

Technical Notes

Introduction

Monthly government debt securities data are compiled from security-by-security information provided in the Centralised Security Database (CSDB). The CSDB comprises all debt securities issued by the general government¹ that have an International Securities Identification Number (ISIN) code. The security-by-security information enables the compilation of outstanding amounts, issuances, redemptions, average residual maturity, annual growth rates, schedules of maturing debt and other indicators on a timely basis.²

This note explains the technical concepts behind the three interactive reports on **debt securities** presented in the **Government finance** section of the ECB Data Portal, namely (i) [Debt securities, stocks and transactions](#), (ii) [Debt securities, nominal yields](#), and (iii) [Debt securities, debt service](#). The reports include monthly data on government debt securities for individual EU Member States and euro area aggregates.

The debt securities data are not consolidated within the general government sector and therefore include government debt securities held by other government units. For this reason, the monthly data in [Debt securities, stocks and transactions](#) may differ from the quarterly and annual data in [Government debt](#) as the latter are reported on a consolidated basis. Other discrepancies may exist owing to the use of data sources other than the CSDB in the compilation of government finance statistics. In addition, differences may arise in the aggregated data in Chapter 4 (Financial Market Developments) of the Statistical Annex of the [Economic Bulletin](#) as a result of issues relating to valuation, scope (e.g. cashless issuances are not included in the aggregate data collection, and debt securities without an ISIN are not included in the CSDB but are included in the aggregate data collection), potential differences in sector classification and differences in the time of recording³.

Debt securities, stocks and transactions

This report presents the outstanding amounts, issuances and redemptions of general government debt securities. The data are presented in EUR billion and as a percentage of GDP. The (monthly) ratios are expressed in percentage of annual GDP (as published by Eurostat). As this year's GDP statistics are not yet available, the ratios use the annual GDP from last year (as published by Eurostat).

The definitions of selected indicators are set out below.

¹ The central, state and local government plus social security funds.

² See ECB, "[The Centralised Securities Database in brief](#)", Frankfurt am Main, February 2010.

³ Issuance is considered to have occurred when the issuer receives payment in the aggregate data collection, instead of on the commitment date in the security-by-security information.

The **outstanding amounts** (P_t) of debt securities issued by a country/the euro area at the end of period t (month) equals the sum of the face value of all (N) individual securities issued by a country/the euro area that have not matured yet.

1.
$$P_t = \sum_{n=1}^N \text{face value}_n$$

The outstanding amounts are broken down by **residual maturity** (i.e. the remaining time until the final – contractually scheduled – payment), **original maturity** (the time frame between the issue date and the final payment⁴), **rate** or **coupon type** (fixed rate, floating rate and zero coupon payments) and **currency**.

The outstanding amounts (P_t) at the end of period t can also be calculated by adding the securities issued (I_t) in period t (**issuances**) to the outstanding amounts (P_{t-1}) at the end of the previous period ($t - 1$) and deducting the securities that matured (R_t) in period t (**redemptions**).

2.
$$P_t = P_{t-1} + I_t - R_t$$

The observed **issuances** capture two distinct cases in the increase of the outstanding amounts: (i) a new debt security is issued for the first time, and (ii) there is an additional issuance of an existing debt security (often referred to as bond tap or issuance in tranches). In contrast, the **redemption** of debt securities in debt markets can occur in one of the following circumstances: (i) the debt security reaches its maturity date and is repaid, or (ii) an early redemption occurs prior to the scheduled maturity date, either partially (reduction of the outstanding amount) or totally (the debt security is repaid in full).

Debt securities, nominal yields

The second report is on nominal yields related to general government debt securities for outstanding amounts and for transactions.⁵ The data are presented as percentages per annum, can be selected with monthly, quarterly or annual frequency and are broken down by type of coupon rate and/or by residual maturity (up to one year and over five years).

The **nominal yield** is the interest rate that the debtor agrees to pay to the creditor per unit of time. It comprises the coupon rate (i.e. the interest rate stated on a bond when issued) and any difference between the stated redemption price at maturity and the issue price (i.e. the discount or premium). The discount or premium is linearly spread (accrued) as interest over the full lifetime of the debt security (original maturity in days).

⁴ One year or less is classified as short term; anything over a year is deemed long term.

⁵ New rates for the issuances and past rates for the redemptions are calculated as past 12-month period averages.

$$3. \quad \text{nominal yield} = \text{coupon rate} + 365 \times \frac{(\text{redemption price} - \text{issue price})}{\text{original maturity}}$$

For every individual debt security that is still outstanding, the nominal yield is calculated using Equation 3. The average nominal yield for N securities (e.g. for a country) is calculated using the face value as the weighting factor (see Equation 4). Average nominal yields may be calculated for different types of breakdowns, such as by residual maturity, issuances and redemptions.

$$4. \quad \text{average nominal yield} = \sum_{i=1}^N \frac{\text{nominal yield}_i \times \text{face value}_i}{\sum_{r=1}^N \text{face value}_r}$$

Debt securities, debt service

Debt service can be defined as the amount of cash that is needed to repay the principal amount and interest of a debt. The third report presents data on the expected disbursements related to the servicing of debt securities outstanding at a particular point in time. **Debt service** is broken down into the **principal amounts** (at face value) to be disbursed and the **interest expenditure** to accrue in the subsequent two years. This time frame is further broken down into (i) the amount to be serviced up to one year (with an additional split of up to three months and between three and 12 months), and (ii) over one year and up to two years.

The scheduled (future) redemptions are calculated based on the maturity date for each debt security. They only take into consideration the maturity date of the current existing and outstanding debt securities. This does not include any possible early redemption of debt securities and/or redemptions of debt securities that will be issued in the future (i.e. debt securities that did not exist at the point in time to which the debt service is referring).

The interest to accrue in a given future period is calculated by applying the observed coupon rate to the current outstanding amounts. This measure does not take into account any refixing of the coupon rate for floating rate debt securities and index linked securities or any future change(s) in the coupon rate of fixed rate debt securities (e.g. step-up coupons). The issuance of debt securities at discount/premium is reflected in the face value of debt securities and not as interest, as recommended by the international statistical standards.

The debt service for debt securities denominated in foreign currency assumes no change in the exchange rate vis-à-vis the euro.

Lastly, the average residual maturity represents the weighted average (by outstanding amounts) of the residual maturity of all debt securities in years.