

Green and sustainability bonds issued by governments

Statistics Explained

*Data extracted in June 2023.
No planned article update.*

" At the end of 2022, the overall face value stock of green bonds issued by EU general governments was € 266 billion, equivalent to 1.7 % of EU GDP. "

" Among EU countries, France and Germany had the highest end-2022 stocks of green bonds, at € 94.7 billion and € 63.1 billion, representing 59.2 % of the total amounts outstanding of EU governments. "

This article presents the results of a one-off voluntary data collection on the outstanding stocks of green and sustainability bonds issued by the [general government sector](#) (S.13 as defined in the [European system of Accounts](#) (ESA 2010)). The survey was launched in agreement with [EU Member States](#) on 24 March 2023.

There is no ESA 2010 definition of green bonds, so the term used in this article refers to green and sustainability bonds, as defined by existing market standards and practices.

Current market practice is that assurance to investors on a bond's applicability is provided by external reviewers. European entities wishing to issue green bonds can use several internationally recognised standards, among them the most widely known being the [Green Bond Principles](#) and the [Sustainability Bond Guidelines](#) (International Capital Markets Association or ICMA) and [Climate Bond Standard](#) (Climate Bonds Initiative). These standards set out process-based guidelines and recommendations, but their underlying definitions of green projects are insufficiently standardised and comprehensive. This makes it difficult for investors to identify bonds where the proceeds are aligned with or contribute to environmental objectives. In addition, the current standards do not adequately ensure transparency and accountability of external reviewers, and there is no ongoing supervision of the companies that act as external reviewers.

Total stock of government green bonds outstanding

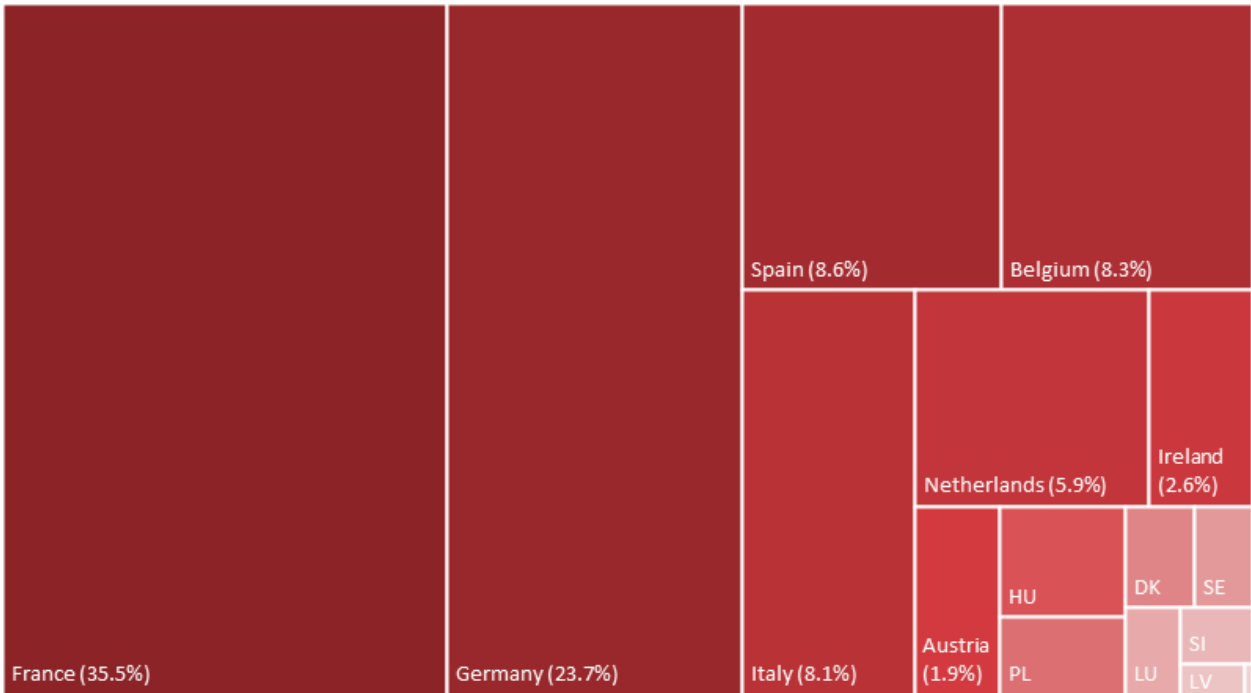
All 27 EU Member States plus Switzerland participated in the data collection exercise. Eleven Member States responded that they had not issued green bonds by the end of 2022 (Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia and Finland).

At the end of 2022, the overall face value stock of green bonds issued by EU general governments was € 266 billion, equivalent to 1.7 % of EU [GDP](#) . This compares to € 85 billion (0.6 % of EU GDP) at the end of 2019.

The ICMA green bond principle and ICMA sustainability bond guideline certification standards were predominantly used by the respondents; while three Member States (Spain, Belgium, and the Netherlands) reported that they used multiple standards for some issuances.

France and Germany had the highest end-2022 stocks of green bonds, at € 94.7 billion and € 63.1 billion, representing 59.2 % of the total amounts outstanding of EU governments. Spain (€ 22.9 billion), Belgium (€ 22.2 billion), Italy (€ 21.5 billion) and the Netherlands (€ 15.7 billion) followed, with these six Members States representing 90 % of EU outstanding amounts of green bonds.

Government green bonds by issuer, end of 2022 (% of total EU)



Note: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia, and Finland had not issued green bonds by the end of 2022.

Source: Eurostat (online data code: gov_gb)

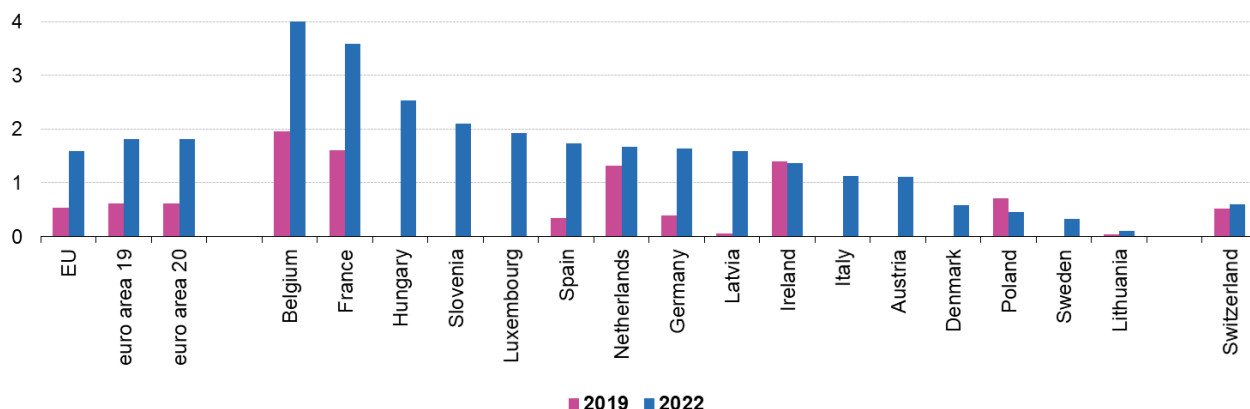
eurostat

Figure 1: Government green bonds by issuer, end of 2022, % of total EU Source: Eurostat (gov_gb)

To put this in a national context other metrics can be considered, for example: compared with their national GDP, the largest issuers at the end-2022 were Belgium (4.0 %), France (3.6 %), Hungary (2.5 %), Slovenia (2.1 %) and Luxembourg (1.9 %); as a proportion of gross consolidated general government debt, the largest issuers were Luxembourg (7.8 %), Latvia (3.9 %), Belgium (3.8 %), Hungary (3.5 %) and the Netherlands (3.3 %).

Stocks of green bonds by issuing Member State, end of 2019 and end of 2022

(% of national GDP)



Note: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia, and Finland had not issued green bonds by the end of 2022.

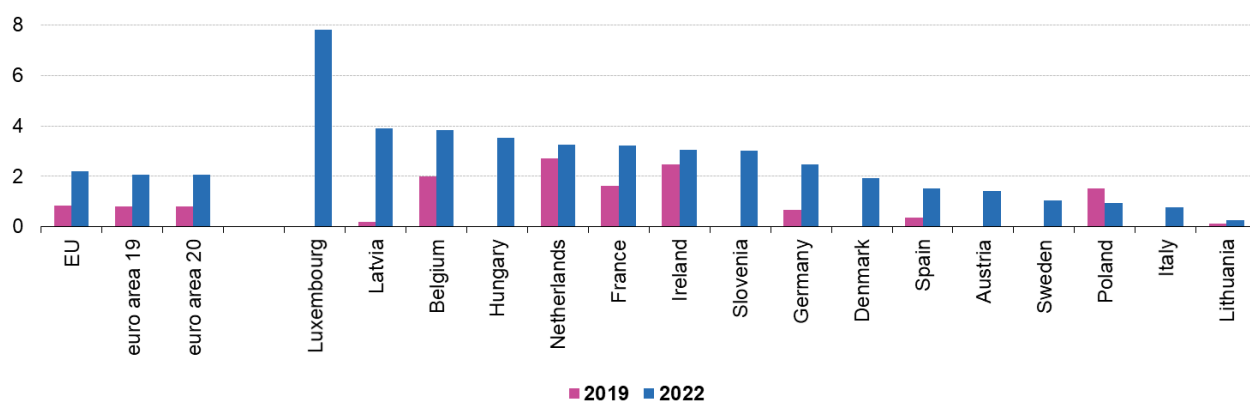
Source: Eurostat (online data code: gov_gb)

eurostat

Figure 2: Stocks of green bonds by issuing Member State, end of 2019 and end of 2022, % of national GDP
Source: Eurostat (gov_gb)

Stocks of green bonds by issuing Member State, end of 2019 and end of 2022

(% of gross debt)



Note: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia, and Finland had not issued green bonds by the end of 2022.

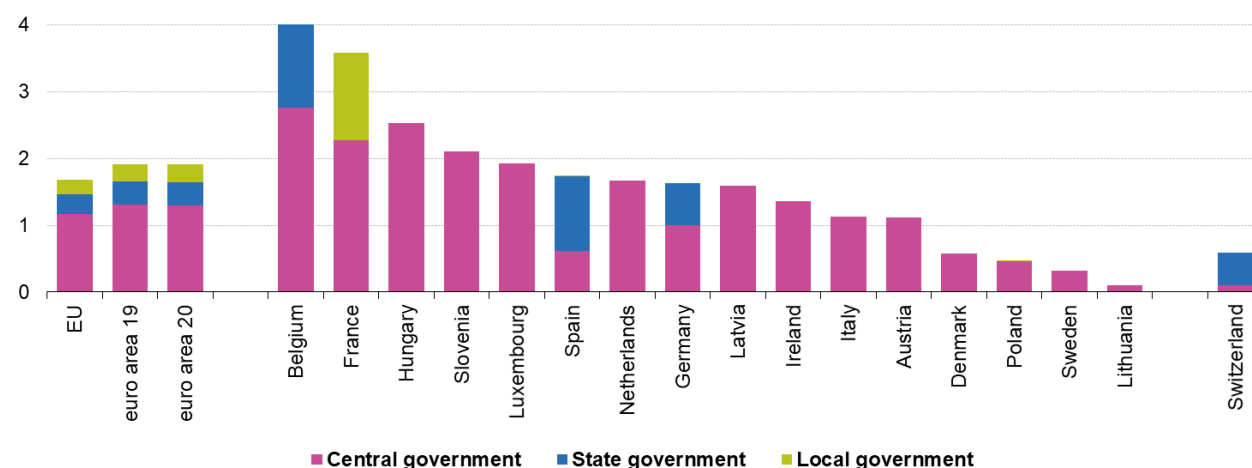
Source: Eurostat (online data code: gov_gb)

eurostat

Figure 3: Stocks of green bonds by issuing Member State, end of 2019 and end of 2022, % of gross debt
Source: Eurostat (gov_gb)

Looking at which of the subsectors of EU general governments had issued green bonds as at end-2022, these were central government (S.1311, 69.6 %), state government (S.1312, 17.4 %) and local government (S.1313, 13.0 %). Germany, Spain and Belgium reported the issuance by state government. The issuance by local government was predominantly reported by France, with marginal amounts for Spain and Poland. All issuance, except one, took the form of long-term debt securities (F.32).

Stocks of green bonds by issuing Member State, end of 2022, (% of national GDP)



Note: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia, and Finland had not issued green bonds by the end of 2022.

Source: Eurostat (online data code: gov_gb)

eurostat

Figure 4: Stocks of green bonds by issuing Member State, end of 2022, % of national GDP Source: Eurostat (gov_gb)

Rate of adoption of green bonds

The rate at which sustainable finance is developing may be better understood by looking at new issuances of green bonds in relation to the overall increase in debt, rather than solely focusing on the total outstanding amounts of green bonds at a specific moment. This measurement captures the pace of growth in sustainable finance and is calculated by taking the gross issuance of green bonds as a percentage of the potential net issuance, which is represented by the change in debt.

The gross issuance of green bonds has been approximated by calculating the variation of stocks, adjusted for redemptions. The variation of stocks may also reflect exchange rate valuation effects when bonds are issued in foreign currencies, although this factor has an impact on both numerator and denominator of the ratio. The gross issuance of green bonds in 2019 has been added to the comparison based on publicly available information to take into account large issuance in some Member States.

Over the period 2019-2022, the highest rate of adoption of green bonds as a percentage of the change in total debt is observed for Sweden (42.5 %), followed by Luxembourg (22.5 %), Denmark (21.5 %), the Netherlands (21.1 %), Ireland (20.4 %), and Belgium (14.5 %).

For the adoption of green bonds measured as a percentage of the change in government debt securities' debt, the highest ratios are observed for Sweden (-10.7 %), the Netherlands (27.4 %), Ireland (21.7 %), Denmark (20.1 %) and Luxembourg (20.0 %). A negative ratio occurs for Sweden because it issued green bonds while at the same time reducing the overall stocks of government debt securities liabilities.

New issuance of green bonds, cumulated 2019-2022

	Issuance of green bonds as a percentage of change in gross debt	Issuance of green bonds as a percentage of change in stocks of debt securities
Sweden	42.5	-10.7
Luxembourg	22.5	20.0
Denmark	21.5	20.1
Netherlands	21.1	27.4
Ireland	20.4	21.7
Belgium	14.5	17.4
Slovenia	13.8	15.8
Germany	11.9	15.7
Latvia	11.6	11.5
France	11.0	12.3
Hungary	9.1	9.8
Austria	7.7	9.5
Spain	7.2	7.5
Italy	5.7	6.9
Poland	2.1	3.2
Lithuania	0.5	0.6

Note: Bulgaria, Czechia, Estonia, Greece, Croatia, Cyprus, Malta, Portugal, Romania, Slovakia, and Finland had not issued green bonds by the end of 2022.

Source: Eurostat, own calculation



Table 1: New issuance of green bonds, cumulated 2019-2022 Source: Eurostat (gov_gb)

In addition to issuances by Member State governments, the European Commission is also a major issuer of green bonds under its NextGenerationEU temporary recovery instrument, which is designed to support the economic recovery from the coronavirus pandemic and build a greener, more digital and more resilient future. The Commission can raise up to € 806.9 billion between mid-2021 and 2026 by issuing EU-Bonds, to finance the Recovery and Resilience Facility - an instrument that provides grants and loans to support reforms and investments in the EU Member States. Up to € 250 billion will be raised by issuing green bonds. According to the [2022 Report on implementation of the NextGenerationEU borrowing operations](#), by the end of 2022 € 171 billion EU-bonds were issued of which € 36.5 billion were green bonds.

Source data for tables and graphs

- [Download Excel file](#)

Data sources

Data collection by Eurostat

The survey was aimed at collecting information about the outstanding amounts of green and sustainability bonds (which are classified in AF.3 ESA 2010 financial instrument category) at the end of the period, at face value (i.e. the valuation used in the Maastricht government debt definition), for the years 2019-2022. Green bonds are debt

instruments issued to fund projects that have a positive impact on the environment or climate. The proceeds of sustainability bonds are used to finance eligible expenditures that fall into both 'Green' and 'Social' categories. As noted at the beginning of the article, there is no uniform standard for green bonds in the EU. The aim of the data collection was to cover all issuances either certified according to these international standards or simply labelled as "Green/Sustainable" by the issuer. Social bonds were reported by two Member States but have been excluded from the figures presented in this article.

The data collection was organised as a database which identifies individual securities. Limited metadata on debt instruments were requested, such as the certification standard used, the bond's International Securities Identification Number (ISIN code), its maturity date (or redemption date), the ESA 2010 instrument classification (AF.31 – short term or, AF.32-long term) and the issuer subsector (S.1311 central government, S.1312 state government or S.1313 local government). All Member States plus Switzerland participated in the data collection exercise.

To ensure the completeness of information and comparability between Member States, additional information was gathered from official websites and stock exchange websites on which the securities are quoted such as:

- [Dutch State Treasury Agency \(DSTA\) - green bonds](#)
- [Republic of Slovenia - Borrowing and state budget debt management](#)
- [Comunidad de Madrid - Sustainable debt](#)
- [Ministry of Finance of the Republic of Lithuania - green bonds](#)
- [Agence France Trésor - green OATs](#)
- [The Swedish National Debt Office - green bonds](#)
- [National Irish Treasury Management Agency - government securities](#)
- [Hungarian Debt Management Agency - green bond](#)
- [Treasury Republic of Latvia - debt management](#)
- [Trésorerie de l'État Grand-Duché de Luxembourg - sustainable finance](#)
- [Société du Grand Paris](#)
- [Belgian Debt Agency - green OLO](#)
- [EURONEXT - ESG bonds](#)
- [Börse Frankfurt](#)

Disclaimer

Data on green bonds are not separately identified within the [Excessive Deficit Procedure](#) notification by Member States nor ESA 2010 transmission programme. Therefore the data were collected from the national statistical authorities and in some cases complemented by [Eurostat](#) using the publicly available sources. The data collected provides a good overview of green bonds issuance over the period in review. However, the sectoral coverage of the data may not be complete, in particular for the local government sector. The emissions from this sector are nevertheless presumed to be low.

Definition of general government and its subsectors

The data relate to the general government sector of the economy, as defined in ESA 2010, paragraph 2.111: The general government sector (S.13) consists of institutional units which are non-market producers whose output is intended for individual and collective consumption, and are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth. The general government is divided in four subsectors central government (S.1311), state government (S.1312), local government (S.1313) and social security (S.1314).

Gross Domestic Product

Throughout this publication, nominal GDP, i.e., GDP at current prices, is used. The latest GDP estimate available at

time of publication is used.

Gross consolidated debt

Government debt (commonly known as Maastricht or EDP debt) is the consolidated gross debt of the general government sector outstanding at the end of the year (at nominal value). For EU aggregates: the data are presented in euro. For those countries not belonging to the euro area, the rate of conversion of the debt into euro uses the end of year exchange rate.

Symbols

":" not available or not applicable

Context

Eurostat does not collect separate data on the stock of debt issued by the Member States' general governments in the form of green/sustainability bonds. The ESA 2010 system covers financial transactions and stocks based on the ESA 2010 nomenclature of financial instruments, and not on the allocation of proceeds or on the marketing denomination of the bonds. Given the growing attention on sustainable finance, Eurostat acknowledged that it could be useful to have a snapshot of the stocks of green/ sustainability bonds issued by general government in the context of the development of the Regulation on European green bonds which sets out the definition of a European green bonds standard (EuGBS).

The European Green Deal of 11 December 2019 underlined the need to better direct financial and capital flows to green investments and the European Green Deal Investment Plan of 14 January 2020 announced that the European Commission would establish an EU green bond standard. The proposed [Regulation of the European Parliament and of the Council on European green bonds](#) aims to set a standard for green bonds. The European standard will improve investors' ability to identify and trust high quality green bonds, facilitate the issuance of these high-quality green bonds by clarifying definitions of green activities to reduce potential reputational risks for issuers involved in transitional activities (involving large carbon-emitting industries such as oil, gas, and steel). It will also improve trust in external reviewers by introducing a registration and supervision regime.

The proposal comprises several key elements. An alignment with the [EU Taxonomy](#) for sustainable activity means that the proceeds from EU green bonds should be used to finance activities that contribute substantially to at least one of the six environmental objectives and do not significantly harm any of the other objectives. A transparency requirement creates an obligation for the issuer to disclose the content of a green bond framework (including key aspects of the proposed use of proceeds, processes, and reporting). The European standard introduces a reporting on the use of proceeds and on environmental impact as well as a mandatory verification of the green bond framework and final allocation report by an external reviewer. Post-issuance external reviews and an audit on the usage of funds are obligatory for government under the Regulation. The Regulation also lays down that reviewers are registered with and supervised by the European Securities Markets Authority (ESMA) to ensure the quality of their services and the reliability of their reviews to protect investors and ensure market integrity.

On February 28, 2023, a political agreement was reached between the European Parliament and the Council on the Commission's proposal for a European Green Bond Regulation. At the time of the publication of this article, the draft Regulation was undergoing the legislative process.

See also

- [Government finance statistics](#)
- [Government finance statistics - quarterly data](#)

- [Structure of government debt](#)

Main tables

- [Government finance statistics \(t_gov\)](#)

Database

- [Government finance statistics \(gov\)](#)

Dedicated section

- [Government finance statistics](#)

Publications

- [EDP and GFS publications](#)

Methodology

- [Government deficit and debt](#) (ESMS metadata file — gov_10dd_esms)
- [Government revenue, expenditure and main aggregates](#) (ESMS metadata file — gov_10a_main_esms)
- [Main national accounts tax aggregates](#) (ESMS metadata file — gov_10a_taxag)
- [General government expenditure by function \(COFOG\)](#) (ESMS metadata file — gov_10a_exp_esms)
- [Quarterly financial accounts for general government](#) (ESMS metadata file — gov_10q_ggfa_esms)
- [Quarterly government debt](#) (ESMS metadata file — gov_10q_ggdebt_esms)
- [Quarterly non-financial accounts for general government](#) (ESMS metadata file — gov_10q_ggnfa_esms)

- [Manual on government deficit and debt — implementation of ESA 2010 — 2022 edition](#)
- [Manual on sources and methods for the compilation of COFOG statistics - Classification of the Functions of Government \(COFOG\) - 2019 edition](#)
- [Manual on quarterly financial accounts for general government — 2017 edition](#)
- [Manual on quarterly non-financial accounts for general government — 2011 edition](#)

External links

- [European Commission - EU economic governance](#)