

4Q 2020

Government Bond Data Report

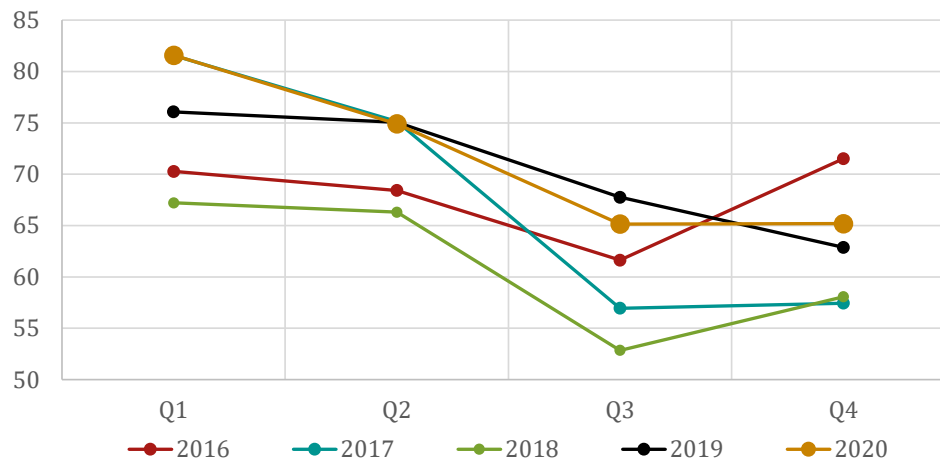
European market data update



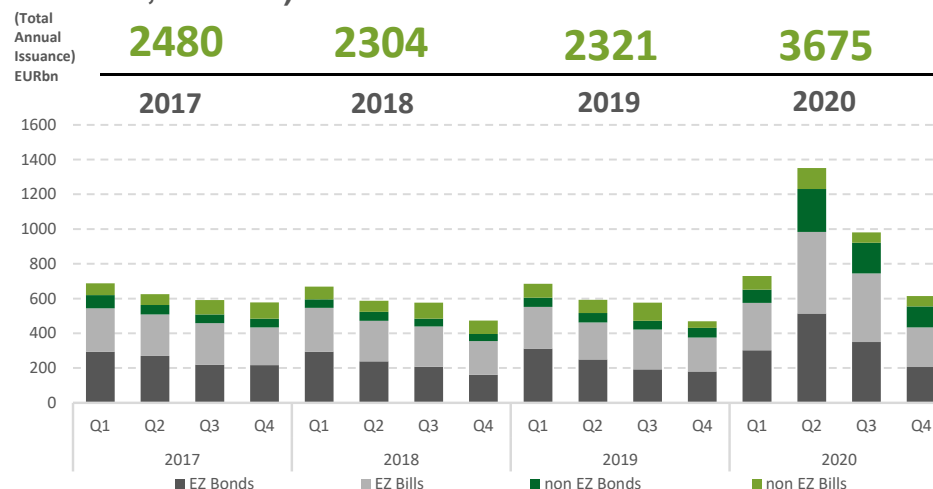
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Highlights and Market Environment

1. Seasonality of European government bond trading (quarterly trading volumes, average daily, EUR bn)



2. European (EZ + non EZ [incl. UK]) bond and bill issuance (2017-2020, EUR bn)



Source: Trax, a MarketAxess subsidiary [chart 4], ECB, National Debt Management Offices and UK Debt Management Office. [chart 5].

European government bond trading volume at EUR 65.2 bn in 4Q20 for the second consecutive quarter, whilst trading in 2020FY highest in 5 years.

European trading volumes increased by just EUR 0.04 bn QoQ to EUR 65.2 bn during 4Q20. This represented the most active fourth-quarter in terms of trading since 2016.

Average annual trading volumes in 2020, at EUR 71.7 bn, are up 0.9% compared to 2019, representing the most active year of trading in the European government bond market since 2015.

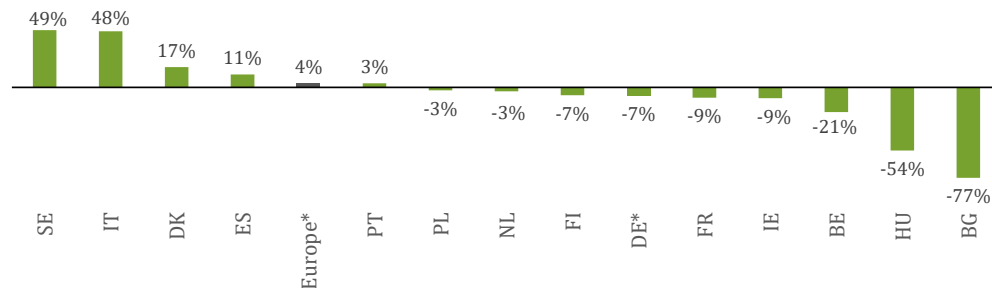
Record annual issuance of EUR 3,675 bn in bonds and bills as European sovereigns contend with the funding demands of 2020.

EUR 614.6 bn issued in 4Q20 represents a decrease of 37.3% (QoQ) compared to 3Q20, as issuance volumes normalised after the unprecedented funding demands during 2020, as European countries faced fiscal implications related to the economic effects of the pandemic. Compared to 4Q19, total European issuance was up 31.0% (YoY).

The funding mix (bonds vs bills) during 2020FY in the Eurozone remained comparable to previous years, whilst volumes issued outside of the Eurozone (incl. UK), saw an increase in bonds volumes as a % of total issuance due to significant UK Gilt issuance throughout 2020.

Highlights and Market Environment

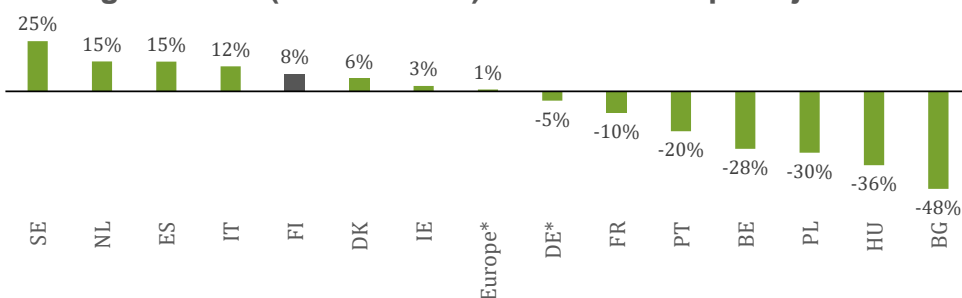
3. Annual changes in Government Bond average daily trading volumes (4Q20 vs 4Q19) Selected European jurisdictions



4. Quarterly change in Government Bond average daily trading volumes (4Q20 vs 3Q20) Selected European jurisdictions



5. Annual aggregate change in Government Bond average daily trading volumes (2020 vs 2019) Selected European jurisdictions



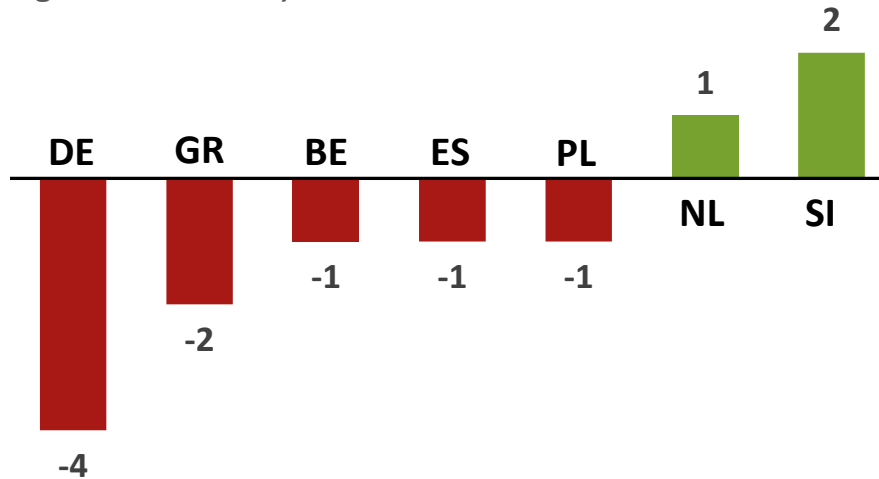
Source: AFME with information from European DMOs and other agency sources and Trax, a MarketAxess subsidiary. *Europe (EU+UK) total and German turnover is sourced from Trax Facts as the quarterly variation of average daily volumes of government and sovereign bonds. **Romanian turnover volume calculated using outstanding volumes in Section 3.

European government bond trading increased 3.7% YoY and 0.1% QoQ in 4Q20

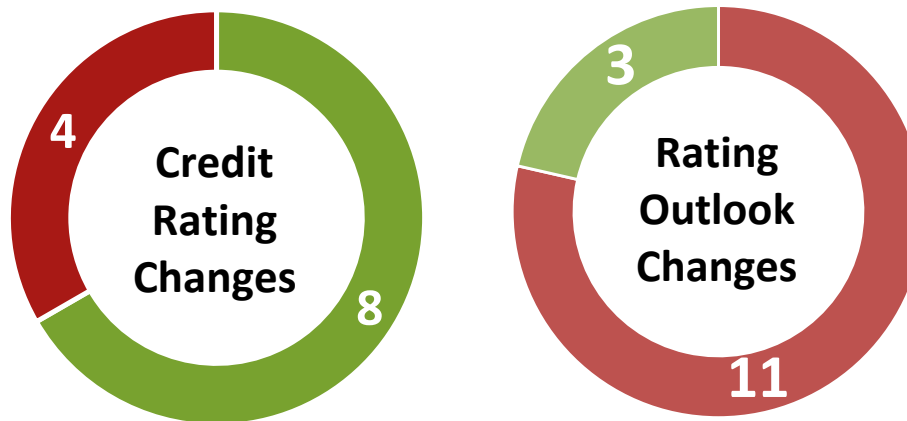
Average daily trading volumes of European government bonds increased by 3.7% YoY during 4Q20, driven by a significant increase in trading in Sweden (48.6% YoY), Italy (47.7%), Denmark (17.3% YoY) and Spain (11.0% YoY). There was a decrease in trading in Bulgaria (-77.0% YoY), Hungary (-53.7% YoY), Belgium (-21.0%) and France (-8.8%), (see charts 3, 4 and 5).

Highlights and Market Environment

6. Number of Exits and Entries in European Primary Dealership (Aug 2020-Jan 2021)



7. Changes in European sovereign issuers' Credit Quality in 2020FY



Source: AFME HRF Table [Chart.6]
Thomson Reuters Eikon [Chart.7] **Green** indicates credit rating upgrade / outlook change by one notch, **red** indicates credit rating downgrade / outlook change by one notch

Net loss of 6 primary dealers in Europe from Aug 2020 to Jan 2021

From August 2020 to January 2021, there were 9 exits and 3 entries of banks to the European Primary Dealer system, affecting sovereign debt markets in 7 countries. This follows 3 exits and 1 entry in primary dealership between February and August 2020.

The fall in number of active primary dealers in European debt markets now means that 15 European sovereign issuers, representing two-thirds of European countries which have an active PD system, are now at or below the lowest number of primary dealers on record.

During 4Q20 there were 4 upgrades and 1 downgrade in long-term credit rating changes for European nations

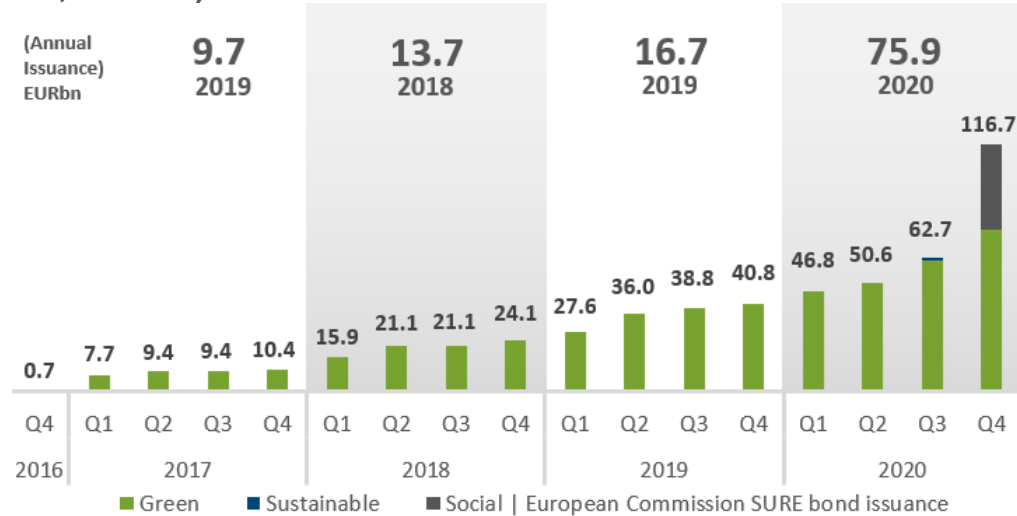
This follows 4 upgrades and 1 downgrade in 1Q20, no upgrades and 2 downgrades in 2Q20, no upgrades or downgrades in 3Q20, bringing the year-to-date total to 8 upgrades and 4 downgrades.

European credit quality, as measured by ratings changes affecting European sovereign issuers by the 3 CRAs, has remained resilient throughout 2020, with a net change of 4 upgrades. Rating outlook changes have been less secure with 2020 recording 11 negative changes and 3 positive changes in credit rating outlook.

Many of the negative credit rating changes, and credit rating outlook changes, have been related to the economic and fiscal implications of the Covid-19 pandemic.

Highlights and Market Environment

8. European outstanding green, social and sustainable (ESG) government bonds (2016-2020, EUR bn)



9. Active sovereign participants of ESG government bond market (as of Mar-21)



Source: Thomson Reuters Eikon. Chart 8 shows social bond volumes issued by the European Commission under the SURE scheme. **Green** indicates sovereign issuer has issued ESG bonds since the market opened (4Q16). **Grey** indicates sovereign issuer has not issued ESG bonds. *Inaugural green issuance in Italy has taken place during 1Q21, volumes arising out of the issuance are not described in this report.

Outstanding volumes of European sovereign ESG bonds reach EUR 116.7 as record EUR 34.9 bn volume of green government bonds issued in 2020FY and inaugural SURE social bonds issued by the European Commission.

EUR 14.5 bn issued in green bonds during 4Q20 represents the highest quarterly issuance of green government bonds in Europe to date. Volumes during 4Q20 were driven by the new issue of a German green bund (EUR 5.0 bn) and additional volumes added to the market via tap issuance in the French, Belgian and Hungarian green bonds. In 2020 full-year, EUR 34.9 bn of green bonds were issued in European sovereign markets, up 109.0% from 2019.

EUR 39.5bn of social bonds were issued by the European Commission during 4Q20 as a result of the SURE scheme. This meant a significant milestone was reached as outstanding volumes of ESG government bonds now surpass EUR 100bn.

Throughout 2020, Europe's ESG sovereign markets saw 6 new entries to the market with the governments of Belgium, Germany, Hungary and Sweden issuing inaugural green bonds, and the government of Luxembourg issuing an inaugural sustainable bond. This means the number of active participants in European sovereign ESG markets now stands at 12 (incl. Italy*, which issued an inaugural green bond in 1Q21 and the European Commission).

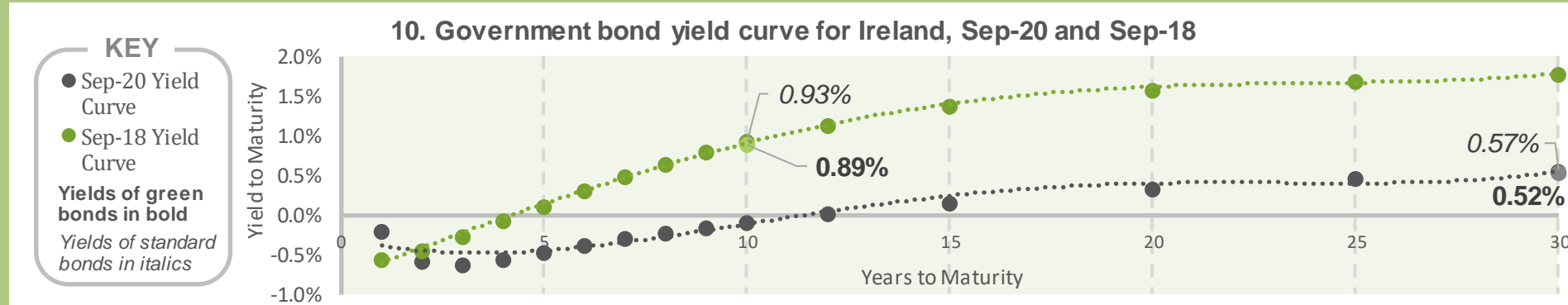
Box: European Green Sovereign Premia and Market Demand: Yield to Maturity and Bid-Cover Ratio of Bonds issued in IE, FR and BE

AFME has undertaken analysis investigating the presence green premia in bond issues within the government debt markets of Ireland, France and Belgium. In order to quantify the analysis, yield curves, constructed for the periods in which the green bonds were issued, were used to compare the yield to maturity of the Irish, French and Belgian green bonds with yields of standard non-green government issues of the same maturity.

Bid-Cover ratios of the green bonds were also compared against standard bond issues within similar time periods to isolate any variances in demand the green bonds may have experienced relative to their standard counterparts.

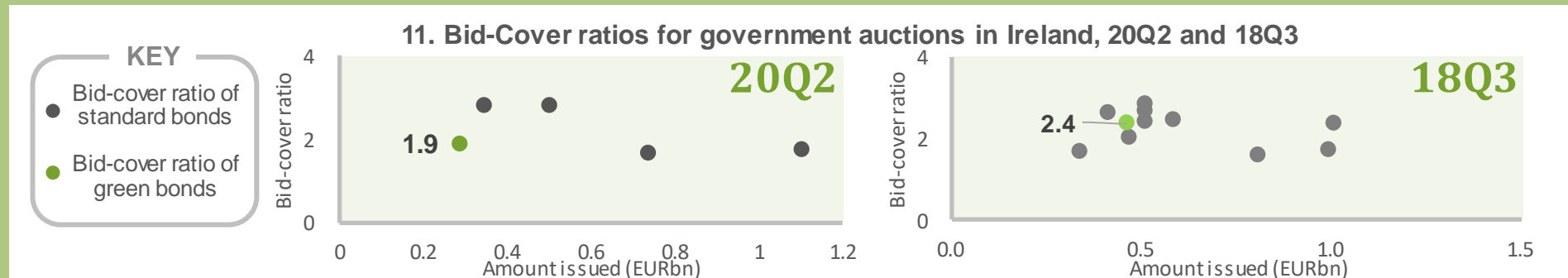
The boxes on the following 3 pages of the report summarise the main findings for each jurisdiction. The analysis concerns bond issues in debt markets for which comparable data was available for the selected time periods.

Box: European Green Sovereign Premia and Market Demand: Yield and Bid-Cover Ratios in Ireland



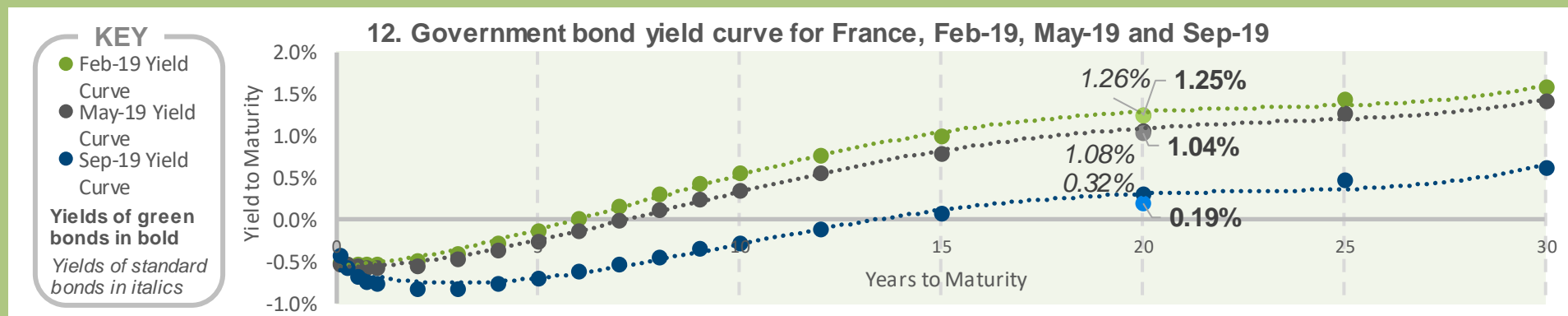
Some evidence of green premia in Irish sovereign bond issues in Sep-18 and Sep-20

Yields of green sovereign bonds issued in Ireland were 4bp (Sep-20) and 5bp (Sep-18) lower than the standard government bond yield curve.



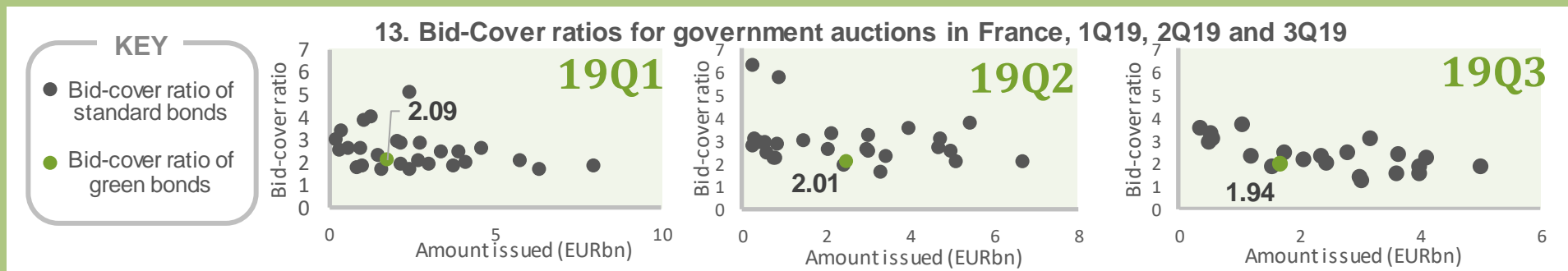
In Ireland, the level of demand for green issuance, as measured by the bid-cover ratio, fell in 2Q20 (when Ireland increased the volume outstanding of its green bond via tap issuance), compared to 3Q18 when the Irish green bond was first issued.

Box: European Green Sovereign Premia and Market Demand: Yield and Bid-Cover Ratios in France



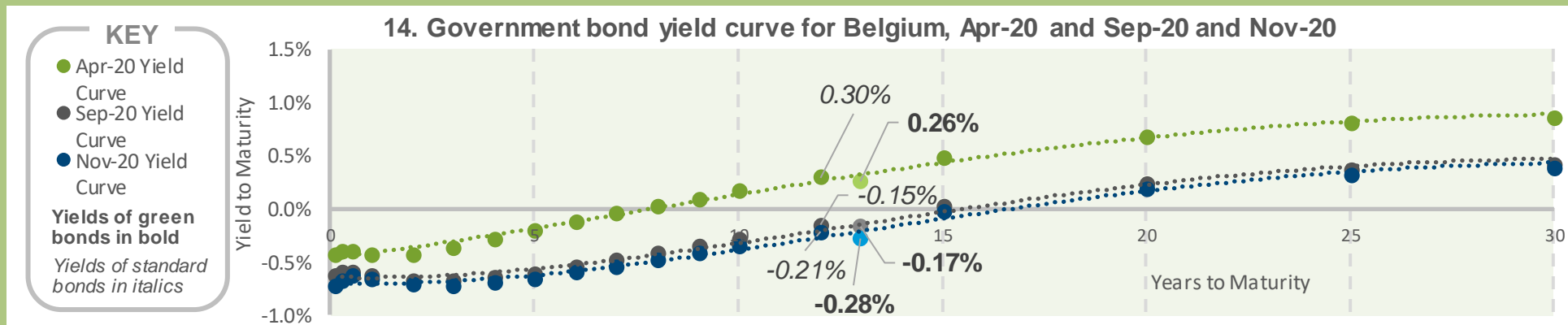
Some evidence of green premia in Sep-19 and to a lesser extent May-19 French green bond issues

During 2019, additional volumes of the French green government bond, issued via tap issuance, achieved a yield 23bp lower than the conventional sovereign yield curve in Sep-19, 4bp lower in May-19 and 1bp lower in Feb-19.



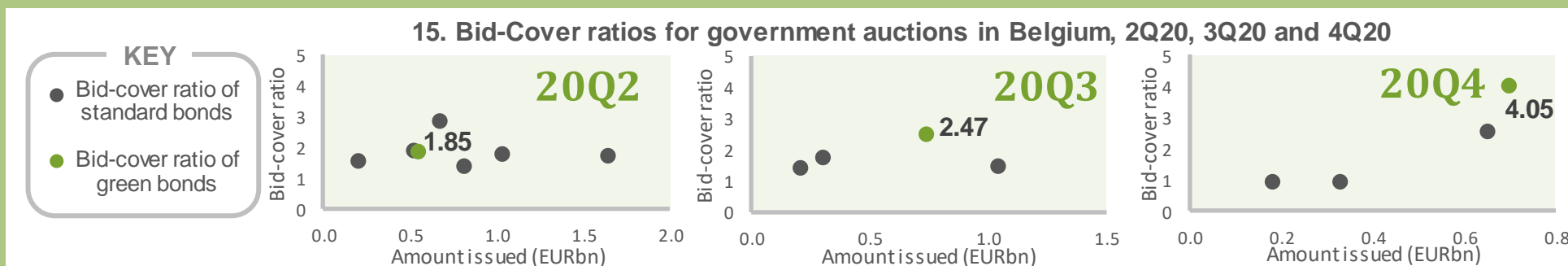
In France, the level of demand for green issuance, as measured by the bid-cover ratio, remained comparable, and similar to conventional French government securities during 2019.

Box: European Green Sovereign Premia and Market Demand: Yield and Bid-Cover Ratios in Belgium



Some evidence of green premia in Belgian green government issues and increased demand in H2 2020

In Belgium, green sovereign bond issues achieved a yield 4bp lower than the conventional yield curve in Apr-20, 2bp lower in Sep-20 and 7bp lower in Nov-20.



Bid-cover ratios of Belgian green government bond issues increased throughout 2020 and have been considerably higher than those of conventional government bonds in auctions taking place in H2 2020, which may suggest investor appetite of ESG instruments in Belgium increased during the Covid-19 pandemic.

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

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

Issuance

Gross Issuance

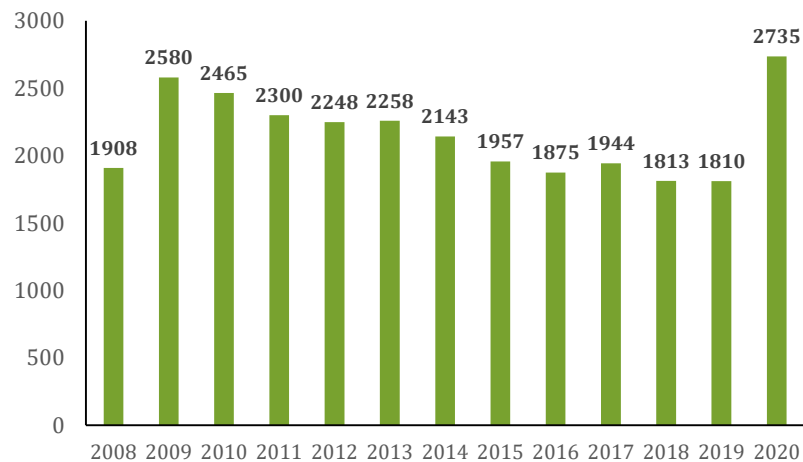
1.1 European (EU+UK) Government Bond gross issuance (FY, EUR bn)



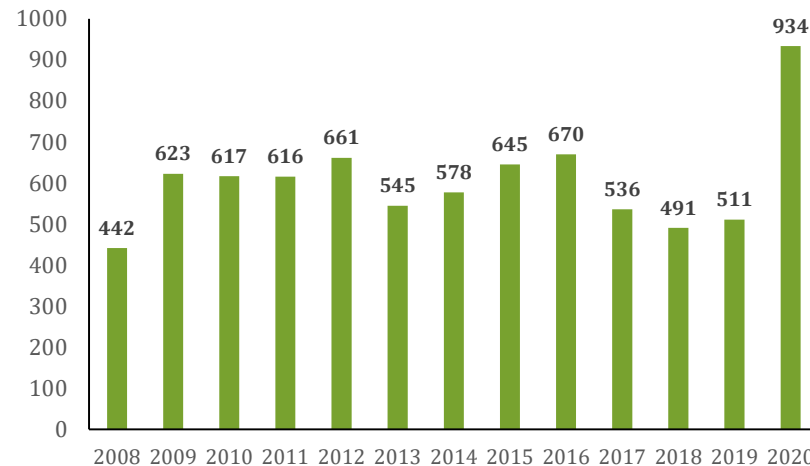
1.2 European (EU+UK) Treasury Bills gross issuance (FY, EUR bn)



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

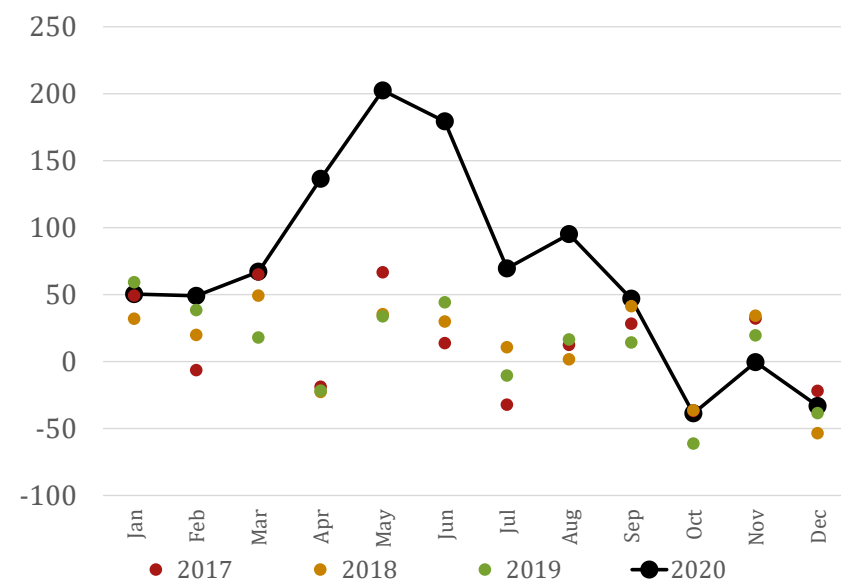


1.4 Non-Eurozone bonds and bills gross issuance (FY, EUR bn)

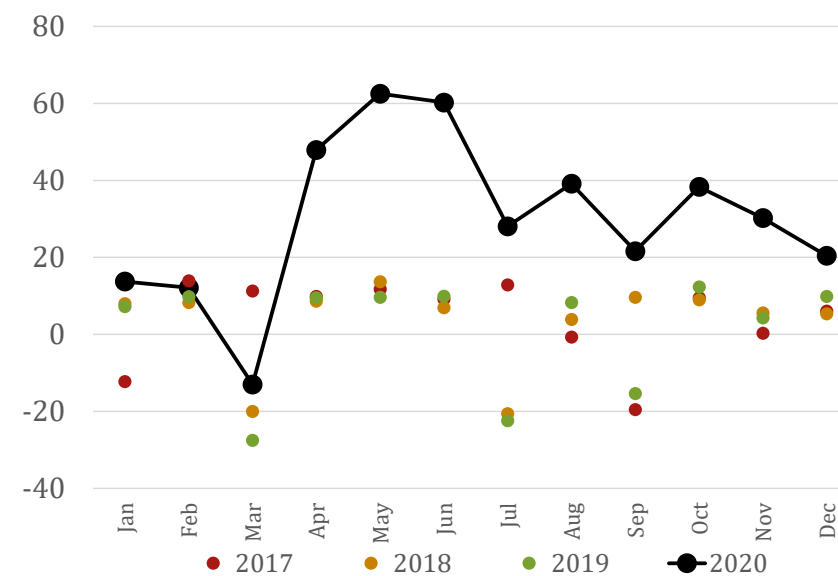


Source: ECB, National Debt Management Offices and UK Debt Management Office. **FY implies total annual gross issuance in each year taking place during all quarters of the year.**

1.5 Euro area net sovereign debt issuance (EUR bn)



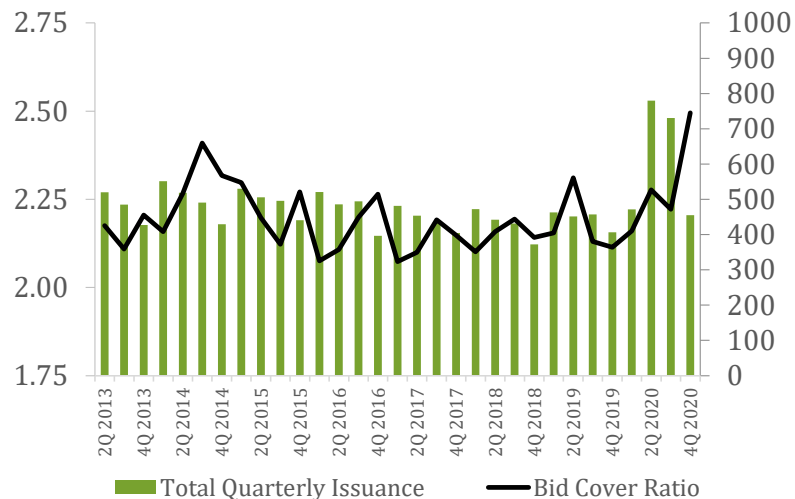
1.6 UK Gilts net issuance (GBP bn)



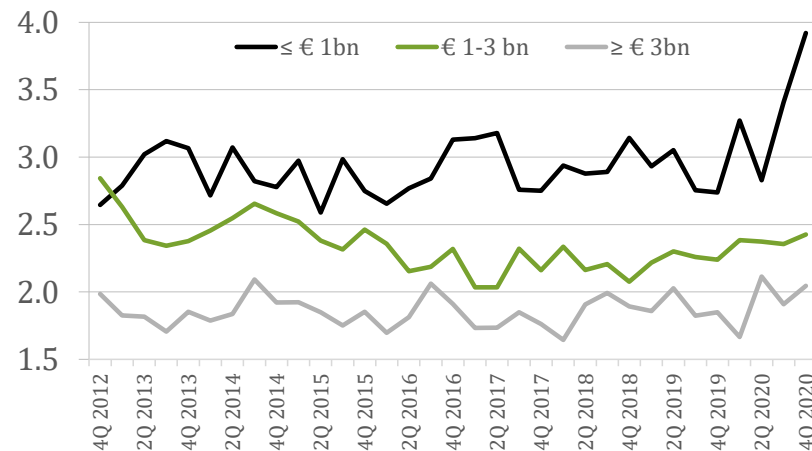
Source: ECB and UK Debt Management Office

Recent Auctions and Primary Dealers

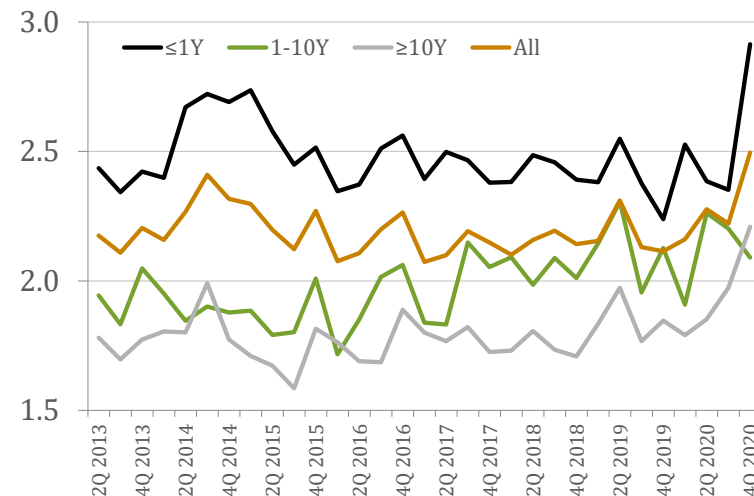
2.1 Average bid-cover ratios and issued volumes in selected jurisdictions (EUR bn)



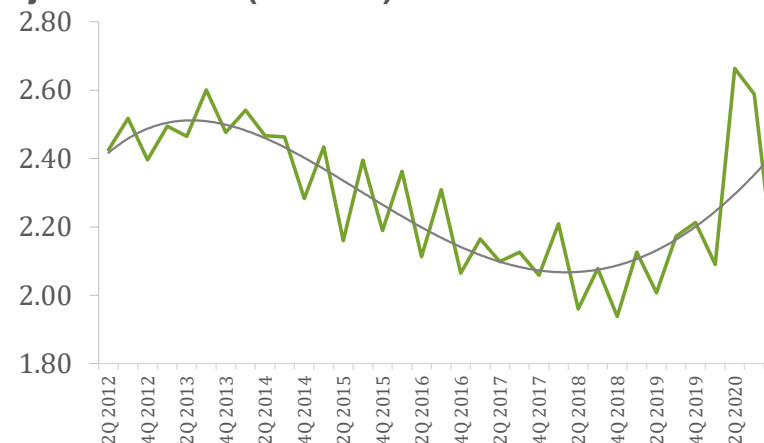
2.3 Average bid-cover ratios by size of issued instruments



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

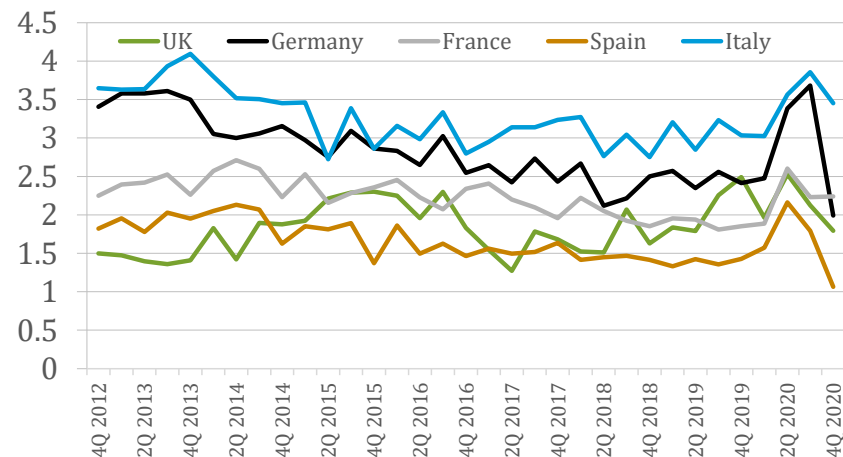


2.4 Average auction size in selected European jurisdictions (EUR bn)

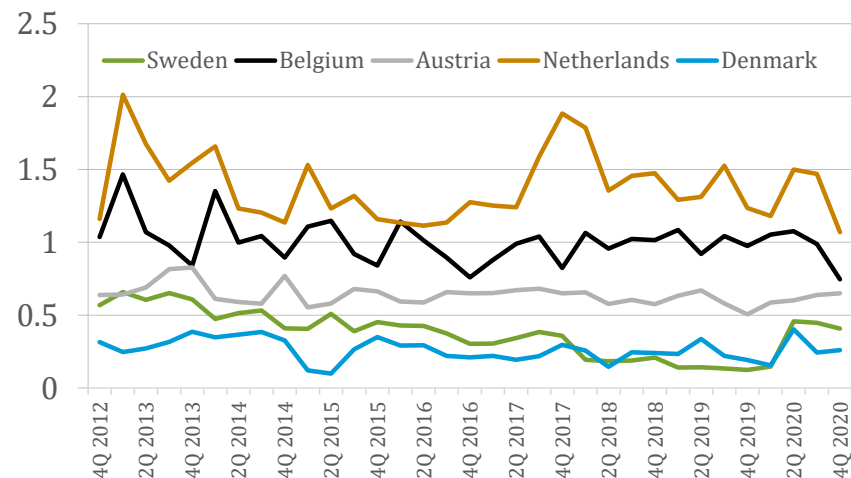


Source: Thomson Reuters Eikon. Weighted Average of UK, DE, FR, ES, IT, BE, SE, NL, DK and AT bonds and bills. In chart 2.4 polynomial trendline shown in grey.

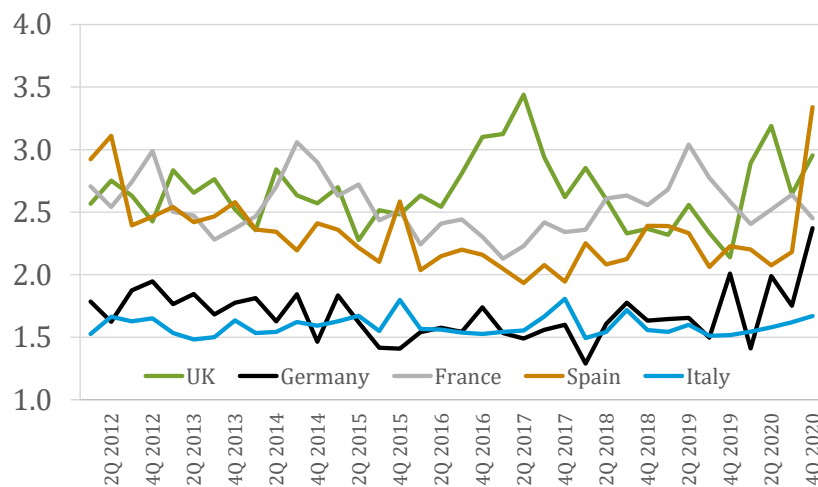
2.5 Average auction size in selected jurisdictions (EUR bn)



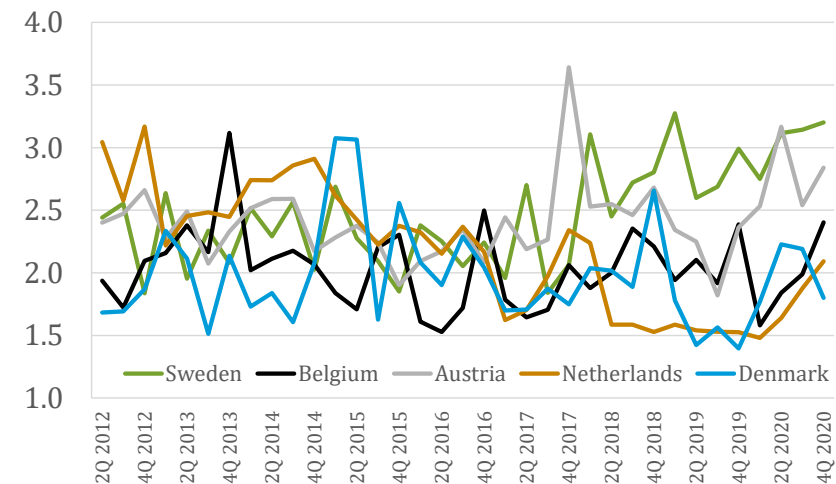
2.6 Average auction size in selected jurisdictions (EUR bn)



2.7 Average bid-cover ratios by jurisdictions

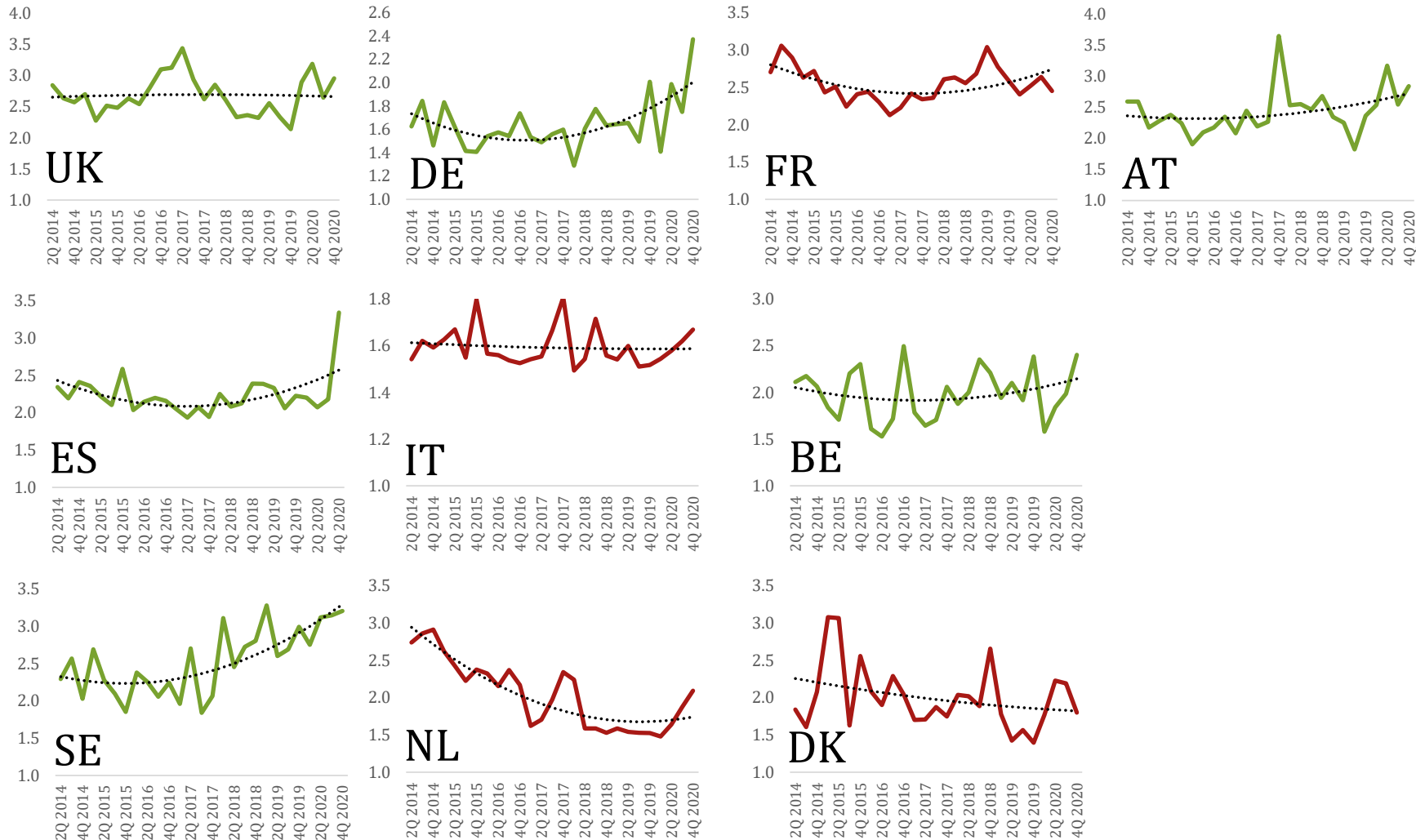


2.8 Average bid-cover ratios by jurisdictions



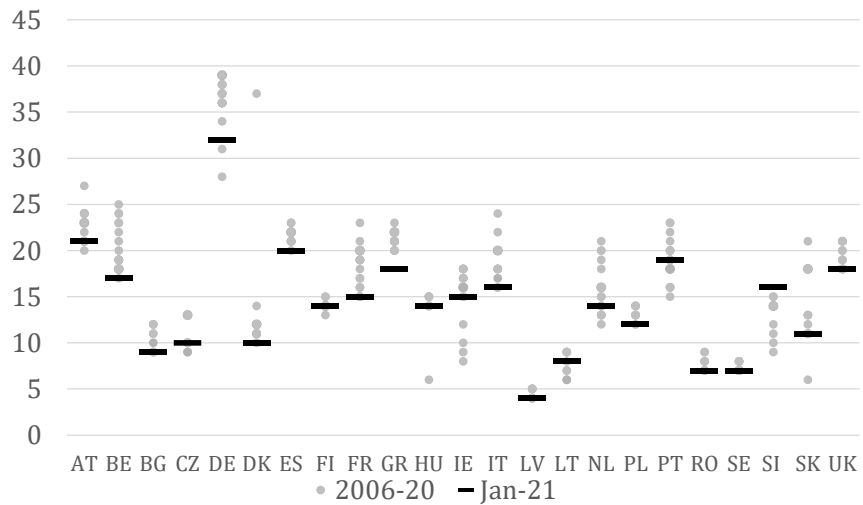
Source: Thomson Reuters Eikon. Weighted Average of UK, DE, FR, ES, IT, BE, SE, NL, DK and AT bonds and bills.

2.9 Average bid-cover ratios in selected jurisdictions: 2013-20

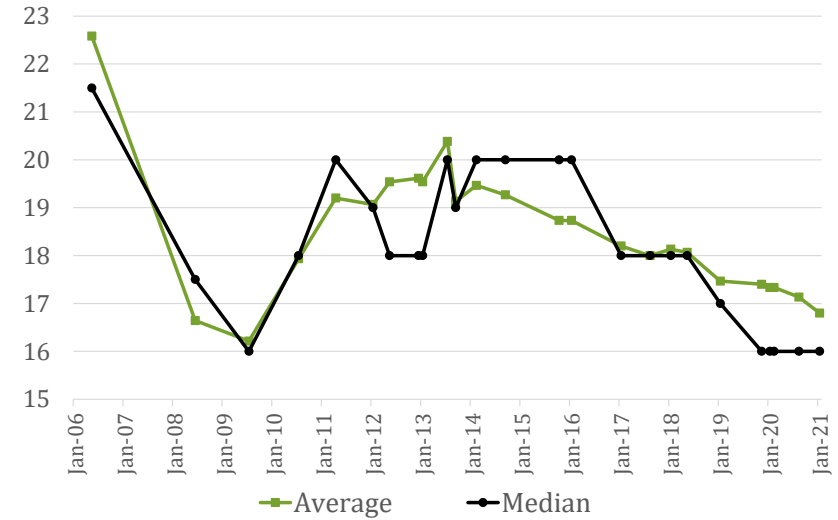


Source: Thomson Reuters Eikon. **Green** indicates end value of trendline above starting value, **red** indicates end value of trendline below starting value

2.10 Number of primary dealers relative to historic number

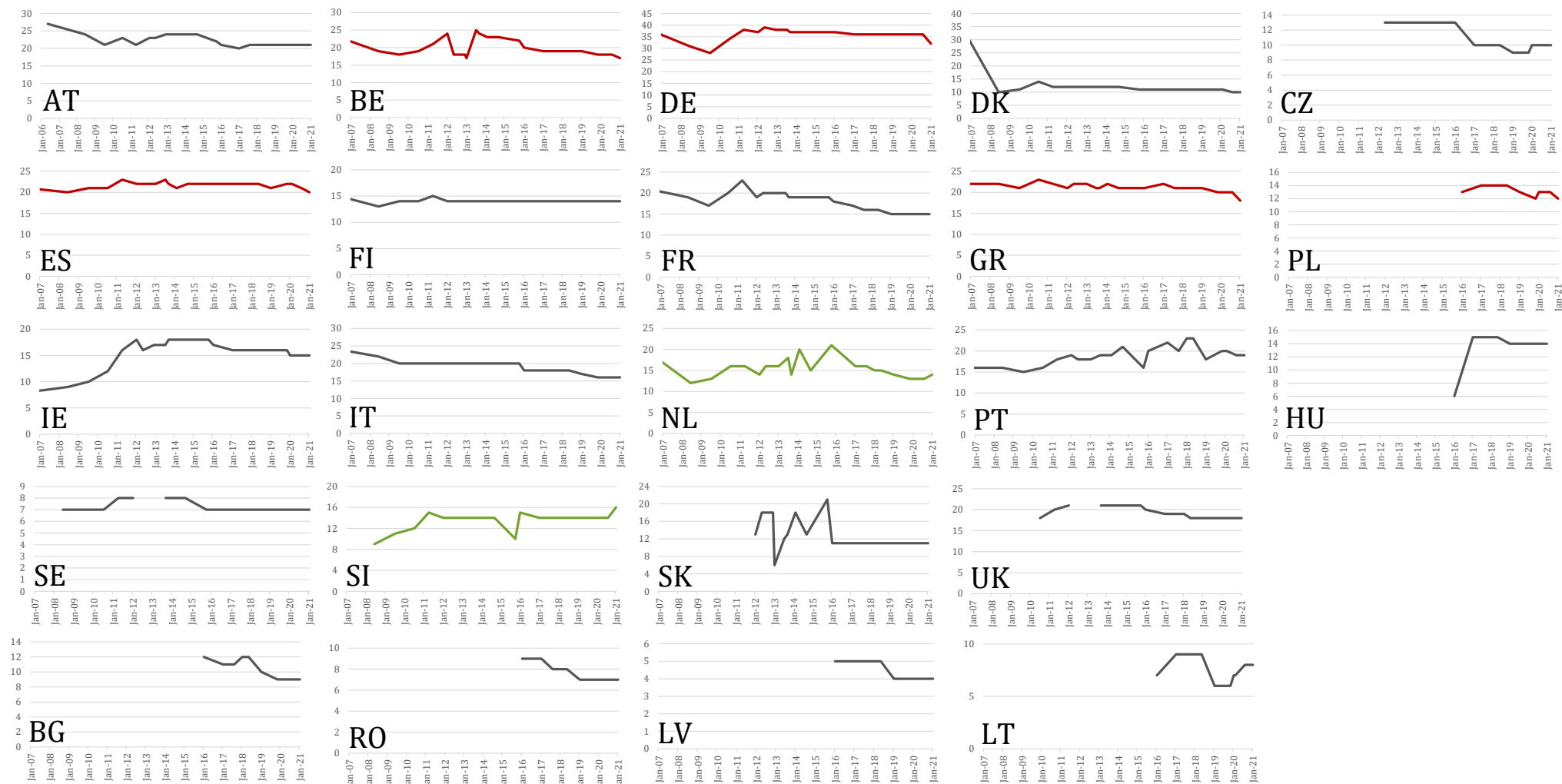


2.11 Average and median number of primary dealers in selected European countries



Source: 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.

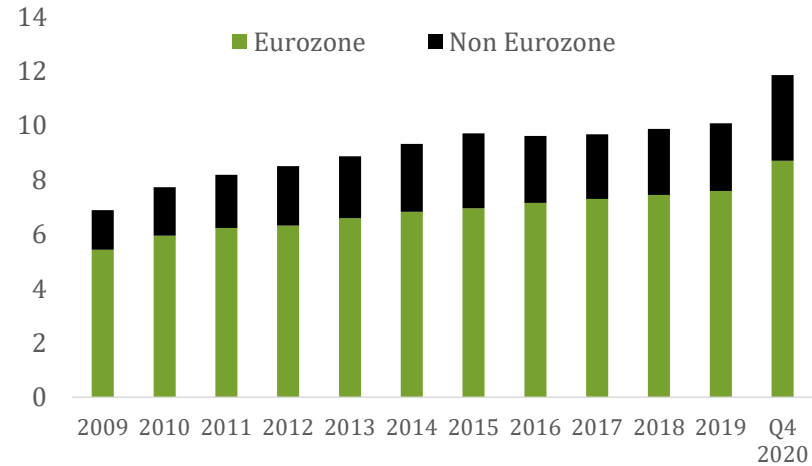
2.12 Number of primary dealers in Europe by country: 2006-20



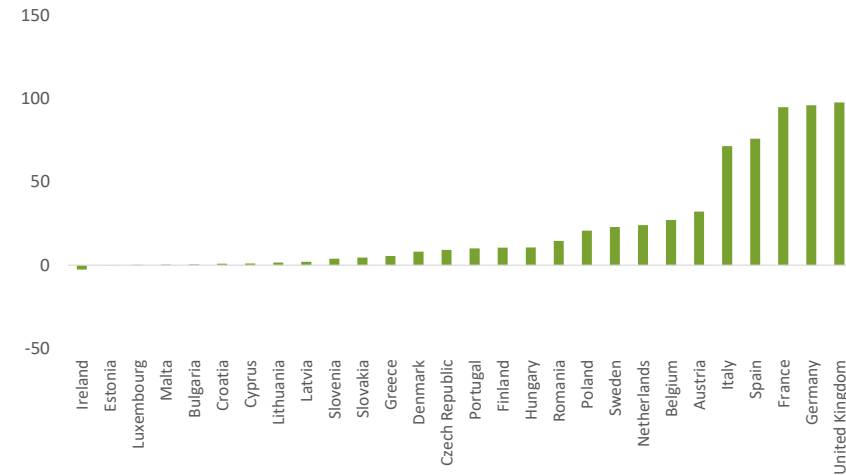
Source: AFME HRF Table and National DMOs. The gap in the lines for UK and Sweden indicates data not recorded in the relevant period. **Chart colour indicates change in PDs since August 2020.** **Green** indicates an increase: **red** indicates a decrease and **grey** indicates no change.

Outstandings

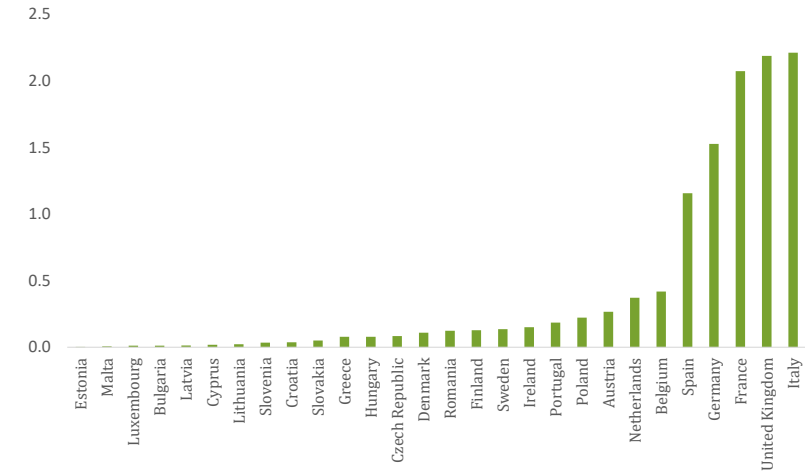
3.1 Outstanding debt securities issued by Central Governments (Nominal, EUR tn)



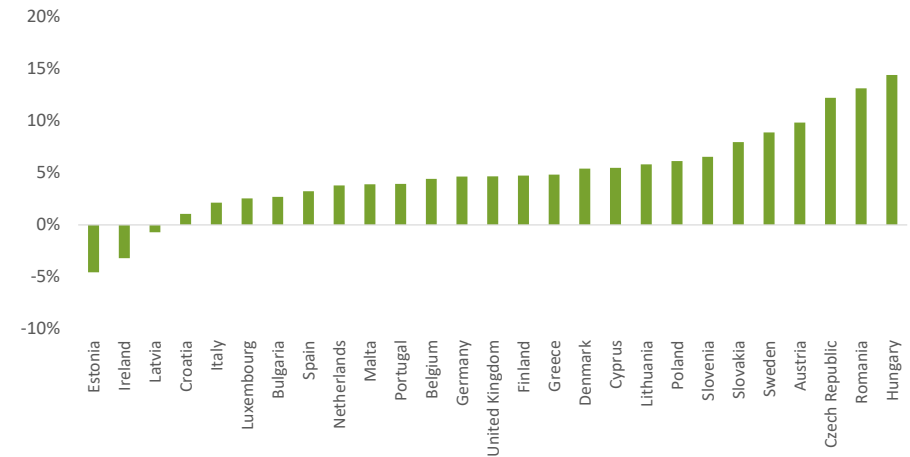
3.3 Change in outstandings 3Q20 to 4Q20 (EUR bn)



3.2 European government bonds outstanding by country (EUR tn)



3.4 Change in outstandings from 3Q20 to 4Q20 (%)

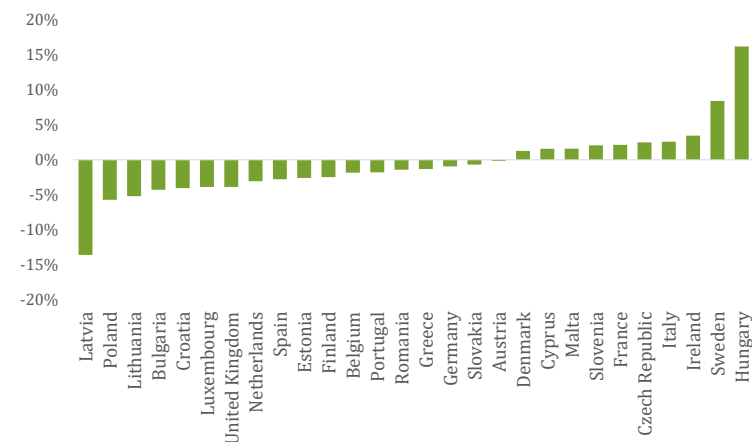


Source: ECB, Thomson Reuters Eikon and UK DMO.

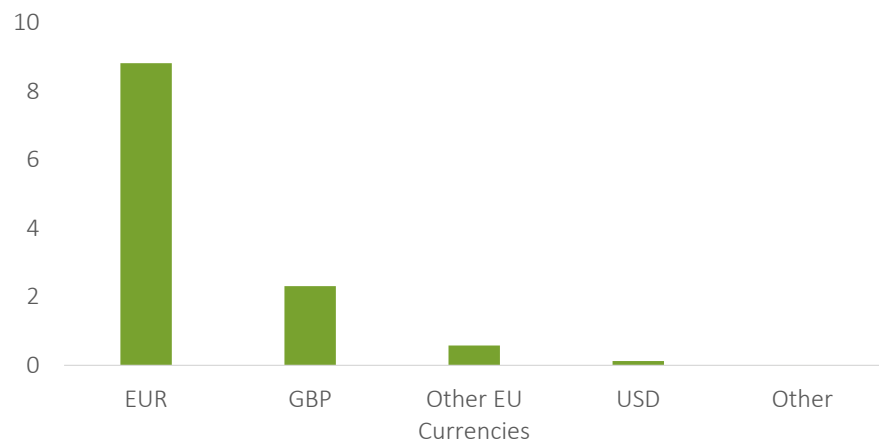
3.5 Average years to maturity for outstanding government bonds in European (EU+UK) countries



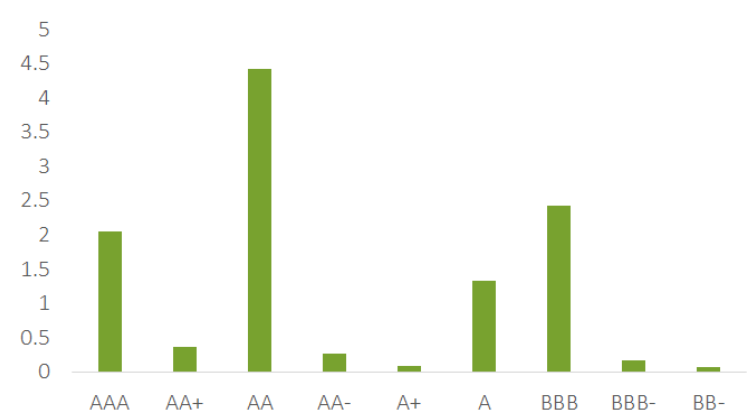
3.6 Quarterly change in weighted average years to maturity for outstanding government bonds 3Q20 to 4Q20



3.7 European government bonds outstanding by currency (EUR tn)



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



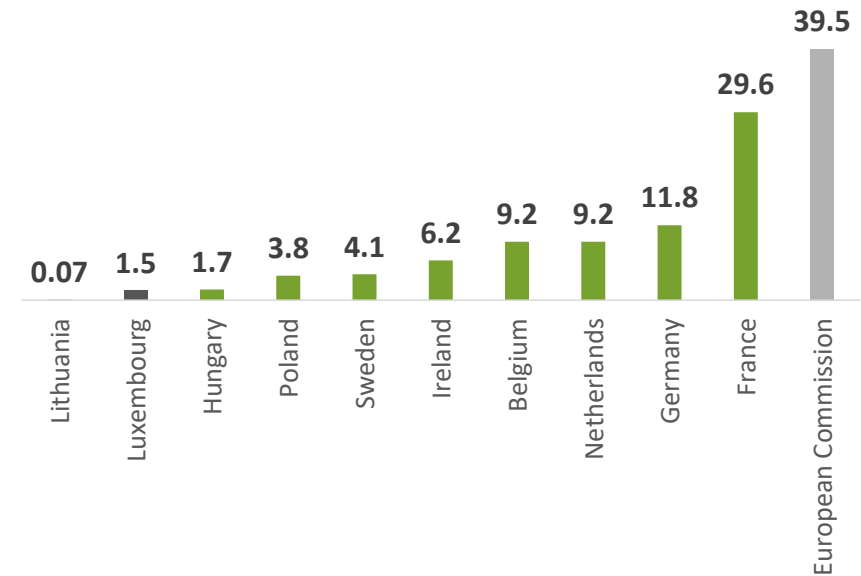
Source: Thomson Reuters Eikon. For Charts 3.5 and 3.6 weighted average in by outstanding amount.

Outstandings: Green Bonds

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



3.10 European outstanding green government bonds by country (EUR bn)*

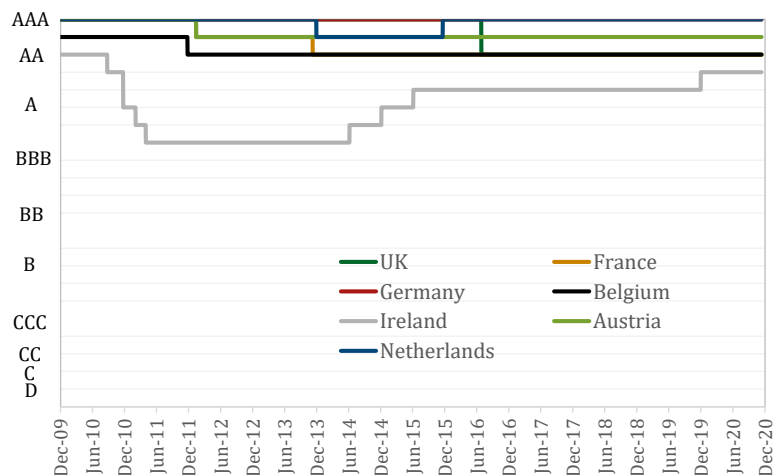


Source: Thomson Reuters Eikon

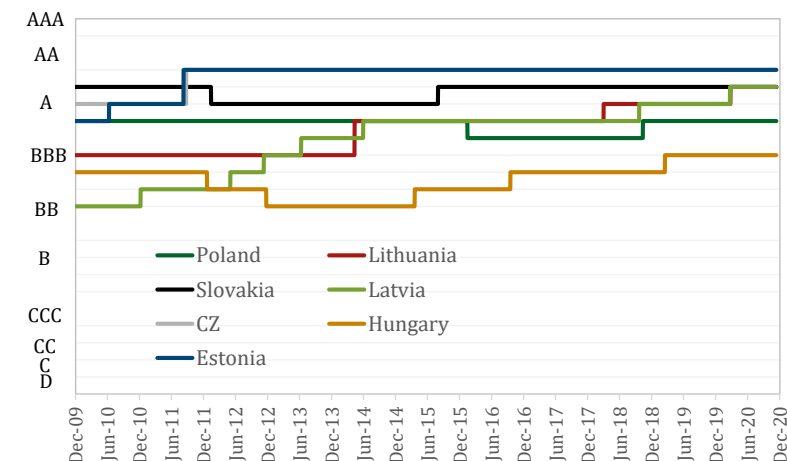
*Includes social bond issuance under the European Commission SURE scheme

Credit Quality

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

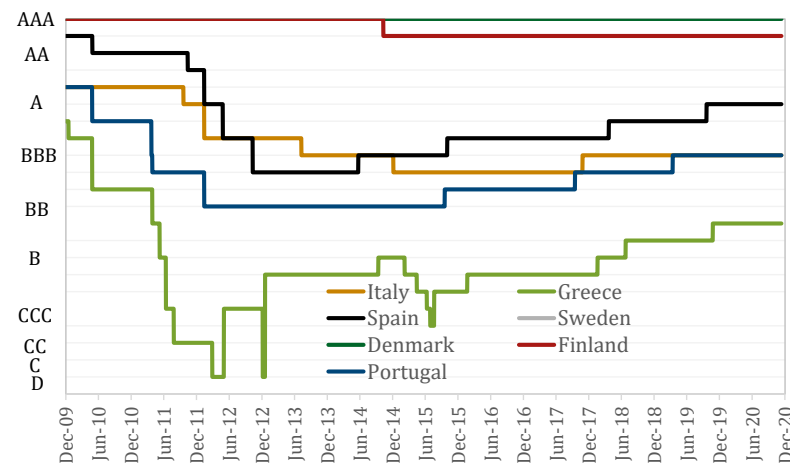


4.3 Long-term sovereign credit rating (Visegrad 4 and Baltic states)

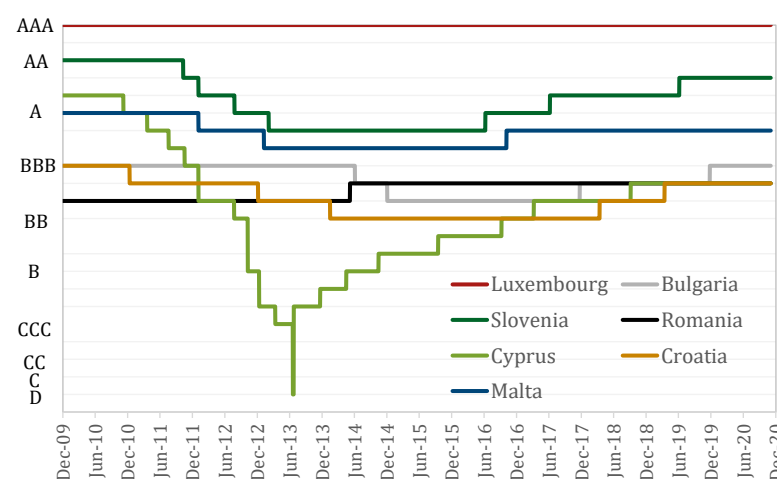


Source: Thomson Reuters Eikon

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



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



4.5 European rating actions on long-term sovereign credit ratings (2020)

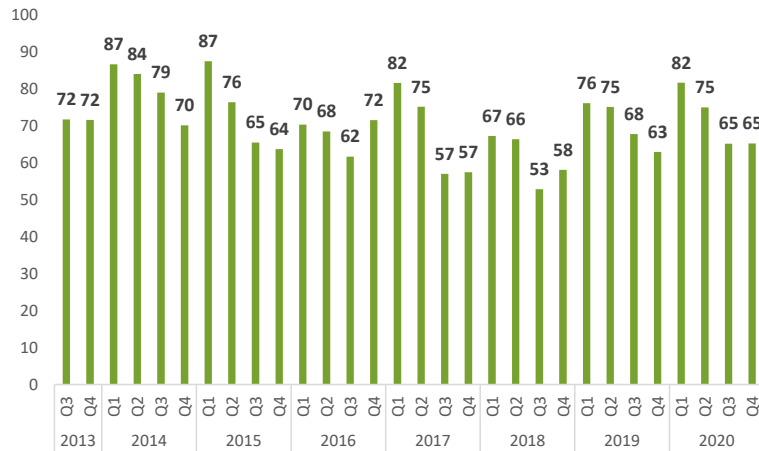
Issuer	Rating Action	Date	Rated by	Rationale
Greece	Upgrade to BB (stable) from BB-	Jan-20	Fitch	GDP growth and fiscal prudence leading to government debt remaining at sustainable levels
Latvia	Upgrade to A+ (stable) from A	Feb-20	S&P	Effectively containing fiscal deficits, setting government debt to GDP on a firm declining trajectory
Lithuania	Upgrade to A+ (stable) from A	Feb-20	S&P	Strong economic expansion, robust growth prospects and fiscal performance leading to a gradual reduction in net general government debt
Lithuania	Upgrade to A (stable) from A-	Feb-20	Fitch	Real GDP growth, decreasing government debt and debt servicing costs, and growing government sector and current account surplus
United Kingdom	Downgrade to AA- (negative) from AA	Mar-20	Fitch	Significant weakening of public finances caused by the Covid-19 pandemic and a fiscal loosening stance that was instigated before the crisis
Italy	Downgrade to BBB- (stable) from BBB	Apr-20	Fitch	Significant impact of global Covid-19 pandemic on Italy's economy and fiscal position
Slovakia	Downgrade to A (stable) from A+	May-20	Fitch	Weaker external demand, and depressed domestic demand due to the Covid-19 pandemic
Slovenia	Upgrade to A3 (positive) from Baa1	Oct-20	Moody's	Improvement in debt affordability metrics and significant improvement in health of banking system
Bulgaria	Upgrade to Baa1 (positive) from Baa2	Oct-20	Moody's	Reduced exposure to foreign currency debt risk, large fiscal reserves and expectations that positive fiscal and debt dynamics will preserve the government's strong balance sheet
United Kingdom	Downgrade to Aa3 (negative) from Aa2	Oct-20	Moody's	Reduction in growth prospects, fiscal strength and weakening fiscal governance
Greece	Upgrade to Ba3 (stable) from B1	Nov-20	Moody's	Effectively containing fiscal deficits, setting government debt to GDP on a firm declining trajectory
Croatia	Upgrade to Ba1 (stable) from Ba2	Nov-20	Moody's	Enhanced institutional capacity and policymaking as the country enters a critical phase of euro area accession and reduced exposure to foreign-currency debt risk.

Source: Fitch, Moody's, S&P

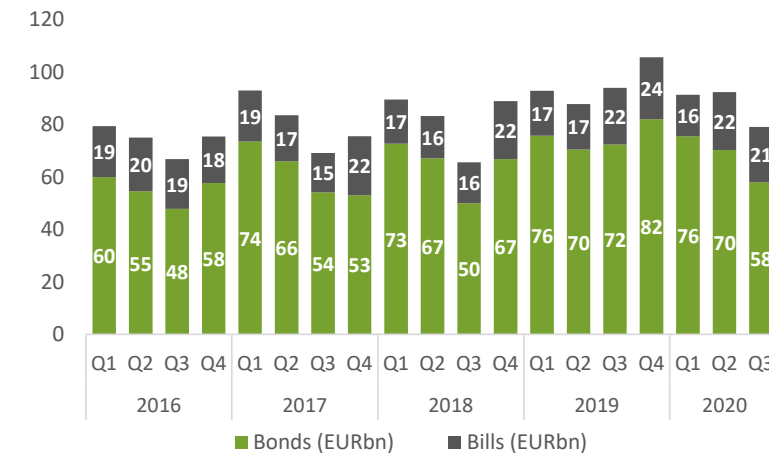
Secondary Market Trading Volumes and Turnover Ratios

Secondary Market Trading Volumes and Turnover Ratios

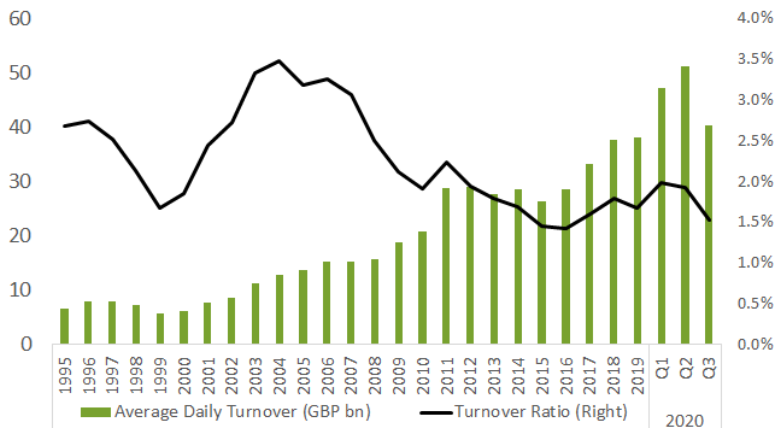
5.1 EU28: Average daily trading volumes (Government and sovereign bonds, EURbn)



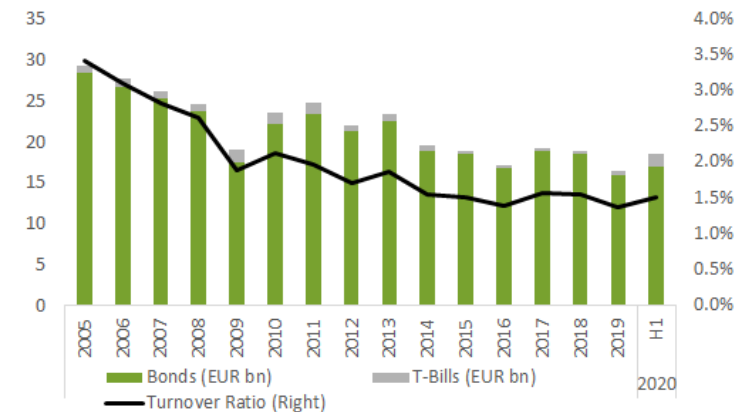
5.2 Eurozone: Average daily trading volume (bonds and bills, EURbn)



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



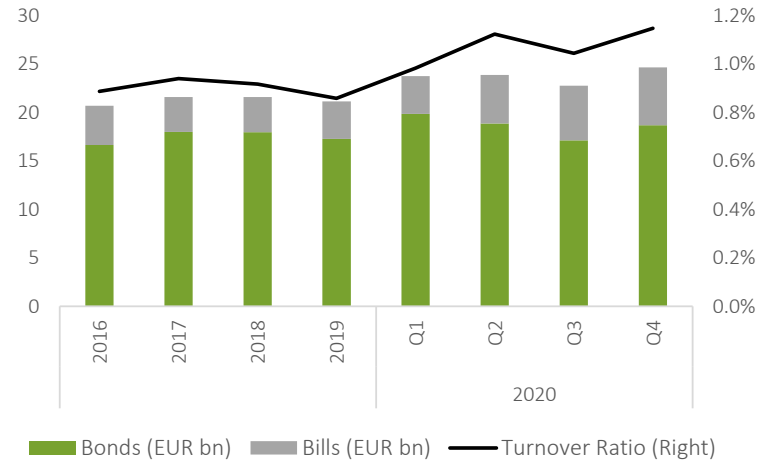
5.4 Germany: Average daily trading volume (aggregated bonds and bills) and turnover ratio



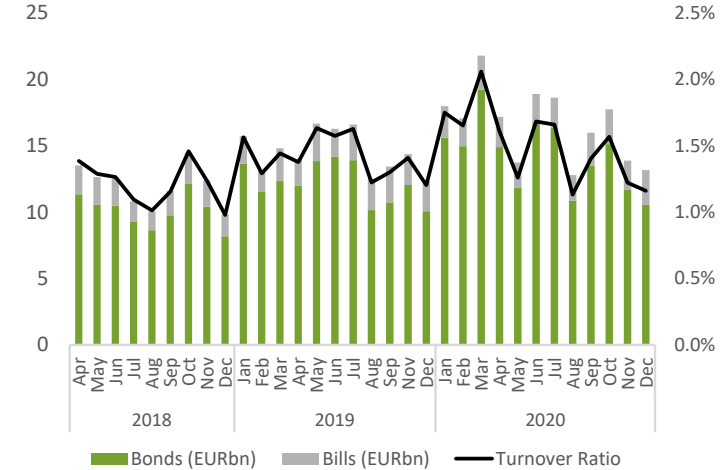
Source: Trax, a MarketAxess subsidiary. EEC Sub-Committee on EDSM. UK Debt Management Office. Deutsche Finanzagentur, ECB. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 37 of this report.**

Secondary Market Trading Volumes and Turnover Ratios

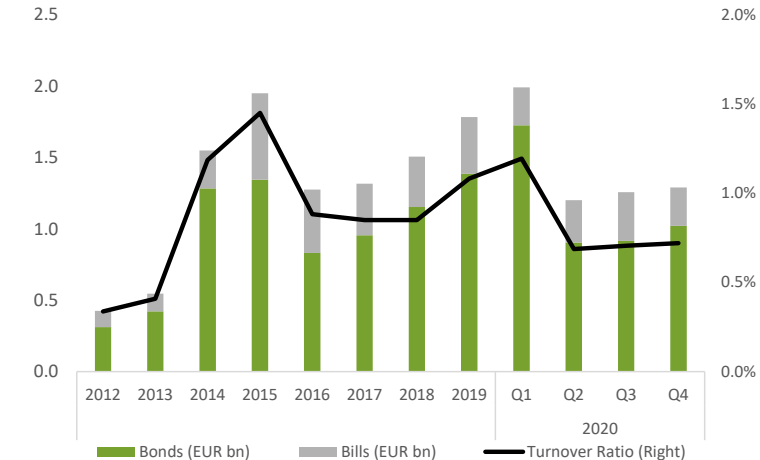
5.5 Italy: Average daily trading volume (bonds and bills) and turnover ratio



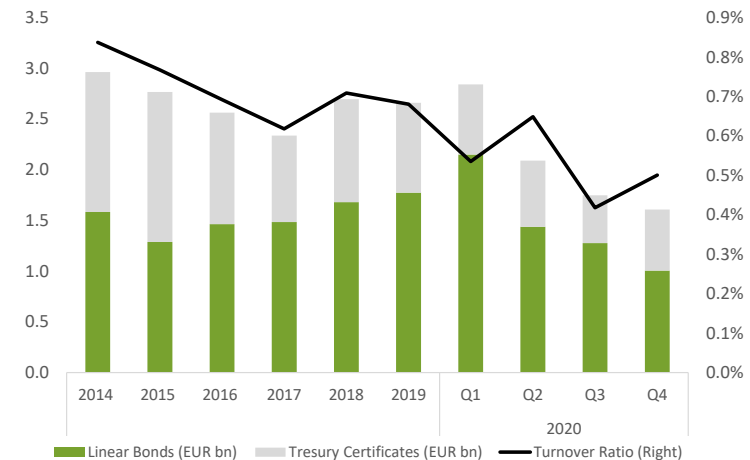
5.6 Spain: Average daily trading volume and turnover ratio



5.7 Portugal: Average daily trading volume and turnover ratio



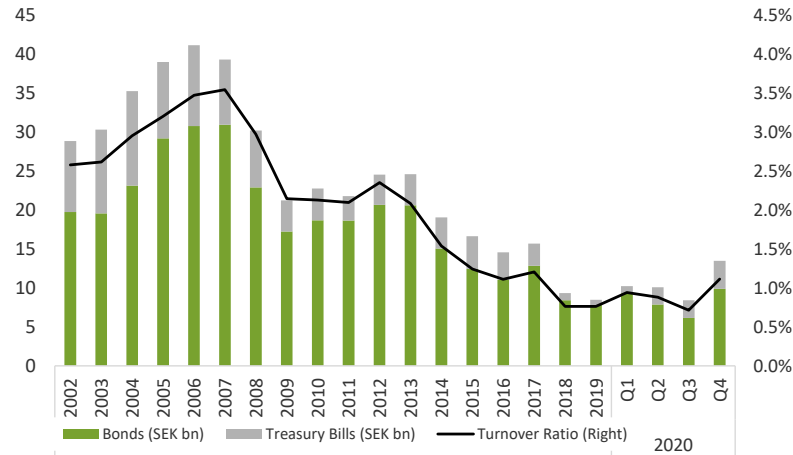
5.8 Belgium: Average daily trading volume and turnover ratio



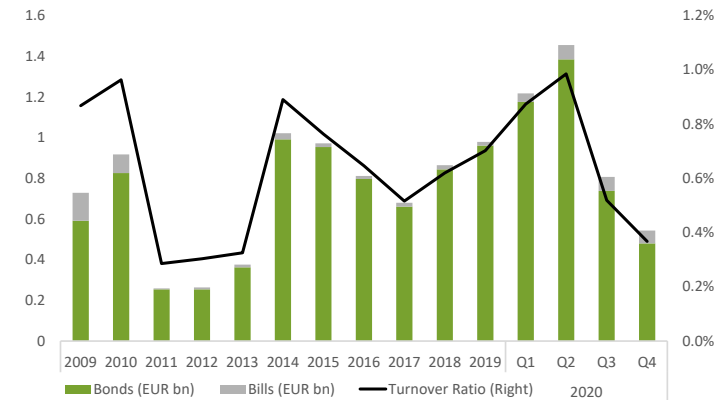
Source: ECB, Italian Dipartimento del Tesoro, BME Market Data and Tesoro Publico de Espana, Agência de Gestão da Tesouraria e da Dívida Pública (IGCP), ECB, Belgian Debt Agency. Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 37 of this report.

Secondary Market Trading Volumes and Turnover Ratios

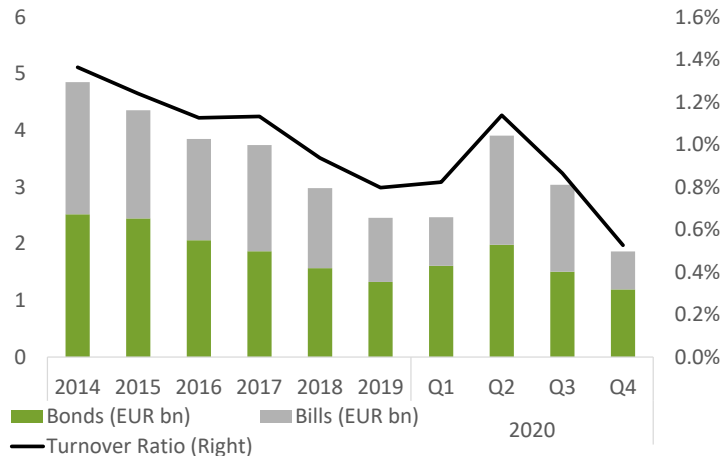
5.9 Sweden: Average daily trading volume and turnover ratio



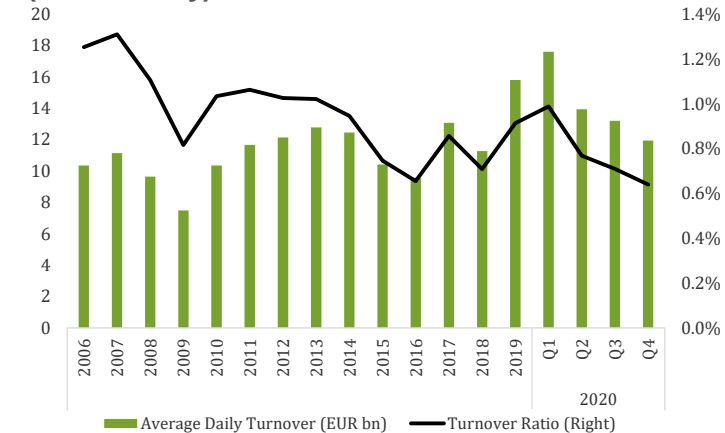
5.10 Ireland: Average daily trading volume (aggregated bonds and bills) and turnover ratio



5.11 Netherlands: Average daily trading volume and turnover ratio



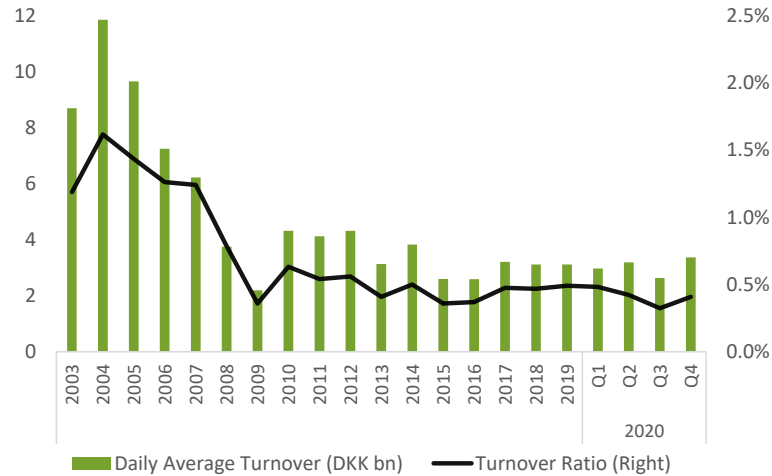
5.12 France: Average daily trading volume (bonds only) and turnover ratio



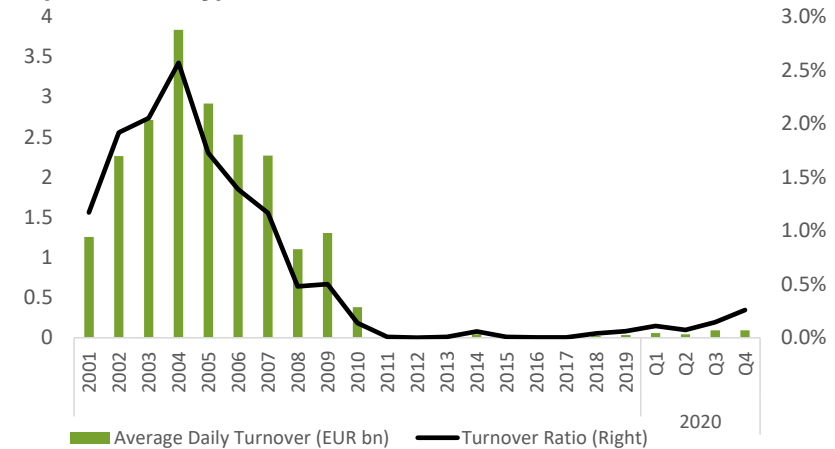
SOURCE: ECB, Swedish National Debt Office (Riksgalden), Irish Stock Exchange, Ministerie van Financien, Agence France Tresor. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 37 of this report.**

Secondary Market Trading Volumes and Turnover Ratios

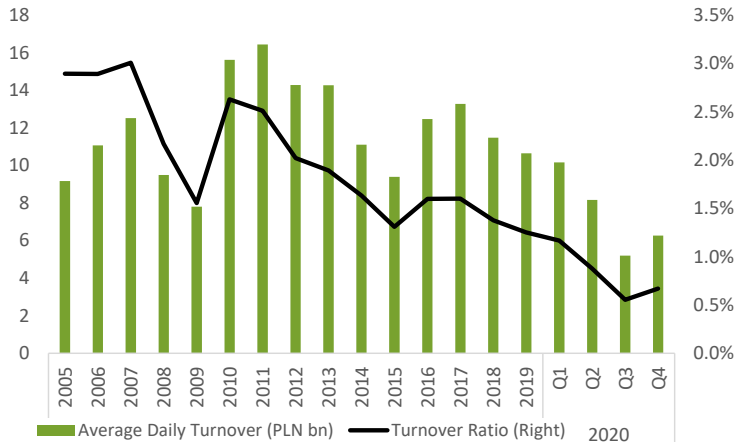
5.13 Denmark: Average daily trading volume (bonds and bills) and turnover ratio



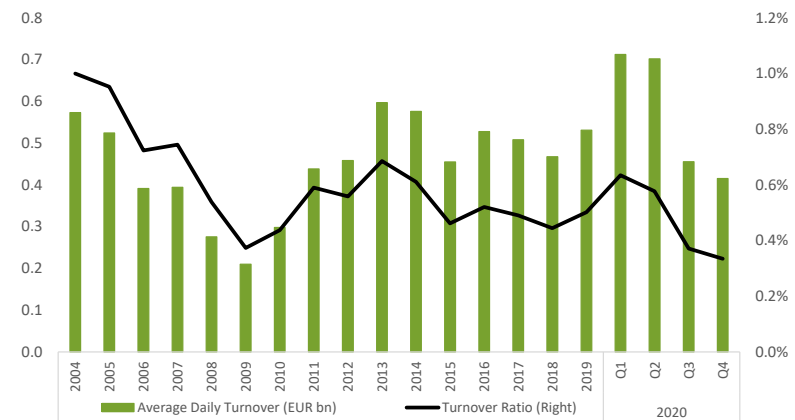
5.14 Greece: Average daily trading volume (bonds only) and turnover ratio



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



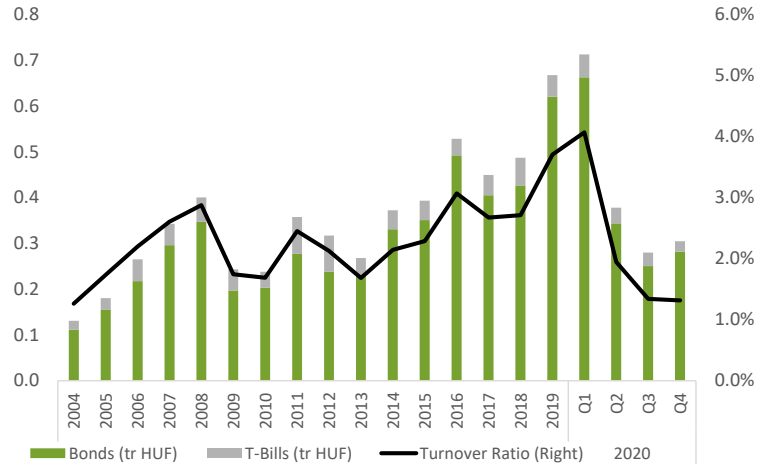
5.16 Finland: Average daily trading volume (aggregated bonds and bills) and turnover ratio



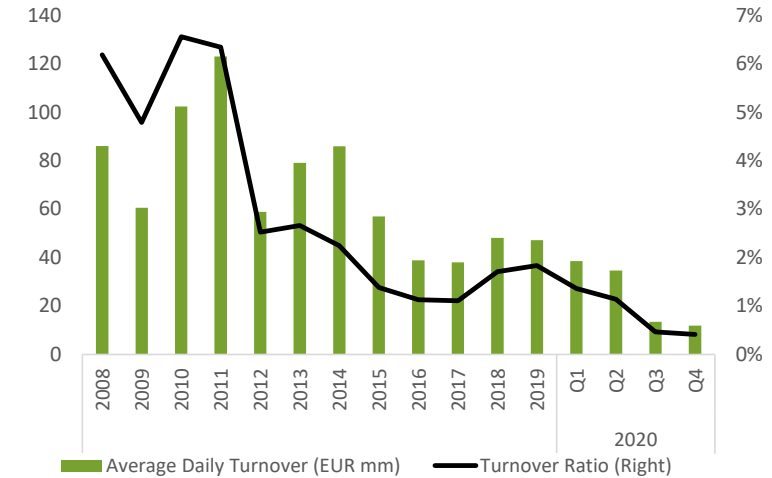
Source: Denmark's Nationalbank, Bank of Greece, ECB, National Depository for Securities (KDPW), WSE, Finland Valtiokonttori. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 37 of this report.**

Secondary Market Trading Volumes and Turnover Ratios

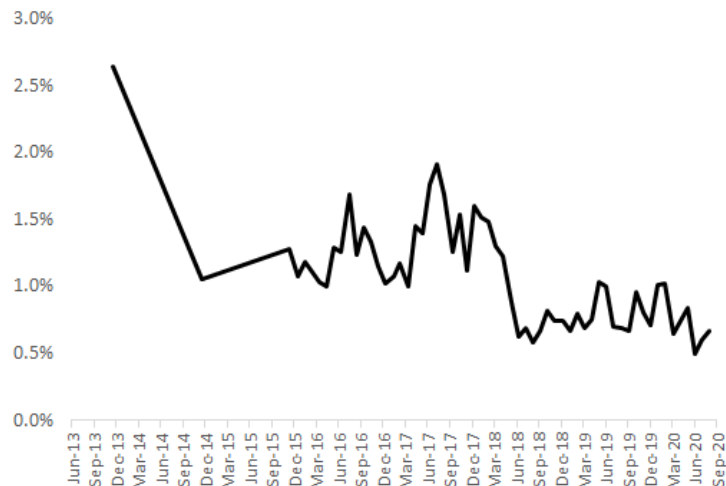
5.17 Hungary: Average daily trading volume and turnover ratio



5.18 Bulgaria: Average daily turnover volume and turnover ratio

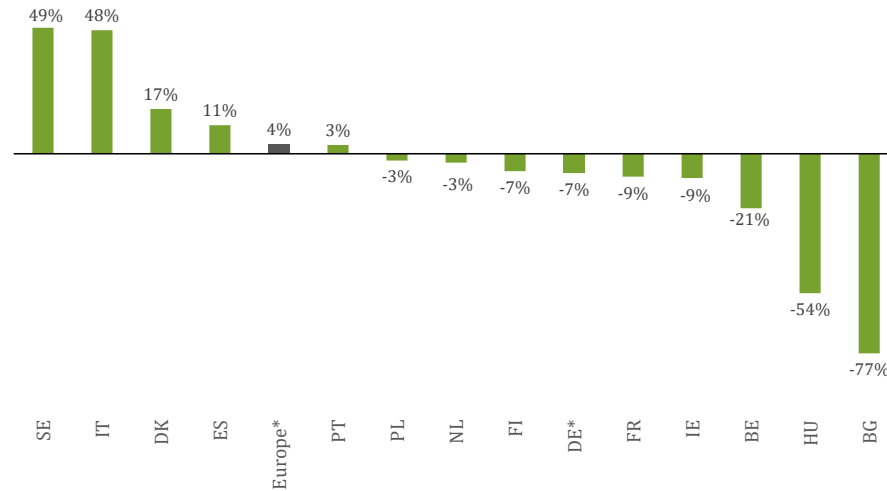


5.19 Romania: Average daily turnover ratio

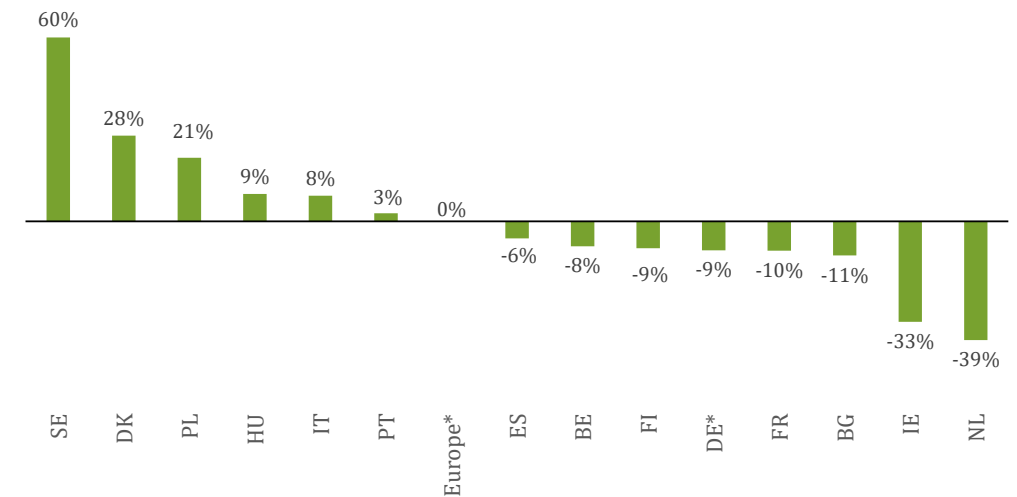


Source: ECB, AKK, Ministry of Finance of the Republic of Bulgaria, Ministerul Finantelor. **Given the differences in the aggregation basis across jurisdictions, the data is not fully comparable between countries. Full Methodology available on page 37 of this report.**

5.20 Annual change in average daily turnover volumes of European government bonds: 4Q19 to 4Q20



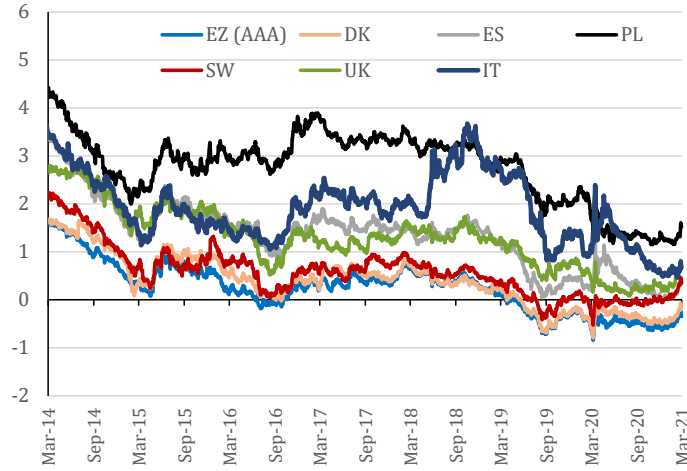
5.21 Quarterly change in average daily turnover volumes of European government bonds: 3Q20 to 4Q20



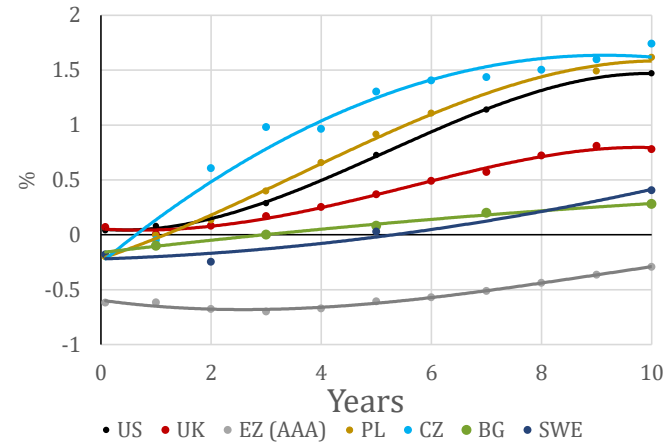
Source: AFME with information from European DMOs and other agency sources. See section 5 for details on aggregation basis and sources. *Europe (EU+UK) total and Germany is sourced from Trax Facts as the quarterly variation of average daily volumes of government and sovereign bonds. **Romanian turnover volume calculated using outstanding volumes in Section 3.

Valuations

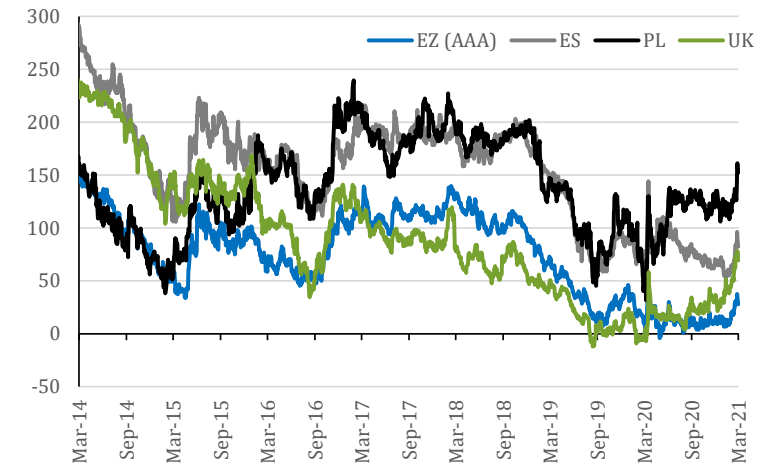
6.1 Selected European 10Y spot yields



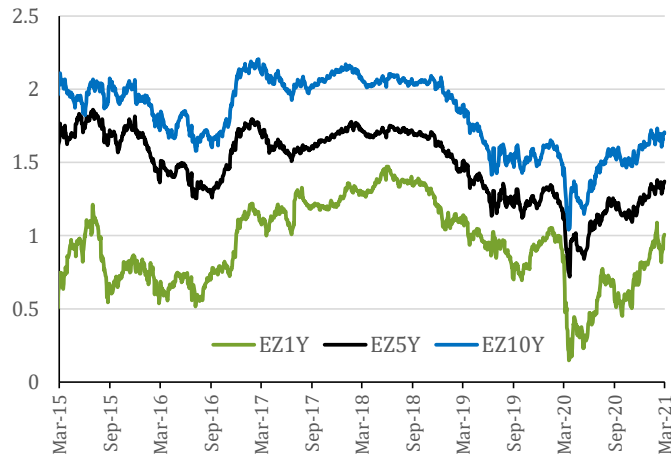
6.2 Sovereign spot yield curve of selected jurisdictions: 13 November 2020



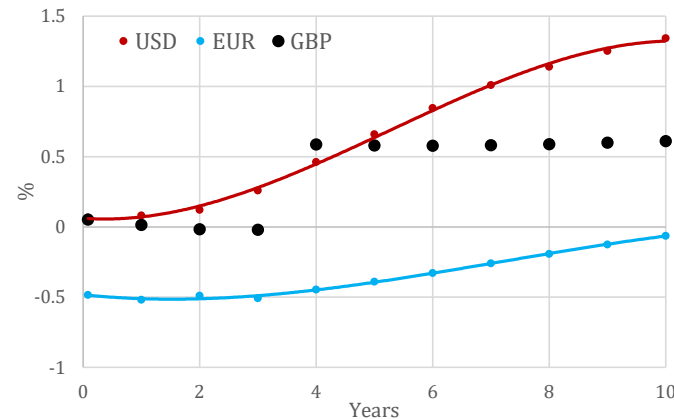
6.3 Slope: 1Y10Y spread (bps)



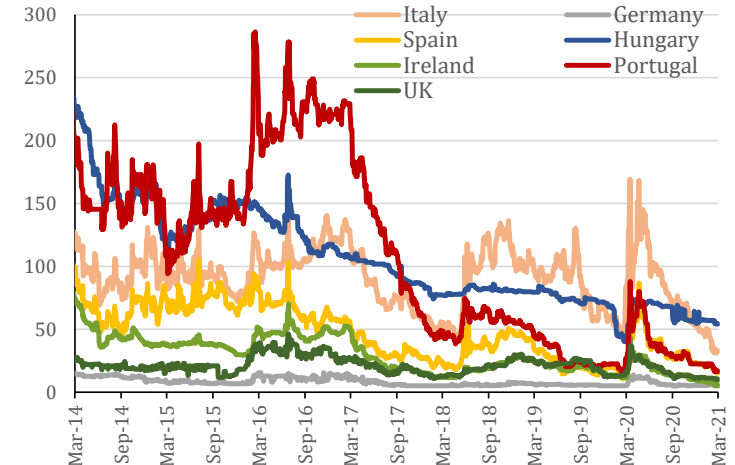
6.4 Market-implied inflation expectations (EuroZone)



6.5 Overnight index swap (OIS) yield curve: 4 March 2020



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



Source: ECB and Thomson Reuters 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 (exclude s repo and derivatives transactions)

5.1 EU28: 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, TradeWeb 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 Hungary: Turnover on MTS Hungary and Keler OTC.

5.18 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.

5.19 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.

Contacts

Research

Matt Johnston

Analyst, Capital Markets

Matt.Johnston@afme.eu

+44 (0)20 3828 2702

Sara Scognamiglio

Intern, Capital Markets

Sara.Scognamiglio@afme.eu

Julio Suarez

Director, Research

Julio.Suarez@afme.eu

+44 (0)20 3828 2726

Fixed Income

Victoria Webster

Director, Fixed Income

Victoria.Webster@afme.eu

+44 (0)20 3828 2689

Francesca Bluck

Senior Associate, Fixed Income

Francesca.Bluck@afme.eu

+44 (0)20 3828 2728

London Office

39th Floor
25 Canada Square
London E14 5LQ
United Kingdom
+44 (0)20 3828 2700

Brussels Office

Rue de la Loi, 82
1040 Brussels
Belgium
+32 (0)2 788 3971

Frankfurt Office

Neue Mainzer Straße 75,
60311 Frankfurt am Main,
Germany
+49 69 153 258 963



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