



Q3 2024

Government Bond Data Report

European market data update

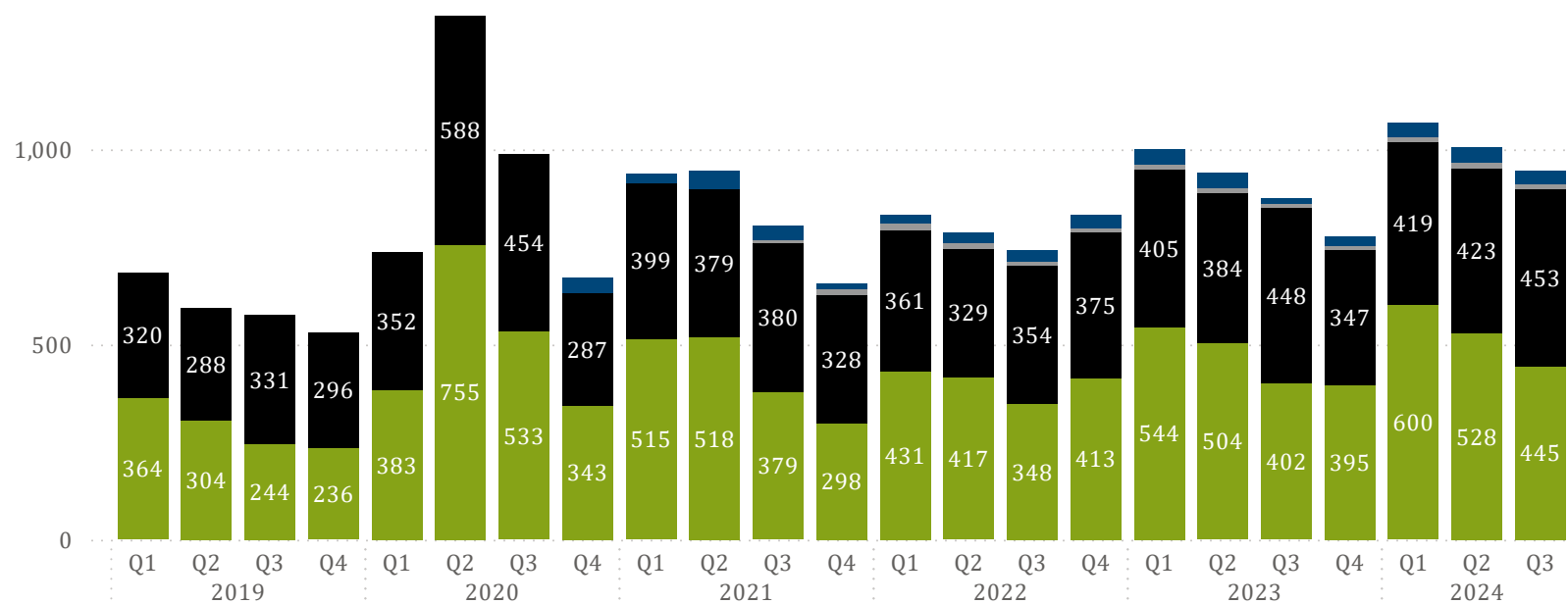


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Highlights and Market Environment

1. European (EU+UK) government bond and bill issuance (EUR bn, 2019-2024)

● Bonds (EU+UK) ● Bills (EU+UK) ● Bills (European Commission) ● Bonds (European Commission)



Source: ECB, National Debt Management Offices and UK Debt Management Office.

¹Volume does not include UK Gilts issuance for the month of September 2024. Total EU+UK bond and bill issuance and percentage changes may show minor variations, including to that shown in Chart 1, due to rounding.

EUR 944 bn bonds and bills issued in Q3 2024 as European quarterly issuance volumes increase 8.1% (YoY)

Total quarterly gross issuance in Europe (EU Member States, UK and EU Commission) was EUR 944 bn during Q3 2024, up 8.1% compared to Q3 2023 (YoY) and down 6.0% from Q2 2024 (QoQ) (see Chart 1).

Excluding institutional issuance from the EU Commission, EU Member States and the UK issued EUR 898 bn in bonds and bills during 3Q24¹, representing an increase of 5.7% (YoY) and a decrease of 5.6% (QoQ).

The EU Commission issued an additional EUR 47 bn in EU-bonds and EUR 15 bn in EU-bills during Q3 2024, representing 5.0% of total European sovereign issuance, down from 5.3% in Q2 2024, and up from 2.8% in Q3 2023.

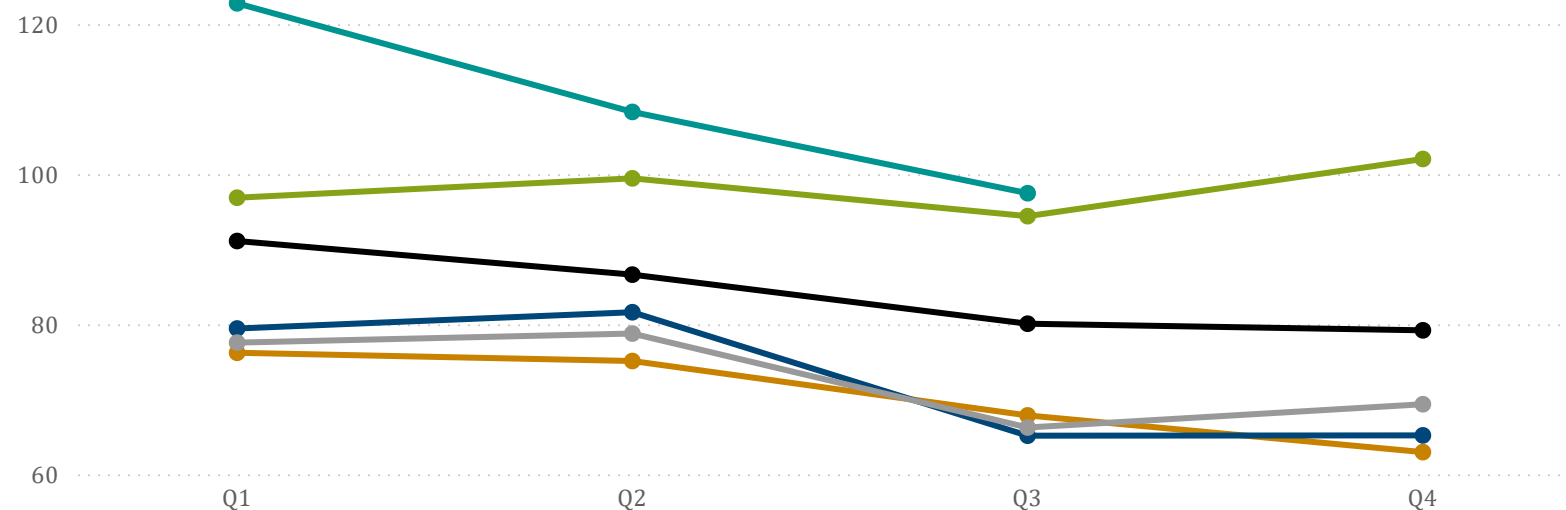
In July 2024, Slovenia issued an inaugural government digital bond with a nominal size of EUR 0.03 bn, which represented the first time a European sovereign has issued a digital bond based on distributed ledger technology (DLT). Most recently in November 2024, the UK government announced that it will launch a pilot to deliver a Digital Gilt Instrument (DIGIT).

AFME has recently published a [roadmap](#) for scaling capital markets based on DLT with a focus on European sovereign, supranational and public agency issuers. Additionally, AFME has published a [consultation response](#) outlining issues and opportunities relating to the deployment of DLT-based infrastructure and services in the EU.

Highlights and Market Environment

2. European Government bond average daily trading volumes (EUR bn)

● 2019 ● 2020 ● 2021 ● 2022 ● 2023 ● 2024



Source: MarketAxess TraX

Highest third-quarter average daily trading volume in European (EU+UK) government bonds during Q3 2024

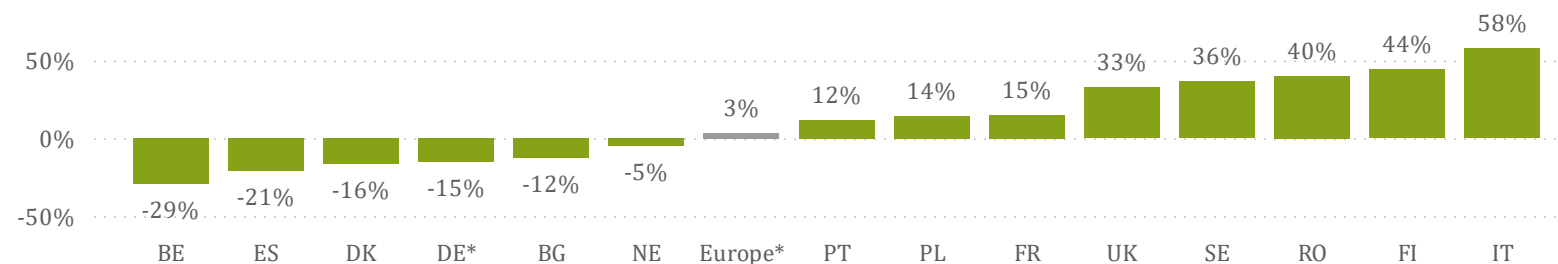
According to TraX data from MarketAxess, high levels of trading activity were sustained in Q3 2024, with average traded volumes increasing by 3% YoY, but decreasing by 10% QoQ. This represents the third highest average daily traded volume on record for a given quarter.

In 2024 to date, average daily trading volumes were up 13%, compared to 2023, and up 27% compared to 2022. Average daily trading volumes in 2024 to date continue to be the highest in the past six years following consistently high trading volumes reported since 2022 (see Chart 2).

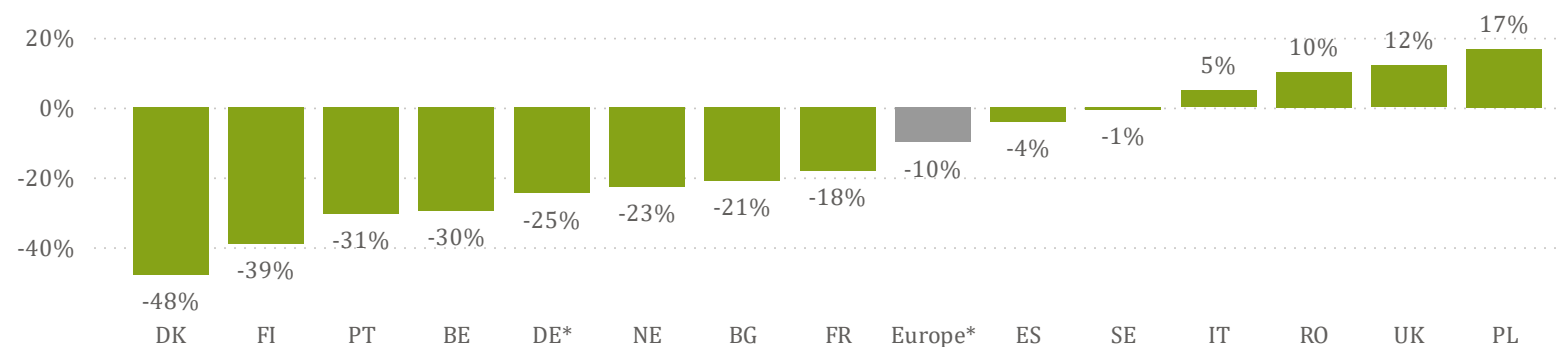
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Finance for Europe

3. Annual changes in Government Bond average daily trading volumes (3Q24 vs 3Q23) Selected European jurisdictions



4. Quarterly changes in Government Bond average daily trading volumes (3Q24 vs 2Q24) Selected European jurisdictions



Source: AFME with information from European DMOs and other agency sources and MarketAxess TraX.

*Europe (EU+UK) total and German turnover is sourced from MarketAxess TraX as the quarterly variation of average daily volumes of government and sovereign bonds.

European government bond trading increased 3% YoY and decreased 10% QoQ in Q3 2024

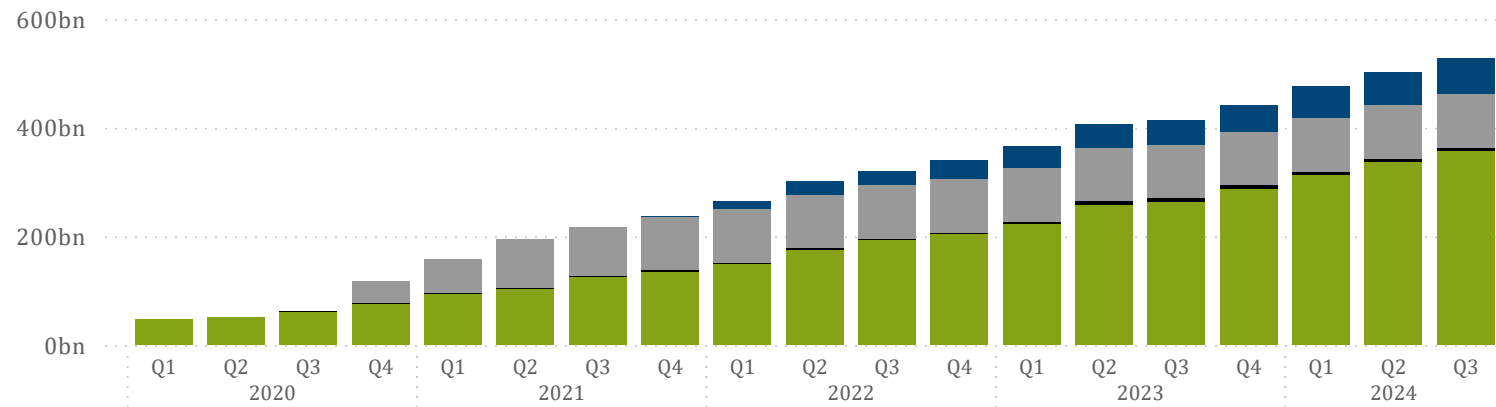
Average daily trading volumes of European government bonds were supported by a significant increase in trading in Italy (58% YoY), Finland (44% YoY), Romania (40% YoY), Sweden (36% YoY), the UK (33% YoY), France (15% YoY), Poland (14% YoY) and Portugal (12% YoY). There was a decrease in trading in Belgium (-29% YoY), Spain (-21% YoY), Denmark (-16% YoY), Germany (-15% YoY) and the Netherlands (-5% YoY) (see Chart 3).

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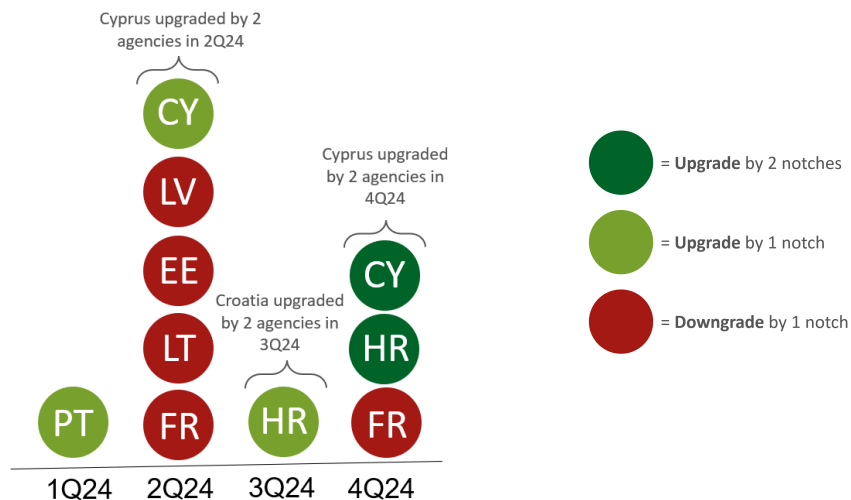
Finance for Europe

5. European outstanding ESG sovereign bonds (EUR bn, 2020-2024)

● Green ● Sustainable ● Social ● NGEU Green



6. European rating actions on long-term sovereign credit ratings (2024 YtD)



Source: Refinitiv Eikon, European Commission [Chart 5]. Fitch, Moody's, S&P [Chart 6].

Outstanding amount of European government ESG bonds reach EUR 526.9 bn in Q3 2024

Outstanding amount of ESG government bonds reached EUR 526.9 bn during Q3 2024 (see Chart 5), with volumes driven by tap issuance by the UK (EUR 3.6 bn), Germany (EUR 4.0 bn), Belgium (EUR 1.1 bn), Denmark (EUR 0.4 bn), and Ireland (EUR 0.3 bn) in their respective green programmes.

The European Commission issued EUR 5.0 bn in Q3 2024, via tap issuance of an existing green reference.

In Slovenia, an inaugural dual-tranche social samurai bond was issued in August 2024, with a total volume of EUR 0.3 bn. This represented the first social samurai bond issued by a sovereign and the second instance of social sovereign issuance in Europe after the European Commission SURE Scheme social bond issuance.

During Q3 2024 there were 2 upgrades and no downgrades in long term credit rating changes for European nations

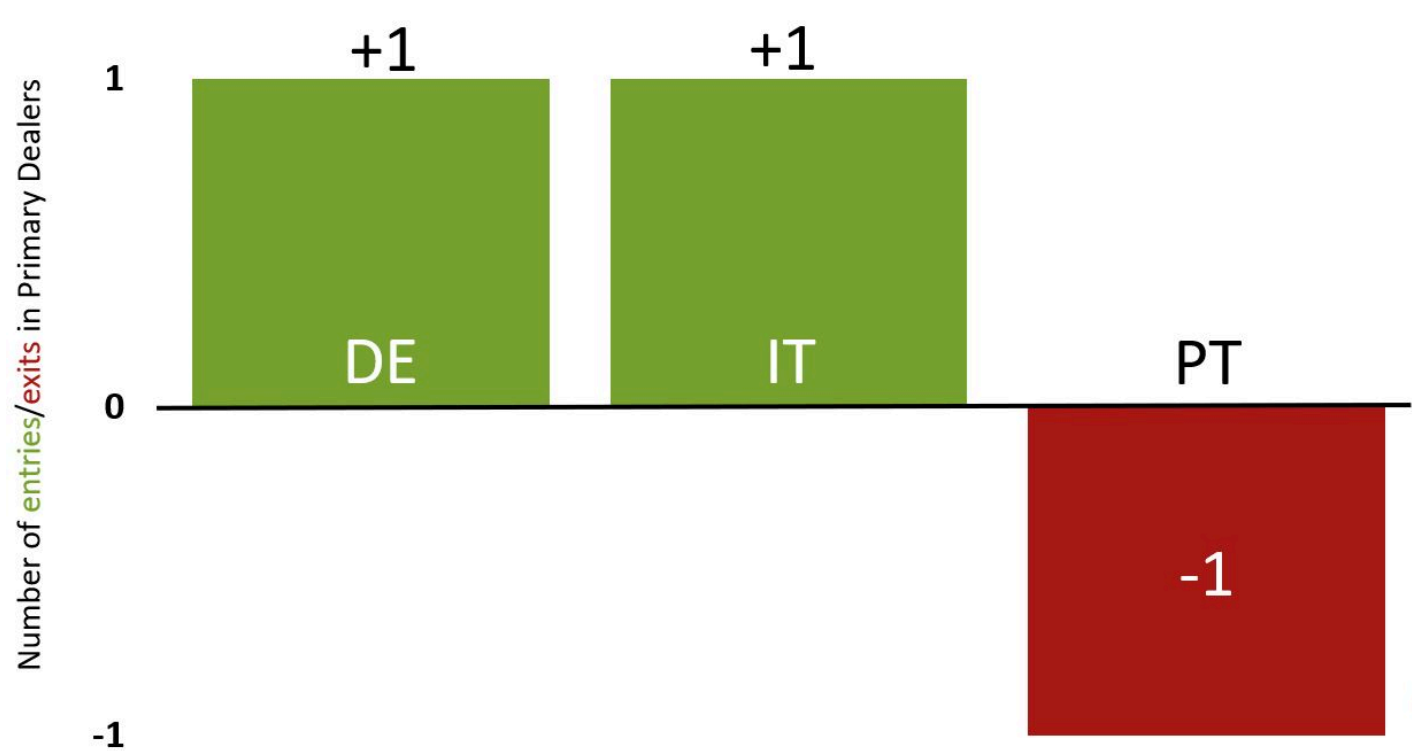
This follows 1 upgrade and no downgrades in 1Q24, 2 upgrades and 4 downgrades in 2Q24, bringing the 2024 year-to-date total to 8 upgrades and 5 downgrades (there were 3 further upgrades and 1 downgrade in Q4 2024) (see Chart 6).

Croatia continued to increase the quality of its credit profile throughout 2024, with two of the main credit rating agencies upgrading the credit rating of the country in Q3 2024 and another rating agency upgrading the credit rating by two notches in Q4 2024. Compared to July 2022, when the credit rating of Croatia was at the level of speculative / non-investment grade, the country has achieved a significant improvement in credit quality in only 2.5 years.

Most recently in Q4 2024, Cyprus has been upgraded by 2 notches, with the rating action resulting in the first time since 2011 that Cyprus has been grouped into the upper medium investment grade category.

Highlights and Market Environment

7. Changes in numbers of Primary Dealers across European countries and the EU PDN (October-December 2024)



Source: AFME HRF Table and National DMOs. Latest data as of December 2024.

There were 2 entries and 1 exit in European Primary Dealership from October to December 2024 with a net change of +1

Changes in primary dealership from October to December 2024 affected sovereign debt markets in Germany, Italy and Portugal (see *Chart 7*).

This follows 2 entries and 1 exit in total of banks to primary dealer systems in Italy, Slovenia and Sweden from January to October 2024.

After the most recent changes, there are now 22 primary dealers in the Italian sovereign market, representing the highest number of active participants since June 2008.

Major upcoming regulatory, legislative and policy initiatives

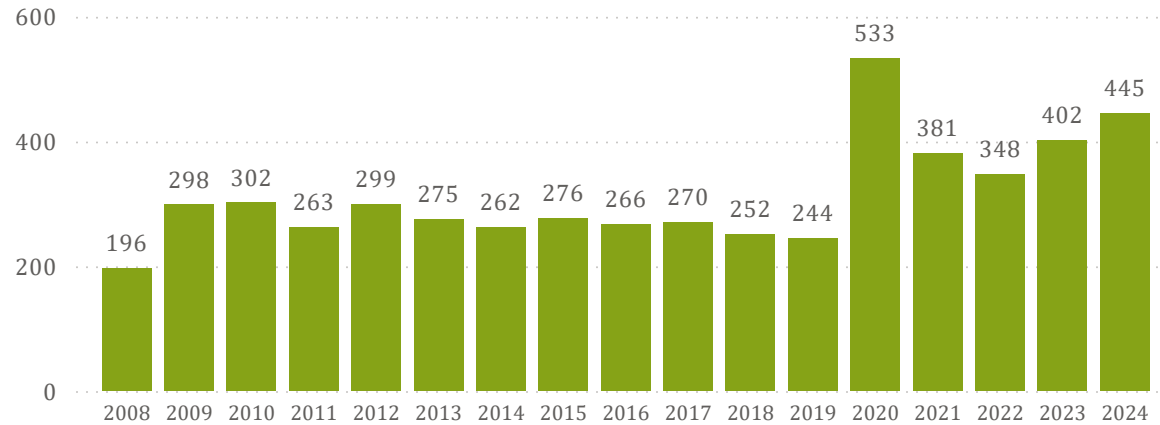
There are several regulatory initiatives currently being considered at the European and national level with expected impact on the government bond markets. Some of the key initiatives recently implemented or soon to be applied include:

- Basel III
- CSDR
- Fundamental Review of the Trading Book (FRTB)
- Prospectus Regulation
- MiFID Regulatory Technical Standards (RTS) Review

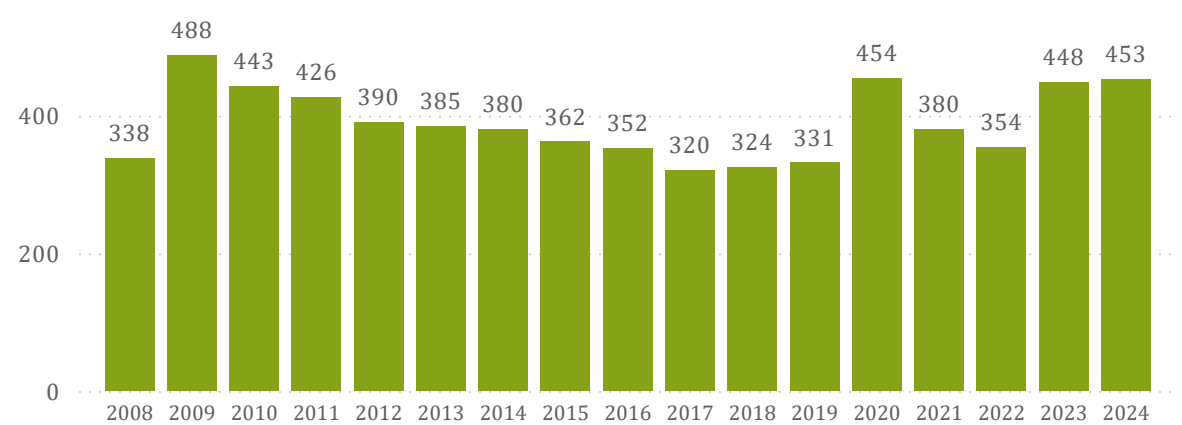
AFME and its members actively contribute on all of these and other initiatives.

Issuance

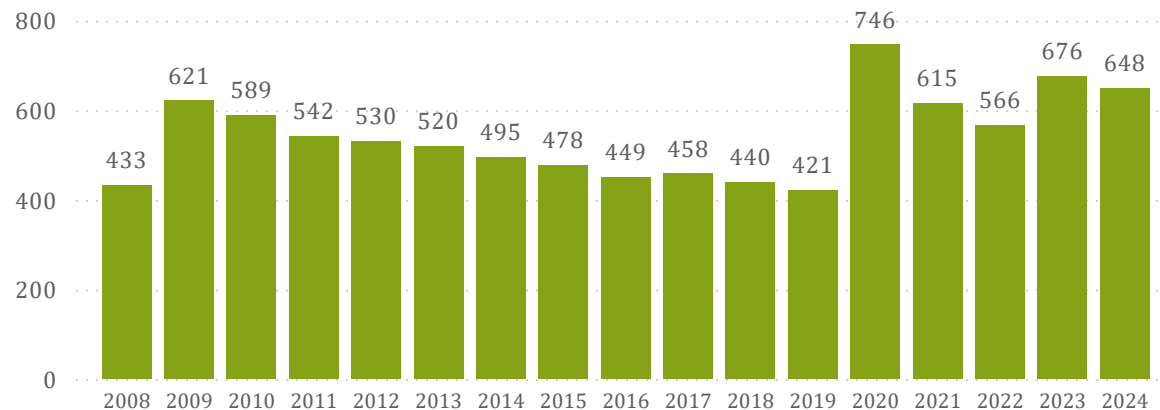
1.1 European (EU+UK) Government Bond gross issuance (YtD, EUR bn)



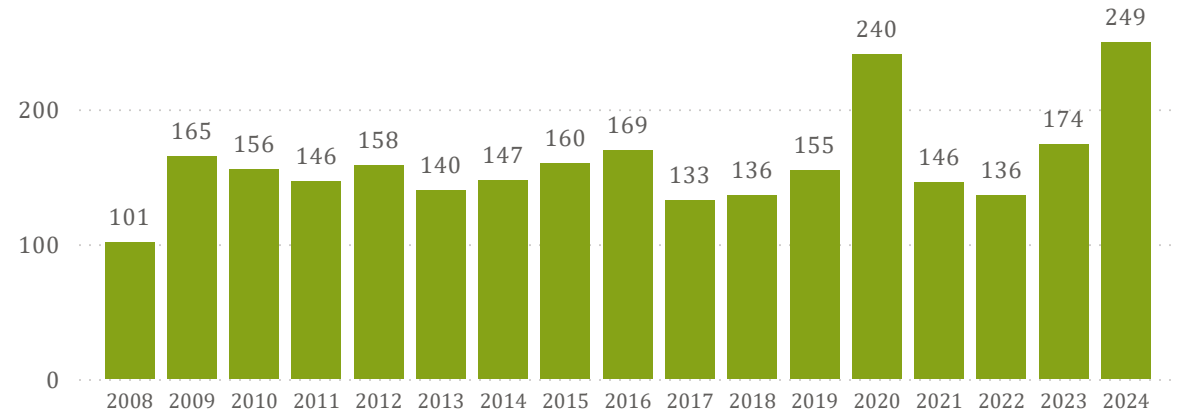
1.2 European (EU+UK) Treasury Bills gross issuance (YtD, EUR bn)



1.3 Eurozone bonds and bills gross issuance (YtD, EUR bn)



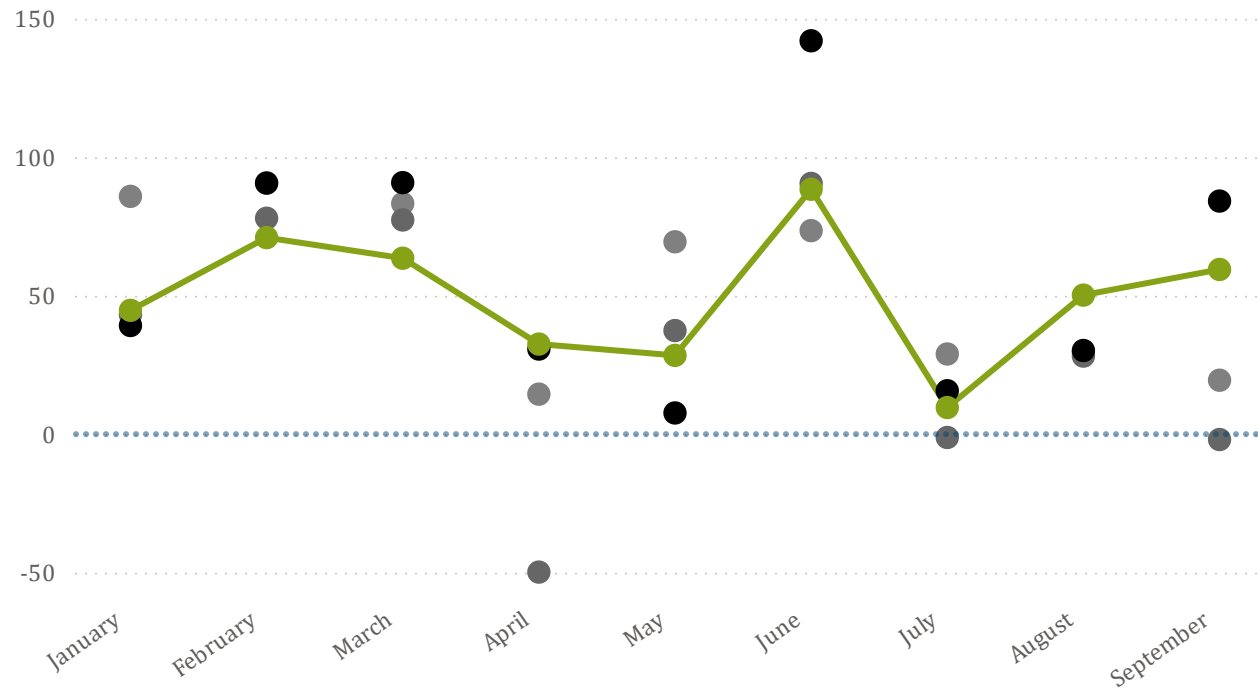
1.4 Non-Eurozone bonds and bills gross issuance (YtD, EUR bn)



Source: ECB, National Debt Management Offices and UK Debt Management Office. YtD implies Q1-Q3 2024. UK Gilts issuance as of August 2024.
Data on this page excludes EU Commission issuance (ie. NGEU, SURE) and includes debt issued from EU Member States and the UK only.

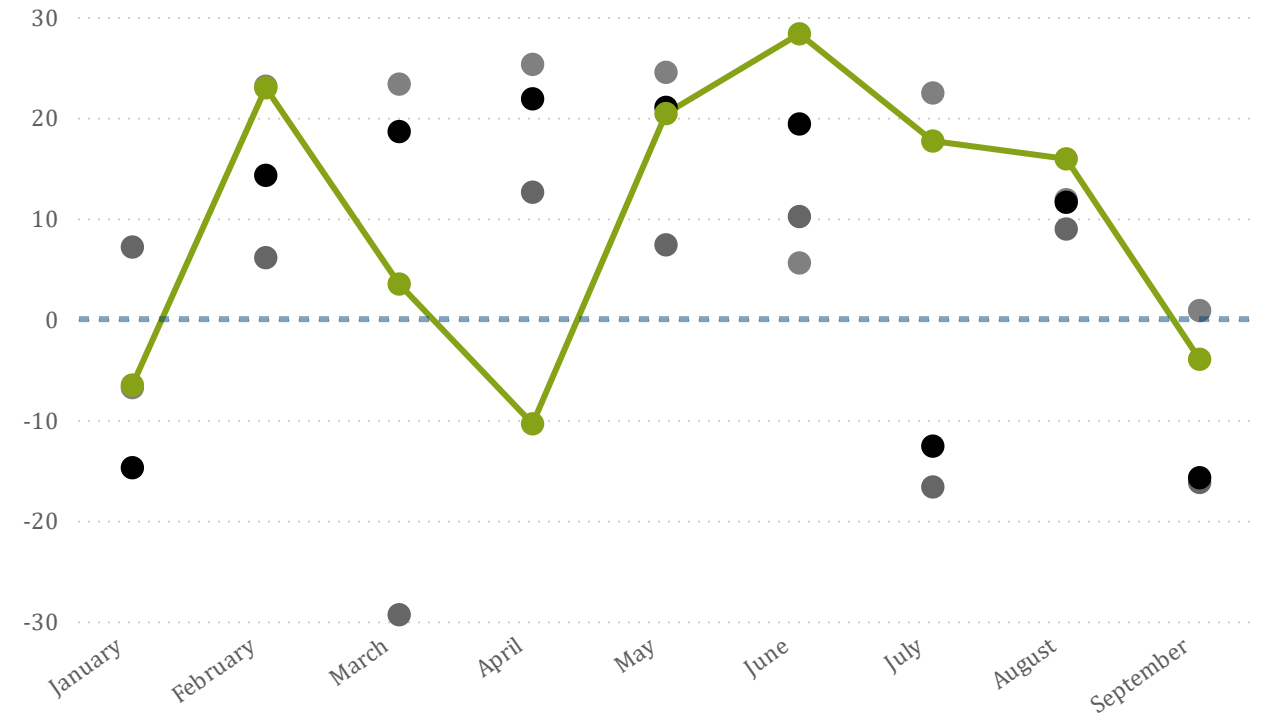
1.5 Euro area net sovereign debt issuance (EUR bn)

Year ● 2021 ● 2022 ● 2023 ● 2024



1.6 UK Gilts net issuance (GBP bn)

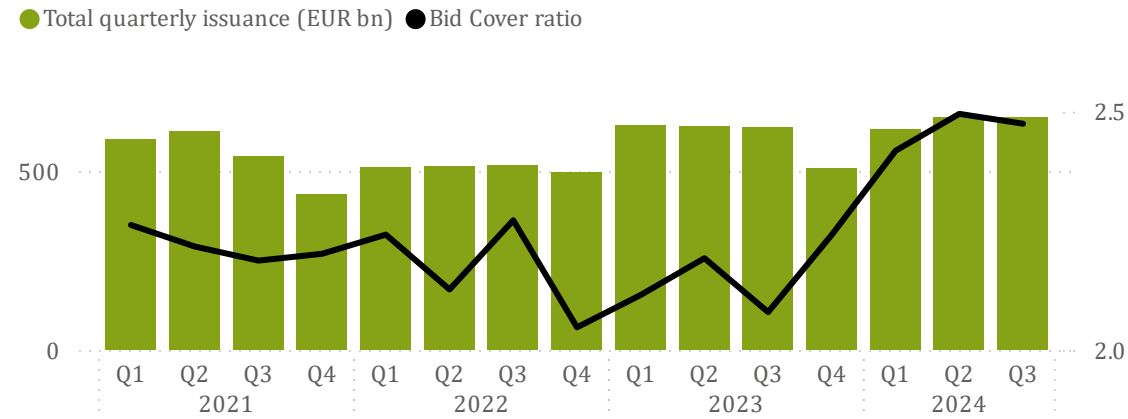
Year ● 2021 ● 2022 ● 2023 ● 2024



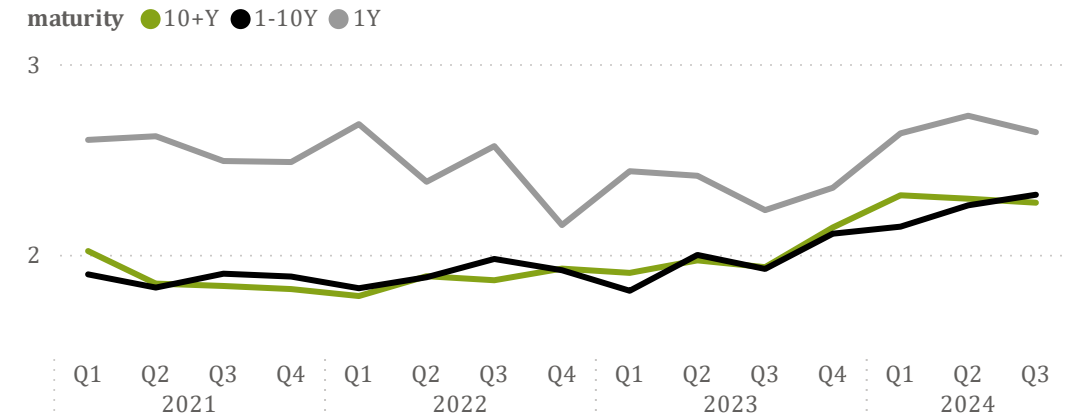
Source: ECB and UK Debt Management Office. Latest UK Gilts net issuance data as of August 2024

Recent Auctions and Primary Dealers

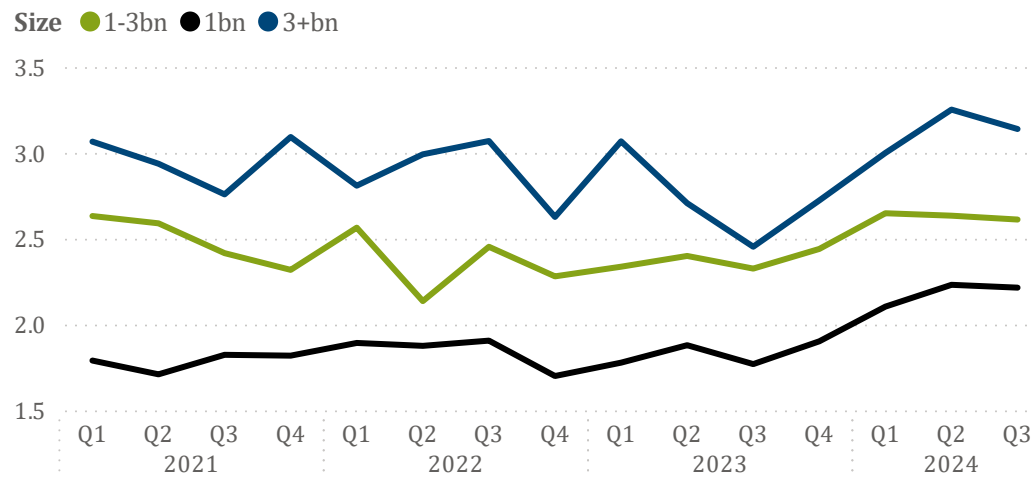
2.1 Average bid-cover ratios and issued volumes in selected jurisdictions (EUR bn)



2.2 Average bid-cover ratios by tenor (years) of issued instrument



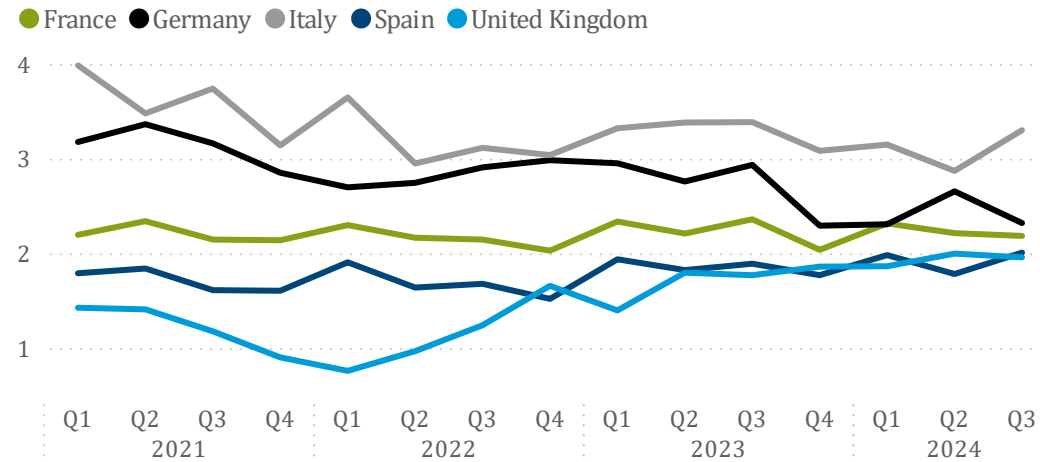
2.3 Average bid-cover ratios by size of issued instruments



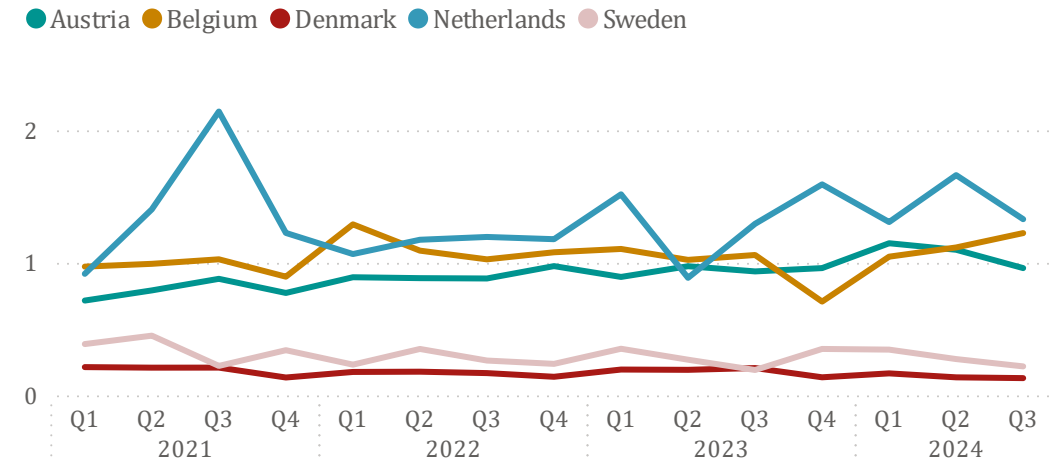
2.4 Average auction size in selected European jurisdictions (EUR bn)



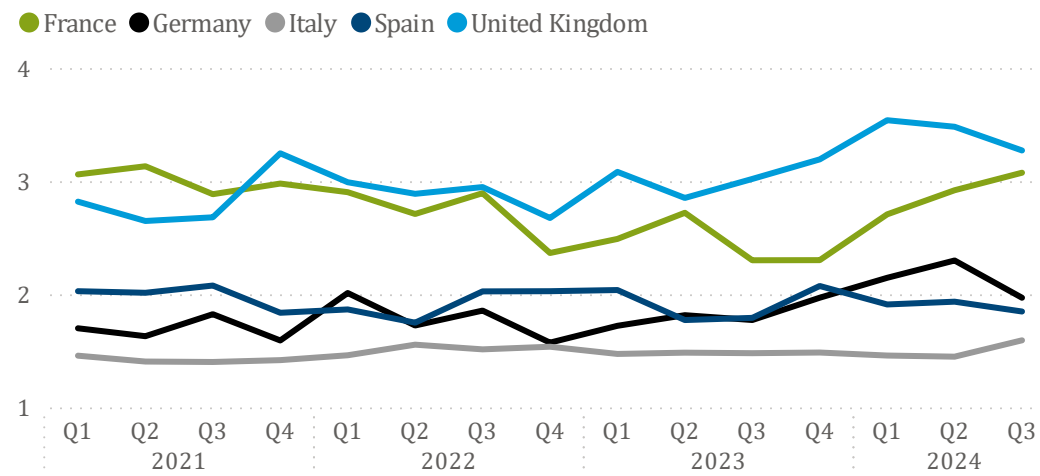
2.5 Average auction size in selected jurisdictions (EUR bn)



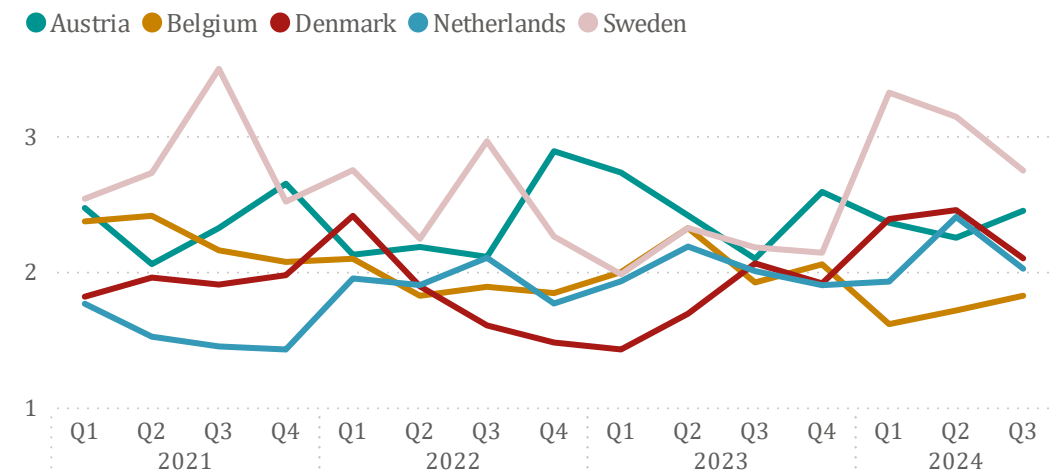
2.6 Average auction size in selected jurisdictions (EUR bn)



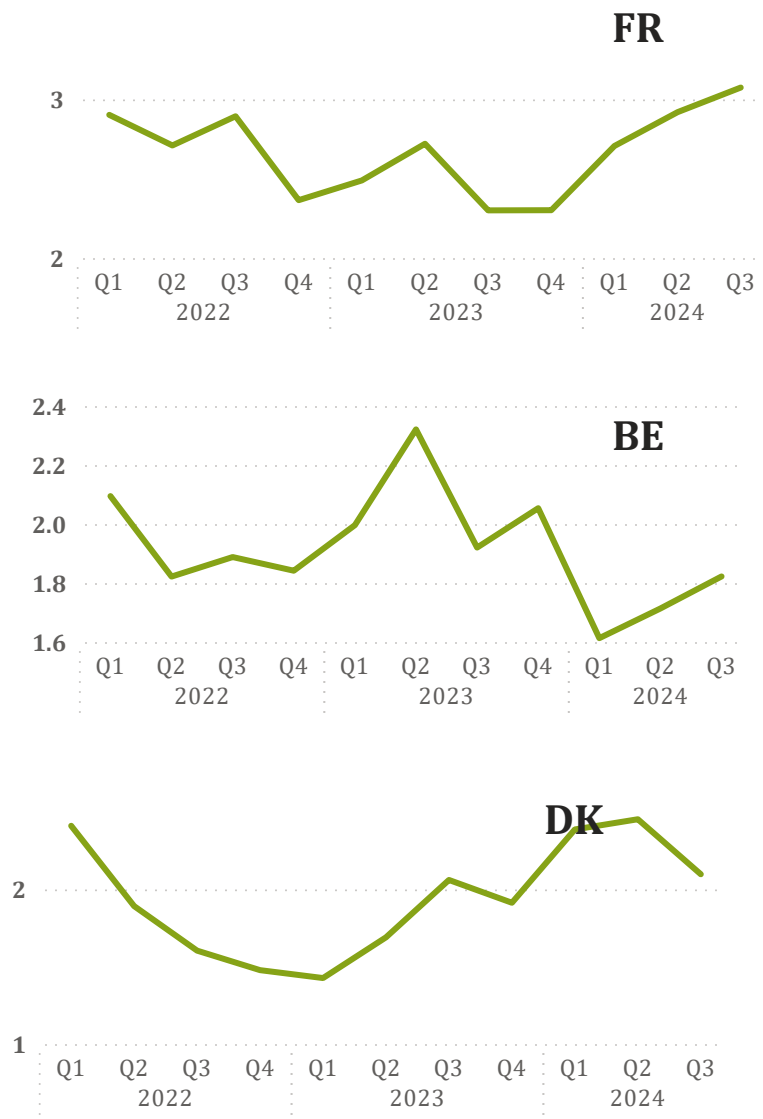
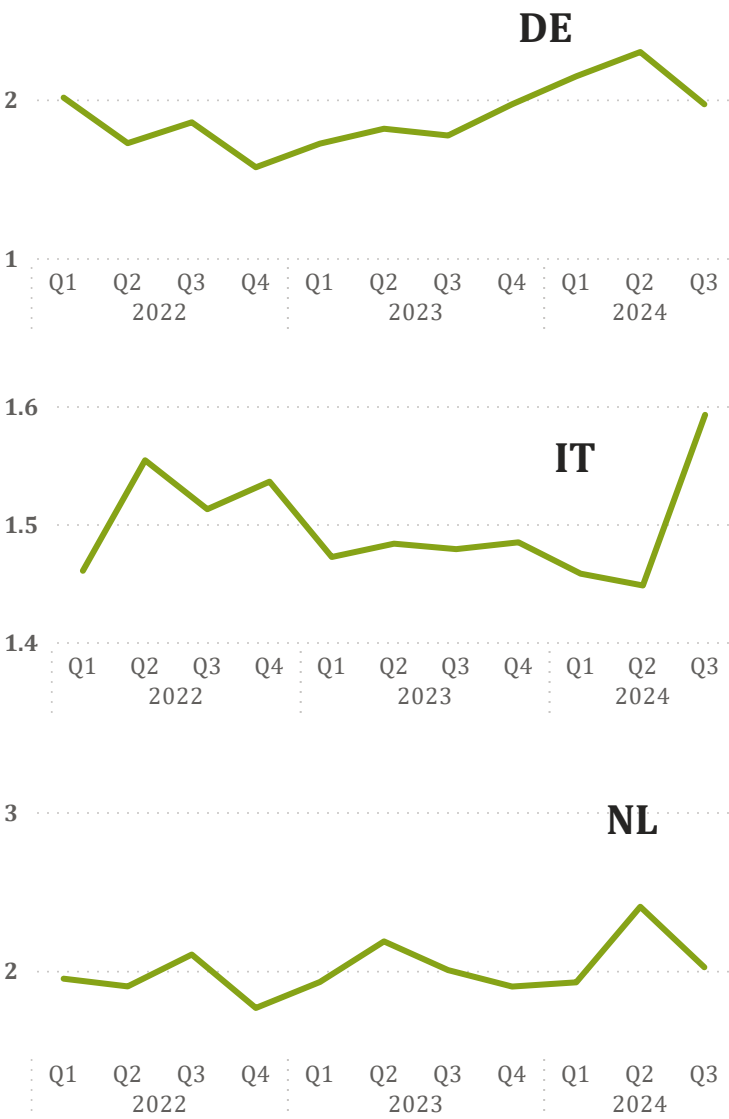
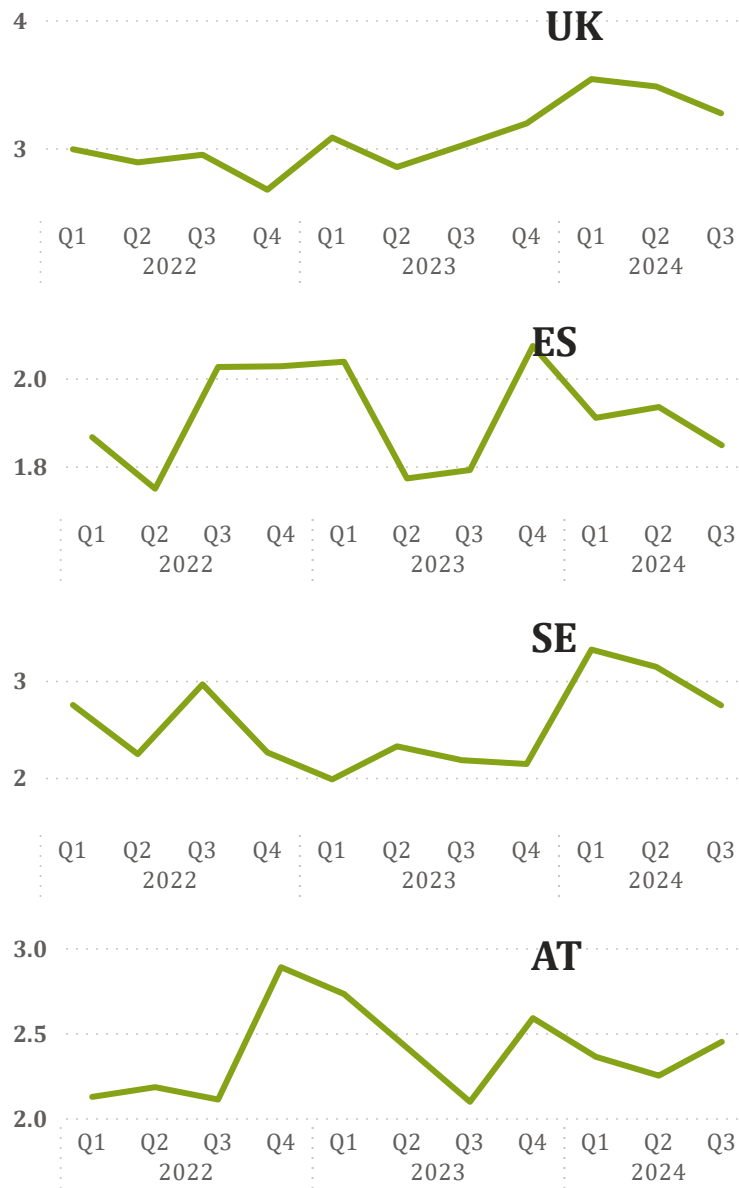
2.7 Average bid-cover ratios by jurisdictions



2.8 Average bid-cover ratios by jurisdictions



2.9 Average bid-cover ratios in selected jurisdictions: Q1 2022 - Q3 2024

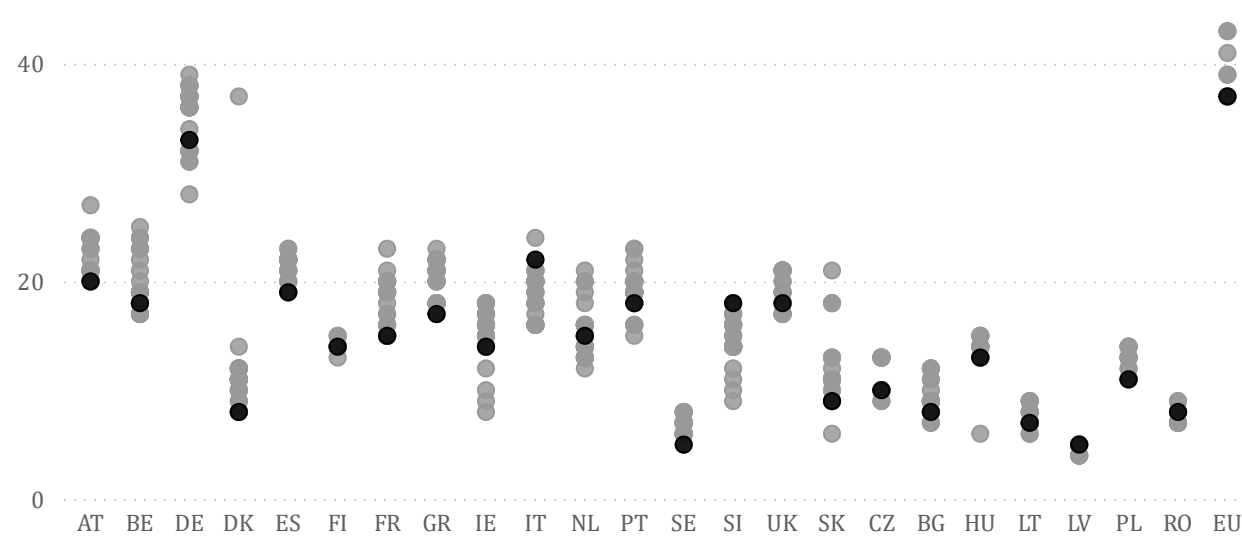


Source: Refinitiv Eikon.

Primary Dealers: European countries and EU

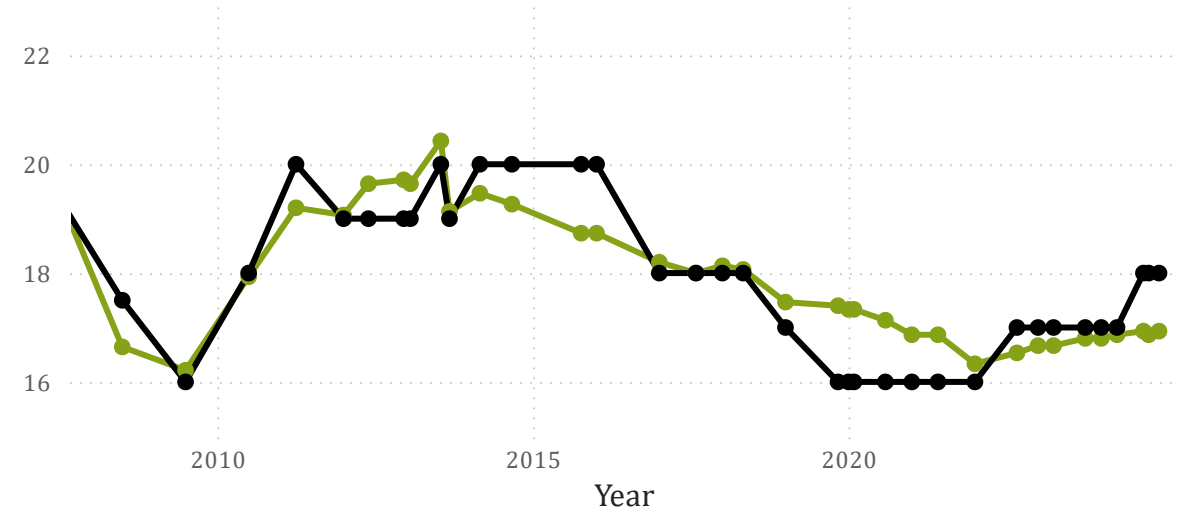
2.10 Number of primary dealers relative to historic number

• 2006 -2024 • Dec-24



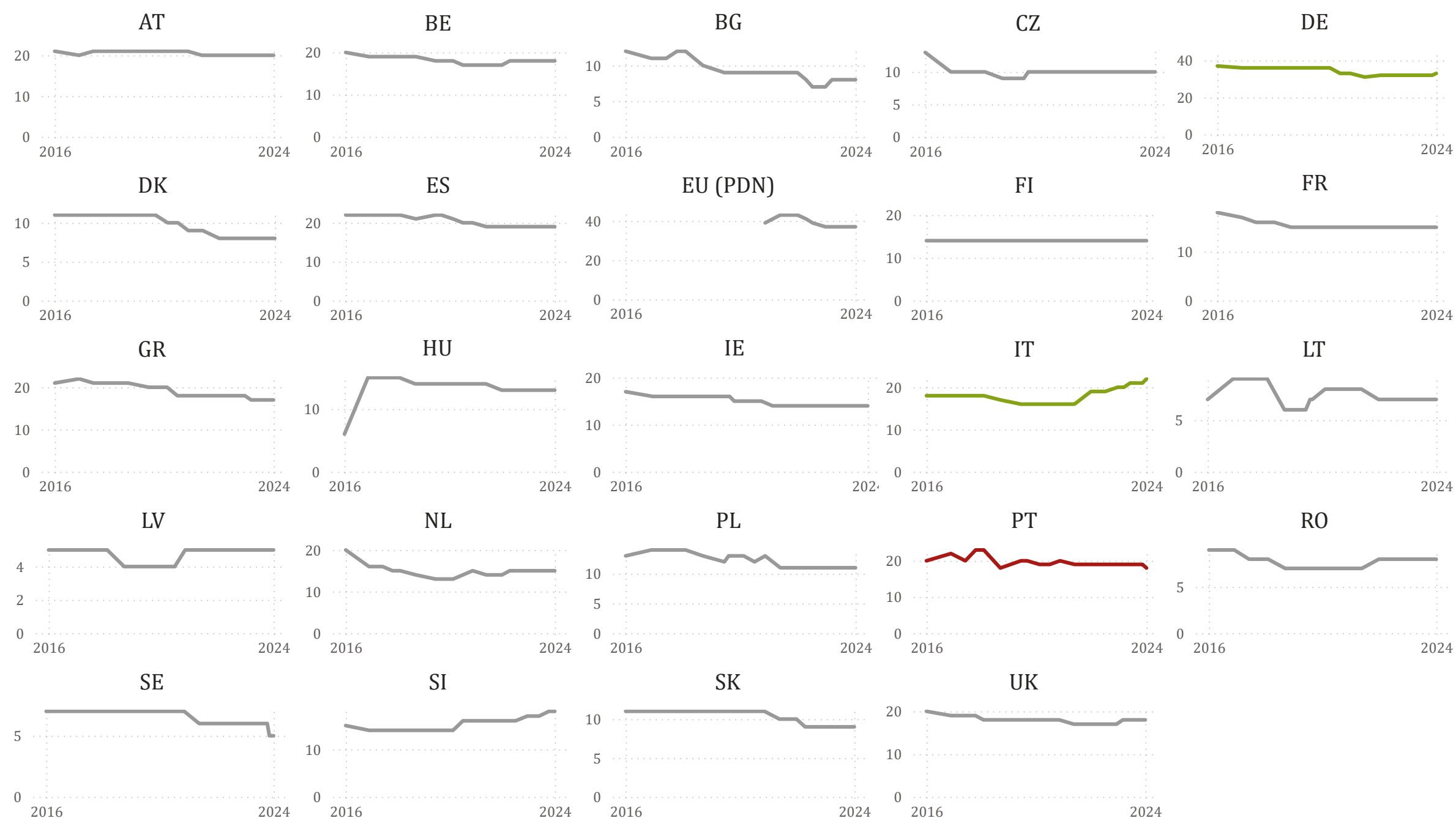
2.11 Average and median number of primary dealers in selected European countries

● Average ● Median



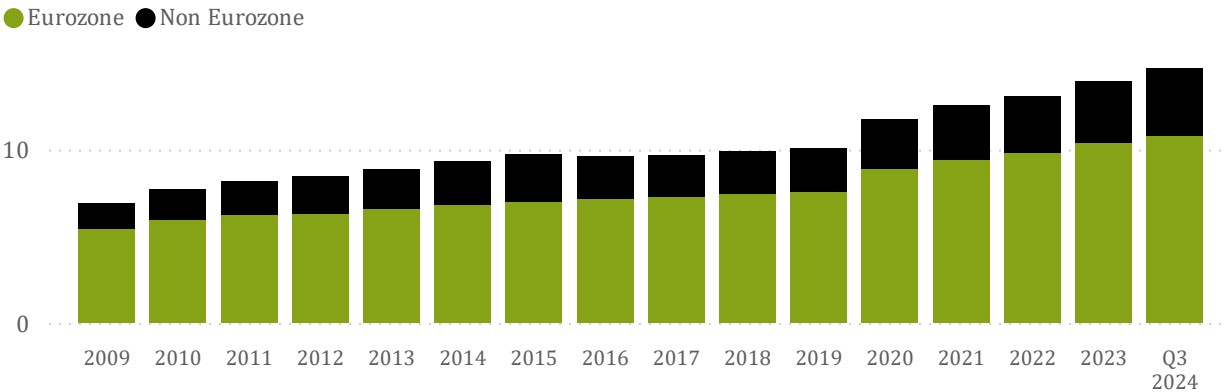
Source: AFME Primary Dealers Handbooks AFME HRF Table, national DMOs. Average and medians of AT, BE, DE, DK, ES, FI, FR, GR, IE, IT, NL, PT, SE, SI and UK.
EU in Chart 2.10 refers to the EU Primary Dealer Network. Latest data as of December 2024.

2.12 Number of primary dealers in Europe by country: 2016-2024

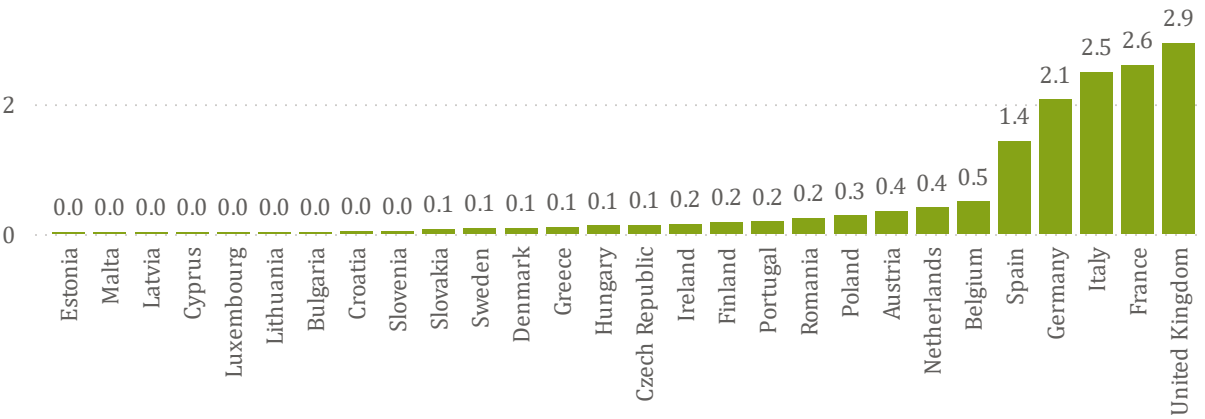


Outstandings

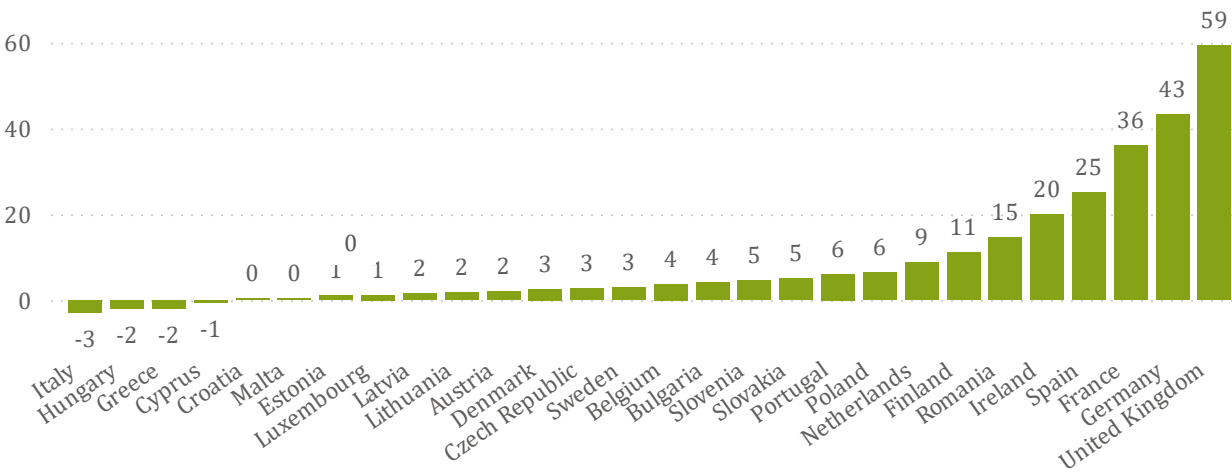
3.1 Outstanding debt securities issued by Central Governments (Nominal, EUR tn)



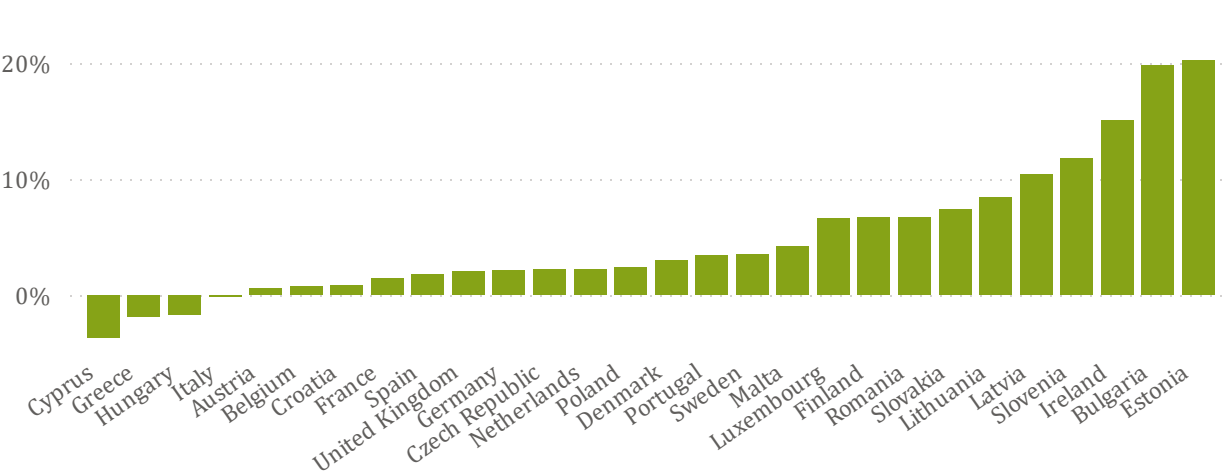
3.2 European government bonds outstanding by country (EUR tn)



3.3 Change in Outstanding from 2Q24 to 3Q24 (EUR bn)

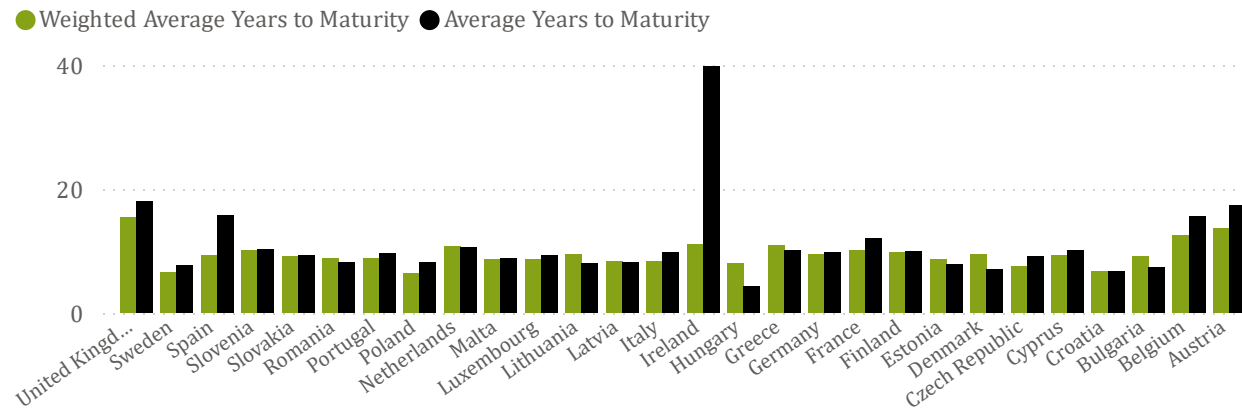


3.4 Change in Outstanding from 2Q24 to 3Q24 (%)

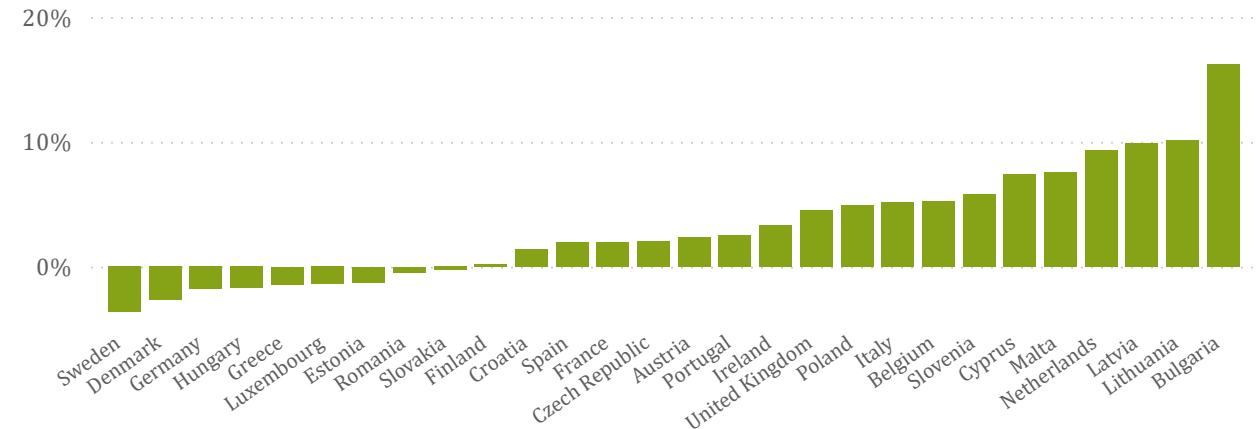


Source: ECB, Refinitiv Eikon and UK DMO

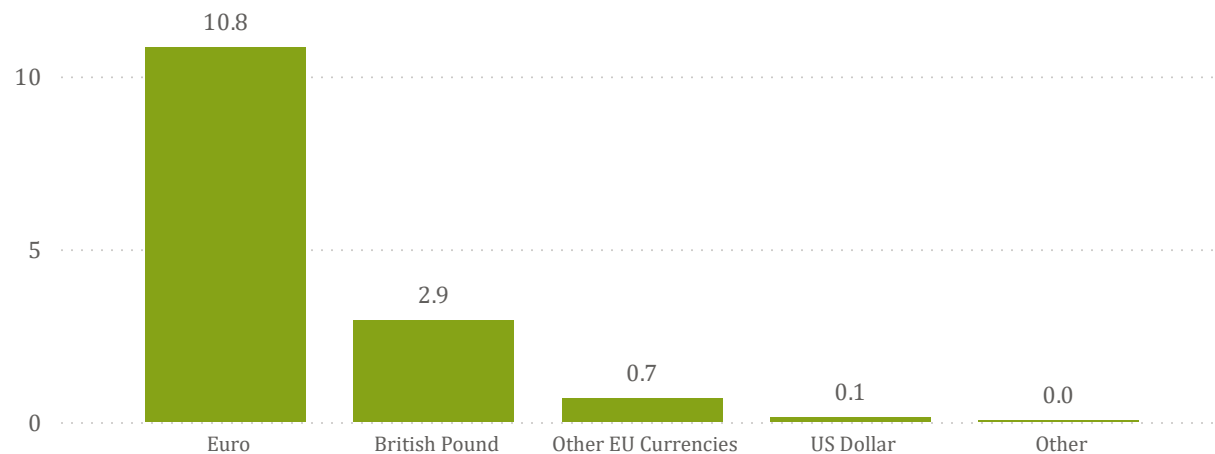
3.5 Average years to maturity for outstanding government bonds in European (EU+UK) countries



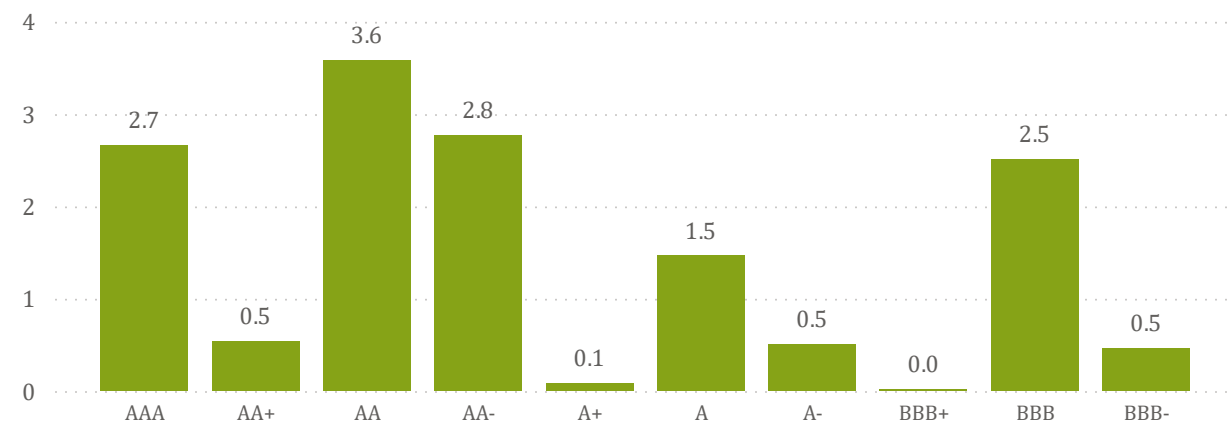
3.6 Quarterly change in weighted average years to maturity for outstanding government bonds 2Q24 to 3Q24



3.7 European government bonds outstanding by currency (EUR tn)

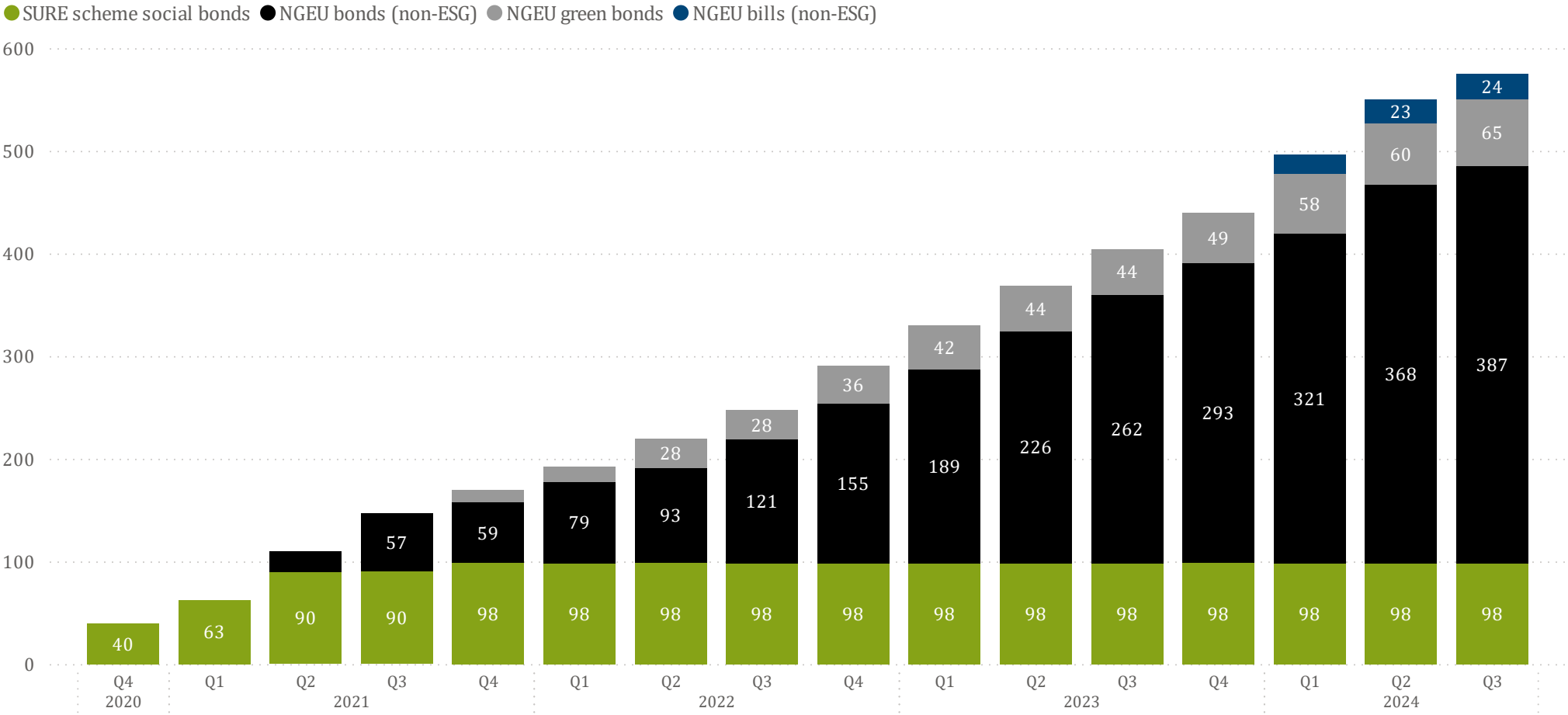


3.8 European government bonds outstanding by current rating of issuer (EUR tn)



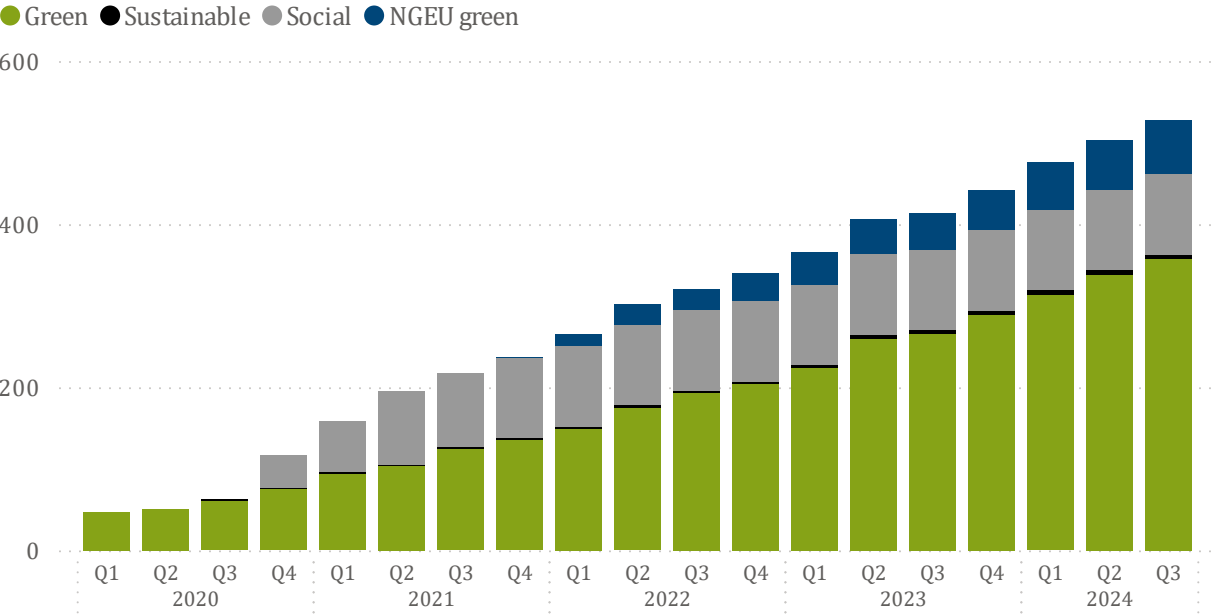
Source: Refinitiv Eikon. For charts 3.5 and 3.6 weighted average in by outstanding amount.

3.9 Outstanding bonds and bills issued by the European Commission (EUR bn)

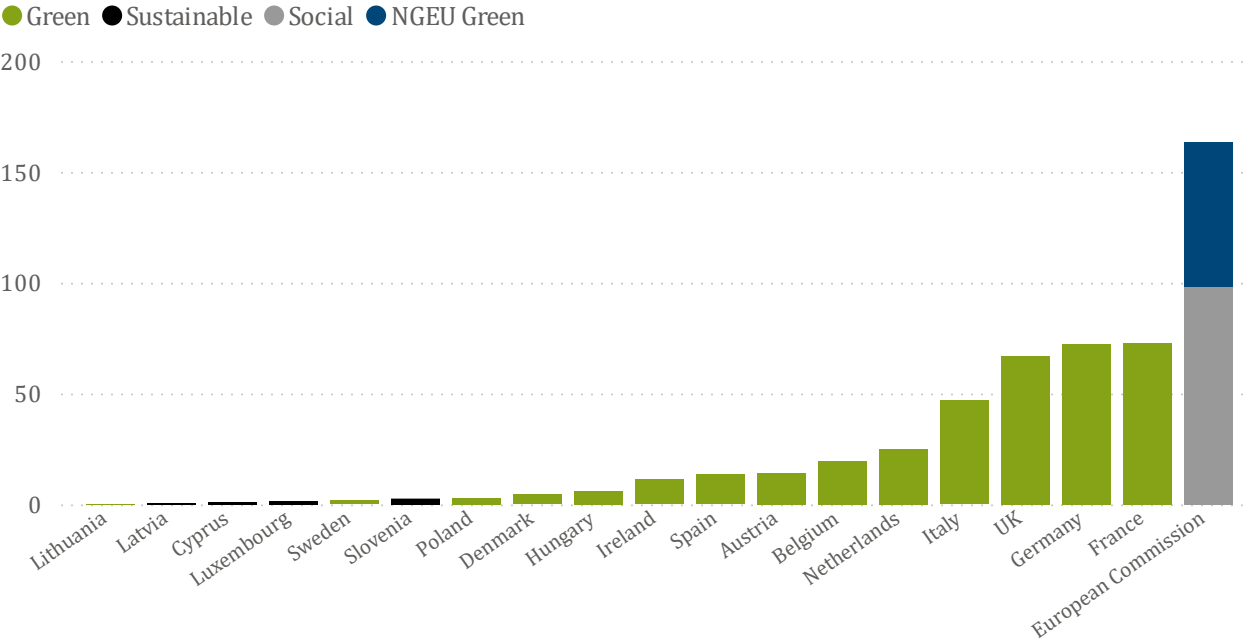


Source: European Commission.
NGEU refers to bond issuance by the European Commission under the NextGenerationEU scheme.

3.9 European outstanding ESG (green, social and sustainable) government bonds (EUR bn)



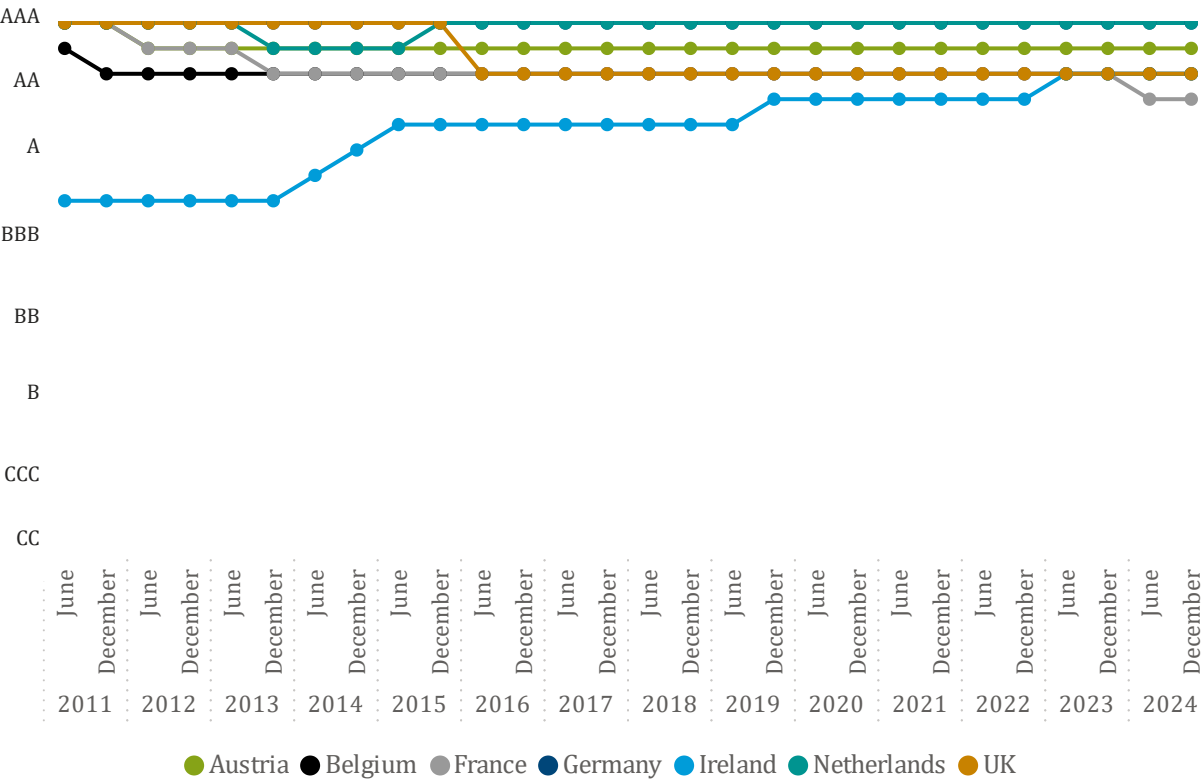
3.10 European outstanding ESG government bonds by country (EUR bn)



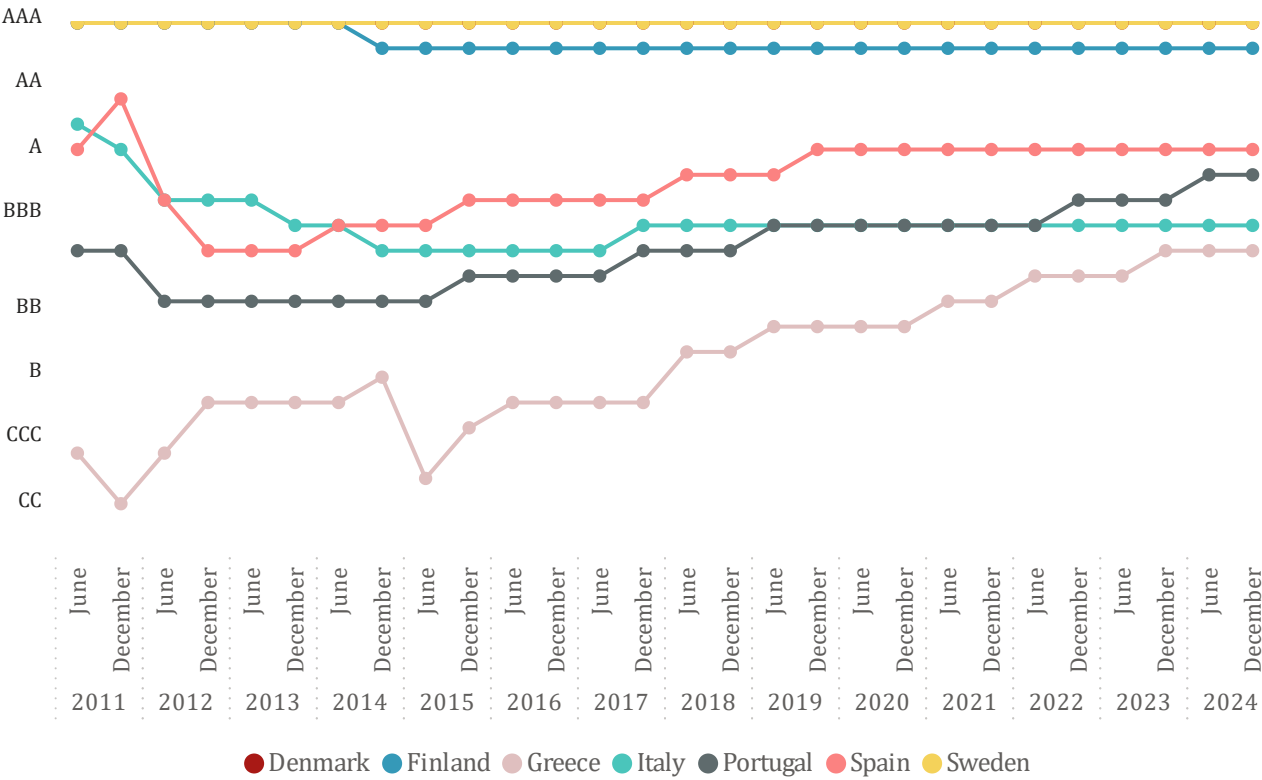
Source: Refinitiv Eikon, European Commission.

Credit Quality

4.1 Long-term sovereign credit rating (Central and Northern Europe)

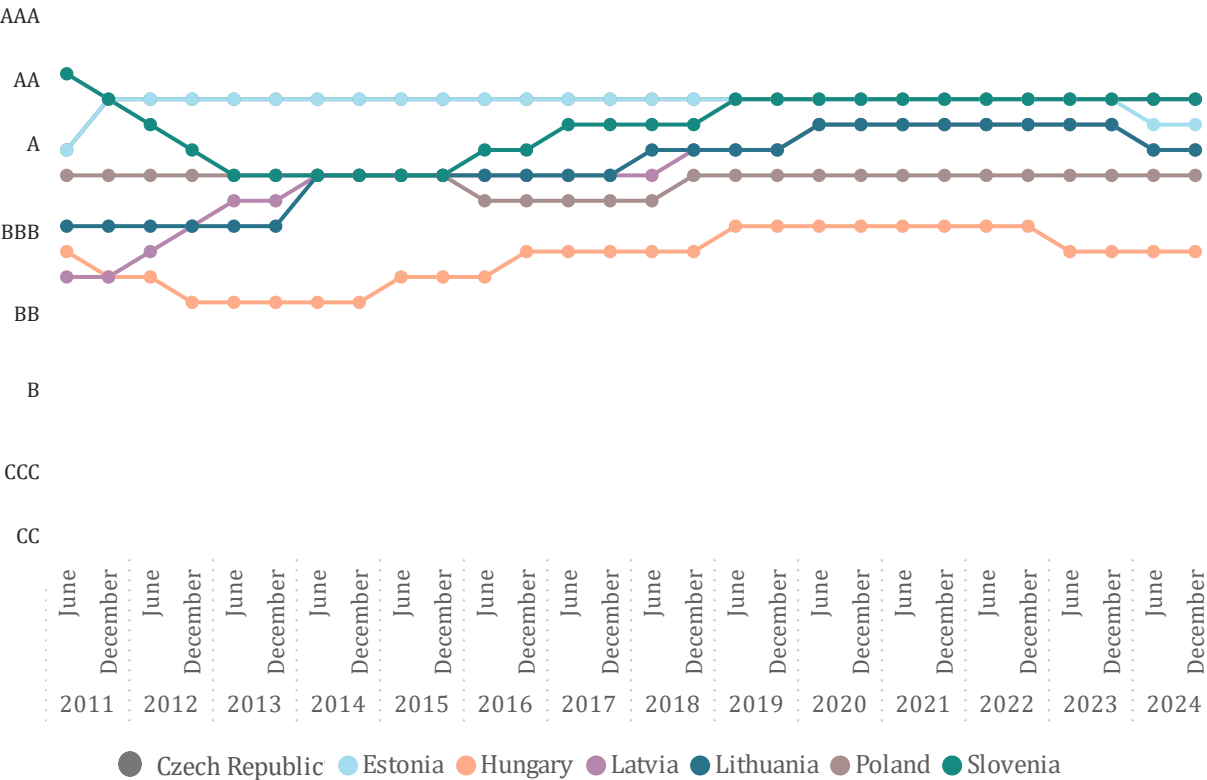


4.2 Long-term sovereign credit rating (Nordics and Southern Europe)

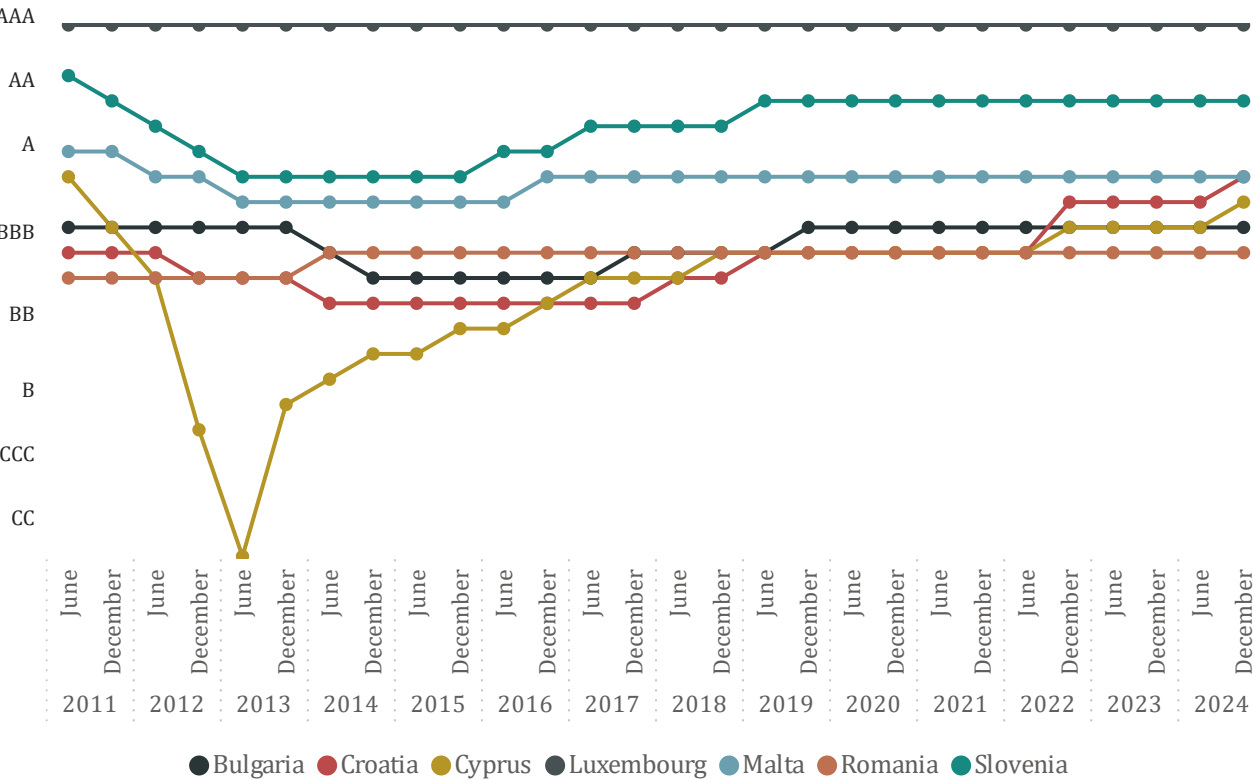


Source: Refinitiv Eikon

4.3 Long-term sovereign credit rating (Visegrad 4 and Baltic states)



4.4 Long-term sovereign credit rating (Balkans, CY, MT and LU)



Source: Refinitiv Eikon

4.5 European rating actions on long-term sovereign credit ratings (2024 YtD)

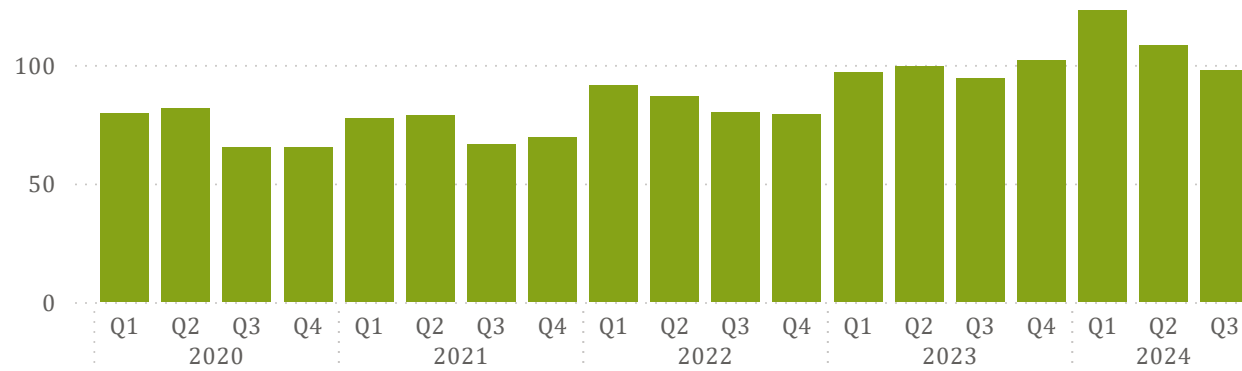
Portugal	Upgrade to A- (positive) from BBB+	Mar-24	S&P	Continuous improvement in Portugal's external financial balance sheet and the corresponding reduction in external liquidity risks. A consistent decline in external debt over the past decade, leading to steep deleveraging and a shift in Portugal to current account surpluses. Continuation in this trend despite a temporary deterioration during the pandemic and energy price shocks, with expected current account surpluses, the transfer of Next Generation EU grants to Portugal, and continuing private sector deleveraging further improving the country's external position over 2024-2027.	1Q24
France	Downgrade to AA- (stable) from AA	May-24	S&P	S&P downgraded France's rating due to concerns over its rising debt and persistent budget deficit. Despite prior expectations, France's general government debt is projected to increase to about 112% of GDP by 2027, up from 109% in 2023. The country's 2023 budget deficit was also significantly higher than forecasted, at 5.5% of GDP. Although economic growth and recent reforms are expected to help reduce the deficit, it is still anticipated to stay above 3% of GDP by 2027, signaling ongoing fiscal challenges.	2Q24
Cyprus	Upgrade to BBB+ (positive) from BBB	Jun-24	S&P	S&P upgraded Cyprus' rating due to its strong fiscal performance, including the highest fiscal surplus in the eurozone. Government debt is expected to fall below 60% of GDP by 2027, supported by solid growth and fiscal management. Although some nonperforming loans remain, Cyprus' foreign-owned banks have improved profitability and capitalization, reducing risks to the government.	
Cyprus	Upgrade to BBB+ (positive) from BBB	Jun-24	Fitch	Fitch upgraded Cyprus due to improved credit metrics, reduced banking sector risks, and strong fiscal performance. The banking sector has stronger asset quality and lower non-performing loans. Fiscal surpluses and declining public debt, forecasted to drop to 65.1% of GDP by 2025, reflect robust revenue growth and prudent spending, supporting the upgrade.	
Estonia	Downgrade to A+ (stable) from AA-	May-24	S&P	S&P downgraded Estonia's credit rating due to the economic impact of the prolonged Russia-Ukraine war and broader geopolitical risks. Estonia's economy is expected to contract for a third consecutive year in 2024, with recovery projected in 2025, driven by domestic demand. Increased defense spending will strain public finances, while pressures on exports and foreign investment could delay a return to pre-COVID growth.	
Latvia	Downgrade to A (stable) from A+	May-24	S&P	S&P downgraded Latvia's long-term credit rating due to the adverse effects of the ongoing Russia-Ukraine war and geopolitical risks on its small economy. Increased defense spending is expected to put pressure on the budget, while heightened security concerns may restrict foreign direct investment, delaying a return to pre-pandemic growth.	
Lithuania	Downgrade to A (stable) from A+	May-24	S&P	S&P downgraded Lithuania's long-term credit rating due to the impact of the ongoing Russia-Ukraine war and geopolitical risks on its economy. Although the Lithuanian economy is expected to grow by 2% this year, pressures on external competitiveness could restrict exports, and heightened security concerns may deter foreign direct investment, delaying a return to pre-COVID growth dynamics.	
Croatia	Upgrade to A- (positive) from BBB+	Sep-24	S&P	S&P upgraded Croatia's credit rating due to its reform progress, stronger integration with global partners, and institutional improvements. Tourism drives growth, with GDP forecasted to grow 3% annually from 2024-2027, boosting wealth and income convergence with the Eurozone. Reforms and EU funds are also expected to enhance Croatia's growth potential and productivity despite demographic challenges.	3Q24
Croatia	Upgrade to A- (positive) from BBB+	Sep-24	Fitch	Fitch upgraded Croatia's rating due to strong economic growth, significant debt reduction, and prudent fiscal policies. Croatia's GDP per capita rose to 76% of the EU average in 2023. Real GDP growth is expected to average 3.1% from 2024-2026, outpacing the eurozone. Public debt is declining rapidly, forecasted to fall to 59.3% of GDP in 2024 and further to 55.3% by 2028. Croatia is also expected to meet Maastricht criteria in 2024, with continued fiscal prudence and planned tax reforms enhancing revenue predictability.	
Croatia	Upgrade to A3 (stable) from Baa2	Nov-24	Moody's	Croatia's fiscal strength expected to remain materially higher in the near to medium term, due most notably to a sharp reduction of the government debt burden that is unlikely to reverse. Continued improvement of Croatia's economic strength, driven by significant structural reform and investments under the country's National Recovery and Resilience Plan (NRRP) which supports long-term growth potential.	4Q24
Cyprus	Upgrade to A3 (stable) from Baa2	Nov-24	Moody's	Material improvements in fiscal and debt metrics in Cyprus that are expected to be sustained. A significant reduction in government debt ratio since its peak in 2020, and which is expected to continue to decline in the medium term, with debt affordability metrics remaining favourable. Solid medium term economic outlook driven by steady expansion of high-productivity services sectors.	
Cyprus	Upgrade to A- (stable) from BBB+	Nov-24	Fitch	Rapid decline in public debt underpinned by high primary fiscal surpluses and strong nominal GDP growth. Limited fiscal risks with a continuation of strong commitment across the political spectrum to maintaining prudent fiscal policies. Strong GDP growth supported by an expanding labour force with an increase in both immigration and domestic employment.	
France	Downgrade to Aa3 (stable) from Aa2	Dec-24	Moody's	Expected substantial weakening of public finances over the coming years with political fragmentation more likely to impede meaningful fiscal consolidation. Increased risk of a durable increase in financing costs, which could further weaken debt affordability, possibly creating a negative feedback loop between higher deficits, higher debt load and higher financing costs.	

Source: Fitch, Moody's, S&P

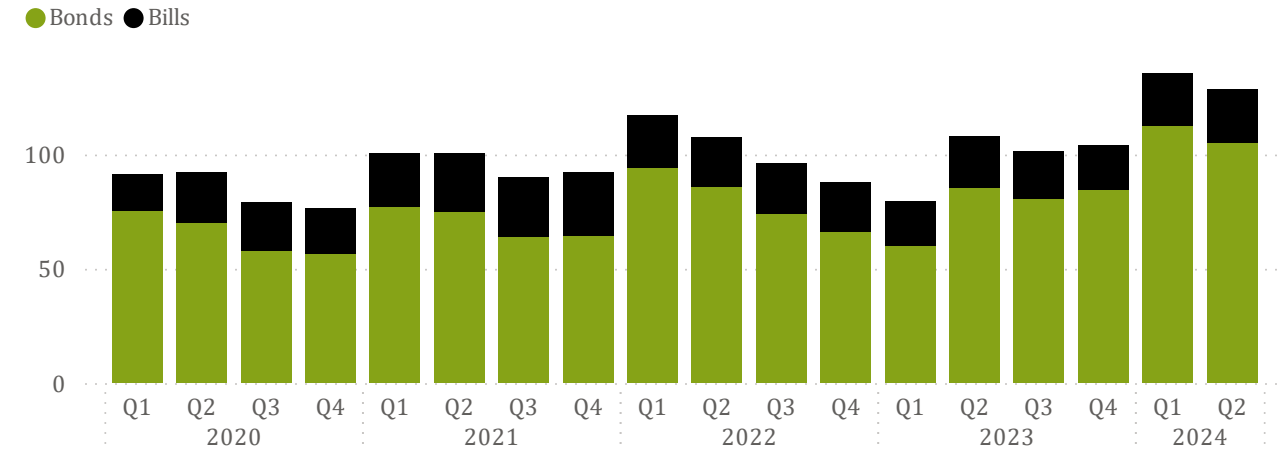
Secondary Market Trading Volumes and Turnover Ratios

Secondary Market Trading Volumes and Turnover Ratios

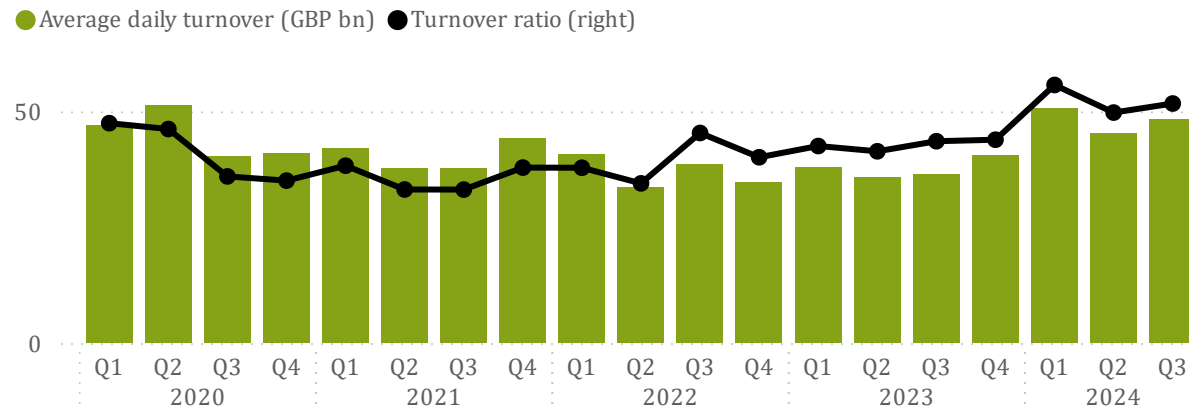
5.1 EU + UK: Average daily trading volumes (Government and sovereign bonds, EURbn)



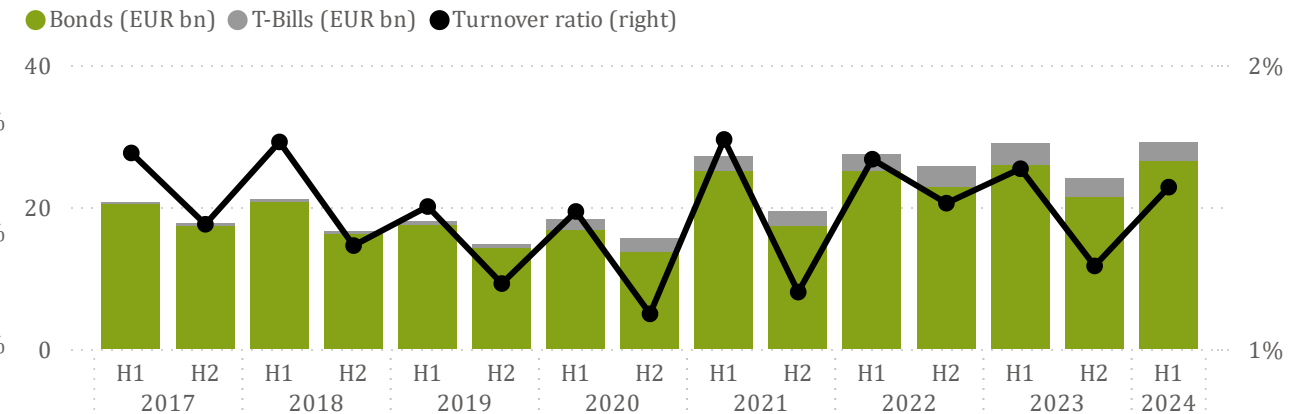
5.2 Eurozone: Average daily trading volume (bonds and bills, EURbn)



5.3 United Kingdom: Average daily trading volume (bonds only) and turnover ratio



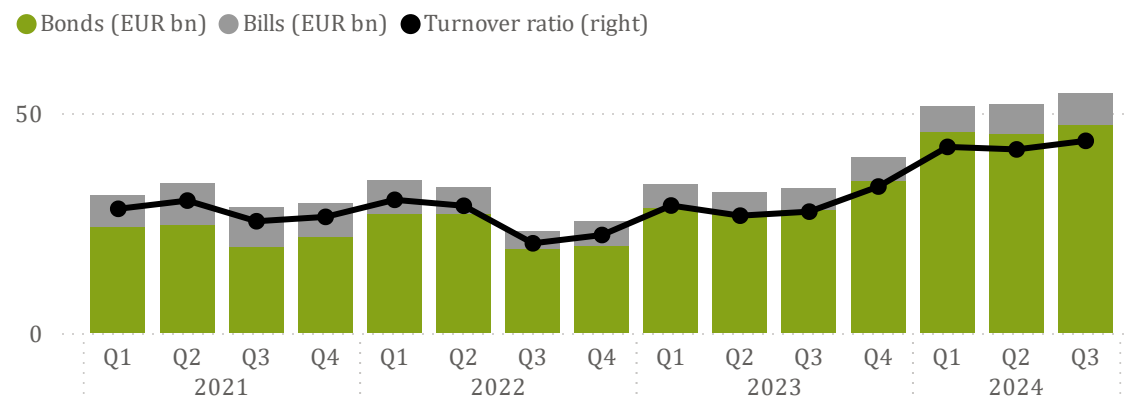
5.4 Germany: Average daily trading volume (aggregated bonds and bills) and turnover ratio



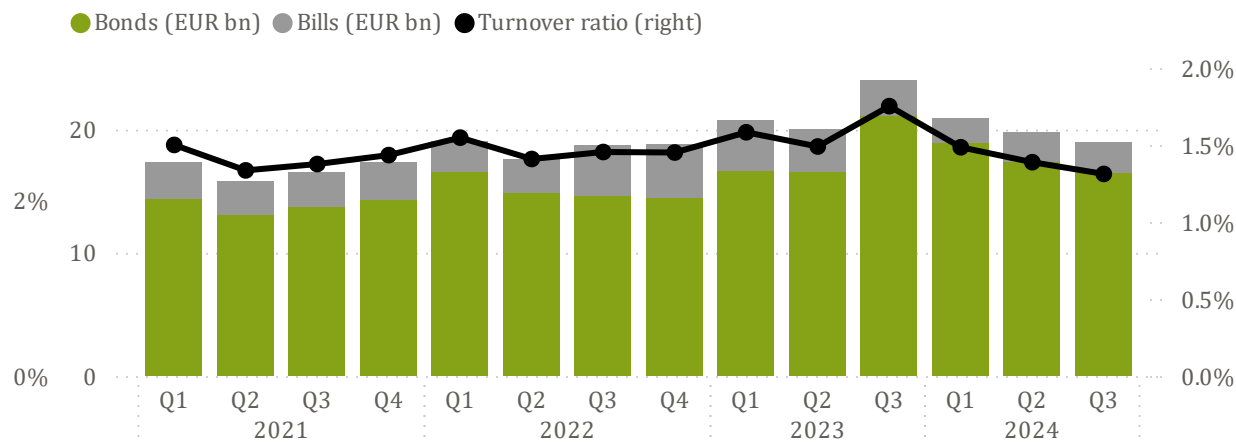
Source: TraX data from MarketAxess, EFC Sub-Committee on ESDM, UK Debt Management Office, Deutsche Finanzagentur, ECB. Latest data for Germany as of H2 2023. **Individual country volumes do not sum to aggregated trading volume in Chart 5.1 EU+UK, given the differences in the aggregation basis across jurisdictions. The data is not fully comparable between countries. Full Methodology available on page 36 of this report.**

Secondary Market Trading Volumes and Turnover Ratios

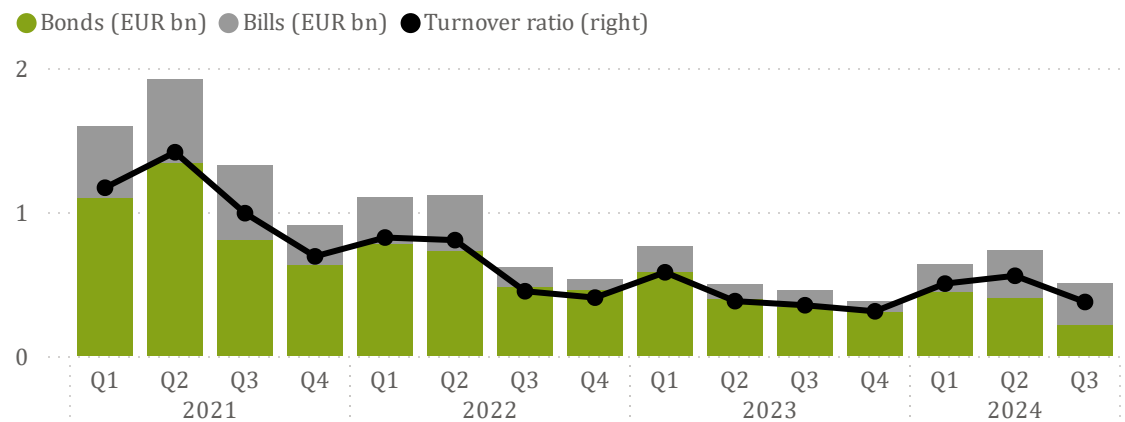
5.5 Italy: Average daily trading volume (bonds and bills) and turnover ratio



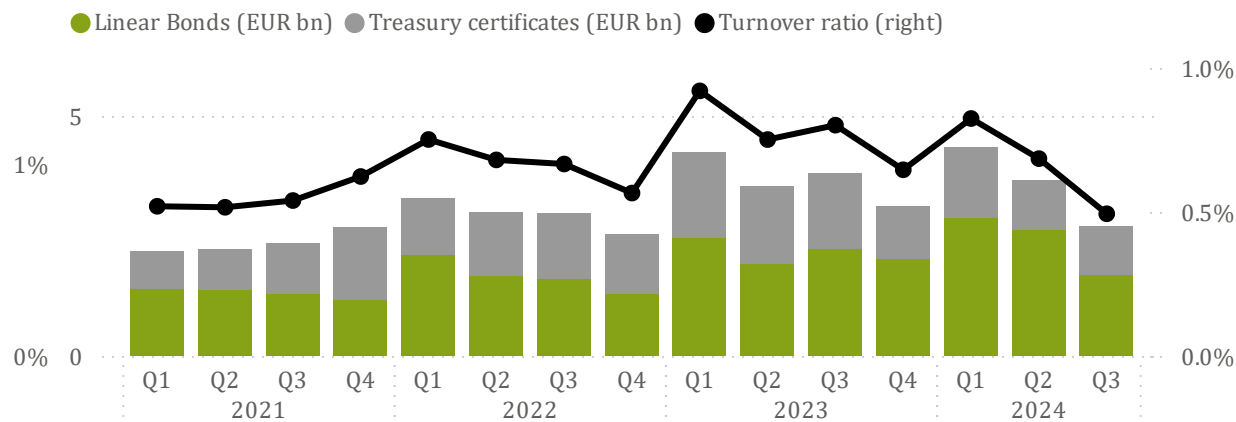
5.6 Spain: Average daily trading volume and turnover ratio



5.7 Portugal: Average daily trading volume and turnover ratio



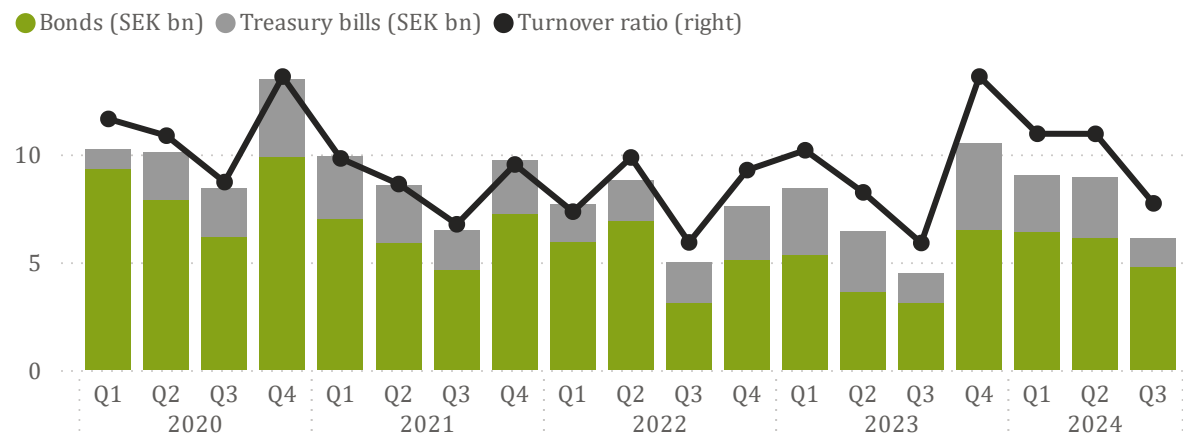
5.8 Belgium: Average daily trading volume and turnover ratio



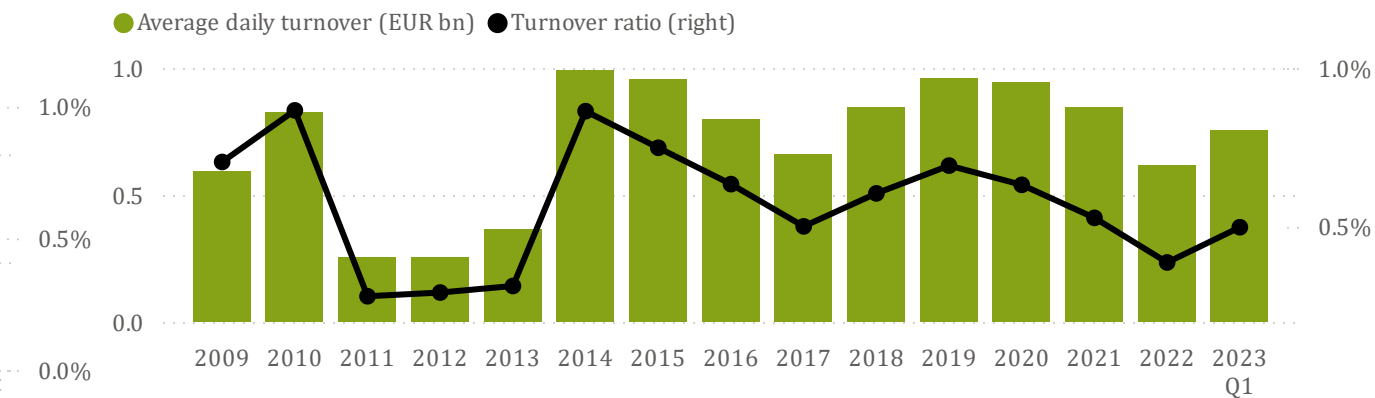
Source: ECB, Italian Dipartimento del Tesoro, BME Market Data and Tesoro Publico de Espana, Agência de Gestão da Tesouraria e da Dívida Pública (IGCP), Belgian Debt Agency. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 36 of this report.**

Secondary Market Trading Volumes and Turnover Ratios

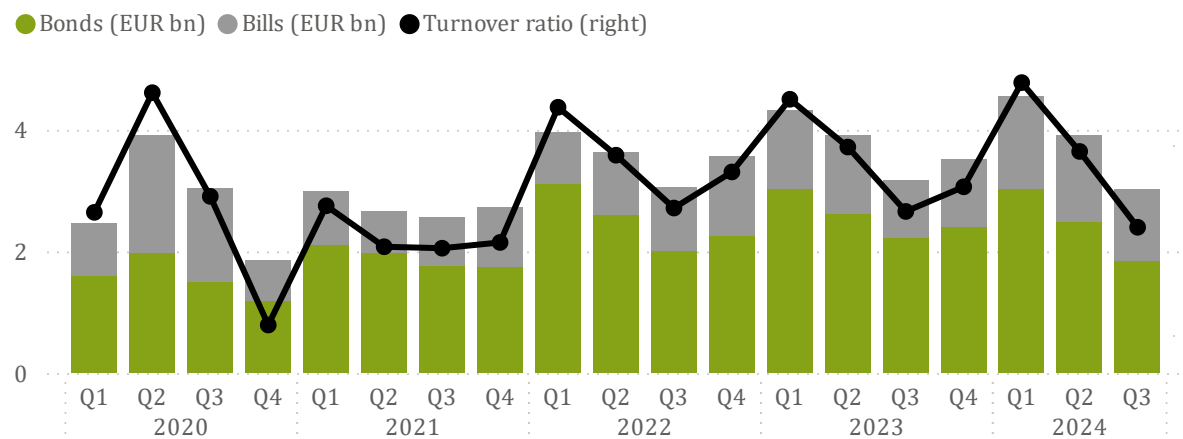
5.9 Sweden: Average daily trading volume and turnover ratio



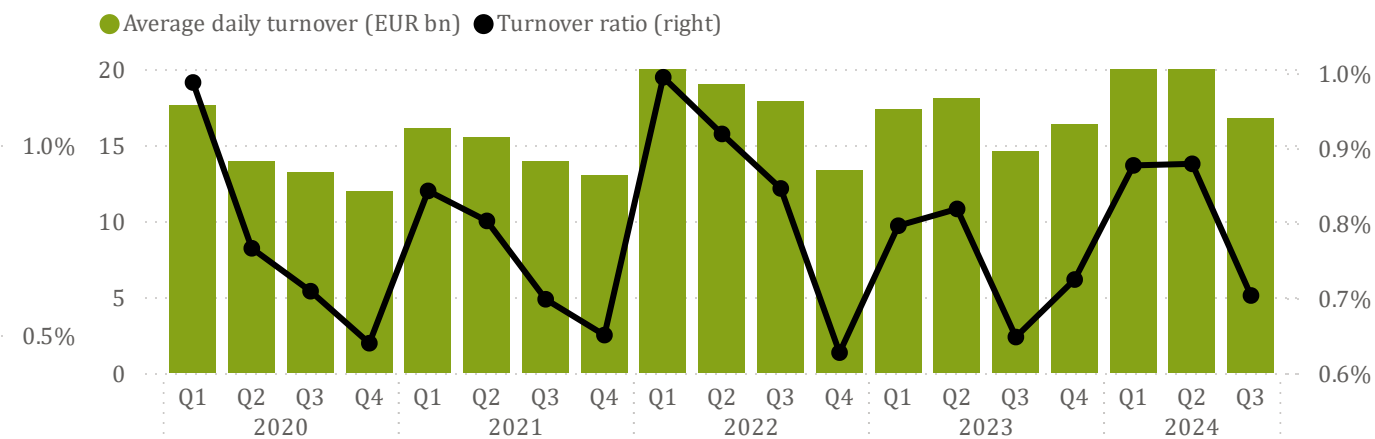
5.10 Ireland: Average daily trading volume (bonds only) and turnover ratio



5.11 Netherlands: Average daily trading volume and turnover ratio



5.12 France: Average daily trading volume (bonds only) and turnover ratio

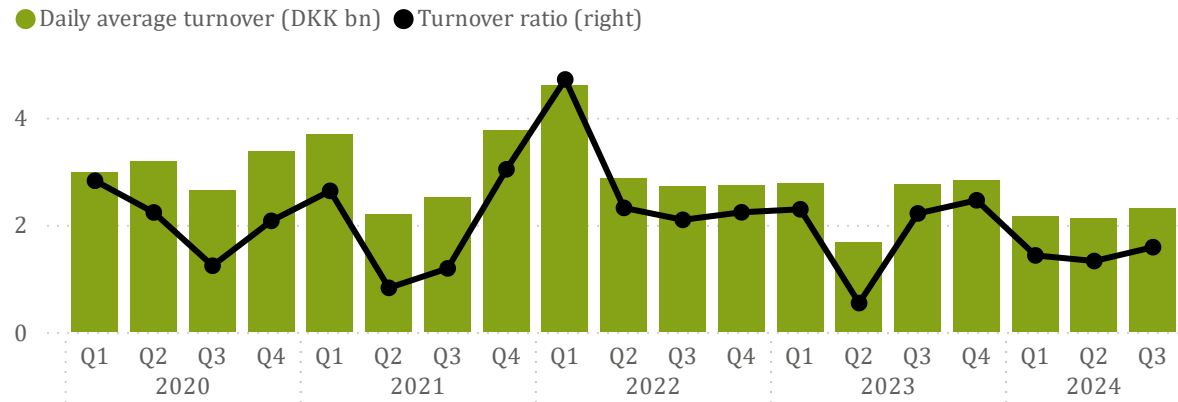


Source: ECB, Swedish National Debt Office (Riksgalden), Irish Stock Exchange, Ministerie van Financiën, Agence France Tresor. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 36 of this report.**

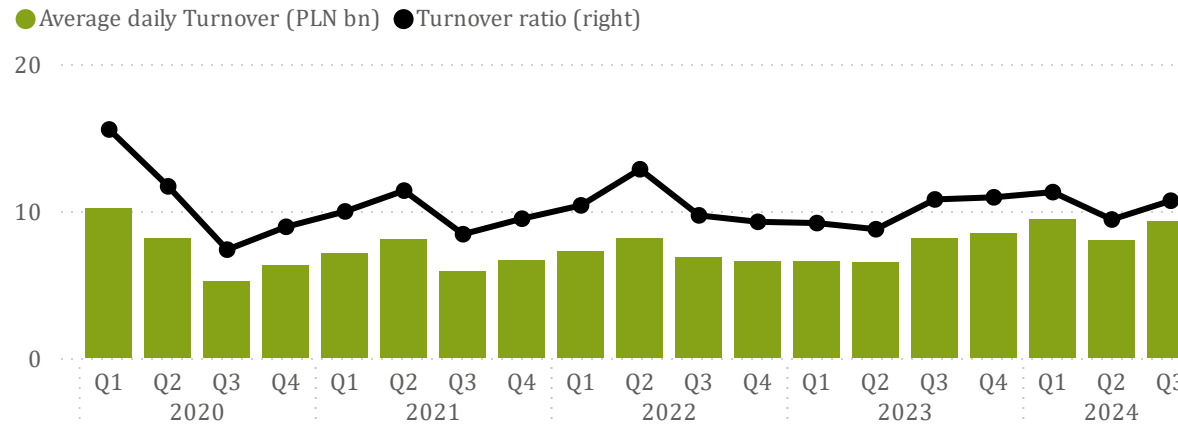
Chart 5.10: Ireland turnover data has been unavailable since Q1 2023

Secondary Market Trading Volumes and Turnover Ratios

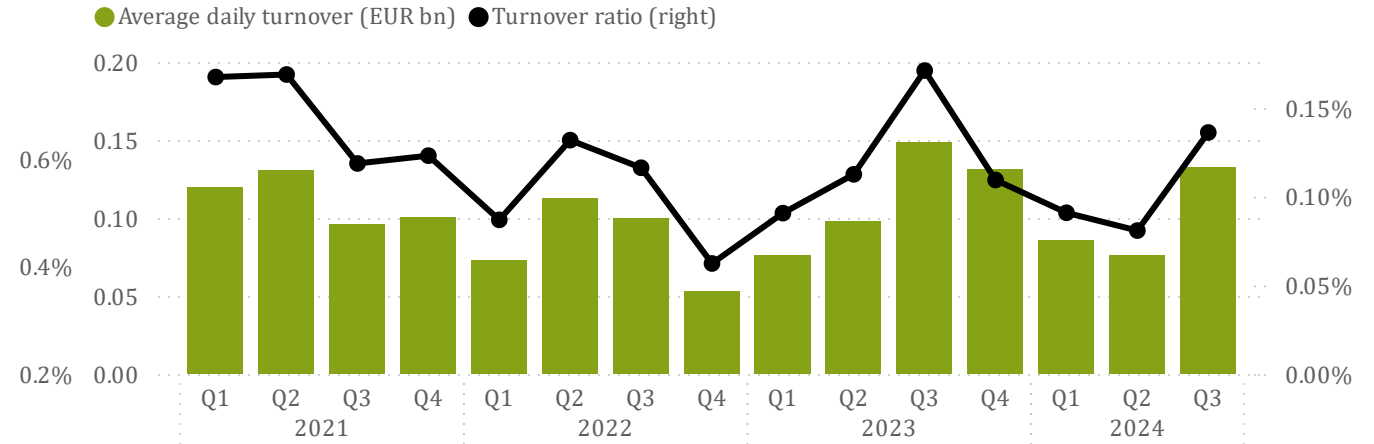
5.13 Denmark: Average daily trading volume (bonds and bills) and turnover ratio



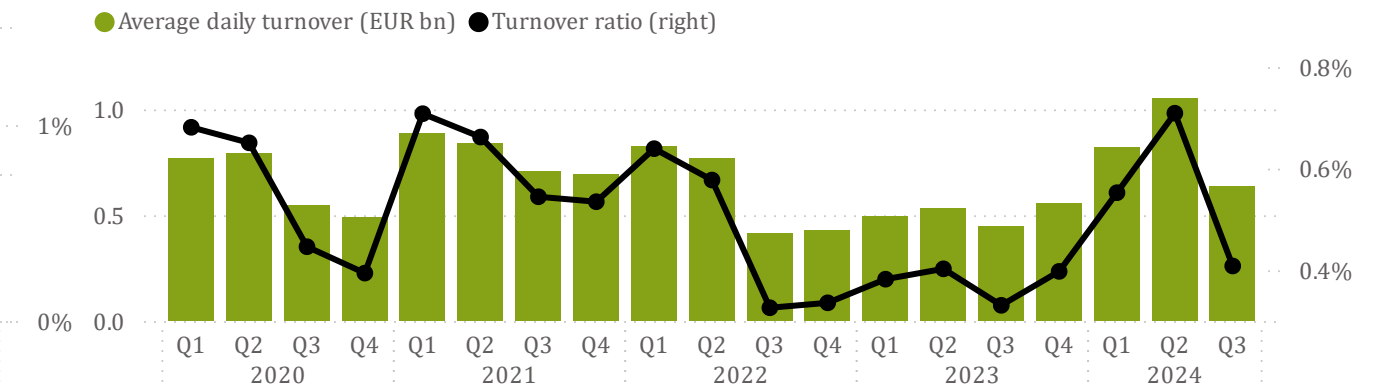
5.15 Poland: Average daily trading volume (bonds only) and turnover ratio



5.14 Greece: Average daily trading volume (bonds only) and turnover ratio



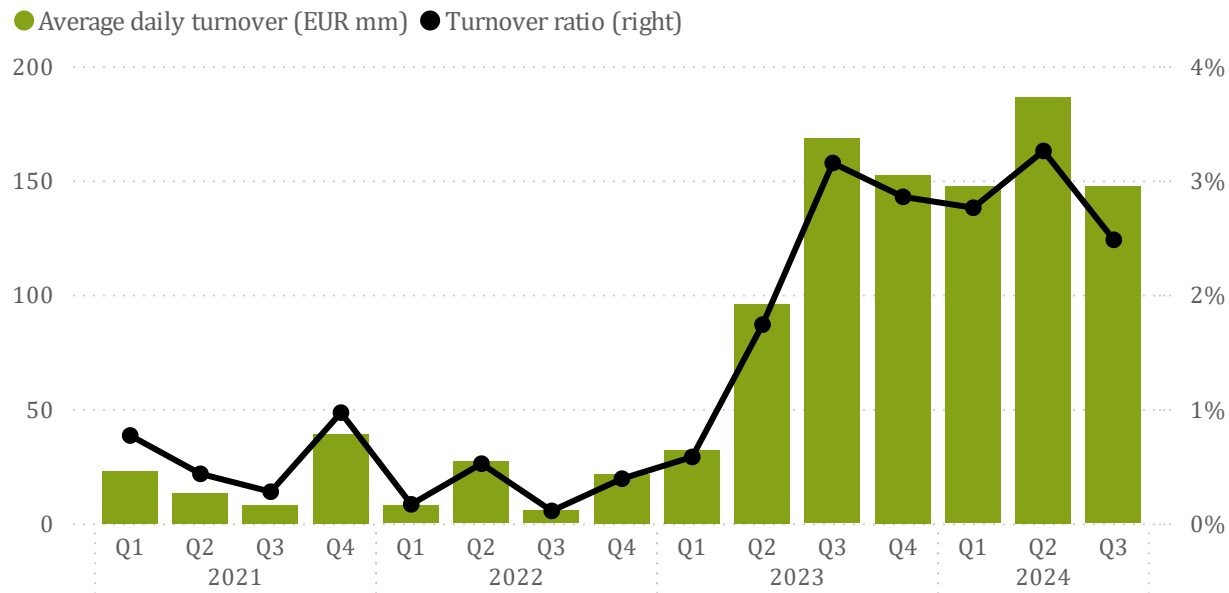
5.16 Finland: Average daily trading volume (aggregated bonds and bills) and turnover ratio



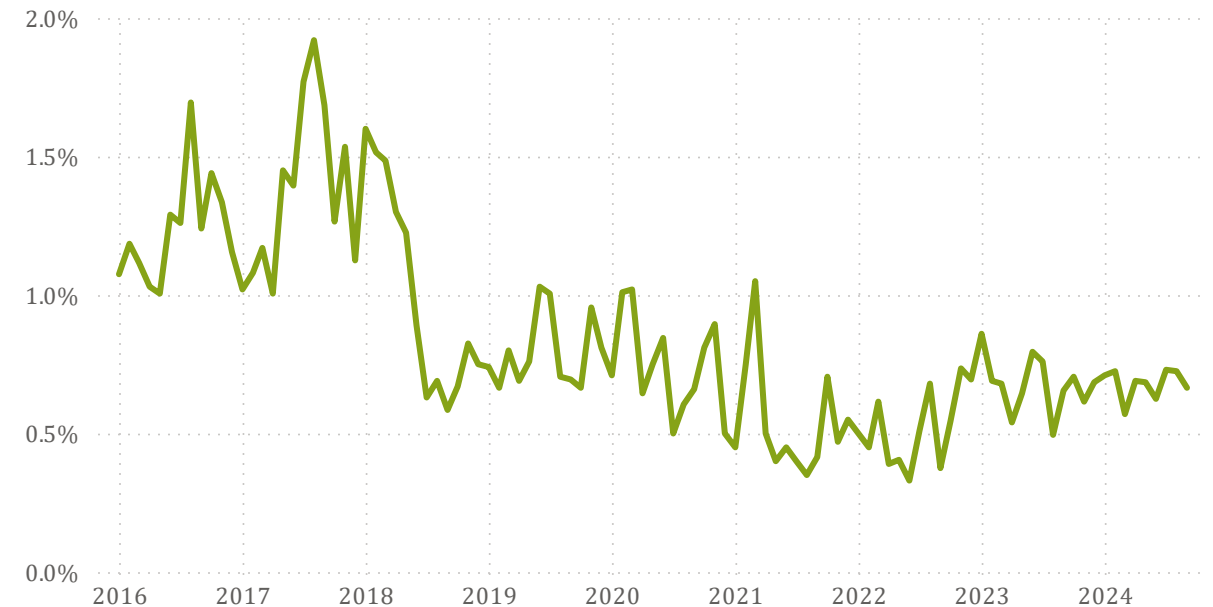
Source: Denmark's Nationalbank, Bank of Greece, ECB, National Depository for Securities (KDPW), WSE, Finland Valtiokonttori. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 36 of this report**

Secondary Market Trading Volumes and Turnover Ratios

5.17 Bulgaria: Average daily turnover volume and turnover ratio



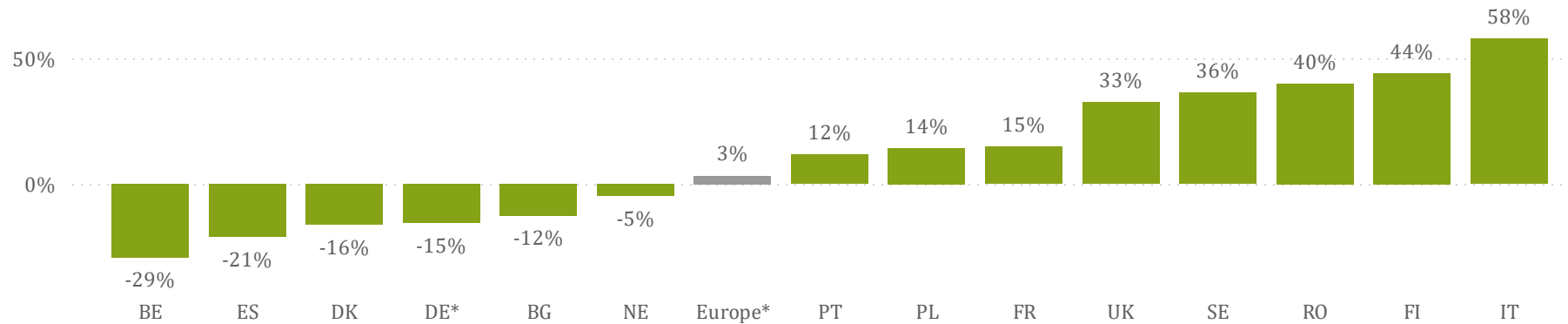
5.18 Romania: Average daily turnover ratio



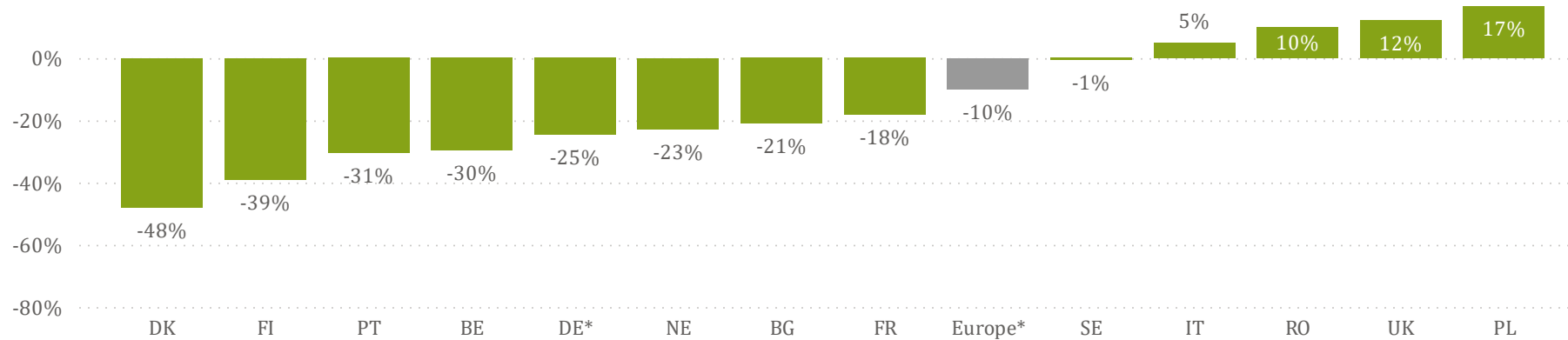
Source: ECB, Ministry of Finance of the Republic of Bulgaria, Ministerul Finantelor. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 36 of this report**

Secondary Market Trading Volumes and Turnover Ratios

5.20 Annual change in average daily turnover volumes of European government bonds: 3Q23 to 3Q24



5.21 Quarterly change in average daily turnover volumes of European government bonds: 2Q24 to 3Q24

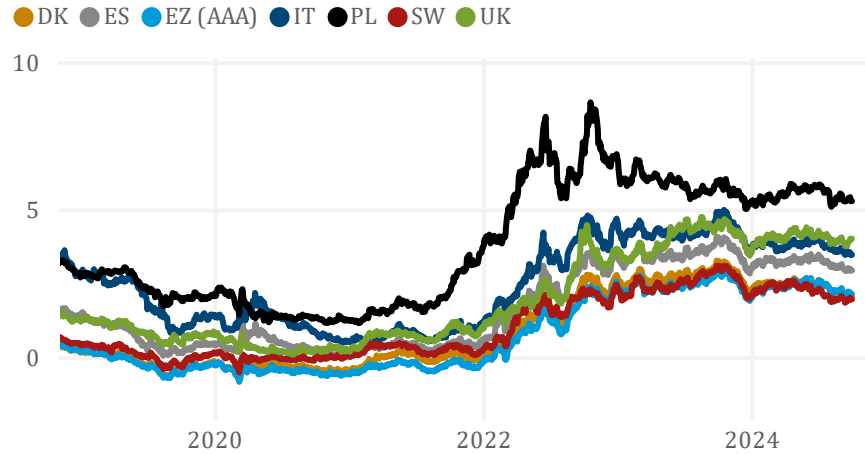


Source: AFME with information from European DMOs and other agency sources. See section 5 for details on aggregation basis and sources.

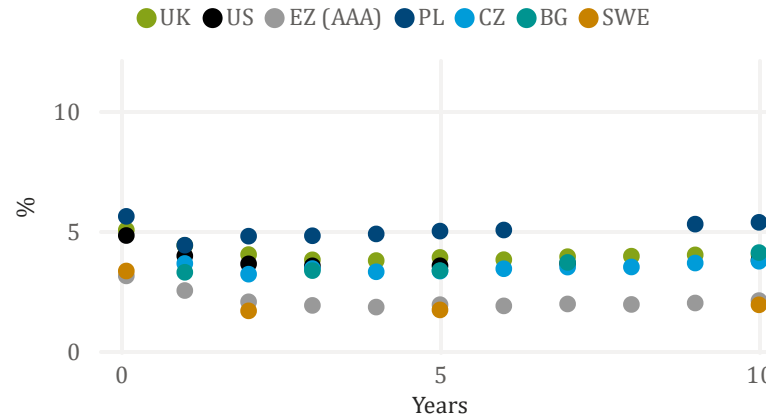
*Europe (EU+UK) total and Germany is sourced from TraX data from MarketAxess, as the quarterly variation of average daily volumes of government and sovereign bonds.

Valuations

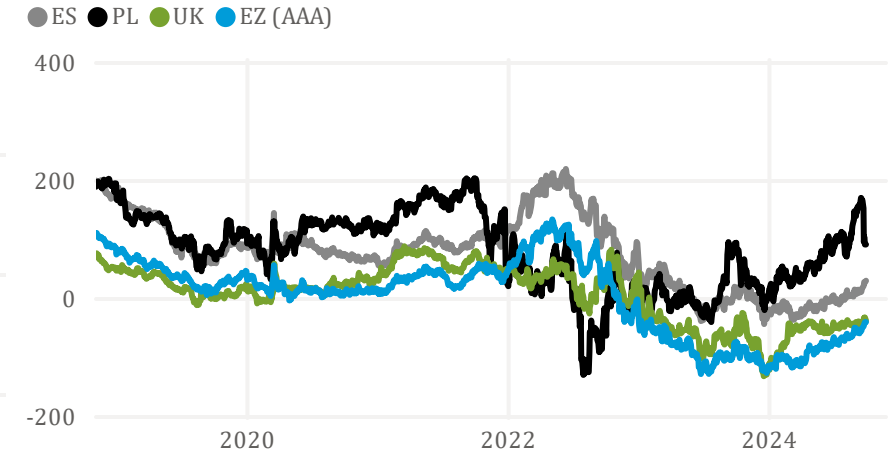
6.1 Selected European 10Y spot yields



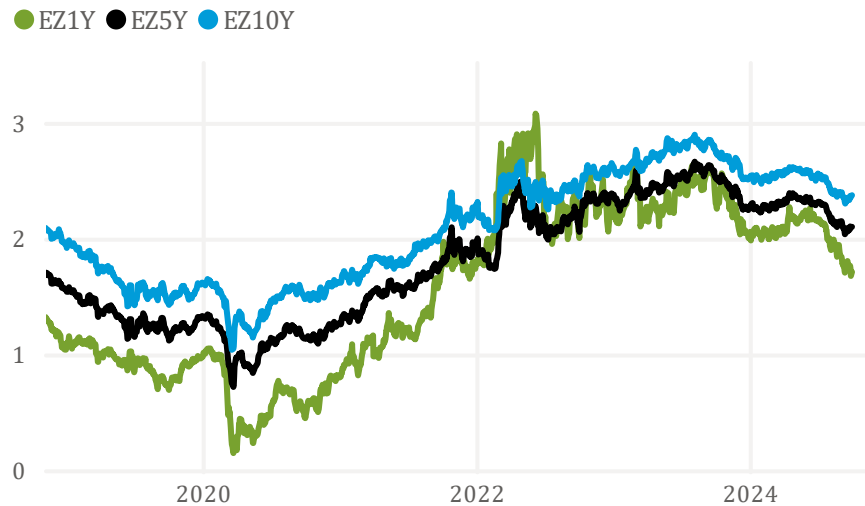
6.2 Sovereign spot yield curve of selected jurisdictions: 2 December 2024



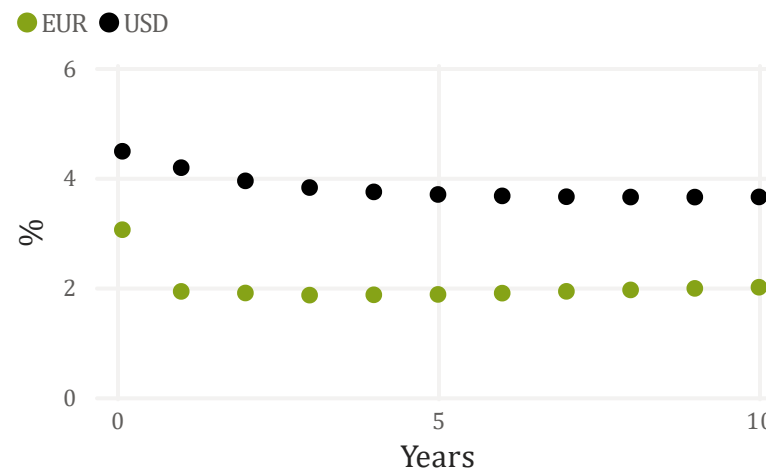
6.3 Slope: 1Y10Y spread (bps)



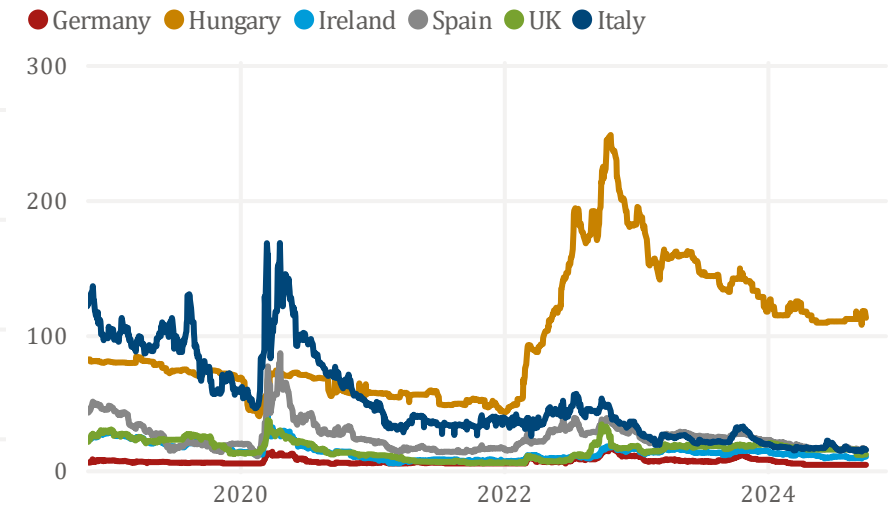
6.4 Market-implied inflation expectations (Eurozone)



6.5 Overnight index swap (OIS) yield curve: 2 December 2024



6.6 5Y Sovereign Credit Default Swap (CDS, bps)



Source: ECB and Refinitiv Eikon

Methodology for secondary Market Trading Volumes and Turnover Ratios in this report

Turnover ratios are calculated as the average daily trading volume relative to total outstandings. Cash trading only (excludes repo and derivatives transactions)

5.1 EU + UK: Secondary Market Volumes (please note this is restricted to 2013-Q3 onwards as split not available prior to this date. Volumes are calculated by converting the individual traded securities to EUR using the prevailing exchange rate on the date of each trade. ADV calculated by dividing the total converted volume by the number of UK trading days for quarter. Data sourced from Trax. The aggregation of Trax data is agnostic of platform (meaning the trades can be conducted via BBG, TRAX or others) as it is sourced from dealers middle offices, rather than the actual trading venues. The data includes both dealer to dealer activity and dealer to client activity. Data does not consider transaction volume between clients and therefore relies on the degree of dealer intermediation.

5.2 Eurozone: Data is published by EFC Sub-Committee on ESDM, and is based on turnover data reported in the Euro Market Activity Report (EMAR), including turnover on a trade by trade basis traded by reporting dealers. A comprehensive list of reporting dealers can be found in the EMAR reports on the website of the Economic and Financial Committee's Sub Committee on EU Sovereign Debt Markets

5.3 United Kingdom: Turnover data reported to the DMO by the Gilt-edged Market Makers (primary dealers).

5.4 Italy: Turnover on all trading venues and OTC as per data provided to the Italian Dipartimento Del Tesoro by Primary Dealers through HRF ('single counted' volumes).

5.5 Germany: Turnover of both electronic and OTC trading. The traded volume is aggregated for a representative part of the members of the Bund Issues Auction Group with trades with all counterparties. Includes Bubills, Schaetze, Bobls, Bunds and inflation-linked securities. Capital and coupon strips as well as US-dollar bonds are excluded.

5.6 Portugal: Turnover of electronic and OTC trading reported on MTS-Portugal, BrokerTec and eSpeed.

5.7 Spain: Due to data reconciliation activities of the Bank of Spain, data from April 2018 is from BME Market Data, a subsidiary of Bolsas y Mercados Españoles. Turnover is derived from settlement data from Iberclear.

5.8 Finland: Turnover of customer trades, MTS Finland and Euro MTS.

5.9 Belgium: Turnover is total outright transactions.

5.10 Sweden: Turnover is total outright transactions

5.11 Ireland: Turnover on Irish Stock Exchange.

5.12 Netherlands: Turnover is customer and interdealer trading. Total outright transactions, including electronic and OTC trading.

5.13 France: Turnover of voice and electronic trading (not including PSPP transactions or trading without an SVT).

5.14 Denmark: Turnover of MTS, TradeWeb, Bondvision and trades reported to Nasdaq OMX (including voice trading).

5.15 Greece: Turnover on Electronic Secondary Securities Market (HDAT).

5.16 Poland: Turnover is total outright transactions. Data from KDPW are presented according to the date of the settlement, while data from WSE are presented according to the date of conclusion of a transaction.

5.17 Bulgaria: Turnover ratio of the government securities issued on domestic market. Official values reported as average monthly turnover ratios, which have been converted assuming 20 business days per month.

5.18 Romania: Turnover ratio of the government securities issued on domestic market. Official values reported as average monthly turnover ratios, which have been converted assuming 20 business days per month. Turnover volume not available.

For a description of the methodology of this report please visit <https://www.afme.eu/reports/data/details/Summary-of-the-Methodologies>

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