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New and timely statistical indicators on government debt securities

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Abstract

New monthly statistical indicators on government debt securities for euro area countries have now been developed on the basis of the information contained in the Centralised Securities Database (CSDB), an internal database available to the European System of Central Banks (ESCB). The CSDB is jointly operated by the ESCB and contains timely and high-quality security-by-security reference data on debt securities, equities and investment funds. The new indicators on government debt securities provide an indication of the expected disbursements made for the servicing of issued debt securities together with the associated interest rate (nominal yield), broken down by country, original and remaining maturity, currency and type of coupon rate.

This paper describes in detail the newly compiled statistical information and thus contributes to further describing the euro area government bond markets. The new indicators on euro area government debt securities are also highly relevant for policy-making and monetary and fiscal analyses. They indicate that, as at December 2014, the debt service scheduled for such securities in 2015 stood at approximately 15.9% of GDP (€1.6 trillion). This is associated with an average nominal yield on outstanding government debt securities for the euro area as a whole of 3.1% per annum. Both of these indicators have followed a decreasing path in recent periods. The new indicators also reveal some heterogeneity within the euro area: Italy shows the highest debt service and Luxembourg the lowest, while the debt securities issued by Germany have the lowest average nominal yield and Lithuanian ones the highest.

Keywords Government debt, euro area, debt securities

JEL codes E62, H63, H68

1 Introduction

New monthly statistical indicators on government debt securities for euro area countries have now been developed on the basis of the information contained in the Centralised Securities Database (CSDB), an internal database available to the European System of Central Banks (ESCB). Live since 2009, the CSDB aims to hold complete and up-to-date reference information on all individual securities relevant for the statistical and non-statistical (e.g. monetary and fiscal analysis) purposes of the ESCB. The security-by-security flexible approach of the CSDB, as opposed to the traditional aggregated reporting approach that offers only predetermined data breakdowns, allows the computation of new indicators on government debt securities without increasing the reporting burden on debt issuers.

This statistical paper describes in detail the newly compiled statistical information and thus contributes to further describing the euro area government debt securities markets. The indicators under review provide an indication of the expected disbursements made for the servicing of issued government debt securities (debt service) together with the associated interest rate (nominal yield), broken down by country, original and remaining maturity, currency and type of coupon rate. The European Central Bank (ECB) started disseminating these statistics in November 2014 (please click [link](#) to access the respective web pages of the ECB's online Statistical Data Warehouse).

These very timely statistics contain information that is highly relevant for policy-making. On the one hand, they may be used to relate nominal yields and government bond market yields to maturity – these play an important role in the monetary transmission mechanism. On the other hand, these indicators are fundamental to an analysis of the relationship between the sustainability, financing needs and servicing of government debt and the possible fiscal impact in the economy for corporations and households of alternative fiscal policy choices, such as the impact on interest rates, on the tax burden and even on prices. The CSDB has been used extensively by the ECB during the crises as a source of detailed information on the financing needs of countries under an EU/IMF Economic Adjustment Programme. In addition to the availability of very detailed data breakdowns, the timeliness of the CSDB information enables the rapid analysis of developments and trends in the financial markets.

The new indicators on euro area government debt securities indicate that, as at December 2014, the debt service scheduled for such securities in 2015 stood at approximately 15.9% of GDP or €1.6 trillion; a figure comprising 13.9% of principal (face value) and 2.0% of interest to accrue during that period. This is associated with an average nominal yield on outstanding government debt securities for the euro area as a whole of 3.1% per annum. Both of these indicators have been on a downward trend in recent periods. The new indicators also reveal some heterogeneity within the euro area: Italy shows the highest debt service, amounting to over 23.9% of GDP, and Luxembourg the lowest (at less than 0.3% of GDP).

Meanwhile, the debt securities issued by Germany have the lowest average nominal yield, currently standing at 2.2% per annum, and Lithuanian ones the highest, with a corresponding figure of about 5.0%.

This paper describes in detail how statistics on euro area government debt service (Section 2) and average nominal yields (Section 3) are compiled, presenting the main statistical findings and selected analysis. It considers, for example, how debt service statistics may be used in the analysis of government financing needs and compares developments in nominal yields and the market yield to maturity. Section 4 discusses specific issues that a user needs to be aware of when analysing debt service and average nominal yields statistics. Section 5 gives an overview of the CSDB, its relevance for statistical outputs and policy-making, and of CSDB data (which are generated according to European statistical standards for the compilation of national accounts data) in relation to government debt based on the Excessive Deficit Procedure (EDP). The final section (Section 6) draws a conclusion.

2 Government debt service

The issuance of government debt securities is naturally associated with its servicing (debt service). Statistics on debt service for euro area governments have shown interesting developments in recent years, which have presented a number of challenges in terms of the management of euro area sovereign debt. This section explains in detail how government debt service statistics are compiled using the CSDB. It also relates the government financing needs of euro area countries to the debt service statistics obtained in this way.

2.1 Definition

The issuance of debt securities requires a set of disbursements, including principal amounts and/or interest, to be made throughout the lifetime of the debt. This set of payments is referred to as debt service. As indicated by past observations, redemptions of debt securities in debt markets can occur in one of the following situations¹:

- The maturity date has been reached and the debt security is repaid;²
- Redemption took place at an early date, i.e. before the maturity date, and can be:
 - partial – reduction of the outstanding amount;
 - total – the debt security is repaid in full.

This paper presents the past debt service (i.e. the set of disbursements actually made to satisfy debt obligations in a given past period) and the scheduled (future) disbursements. The focus of the paper will be the scheduled debt service of government debt securities in the coming year, which, for the sake of simplicity, is referred to as “debt service”.

A security-by-security database such as the CSDB makes it possible to calculate scheduled (future) redemptions, in addition to past redemptions, a concept that is central to this paper. Scheduled redemptions only take into consideration the maturity date of existing debt securities. The data do not cover projected future payments on government debt securities not yet outstanding at the reference period, i.e. redemptions of debt securities that will be issued in the future and do not yet exist. In addition, the data do not include any possible early redemption of debt securities.

¹ The issuance of government debt securities also covers the new debt securities issued and the increase in the outstanding amount for any existing debt security.

² If an issuer defaults, there will be a change of the debtor (if debt is guaranteed) and/or the type of debt instrument (from debt security to loan). Consequently, the debt securities statistics will show a full redemption at the maturity date.

The second component of debt service is the interest that is to accrue in a given future period. For coupon-bearing debt securities, this is calculated by multiplying the observed coupon rate by the current outstanding amount. This calculation assumes that there are no future changes in the coupon rate (see Box), irrespective of the type of coupon. The issuance of debt securities at a discount/premium is reflected in the face value (the undiscounted amount of principal to be repaid) of the debt securities (see Section 4.2).

The scheduled debt service is then the sum of the scheduled redemptions and interest to accrue, usually broken down by future periods (e.g. the next three months, the next year). As regards the debt service for debt securities denominated in foreign currency, it is assumed that there is no change in the exchange rate vis-à-vis the euro (see Box).

Box

Variable interest rates, exchange rates and debt service for debt securities

Debt service is a forward-looking statistical concept. It gauges future disbursements, of principal and interest, in respect of the servicing of the current outstanding debt. The calculation of debt service is therefore affected by market prices that will be set in the future and are not yet known with certainty. The most important market prices for debt contracts are the exchange rates (for debt denominated in foreign currency) and the market reference interest rates (e.g. EURIBOR, for debt issued with a variable interest rate).

For any coupon-bearing security, the part relating to interest in the scheduled debt service is calculated by applying the last observed coupon rate to the current outstanding amount. This means that any future changes to the coupon rate of floating rate debt securities, index-linked debt securities and changes to the coupon rate for fixed rate debt securities contractually agreed (e.g. step-up coupons) are not taken into account in the calculation of the scheduled debt. Only the last observed coupon rate is considered.

In the euro area, the debt service scheduled as at December 2014 for the 12-month period from January 2015 to December 2015 amounts to 15.9% of GDP, comprising €1,405 billion of principal (face value) and €205 billion of interest to accrue (see Table A). The current breakdown of government debt securities outstanding in the euro area shows that around 80% of the outstanding amounts were issued with a fixed interest rate, while only 9% were issued with a variable interest rate (floating or index-linked). Only Italy (€361 billion), Germany (€227 billion) and France (€187 billion) show some significant issuance with variable interest rates.

Table A**Outstanding amounts, average nominal yields and debt service**

(as scheduled at December 2014; € billions for outstanding amounts and debt service; as a percentage per annum for yields)

Country	Outstanding amounts (selected type of rates)			Average nominal yields (selected type of rates)			Debt service (in the coming year)	
	Fixed rate	Variable rate	Zero coupon	Fixed rate	Variable rate	Zero coupon	Principal	Interest
Belgium	318	12	31	3.8	1.0	0.1	58	12
Germany	1,338	227	73	2.5	0.3	0.8	323	31
Estonia	-	-	-	-	-	-	-	-
Ireland	92	25	3	4.7	2.8	-	5	5
Greece	67	1	14	3.6	0.8	2.1	21	2
Spain	754	33	78	4.2	3.4	0.3	184	30
France	1,324	187	209	3.3	2.1	0.0	347	43
Italy	1,260	361	178	4.3	1.4	0.8	331	56
Cyprus	5	-	2	4.6	-	1.9	2	0
Latvia	6	0	0	3.7	6.2	0.2	0	0
Lithuania	12	0	0	5.1	6.4	0.4	2	1
Luxembourg	6	-	-	2.6	-	-	0	0
Malta	5	0	0	4.7	1.1	0.7	0	0
Netherlands	319	0	39	2.9	0.1	0.2	63	9
Austria	215	12	7	3.5	1.3	0.5	22	7
Portugal	105	1	18	4.6	1.6	0.4	25	5
Slovenia	24	0	1	4.4	-	0.5	3	1
Slovakia	34	3	1	3.8	2.2	-	4	1
Finland	89	2	7	2.6	0.6	-	13	2
euro area	5,972	864	662	3.5	1.5	0.5	1,405	205

Sources: ECB and ECB calculations.

Similarly, any future change in the exchange rates will not be taken into account in the calculation of the scheduled debt service, as this would involve forecasting exchange rates. Any future disbursement in foreign currency will be converted into the national currency on the basis of the representative market exchange rate prevailing on the last working day of each month. The vast majority of the government debt securities issued by the euro area governments are denominated in euro. Therefore, future changes to the exchange rates are not expected to create any significant statistical impact on the indicators.

2.2 Main results

The scheduled debt service in the coming year records all debt securities that will mature in the next 12-month period. The values are compiled every month, taking into account the redemption and issuance of government debt securities.³

Typically, euro area governments show debt service for the coming year (debt service ratio to GDP) that is lower than one-quarter of GDP (Chart 1). As regards

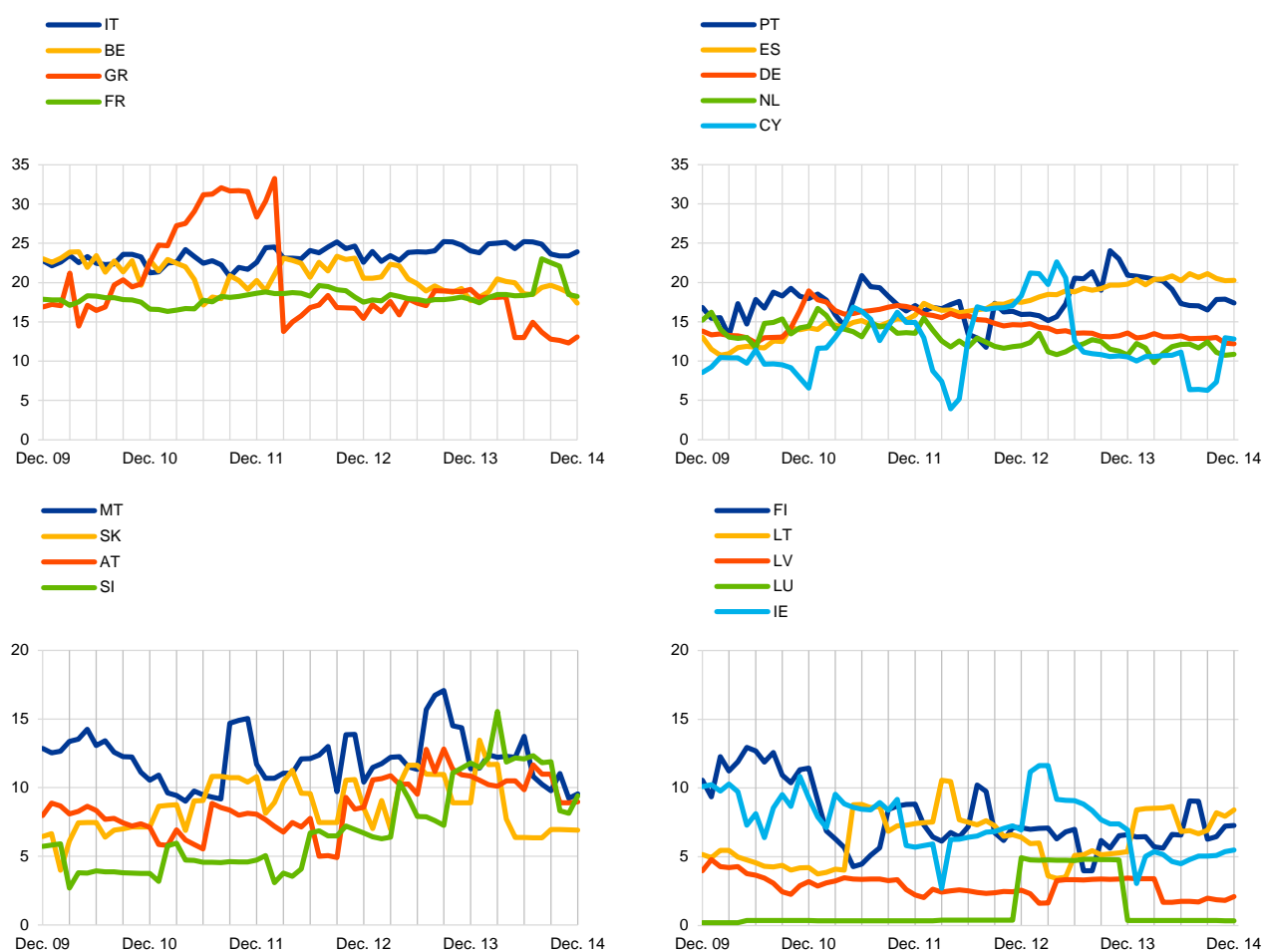
³ The statistics compiled for debt service and average nominal yields using the CSDB span the period from December 2009 to December 2014.

Greece, the country's debt service increased considerably between December 2010 and March 2012 and then dropped abruptly when the private sector involvement (PSI) in a Greek government debt exchange was successfully finalised. In that move, nearly 97% of private sector bondholders accepted an exchange of their Greek government bonds for short-term European Financial Stability Facility (EFSF) notes and new long-term Greek government bonds, which equated to a reduction of some 53.5% in nominal terms (around €100 billion). The longer maturities of the new Greek government bonds helped to reduce the debt service from 33% of GDP to around 13% (please note that, at the same time, there was a shift from debt securities to loans in the composition of Greek government debt).

Chart 1

Debt service for euro area government debt securities, by country

(percentage of GDP)



Sources: ECB and ECB calculations.

The debt service ratio for Italy increased slightly in the past four years and remains close to 25% of GDP. The debt service ratios for Spain and France also rose during this period, increasing to around 20% of GDP by the end of 2014. For Spain, the debt service ratio has been rising progressively. For Portugal, the ratio reached 24% in October 2013 but then shrank back to 17%, partly as a result of a debt exchange in

December 2013 (worth some €6.64 billion) and a bond buyback in March 2014 (worth some €1.37 billion).

The debt ratio for Cyprus increased by 20 percentage points of GDP between the country's request for financial aid from the other euro area countries (made between April 2012 and April 2013 in order to shore up Cypriot banks that had incurred heavy losses on the Greek debt exchange) and the finalisation of the country's bailout agreement in March 2013. The debt service ratio then fell quickly from 23% of GDP to around 12% of GDP and continues to fluctuate around this level.

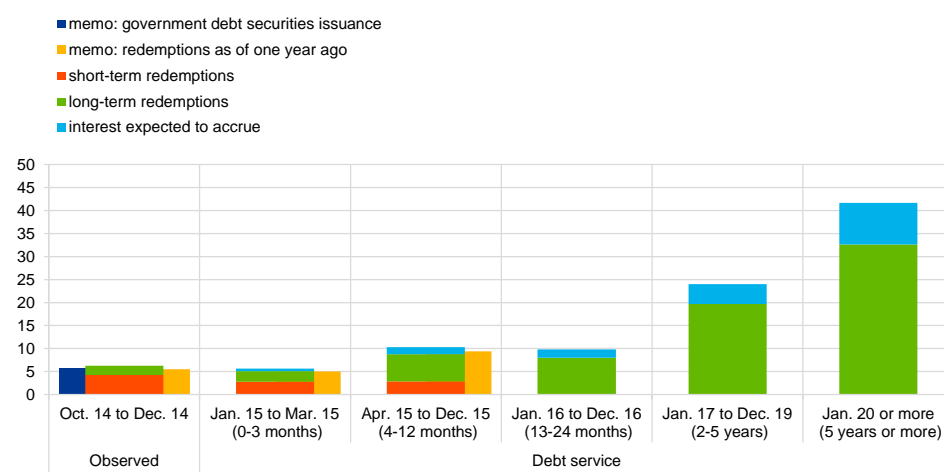
More recently, the debt service ratio for Slovenia increased rapidly (it doubled in just one year). This is related to the government financial assistance for its financial sector in the form of a far-reaching recapitalisation of Slovenian banks. After reaching a peak of 16% of GDP in March 2014, the debt service ratio gradually decreased to 9% by the end of 2014.

For the euro area as a whole, as at December 2014, the debt service scheduled for 2015 stood at approximately 15.9% of GDP (€1.6 trillion), compared with 16.5% for 2014 as at December 2013; a figure which comprises 13.9% of principal (face value) and 2.0% of interest to accrue (see Chart 2). On the one hand, the amounts of principal of both short and long-term debt securities scheduled to be redeemed in three months is 5.1% of GDP (up from 5.0% at the end of 2013). On the other hand, debt securities with payment due over three and up to 12 months decreased to 8.8% of GDP (from 9.4% at the end of 2013).

Chart 2

Debt service for euro area government debt securities, by disbursement periods

(percentage of GDP)



Sources: ECB and ECB calculations.

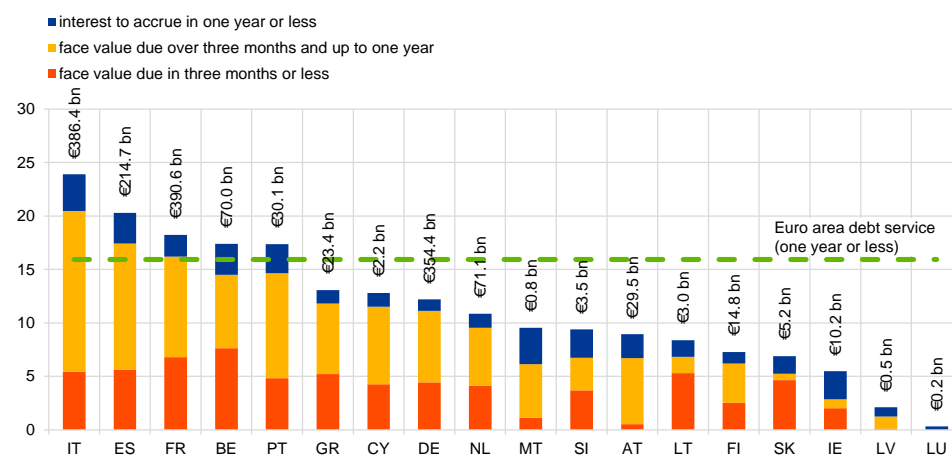
At the end of 2014, the debt service for five euro area countries (Italy, Spain, France, Belgium and Portugal) expected in the following 12 months was more than the euro area average of 15.9% of GDP (see Chart 3). This compares with six countries at the end of 2013 (the aforementioned countries plus Greece). Moreover, at the end of 2014, six euro area countries (Belgium, France, Italy, Spain, Lithuania and Greece)

were expecting principal (face value) repayments of debt securities larger than 5% of GDP, all being due in three months or less.

Chart 3

Debt service of euro area government debt securities for a one-year period, by country

(percentage of GDP and €billions; January 2015 to December 2015)



Sources: ECB and ECB calculations.

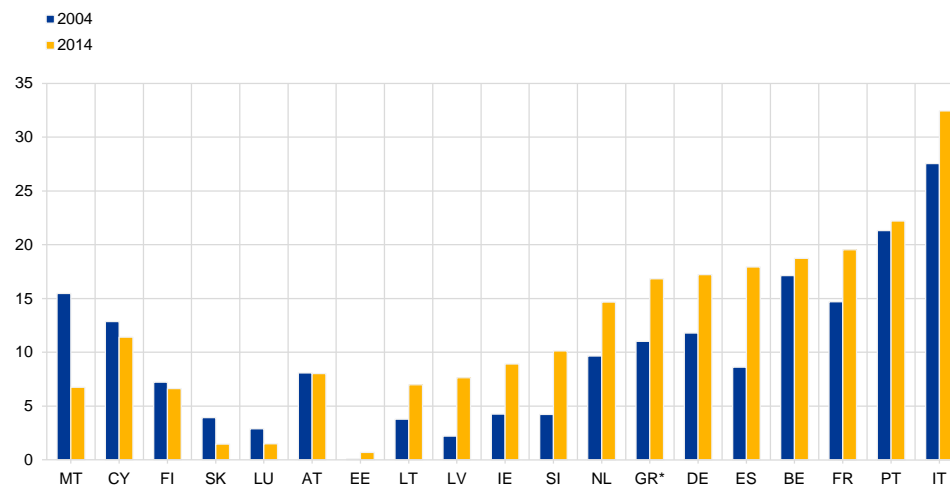
2.3 Selected analysis: expected government financing needs and debt service

Fiscal analysis examines the financing needs for the coming months/years in relation to the government debt outstanding and GDP. The expected government financing needs provide an overall measure of future government financial obligations for the coming year. In its simpler form, the expected government financing needs for the coming year may be approximated by adding together the projection for government deficit/surplus (net lending/net borrowing) and the outstanding government debt that matures in the course of the year (i.e. the principal amounts in the debt service).⁴ The result helps towards understanding what a government would need to do to fulfil its financial obligations, the alternatives being a) raise more debt, b) sell financial assets, c) increase revenue (e.g. increase taxes, sell non-financial assets) and/or d) reduce expenditure (e.g. capital expenditure, compensation of employees, subsidies). These choices will have different fiscal impacts in the economy, such as on interest rates, the tax burden and even on prices. Depending on the government choice, a) and c) may have an impact on the tax burden, interest rates, costs and prices for corporations and households, while d) may reduce the net operating profits of corporations and household disposable income.

⁴ This simpler form of expected government financing needs does not take into account future transactions, planned or not, in assets (e.g. purchases of financial assets by the general government). Also, net incurrence of liabilities in financial instruments other than the ones included in the government debt (currency and deposits, loans and debt securities) are not considered, as well as, any future issuance or early redemption of government debt.

Chart 4**Government debt with residual maturity up to one year, by country**

(percentage of GDP)



Sources: ECB and ECB calculations.

* For Greece, the blue bar refers to 2007 data (instead of 2004).

Generally, the government debt with residual maturity up to one year is the largest component of the government financing needs. The government debt with residual maturity up to one year, for the euro area governments changed noticeably in the recent years (see Chart 4). At the end of 2014 only six countries (Malta, Cyprus, Finland, Slovakia, Luxembourg and Austria) managed to reduce the government debt with residual maturity up to one year when compared to the end of 2004. For the majority of the euro area countries, the government debt with residual maturity up to one year has been between 5% and 20% of GDP. The governments in Estonia, Luxembourg and Slovakia recorded government debt with residual maturity up to one year less than 5% of GDP. On the other extreme, the governments in Portugal and Italy recorded government debt with residual maturity up to one year larger than 20% of GDP.

The debt service calculated using data from the CSDB may serve as a unique indicator of government debt with residual maturity up to one year, given that the largest share of the government debt (about 80%) takes the form of debt securities (see Chart 10 in Section 5.3). Therefore, debt service may also be used to proxy the government financing needs and to closely monitor any strains on forthcoming government financial obligations linked to the servicing of government debt securities. In that regard, fiscal analysis requires complementary information on the interest rate cost for government debt, the current (and possible expected) market interest rates and the foregoing interest rates on maturing debt, so that the impact on government interest expenditure from refinancing debt may be estimated (see Section 3.2).

3 Government nominal yields

The issuance cost of government debt securities can be expressed as a percentage per annum. This is called the nominal yield and it can be calculated using CSDB data. This section details how nominal yields statistics are compiled and outlines the main data findings for the euro area countries. Finally, a comparison is made between average nominal yields and the market yield to maturity, which shows some of the noteworthy developments experienced by euro area governments in recent years.

3.1 Definition

A central variable in bond markets is the market yield to maturity of a debt security. The market yield to maturity is an estimate of what an investor (creditor) will earn if the bond is held until its maturity date. The market yield to maturity is a focal variable for the creditor. However, for the debtor there is another yield that is extremely important for its financial decisions, the nominal yield.

The nominal yield (percentage per annum) is the interest rate that the debtor promises to pay debt holders per unit of time.⁵ The nominal yield 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. 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).

$$\text{nominal yield} = \text{coupon rate} + 365 \times \frac{(\text{redemption price} - \text{issue price})}{\text{original maturity}} \quad (1)$$

For every individual debt security that is still outstanding, the nominal yield is calculated using equation (1). The average nominal yield for N securities (e.g. for a country) is calculated using the face value as the weighting factor (see equation (2)). Average nominal yields may be calculated for different types of breakdowns, such as remaining maturity.

$$\text{Average nominal yield} = \sum_{i=1}^N \frac{\text{nominal yield}_i \times \text{face value}_i}{\sum_{r=1}^N \text{face value}_r} \quad (2)$$

A security-by-security database, such as the CSDB, also allows the calculation of the average nominal yields for transactions in the primary market (issuances and redemptions). It is of particular interest for gauging the current average nominal yields for the issuance of government debt securities and the average nominal yields of redeemed debt securities, also vis-à-vis the preceding 12-month period.

The average nominal yield for total debt securities is affected by a) the average nominal yield on new government debt securities (issuance), b) the foregoing average nominal yields on maturing government debt securities (redemptions), and

⁵ As a statistical convention, the number of days in a year is invariably set to 365.

c) changes to interest rates on current government debt securities outstanding (e.g. variable coupon rates). The average nominal yield on new government debt securities issued during the previous 12 months may be affected not only by various market forces (e.g. issuance demand, issuer risk of default, and current and expected market interest rates) but also by choices made by the issuer, such as maturity selection (typically longer maturities have higher nominal yields) and issuance volumes.

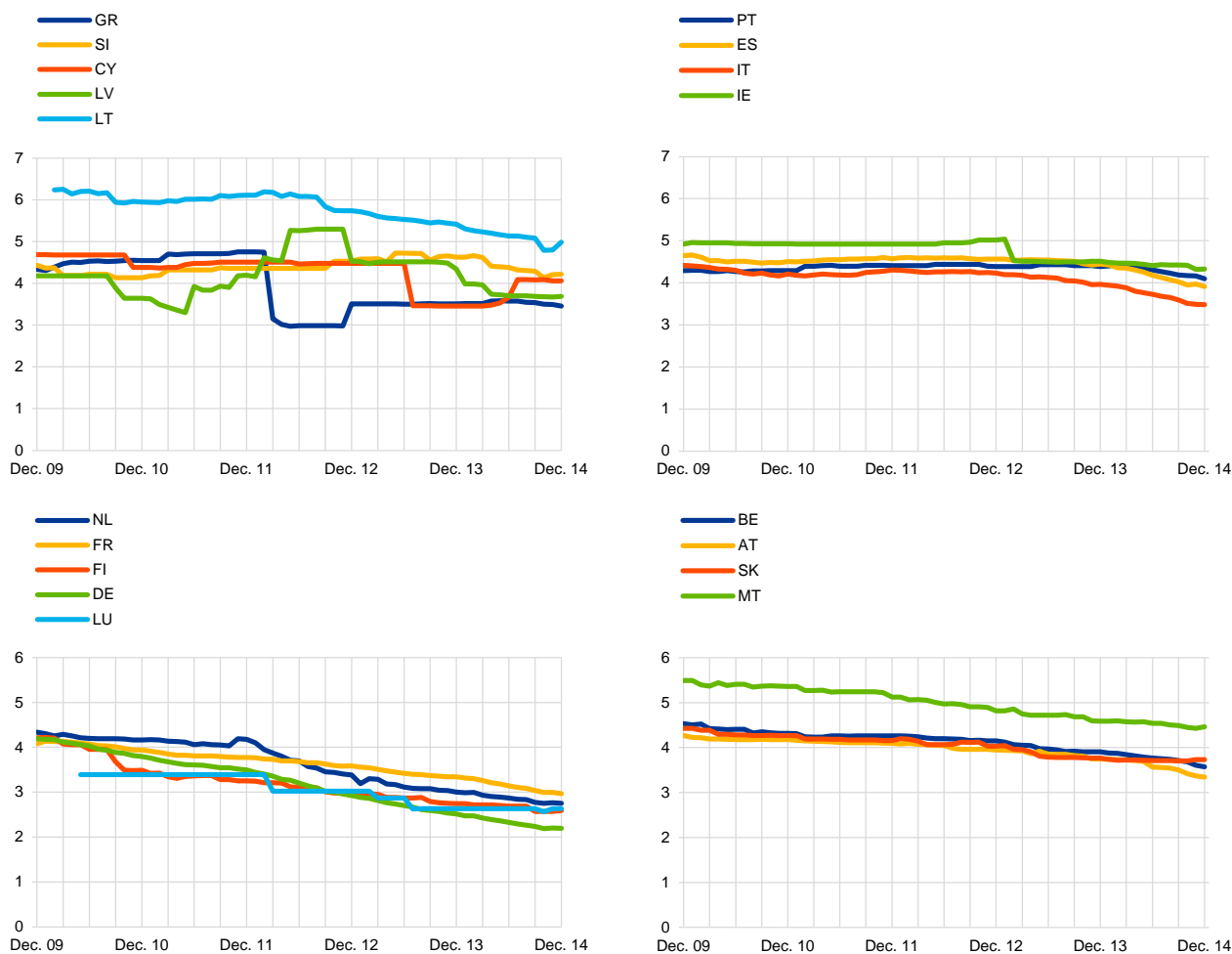
3.2 Main results

The average nominal yields of euro area government debt securities showed a fairly stable pattern after the onset of the euro area sovereign debt crisis in late 2009. With a very few country exceptions, the average nominal yields have since decreased (see Chart 5). For instance, Germany reduced its average nominal yields by almost a full 200 basis points to 2.2%, from the peak of 4.2% in January 2010.

Chart 5

Average nominal yields for euro area government debt securities, by country

(percentage per annum)



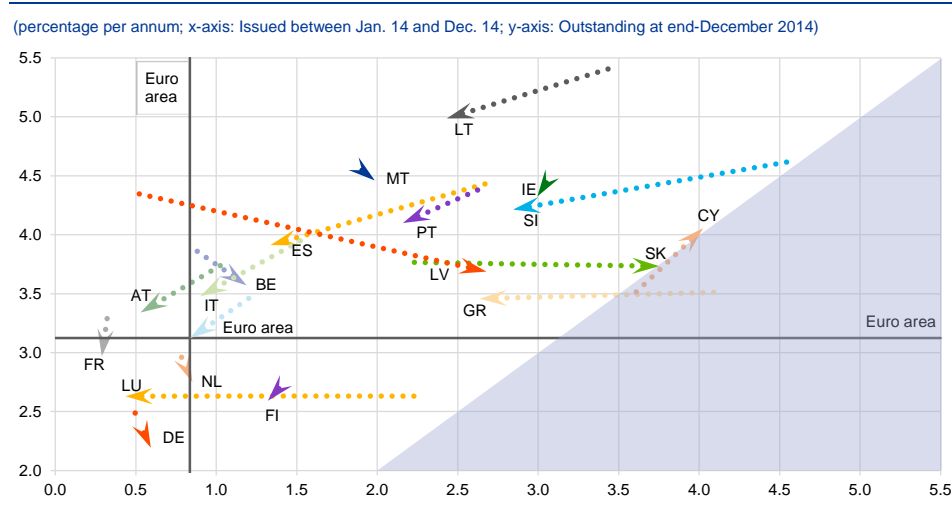
Sources: ECB and ECB calculations.

In Ireland, the aggravation of the euro area sovereign debt crisis led average nominal yields to increase rapidly to around 5% and then fell slightly in February 2013 and to reach 4.3% by the end of 2014. For Greece, average nominal yields stood high (at close to 5%) until February 2012, when there was a sudden drop associated with the private sector involvement in the Greek government debt exchange. Since then the average nominal yields for Greek sovereign bonds have remained steady, standing at about 3.5%. Other countries that were distinctly affected by the crisis, such as Spain, Italy, Latvia and Portugal, witnessed high average nominal yields for their debt securities between 2010 and 2012. It was not until 2013 that yields started to drop to levels seen prior to the sovereign debt crisis. Finally, the average nominal yields of government debt securities issued by Slovenia increased gradually in 2013, partly responding to the financial measures (e.g. bank nationalisation and recapitalisation) taken by their governments in order to stabilise the financial sector.

In contrast, developments conducive to declining average nominal yields have been observed in Belgium, Germany, France, Luxembourg, Malta, Austria, the Netherlands, Slovakia and Finland since late 2011. A significant drop in average nominal yields is seen for the sovereign debt of Germany, France, Luxembourg, the Netherlands and Finland, where levels below 3% have been reached for the first time in several years.

The average nominal yield on outstanding government debt securities for the euro area as a whole fell to 3.1% at the end of 2014, from 3.5% one year ago (see Chart 6). Compared with the end of 2013, only Cyprus recorded an increase in average nominal yield. At the end of 2014, the maximum difference in average nominal yield was between Germany (lowest at 2.2%) and Lithuania (highest at 5.0%).

Chart 6
Average nominal yields for euro area government debt securities, euro area total and by country



Sources: ECB and ECB calculations.
Note: The dotted lines show the change versus a year earlier by country and the arrows indicate the direction of the change towards the latest data point.

In 2014 the average nominal yield on debt securities issued by euro area governments as a whole was 0.8%, some 40 basis points lower than one year

previously. And all euro area countries, except Cyprus and Slovakia, succeeded in issuing new government debt securities with lower average nominal yields than for their total debt securities outstanding. This has contributed to bringing down average nominal yields for total debt securities outstanding to below their 2013 level for all euro area governments except Cyprus.⁶ It should also be noted that new debt securities issuance by Belgium, Germany, Cyprus, Latvia, Malta, the Netherlands and Slovakia achieved higher average nominal yields than in 2013, which was partly related to the preference for issuing debt securities with longer maturities (these normally bear higher interest rates than debt securities with shorter maturities).

3.3 Selected analysis: Nominal yields and market yields

The average nominal yield provides a measure of the interest cost associated with the debt issued by an entity, in this paper by government. Typically, the average nominal yield remains fairly stable and only changes markedly when considerable amounts of debt are redeemed and/or issued. It can be used to assess, from the debtor perspective, the amounts of interest expenditure that will need to be serviced with the current debt outstanding. The average nominal yield is calculated for all debt securities outstanding.⁷ The average nominal yield changes with the primary (issuance) market trades but does not change with trades in the secondary market, except if the issuer buys back its own debt securities in the market to proceed with an early redemption.

On the other hand, the yield to maturity quoted in sovereign bond markets reflects the interest revenue that a creditor would obtain from buying a debt security and holding it until maturity.⁸ This market rate is affected by several characteristics of the debt security, such as the coupon rate, maturity, risk creditworthiness of the issuer and volume issued, but also by market supply and demand. The market yield to maturity is calculated only for a few selected government debt securities, usually called benchmark debt securities, and is calculated for several remaining maturities, such as 5 years and 10 years. The market yield to maturity may vary very quickly depending on economic events and news. It is also affected by both primary (issuance) and secondary market trades. The market yield can be used to gather information on the possible interest cost with the issuance of new debt securities.

It is interesting to compare the two rates, particularly those at the peak of the euro area sovereign debt crisis (June 2012) and the latest observation for 2014 (see Chart 7). A noteworthy development is that, despite the extreme market yields for some countries during the crisis, the average nominal yield remained below 5.5% for all

⁶ With regard to Slovakia, although the average nominal yield for issuance of new government debt securities in 2014 was higher than the average nominal yield for total debt securities outstanding, the foregoing average nominal yield was even higher, leading to an overall reduction of the average nominal yield in 2014 as compared with 2013.

⁷ It is also possible to calculate a breakdown of average nominal yield by remaining maturity. Although available, this breakdown is not shown in this paper.

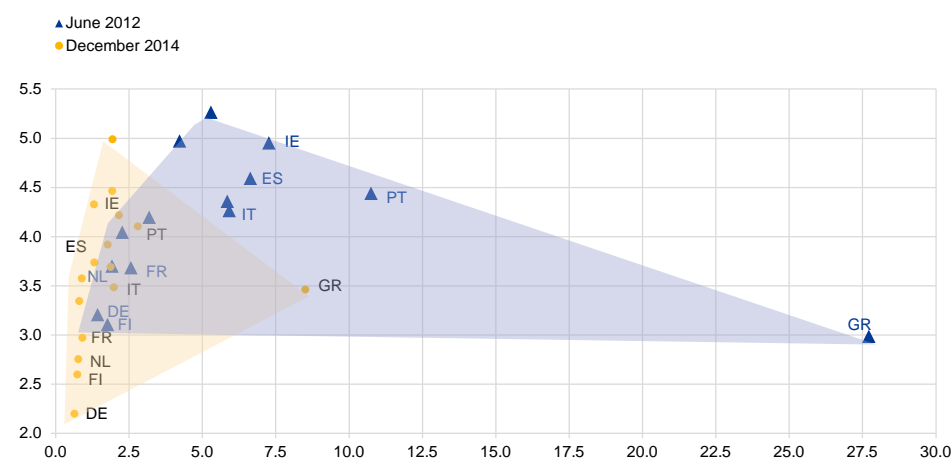
⁸ The ECB publishes yield curves for "AAA-rated" euro area central government bonds, i.e. debt securities with the most favourable credit risk assessment, and other-rated euro area central government bonds.

euro area countries. This is naturally related to the efforts that euro area countries and EU institutions took to contain the euro area sovereign debt crisis. For instance, the ECB's non-standard monetary policy measures (such as the Securities Markets Programme, the covered bond purchase programmes, outright monetary transactions, emergency liquidity assistance and long-term refinancing operations)⁹ have contributed to lowering the market yields considerably, to the point where, in December 2014, the dispersion between countries had been considerably reduced as compared with June 2012.

Chart 7

Average nominal yields and 10-year market yield to maturity for euro area government debt securities for selected countries

(percentage per annum; x-axis: Market yield to maturity (% per annum); y-axis: Average nominal yield (% per annum))



Sources: ECB, Thomson Reuters and ECB calculations.

Another interesting observation is that, while the reduction of the market yields was more visible in the countries that were financially stressed (e.g. Greece, Ireland, Italy and Portugal), the reduction of the average nominal yields is more visible for countries with higher credit creditworthiness (e.g. Germany, France, the Netherlands and Finland).

⁹ See <http://www.ecb.europa.eu/mopo/html/index.en.html> for further information.

4 Using CSDB data – selected issues

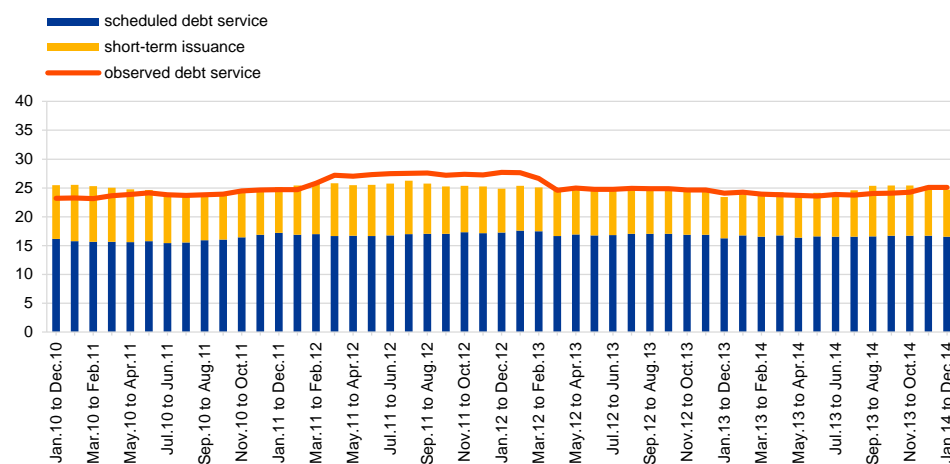
This section discusses some issues that a data user needs to consider when analysing debt service and average nominal yields. More specifically, it describes a) the impact of issuance of short-term debt and earlier debt redemptions in the calculation of debt service, and b) the effect of issuance at a discount/premium in the breakdown of debt service between principal (face value) and interest. It also examines a current limitation in using the CSDB for the calculation of average nominal yields when additional debt is issued under the same debt security (tap issuance).

4.1 Short-term issuance of debt securities and debt service

The scheduled debt service for the coming year records all debt securities outstanding that will mature in the coming 12-month period. For instance, in December 2013 the scheduled debt service (principal amounts only) in the euro area shows that government debt securities maturing in the coming year (i.e. between January 2014 and December 2014) amounted to 16.5% of GDP (see Chart 8). However, the actual or observed debt service after that year had passed was considerably higher (25.1% of GDP). The gap between the scheduled and the observed debt service (principal amounts only) can be explained by the issuances of short-term debt securities and, to a lesser extent, by earlier redemptions (partial or total) of debt securities. It should be noted that, to measure the gap, not all short-term debt securities are to be considered but only those that were issued and matured between January 2014 and December 2014 (e.g. all three-month debt securities issued between January 2013 and September 2014).

Chart 8**Debt service by euro area governments (in the coming year) – scheduled and observed**

(percentage of GDP)



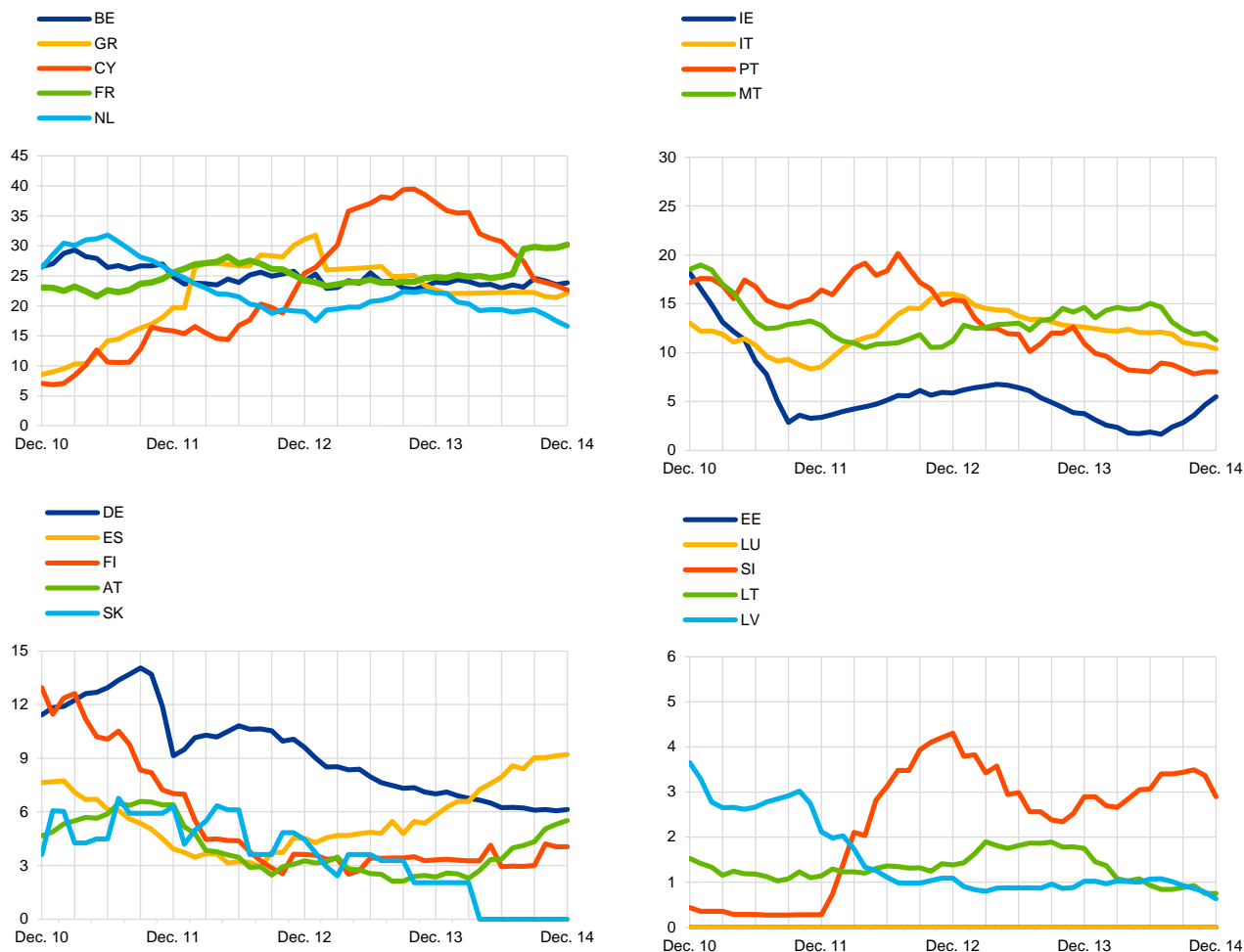
Sources: ECB and ECB calculations.

For most euro area governments, the issuances of short-term securities in the past 12-month period were stable and below 15% of GDP (see Chart 9). At the time of the financial crisis and the euro area sovereign debt crisis, when several governments experienced difficulties in their efforts to issue long-term government bonds, short-term issuances became noticeably important. In Cyprus, short-term issuances, during the previous 12 months, gradually increased after December 2012 and reached a peak of 39.5% of GDP in October 2013. In Greece, short-term issuances were high, above 20% of GDP from January 2012 onwards, and attained a maximum of 31.8% of GDP in January 2013. In the Netherlands, short-term issuances were pronounced until June 2011 but thereafter gradually decreased to 16.6% of GDP in December 2014. An interesting development can be observed for Ireland, where short-term issuance during the crisis reached 18.2% of GDP (in December 2010) and later decreased significantly, falling to a minimum of 1.7% of GDP in July 2014. Germany also shows an increase to 14.0% of GDP (in September 2011), with this then being reduced to levels around 6.1% of GDP (in December 2014). Since 2011, high short-term issuances (above 20% of GDP) have also been observed in Belgium and France.

Chart 9

Short-term issuances of debt securities, by country

(12-month cumulated sum as a percentage of GDP)



Sources: ECB and ECB calculations.

4.2 Issuance at a discount/premium and debt service

The European statistical standards for the compilation of national accounts data (the European System of Accounts 2010 (ESA)) recommend that, for debt securities issued at a discount/premium (e.g. zero coupon bonds), the difference between the issue price and the redemption price be treated as interest to be accrued over the lifetime of the security. The calculation of nominal yields (see Equation (1)) takes into account the existence of a discount/premium.

As discussed in the following section, the data on government debt securities compiled from the CSDB show the face value of the debt securities (which is closer to the concept of government debt). The face value (redemption value) for securities issued at a discount/premium includes an interest component. By computing the face value of debt securities, the breakdown between principal and interest in the debt

service cannot be properly separated for securities issued at a discount/premium, as otherwise the interest part would be counted twice. For the debt service, only the coupon part of the debt security is recorded as interest.

For example, the interest accrued on a four-year zero coupon bond issued with a discount of 20% (issue price of 80, redemption value of 100) is equal to 5% per annum. In accordance with the international statistical standards, the scheduled payments (debt service) would record 5% in the first year, 5% in the second year, 5% in the third year and finally 85% (80% related to the principal amount – issue price – and 5% related to the interest component) in the fourth year. However, the debt service for a zero coupon bond calculated using the CSDB will show only a scheduled payment in the fourth year amounting to 100% (redemption price).

4.3 Nominal yield calculation and bond taps

It is common practice among issuers of debt securities to resort to issuance of additional debt from past issues under the same instrument, referred to as “bond taps” or “tap issues”. This method allows the issuer to elude certain transaction or legal costs as well as to speed up the raising of funds. In addition, many of the formalities needed to issue a bond, such as the prospectus, are bypassed by the issuer, which immediately proceeds with the auction of new securities. This practice is very common for euro area government debt securities.

The special characteristics of these types of issuances have implications when considering the interest component in the CSDB. The new tranche will be issued with the exact same terms (maturity date, coupon, etc.) as the original issuance; however, it might have a different issue price. This implies that the total nominal yield to be paid should be calculated as a weighted average of the nominal yield for each tranche and the initial issuance (i.e. the coupon rate of the tranche when issued and any difference between the stated redemption price at maturity and the issue price for each tranche).

The security-by-security information derived from the CSDB makes it possible to calculate the nominal yield for each security (see Section 3.1). However, for tap issues, the specific issue price is known only for the initial issuance and is not recorded for any subsequent new tranche (only the amounts outstanding are tracked) in the CSDB. The main consequence is that the nominal yield calculation has a bias towards the initial issuance as only the initial issue price will be considered. The impact in the computations will be a higher issue price of the initial issuance compared with the issue of the tranches will result in a lower total nominal yield and vice versa).

An example of the bias introduced into the average nominal yield is provided in Table 1, which shows the data extracted from the CSDB supplemented with additional information for each tranche issued. In this example, there are several tranches that are issued at different prices. The results show that, using the weighted average of the nominal yields of each tranche, the total average nominal yield is 3.97% (Method

1). If only the initial issue price of the first tranche is used for the total amounts issued, the average nominal yield is 3.86% (Method 2), i.e. equal to the average nominal yield on the first tranche. The total difference is 11 basis points lower. From a statistical perspective, this difference does not affect the general results. However, possible improvements to the CSDB are being considered in order to reduce this bias.

Table 1
Example of average nominal yield calculation methods for tap issues

Method 1: Calculation of nominal yield considering different issue prices for each tranche								
Tranches	Issue date	Maturity date	Issue price	Redemption price	Amounts issued (€ bn)	Share (% of total)	Coupon (fixed, annual) rate (% per annum)	Nominal yield per tranche (% per annum)
Initial	23/02/2005	15/04/2021	99.8	100	3,000	39.9	3.85	3.86
Second	18/04/2005	15/04/2021	99.0	100	1,108	14.8	3.85	3.91
Third	16/05/2005	15/04/2021	100.8	100	1,079	14.4	3.85	3.80
Fourth	15/08/2005	15/04/2021	100.9	100	900	12.0	3.85	3.79
Fifth	15/03/2010	15/04/2021	97.1	100	990	13.2	3.85	4.11
Last	13/09/2010	15/04/2021	83.6	100	434	5.8	3.85	5.40
Average nominal yield (% per annum):								3.97
Method 2: Calculation of nominal yield assuming the same issue price for all tranches (currently adopted)								
Tranches	Issue date	Maturity date	Issue price	Redemption price	Amounts issued (€ bn)	Share (% of total)	Coupon (fixed, annual) rate (% per annum)	Nominal yield per tranche (% per annum)
Total	23/02/2005	15/04/2021	99.8	100	7,510	100	3.85	3.86
Average nominal yield (% per annum):								3.86
Difference between Method 1 and Method 2 (basis points):								11

Sources: ECB and ECB calculations.

5 The CSDB, the European statistical standards and Government debt

At the end of 2014, the outstanding amounts of debt securities issued by euro area residents amounted to approximately €16.4 trillion. This figure shows the relevance of the euro area debt securities market and the importance of having more detailed information on debt securities. The Centralised Securities Database was created as a multi-purpose system jointly operated by the ESCB and contains detailed reference information on the issuance of securities, making it a valuable source of information for statistical compilation as well as for increasing non-statistical needs. A brief description of the CSDB, an internal database available to the ESCB, and its relevance for policy-making is presented in this section. In addition, the CSDB data are compared with the statistical concept of government debt used in Europe in terms of sector coverage, valuation and calculation method, and then a comparison of the figures computed on the basis of these two sources is undertaken.

5.1 A brief description of the CSDB

The CSDB is a security-by-security database that went live in 2009 with the aim of holding complete, accurate, consistent and up-to-date information on all individual securities relevant for the statistical (e.g. financial accounts, balance of payments, investment funds and securities holdings statistics) and, increasingly, non-statistical (e.g. monetary policy, fiscal analysis, market operations and risk management) purposes of the ESCB. The CSDB covers securities issued by EU residents; securities likely to be held and transacted in by EU residents; and securities denominated in euro, regardless of the residency of the issuer and holders. The CSDB currently contains information on over seven million non-matured or “alive” debt securities, equities and mutual fund shares/units plus approximately nine million matured or “non-alive”¹⁰ securities.

The CSDB is an ESCB common data platform containing reference data on securities (e.g. outstanding amounts, issue and maturity dates, coupon and dividend information, statistical classifications, etc.), issuers and prices (market, estimated or defaulted) as well as more recently introduced information on ratings (of the security, issuer, guarantor or issuance programmes).¹¹

The CSDB is a single information technology infrastructure which is operated jointly by the members of the ESCB and promotes consistent results and efficient data

¹⁰ An example of a “non-alive” security would be equity of a bankrupt company which is kept in the CSDB for reference.

¹¹ To date, rating information in the CSDB has only been used by the ECB.

reporting and compilation. Developed by the ECB, the system is accessible by the ESCB only, i.e. is not available for the public, and uses data from commercial data providers and other existing sources (via ESCB members); the most reliable value for each attribute is selected and gaps (in particular for prices and income) are filled with reliable estimates. It makes use of expertise within the ESCB to enhance data quality in accordance with the Guideline of the European Central Bank of 26 September 2012 on the data quality management framework for the Centralised Securities Database (ECB/2012/21).

5.2 Relevance of CSDB data for government finance statistics and policy-making

The CSDB has the potential to provide valuable inputs for conducting fiscal surveillance and analysis, as well as for assessing complex fiscal, monetary and financial interactions. The financial crisis that hit Europe in recent years increased the relevance of granular security-by-security data as a means of ensuring better microeconomic analysis of financial markets, focusing on specific instruments and markets. The changing financial environment and developing needs demand flexible statistical reporting. Furthermore, interest in the risks associated with different types of instruments/issuers has added new requirements that have made the CSDB platform a relevant tool for monetary and fiscal policies. In addition to the availability of granular data, the timeliness of the CSDB information enables policy-makers to react more quickly to the evolution of and trends in the financial markets. The system processes information on a daily basis and provides end-of-month data with a delay of approximately one to two weeks, which means that users have access to data far more quickly than to other aggregated statistics as well as the possibility of many more data breakdowns.

Particularly on government finance statistics, given that debt securities account for by far the largest share of government debt in the euro area (around 80% of government debt), the CSDB allows the calculation of sovereign financing needs, both in the short run (to signal sovereign liquidity risks), as well as over the medium run (to identify potential peaks in sovereign bond redemptions). Moreover, such data could be used to calculate new borrowing requirements over the medium to long term, and, combined with data on the structure of debt (i.e. a breakdown by residual maturity, types of government securities (T-bills versus bonds, share of inflation-indexed bonds, share of variable-interest rate debt), etc.) could help towards generating more realistic simulations for debt sustainability analysis and deriving various sovereign vulnerability indicators.

Liquidity and sovereign debt sustainability risks matter not only for fiscal surveillance, but also in terms of identifying the risks to financial stability. Large financing needs of the sovereign can crowd out agents in other sectors, both financial institutions and corporations. At the same time, they tend to amplify the sovereign-banking nexus. Therefore, detailed information on the risks and fragilities associated with sovereigns could feed into vulnerability matrices for other sectors, in particular the financial sector.

Finally, CSDB data could be used to analyse interactions between monetary and fiscal policy, for example, to estimate the effects of monetary policy decisions on sovereign yields and ultimately on the fiscal position. In this respect, the CSDB enables sensitivity analysis of the pass-through of changes in sovereign yield curves to budget interest payments. Assumptions about the nature, size, duration and direction of interest rate shocks could be used to conduct scenario analysis to assess the fiscal room for manoeuvre, impact on the short-run fiscal position or longer-run sustainability risks.

5.3 European statistical standards and government debt

On the one hand, the CSDB provides all the information needed to compile high-quality statistics on the issuance of government debt securities in accordance with the ESA, in terms of sector classification and coverage, instrument breakdown (short and long-term) and valuation. On the other hand, in Europe, a relevant indicator for general government statistics is government debt, also referred to as “EDP debt” or “Maastricht debt”, as defined in Protocol No 12 on the Excessive Deficit Procedure (EDP) annexed to the Treaty on European Union (the “Maastricht Treaty”) and in Council Regulation (EC) No 479/2009 (as amended) on the application of the Protocol. Total general government gross debt is defined in the Protocol No 12 on the EDP as the “total gross debt at nominal value outstanding at the end of the year and consolidated between and within the sectors of general government” and has the characteristics presented in Table 2. Bearing those aspects in mind, the data compiled from the CSDB on the basis of ESA may deviate in several respects from government debt based on the EDP. Nevertheless, the indicators presented in this paper are complementary, relevant and useful to produce. The main differences between the CSDB data and EDP government debt are outlined below.

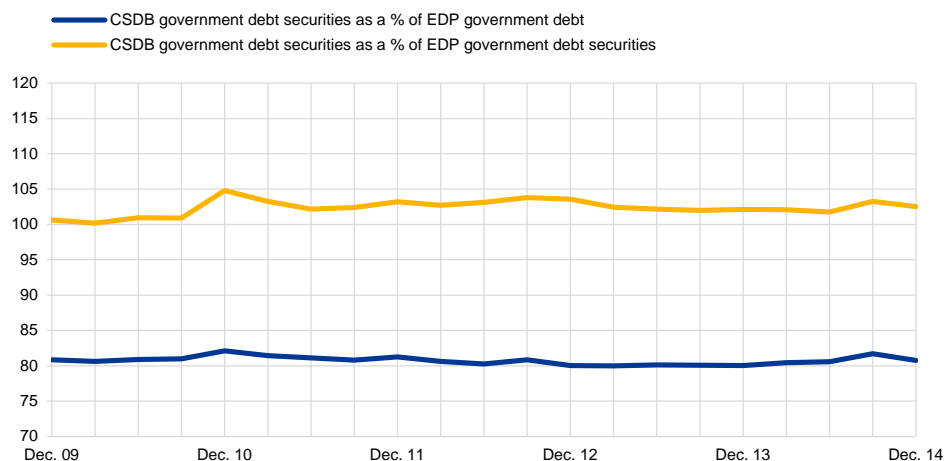
The actual comparison of the outstanding amounts of government debt securities issued by euro area countries computed from the CSDB and the EDP euro area government debt shows a very stable relation, between 80% and 82% since the end of 2009 (see Chart 10). Meanwhile, a direct comparison of the EDP government debt in the form of debt securities and the CSDB figures reveals a ratio that has been floating at around 100% and 105% since the end of 2009. These facts inspire confidence with regard to using the timely CSDB data as an early indicator of EDP government debt.

Table 2
Methodological comparison of government debt and CSDB data

	Government debt (EDP)	CSDB data
Sector delineation	In line with the ESA sector classification. The general government sector comprises: central government, state government, local government and social security funds. Publicly owned units engaged in commercial operations, such as public corporations, are excluded from the measurement of government debt.	The sector delineation in the CSDB follows the ESA and is essentially in line with the sector delineation for government debt. Nonetheless, there may be some cases where an entity is not classified along those lines: a) when certain operations of a specific unit are rerouted to government accounts (e.g. government special purpose units located abroad with the objective of issuing debt); b) if there is a temporary misclassification due to the CSDB data flow process. The sector classification of issuers in the CSDB is first prepared by commercial data providers, which are instructed to adhere to the description of the institutional units in the ESA. However, the statistical classification sometimes obeys very detailed rules that commercial data providers are not able to implement. In such situations, the national central banks perform an analysis of the sector classification, thereby ensuring that all entities are classified correctly. The sector classification is then harmonised with the different statistical domains, including the statistics compiled by the national statistical institutes.
Breakdown by instrument	Includes the liabilities of general government in the form of (i) currency and deposits, (ii) debt securities, and (iii) loans, as defined in ESA.	Covers only debt securities, which cover about 80% of euro area government debt.
Valuation	Measured as the "face value" of the debt. It equals the amount contractually agreed that the government will have to refund to creditors at maturity. This means, in particular, that government debt is not affected by changes in market yields or by accrued interest. Debts that are denominated in foreign currency and are exchanged into the national currency through contractual agreements, such as swaps and forward rate agreements, are converted into the national currency at the rate agreed in those contracts and not at the prevailing market rate. The vast majority of government debt in the euro area is denominated in euros.	Provides data on debt securities at face value (as well as at market value). Debt securities denominated in foreign currency in the CSDB are converted into the national currency on the basis of the representative market exchange rate prevailing on the last working day of each month.
Consolidation	Government debt is consolidated across the general government sector, which implies that government debt instruments held as assets by general government units are not included in the calculation of the debt.	No information allowing the consolidation of government debt securities. Data on government debt securities held by other government units, on a security-by-security basis, are contained in the ESCB Securities Holding Statistics Database, which is not yet operational.

Chart 10
Government debt securities computed from the CSDB compared with EDP government debt

(CSDB data as a percentage of EDP government debt data)



Sources: ECB, Eurostat and ECB calculations.

6 Conclusion

This statistical paper presents two monthly statistical indicators related to debt securities issued by the euro area governments – debt service, defined as the scheduled payments of principal and interest by the debtor in the coming year, and the average nominal yield, i.e. the interest rate that the debtor promises to pay creditors per unit of time. These statistics, compiled from the Centralised Securities Database, offer interesting insights into the euro area government debt securities markets. These very timely monthly indicators, which the European Central Bank started disseminating in November 2014¹², may also be used to monitor possible strains in servicing government debt, including debt sustainability; perhaps generating information useful in determining monetary and fiscal policies.

The paper describes in detail the statistical compilation of the debt service and average nominal yields statistics for euro area government debt securities, forging a link to the all-encompassing government debt statistics (around 80% of government debt takes the form of debt securities). The main findings are that these statistics complement the available statistical information on government finance. Furthermore, the new statistics are available with a short time lag. Hence, users can access data far more quickly and with many more data breakdowns than other aggregated government finance statistics.

This paper presents the recent developments in debt service and average nominal yields statistics for the euro area governments, by country, in an extremely challenging period for the euro area sovereign debt markets. They indicate that, as at December 2014, the debt service scheduled for such securities in 2015 stood at approximately 15.9% of GDP (€1.6 trillion). This is associated with an average nominal yield on outstanding government debt securities for the euro area as a whole of 3.1% per annum. Both of these indicators, but notably nominal yields, have followed a decreasing path in recent periods. The new indicators also reveal some heterogeneity within the euro area: Italy shows the highest debt service (23.9% of GDP) and Luxembourg the lowest (at less than 0.3% of GDP), while the debt securities issued by Germany have the lowest average nominal yield (2.2% per annum) and Lithuanian ones the highest (5.0%).

¹² Available via <http://sdw.ecb.europa.eu/reports.do?node=1000003848>

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Glossary of terms

Debt (in the context of the financial accounts): loans, deposit liabilities, debt securities issued and pension fund reserves of non-financial corporations (created through direct pension commitments of employers on behalf of their employees), valued at market value at the end of the period. However, due to data limitations, the debt given in the quarterly financial accounts does not include loans granted by non-financial sectors (e.g. inter-company loans) or by banks outside the euro area, whereas these components are included in the annual financial accounts.

Debt market: the market in which the debt instruments are issued and traded. Securitised debt has to be repaid by the issuer at maturity.

Debt ratio: the subject of one of the fiscal criteria used to define the existence of an excessive deficit, as laid down in Article 126(2) of the Treaty on the Functioning of the European Union (TFEU). It is defined as the ratio of government debt to gross domestic product at current market prices, while government debt is defined in Protocol No 12 (on the excessive deficit procedure) as the total gross debt at nominal value outstanding at the end of the year and consolidated between and within the sectors of general government.

Debt security: a promise on the part of the issuer (the borrower) to make one or more payment(s) to the holder (the lender) on a specified future date or dates. Such securities usually carry a specific rate of interest (the coupon) and/or are sold at a discount to the amount that will be repaid at maturity. Debt securities issued with an original maturity of more than one year are classified as long-term.

Debt service: set of payments, including the principal amount and interest, to be made by the debtor over the life of a debt. Debt service can be measured for past periods (observed) or future periods (scheduled). The most common period selected for debt service is the coming year.

Deficit ratio: the subject of one of the fiscal criteria used to define the existence of an excessive deficit, as laid down in Article 126(2) TFEU. It is defined as the ratio of the planned or actual government deficit to gross domestic product at current market prices. The government deficit is defined in Protocol No 12 (on the Excessive Deficit Procedure) as net borrowing of the general government.

Discount: the difference between the par value of a security and its price when such price is lower than par.

Euro area: the area formed by the EU Member States whose currency is the euro and in which a single monetary policy is conducted under the responsibility of the Governing Council of the ECB. The euro area currently comprises Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

European System of Central Banks (ESCB): the central banking system of the European Union. It comprises the ECB and the national central banks of all EU

Member States (but the national central banks of EU Member States whose currency is not the euro are not involved in the conduct of the Eurosystem's monetary policy for the euro area because they retain responsibility for monetary policy under national law).

European System of Financial Supervision (ESFS): the group of institutions in charge of ensuring the supervision of the EU's financial system. It comprises the European Systemic Risk Board, the three European Supervisory Authorities (the European Banking Authority, the European Securities and Markets Authority and the European Insurance and Occupational Pensions Authority), the Joint Committee of the European Supervisory Authorities, and the national supervisory authorities of the EU Member States.

Fixed rate instrument: a financial instrument for which the coupon is fixed throughout the life of the instrument.

Floating rate instrument: a financial instrument for which the coupon is periodically reset relative to a reference index to reflect changes in short or medium-term market interest rates. Floating rate instruments have either pre-fixed coupons or post-fixed coupons.

General government: a sector defined in the European System of Accounts 2010 (ESA) as comprising resident entities that are engaged primarily in the production of non-market goods and services intended for individual and collective consumption and/or in the redistribution of national income and wealth. Included are central, state and local government authorities as well as social security funds. Excluded are government-owned entities that conduct commercial operations, such as public enterprises.

Government deficit/surplus: net borrowing/lending by the general government sector.

Government expenditure: the set of non-financial transactions defined in the ESA as decreasing general government net lending or increasing general government net borrowing, i.e. transactions that decrease the general government sector's net worth.

Government revenue: the set of non-financial transactions defined in the ESA as increasing general government net lending or decreasing general government net borrowing, i.e. transactions that increase the general government sector's net worth.

Gross domestic product (GDP): a measure of economic activity, namely the value of an economy's total output of goods and services, less intermediate consumption, plus net taxes on products and imports, in a specified period. GDP can be broken down by output, expenditure or income components. The main expenditure aggregates that make up GDP are household final consumption, government final consumption, gross fixed capital formation, changes in inventories, and imports and exports of goods and services (including intra-euro area trade).

Interest rate: the ratio, usually expressed as a percentage per annum, of the amount that a debtor has to pay to the creditor over a given period of time to the amount of the principal of the loan, deposit or debt security.

Issue price: the price fixed for investors; fees to underwriters should not be taken into account.

Market yield to maturity: the rate of return anticipated on a debt security if it were held until its maturity date.

Maturity date: the date on which the debt instrument is actually redeemed.

Monetary policy strategy: the general approach to the conduct of monetary policy. The monetary policy strategy of the ECB comprises a quantitative definition of the primary objective of price stability and an analytical framework based on two pillars – economic analysis and monetary analysis – which forms the basis of the Governing Council's overall assessment of the risks to price stability and of its monetary policy decisions. It also provides the framework for explaining monetary policy decisions to the public.

Nominal yield: the interest rate that the debtor promises to pay debt holders per unit of time.

Original maturity (maturity at issue): the period of life of a financial instrument that is fixed at the time it is issued. A redemption of that financial instrument is not possible before that period has expired (in the case of debt securities, for instance) or is possible earlier only if some form of penalty is paid (in the case of some types of deposit). Financial instruments are classified according to the period of notice only when there is no agreed maturity.

Outstanding amount: the amount outstanding at nominal value. For a security issued in tranches (under the same International Securities Identification Number (ISIN)) it indicates the cumulative amount issued to date, net of redemptions. Values are available in nominal currency terms and converted into euro on the basis of the official exchange rate.

Premium: the difference between the par value of a security and its price when such price is higher than par.

Principal amount: The amount contractually borrowed (such as the face value of a debt security), or the part of the amount contractually borrowed which remains unpaid.

Redemption price: the price paid when the security is redeemed.

Residual maturity: time remaining until the maturity date of a debt instrument.

Security-by-security data collection: the collection of data broken down into individual securities.

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Abbreviations

CMFB	Committee on Monetary, Financial and Balance of Payments Statistics
CSDB	Centralised Securities Database
ECB	European Central Bank
EDP	Excessive Deficit Procedure
ESCB	European System of Central Banks
ESA	European System of Accounts 2010
ESS	European Statistical System
EU	European Union
GDP	Gross Domestic Product
GFS	Government Finance Statistics
IMF	International Monetary Fund
TFEU	Treaty on the Functioning of the European Union

Countries

BE	Belgium	LU	Luxembourg
DE	Germany	MT	Malta
EE	Estonia	NL	Netherlands
IE	Ireland	AT	Austria
GR	Greece	PT	Portugal
ES	Spain	SI	Slovenia
FR	France	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus	EA	Euro Area
LV	Latvia	UK	United Kingdom
LT	Lithuania		

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