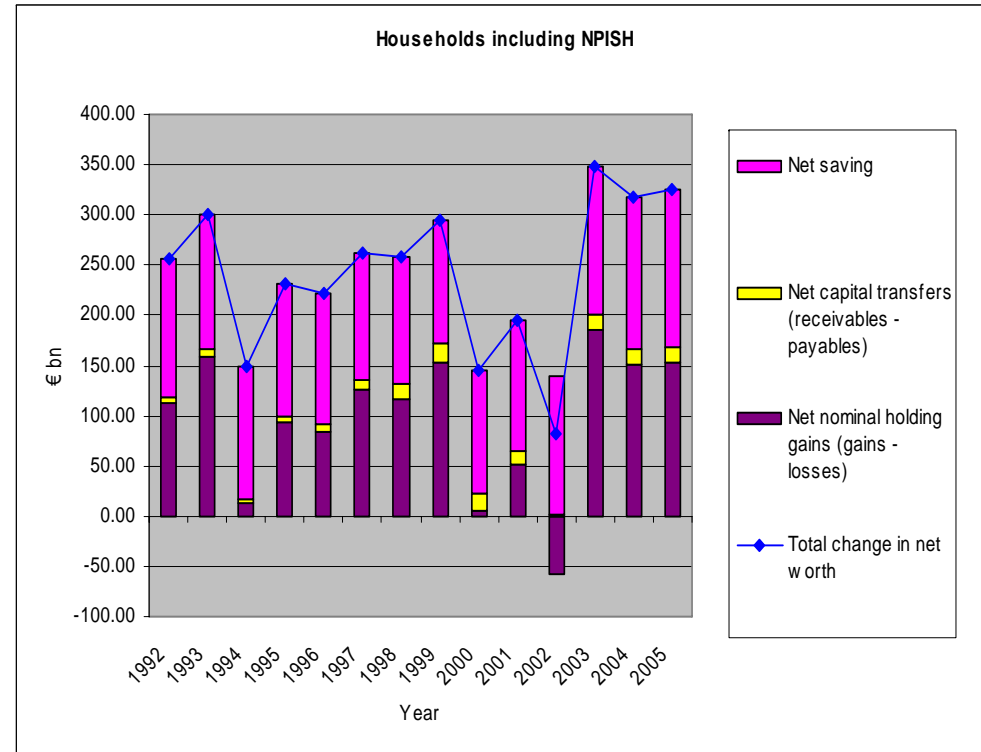
Note: Other changes in volume of assets neglected

- Breakdown of changes in own funds of non-financial and financial corporations:

$$\begin{aligned} \Delta \text{ own funds}_t &= \Delta \text{ net worth}_t \\ &\quad + \text{ net issuance of shares and other equity}_t \text{ (gross issuance – redemption)} \\ &\quad + \text{ nominal holding gains/losses of item shares and other equity}_t \text{ (liabilities side)} \end{aligned}$$

6.2 Changes in net worth of households including NPISH

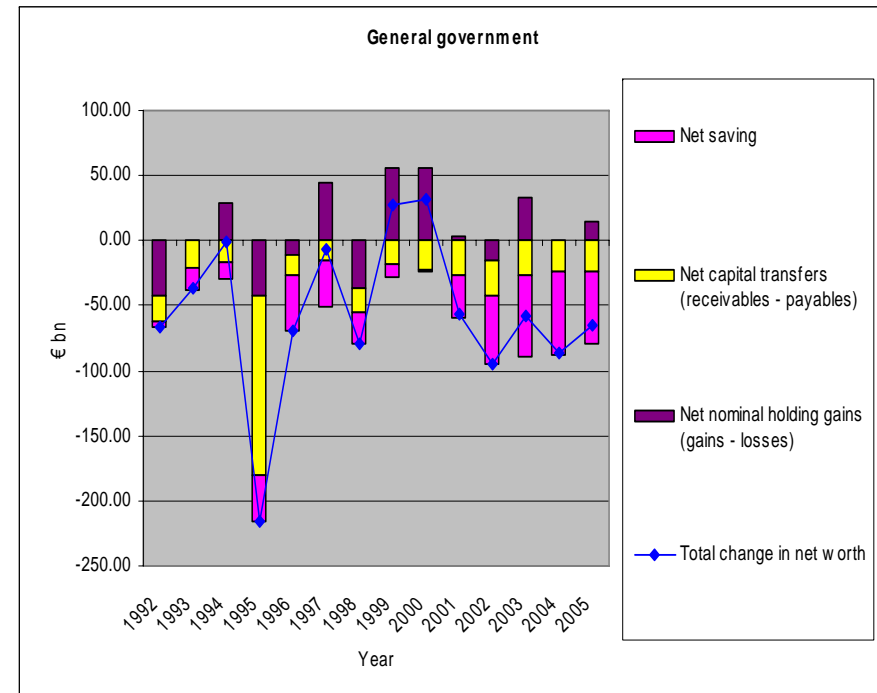
- Net saving did not change very much in absolute terms and ranged between €125 billion and €155 billion throughout the reporting period
- Net capital transfers moved within a range of €1 billion and €15 billion and played only a minor role
- Significant fluctuations in net holding gains in absolute terms which ranged from -€58 billion (in 2002) to €185 billion (in 2003); fluctuations in holding gains mainly caused by fluctuations in equity markets which induced revaluations of item shares and other equity
- Annual total changes in net worth in absolute terms were positive throughout the reporting period; in 1994 and in the period from 2000 to 2002, the increase in net worth was comparatively low caused by low or even negative net holding gains due to the slump in equity markets
- Respecting the shares of the cumulated sums of the different components in the cumulated total change in net worth from 1992 to 2005, net saving accounted for more than 55% of the cumulated change in net worth which amounted to almost €3,4 trillion; net nominal holding gains had a share of almost 40% and net capital transfers' fraction stood at less than 5%.



	cumulated sums (1992-2005); € bn	shares in cumulated total change in net worth (1992-2005); percentages
Total change in net worth	3,385.62	100.000
Net saving	1,890.86	55.850
Net capital transfers (receivables - payables)	145.76	4.305
Net nominal holding gains (gains - losses)	1,349.00	39.845

6.3 Changes in net worth of general government

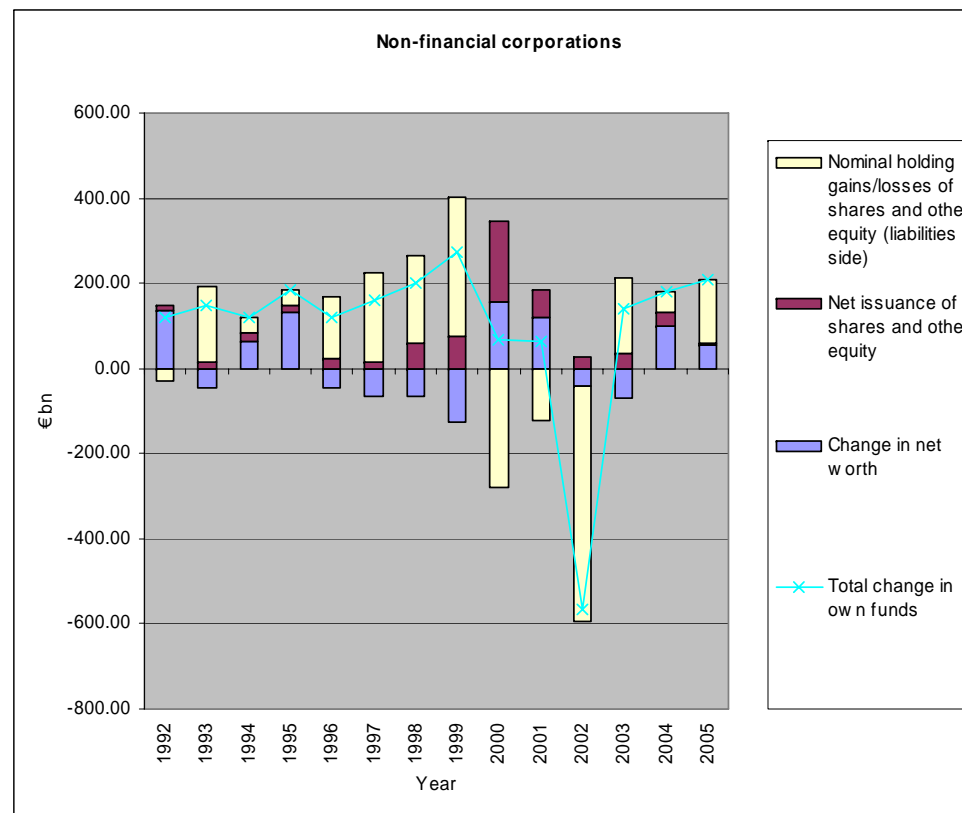
- Net saving, corresponding to current revenues less current expenditures, was negative throughout the reporting period ranging from -€2 billion (in 2000; extraordinary revenues from auctioning of UMTS licenses) to -€65 billion (in 2004)
- Net capital transfers moved within a range of -€15 billion to almost -€140 billion (in 1995; assumption of debt of the “Treuhandaanstalt” agency that privatized the East German enterprises owned as public property)
- Net holding gains in absolute terms were only of minor importance
- Annual total changes in net worth in absolute terms were negative throughout the reporting period - except for the years 1999 and 2000 - and led to a significant reduction in net worth
- Respecting the shares of the cumulated sums of the different components from 1992 to 2005 in the cumulated total changes in net worth, negative net savings accounted for more than 58% of the cumulated decrease in net worth which amounted to almost €800 billion; cumulated negative net capital transfers' share amounted to 53%; cumulated net holding gains were positive and led to a cutback of the cumulated decrease in net worth in the amount of almost €90 billion



	cumulated sums (1992-2005); € bn	shares in cumulated total change in net worth (1992-2005); percentages
Total change in net worth	-776.42	100.000
Net saving	-453.92	58.463
Net capital transfers (receivables - payables)	-412.35	53.109
Net nominal holding gains (gains - losses)	89.85	-11.573

6.4 Changes in own funds of non-financial corporations

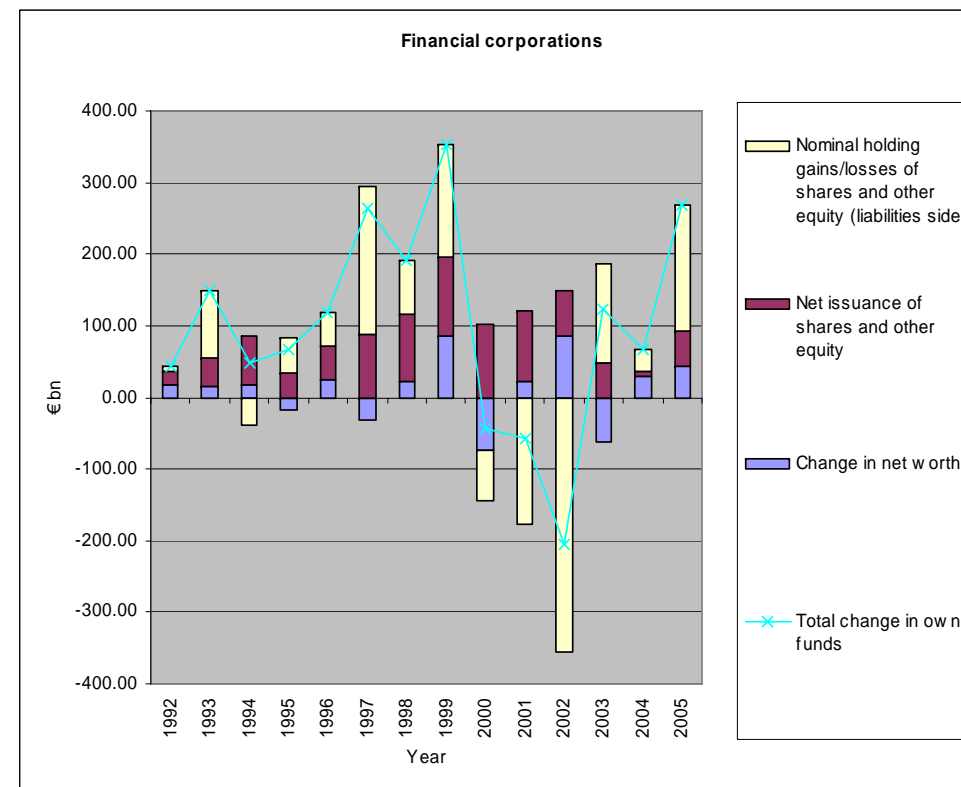
- Changes in net worth fluctuated between -€130 billion (in 1999) and €160 billion (in 2000) (changes were mainly driven by changes in net nominal holding gains)
- Net issuance of shares and other equity recorded a steady increase from 1992 (€12 billion) to 2000 (€190 billion); after the burst of the dot-com bubble, net issuance remained positive
- There were significant fluctuations in nominal holding gains/losses in shares and other equity (liabilities side) which ranged from €324 billion (in 1999) to -€550 billion (in 2002); fluctuations were caused by the boom-bust cycle in equity markets
- Annual total changes in own funds in absolute terms were positive throughout the reporting period except in 2002 due to an extraordinary holding loss in shares and other equity (liabilities side) in consequence of the burst of the dot-com bubble
- Respecting the shares of the cumulated sums of the different components in the cumulated total changes in own funds from 1992 to 2005, changes in net worth accounted for roughly 20% of the cumulated changes in own funds amounting to €1.4 trillion; net issuances of shares and other equity had a share of almost 42% and the fraction of nominal holding gains/losses stood at 37%



	cumulated sums (1992-2005), €bn	shares in cumulated total change in net worth (1992-2005); percentages
Total change in own funds	1422.32	100.00
Change in net worth	300.92	21.16
Net issuance of shares and other equity	592.81	41.68
Nominal holding gains/losses of shares and other equity	528.59	37.16

6.5 Changes in own funds of financial corporations

- Changes in net worth fluctuated between -€70 (in 2000) and €85 billion (in 2002) (changes were mainly driven by changes in net nominal holding gains)
- Net issuance of shares and other equity in absolute terms was significant during the entire reporting period ranging from €6 billion (in 2004) to €110 billion (in 1999)
- There were significant fluctuations in nominal holding gains/losses in shares and other equity (liabilities side) which ranged from €205 billion (in 1997) to -€355 billion (in 2002)
- Annual total changes in own funds in absolute terms were positive except in the period from 2000 to 2002 due to extraordinary nominal holding losses in the wake of the burst of the dot-com bubble
- Regarding the shares of the cumulated sums of the different components in the cumulated total changes in own funds from 1992 to 2005, changes in net worth accounted for roughly 13% of the cumulated changes in own funds amounting to almost €1.4 trillion; net issuances of shares and other equity had a share of almost 62% and the fraction of nominal holding gains/losses stood at almost 25%



	cumulated sums (1992-2005), € bn	shares in cumulated total change in net worth (1992-2005); percentages
Total change in own funds	1383.04	100.00
Change in net worth	182.04	13.16
Net issuance of shares and other equity	864.14	62.48
Nominal holding gains/losses of shares and other equity	336.86	24.36

7. Limitations of the integrated wealth accounts

- Bundesbank's statistics on building land is largely based on estimates, though being founded on a solid theoretical approach
- Valuations of building land areas are based on price information for new land for building development and therefore ignore possible price differences with regard to land which has already been built on; consequently, market values for building land are to be considered as a lower limit
- Coverage of wealth according to ESA 1995 is incomplete since not all components of non-financial assets, such as inventories, valuables, undeveloped land, subsoil assets and water resources are captured
- However, despite these caveats, the new integrated wealth accounts are a good coverage of wealth from an economic perspective