Meeting of the IMF Government Finance Statistics Advisory Committee

Session 5: Balance Sheet and Debt Data

Stock and Flow Integration – Practice and Data Requirements in Europe

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1. Introduction

The accounts of General Government are part of a larger framework which ensures consistency, namely between stocks and flows. In particular, the consistency between deficit and debt should be guaranteed when presenting the results of government accounts.

Usually, government deficit over a certain period is not equal to the change in government debt in the same period, although the same trend is expected. In principle, debt increases when a deficit is observed, and decreases when a surplus occurs. However, there are differences between the government deficit and the change in government debt, known as deficit-debt adjustments, which can in some cases be rather significant. For instance, from the end of 2009 to the end of 2013, the total increase in European Union[1] government debt (also known as "Maastricht debt") amounted to 14 percentage points of GDP, whereas the accumulated euro area government deficit amounted to around -12% of GDP. The difference between the change in debt and the cumulated deficit was thus -2 percentage points of GDP over the period or -0.5 percentage points of GDP on average per year for the European Union as a whole.

This comment examines the differences between the government deficit and the change in government debt in more detail, giving a special emphasis on the practice and data requirements in Europe.

2. Stocks and flows in national accounts

"Who does what, with whom, in exchange for what, by what means, for what purpose, with what changes in stocks?" - SNA 2008, §2.8

National accounts measure what happens in the economy, among which agents and for what purposes. The core of national accounts is the production of goods and services, which can be consumed in the period they relate or accumulate for subsequent periods.

[1] Composition of 28 countries.

In simple terms, the value added generated by the production is GDP. The corresponding income is distributed by economic agents. This process of production and distribution enables agents to consume goods and services produced by other agents or acquire assets to ensure consumption in the future.

To capture this pattern of economic flows, the corresponding activities are recorded by identifying the institutional units of the economy and the specification of the account structure that reflect the corresponding transactions in the different phases of the production process and, finally, the consumption of goods and services.

National accounts provide a comprehensive and detailed set of data of the complex economic activities taking place within an economy and the interactions between the different agents or groups.

2.1 From production to borrowing and lending – the sequence of accounts

National accounts record, in principle, all transactions between economic subjects during a certain period and also show the opening and closing stocks of assets and liabilities in the balance sheets. The transactions are grouped into several categories that have a distinct economic significance. In turn, these categories of transactions are shown in a sequence of accounts, each of which covers a specific economic process. This ranges from the production accounts, to the income generation and income (re)distribution, through the use of income, for consumption and saving, and investment, as shown in the capital account, to financial transactions such as borrowing and lending (financial account).

The balance of capital and financial accounts are conceptually equal to the net lending or borrowing and the financial account shows how the net lending was used or how the net borrowing was funded. These accounts show the money flows within the economy during a specified period of time. Flows cover the creation, transformation, exchange, transfer or extinction of an economic value over a period of time. Flows can be derived from transactions or from other changes in assets. They are recorded in transaction accounts and in other changes in volume and revaluation accounts, respectively.

On the other hand, the stocks of assets and liabilities in the economy at the beginning or the end of specific time periods are presented by the balance sheet. This includes the value of non-financial assets, and the value of financial assets and liabilities, and results in the net worth. Since the national accounts system is exhaustive, all changes in stocks should be explained by flows recorded in the system.

2.2 Financial and non-financial accounts

One of the main purposes of financial accounts is to determine the financial saving in different sectors of the economy; in other words, to calculate the difference between investments in financial assets in a given period and liabilities taken on in the same period. Simultaneously, non-financial accounts determine the lending capacity or the borrowing requirement for each institutional sector. This is reached by finding the difference between resources (revenues) and uses (expenditures). The acquisition of financial assets and the issuing of liabilities in any given sector for any given period are the counterpart to the lending capacity or the borrowing requirement that stems from the economic activity in the same sector during the same period. Thus, net lending results from situations where the resources exceed the uses in non-financial accounts and in which transactions in financial assets are greater than transactions in liabilities in the financial accounts. Net lending corresponds to a positive value of the balance of the sector, and can also be called surplus. Conversely, net borrowing occurs when resources are lower than uses and when transactions in financial assets are lower than transactions in liabilities, which originates a negative balance also called deficit.

2.3 General government accounts

In national accounts, economic agents are classified into institutional sectors (non-financial corporations, financial corporations, general government, households and non-profit institutions serving households). The counterpart of operations between resident and non resident units is recorded in the rest of the world accounts. Since the general government sector is one of the sectors identified in national accounts, the main public finance indicators are based on the national accounts methodology, and therefore, result from a consistent and integrated framework. In addition, the information of public finance indicators is, itself, integrated: the public deficit is the balance of non-financial accounts (revenues less expenditures) and of financial accounts (transactions in assets less transactions in liabilities). Stocks of assets and liabilities are also available from national accounts and their change may be explained with flows calculated also in the same framework.

The analysis of the accounts of general government is of particular importance, since its decisive impact on the economy (through taxes, the debt of the general government, employment, etc). Moreover, the financial equilibrium of general government is regularly monitored at national and international levels. For instance, a negative balance shows the existence of net borrowing, or a public deficit. In general, net borrowing leads to an increase in public debt and therefore in interest charges that have to be incurred by future generations. The positive balance means the existence of net lending, or a surplus, allowing the government to reduce its debt or to accumulate assets.

3. Excessive deficit procedure – European definition of general government debt

The Treaty on the European Union (signed in Maastricht in 1992) established the process of economic and monetary union and defined the ‘convergence criteria’ that specified the conditions required for a country to participate in the common currency. With the

Stability and Growth Pact then adopted, countries agreed to pursue the joint aims of price stability, sustainable economic growth and employment. It is intended to ensure that Member States maintain budget discipline with medium term balanced budgets. This discipline involves avoiding excessive budgetary deficits. To this end a regular surveillance should provide early warning if budget deficits diverge from the agreed medium term targets. The Instruments of multilateral surveillance for achieving medium term balanced budgets are defined in the Protocol on the Excessive Deficit Procedure (EDP)[2] that is annexed to the Maastricht Treaty, which specified that the deficit to GDP ratio must not exceed three percent and the debt to GDP must not exceed sixty percent of GDP.

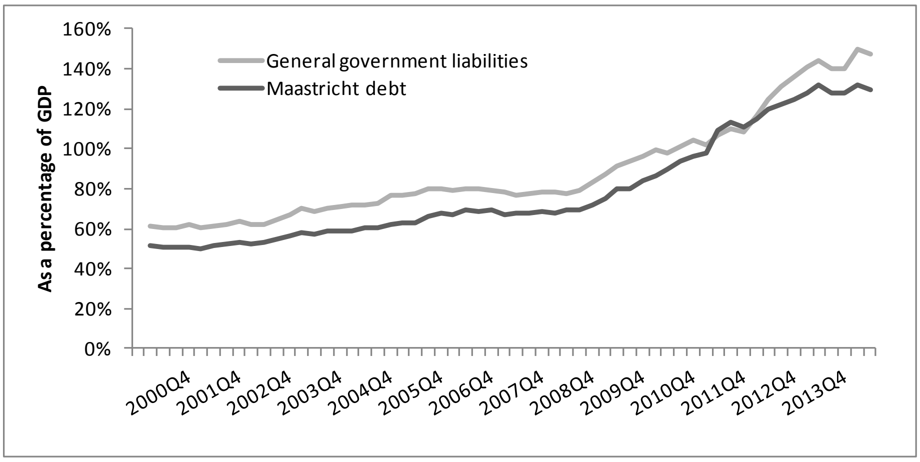
The Protocol defines government deficit and gross debt with reference to European System of Accounts[3] (ESA), which is broadly consistent with the System of National Accounts (SNA) but has been written specifically by and for the European Union. In the Protocol, deficit means net borrowing of general government (as surplus means net lending) and gross debt is constituted by the liabilities of general government at face value in currency and deposits, debt securities and loans according to ESA definitions.

It should be noted that, although the calculation of the debt indicator uses ESA as a reference, it differs in some ways from the stocks accounts of ESA. Therefore, the indicator is not fully integrated in the framework of national accounts. The main differences are: i. Maastricht debt excludes some financial instruments, such as financial derivatives and other accounts payable (which include trade credits); ii. Maastricht debt is an end-of-a-period position at face value, which corresponds to the amount contractually agreed by general government to repay to creditors at maturity, different from the valuation at market prices used in national accounts; iii. Maastricht debt is a gross definition, i.e., it is not netted by the corresponding government assets. Figure 1 illustrates the difference between general government liabilities compiled through the stocks accounts of ESA and public debt for Portugal. Due to these differences reconciliation between Maastricht debt and deficit may be a demanding task.

Figure 1 - difference between general government liabilities and public debt for Portugal

[2] Council Regulation (EC) No 479/2009 of 25 May 2009 on the application of the Protocol on the excessive deficit procedure annexed to the Treaty establishing the European Community, and Commission Regulation (EU) No 220/2014 of 7 March 2014 amending Council Regulation (EC) No 479/2009 as regards references to the European system of national and regional accounts in the European Union.

[3] Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union.



4. Data requirements

Council Regulation (EC) No 479/2009, as amended by Council Regulation (EU) No 679/2010 and Commission Regulation (EU) No 220/2014, requires that EU Member States report EDP-related data to Eurostat twice per year at end-March and end-September. The data are reported in harmonised tables – EDP Notification Tables[4]. These tables are designed to provide a consistent framework, with a link to national budgetary aggregates and between the government net lending/net borrowing (B.9) and changes in government debt.

In particular, EDP Table 3A, "Provision of the data which explain the contributions of the deficit/surplus and the other relevant factors to the variation in the debt level (general government)", is the basis to ensure a coherent and consistent report across European countries of the reconciliation between Maastricht debt and deficit.

Additionally, EDP data should be fully consistent with Government Finance Statistics data supplied through the ESA 2010 Transmission Programme.

The European Commission is responsible for providing the data used for the EDP, and within the European Commission this task is undertaken by Eurostat. This is done on the basis of the Government Finance Statistics and EDP statistics provided by the Member States. In addition, Eurostat has sole competence for the statistical methodological basis on which the data for the EDP are compiled.

5. Reconciliation between Maastricht debt and deficit

Usually, general government's deficit over a certain period is not equal to the change in debt in the same period, although the same trend is expected. In principle, debt increases when a deficit is observed, and decreases when a surplus occurs. However, changes may occur in public debt due to other factors.

[4] More details on the EDP Notification Tables can be found at http://ec.europa.eu/eurostat/web/government-finance-statistics/excessive-deficit-procedure/edp-notification-tables.

The difference between the deficit and change in debt is usually called deficit-debt adjustment or stock-flow adjustment. A positive deficit-debt adjustment means that public debt grows more than would be expected from the accumulation of deficits (or decreases less than the accumulation of surpluses). On the contrary, a negative deficit-debt adjustment shows that public debt grows less than the deficit (or decreases more than the surplus).

The deficit-debt adjustment is caused, mainly, by three factors:

- Transactions in financial assets. Public debt is a gross concept, i.e. it concerns general government liabilities and does not take into account the assets of this sector. Thus, changes in financial assets held by general government are a factor of difference because, sometimes, it is necessary to issue debt to purchase financial assets or, on the contrary, existing financial assets are used to finance the deficit or debt repayment. These transactions in financial assets can occur in any of the instruments defined in ESA2010: currency and deposits, debt securities, loans granted to entities not included in the general government sector, shares and other equity or other financial assets. For example, if government obtains a loan and keeps the proceeds as a deposit then a deficit-debt adjustment will arise. An example occurred with the increase in cash holdings for Portugal in 2011 related to the funds received in the framework of the Economic and Financial Assistance Programme to Portugal and not yet used at the end of that year. The use of privatisation proceeds to make repayments of debt is, also, an example of an operation that affects the debt, without any impact on the deficit, also originating a stock-flow adjustment.

- Transactions in liabilities not included in debt. The definition of public debt used in Europe excludes the financial instruments of financial derivatives and other accounts payable (namely trade credits). Thus, public debt may increase due to payments related to expenditure recorded in the deficit in previous periods according to accrual basis accounting. Changes in liabilities not included in public debt are thus a second main source of difference. An example of these transactions is trade credits obtained to finance the purchase of goods and services. Given that trade credits are not included in the concept of public debt, this operation has only an impact on the deficit, originating a stock-flow adjustment for the amount unpaid. Another example occurs when the State issues debt to pay trade credits recorded in previous periods. This operation will entail an increase in debt, with no impact on the deficit, leading to a deficit-debt adjustment for an equal amount. For instance, the significant positive value for Greece reflects a sharp decrease in payables in 2013 (mostly due to settlements of hospitals' arrears). Spain also reported a large reduction of other accounts payable for 2012 due to the state and local government sub-sectors' settlements of unpaid bills to suppliers.

- Valuation differences. Public debt is a stock measured at nominal value, according to the methodology defined at European level. On the one hand, this means that transactions in interest accrued and not paid are not added up to the stock of debt but are included in the deficit. On the other hand, changes in value or reclassifications with an impact on debt are not reflected in the deficit, since they are not transactions. For example, the accumulation of interest accrued and not paid is reflected in a higher general government deficit, without any impact on the nominal amount of public debt, originating a deficit-debt adjustment. Greece, due to the extensive restructuring of government debt (including private investors exchanging bonds), reported under the items difference between interest accrued and paid and the redemptions of debt below nominal values particularly high in 2012. Another example occurs with the appreciation / depreciation of debt issued in foreign currency, which is a change in value, with an impact only on government debt. Some Member States have substantial amounts of debt denominated in foreign currency, mostly in euro or in U.S. dollars. Significant depreciation/appreciation of foreign currency debt is observed for Hungary and Poland, but also for Croatia, Romania and Sweden.

In fact, the differences between the deficit and the change in general government debt are inevitable. The ability to reconcile these two concepts provides an important quality tool of both aggregates, which can be supplemented by a correct measure and explanation of the reconciliation items.

The results of the stock-flow adjustment are monitored by each country and also by Eurostat. This is considered one of the most important criteria for evaluating the quality of information reported by national institutions under the excessive deficit procedure. The main factors contributing to the deficit-debt adjustment in each country are published by Eurostat[5].

In the European context, the stock-flow adjustment assumes a particular importance, since in many countries the compilation of deficit and debt are separate by national statistics authorities. In that countries the collection, compilation and analysis of financial accounts data take place at the central banks and the non-financial accounts by the national statistics institutes. For example, in Portugal and for general government accounts, a specific institutional framework has existed since 2006, when the Institutional Cooperation Agreement in the Field of General Government Statistics was signed between Banco de Portugal, National Statistics Institute and the Ministry of Finance's Directorate-General for the Budget. In this framework Banco de Portugal assumed the responsibility of compiling the financial accounts of general government and Maastricht debt.

[5] The last release can be found at: http://ec.europa.eu/eurostat/documents/4187653/5798141/STOCK_FLOW_2014_OCT-EN.PDF/f4a1b352-1f08-48d6-8303-f94f792caeab

The next table presents the responsible institutions for the compilation of non-financial accounts, financial accounts and debt statistics by Member State.

Table 1 – Institutional responsibilities for the compilation of general government national accounts and debt

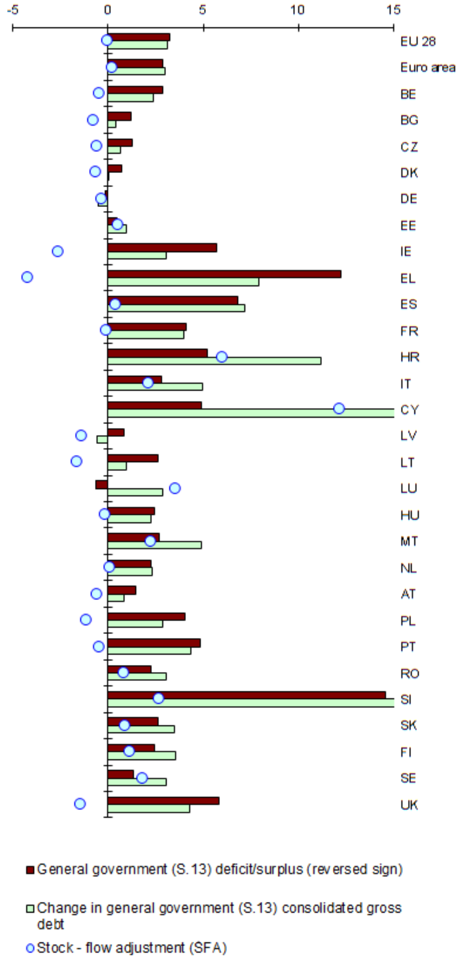
	Non-financial accounts	**Financial accounts**	**Debt**
Belgium	NCB	NCB	NCB
Bulgaria	NSI	NSI/NCB	MoF
Czech Republic	NSI	NSI	NSI
Denmark	NSI	NSI	NSI
Germany	NSI	NCB	NCB
Estonia	NSI	NSI	NSI
Ireland	NSI	NSI	NSI
Greece	NSI	NCB	NSI/MoF/NCB
Spain	NSI	NCB	NCB
France	NSI/MoF	NSI/MoF/NCB	NSI/MoF/NCB
Croatia	NSI	NSI	NSI
Italy	NSI	NCB	NCB
Cyprus	NSI	NSI	NSI
Latvia	NSI	NSI	NSI
Lithuania	NSI	NSI	NSI
Luxembourg	NSI	NSI	NSI
Hungary	NSI	NCB	NCB
Malta	NSI	NSI	NSI
Netherlands	NSI	NSI	NSI
Austria	NSI	NSI	NSI
Poland	NSI	NSI	MoF
Portugal	NSI	NCB	NCB
Romania	NSI	NCB	MoF
Slovenia	NSI	NCB	NSI/MoF
Slovakia	NSI	NSI	MoF
Finland	NSI	NSI	NSI
Sweden	NSI	NSI	NSI
United Kingdom	NSI/MoF	NSI/MoF	NSI/MoF

NCB - National Central Bank; NSI - National Statistical Institutes; MoF - Ministry of Finance

The coordination between both institutions is crucial to ensure the consistency between financial and non-financial accounts. This coordination should take into account that the reporting population of financial and non-financial transactions should be exhaustive and also that the basic statistical sources on financial and non-financial transactions are interrelated in the sense they refer to the same population and they are synchronized (i.e. the classification of operations are the same in both). In this context, it should be emphasized the work of Committee on Monetary, Financial and Balance of Payments Statistics (CMFB). This Committee has developed the conditions for an effective cooperation between the national statistical institutes and the Eurostat and, on the other hand, the national central banks and the European Central Bank, contributing for an interchange of statistical knowledge among these entities and to an efficient data collection and compilation, ensuring high-quality European Union economic and financial statistics.

The next figure, published by Eurostat in the last Stock-flow adjustment review, displays the 2013 deficit-debt adjustment for each Member State, together with the government deficit/surplus (reversed sign) and the change in the government debt, expressed as a percentage of GDP. Numerical data is presented in the Table 1 of the Annex 1.

Figure 2: Government deficit/surplus (reversed sign), change in government debt, and stock-flow adjustment as percent of GDP: 2013 figures



Source: Eurostat

6. Looking forward: net debt and alternative measures.

Other results for the stock-flow adjustment can be achieved if other measures of public debt are used. Therefore, an aggregated measure of debt may result of the total liabilities derived from the financial accounts (stocks). This measure corresponds to the sum of all liability instruments, in accordance with ESA2010 definition, i.e. liabilities in gold and special drawing rights, currency and deposits, debt securities, loans, equity and investment fund shares or units, insurance, pension and standardised guarantee schemes, financial derivatives and employee stock options and other accounts payable. This measure has the advantage of having the same valuation of the deficit/surplus. However, it is also a gross measure by not considering the financial assets. This could be overcome if a net financial worth concept is considered, which corresponds to the total value of its financial assets minus the total value of its outstanding liabilities.

Another definition of gross debt is established by the International Monetary Fund. According to the Guide for Compilers and Users of the Public Sector Debt Statistics[6], «total gross debt, often referred to as "total debt" or "total debt liabilities"— consists of all liabilities that are debt instruments. A debt instrument is defined as a financial claim that requires payment(s) of interest and/or principal by the debtor to the creditor at a date, or dates, in the future.» Thus, all liabilities of the total liabilities derived from the financial accounts are considered debt, except for liabilities in the form of equity and investment fund shares and financial derivatives and employee stock options. For risk management, it could be useful to focus on a net debt concept. For example, debt may have been incurred to fund assets that will generate income to meet liabilities. A concept of net debt, according to the International Monetary Fund is then calculated as the previous gross debt minus financial assets corresponding to debt instruments.

A more restricted concept of net debt is developed by the Eurostat, considering the Maastricht debt minus the financial assets corresponding to debt instruments also included in Maastricht debt (currency and deposits, debt securities and loans).

7. Conclusion

The differences between the deficit and the change in general government debt are inevitable. However, it is important to understand how these two concepts are related. The difference between the deficit and the change in debt can be grouped into three major categories: transactions in financial assets, transactions in liabilities not included in debt and valuation differences.

Stock-flow adjustment may not in itself raise concerns about the consistency of deficit and debt statistics. The ability to reconcile these two concepts provides an important quality tool of both aggregates, which can be supplemented by a correct measure and explanation of the reconciliation items.

Other results for the stock-flow adjustment can be achieved if other measures of public debt are used, namely net debt as defined by the Eurostat, which may avoid some of the difficulties that arise from the definition of government debt as a gross concept.

[6] Available at http://www.tffs.org/pdf/method/2013/psds2013.pdf.

Annex 1

Table 1: Stock-flow adjustment, in percent of GDP, 2010-2013

	2010	2011	2012	2013	average
EU 28	1.7	0.6	0.5	-0.1	0.7
Euro area	1.5	0.7	1.3	0.2	0.9
BE	0.7	2.4	-0.1	-0.5	0.6
BG	-1.2	-1.0	2.1	-0.8	-0.2
CZ	0.0	0.6	0.8	-0.6	0.2
DK	1.7	2.2	-3.9	-0.7	-0.2
DE	7.1	0.2	2.9	-0.4	2.5
EE	0.0	1.2	3.8	0.5	1.4
IE	-8.4	14.2	3.6	-2.7	1.7
EL	1.9	2.2	-35.0	-4.3	-8.8
ES	-1.9	-0.7	3.7	0.4	0.4
FR	-1.8	0.8	0.7	-0.2	-0.1
HR	1.9	0.2	-1.5	6.0	1.6
IT	0.8	0.0	2.1	2.1	1.2
CY	0.0	5.0	7.4	12.1	6.1
LV	0.7	-2.6	0.8	-1.4	-0.7
LT	1.5	-4.2	1.8	-1.7	-0.6
LU	4.8	0.6	3.5	3.5	3.1
HU	0.4	-2.2	-3.4	-0.2	-1.3
MT	1.2	2.4	-2.8	2.2	0.8
NL	-1.3	-1.0	1.1	0.0	-0.3
AT	0.4	0.9	-0.4	-0.6	0.1
PL	-1.2	0.3	-2.1	-1.2	-1.0
PT	3.5	5.5	4.0	-0.5	3.1
RO	1.1	0.5	2.0	0.8	1.1
SI	-2.2	2.6	2.4	2.6	1.4
SK	-0.5	0.0	5.7	0.9	1.5
FI	4.2	2.7	2.9	1.1	2.7
SE	-1.0	0.6	-0.4	1.7	0.3
UK	4.2	0.7	-2.4	-1.5	0.2

Source: Eurostat