THE MEASUREMENT OF GOVERNMENT DEBT IN THE ECONOMIC AND MONETARY UNION

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Introduction

Government debt has gained a prominent role in the European Union because of the Maastricht Treaty provisions and of the Stability and Growth Pact. Together with the government deficit, gross consolidated government debt is used to monitor the fiscal developments in the Economic and Monetary Union (EMU or euro area).[1] In this context, it is often stated that in the absence of sufficient fiscal discipline, the conduct of a stability-oriented monetary policy becomes difficult. Overall, debates over fiscal measures and their effects on government debt are fascinating and useful to study. Otherwise, the measurement of government debt is often seen as a rather straightforward exercise. Nevertheless, much work has been done in recent years to improve the quality of debt measurement in the framework of the government accounts. Eurostat has published its *ESA95 Manual on Government Deficit and Debt*, which is seen as an indispensable complement to the European System of Accounts (ESA95) to aid the application of its methodology for calculating government deficit and debt in the EU Member States. The European Central Bank (ECB) has also prepared a G*uide on Annual Government Finance Statistics*. It describes the methodology for compiling the tables in the ECB Monthly Bulletin showing the euro-area general government fiscal position.[2] The ECB derives the euro-area aggregates from harmonised and regularly updated data provided by the National Central Banks (NCB) of the EU. Finally, the *IMF Government Finance*

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[1] According to the Maastricht Treaty establishing the European Community (as amended by the Treaty of Amsterdam), article 121 (1), second indent, requires "the sustainability of the government fiscal position; this will be apparent from having achieved a government budgetary position without a deficit that is excessive, as determined in accordance with article 104 (6)". Article 2 of the Protocol on the convergence criteria referred to in article 121 of the Treaty stipulates that this criterion "shall mean that at the time of the examination the Member State is not the subject of a Council decision under article 104 (6) of this Treaty that an excessive deficit exists." Article 104 sets out the excessive deficit procedure. According to article 104 (2) amd (3), the Commission shall prepare a report if a Member State does not fulfil the requirements for fiscal discipline, in particular if: (a) the ratio of the planned or actual government deficit to GDP exceeds a reference value (defined in the Protocol on the excessive deficit procedure as 3 per cent of GDP), unless: – either the ratio has declined substantially and continuously and reached a level that comes close to the reference value; or alternatively, – the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value; (b) the ratio of government debt to GDP exceeds a reference value (defined in the Protocol on the excessive deficit procedure as 60 per cent of GDP), unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace.

[2] Section 6 of euro-area statistics.

Statistics Manual 2001 (GFSM) was published in December 2001. It is much closer to the System of National Accounts (SNA93) than the "old" GFSM of 1986.

Based on this work, the paper deals with the measurement of government debt in the EMU also focussing on its comparability across national economies. Section 1 introduces mainly two measures of government debt: ESA95 debt and EDP debt. Work is ongoing to derive extended debt measures, which are based on broader instrument coverage and on a wider inclusion of institutional units. Section 2 deals with the analysis of government debt statistics as available for EDP debt and ESA95 debt, followed by some conclusions.

1. Measures of government debt

Essentially two main government debt measures are currently considered: EDP government debt and ESA95 government debt. Other government debt measures refer to extensions based on broader instrument coverage or a wider inclusion of institutional units. This second type of extended measures refers to public sector debt, which also includes, in a consolidated presentation, the debt of public corporations and of general government.

1.1 EDP debt

Referring to the methodology used in the European Union, the measurement of government debt has been strongly influenced by the Protocol No. 20 on the excessive deficit procedure annexed to the Maastricht Treaty in 1992.[3] Together with the Council Regulation (EC) No. 3605/93, it defines *government*, *debt* and other aggregates like *surplus/deficit*, *interest expenditure*, *investment*, and *gross domestic product* by reference to the accounting rules as described in the ESA – at that time ESA79.[4]

"EDP debt" is general government gross debt as defined in the Council Regulation (EC) No. 3605/93: its article 1 (5) defines general government gross debt as: (1) comprising the consolidated liabilities of the ESA95 general government sector (*S.13*); (2) in the ESA95 categories: currency and deposits (*AF.2*), securities other than shares, excluding financial derivatives (*AF.33*), and loans (*AF.4*); and (3) measured at "nominal value", in line with Protocol 5 of the EC Treaty, further defined in the regulation as the "face value." This means, in particular, that the government debt is not affected by changes in market yields, and excludes usually

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[3] Council Regulation (EC) No. 3605/93 of 22 November 1993 and its amendment, Council Regulation (EC) No. 475/00 of 28 February 2000, on the application of the Protocol on the excessive deficit procedure annexed to the Treaty establishing the European Community.

[4] The excessive deficit procedure requires prompt submission of fiscal data twice annually. See Council Regulation (EC) No. 1467/97 of 7 July 1997 and the Ecofin Council conclusions on the "Code of best practice on the compilation and reporting of data in the context of the excessive deficit procedure" from 18 February 2003.

unpaid accrued interest.[5] The national accounts categories, considered for EDP debt, are called "EDP debt instruments." EDP debt is sometimes labelled as "Maastricht debt" and the relevant ESA95 categories as "Maastricht debt instruments."

1.2 ESA95 debt

There is no specific definition of government debt in ESA95, but general provisions are made on institutional sectors, liabilities and their valuation rules. Accordingly, ESA95 government debt includes all debt liabilities of government institutional units. These are all liabilities excluding shares and other equity: *currency and deposits*, *securities other than shares*, *loans*, *insurance technical reserves,* and *other accounts payable*. The stock of ESA95 government debt should be recorded at market value at the end of the accounting period. This refers to securities other than shares. Otherwise, the nominal value is used for currency. For loans and deposits, the amount of principal is applied that the debtors are contractually obliged to repay the creditors when the deposits would be liquidated on the date the balance sheet is set up. ESA95 debt also includes accrued interest and can be derived gross or net of selected assets, consolidated or non-consolidated. Such calculations depend mainly on the availability of appropriate balance sheet data.

1.3 Extended measures of government debt

ESA95 debt and EDP debt exclude two types of government liabilities. First, these are liabilities recognised by extended accounting systems like provisions for expected but uncertain future payments arising from past events. Furthermore, unfunded pension schemes operated by government units for their employees, paid out of government's current resources, and without special reserves are not included as well as contingent liabilities like guarantees. Second, liabilities of entities are also not covered, which are regarded as subsidiaries of government in other accounting systems but outside the general government sector in national accounts. Both possible amendments are currently discussed in the framework of updating SNA93.

1.3.1 GFSM government debt

The *IMF Government Finance Manual 2001 (GFSM)* was published in December 2001. It is closer to SNA93 than the previous version of the GFSM.[6] It

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[5] One exception is the treatment of zero-coupon bonds, for which the nominal value is defined as the redemption value.

[6] It is recognised that the implementation of the fully integrated accrual accounting system presented in the GFSM will take a long time for many countries. Countries will need to revise their fiscal data classification systems to reflect fully the accrual basis of recording while still capturing data on a cash basis. In this context, three approaches are described, either relying on already available accrual

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shows a full reconciliation of transactions, other flows, and balance sheets, at market value, like SNA93 and ESA95.

However, it treats unfunded pension schemes operated by employers differently from SNA93 or ESA95 because it records financial transactions for them and a balance sheet liability. So GFSM debt includes liabilities for government employee unfunded pension schemes, which are not covered in EDP debt or ESA95 debt.[7]

1.3.2 Debt according to standards adopted by the Public Sector Committee of the International Federation of Accountants

The International Accounting Standards Board (IASB) develops International Accounting Standards (IAS), which will be adopted by quoted companies resident in the European Union countries by 2005. In parallel, the International Federation of Accountants' Public Sector Committee (IFAC PSC) prepares a series of International Public Sector Accounting Standards (IPSASs) based on the IASB work.

A Steering Group has been established to oversee work on the convergence of accounting and statistical standards. The detailed work is being undertaken by an IMF/OECD task force. It has already made proposals to the newly established Advisory Expert Group of the Inter-Secretariat Working Group on National Accounts (ISWGNA) to update the SNA93 in ways that are consistent with existing and emerging accounting standards.

Some of the proposals under consideration affect government debt like the treatment of contingent liabilities in the form of government guarantees, and the treatment of provisions. In general, guarantees are not recognised as "economic assets" in national accounts. These are contingent liabilities that are not recorded in the system except when they are traded.

Other issues are more conceptual. Do the future social security benefits specified by current law constitute government debt in the same sense as the other debt components? The answer to this question depends at least partly on how the liability is perceived by households. If households believe that these benefits will be paid with the same probability that the other debt components will be paid, then it may be sensible to count the present value of the benefits as government debt. Similar questions arise for civil service, retirement or medical benefits also including the expected cost of contingent liabilities that arises from loan guarantees and insurance programs.

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accounting data, or using national accounts' data that are already available on an accrual basis, or reclassifying cash data to the new framework.

[7] See GFSM, paragraph 4.35.

1.3.3 Public sector debt

This second type of extended measures refers to public sector debt, which also covers, in a consolidated presentation, the debt of public corporations.

The fact that governments own public corporations, financial and non-financial, and have the capacity to direct them to conduct quasi-fiscal activities argues to the importance of more general reporting of supplementary information on the public sector accounts and public sector debt. *Generally accepted accounting practices (GAAP)* focus on the ability to control as a criterion for consolidated reporting. Their application to government finance reporting may in future provide added impetus to reporting on the fully consolidated public sector, with separate reporting by sub-sector. Nevertheless, the delineation between the public and the private sector might be rather cumbersome to define.

2. Analysis of government debt statistics

2.1 EDP government debt

2.1.1 Statistical data

The data underlying the measurement of EDP government debt are compiled and published by the ECB in its Monthly Bulletin, Table 6.2 of the euro-area statistics section. Table 6.2 shows the details of EDP government debt for the euro area broken down by financial instrument, by holder, by government sub-sector, by original and residual maturity, and by currency.

Measures of government debt are often expressed as ratios of GDP. The measure of GDP used for compiling the debt ratio is the ESA95 GDP.

Chart 1 shows EDP euro-area government debt as a percentage of GDP since 1991. It increased to 75.4 per cent of GDP in 1996, up from 57.4 per cent of GDP in 1991 and decreased afterwards to 69.0 per cent of GDP in 2002.

EDP government debt in the euro-area countries span a wide range. The highest reported debt-to-GDP ratios were in Italy, Belgium and Greece with values above 100 per cent in 2002 as shown in Chart 1. While the debt ratio of Belgium was significantly higher in 1991 (more than 130 per cent of GDP), it remained nearly unchanged in Italy and increased by more than 20 percentage points in Greece since that year.

Like in Belgium, the government debt-to-GDP ratios in the Netherlands and in Ireland decreased, from 77 to 52 per cent and from 103 to 32 per cent respectively as shown in Chart 2. The government debt ratios increased significantly in various euro-area countries like in Germany (from 40 to 61 per cent), Spain (from 45 to 54 per cent), France (from 36 to 59 per cent), Austria (from 57 to 67 per cent) and in Finland (from 23 to 43 per cent). Otherwise, the debt ratio was broadly stable in Luxembourg (between 5 and 6 per cent) and in Portugal (between 58 and 61 per cent).

Chart 1

EDP Government Debt by Euro-Area Country (Italy, Belgium and Greece)

(percent of GDP, end of year)

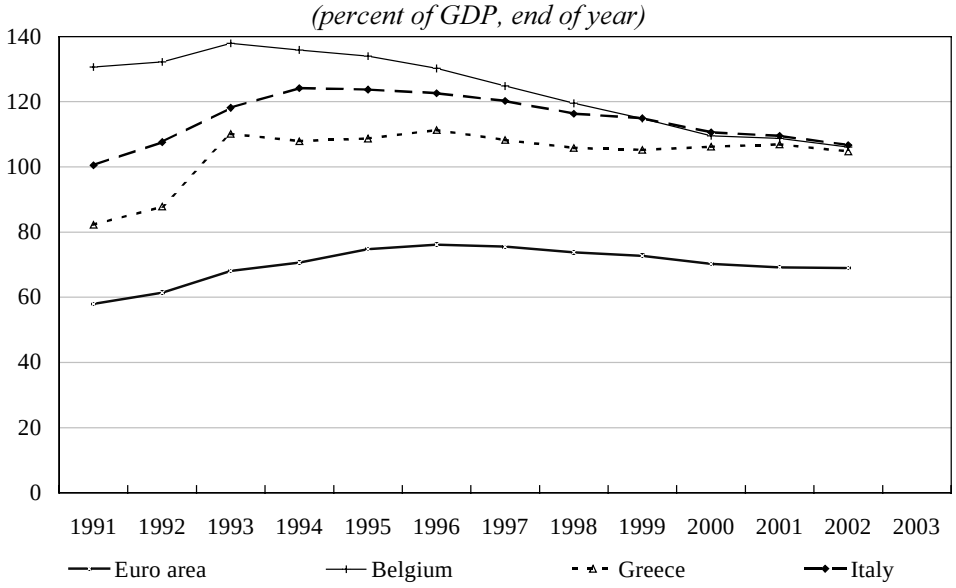


Chart 2

EDP Government Debt by Euro-Area Country (Except Italy, Belgium and Greece)

(percent of GDP, end of year)

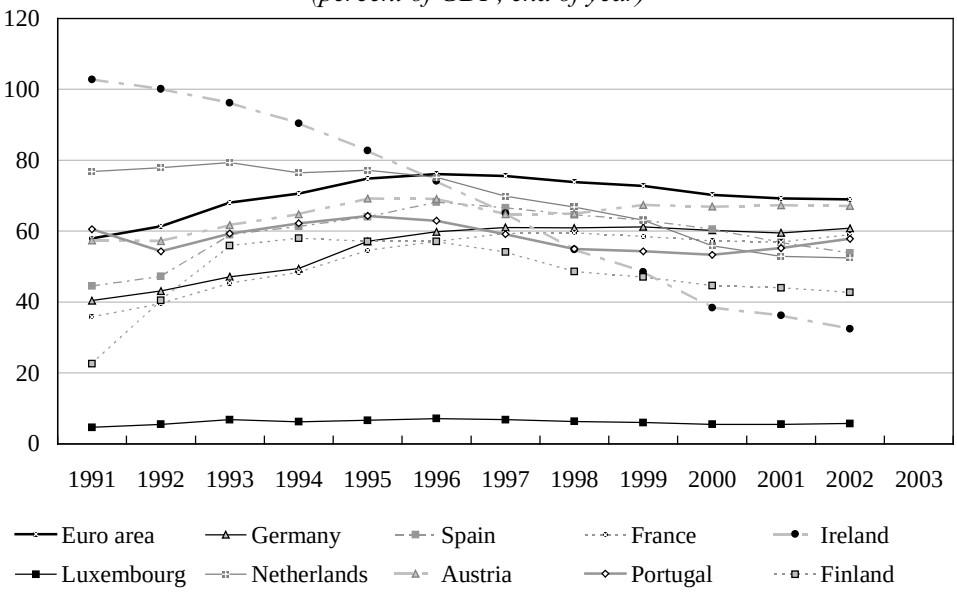


Chart 3

EDP Government Debt by EU Non-euro-area Country

(percent of GDP, end of year)

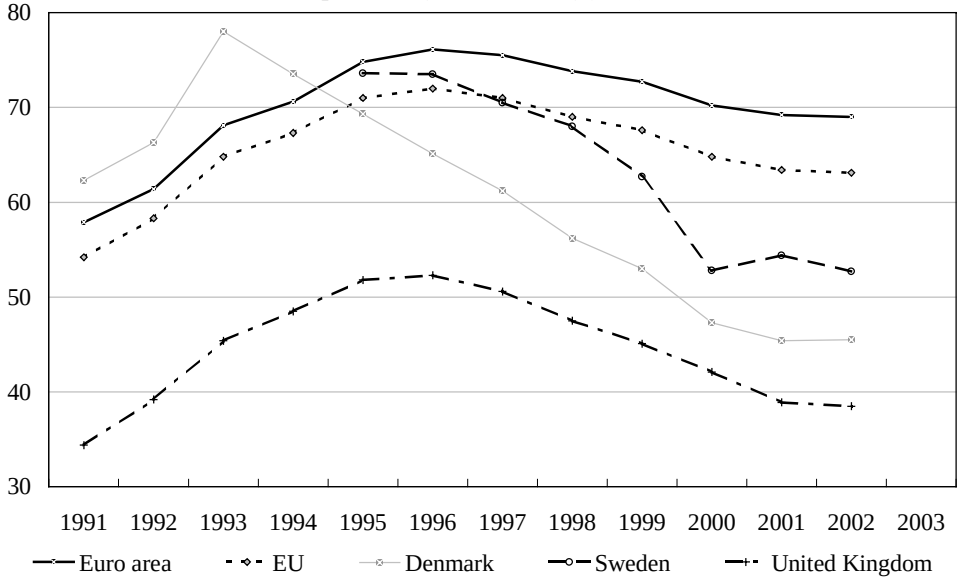


Chart 4

EDP Government Debt by Acceding Country

(percent of GDP, end of year)

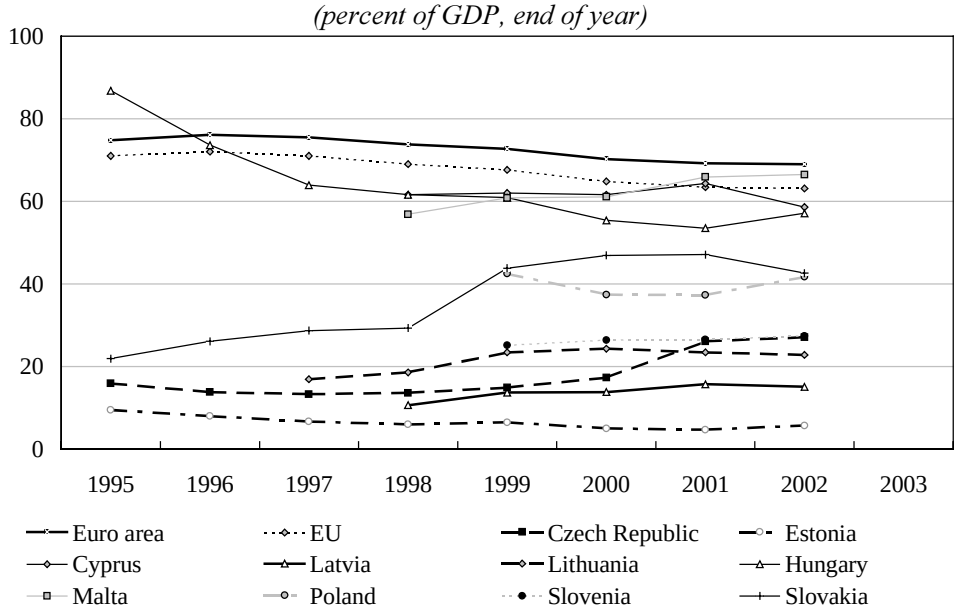
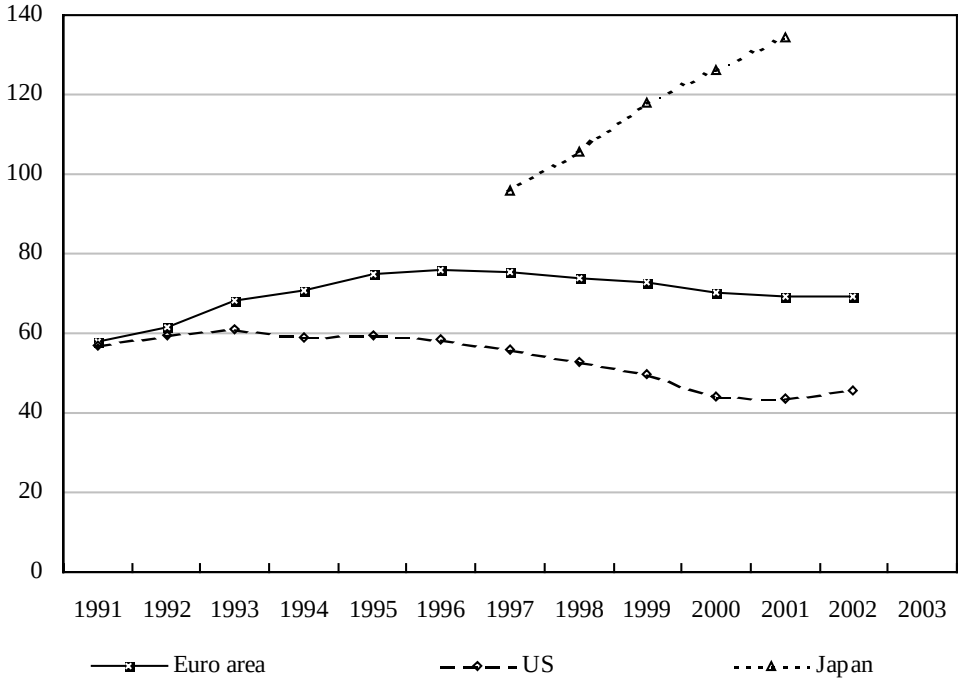


Chart 5

EDP Government Debt for the Euro Area, the US and Japan

(percent of GDP, end of year)



Compared to the euro-area EDP government debt, the corresponding figure for the EU was somewhat smaller because of the comparatively lower debt levels in Denmark (46 per cent in 2002), Sweden (53 per cent) and the UK (39 per cent) as shown in Chart 3. All acceding countries reported government debt-to-GDP ratios for 2002, which were below the ratio for the euro-area countries as a whole ranging between 6 per cent for Estonia and 67 per cent for Malta in 2002 (see Chart 4).

Comparable EDP government debt data have also been compiled for the US and Japan as presented in Chart 5. The corresponding debt ratio for the US decreased to a rather low value of 43.6 per cent in 2001, rebounding to 45.7 per cent of GDP in 2002. In 1991, this ratio was only 57.4 per cent. In Japan, the government debt-to-GDP ratio covering the debt instruments as included in EDP debt increased substantially during the recent years accompanied by extraordinary high government deficits.[8] The debt ratio was 134.6 per cent of GDP in 2001.

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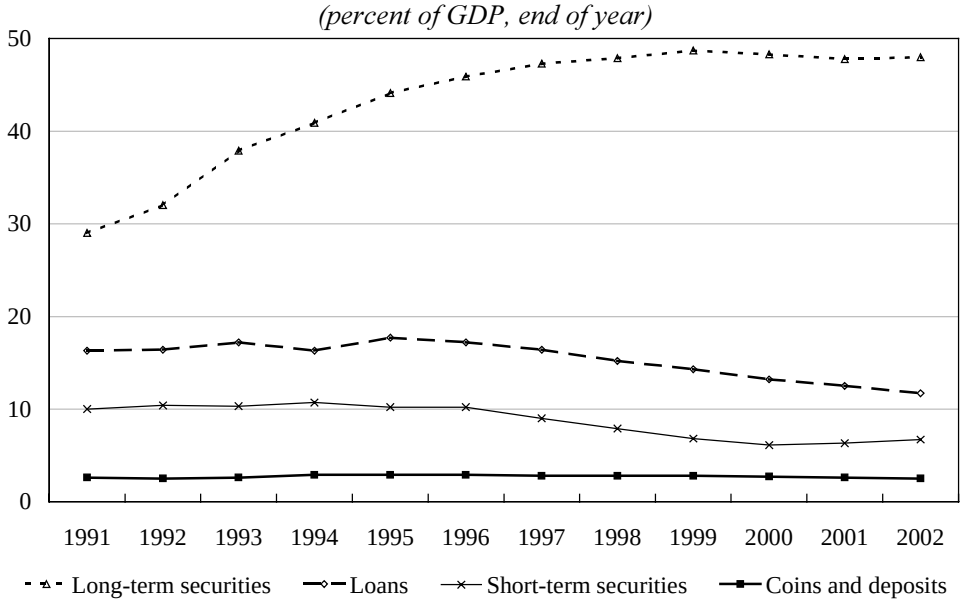
[8] The general government debt figures for the US and Japan cover the EDP government debt instruments. The US data are at nominal value adjusted for accruals, while the Japanese data are at market value.

Chart 6

EDP Government Debt by Financial Instrument

(percent of GDP, end of year)



2.1.2 EDP debt by financial instrument

Chart 6 shows the development of EDP debt with the breakdown by financial instrument. The financial instruments are *coins and deposits*, *loans*, *short-term securities* and *long-term securities*. Nearly two third of euro-area government debt in 2002 was issued as *long-term debt securities*, compared to one half in 1991.

The debt-to-GDP ratio of *short-term securities* issued as government debt fell to less than 7 per cent in 2002, down from 10 per cent in 1991. The importance of *loans* as a government debt instrument has also decreased. Loans taken by euro-area government were only 12 per cent of GDP in 2002, compared to more than 16 per cent in 1991. *Coins and deposits* corresponding to the value of liabilities of general government in coins, transferable deposits and other deposits count for less than 3 per cent of GDP in the euro area.

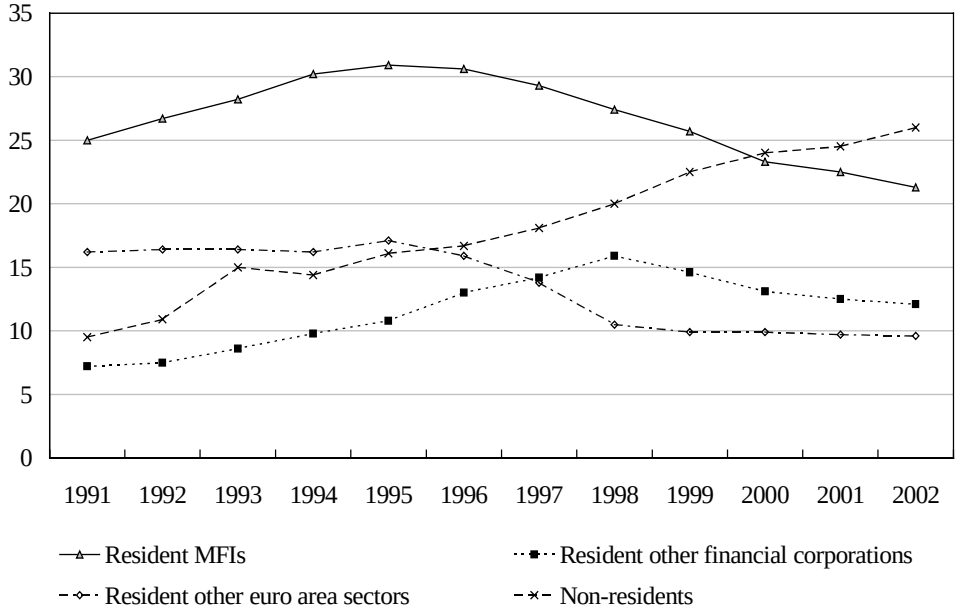
2.1.3 EDP debt by creditor sector

EDP government debt can also be shown with a breakdown by creditor sector or holder. These holders are mainly resident creditors, which are split into MFIs, other financial corporations and other sectors. Other creditors include also residents of euro-area countries other than the country whose government has issued the debt.

Chart 7

DP Government Debt by Creditor Sector

(percent of GDP, end of year)



As shown in Chart 7, the EDP government debt held by resident MFIs fell to 21.5 per cent of GDP in 2002, down from 25 per cent of GDP in 1991. MFIs cover NCBs, which hold loans as short-term loans and overdraft facilities established before 1993 or before entry into the euro area, deposits made by the NCB before 1993 at the Treasury, and government securities held by the NCB. Other MFIs, which cover public (government-owned or controlled) and private institutions, hold deposits at the Treasury, short-term and long-term loans extended to government units, in particular to state and local government units for financing their investment programmes, and debt securities issued by government units.

By contrast, debt as a percentage of GDP held by *other financial institutions* increased from 7 to 12 per cent between 1991 and 2002. They include insurance corporations and pension funds, which often have large holdings of government bonds. In some cases these institutions are required by law to hold a minimum proportion of their portfolio as government bonds. The remaining financial intermediaries are mainly mutual funds. Financial auxiliaries include supervisory bodies, fund managers and brokers. In contrast to financial intermediaries, they do not place themselves at risk by acquiring financial assets and incurring liabilities on their own account so, by definition, are not likely to hold significant government liabilities.

Other sectors comprising non-financial corporations, households and non-profit institutions serving households decreased substantially their holdings of EDP government debt instruments. Their holdings fell from 16 per cent of GDP in 1991 to less than 10 per cent in 2002. In addition to coins, households had, in some countries, significant deposits directly at the Treasury or sometimes via the postal office. The larger part of government debt held by households is usually in the form of non-tradable government bonds issued in small denominations and sometimes specifically targeted at the general public. Non-financial corporations as well as non-profit institutions serving households may also park their cash assets in government securities and hold claims in the form of deposits or loans.

Other creditors holding debt are units of the rest of the world, which is seen from a national point of view, and covers residents of other euro-area and extra-euro-area countries. As a percent of GDP their holdings nearly tripled between 1991 and 2002 as shown in Chart 5. This part of the debt covers holdings of securities by non-residents, loans granted by foreign institutions (such as euro-syndicated credit), including loans granted by European institutions such as the European Investment Bank (EIB), deposits by foreign institutions made with government, particularly treasuries, mostly by foreign banks. It also includes deposits made by other governments, notably of other EU countries in the context of extended cooperation between treasuries in respect of the timing of T-bill issuance. Finally, it included debt issued by the domestic government and held by a government unit of another country, possibly both participants of the euro area, e.g. German Bund holdings of a Finnish social security fund.

2.1.4 EDP debt by government sub-sector

Size and development of EDP debt is mainly determined by central government debt as indicated in Chart 8. Both, the state and local government debt components comprise only 4 to 6 per cent of euro-area GDP without any major changes between 1991 and 2002. Social security fund debt is rather negligible in the euro area.

2.1.5 EDP debt by maturity

The development of EDP debt with a breakdown by original and residual maturity is illustrated in Chart 9. *Original maturity* is the length of life of an instrument when first issued, while *residual maturity* is defined as the time from now until the redemption of an instrument. Flexibility might be required for the classification by original maturity of fungible instruments in order to achieve the same classification for all tranches. Coins and transferable deposits are recorded under short-term because they can be redeemed at any point in time. Some deposits although legally redeemable at short notice are in practice held long-term because of incentives to holders to continuously roll over their investments. Similarly, other

Chart 8

EDP Government Debt by Government Sub-sector
(percent of GDP, end of year)

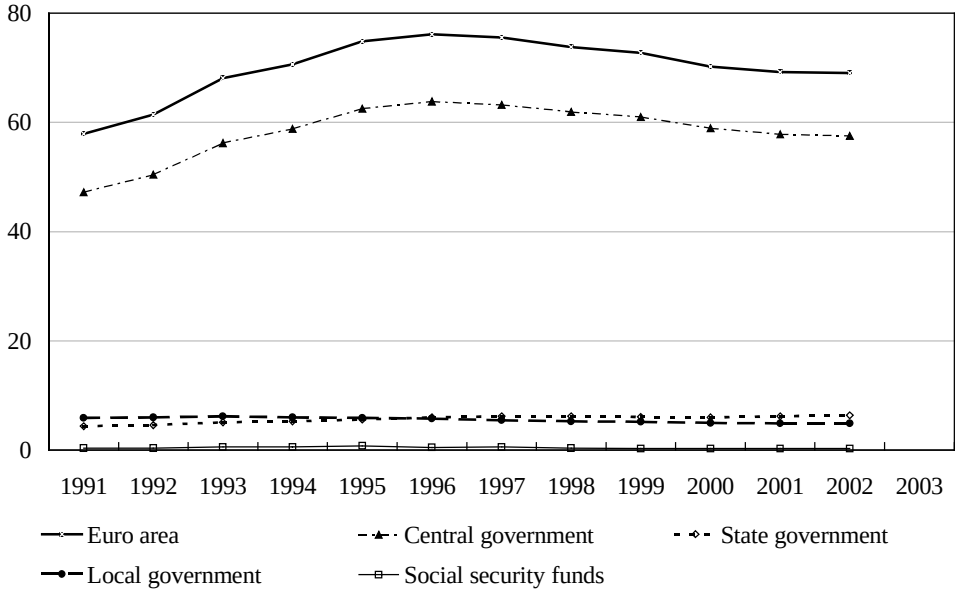
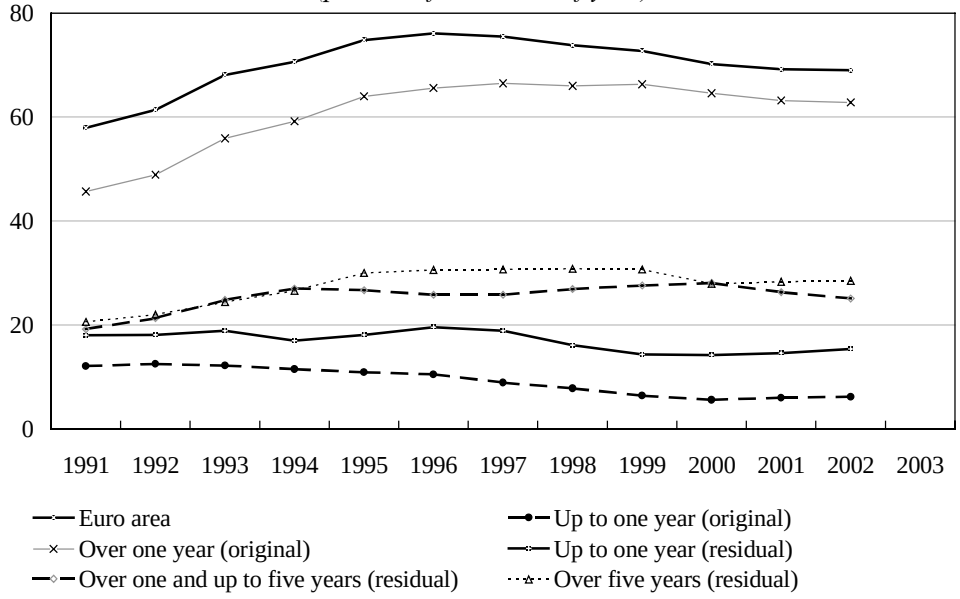


Chart 9

EDP Government Debt by Maturity
(percent of GDP, end of year)



time deposits might legally be long-term, but have arrangements for redemption on demand with penalties.

The categories of short-term and long-term for original maturity are often used for public finance analysis. In 2002, nearly 63 per cent of GDP or 90 per cent of government debt were with an original maturity of more than one year (long-term). Nevertheless, it is an imprecise indicator of the liquidity and interest rate risks that issuers might be exposed to. Better indicators might be residual maturity to assess liquidity risks; and residual maturity corrected for variable rate instruments to assess interest rate risks.

2.1.6 EDP debt by currency

The breakdown of debt instruments by currency indicates the exposure of government debt to changes in exchange rates. There is a split of debt data into debt denominated in euro or participating currency and other currencies. Debt denominated in participating currency includes all elements of EDP debt in a currency that was legal tender of a country now part of the euro area before it joined Monetary Union, except its domestic currency. It includes the ECU before 1999. By convention, this entry is put at zero for the years after a country joins the euro area, irrespective of whether each liability has been legally or technically "converted" or "transformed" into the euro. For years after 1999 it includes the euro for countries that were (or still are) outside the euro area in the year to which the figures relate. For the period from 1991 to 2002, debt held in foreign currencies was between 1 and 2 per cent of GDP.

2.1.7 Consolidated and non-consolidated EDP debt

The liabilities that are assets of government units have to be identified to compare consolidated and non-consolidated EDP debt. Consolidation for some instruments can involve large amounts when direct institutional financial links exist between different government units, for example when central government lends to local government or when social security funds have large holdings of government bonds. In the latter case, consolidation can be sensitive to sudden swings in the composition of investment portfolios.

Chart 10 presents EDP debt consolidated and non-consolidated. It shows that the consolidating elements are rather stable and also small. Non-consolidated EDP debt was 71.6 per cent of GDP in 2002, which was 2.6 per cent higher than consolidated EDP debt.

2.2 ESA95 government debt

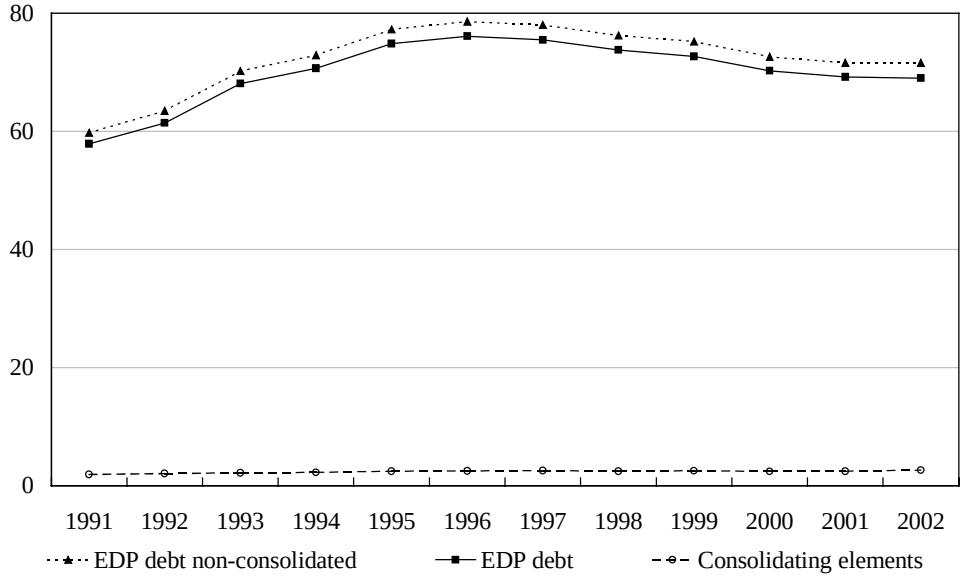
2.2.1 Statistical data

Annex B of ESA95 specifies the tables, which the Member States shall

Chart 10

EDP Government Debt, Consolidated and Non-consolidated

(percent of GDP, end of year)



transmit to the Commission (Eurostat) within the time limits given for each table.[9] This Transmission Programme also entails various tables with data for the government sector. Table 7 covers the balance sheets showing financial assets and liabilities by sector, from which non-consolidated and consolidated government debt figures can be derived for the euro area. Government liabilities are further broken down by sub-sector, financial instrument and original maturity.

Various caveats in relation to these annual stock data have to be taken into account when compiling euro-area aggregates. There are still derogations in place, which were granted to EU countries concerning the coverage, timeliness and breakdown of data included in Table 7. For the time being, only nine of twelve euro-area countries compile and transmit financial balance sheet data to the Commission, while the data sets for Greece, Ireland and Luxembourg will become available first by September 2005.

The national government data, which are provided by nine euro-area countries, are still incomplete, specifically related to the consolidated series. Consequently, the compilation of consolidated ESA95 debt is not yet feasible and, therefore, the derivation of the consolidating elements.

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[9] As in the SNA93 the balance sheets and flow accounts were included into the ESA95, which cover transactions, other changes in volume of assets as well as holding gains or losses.

Accrued interest is not always treated in the same way. Some compilers add accrued interest to the underlying financial instrument, others include this debt component into other accounts payable, while others do not include it at all. Furthermore, not all countries compiling financial accounts apply the market valuation principle, which also complicates the compilation of ESA95 debt. Finally, the coverage of data referring to the debt categories not included in EDP debt seems to be rather incomplete.

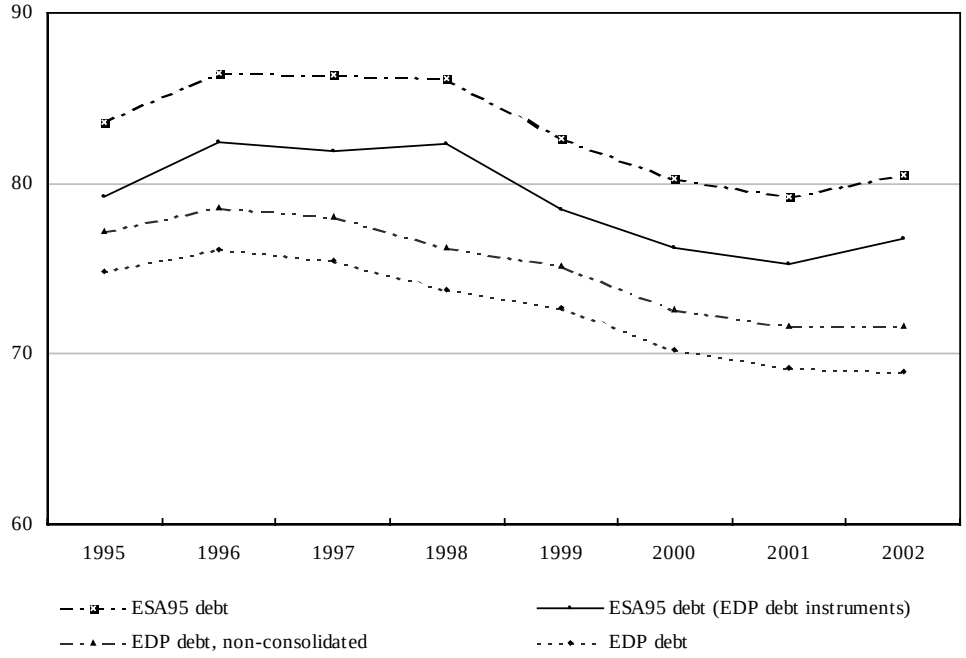
2.2.2 ESA95 gross non-consolidated debt

Taking into account the shortcomings of the national ESA95 debt data, the compilation of ESA95 debt for the EMU is seen as preliminary. It is based on the available annual data sets for nine euro-area countries supplemented by quarterly financial accounts and securities issues data available for Greece, Ireland and Luxembourg.

Chart 11 presents, together with EDP debt, ESA95 non-consolidated debt, which was 83.7 per cent of GDP in 1995 and 80.5 per cent of GDP in 2002. ESA95 non-consolidated debt was 11.5 per cent of GDP higher than EDP debt in 2002.

Chart 11

EDP Debt and ESA95 Debt
(percent of GDP, end of year)

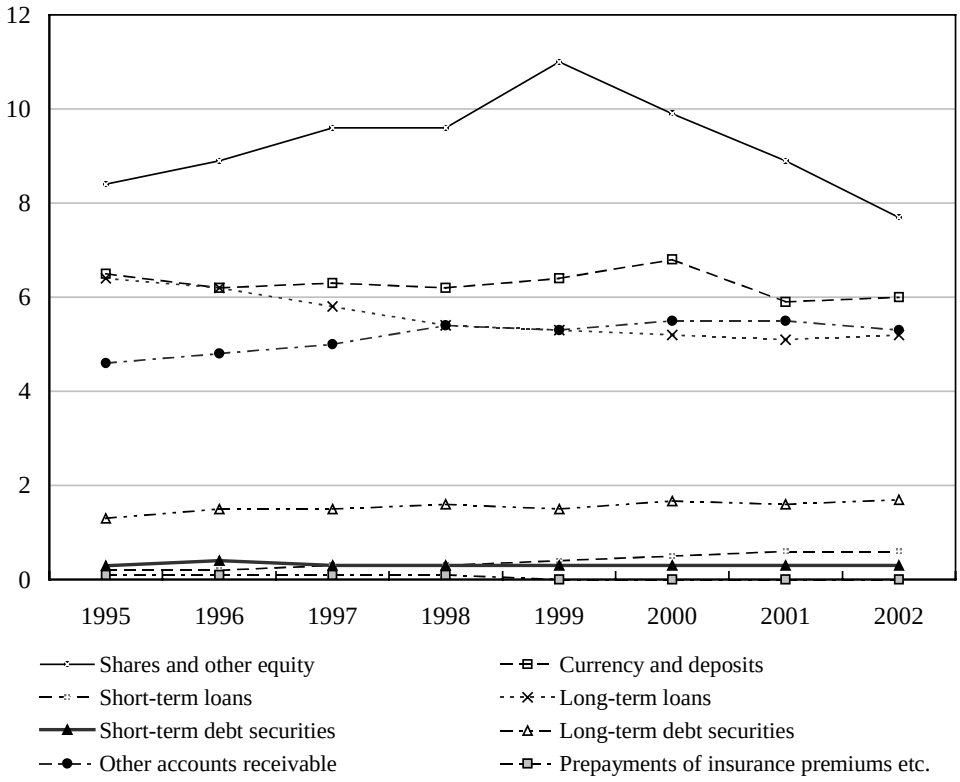


2.2.3 ESA95 financial assets

ESA95 debt can be shown net of certain financial assets. The government's financial assets include mainly currency and deposits, loans owed to the government, debt securities, shares and other equity, and other accounts receivable. Financial assets held by government were 26.8 per cent of GDP in 2002, which was almost equal to the ratio observed in 1995, but higher for the years between.

Chart 12

ESA95 Financial Assets Held by Government
(percent of GDP, end of year)



The movements of the financial assets held by government were mainly determined by share price movements in that period (see Chart 12). The effect due to net acquisition of shares and other equity was rather negligible in this context. The

holdings of shares and other equity by government were 8.4 per cent of GDP in 1995 and increased to 11.0 per cent of GDP in 1999, but decreased continuously to 7.7 per cent of GDP in 2002. In addition, the holdings of currency and deposits, loans granted and other accounts receivable were 6.0, 5.8 and 5.3 per cent of GDP in 2002, while holdings of debt securities counted 2 per cent of GDP.

2.2.4 ESA95 net debt position

Net debt positions are derived by subtracting government holdings of financial assets from gross debt. In this context it is difficult to assess the extent to which assets might be useful to meet outstanding debt liabilities.

Chart 13

ESA95 Debt, Gross and Net

(percent of GDP, end of year)

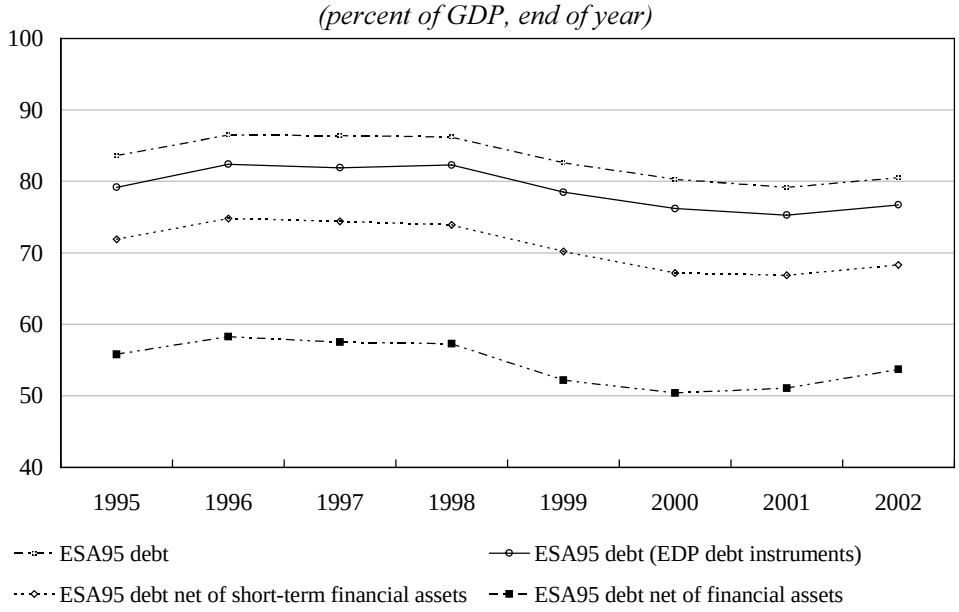


Chart 13 provides two selected net debt positions: the first position is equal to ESA95 debt net of all short-term financial assets, which are supposed to be liquid, like currency and deposits, short-term debt securities and loans as well as other accounts receivable.

The second net debt position excludes all financial assets leading to a debt-to-GDP ratio of 53.7 per cent, which was 26.8 per cent lower than ESA95 gross

non-consolidated debt and 15.3 per cent lower than EDP debt in 2002. Table 1 shows all available ESA95 debt components, gross and net and broken down by original maturity and financial instrument by end of 2002.

Table 1

ESA95 Debt, Gross and Net
(percent of GDP, end of 2002)

	ESA95 gross debt	Government financial assets	ESA95 net debt
	1	2	3 = 2–1
Total	**80.5**	**26.8**	**53.7**
Short-term	**16.1**	**12.2**	**3.9**
Currency and deposits	4.2	6.0	
Debt securities	6.8	0.3	
Loans	1.3	0.6	
Other accounts	3.8	5.3	
Long-term	**64.4**	**14.6**	**49.8**
Debt securities	52.0	1.7	
Shares and other equity	-	7.7	
Loans	12.4	5.2	

2.3 Reconciliation between EDP debt and ESA95 debt

The sum of debt liabilities recorded in the general government balance sheet under ESA95 differs from EDP debt in three aspects. While both debt concepts are based on the same delineation of the government sector, the instrument coverage, the treatment of accrued interest and the valuation methods applied diverge. To reconcile between EDP gross consolidated debt and ESA95 gross non-consolidated debt, a further step has to be made, the move from consolidated to non-consolidated data, which can only be done for the EDP debt, for which the necessary data sets are available (see also Table 2).

Table 2

Reconciliation Between EDP Debt and ESA95 Debt by Component

EDP debt, consolidated	
Consolidating elements	
EDP debt, non-consolidated	
ESA95 debt instrument coverage	
Inclusion of accrued interest	
Move from nominal to market valuation	
ESA95 debt, non-consolidated	

2.3.1 Instrument coverage

The financial categories not considered in EDP debt but included in ESA95 debt are financial derivatives such as swaps and FRAs, insurance technical reserves, trade credit and other accounts payable.

Looking at the reconciliation between the two debt concepts, the *instrument coverage effect* can be measured by subtracting ESA95 non-consolidated gross debt for only those instruments included in EDP debt from the ESA95 non-consolidated gross debt. As shown in Chart 11, this effect was 3.8 per cent of GDP in 2002, which was mainly due to the inclusion of debt in form of trade credits and other payables, while debt in form of financial derivatives was rather negligible. Otherwise, the magnitude of the effect might be overestimated because of the inclusion of accrued interest as partly covered by other payables. As mentioned above, accrued interest is either recorded with the underlying instrument or identified separately in ESA95 debt.

2.3.2 Accrued interest and market valuation

While the instrument coverage effect can be isolated properly only the compound effect due to the inclusion of accrued interest and the application of market valuation can be compiled. The revaluation effect may involve large amounts, particularly for recently issued zero coupon bonds, while it may be rather small for short-term securities, loans and deposits. For compiling the *compound interest accrued and valuation effect*, the EDP non-consolidated debt has to be subtracted from the ESA95 non-consolidated debt with the corresponding instrument coverage. For 2002, EDP non-consolidated debt was 71.6 per cent of GDP and the corresponding ESA95 debt 76.7 per cent of GDP, so the compound interest accrued and valuation effect was 5.1 per cent of GDP.

The overall (and surprisingly small) difference between the EDP (gross consolidated) debt (69 per cent) and the ESA95 (gross non-consolidated) debt (80.5 per cent) was 11.5 per cent of GDP in 2002, broken down into the *instrument coverage effect* (3.8 per cent), the *compound interest accrued and valuation effect* (5.1 per cent) and the *consolidating effect* (2.6 per cent). For the time being, no further split of the accrued interest and valuation effect can be provided.

3. Conclusions

In this paper, two measures of government debt in the EMU have been derived from the national accounting framework, EDP government debt and ESA95 government debt. They have been shown as ratios of GDP. It was possible to reconcile between the two debt ratios by isolating the instrument coverage effect, the compound interest accrued and valuation effect and the consolidating effect. These various effects were rather small and stable.

The available ESA95 financial balance sheet data allow the derivation of debt positions net of selected financial assets. Their development deviates to some extent from the pattern shown for gross debt figures due to share price movements.

Compared to the data provided for the measurement of EDP debt and ESA95 debt no comprehensive data are available for extended government or public sector debt. The project to update SNA93 has already started, which also deals with the review of the existing accounting standards for the government and public sector. Implementing new proposals might also improve the coverage of data for public corporations, which are necessary to compile harmonised public sector accounts useful for international comparisons.

APPENDIX

Conceptual issues are related to questions like: (1) Which entities should be included in government? (2) Which financial instruments are seen as part of debt? (3) Which methods are applied to value debt? (4) How to treat accrued interest in relation to debt? (5) How to derive consolidated debt? and: (6) How to move from gross debt to net debt.

1. Entities to be included in government

Government institutional units are described in the ESA95as "institutional units which are other non-market producers whose output is intended for individual and collective consumption, and mainly financed by compulsory payments made by units belonging to other sectors, and/or all institutional units principally engaged in the redistribution of national income and wealth."[10] The principal economic functions of government institutional units are (1) assume responsibility for the provision of goods and services to the community or to individual households at prices that are not economically significant, (2) to redistribute income and wealth by means of transfer payments, financing both of these activities primarily from taxation or transfers from other government units. Government institutional units comprise central government, state government, local government and social security funds units, which are aggregated to the corresponding sub-sectors.

Essentially two criteria have to be checked to determine whether a unit belongs to the general government sector.[11] First, is the unit a public or a private institutional unit? This depends on who controls it.[12] Second, is the public institutional unit a market or a non-market producer? This depends on the 50 per cent criterion, which examines whether more than 50 per cent of the production costs are covered by sales. This criterion should apply over a range of years.

Furthermore, a public institutional unit redistributing national income and wealth has to be classified within the government sector, while a public institutional unit dealing with financial intermediation belongs to the public financial corporation sector. The government sector does not include public corporations and it is therefore to be distinguished from a broader defined public sector (see Table 1).

The delimitation of the *government sector* described above is influenced by institutional arrangements in the different economies and can distort comparisons of the debt data. This distortion applies particularly to health and education services when general government sectors are compared and to the provision of public utilities and transport when the public sectors are compared. In the process of

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[10] See ESA95, paragraph 2.68, and also SNA, paragraph 4.104.

[11] Separate criteria are needed to classify social security funds units.

[12] Control is defined as the ability to determine general policy, and is an essential criterion for sector classification.

Table 1

Sector Classification of Institutional Units

		Controlled by government?	
		Yes	No
Financed mainly By sales of goods And services?	Yes (market)	Public corporations	Private corporations, households or non-profit institutions
	No (non-market)	General government	

implementing ESA95, questions were discussed in which sector to classify, for instance, public hospitals and homes for elderly people. Significant differences among the EU countries were revealed concerning the way government made payments to public hospitals. In this context, only payments made according to a system of pricing applied to both public and private hospitals were considered as sales also determining the classification of such units.

Another example referred to schools. Following the criteria listed above it has to be considered whether, in a specific case, the general government controls a school or not. This could be checked by the criteria like whether the government's approval is needed for creating new classes, for making investments in fixed capital or for borrowing or whether the government can prevent the school from ending its relationship with government. Otherwise, the government does not control the institutional unit if it just finances the school or it supervises the quality of education the school has to provide.

Following the delimitation of the general government sector the *public sector* covers, in addition to the general government units, also all public producers organised as public financial and non-financial corporations. Essentially, the latter are government owned or government controlled businesses. A broader coverage is provided by the public sector and any private sector non-profit institutions serving households and corporations that are mainly financed by government and produce public service outputs. Such organisations are classified to the private sector in national accounts because they do not satisfy the criterion for being controlled by government but some of these organisations exist mainly to produce public services financed by payments from government and user charges. For example, in some countries universities are classified to the private sector but receive a high proportion of their income from government and are expected to conform to various standards and procedures stipulated by government. The organisations often feel like they are part of the public sector even though statistically they are not.

While the coverage of the general government sector has been thoroughly examined during recent years, there are no comprehensive national accounts data for

this broad definition of the public sector that includes non-profit institutions serving households and private corporations that are mainly financed by government and produce public service outputs. In some countries there are national accounts' data for the narrower definition of the public sector that includes general government and public corporations.

2. Financial instruments to be treated as government debt

The financial instruments that may be treated as government debt are defined as the SNA93 or the ESA95 financial instrument categories: *coins and deposits*, *securities other than shares*, *loans*, *insurance technical reserves* and *other accounts payable*. Accordingly, the definition of government debt is such that it includes all liabilities of government institutional units except shares and other equity.

It has to be considered whether *financial derivatives*, both forwards and options, should also be excluded or not. According to the IMF External Debt Statistics Guide, financial derivatives should be excluded as no principal amount is advanced that is required to be repaid, and no interest accrues on any financial derivative instrument. The net incurrence of financial derivatives is regarded as liabilities. It includes inflows and outflows related to purchases and sales of options, warrants, margin calls on futures, lump sums and termination payments related to all types of derivatives such as swaps and FRAs. Recording net settlement payments as financial transactions requires the recording of holding gains or losses in the other flow accounts. The obligation to make a payment appears as a liability in the account of the payer, and as a financial asset in the account of the receiver. Any profit or loss realised on a future is also recorded in financial derivatives. The change in value of the future in the balance sheet, immediately before the holding gain or loss is realised, is recorded in other flows as nominal holding gains or losses. Accordingly, the change in the balance sheet, or debt, under ESA95, is the result of transactions and other flows.

Coins and deposits correspond to the value of liabilities of general government in coins, transferable deposits and other deposits. Generally, the Treasury issues coins and they are therefore a government liability, but not necessarily debt. Transferable deposits are unlikely to be incurred by government since these are deposits that can quickly and easily be converted into currency or transferred by cheque or other means. Other deposits include time deposits, savings deposits, savings books and savings certificates. For example, some government treasuries operate savings accounts for households, perhaps managed by postal services or other public agencies. This category would also include specific arrangements for banks or public corporations depositing cash with government. Both deposit categories also include short-term liabilities in the form of repurchase agreements.

Short-term securities other than shares include bills and other short-term notes and bonds with an original maturity of less than one year, issued

predominantly by the Treasury.[13] Short-term securities are usually very liquid, of large denomination and exchanged on the money markets between banks, other financial institutions and large investors. Other government units might also issue such short-term instruments, sometimes called commercial paper or euro-commercial paper. *Long-term securities other than shares* cover all types of debt securities as bonds, notes and T-bills with an original maturity of more than one year and issued by the various government sub-sectors.

Loans cover short-term and long-term borrowing by government units from the central bank, MFIs, other financial corporations and the rest of the world. The category includes also imputed transactions in loans in respect of debt assumptions as well as imputed loans in respect of finance leases.

Liabilities in the form of *trade credits and other accounts payable* can arise through prepayments by non-government entities. This is often a feature of contracts using the private sector to operate public infrastructure, or when government takes delivery of goods and services and pays later. Finally, *insurance technical reserves as well as prepayments of insurance premiums and reserves of outstanding claims* on the liability side of the government accounts might occur due to non-autonomous pension funds established by government units.

3. Valuation of government debt

Debt can be measured at the reference date at different value. The *market value* of debt is determined by its prevailing market price, which is the best indication of the value that economic agents currently attribute to specific financial claims. It provides a measure of the opportunity cost to both the debtor and the creditor.[14] The valuation principle adopted in the ESA95 or SNA93 follows broadly this method.[15] Securities other than shares are to be valued at their current market prices. For currency, the nominal or face value is used, and for deposits the amount of principal that the debtors are contractually obliged to repay the creditors when the deposits would be liquidated on the date the balance sheet is set up. The same applies to loans for which the values have to be recorded in the balance sheets that the debtors are contractually obliged to repay to the creditors, even in cases when the loan was traded at a discount or premium.[16]

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[13] ESA95 defines short-term as an original maturity of one year or less. While ESA95 allows flexibility up to two years, and even five years for certain securities issued by general government, its use is not recommended, as it would substantially distort international comparisons.

[14] When market-price data are unavailable for tradable instruments, there are two general methods for estimating market value or, as it is sometimes called, for fair value: (a) discounting future cash flows to the present value using a market rate of interest; and (b) using market prices of financial assets and liabilities that are similar.

[15] See ESA95, paragraphs 7.25 to 7.32.

[16] See ESA95, paragraphs 7.46 to 7.51.

The *nominal value* of debt is a measure that is, according to the Council Regulation 3605/93,[17] considered equivalent to the face value of liabilities. It is therefore equal to the amount (contractually agreed) that the government will have to refund creditors at maturity. In principle, interest accrued on a liability is not accounted for in the valuation of this liability. The nominal value rule also means that deposits cover interest accrued when it is actually credited to the holder and available for withdrawal. Instruments that pay no coupons, like zero coupon bonds, are recorded for the full redemption value. Instruments carrying actual coupons are also measured at a redemption value, which would be much closer to the issue value than with zero coupon bonds. The redemption price of some securities is linked to an economic index such as a retail price index. The nominal value of an index-linked liability corresponds to its face value adjusted by the index-related change in the value of the principal accrued to the end of the year.

The major difference between the two valuation measures is therefore that market value takes account of market price changes, whereas nominal value does usually not. Nevertheless, liabilities denominated in foreign currencies shall be converted into the national currency at the representative market exchange rate prevailing on the last working day of each year.

4. Accrued interest recorded as government debt

In the SNA93 and the ESA95 interest is recorded as accruing continuously even if, in cash terms, it is paid infrequently or through the difference between the buying and selling price of the instrument. Interest, which accrues, but is not paid in cash, is recorded as being reinvested in the instrument that generates the interest. This means that the value of the instrument[18] recorded in the balance sheet, and hence total debt, increases as a result of accruing unpaid interest. Interest on a deposit account that is added to the account is regarded as having been paid and so is added to the nominal value of the instrument.

5. Consolidation of government debt

There are two consolidation issues: The first one deals with the *consolidation within the government sector*. The second is the extension of the *consolidation principle to intra (EMU) "cross-border" positions between national governments*.

Consolidated accounts can be shown for the different types of account identified in ESA95: stocks, financial transactions, and other flows in financial instruments (revaluations and other changes in the volume of assets).

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[17] Council Regulation (EC) No. 3605/93 of 22 November 1993 on the application of the Protocol on the excessive deficit procedure annexed to the Treaty establishing the European Community (OJ L 332, 31.12.1993, p. 7).

[18] For traded instruments one would expect to see this reflected in the market price.

Table 2 shows consolidated and non-consolidated government debt as well as all consolidating elements allowing reconciliation between the two aggregates. At the level of a sub-sector of general government, there are three ways to measure debt depending on the consolidation rule.

The value of debt instruments owned outside general government. These are the financial assets held by the private sectors and the rest of the world *vis-à-vis* government (as shown in column 6 of Table 1). This is sometimes called the sub-sector EDP debt component. The sum of the sub-sector debt components is general government consolidated gross debt. Another way to define the sub-sector debt component is to define it as the sub-sector non-consolidated debt (column 7 of Table 1) less the financial assets it owns that are liabilities of other general government sub-sectors (columns 1 to 4 or column 5), which is equal to column 6.

The value of debt instruments owned outside the sub-sector. This corresponds to "debt issued by" the sub-sector and to sub-sector non-consolidated debt. For central government, it corresponds to cell 1.7 excluding cell 1.1 (n-c l CG minus l CG CG).

6. Net government debt

Government debt is usually recorded as a gross concept in the sense that assets are not deducted from liabilities. At any given time, it is the outstanding amount of those actual current, and not contingent, liabilities that require payments of principal and/or interest by the debtor and some points in the future and that are owed to non-resident or resident non-government units by resident government units of an economy, an economic or a monetary union.

The analysis of government debt sometimes takes into account government assets. In this context, there is difficulty in ascertaining the extent to which assets might be made usable to meet outstanding government debt.

Table 2

Financial Assets and Liabilities by Government Sub-sector on a From-whom-to-whom Basis

			Financial assets by sub-sector						
			1	2	3	4	5	6	7
Liabilities by Sub-sector	1	Central government	l CG CG	l CG SG	l CG LG	l CG SSF	l CG GG	c l CG PR	n-c l CG
	2	State government	l SG CG	l SG SG	l SG LG	l SG SSF	l SG GG	c l SG PR	n-c l SG
	3	Local government	l LG CG	l LG SG	l LG LG	l LG SSF	l LG GG	c l LG PR	n-c l LG
	4	Social security funds	l SSF CG	l SSF SG	l SSF LG	l SSF SSF	l SSF GG	C l SSF PR	n-c l SSF
	5	General government	l GG CG	l GG SG	l GG LG	l GG SSF	l GG GG	C l GG PR	n-c l GG
	6	Private and Rest of the World	c l PR CG	c l PR SG	c l PR LG	c l PR SSF	c l PR GG	c l PR PR	n-c l PR
	7	Total	n-c a CG	n-c a SG	n-c a LG	n-c a SSF	n-c a GG	n-c a PR	n-c a = n-c l

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