QUARTERLY EURO AREA AND EUROPEAN UNION ACCOUNTS FOR INSTITUTIONAL SECTORS (EUROPEAN SECTOR ACCOUNTS)

I. Introduction

The European Central Bank (ECB) and Eurostat are for the first time publishing quarterly euro area and European Union (EU)[1] accounts for institutional sectors (the European sector accounts), covering the period from the first quarter of 1999 to the fourth quarter of 2006.[2] This first release will be followed by regular quarterly releases, which will be published four months after the reference quarter for the time being.

Macroeconomic developments, such as economic growth and inflation, are driven by the actions of the individual economic subjects in an economy. Grouping economic subjects with similar behaviour into institutional sectors (households, non-financial corporations, financial corporations and government) greatly helps to understand the functioning of the economy.

The compilation of quarterly European sector accounts is the outcome of a close collaboration by Eurostat, the ECB, the national statistical institutes and the national central banks in the European Union.

This document explains the concepts underlying European sector accounts, which are based on the methodology of the European System of Accounts (ESA 95)[3], and presents recent macroeconomic and financial developments in the light of the new statistics. Section II outlines the basic features and concepts of the European sector accounts. Section III presents key results for the euro area and the EU, in particular the contributions of the institutional sectors to macroeconomic developments. The annexes: "From national to European sector accounts", "The sequence of accounts" and "Quarterly data in European accounts".

II. European sector accounts

European sector accounts present a complete and consistent set of data for all resident sectors. They provide comprehensive information not only on the economic activities of households, non-financial corporations, financial corporations and the government, but also

1 For all quarters the accounts refer to a euro area of 13 countries and an EU of 27 countries.

2 The euro area accounts are available at http://www.ecb.int/stats/acc/html/index.en.html and http://epp.eurostat.ec.europa.eu/pls/portal/url/page/PGP_DS_NA/PGE_DS_NA_01. Detailed figures for non-financial accounts of the European Union are only available on the website of Eurostat at the above address.

3 For more details, see: http://forum.europa.eu.int/irc/dsis/nfaccount/info/data/esa95/en/titelen.htm.

on the interactions between these sectors and the rest of the world. In addition, the euro area accounts link financial and non-financial statistics, thereby allowing for an integrated analysis of non-financial economic activities (such as gross fixed capital formation) and financial transactions (such as the issuance of debt). The euro area accounts also contain consistent financial balance sheets, with the result that quarterly changes in the financial wealth of each euro area sector can now be integrated into business cycle analysis.

1. Institutional sectors

The institutional sectors combine institutional units with broadly similar characteristics and behaviour: households and non-profit institutions serving households (NPISHs), non-financial corporations, financial corporations, and the government. Transactions with non-residents and the financial claims of residents on non-residents, or vice versa, are recorded in the "rest of the world" account.

The *households* sector comprises all households and includes household firms. These cover sole proprietorships and most partnerships that do not have an independent legal status. Therefore the households sector, in addition to consumption, also generates output and entrepreneurial income. In the European accounts, non-profit institutions serving households (NPISHs), such as charities and trade unions, are grouped with households. Their economic weight is relatively limited.

The *non-financial corporations* sector comprises all private and public corporate enterprises that produce goods or provide non-financial services to the market. Accordingly, the *government* sector excludes such public enterprises and comprises central, state (regional) and local government and social security funds. The *financial corporations* sector comprises all private and public entities engaged in financial intermediation such as monetary financial institutions (broadly equivalent to banks), investment funds, insurance corporations and pension funds.

Complete and consistent quarterly rest of the world accounts for the euro area and the EU have been compiled. This means that cross-border transactions and financial claims among euro area/EU Member States have been removed from the rest-of-the-world accounts and that, in particular, the asymmetries in the bilateral trade statistics have been eliminated. Consequently, imports and exports are much smaller than they would have been if a simple aggregation of the national data had been used; about half of the external trade of the individual Member States is within the euro area/EU.

2. From production to borrowing and lending

European sector accounts record, in principle, every transaction between economic subjects during a certain period and show as well the opening and closing stocks of financial assets and liabilities in financial balance sheets. The transactions are grouped into various categories that have a distinct economic meaning, such as 'compensation of employees' (comprising wages and salaries, before taxes and social contributions are deducted, and social contributions paid by the employers). In turn, these categories of transactions are shown in a sequence of accounts, each of which covers a specific economic process. This ranges from production, income generation and income (re)distribution, through the use of income, for consumption and saving, and the investment, as shown in the capital account, to financial transactions such as borrowing and lending (see Annex 2). Each non-financial transaction is recorded as an increase in the "resources" of a certain sector and an increase in the "uses" of another sector. For instance, the resources side of the "interest" transaction category

records the amounts of interest receivable by the different sectors of the economy, whereas the uses side shows interest payable. For each type of transaction, total resources of all sectors and the rest of the world equal total uses. Each account leads to a meaningful balancing item, the value of which equals total resources minus total uses. Typically, such balancing items, such as GDP or net saving, are important economic indicators. They are carried over to the next account.

The *production* account records the output of goods and services as its main resource, to which taxes less subsidies on products are added to obtain total resources of the production account at market prices. The main use in the production account is "intermediate consumption" – such as the consumption of fuel within a production process. The difference between resources and uses is the balancing item "gross value added". This gross value added is then carried over as a resource to the subsequent set of accounts, the *generation and distribution of income* accounts, which eventually yield "disposable income" as a balancing item.[4] This conceptual and numerical inter-linkage of the accounts ensures the consistent derivation of key economic indicators. The link between the non-financial accounts and the financial accounts is established by the balancing item "net lending/net borrowing", which can be derived both from the final non-financial account (capital account) and from the financial transactions account. "Net lending/net borrowing" is derived from the *capital* account by comparing "gross capital formation" (mainly investment in capital goods and software) plus the net acquisition of "non-produced, non-financial assets" (such as land or licences) with "gross saving" plus net "capital transfers" (such as an investment grant). If saving plus net capital transfers received exceeds non-financial investment, a sector has a surplus of funds and becomes a net lender to other sectors and/or the rest of the world. In the *financial transactions* account, this means that this sector acquires more financial assets than liabilities.

3. Financial balance sheets and changes other than transactions

The *financial balance sheets* show the financial position of all sectors, broken down into categories of financial assets and liabilities (such as deposits, loans and shares) valued at market prices, at a particular point in time. The financial balance sheets change as a result of a) the accumulated flows recorded in the financial transactions account and b) *other changes in assets*. The latter category mainly reflects revaluations due to changes in the market prices of financial instruments and also covers other "volume" changes, such as debt cancellations. The consistent derivation of holding gains and losses by sector and by financial instrument allows for comprehensive analyses into the effects of these changes on the economic behaviour, for instance of households and non-financial corporations.

III. Selected results

European sector accounts show detailed economic developments by institutional sector. At present, the accounts are only calculated at current prices (in nominal terms) and do not yet permit an analysis of volume changes such as economic growth or price developments (such as inflation).

The charts included in this section present some salient characteristics of the euro area/EU economy as a whole, as well as specific features of the households and non-financial corporations sectors.

[4] Concepts such as value added, income, saving and fixed capital formation can be measured in net or gross terms. The latter includes the consumption of fixed capital ("depreciation").

Data for the European Union are only presented when there is a limited impact of exchange rate movements of the euro against other European currencies.

Most of the charts analyse the contributions of components to the annual growth rate of an aggregate. Such annual growth rates are calculated as the percentage change of the item concerned between the reference quarter and the same quarter of the previous year, so that seasonal effects are eliminated. As a consequence, the growth rates for a given quarter in fact refer to the average change over the four previous quarters (see also Annex 3).

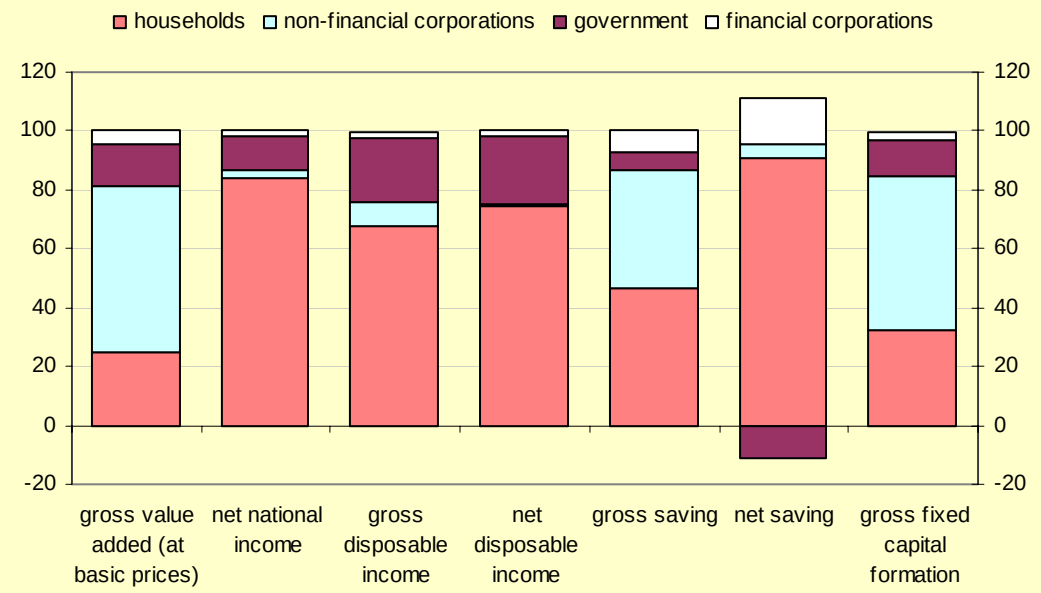
1. Overview of the relative economic importance of the institutional sectors

Chart 1.1 shows the structural shares of each institutional sector in several key economic indicators for the euro area. A chart for the European Union would reveal similar features.

Chart 1.1

Shares of sectors in key aggregates for the euro area, 1999 - 2006 average

(percentage of total)



Sources: ECB and Eurostat.

The biggest share of GDP originates in non-financial corporations (on average 57% in the period 1999-2006), while slightly less than one-quarter is generated by household production activities, including the imputed value of the services from owner-occupied dwellings. The government accounts for 14% of GDP. Most value added created in the corporate and government sectors is passed on to households in the form of wages, salaries and employers' social contributions. The dominant share of national income thus accrues to the household sector. Subsequently, this share is somewhat reduced by means of taxes, net social insurance payments and other transfers, which are largely paid to the government. This results into the disposable income, which is available for consumption or saving. Both households and government spend a large proportion of their disposable income on consumption. As a result, the share of households and government in saving is smaller and the share of financial and non-financial corporations is larger than their shares in disposable income. Net saving of the government is negative. For non-financial corporations, disposable income broadly equals their gross saving, which is broadly equivalent to retained earnings plus depreciation allowances in business accounting. Households and non-financial corporations undertake most of the gross fixed capital formation (32% and 53% respectively).

2. Contributions of each institutional sector to the macroeconomic developments

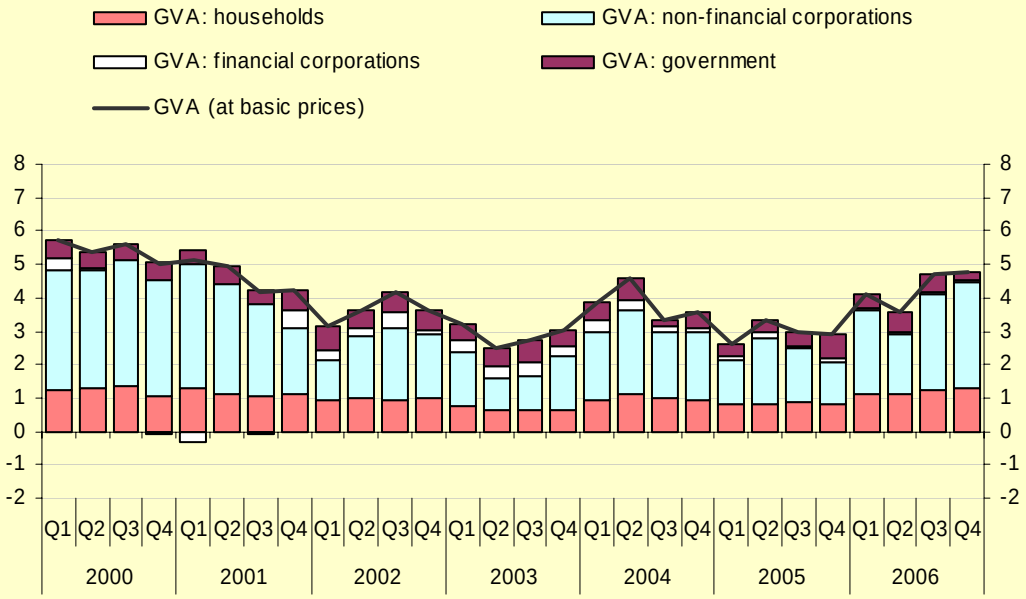
Chart 2.1 shows the contribution of each sector to the annual nominal growth rate of euro area gross value added (GVA) at basic prices (which is equal to GDP at market prices minus taxes plus subsidies on products). The gross value added of non-financial corporations delivers not only the largest contribution to GDP growth, but it is also quite volatile. The contribution of value added generated in the household sector fluctuates less, partly because of the stabilising influence of the imputed rent on owner-occupied dwellings. The contributions of the financial corporations and government sectors are rather small.

Although in the past year the growth of nominal euro area GDP has picked up from the trough between 2002 and the end of 2005, with the exception of an upswing in late 2003 and early 2004, it has not reached the growth rates of the beginning of this century.

Chart 2.1

Contributions of sectors to the growth of nominal gross value added in the euro area

(annual percentage change and percentage point contributions)



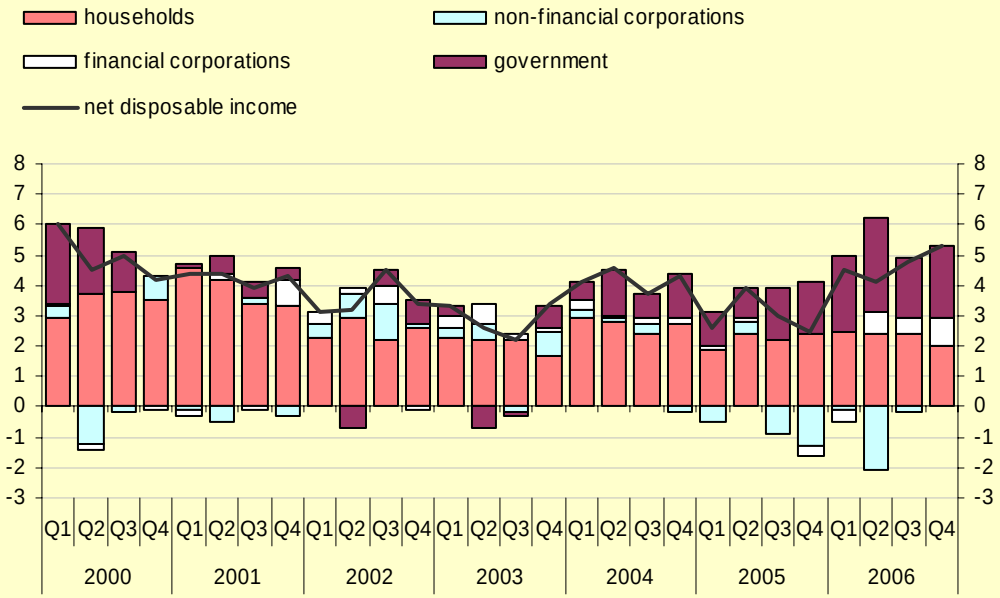
Sources: ECB and Eurostat.

Chart 2.2 shows that the contribution of the government sector to the growth of euro area net disposable income was generally higher in years with a higher overall growth rate, reflecting developments in tax earnings and changes in the balance of social security contributions and payments, such as unemployment insurance premiums and benefits. The contribution of households to the growth of disposable income was the highest at the beginning of the period shown in this chart.

Chart 2.2

Contributions of sectors to the growth of nominal net disposable income in the euro area

(annual percentage change and percentage point contributions)



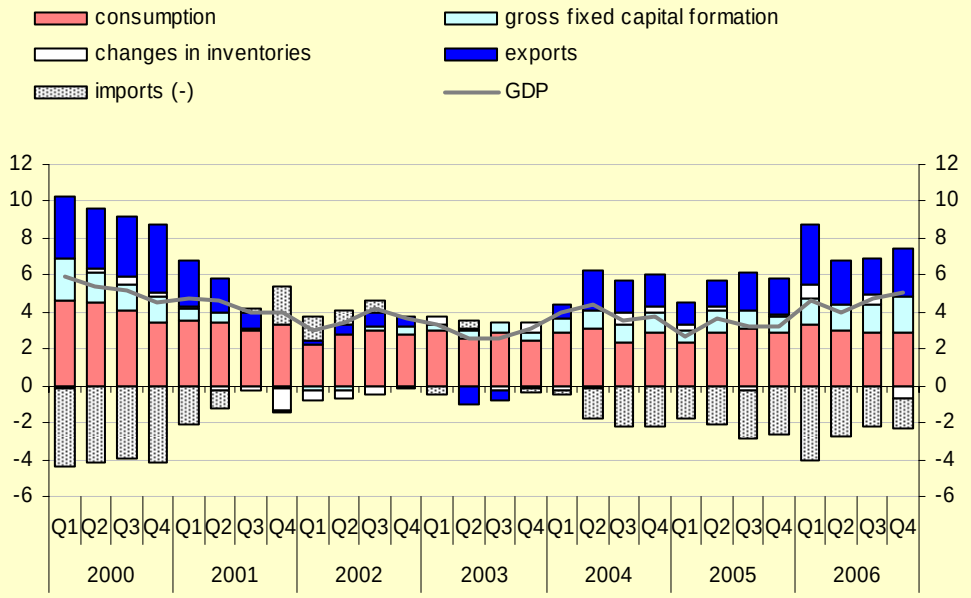
Sources: ECB and Eurostat.

Chart 2.3 presents the decomposition of euro area GDP growth rates by expenditure components. If domestic demand is fulfilled by imports, this implies less domestic production and thus a lower GDP. In turn, if imports decline, which happened in most of 2002, this provides a positive contribution to GDP growth. Consumption growth provides a relatively stable contribution to GDP growth, although it has been most buoyant at the beginning of this century. The contributions of investment (gross fixed capital formation) and changes in inventories fluctuate over the business cycle.

Chart 2.3

Contributions of expenditure components to the growth of nominal GDP in the euro area

(annual percentage change and percentage point contributions)

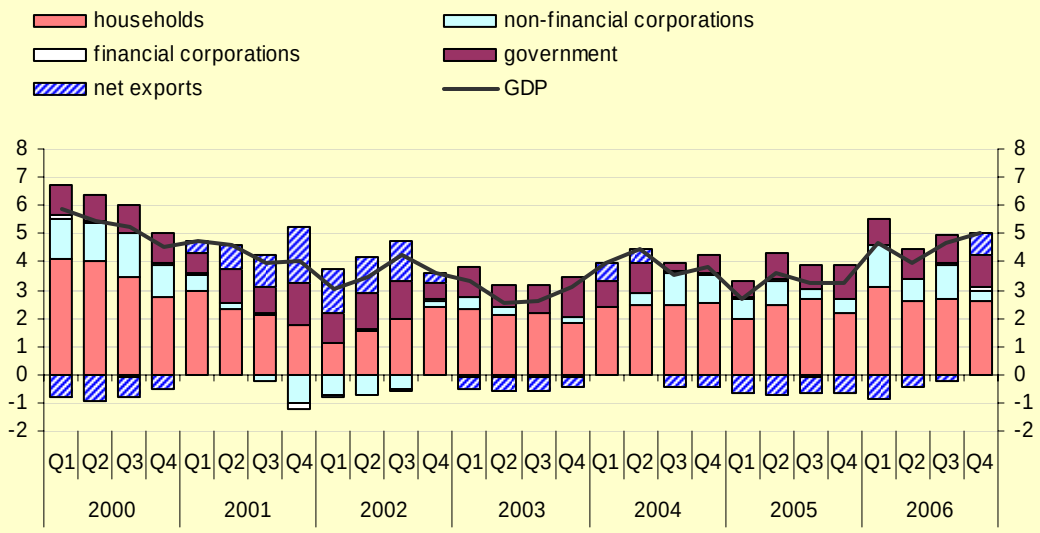


Sources: ECB and Eurostat.

Chart 2.4 shows the contributions of the individual sectors' total final expenditures (consumption and capital formation) to the growth rate of euro area GDP. The household sector contributes most (mainly through its final consumption). In most of 2002, the non-financial corporations reduced their investment and thus provided a negative contribution to GDP growth.

Chart 2.4

Contributions of expenditures by sector to the growth of nominal GDP in the euro area (annual percentage change and percentage point contributions)



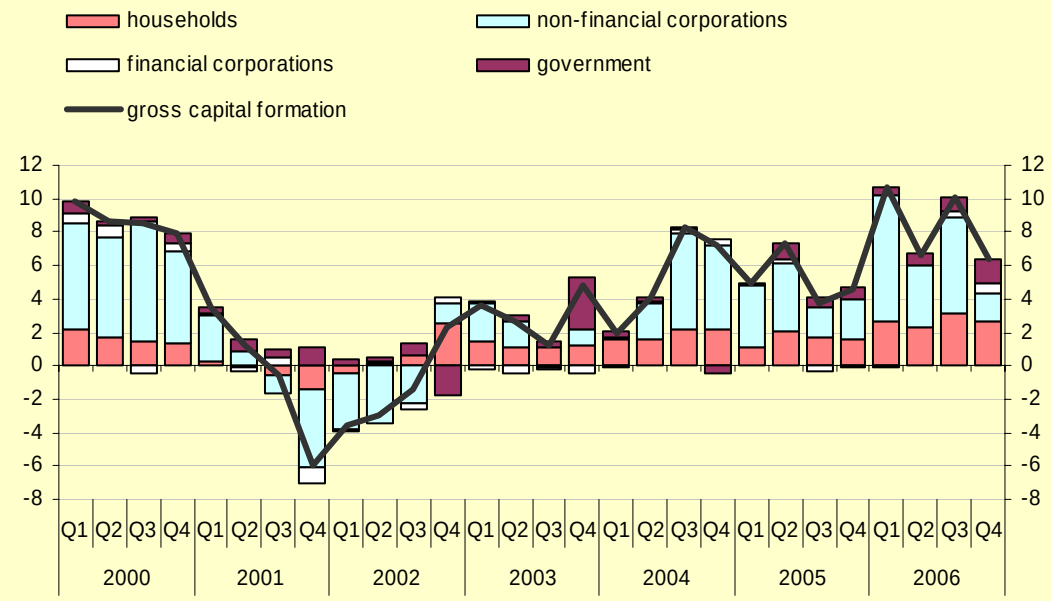
Sources: ECB and Eurostat.

The **growth rate of euro area capital formation** (in current prices) declined sharply between 2000 and 2001, became very negative by the end of 2001, and picked up again afterwards (see **Chart 2.5**). To a very large extent, this reflects developments in the non-financial corporations sector. The contribution of the households sector remained more stable and was positive in all quarters except at the junction between 2001 and 2002.

Chart 2.5

Contributions of sectors to the growth of nominal gross capital formation in the euro area

(annual percentage change and percentage point contributions)



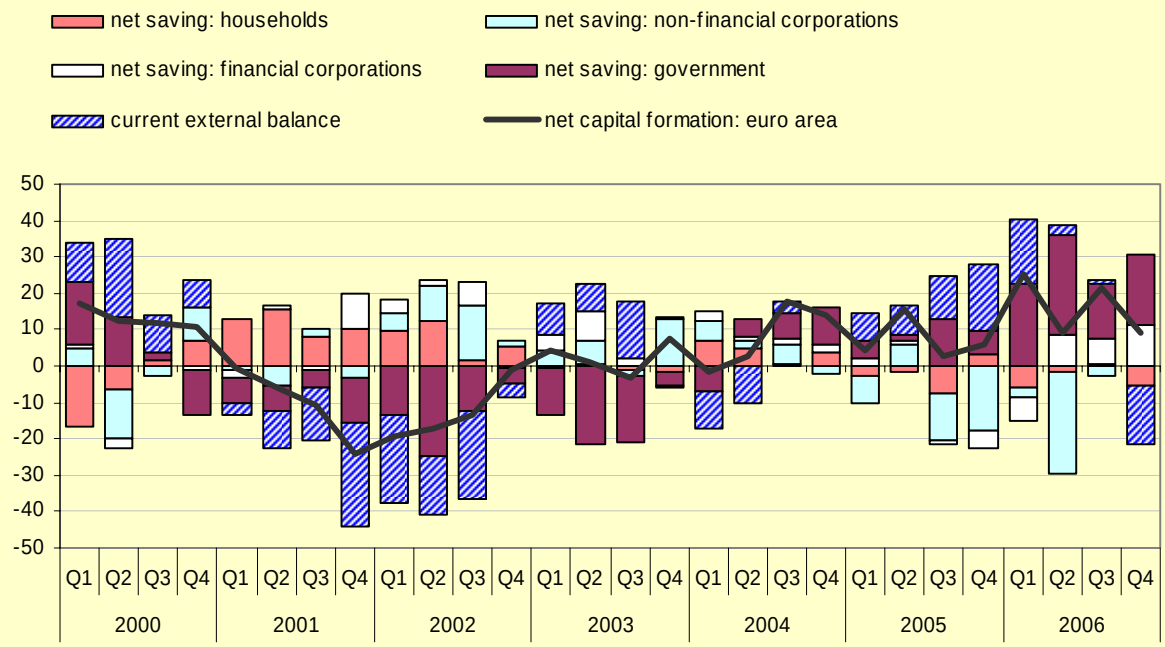
Sources: ECB and Eurostat.

Chart 2.6 shows the euro area saving-investment balance, specified by sector. The net capital formation[5] of an economy is financed by the net saving of the resident sectors and the rest of the world[6]. Until 2002, the net capital formation declined and government deficits widened while savings of households and corporations mostly increased. The euro area current account turned into surplus (shown as negative bars in the graph) with the excess of its saving financing investment abroad. As shown in Chart 2.3, the increased saving of households was associated with a sluggish development of their consumption, which, together with the decrease in the growth rate of capital formation, contributed to a lower growth of GDP observed during that period. At the beginning of 2003, the growth of net capital formation became again positive. In the course of 2005 and early 2006 growing euro area current account deficits contributed to an upswing in capital formation growth.

Chart 2.6

Contributions of net saving by sector to the growth of net capital formation in the euro area

(annual percentage change and percentage point contributions)



Sources: ECB and Eurostat.

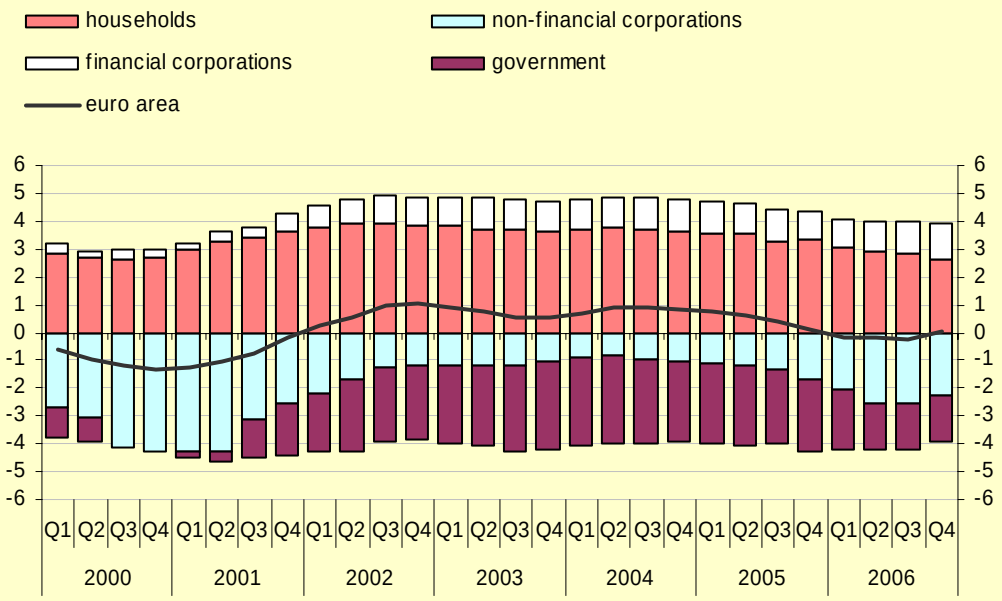
[5] Plus acquisitions less disposals of non-produced non-financial assets.

[6] In this graph, the current external balance is shown from the viewpoint of the rest of the world, i.e. a positive external balance means that the rest of the world has a surplus on its current account with the euro area and is thus financing the resident economy. Conversely, the euro area then has a deficit on its current account with the rest of the world.

The result of the different developments of investment and saving by sector can also be seen in **Chart 2.7.** The difference between savings plus net capital transfers on the one hand and gross capital formation[7] on the other hand is **net lending** (if positive) or **net borrowing** (if negative) of a sector. Net lending of households as a percentage of gross euro area disposable income increased in 2001, mostly related to a higher growth of household saving. The reduction in net borrowing by non-financial corporations in 2001 and 2002 was mostly related to the reduction in the growth rate of their gross fixed capital formation. At the same time, the government deficits widened (their net borrowing increased). The euro area economy became a net lender to the rest of the world until 2005. In 2005 and 2006, euro area consumption and investment again displayed higher growth rates, which also impacted import growth, and the saving ratio declined.

Chart 2.7

Contributions of sectors to the net lending (+) / net borrowing (-) of the euro area (as a percentage of gross disposable income, based on four-quarter-cumulated sums)



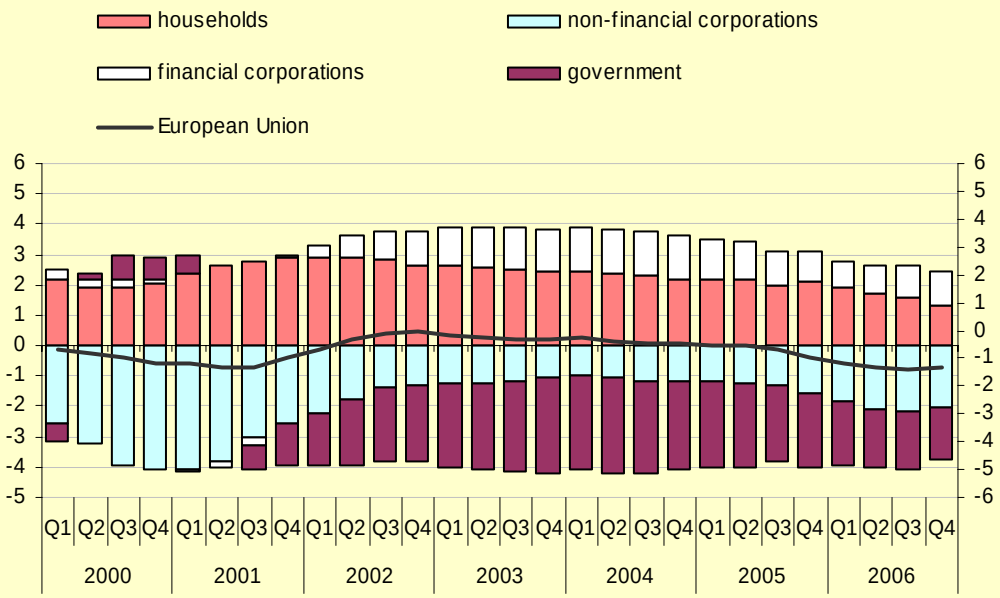
Sources: ECB and Eurostat.

[7] Plus acquisition less disposal of non-produced non-financial assets.

Contrary to the euro area, the European Union hardly got a net lending position over the period (see **Chart 2.8**). This was mainly caused by lower household savings. The latter started decreasing in 2002 already, whereas they were remaining high in the euro area. Net borrowing stabilized in the last quarter of 2006, at around 1.5% of the EU national disposable income.

Chart 2.8

Contributions of sectors to the net lending (+) / net borrowing (-) of the European Union (as a percentage of gross disposable income, based on four-quarter-cumulated sums)



Sources: ECB and Eurostat.

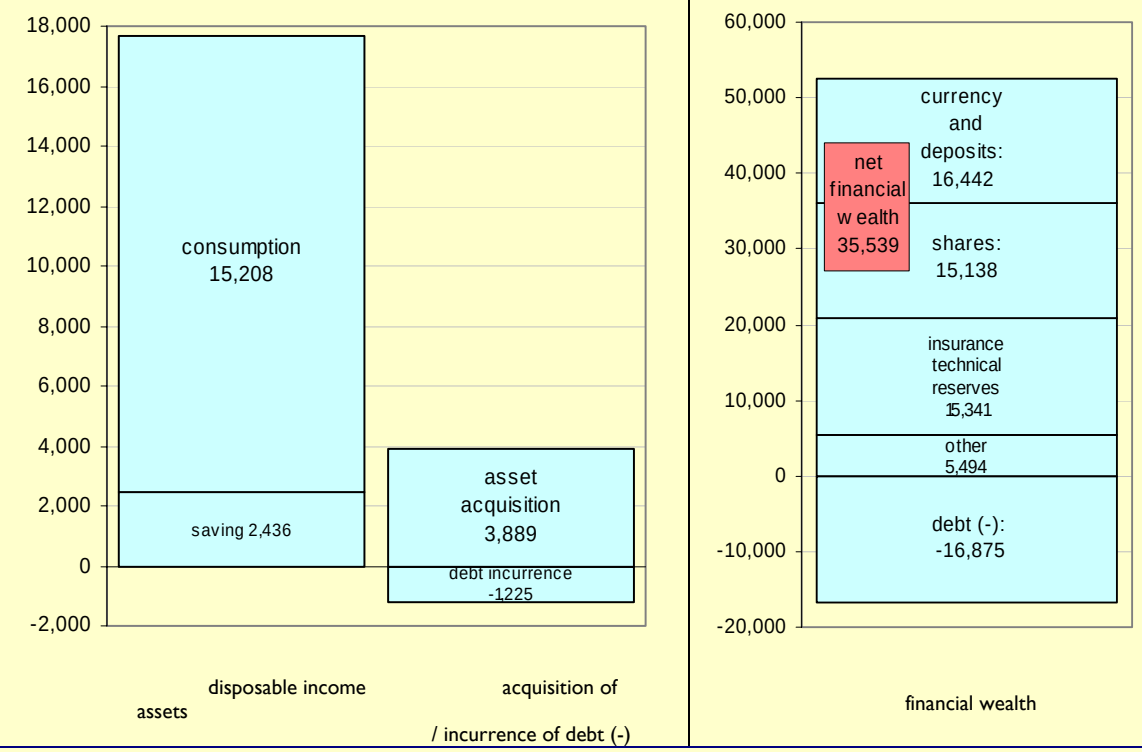
3. Households and non-profit institutions serving households (NPISH)

Chart 3.1 provides euro area household per-capita values for several main household indicators for the year 2006.[8] **Average gross disposable income** (plus net adjustment for the change in net equity of households in pension funds reserves) of households equalled €17,645 per euro area citizen. Of this income, €15,208 was **consumed** and €2436 was **saved** by each person on average. About ¾ of this saving (€1829 per person) was invested in non-financial assets, like dwellings, while the rest was lent to other sectors. This net lending broadly corresponded to a **financial investment** (increase in bank deposits, acquisition of shares, etc.) of about €2061 per person and an **incurrence of debt** of €1225 (for instance, by taking a mortgage loan for a house purchase).

At the end of 2006, the average net financial wealth of each euro area citizen amounted to about €35,539. This equals the outstanding amounts of households' financial assets (€52,414 per person) minus their liabilities (€16,875). The largest proportion of the households' financial assets has been invested in currency and deposits (€16,442 per capita) followed by shares, including the value of ownership rights in unquoted corporations (€15,138), and the value of their reserves with pension funds and life insurance corporations (€15,341). The value of the other financial assets such as debt securities and derivatives represent about €5,494 per person.

Chart 3.1 Per-capita disposable income, acquisition of assets and financial wealth of households in 2006 in the euro area

(based on four-quarter-cumulated sums) | (outstanding amounts)



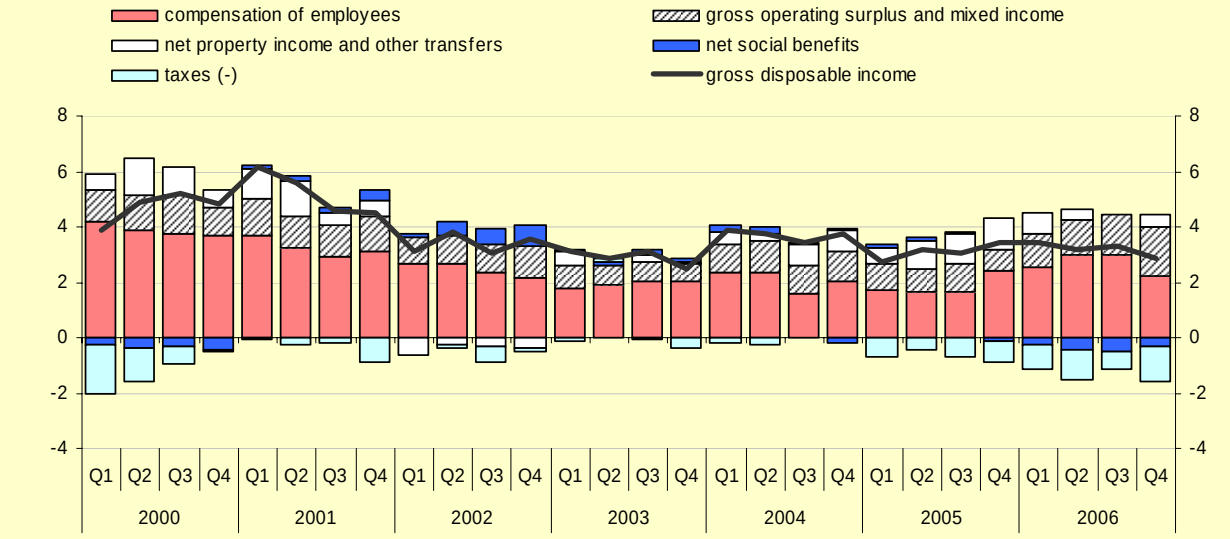
Sources: ECB and Eurostat.

[8] Source of population data: Eurostat ESA 95 Transmission programme.

Chart 3.2 shows the growth rate of euro area households' disposable income (in current prices), which accelerated through the first quarter of 2001, then declined through the first quarter of 2002 and remained roughly constant thereafter. The most important source of households' income growth is the growth of compensation of employees (that is, wages and salaries plus employers' social contributions). The contribution from gross operating surplus and mixed income (which accrues to self-employed households and home owners) was fairly stable during the years under review. Net receipts of property income and such (interest received minus interest paid, dividends, etc.) contributed to the high growth rates in the period 2000-2001 and weighed (negatively) on the low growth rate in 2002. During the downturn of 2001 and 2002, net social benefits (e.g. unemployment benefits received minus premiums paid) provided a positive contribution to gross disposable income of households. Taxes had a significant (negative) contribution during conjunctural upswings that is in 2000, 2005 and 2006.

Chart 3.2 Contributions of components to the growth of nominal gross disposable income of households in the euro area

(annual percentage change and percentage point contributions)



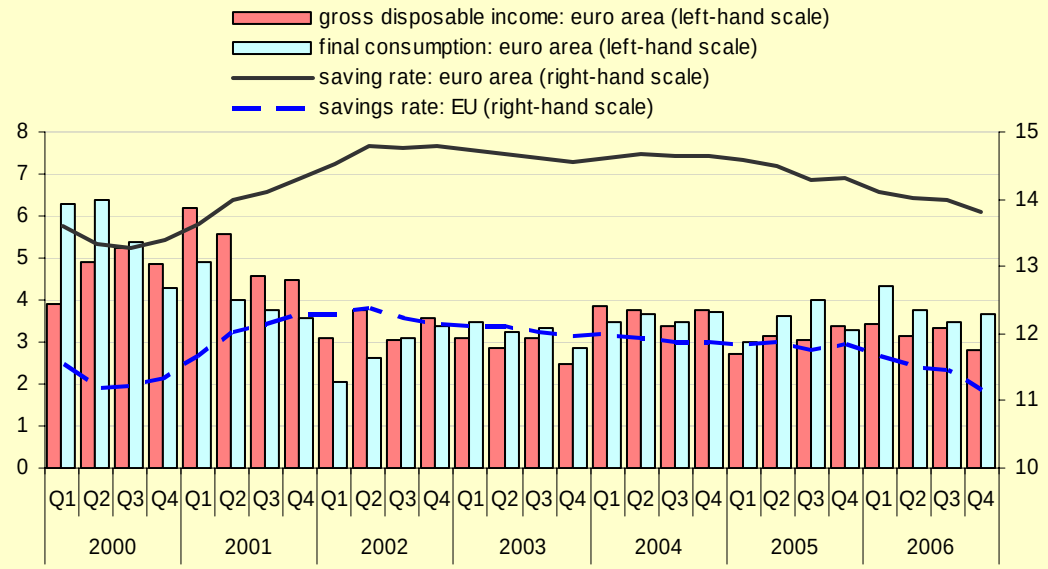
Sources: ECB and Eurostat.

Chart 3.3 shows the growth rate of euro area households' **gross disposable income** compared with that of their **consumption.** If the former surpasses the latter, the households saving rate increases. After a trough in 2000, the household saving rate reached a maximum in 2002 and has declined since 2005 in the euro area. Household saving rates were lower in the EU and they started decreasing in 2002 already.

Chart 3.3 Growth of nominal consumption and nominal gross disposable income of households[1)] and the saving rate[2)]

1) annual percentage change

2) percentage of gross disposable income (including net adjustment for the change in net equity of households in pension funds reserves), based on four-quarter-cumulated sums



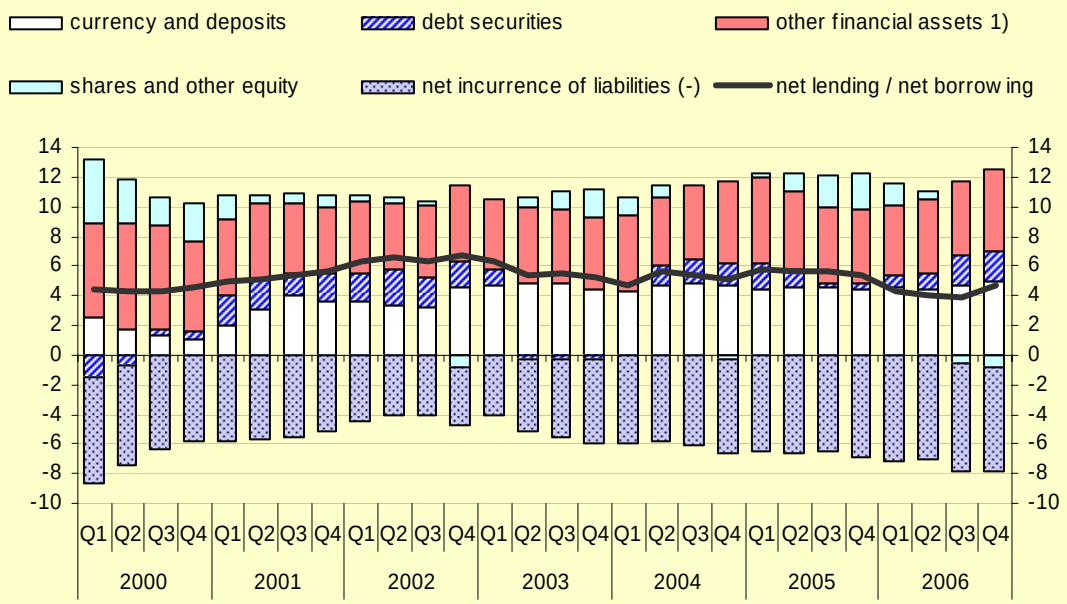
Sources: ECB and Eurostat.

Chart 3.4 shows the financial investment of euro area households by type of financial instrument, as well as their incurrence of loans and other liabilities. Net lending of households fluctuates between 4% and 7% of their disposable income, and their net acquisition of financial assets between 10% and 13%. Whereas in 1999 and 2000 shares and other equity, which includes mutual fund shares, attracted a sizeable proportion of household's financial investments, the importance of these financial instruments declined in 2001 while in 2002 households were net sellers of shares and other equity. Currency and deposits regained their traditionally larger share in 2001 and 2002. Investments in other financial assets, such as the increase in households' life insurance and pension fund reserves were much more stable.

Chart 3.4

Net acquisition of financial assets, net incurrence of liabilities and net lending / net borrowing of households in the euro area

(percentage of gross disposable income (including net adjustment for the change in net equity of households in pension funds reserves), based on four-quarter-cumulated sums)



Source: ECB.

1) Insurance technical reserves, financial derivatives, loans granted and other accounts receivable.

The households sector is by far the richest sector in the economy. Its wealth is composed of non-financial assets, mainly residential property, and net financial wealth. The latter equals the difference between the market value of their financial assets and their liabilities, such as mortgage loans. The financial wealth is presented in the financial balance sheets (**Chart 3.5**). At the end of 2006, the ***net financial wealth*** of euro area households was 11.5 trillion euro; this is close to 207% of their gross disposable income. A similar ratio had already been reached in 2000. Subsequently, their relative net financial wealth eroded to a low of 175%, mainly due to valuation losses on the stock markets. Another reason for the relatively slow increase in net financial wealth has been the comparatively fast growing indebtedness of households since 2003. At the same time household debt mostly serves to finance house purchases and the euro area housing wealth has not yet been incorporated in these accounts. While at the end of 2006 the overall ***indebtedness*** of the euro area household sector was about 97% of its gross disposable income, its ***financial wealth*** equalled almost 304%. As was also shown in Chart 3.1, this financial wealth was mainly invested in deposits, shares and other equity (including mutual funds shares), and pension fund and life insurance reserves.

Chart 3.5

Household financial assets, liabilities and net financial wealth in the euro area

(percentage of gross disposable income (including net adjustment for the change in net equity of households in pension funds reserves), based on four-quarter-cumulated sums)

Source: ECB

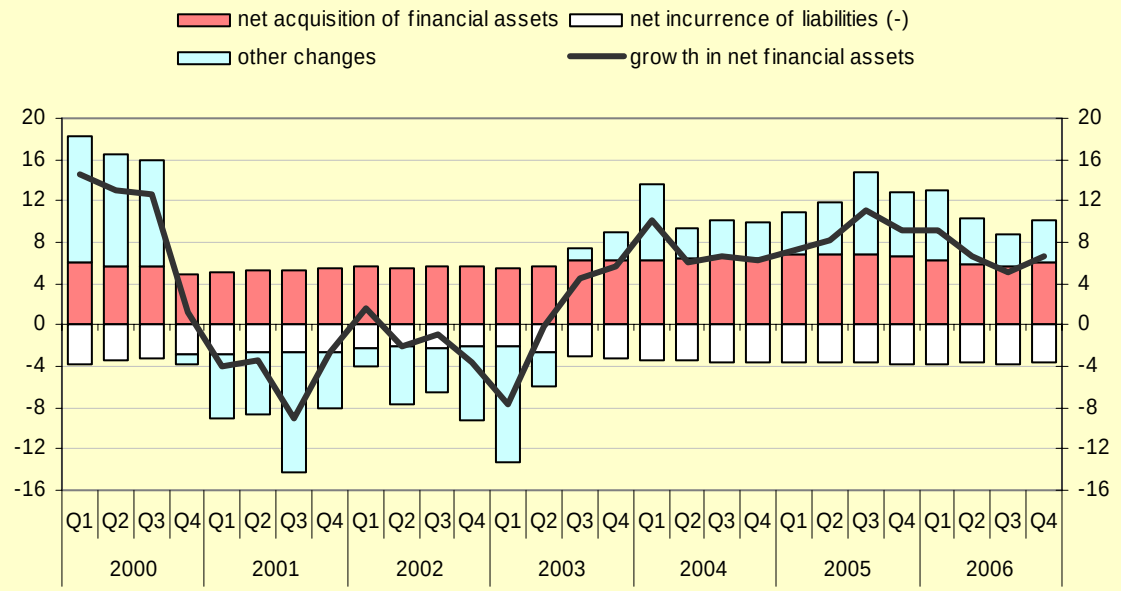
1) Insurance technical reserves, financial derivatives, loans granted and other accounts receivable.

The **changes in the net financial wealth** of euro area households are predominantly related to their net acquisitions of financial assets, their incurrence less redemption of loans, and changes in the prices of their financial assets (**Chart 3.6**). Between 2000 and 2006, the growth rates of the net financial wealth of euro area households fluctuated in particular because of the changes in share prices, while their net lending grew at a fairly stable pace.

Chart 3.6

Financial assets, liabilities and net financial wealth of households in the euro area

(annual growth rates and percentage point contributions)



Source: ECB

4. Non-financial corporations

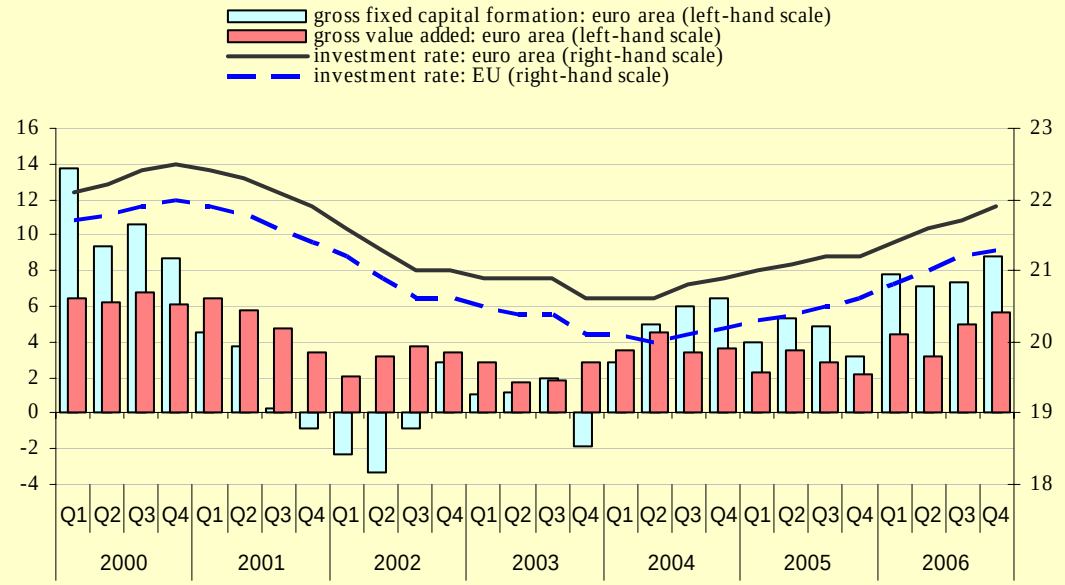
Chart 4.1 compares the growth of gross value added with that of investment in fixed assets (gross fixed capital formation) of the euro area non-financial corporations. The annual percentage change of investment started its decline already in 2000, before the slowdown in value added growth, and its fall was deeper. Only since, the second quarter of 2004 investment growth has remained above the growth in value added. This information can also be summarised in the gross **investment rate** defined as the gross fixed capital formation divided by the value added of non-financial corporations. Chart 4.1 shows that investment rates developed quite similarly for the euro area and the EU showing an increase since 2004 after the fall recorded in 2001 and 2002.[9]

Chart 4.1

Growth in gross fixed capital formation and gross value added by non-financial corporations[1)] and the investment rate[2)] in the euro area and in the European Union

1) annual percentage change

2) percentage of gross value added, based on four-quarter-cumulated sums



Sources: ECB and Eurostat

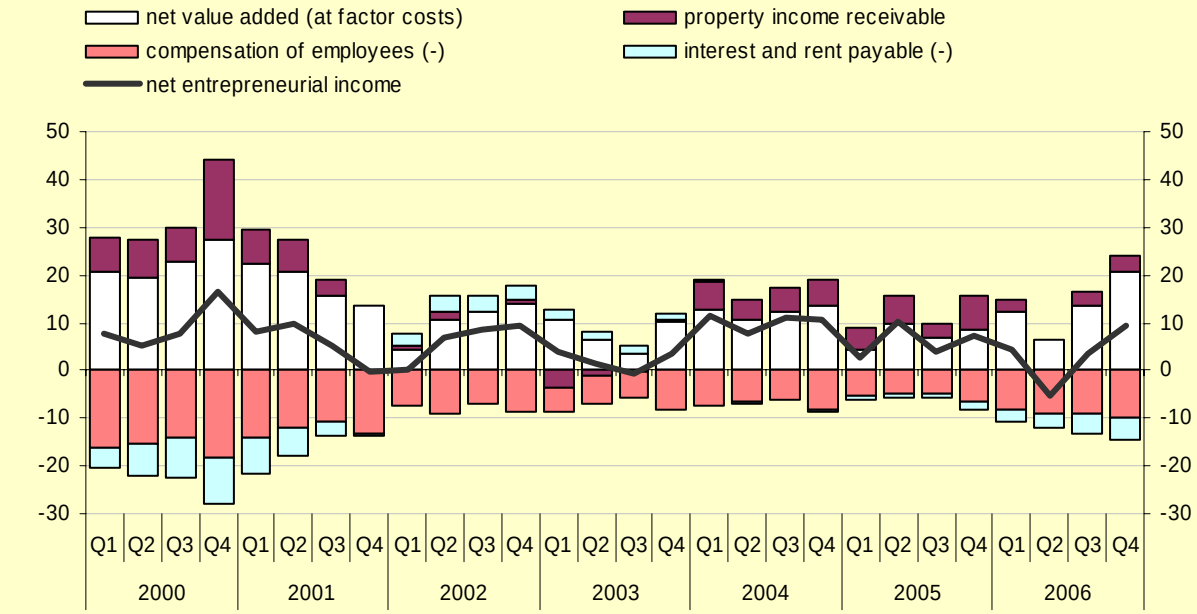
[9] For the EU an outlier has been removed in the second quarter of 2006.

Chart 4.2 depicts the growth of net entrepreneurial income[10] of non-financial corporations in the euro area. ***Net entrepreneurial income*** is a core macro-economic indicator for corporations, which approximates the concept of pre-tax corporate profits in business accounting. Income originating in production (i.e. value added) has been the main contributor to the growth of this aggregate. Property income receivable, which includes dividends and retained earnings from foreign direct investment, grew quite fast at the beginning of this century, but reinforced the slowdown in value added in 2001 and 2002. On the contrary, a reduction in interest and rent payable, especially in 2002 and 2003, supported entrepreneurial income growth during that period.

Chart 4.2

Contributions of components to the growth of net entrepreneurial income of non-financial corporations in the euro area

(annual percentage change and percentage point contributions)



Sources: ECB and Eurostat

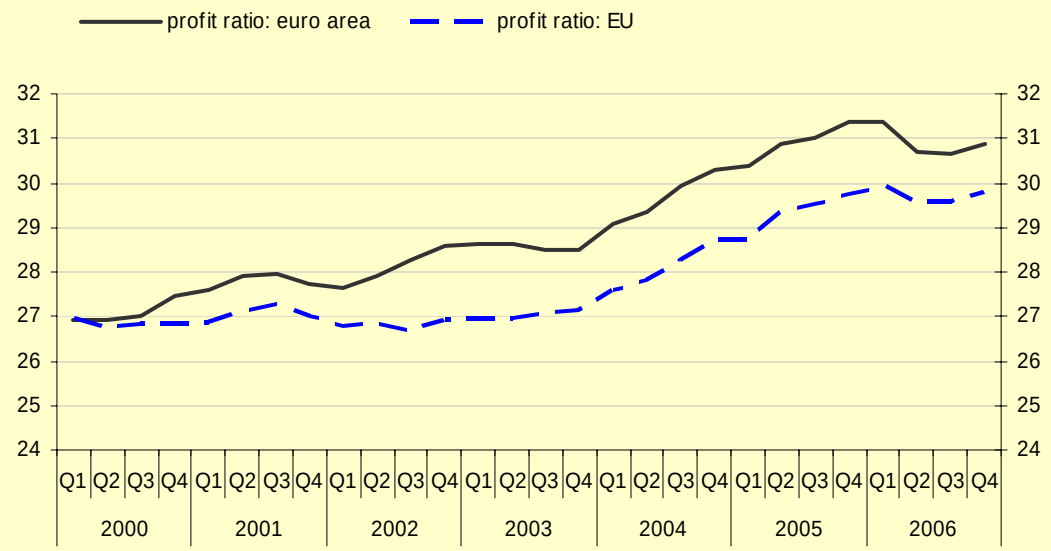
[10] Net entrepreneurial income equals net value added plus subsidies on production and property income receivable from financial assets owned by non-financial corporations (including profits of foreign subsidiaries), minus compensation of employees, taxes on production and imports, interest and (land) rents payable.

Chart 4.3 shows the development of net entrepreneurial income as a percentage of net value added for the euro area and the EU. Starting from identical levels in 2000, the profit ratio of the euro area started growing in 2001 already, creating a gap of one percentage point with the European Union. This gap remained almost unchanged during the increase observed since 2002 in both areas.

Chart 4.3

Profit ratio of non-financial corporations in the euro area and the European Union

(net entrepreneurial income as percentage of net value added, based on four-quarter-cumulated sums)



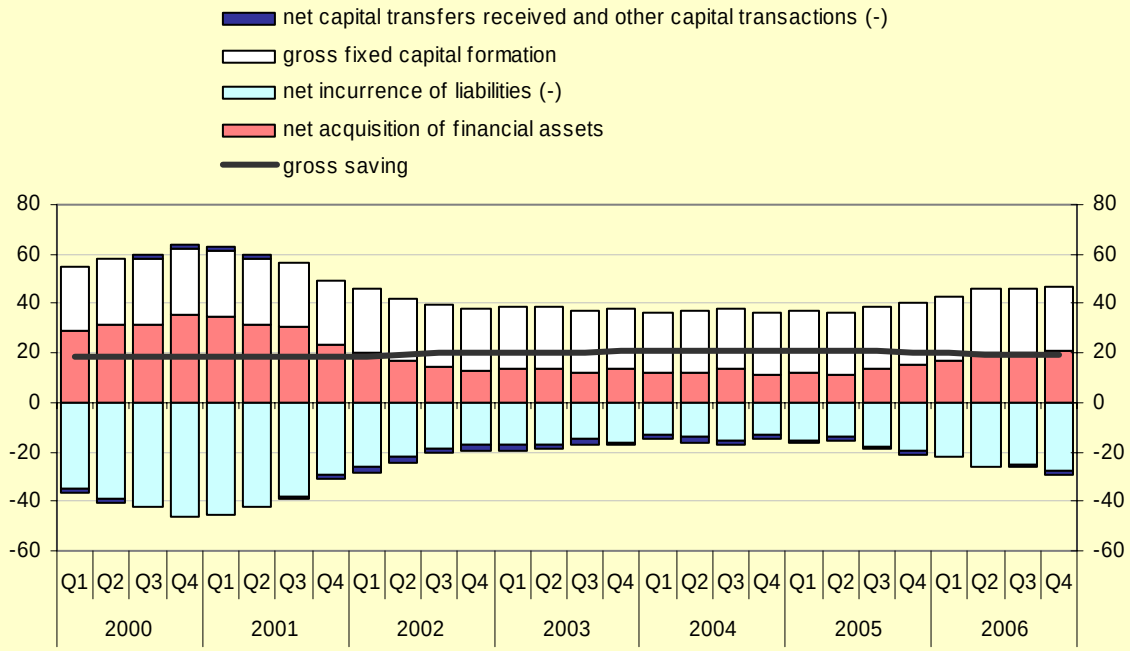
Sources: ECB and Eurostat

Non-financial corporations finance their (financial and non-financial) investment internally via gross saving (broadly equivalent to retained earnings plus depreciation allowances in business accounting) and externally via the net issuance of debt and equity (**Chart 4.4**). Between 1999 and 2001, euro area non-financial corporations were particularly active in mergers and acquisitions, at a time when the prices of shares and other equities were reaching a peak. This entailed a relatively large net acquisition of financial assets during this period. The subsequent subdued economic growth contributed to a substantial relative decrease in the borrowing of non-financial corporations. In 2005 non-financial and financial investment picked up again and so did external financing.

Chart 4.4

Gross saving, net acquisition of non-financial and financial assets and net incurrence of debt of non-financial corporations in the euro area

(percentage of net value added, based on four-quarter-cumulated sums)



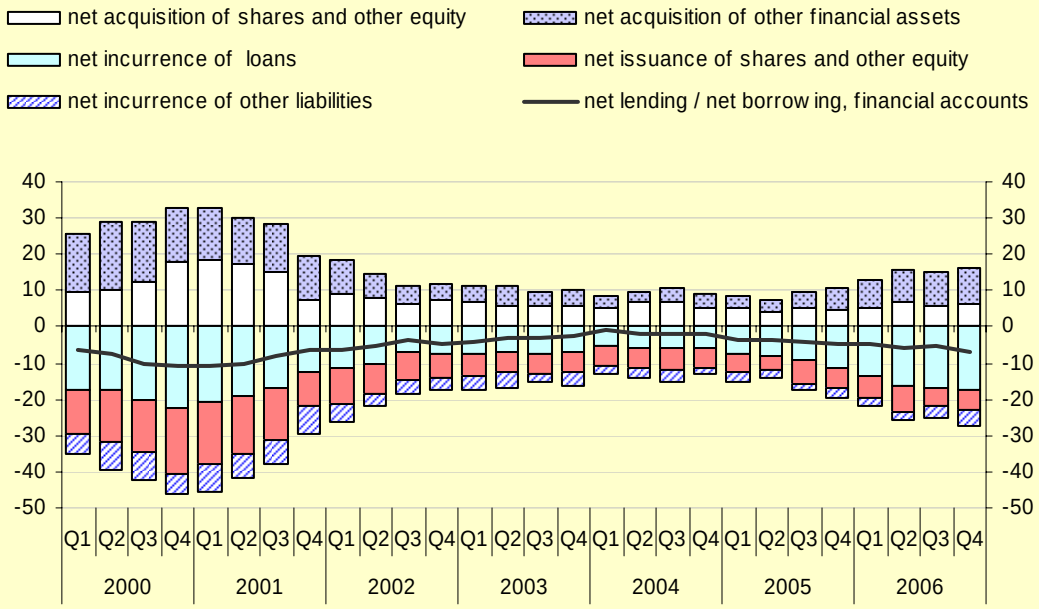
Sources: ECB and Eurostat

Chart 4.5 presents a breakdown of the financial transactions of non-financial corporations. In particular, it shows that during the mergers and acquisitions boom of 1999 to 2001 (refer to the relatively large net acquisition of shares and other equity) a large part of the financing occurred via the issuance of shares and other equity. Thereafter equity financing remained more subdued. In 2005 and 2006, it was mainly loan financing that drove the growth in the net incurrence of liabilities.

Chart 4.5

Net acquisition of financial assets, net incurrence of debt and net lending (+) / net borrowing (-) of non-financial corporations in the euro area

(percentage of net value added, based on four-quarter-cumulated sums)



Source: ECB

Annex 1: From national to European accounts

The national accounts transmitted by Member States record economic transactions and financial balance sheets in the national currency. The same applies to the balance of payments and the international investment position. Several steps are necessary to convert these national data sets into European accounts.

Conversion to euro

For the Member States not participating in the euro area, for Greece in 1999 and 2000 and Slovenia prior to 2007, transactions have been converted into euro using the average exchange rates for each quarter of the reference period. The growth rates of transactions for the EU are thus affected by movements in exchange rates and should be interpreted with caution. These movements have almost no impact on ratios such as entrepreneurial income shares or saving rates. Exchange rate movements hardly affect the euro area accounts.

EU institutions and other European bodies

The EU institutions and other European bodies are not considered to be part of the domestic economy in the *national* accounts compiled by the Member States. By contrast, the European institutions are part of the domestic sectors of the *EU* economy.

The ECB is included in the financial corporations sector in both the euro area and the EU accounts. All other European institutions are treated as non-resident in the euro area accounts as their administrative competence goes beyond the euro area; they are, however, treated as resident in the EU accounts. With the exception of the European Investment Bank, which is classified in the financial corporations sector, all European institutions are classified in the EU government sector.

The rest of the world in the European accounts

The rest of the world accounts, as compiled by Member States, record transactions and financial balance sheets between the national economy and all non-resident units, including those in other EU Member States. To measure the external transactions and financial balance sheets of the euro area/EU, it is necessary to remove cross-border flows and financial claims within the area concerned. In this respect, the European accounts draw on both the national and the European balance of payments and international investment position statistics.

For cross-border transactions within the area, total resources should equal total uses. For instance, exports within the euro area should equal imports. The same applies to the outstanding financial claims and liabilities. In practice a comparison of the national statistics reveals discrepancies ("asymmetries"), which have been eliminated to obtain a consistent set of accounts. This may lead to some differences with other national accounts publications, in which cross border flows within the area concerned have not yet been removed.

Euro area accounts - integrated non-financial and financial accounts

The euro area accounts integrate non-financial and financial accounts, including financial balance sheets. These accounts are integrated in three dimensions.

First, as explained in section II, total uses equal total resources, and total financial assets equal total liabilities, for each (non-financial or financial) transaction category and each financial balance sheet category, when summed over all institutional sectors and the rest of the world (*horizontal consistency*)[11]. For example, total interest revenue of all sectors and the rest of the world combined is equal to total interest expenditure.

Second, for each sector and the rest of the world the balance of all current and capital transactions should be equal to the balance of all financial transactions (*vertical consistency*). For example, the difference between total government expenditure and revenue is equal to the difference between its net incurrence of liabilities and its net acquisition of financial assets. When comparing the data from the different statistical sources for the non-financial and the financial accounts, this may in the first instance not yield an identical estimate for this balancing item. In the euro area accounts, such 'statistical discrepancies' do not anymore occur for the government and financial corporations sectors and for the rest-of-the world account. There are still some discrepancies, equal in size but opposite in sign, for the households and non-financial corporations sectors.

Third, the change in financial balance sheets is for each financial asset category equal to the sum of the financial transactions and the other changes, like revaluations of assets (*stock-flow consistency*). For example, the change in the value of quoted shares held by households is equal to the difference between their purchases and sales of shares plus the revaluations of their share holdings due to changes in share prices during the reference period.

European accounts and national accounts of the Member States

Summarizing, the euro area/EU accounts are based on, but are not just the sum of, the national accounts of the Member States. First, cross-border transactions and financial claims between European countries have been eliminated from the rest of the world accounts. Second, the European institutions and bodies have been added. Third, inconsistencies in country data, such as the "asymmetries" have been eliminated.

[11] The asset category Monetary gold and special drawing rights (AF.1) is the only exception as no counterpart liability exists.

Annex 2: The sequence of accounts

Transactions are classified in two categories of accounts: current accounts and accumulation accounts. Each *current account* is closed by a balancing item, defined as total resources minus total uses, and this item is carried over to the next account. The *accumulation accounts* that show transactions (the capital and financial accounts) record the net acquisition of non-financial and financial assets and the net incurrence of liabilities. The remaining accumulation accounts show other changes in balance sheets, such as revaluations and write-offs of bad debts. Thus the accumulation accounts explain all the changes in the (non-financial and financial) balance sheets. *Balance sheets* record the value of assets and liabilities at a particular point in time.

Current accounts

The *production account* shows the transactions relating to the production process. Resources refer to output and taxes less subsidies on products, and uses refer to intermediate consumption. The balancing item of the production account is value added. The sum of gross value added over all domestic sectors plus taxes less subsidies on products is equal to Gross Domestic Product (GDP) of the economy as a whole, at market prices.

The *generation of income* account shows how the proceeds of this accrue to various income categories, such as the compensation of employees. The balancing item consists of mixed income, which accrues to self-employed households, and gross operating surplus, which mainly accrues to corporations.

Subsequently, this income generated in production is distributed. The *allocation of primary income account* also records receipts and expenses relating to various forms of property income, such as interest, dividends and (land) rent, and includes an income imputed to households on their reserves with (life) insurance corporations and pension funds. The balancing item is the balance of primary incomes. For the economy as a whole, this adds up to Gross National Income. It is equal to GDP plus net primary income from abroad (the balance of compensation of employees, taxes less subsidies and property income receivable from and payable to abroad). Net national income excludes the consumption of fixed capital ("depreciation").

The *entrepreneurial income account* is a sub-account of the allocation of primary income account. Its purpose is to derive entrepreneurial income (as a balancing item), which corresponds to operating surplus/mixed income plus property income received, minus interest and (land) rents paid. Corporate taxes and dividends distributed to other sectors and retained earnings on foreign direct investment of non-residents are included in this balancing item.

The *secondary distribution of income account* shows how the primary income of an institutional sector changes because of current taxes on income and wealth, social contributions and benefits, and other current transfers. The balancing item is disposable income.

The *use of disposable income account* shows how disposable income is spent on consumption or saved. The balancing item is saving (for corporations, net saving is a close proxy for retained earnings of business accounting).

Balancing items are often expressed in *gross* terms. However, capital goods deteriorate over time. Capital consumption may be deducted from gross value added, operating surplus/mixed income, national income, disposable income and savings to yield *net* amounts. These amounts better reflect that at some stage the capital goods used in production will need to be replaced.

The *external account* brings together all transactions involving both euro area/EU residents and non-residents, viewed from the perspective of the non-residents. The current external account records imports (as resources) and exports (as uses) of goods and services, compensation of employees to and from abroad, payments of property income and taxes to and from abroad, and other transfers to and from abroad.

Accumulation accounts

The *capital account* is the last in the sequence of non-financial accounts. It is divided into a *change in net worth due to saving and capital transfers account* and an *acquisition of non-financial assets account*. The first adds any net receipts of capital transfers to net saving. The balancing item is the change in net worth due to transactions. The acquisition of non-financial assets account records gross fixed capital formation (investment in non-financial assets), changes in inventories, and any net acquisition of valuables and other non-produced, non-financial assets (e.g. land). The balancing item of the capital account is net lending/net borrowing.

The *financial account* records the net acquisition (purchases minus sales) of financial assets and the net incurrence (issues minus redemptions) of liabilities. As each non-financial transaction is mirrored by a financial transaction, the balancing item of the financial account conceptually equals the net lending / net borrowing calculated in the capital account. A negative balance between all receipts and expenses of a sector must be financed, by borrowing and/or by a sale of financial assets. Conversely, a positive balance implies an investment in financial assets and/or a redemption of liabilities.

The *other changes in financial assets and liabilities account* records the changes in financial balance sheets that are not due to financial transactions. These are mainly revaluations (holding gains and losses) due to changes in the market prices of financial assets or liabilities, but this account also includes items such as write-offs of bad debts. The balancing item is the change in net worth due to other changes in financial assets and liabilities.

Financial balance sheets

The quarterly euro area accounts also provide *opening and closing financial balance sheets*, which show the stocks of financial assets and liabilities valued at market prices at the beginning and at the end of the quarter, respectively. The balancing item is net financial wealth. Balance sheets for non-financial assets, such as residential housing, machinery and land, are not yet available.

Annex 3: Quarterly data in European accounts

After the first release of annual European accounts in May 2006, the publication of quarterly European accounts results in a better timeliness and increased frequency. However, being a new statistical product, quarterly European accounts may be subject to revisions in particular for the latest quarters.

Unadjusted quarterly data generally show large fluctuations that can be split into a regular quarterly pattern and an irregular component. Seasonal adjustment may be used to filter these fluctuations, so that quarter-on-quarter developments can be better analysed. Unfortunately these methods often require long time series to provide reliable results and to minimise subsequent revisions. Moreover, they may yield erratic results for series that alternate in sign and have large irregular components, as is the case in the financial accounts and for some specific items of the non-financial accounts.

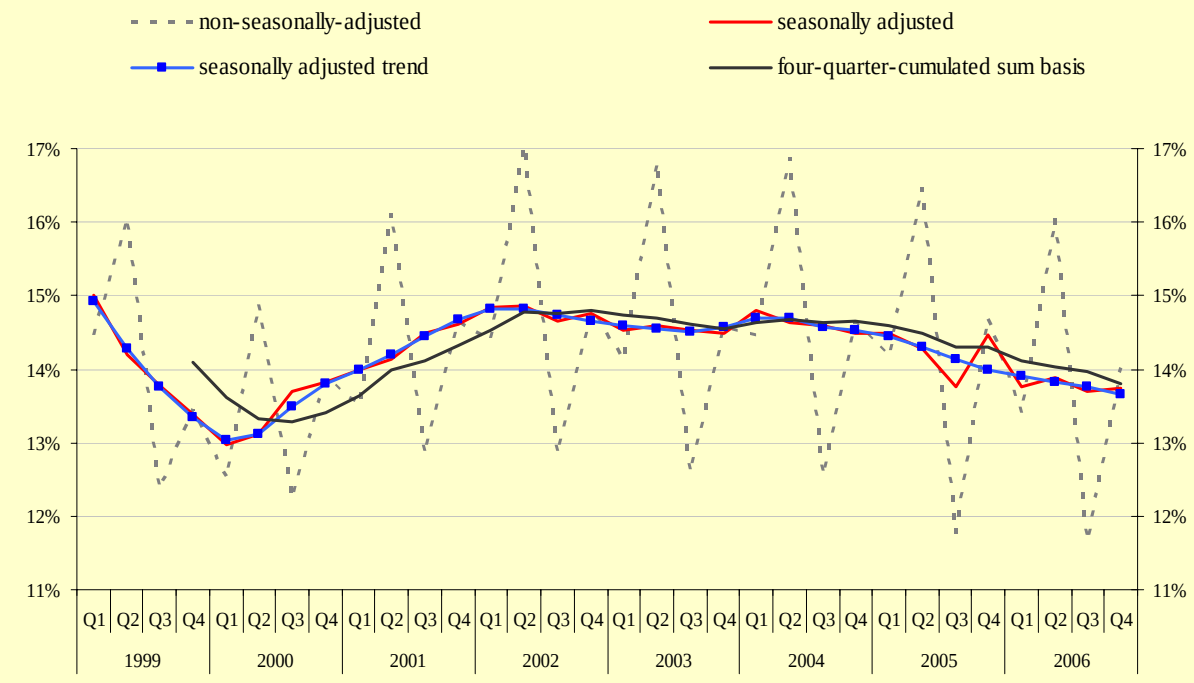
To smooth fluctuating series without using seasonal adjustment methods the above charts typically show a moving sum, adding the value of the three preceding quarters to that of the quarter concerned. Of course, this method then presents the developments over the past year and not just those of the most recent quarter; on the other hand this smoothing effect makes the analysis also easier. **Chart A1** below illustrates the time lag between the moving sum and the trend that would be obtained through seasonal adjustment.

Chart A1

Presentation of household saving rate[1]:

- non-seasonally adjusted
- seasonally adjusted
- seasonally adjusted trend
- ratio of four-quarter-cumulated sums of saving and of disposable income

1) percentage of gross disposable income (including net adjustment for the change in net equity of households in pension funds reserves), based on four-quarter-cumulated sums



For non-financial items[12], the **annual growth rate** is calculated as the percentage change between the value of the transaction for a given quarter and that recorded four quarters earlier. Let n_t be the level of a non-financial transaction; then its annual percentage change $g(n_t)$ is calculated as:

$$g(n_t) = \left(n_t - n_{t-4} \Big/ n_{t-4} \right) * 100$$

The **annual growth rate** used to analyse developments in the **financial accounts** refers to the total level of transactions over the year in relation to the outstanding stock a year before. Thus it measures changes in the levels of stocks and is not directly comparable to the growth rates computed for the non-financial accounts. When f_t represents the level of a transaction in a particular financial instrument, and F_t represents the level of the corresponding stock outstanding at time *t*, then the annual growth rate $g(f_t)$ is calculated as the sum of the transactions during the year divided by the outstanding stock of the previous year.

$$g(f_t) = \left(\sum_{i=0}^{3} f_{t-i} \Big/ F_{t-4} \right) * 100$$

Since these growth rates are calculated on the basis of financial transactions, they exclude reclassifications, revaluations and other changes that do not arise from transactions.

[12] Except net lending/borrowing, which is linked to the financial accounts.