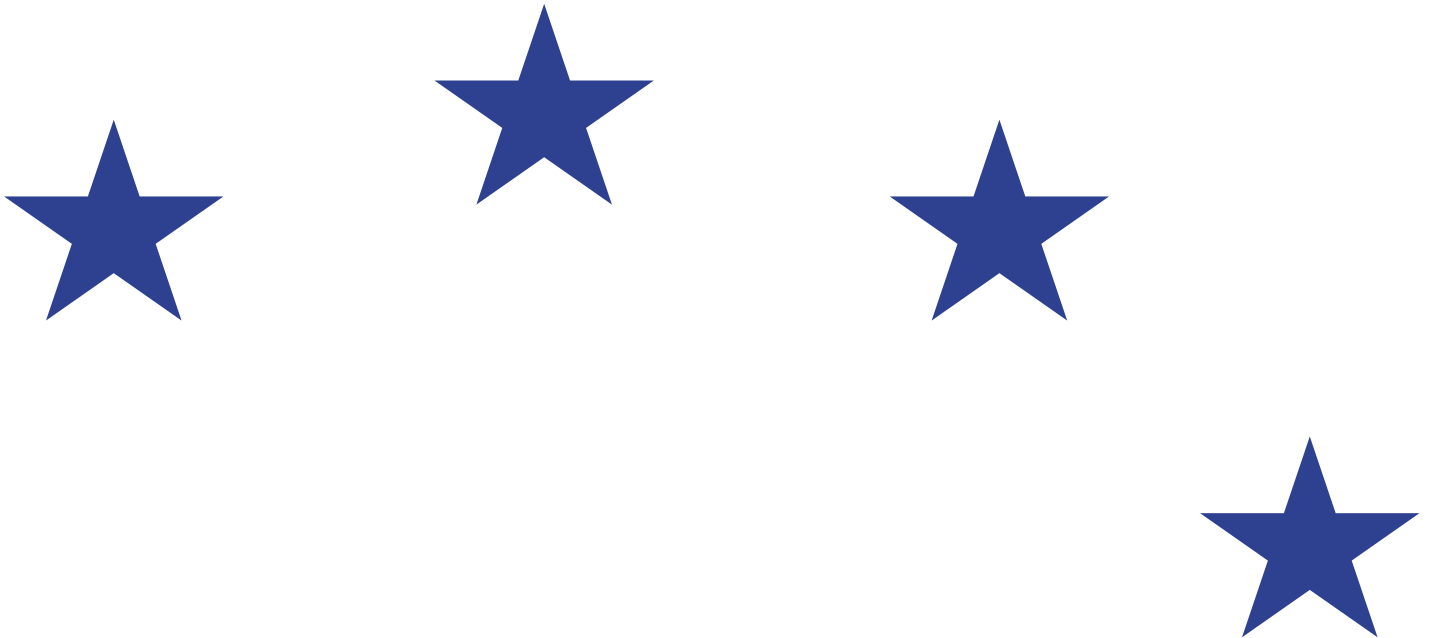


EU securities markets

ESMA Annual Statistical Report

2020



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ESMA Annual Statistical Report on EEA Securities Markets

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Editorial

Dear Reader –

With this edition, the European Securities and Markets Authority presents its first statistical report on European securities markets, to be published in the future on an annual basis. This report uses new regulatory data sources to provide for the first time a comprehensive overview of the European markets, including the number, characteristics and volumes traded of the instruments offered to trade by European trading venues.

Global equity and bond markets have grown to a volume of more than EUR 180tn in recent years, and with a share of 14% in the global equity market capitalisation and one quarter in bond outstanding value, the EU is one of the largest markets worldwide, after the U.S. With the entry into force of the MiFID II legal framework and its data reporting regime in 2018, it is now possible to measure the EU single securities market in great detail and on the basis of official statistics.

In order to support supervisory transaction reporting, market abuse surveillance as well as market transparency, new data collection systems set up by ESMA in cooperation with national competent authorities, allow the collection and publication of reference and transparency data on all financial instruments within the scope of MiFID II.

The goal of this report is four-fold: first, to bring transparency to investors by making publicly available a regular overview of European market structures and trends; second, to provide insight on the transparency calculations that ESMA conducts on a recurrent basis to determine the transparency requirements applying to securities based on their liquidity assessment; third, it helps ESMA to monitor the evolution of European securities markets and to make recommendations to European institutions to promote fair, transparent, efficient and integrated financial markets; and finally, the evidence we present contributes to our risk assessment work at ESMA, complementing the ESMA's Reports on Trends, Risks and Vulnerabilities and ESMA's Risk Dashboards, through which we will continue to monitor developments and risks on a quarterly basis.

In this first report, we use the MiFID II data that are ready for detailed analysis, which for 2019 are all equity and bond instruments that are publicly available for trading on EEA trading venues, regardless of the type of trading (on- or off-exchange). We cover all countries in the European Economic Area, including the EU27, the UK, and other countries of the EEA. This means that non-publicly listed instruments are not included, such as private equity and debt instruments. Transactions taking place over-the-counter are included in so far as the instruments are publicly available on at least one trading venue.

The report contains three elements. First, the chapter on market monitoring analyses the structures and evolution of EEA securities markets, presenting in detail recent trends in equity and bond trading. Second, the chapter on topical analyses is dedicated to specific issues, this time focusing on the ESMA's calculation methodology and transparency calculations. Finally, the statistics chapter offers a selection of indicators and metrics developed and monitored by ESMA.

In 2020, the Covid-19 pandemic had an important impact on the securities markets. Even though the year 2020 will only be analysed in detail in the next annual statistical report, a brief presentation of recent market developments is also included in this report.

In future editions of the report, we will aim to enhance the coverage to additional asset classes, which will require to further enhance the quality of the underlying data. To help us improve our reporting, we would be grateful if readers could send any feedback or suggestions on this report to risk.analysis@esma.europa.eu.

Executive summary

Market monitoring

Securities market: Combining equities and bonds, European securities are traded on 430 trading venues (TVs) registered in the EEA at the end of 2019: 135 regulated markets, 223 multilateral trading facilities and 72 organised trading facilities. In addition, there were 216 systematic internalisers (SIs), with an increase of 47 SIs since the beginning of 2019. In 2019, the total number of transactions in equity markets amounted to 1.7bn, compared to 19mn in bond markets. Trading volumes in the EEA amounted to EUR 27tn in equity markets and EUR 101tn in bond markets. Whereas most transactions took place on-exchange (88% for equity and 66% for bond markets), the volumes of these transactions only amounted to 53% for equity and 24% for bonds.

Equity market: As of end-2019, 28,000 equity and equity-like instruments were available for trading in the EEA, accounting for trading volumes of EUR 27tn. Shares dominated the trading landscape, with 89% of equity trading volumes. The total market capitalisation of shares issued by EEA-domiciled corporations amounted to EUR 16tn, with the highest capitalisations in the UK (26%), Germany (23%) and France (18%). Trading volumes of ETFs have grown, amounting to 10% of total trading in equity markets in 2019 (up from 6% in 2018), with ETF issuance largest in Luxembourg and Ireland. Half of trading volumes of equity instruments was on-exchange in 2019, while 53% of volumes occurring on RMs and MTFs, and off-exchange trading continues to be significant, with a large amount of trading OTC (26%) and on SIs (21%). Since MiFID II, an increasing amount of trading has not been subject to real-time pre-trade transparency, up from 22% in January 2018 to 38% in December 2019.

Bond market: In 2019, over 170,000 bonds were available for trading in the EEA, including 53% corporate and 5% sovereign bonds. 75% of bonds available for trading were issued by EEA-domiciled issuers. Bond trading volumes amounted to EUR 101tn in 2019, with 77% of volumes from sovereign and 18% from corporate bonds. Total EEA nominal amount was EUR 25tn, with the largest nominal amount issued in Germany (EUR 5.0tn) and the UK (EUR 4.9tn). The bond market was characterised by large trade size (average trade size for sovereign bonds of EUR 8.0mln, and EUR 2.5mln for corporate bonds in 2019). The majority of trading was off-exchange, with OTC and SI accounting for 50% and 26% of bond trading volumes in 2019, and RMs representing only 1% of trading volumes. On-exchange trading volumes are concentrated in the UK, with more than 80% of on-exchange trading on UK trading venues in 2019 (EUR 20tn).

Topical analysis

Calculation methodology: MiFID II/MiFIR data collections provide a vast source of information on European securities markets, and are further improving data availability on trading activity, market agents and infrastructures. The new requirements center around pre- and post-trade components, such as real-time market order publication or transaction reporting. However, a new and important feature is the creation of a unique database of reference data, that is equally available to all market participants. Taken together, these data allow ESMA to provide for the first time an overview of the financial instruments traded in Europe and their characteristics. This article presents the procedures used to prepare the indicators presented in this report, such as the scope of the covered instruments, the reconciliation of information between different data collections and the detection of outliers.

Transparency calculations: Since 2018, ESMA publishes various reports to support compliance by market participants with the MiFID II/MiFIR transparency regime, including the transparency calculations for new equity and bond instruments and the quarterly liquidity assessment of bonds. For the first time, this article makes use of transparency calculations data to present the characteristics of liquid equity and bond instruments. In 2019, 2,105 equity instruments (1,356 shares and 732 ETFs) were deemed as liquid, a 24% growth from 2018. 90% of EEA liquid shares were issued by medium-large and large issuers, mostly from the financial and consumers goods sector (23 and 22% of liquid shares respectively). Furthermore, 595 bonds were considered liquid at the end of 2019, out of which 61% were sovereign and 19% corporate. A simulation of the criterion used to assess bond liquidity reveals that the low number of liquid bonds results partly from the infrequent trading in bond instruments.

Essential statistics

	Equity			Bond		
	All	Shares	ETFs	All	Corporate	Sovereign
Size						
Number of instruments	28,304	21,376	5,573	173,656	92,137	8,631
Total trading volumes (EUR tn)	26.8	23.7	2.6	101	18.2	77.9
of which on UK venues (EUR tn)	13.5	11.9	1.2	36.4	4.4	30.7
Total number of transactions (mn)	1,761	1,702	23	18.9	7.3	9.6
of which on UK venues (EUR mn)	862	690	10	3.6	1.7	1.7
Total EEA market capitalisation/nominal amount (EUR tn)	17.9	17.9	n/a	25.2	10.8	11
of which UK issuers (EUR tn)	4.6	4.6	n/a	4.9	3	1.8
Trading activity						
Entities with largest trading activity	MTFs	MTFs	MTFs	SIs	SIs	SIs
On-exchange (% of total volumes)	53	53	52	24	14	27
RMs	26	26	17	1	0.2	4
MTFs	27	27	34	15	12	11
OTFs	n/a	n/a	n/a	8	2	1
Off-exchange (% of total volumes)	47	47	48	76	86	73
SIs	20	20	29	26	19	48
OTC	27	27	19	50	67	35
Market infrastructures						
Largest country in trading volumes	UK	UK	UK	UK	UK	UK
Number of venues	257	243	135	277	240	228
RMs (%)	23	25	27	21	18	20
MTFs (%)	44	46	37	35	31	29
OTFs (%)	n/a	n/a	n/a	10	11	13
SIs (%)	33	29	36	34	40	38
incl. total UK venues	148	54	47	100	81	89
International activity						
Largest EEA Issuer	UK	UK	IE	DE	UK	DE
Trading volumes by issuer origin (EUR tn)						
of which EEA	22.1	19.6	2.2	54.9	10	41.3
of which UK	4.9	4.7	0.1	8.1	1.2	6.6
of which non-EEA	4.6	4	0.4	46.1	8.2	36.5
Transparency						
Liquid instruments (number)	2,278	1,493	733	1,201	367	680
Volumes (on-exchange) under post-trade transparency waiver (%)	15	13	31	NA	NA	NA
Volumes (on-exchange) under pre-trade transparency waiver (%)	32	30	61	NA	NA	NA

Note: All values for the calendar year 2019. n/a= not applicable, NA= not available.

Source: FIRDS, FITRS, ESMA.

Market monitoring

EU securities markets

Summary

Combining equities and bonds, European securities are traded on 430 trading venues (TVs) registered in the EEA at the end of 2019: 135 regulated markets, 223 multilateral trading facilities and 72 organised trading facilities. In addition, there were 216 systematic internalisers (SIs), with an increase of 47 SIs since the beginning of 2019. In 2019, the total number of transactions in equity markets amounted to 1.7bn, compared to 19mn in bond markets. Trading volumes in the EEA amounted to EUR 27tn in equity markets and EUR 101tn in bond markets. Whereas most transactions took place on-exchange (88% for equity and 66% for bond markets), the volumes of these transactions only amounted to 53% for equity and 24% for bonds.

Introduction

The Markets in Financial Instruments Directive (MiFID) implemented in 2007 fostered increased competition and improved price discovery, and also enhanced market data reporting, enabling regulators to monitor and ensure fair and orderly functioning of EEA markets. After the 2008 financial crisis and in line with the G20 objectives, the European Commission issued a new framework with the Directive 2014/65/EU (MiFID II) and the Regulation (EU) No 600/2014 (MiFIR) to improve transparency and trade execution.

Against this background, MiFID II/MiFIR includes requirements on data disclosure, mandatory trading requirements for an extended perimeter of financial instruments on organised trading venues (TVs) and introduces rules on algorithmic and high-frequency trading. Data reporting requirements under the new MiFID II/MiFIR framework are further improving data availability on trading activity, market agents and infrastructures. With the introduction of MiFID II, new transparency mechanisms via data provision services¹ are introduced for financial firms. In addition, the reporting and transparency obligations, previously solely applicable for shares, are extended to all financial instruments.

Data collection under MiFID II/MiFIR

In order to support transaction reporting under MiFIR, as well as market abuse surveillance activities², a new data collection system set up by ESMA in cooperation with European national competent authorities (NCAs), is used to collect and publish reference data on all financial instruments within the scope of MiFID II. The data collection is delegated by NCAs to ESMA.

TVs and Systematic Internalisers (SIs) of the European Economic Area (EEA) are obliged to report reference data for financial instruments that (i) are admitted to trading or traded on a trading venue, (ii) for which a request for admission to trading is made, (iii) which are traded for the first time. The harmonised collected data is published by ESMA on its website through the **Financial Instruments Reference Data System** (FIRDS).

Furthermore, MiFID II/MiFIR introduces transparency requirements for equities, bonds, structured finance products, emission allowances and derivatives. Within this framework, NCAs have powers to waive the obligation for market operators and investment firms operating a TV to make public pre-trade information.³ For the purpose of the calculation of transparency and liquidity thresholds, additional reference and

¹ In order to ensure high-quality market data, MiFID II introduces new licensed parties that offer data reporting services: approved publication arrangements (APAs), approved reporting mechanisms (ARMs) and consolidated tape providers (CTPs).

² Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (Market Abuse Regulation).

³ Commission Delegated Regulations 2017/567, 2017/587 and 2017/588, on transparency requirements for equity

instruments, require the relevant competent authorities to calculate and publish information related to the liquidity classification, the transparency thresholds and tick size band assessment of equities. Commission Delegated Regulation 2017/583 on transparency requirements for non-equity instruments requires the relevant competent authorities to publish information on the liquidity classification of financial instruments, sizes large in scale compared to the standard market size and the size specific to the instrument.

quantitative data are being received and published by ESMA through the **Financial Instruments Transparency System (FITRS)**.

Finally, in order to ensure a higher level of transparency for equity trading, MiFID II/MiFIR introduces the so-called Double Volume Cap (DVC) mechanism to limit the amount of transactions executed in dark pools. In order to monitor the mechanism, the DVC register includes information about total trading volume and trading volumes under exemption to pre-trade transparency (waivers)⁴, for each share traded on EEA TVs.

From 1 January 2022, ESMA will be the direct supervisor of market data reporting service providers, namely Approved Reporting Mechanisms (ARM), Approved Publication Arrangements (APA), and possible Consolidated Tape Provider (CTP)⁵. These providers act as intermediaries in transaction reporting and timely publication of transaction data. To fulfil the supervisory mandate, ESMA will obtain access to transaction data.⁶

ESMA annual reporting

The statistics presented in this report use FIRDS, FITRS and DVC data to provide, for the first time, a comprehensive overview of the EEA securities markets. The article “Calculation methodology” in the Topical Analysis chapter presents details on the statistical methods used in the report.

Coverage: In this report, we focus exclusively on MiFID II instruments that are publicly available for trading on EEA trading venues, regardless of the type of trading (on or off exchange). This means that private equity and debt are excluded from the scope, and that transactions taking place over the counter are included in this report in so far as the instruments are publicly available on at least one trading venue.

Since MiFID II/MiFIR are texts with EEA relevance, ESMA registers contain data related to the European Union (EU), but also to the other European Economic Area (EEA) States based on the delegations received by ESMA. Therefore,

this report provides data and risk indicators for securities markets at the EEA level⁷, excluding instruments for which the Polish KNF is the responsible authority.⁸

This report focuses on equity and bond markets. In future editions of the report, coverage is to be extended to cover additional asset classes, such as derivatives. ESMA, through its Annual Statistical Reports on EU derivatives markets⁹, has provided a comprehensive overview of the OTC and exchange-traded derivatives market.

Measurement: All statistics are based on FIRDS, FITRS and DVC data, i.e. data including both reference data (i.e. intrinsic characteristics of the instruments as well as periods and trading venues where they are available for trading) and quantitative data (i.e. their trading activity) for all instruments under the transparency scope. The data includes the issuance size, number of outstanding instruments, close price, total number and total volume of transactions as well as separate information on the number and volume of transactions under pre-trade transparency waivers and post-trade publication deferrals. Trading volumes by instrument are reported at the market identifier code (MIC) level, which allows for the determination of trading domicile and characteristics, except for over-the-counter trading volumes.

Reporting period and periodicity: The reporting period is the calendar year 2019, and data are reported on a monthly basis. In 2020, the COVID-19 pandemic had an important impact on the securities markets. Even though the year 2020 will be analysed in detail only in the next annual statistical report, a short analysis of recent market developments is also presented in this report (T.2).

The analysis is based on reference and transparency data for equity instruments received up to 8 July 2020 and for bond instruments received up to 10 February 2020. Any subsequent corrections by reporting entities on historical figures have not been considered. In the next edition of the Annual Statistical Report

⁴ Where waivers apply, bid and offer prices do not need to be published by the trading venue before an order was executed. For more information on equity waivers, see T.4.

⁵ As of 31 December 2019, there were 20 APAs, 26 ARMs and no CTPs in the EEA.

⁶ In addition, ESMA will become the regulatory recipient of reference and transparency data, as the current data collection is done by delegation of the national competent authorities.

⁷ The EEA comprises the European Union plus Iceland, Lichtenstein and Norway. Unless stated otherwise, all data presented in the report refers to the EEA level.

⁸ As the Polish KNF does not participate in the delegation agreement with ESMA regarding the data collection, the report does not include data on instruments under its responsibility.

⁹ European Securities and Markets Authority (2020), “EU Derivatives Markets”, ESMA Annual Statistical Report.

on EU securities markets relevant changes will be taken into account.

Data quality: A presentation of the procedures used to prepare the indicators introduced in this report is provided in the “Calculation methodologies” article, such as the scope of the covered instruments, the reconciliation of information between different data collections and the detection of outliers. It also provides the statistical standards and methods used to improve data quality.

Trading: 430 venues, 216 systematic internalisers

Following the entry into force of MiFID II, ESMA publishes and keeps up to date a register of all EEA regulated markets¹⁰, multilateral trading facilities¹¹, organised trading facilities¹² and systematic internalisers¹³ on its website. The newly available data allows to monitor market microstructure evolution.

T.1

Types of trading venues¹⁴

New trading venues introduced by MiFID II

A trading venue (TV) refers to an EEA trading venue which includes Regulated Markets (RM), Multilateral Trading Facilities (MTF) or Organised Trading Facilities (OTF).

Regulated Markets (RMs) are multilateral systems operated by and/or managed by a market operator, which bring together multiple third-parties buying and selling interests in financial instruments, in accordance with its nondiscretionary rules, and in a way that results in a contract.

Multilateral Trading Facilities (MTFs) are another type of non-discretionary TV. They are operated by a qualifying investment firm, or a market operator, and bring together multiple third-parties buying and selling interests in financial instruments, in accordance with non-discriminatory rules, in a way that results in a contract.

Organised Trading Facilities (OTFs) are a new type of TV introduced by MiFID II that allows trading of non-equity instruments. OTFs are multilateral systems in

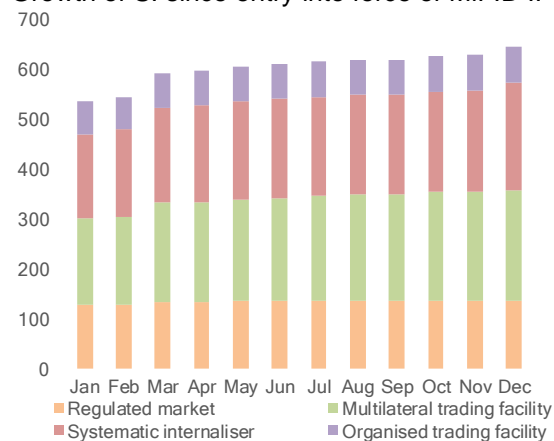
which multiple third-parties buying and selling interests in bonds, structured finance products, emission allowances or derivatives are able to interact in the system in a way that results in a contract. A key difference with other TVs lies in the discretionary basis of OTF trading, where a market operator takes a role in negotiations between market participants. The creation of OTFs intends to level the playing field between the various venues for the execution of orders.

Systematic internalisers (SIs), although not TVs, are investment firms which, on an organised, frequent systematic and substantial basis, deal on own account when executing client orders. They offer an avenue for trading outside a lit market but without the liquidity disadvantage of pure bilateral OTC transactions. MiFID II/MiFIR introduced the obligation for investment firms to trade most shares on a trading venue or an SI and extended it to non-equity instruments. As a result of this, and a revised methodology for the determination of SI status, the number of SIs authorised since January 2018 has grown significantly, to 216 at the end of 2019 (ASR-MiFID.1). SIs tend to be either investment banks or electronic liquidity providers such as high-frequency trading market makers.

ASR-MiFID.1

Number of trading venues and SIs in the EEA

Growth of SI since entry into force of MiFID II



Note: Number of EU trading venues in 2019 by type.

Sources: ESMA.

At the end of 2019, there were 430 trading venues registered in the EEA: 135 RMs, 223 MTFs and 72 OTFs. In addition, there were 216 SIs. MTFs and SIs were the fastest growing

¹⁰ Article 56 of MiFID II. This register contains the Market Identifier Code (MIC) established by ESMA in accordance with Article 65(6) identifying the regulated markets for use in reports in accordance with Articles 6, 10 and 26 of MiFIR.

¹¹ Article 18(10) of MiFID II. This list contains information on the services an MTF provides and entails the Market Identifier Code (MIC) established by ESMA in accordance with Article 65(6) identifying the MTF for use in reports in accordance with Articles 6, 10 and 26 of MiFIR.

¹² Article 18(10) of MiFID II. This list contains information on the services an OTF provides and entails the Market Identifier Code (MIC) established by ESMA in accordance

with Article 65(6) identifying the OTF for use in reports in accordance with Articles 6, 10 and 26 of MiFIR.

¹³ Article 15(1) of MiFIR, ESMA shall establish a list of all systematic internalisers (SIs) in shares, depositary receipts, ETFs, certificates and other similar financial instruments in the Union. According to Article 18(4) of MiFIR, ESMA shall establish a list of SIs in bonds, structured finance products, emission allowances and derivatives in the Union.

¹⁴ Article 4 of MiFID II provides the definitions to apply for the purpose of the Directive.

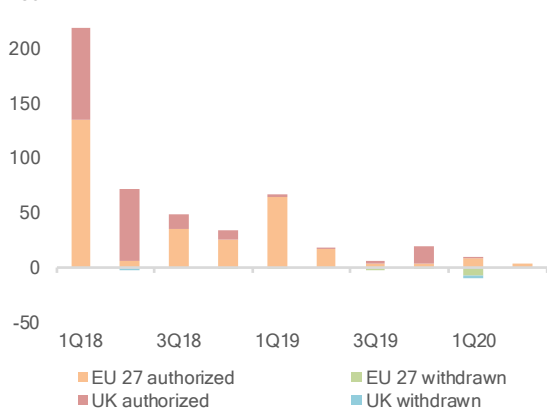
venues, with 49 and 47 of net new authorisations in 2019 respectively.

The UK is the domicile of 147 TVs and 69 SIs at the end of 2019, compared to 262 TVs and 147 SIs in EU27 (S.15). Therefore, 216 (34%) of all EEA venues and SIs, are located in the UK, followed by Germany (13%), the Netherlands (7%), Sweden and Italy (5% respectively) (S.2).

Regarding the number of new venues and SIs authorised in 2019, the number went down after the peak observed in 2018, linked to the introduction of MiFID II (ASR-MiFID.2). In 2019, 21 UK venues and SIs were authorised (compared to 170 in 2018), including 15 SIs and 3 MTFs. In the EU27, 87 venues and SIs were authorised and 7 withdrawn in 2019, compared to 197 EU27 net admissions in 2018.

ASR-MiFID.2

TVs and SIs authorised/withdrawn in EU27 and UK 87 new venues in EU27 in 2019, 21 in UK



Note: Total number of trading venues and systematic internalisers authorised and withdrawn, from 1Q18 to 2Q20. Sources: ESMA registers.

Instruments: >198,000 available for trading

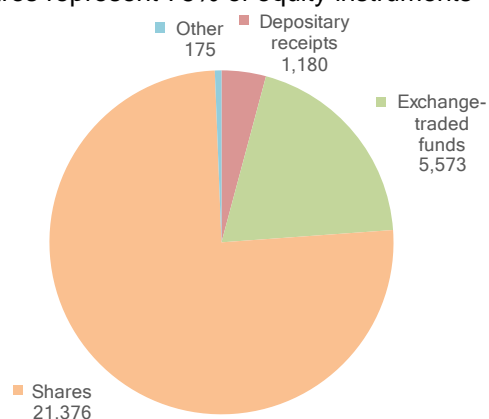
In 2019, there were over 28,000 equity and equity-like instruments available for trading in the EEA, out of which 75% were shares, followed by exchange-traded funds (ETFs, 20%), depository receipts and other equity-like instruments (5%).¹⁵ MTFs are the trading venues on which most equity instruments are available (more than 27,000), while less than 8,300 are available on RMs (S.5).

¹⁵ Depository receipts are financial instruments negotiable on a regulated market, and which represent ownership of the securities of a non-domiciled issuer. Depository receipts allows investors to hold shares in equity of a foreign company that are traded on a local exchange. Other equity-like instruments include UK certificates, which

ASR-MiFID.3

Number of equity and equity-like instruments available for trading

Shares represent 75% of equity instruments



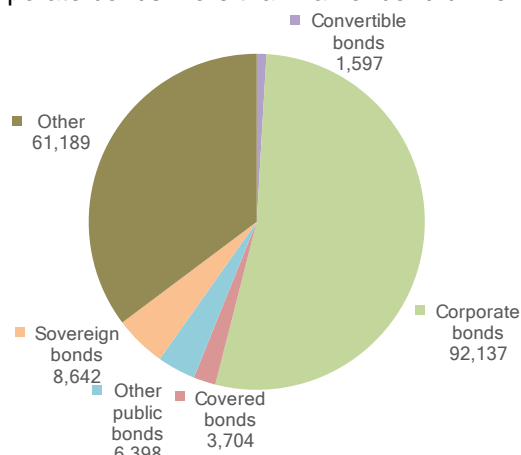
Note: Total number of equity and equity-like instruments available for trading in 2019. Sources: FIRDS, FITRS, ESMA.

There are more than 170,000 bonds available for trading on EEA trading venues in 2019. Out of these, 53% were corporate bonds, followed by sovereign bonds (5%) and other public bonds (4%). Covered bonds (2%), convertible bonds (1%) and other bonds (35%) account for the remaining stake. Similarly, as for equity instruments, MTFs are the venues with the highest number of bonds available for trading (almost 148,000), compared to the 22,000 bonds available for trading on OTFs (S.6).

ASR-MiFID.4

Number of bonds available for trading

Corporate bonds more than half of bond universe



Note: Total number of bonds available for trading in 2019. Sources: FIRDS, FITRS, ESMA.

Most EEA instruments were traded cross-border, i.e. on trading venues in member states different from the issuer domicile. 2,153 equity

are hybrid negotiable securities, that in case of a repayment of investment by the issuer are ranked above shares but below unsecured bond instruments.

instruments (14% of EEA equity instruments traded) and 52,433 bonds (40% of EEA bonds traded) were issued and traded domestically in only one EEA country. EEA ETFs (4%), covered bonds (7%), and sovereign bonds (15%) had also only small proportions of instruments issued and traded in only one member state (S.7 and S.8).

Trading volumes: bonds dominating

In 2019, the total number of transactions in equity markets was 1.7 billion, 97% of them in shares. In sharp contrast, the number of transactions in bond markets was only 19 million, of which 51% in sovereign bonds.

Trading volumes in the EEA amounted to EUR 26.8tn in equity markets and EUR 101.1tn in bond markets. Whereas most transactions took place on exchange (88% for equity and 66% for bond respectively, S.9 and S.10), volumes on exchange only amounted to 53% for equity and 24% for bonds.

Equity trading is close to evenly distributed among MTFs (27%), RMs (25%), SIs (21%) and OTC (26%). On average, monthly trading volumes of 2.2tn showed no significant trend during 2019, except for March, April and May where the trading volumes reached EUR 2.5tn, mostly driven by the surge of OTC trading (S.13).

Bond trading is concentrated off-exchange, with 50% of annual volumes traded OTC and 26% through SIs. The rest is distributed between MTFs (15%), OTFs (8%), with only 1% of trading volumes on RMs. Monthly trading volume of EUR 8.4tn showed no particular changes, except for the significant decrease of OTF trading during the year: OTF share of trading volumes went down from 15% in January to 3% in December (S.14).

T.2

COVID-19 impact on EU securities markets

Important decline in March, but strong rebound since then

With the COVID-19 pandemic, financial markets have been hit by an external shock of unprecedented size. ESMA's TRV 2/2020 provided extensive coverage of the COVID-19 related market impacts and risks.¹⁶ A summary of the key facts related to securities markets is presented below.

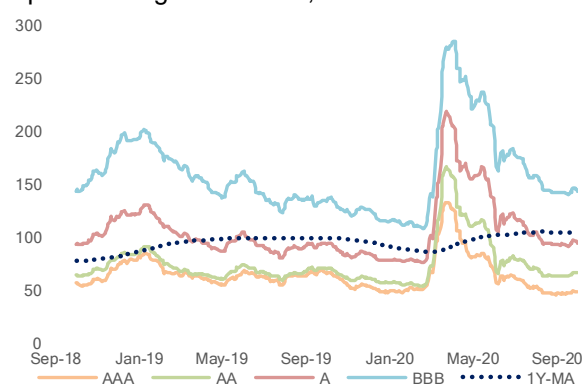
Securities market developments

During the initial stage of the crisis (mid-February to end-March), markets experienced one of the fastest declines in recent history, including volatility surges and liquidity contractions. Equity markets fell substantially during a short period of time, as high uncertainty amid stretched valuations led investors to liquidate their positions. The Stoxx 600 index recorded a peak-to-trough fall of -35.5%, and the VSTOXX reached an intraday high of 90% on 18 March, continuing to trade around still very elevated levels of around 50% until end-March.

On fixed-income markets, yields spiked, and spreads increased for corporates and most Euro Area (EA) sovereigns. The price decline occurred amid low liquidity in bond markets: the bid-ask spread on corporate bonds increased by almost 20% in March, partly reflecting forced sales from investors and signs of rapid credit risk repricing. (ASR-MiFID.5). In sovereign bond markets, following the announcement of the ECB emergency plan on March 18 (EUR 750bn Pandemic Emergency Purchase Program), euro area spreads began to stabilise at lower levels than the peaks reached mid-March.

ASR-MiFID.5

EA corporate bond spreads

Spreads surged in March, moved down since

Note: ICE BofAML EA corporate bond option-adjusted spreads by rating, in bps. 5Y-MA=five-year moving average of all indices. Last date= 09/30/2020.
Sources: Refinitiv Datastream, ESMA.

Since end-March, European equity markets have rapidly recovered, and stabilised in September at levels that are yet 15% below the initial baseline, and liquidity improved as volatility declined. In this recovery, there have been signs of differentiation across countries and sectors, with performance differentials pointing to potential structural shifts, e.g. technologies and healthcare have suffered less from

the crisis than aviation and automotive sector, and financials remain weak.

In the same manner, with an increase in prices in the secondary market, corporate bond spreads have recovered since April, particularly in higher grades which came back to pre-crisis levels in August. On sovereign bond markets, the extension of the PEPP in May (EUR 1,350bn to June 2021) and the agreement of the EU recovery fund (EUR 750bn) in July have contributed to confidence effects, resulting in lower sovereign yields in most EU countries in September, and slightly compressed spreads.

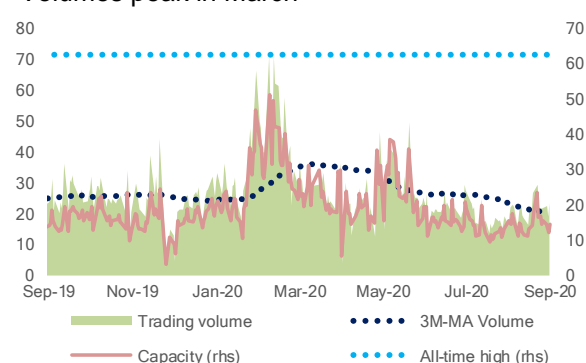
Overall, the potential decoupling of financial market performance and underlying economic activity raises the question about the sustainability of the market rebound going forward. Given the critical role of the public support measures, in particular by monetary and fiscal authorities, in cushioning the economic impact of the pandemic, market perceptions on the sufficiency and sustainability of these measures are set to be important drivers of investment behaviour.

Trading volumes and circuit breakers

During the sell-off, EU trading volumes in equity and equity-like instruments sharply increased with volumes reaching historical highs (ASR-MiFID.6). Daily volumes reached a daily maximum of around EUR 70bn on 12 March, compared to a long-term average of EUR 32bn. In line with overall trading volumes, OTC volumes rose by more than a third in 1Q20, with the share of OTC trading remaining broadly stable at around 25%. As markets recovered, trading volumes declined again from April to levels that remain slightly above those observed before the crisis.

ASR-MiFID.6

Trading of equity and equity-like instruments

Volumes peak in March

Note: Daily and 3M-MA of trading volumes registered on 34 EEA31 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices, in EUR bn. Capacity computed as the average across trading venues of the ratio of daily trading volume over maximum volume observed since 31/03/2016, in %. Last date= 09/30/2020.
Sources: Morningstar Real-Time Data, ESMA.

In March, the share of lit markets equity trading increased from a total of 45% in January to a total of 48%, related to investors needs for certainty of execution. The share of systematic internalisers declined to 16% of total trading, and dark pool trading remained at relatively low levels (9%).

¹⁶ See [ESMA report on trends, risks and vulnerabilities no.2 2020](#).

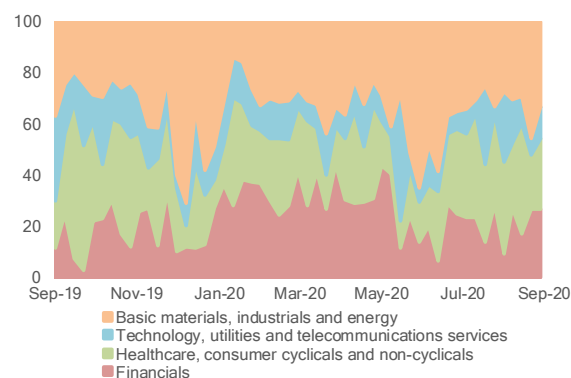
In this context, trading venues have proved to be broadly resilient, despite the surge in trading activity, message traffic and market movements. Circuit breakers were widely and efficiently used, and trading capacity was tested by volumes reaching all-time highs, with few operational issues.

The weekly number of circuit breaker trigger events reached the maximum record of around 2,400 and 4,000 in the second and third week of March respectively, with a higher number of trigger events for banks (ASR-MiFID.7). This compares, for example, to previous peaks of daily circuit breaker triggers of around 1,500 around the Brexit referendum in the week of 20 June 2016. The occurrences declined to lower levels afterwards, with an average of around 118 per week from April to September, compared to a long-term weekly average of around 150. Since June, the number of trigger events declined for financials, in contrast with the number of occurrences in the healthcare sector, which went from an average of 15% of total occurrences in June to 30% in September.

ASR-MiFID.7

Circuit breakers by economic sector

More circuit breakers triggered for banks



Note: Percentage of circuit-breaker trigger events by economic sector registered on 34 EEA31 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices. Results displayed as weekly aggregates. Last date: 09/30/2020.
Sources: Morningstar Real-Time Data, ESMA.

Short selling

As investor sentiment and equity market performance turned negative, short selling activity increased from late February. In this context and to support transparency, ESMA on 16 March lowered the reporting threshold of net short positions on shares to 0.1%, which has been extended in June, and again in September, for three months.¹⁷ Several Member States (Austria, Italy, France, Greece, Belgium, Spain) introduced short selling bans, most of which were lifted mid-May as market conditions improved and short-selling activity gradually declined. Since then, short selling activity remained at elevated but stable levels.

Issuance

During the acute phase of the crisis, primary equity markets practically came to a standstill, with only 15 new Initial Public Offerings (IPOs) launched from January to April (EUR 1bn). In contrast, firms which were already public managed to raise capital through follow-on issuance. Secondary equity offerings amounted to EUR 27bn in the same period, a 34%

increase compared to a year ago, as firms raised cash for debt repayment, working capital or for M&As. Between May and August, if IPOs have remained subdued (less than 30 and EUR 4bn), follow-on issuance continued to grow, with offerings amounting to EUR 47bn in the same period (EUR 24bn in 2019). In September, both IPOs and follow-on issuances surpassed 2019 numbers, amounting to EUR 4bn and EUR 10bn respectively.

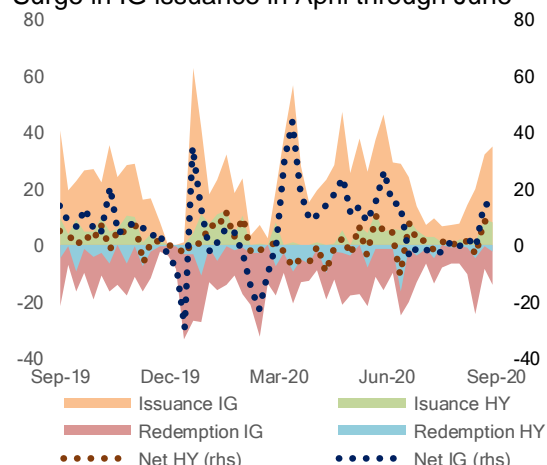
However, EU SMEs remain at risk of facing financing gaps, and reported that access to external funds has been more difficult due to the rising macroeconomic uncertainty and their weakening financial situation.¹⁸

In corporate bond markets, issuance was very low in March for investment grade (IG) and high yield (HY) issuers (ASR-MiFID.8). At the beginning of April, with the improvement in financial conditions, IG issuance surged first, reaching record highs, with more than EUR 100bn of total volume issued in two weeks. Yet issuance activity remained subdued for HY issuers until May, reflecting concerns about rising default rates and the deterioration of credit quality of lower rated corporations. The important rebound for both HY and IG bond offerings in June was followed by two slower months, but a comeback to 2019 issuance levels in September.

ASR-MiFID.8

Corporate bond issuance

Surge in IG issuance in April through June



Note: Weekly gross (lhs) and net (rhs) issuance and redemption of corporate bonds in the EEA31 by bond grade, EUR bn. Last date: 09/30/2020.
Sources: Refinitiv EIKON, ESMA

¹⁷ See the [initial statement](#) and the [June](#) and [September](#) renewal of ESMA decision.

¹⁸ See [Survey on the Access to Finance of Enterprises](#).

Equity markets¹⁹

Summary

As of end-2019, 28,000 equity and equity-like instruments were available for trading in the EEA, accounting for trading volumes of EUR 27tn. Shares dominated the trading landscape, with 89% of equity trading volumes. The total market capitalisation of shares issued by EEA-domiciled corporations amounted to EUR 16tn, with the highest capitalisations in the UK (26%), Germany (23%) and France (18%). Trading volumes of ETFs have grown, amounting to 10% of total trading in equity markets in 2019 (up from 6% in 2018), with ETF issuance largest in Luxembourg and Ireland. Half of trading volumes of equity instruments was on-exchange in 2019, while 53% of volumes occurring on RMs and MTFs, and off-exchange trading continues to be significant, with a large amount of trading OTC (26%) and on SIs (21%). Since MiFID II, an increasing amount of trading has not been subject to real-time pre-trade transparency, up from 22% in January 2018 to 38% in December 2019.

Instruments: Rise in new instruments since MiFID II

In 2019, on average, more than 25,500 **equity and equity-like instruments** were publicly available for trading each month in the EEA, accounting, on average, for EUR 2.2tn of monthly trading volumes. Annual trading volumes amounted to EUR 26.8tn.

The yearly number of newly admitted ISINs on EEA trading venues has increased since the implementation of European market regulation: before MiFID I, around 500 new equity instruments were admitted on a yearly basis, 1,400 after MiFID I and more than 3,300 under the MiFID II/MiFIR framework (S.18).

By trading venue location, the number of admitted and terminated instruments on EEA TVs follow the same pattern in UK and EU27. 8,037 equity instruments were admitted quarterly in one or more EU27 segment MICs (RM or MTF) in 2019, against 2,193 in one or more UK venues, with an average of 3,648 and 2,968 terminations respectively (S.38 and S.39).²⁰

Issuance: Highest in UK, DE

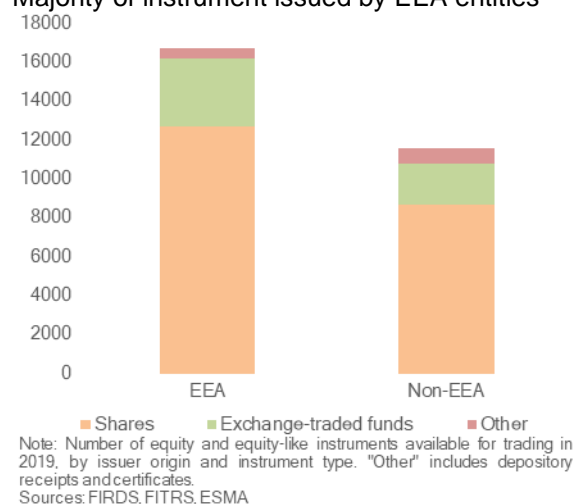
Almost 60% of total equity and equity-like instruments were issued by EEA-domiciled issuers (ASR-MiFID 9). The largest issuers by domicile in the EEA were the UK (3,758

instruments) and Germany (3,028 instruments), respectively accounting for 22% and 18% of EEA instruments issued in 2019.

ASR-MiFID.9

Number of instruments available for trading by issuer origin

Majority of instrument issued by EEA entities



Shares accounted for the vast majority of issuances in all EEA countries except for Ireland and Luxembourg, where in both countries the number of ETFs instruments accounted for 91% of issued instruments (S.17). More than 40% of all non-EEA equity instruments available for trading were issued by companies located in the United States.

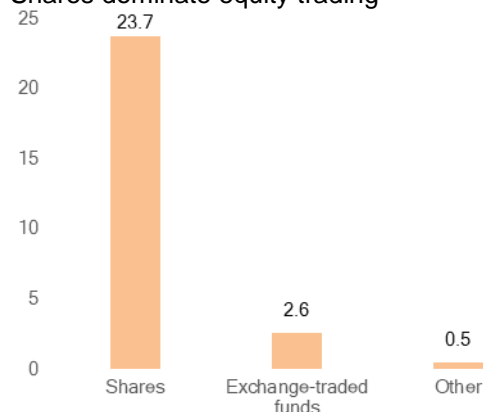
¹⁹ The analysis is based on reference and transparency data for equity instruments received up to 8 July 2020. Any subsequent corrections by reporting entities on historical figures have not been considered. In the next edition of the Annual Statistical Report on EU securities markets relevant changes will be taken into account.

²⁰ Looking at the number of instruments admitted and terminated by trading venue location implies some double-counting of the instruments available at the EEA level.

Trading: Shares dominate EEA trading landscape

Overall, 12,703 EEA shares (thereof 3,143 UK shares) and 8,673 non-EEA shares were available for trading on EEA venues, including almost 3,400 US shares (accounting for 17% of total trading volumes). The total annual trading volumes in shares publicly available for trading in the EEA amounted to EUR 23.8tn or 89% of total equity trading volumes in 2019 (ASR-MiFID.10). UK shares accounted for 20% (EUR 4.7tn) of EEA equity trading volumes. Non-EEA shares trading represented less than 15% of total equity trading volumes on EEA venues (EUR 4tn). Out of this, 46% of total volumes were concentrated on US shares.

ASR-MiFID.10
Annual equity trading volumes by instrument
Shares dominate equity trading



Note: Annual trading volumes of equity and equity-like instruments in 2019 by instrument type, EUR trillion. "Other" includes depository receipts and certificates.
Sources: FIRDS, FITRS, ESMA

The total **market capitalisation** of shares issued by EEA-domiciled corporations amounted to EUR 17.8tn. The largest countries in terms of market capitalisation were the UK (EUR 4.6tn, 26%), Germany (EUR 4.2tn, 23%) and France (3.1tn, 18%) (S.44). Together they accounted for 67% of EEA market capitalisation. Regarding non-EEA issuers, market capitalisation of US-based issuers dominated with more than EUR 32tn (67% of market capitalisation of equity instruments by non-EEA issuers). Stocks with larger capitalisation tend to be traded at greater

frequency, with volumes of EUR 11.3tn for large issuers and EUR 7.3tn for very large issuers (S.44).²¹ Although the number of shares of issuers with a capitalisation of more than EUR 2bn (large companies) represented only 11% of available equity instruments, they accounted for 95% of share trading (S.47).

On the contrary, the stocks of **SME issuers** tend to be less liquid in secondary markets. That is why MiFID II introduces the concept of 'SME growth markets' to foster accessibility for SMEs to capital markets (T.3).

T.3

SME trading

Expansion of the MTFs authorised as SME GMs

MiFID II introduced a new category of MTFs – 'SME growth markets (GM)' – aiming at facilitating access to capital markets for small and medium-sized enterprises. Increased access to diversified sources of finance by smaller businesses in the EEA is a key goal of the Capital Markets Union (CMU) agenda. MTFs or MTF segments can be registered as an SME growth market, provided that at least 50% of the issuers with shares available for trading on the relevant exchange have a market capitalisation of less than EUR 200mn.²²

As of 2019, 17 of 223 MTFs were authorised to be an SME GM²³. Although the number of authorised entities is still low, the number of MTFs that applied for the SME GMs status substantially grew in 2019 with respect to the previous year (14 authorisations in 2019). With four authorised SME GM MTFs, Germany has the largest number of these venues.

Overall, around 6,772 EEA SME issued shares are traded, remaining stable compared to 2018.²⁴ More than 85% of SME shares were traded on EEA MTFs, and one third were traded on RMs. Only 1,513 SME shares were available for trading on MTFs with the status of SME GM.

In 2019, annual trading volumes in EEA SME shares were 90bn, with less than EUR 8bn traded each month, i.e. on average 0.4% of total trading in EEA shares (ASR-MiFID.9). The largest secondary market for EEA SME shares is the UK, with more than EUR 32bn of annual trading volumes, followed by Sweden (EUR 11bn) and Germany (EUR 8bn). An important part of SME shares was also traded OTC (EUR 11bn).

Secondary market liquidity in EEA SME shares was low, as the monthly average percentage of shares traded at least once a month was 75%, compared with 95% for large caps.

²¹ Market capitalisation classification is defined as follows: "Small and medium"=EUR 0 to 200mn, "Medium large"=EUR 200mn to 2bn., "Large"=EUR 2bn to 20bn, "Very large"= more than EUR 20bn. The classification of Small and medium businesses is based on the definition provided in Article 4 (13) of MiFID II.

²² The full set of conditions to be met is included in MiFID II Art. 33.

²³ In 2018, only 4 entities were authorised to be an SME GM.

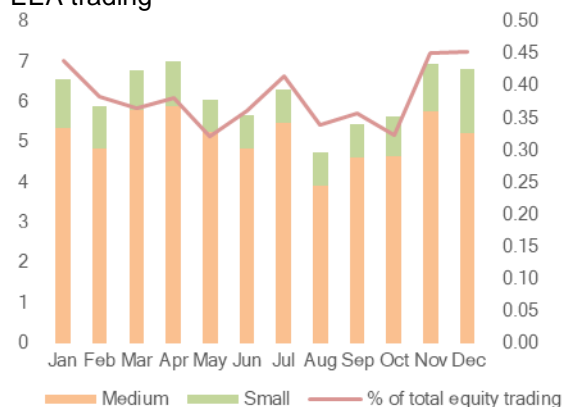
²⁴ For the purpose of this box, the sample is composed only of shares which were traded during 2019. Market capitalisation classification in this box is defined as follows: "Small"=EUR 0 to 20mn, "Medium"=EUR 20mn to 200mn.

Annual trading volumes on SME GMs amounted to EUR 20.8bn in 2019, from 8mn transactions. This only represented 27% of total annual EEA SME trading. As the number of MTFs opting for registration as SME GM increased²⁵, these figures are likely to continue to grow.

ASR-MiFID.11

Monthly trading volumes in EEA SME shares

SME shares account only for a small portion of EEA trading



Note: Monthly trading volumes of SME share domiciled in the EEA in 2019, EUR billion, and %share in total equity trading. 'Small'=(0.20mn), 'Medium'=(20mn,200mn).
Sources:FIRDS, FITRS, ESMA

ETFs: Trading rises

With more than 5,500 **exchange-traded funds (ETFs)** available for trading in 2019, the share of ETFs has grown at a rapid pace over the last ten years. Overall, they accounted for 20% of the new instruments admitted to trading, from less than 8% during the previous decade (S.21). Annual trading volumes of ETFs have also been growing significantly recently (S.32), up from 6% of equity trading volumes in 2018 (EUR 1.8tn) to 10% in 2019 (EUR 2.6tn).

Splitting ETFs by underlying assets, equity ETFs were the most numerous (64% of available ETFs), followed by bond ETFs (24%), and mixed ETFs (5%) (S.23). 70% are domiciled in the EEA and 30% are non-EEA ETFs, mostly US-domiciled ETFs (27%). More than 60% of ETFs available for trading in the EEA are domiciled in Ireland (1,094) and Luxembourg (1,014), accounting for 70% of total annual ETF trading volumes in 2019 (EUR 1.1tn and EUR 0.5tn respectively). ETF trading in the EEA occurs predominantly on venues domiciled in the UK (1.3tn), France (0.3tn), Germany (0.2tn), or OTC

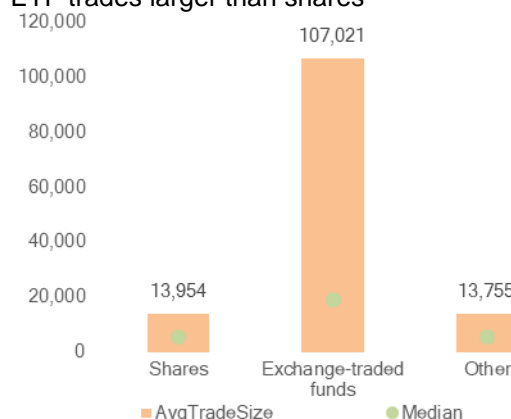
(EUR 0.5tn), but only marginally in Luxembourg or Ireland.

Even if they account for 27% of available ETFs, US ETFs trading volumes amounted only to EUR 0.4tn (14% of total ETFs volumes), while other non-EEA domiciled ETFs remained marginal. During 2019 slightly more than half of ETF trading occurred on exchange (34% on MTFs and 17% on RMs), while the share of trading on SIs amounted to 29%.

ASR-MiFID.12

Average trade size by instrument type

ETF trades larger than shares



Note: Average trade size and median transaction size of equity and equity-like instruments in 2019 by instrument type, EUR. "Other" includes depository receipts and certificates.
Sources: FIRDS, FITRS, ESMA

The average trade size for ETFs was eight times larger than for shares, at around EUR 107,000 per transaction (ASR-MiFID.12).²⁶ This picture varies across ETF categories, with average transaction size of bond ETFs at around EUR 160,000, EUR 146,000 for mixed ETFs and EUR 92,000 for equity ETFs. This indicates that both the liquidity and the trade size of the underlying assets have an impact on the trade size of the ETF itself. The median value of the average trade size by individual instruments points into the same direction (EUR 18,830 for ETFs vs. EUR 5,290 for shares).

Finally, in 2019, there were 1,180 **depository receipts** and 175 other equity-like instruments (e.g. certificates and other equity-like instruments) available for trading. They amounted to 2% of equity trading in the EEA or EUR 482bn. Most depository receipts were issued by entities domiciled in France and Germany. An average of 2.8mn transactions in

²⁵ In its [Consultation Paper on the functioning of the regime for SME Growth Markets under the Markets in Financial Instruments Directive and on the amendments to the Market Abuse Regulation for the promotion of the use of](#)

[SME Growth Markets](#), ESMA provides an assessment of the state of play of the SME GMs regime in the EU.

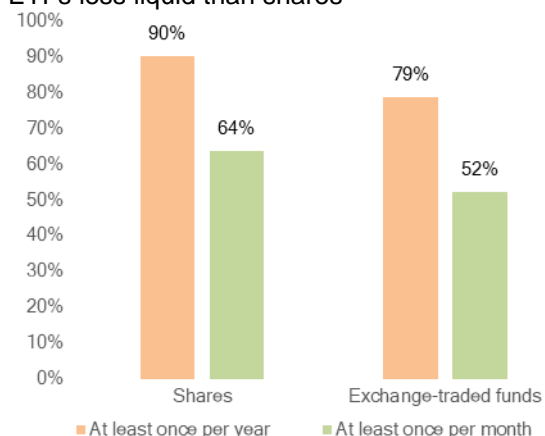
²⁶ Average trade size is computed as the ratio between trading volumes and total number of transactions.

depository receipts, worth EUR 39.6bn, were traded each month in 2019.

Secondary market liquidity was lower for ETFs than for shares, since only 52% of available ETFs were traded, on average, at least once per month in 2019, compared with 64% for shares (ASR-MiFID.13).

ASR-MiFID.13

Secondary market liquidity by instrument type
ETFs less liquid than shares



Note: Share of equity and equity-like instruments traded at least once per month and once per year in 2019 by instrument type, as % of instrument type. Sources: FIRDS, FITRS, ESMA

The higher secondary market liquidity of shares is also reflected in the number of non-traded instruments over the year. On average, each month, 20% of the shares available for trading were not traded at all (S.29), a percentage that remained stable during the year. This contrasts with the proportion of monthly non-traded ETFs, which ranges from 30% in January to 35% in December. Overall, 80% of the non-traded instruments (27,109) were available for trading on MTFs.

Venues: High fragmentation across EEA

In recent years, the trading landscape has evolved at a fast pace and became increasingly fragmented, with the emergence of new types of venues and traders. While large part of equity trading occurred **on-exchange**, there was a considerable share of trading activity on SIs or OTC. In 2019, the share of monthly trading volumes off-exchange fluctuated between 43% and 49% of total trading volumes in the EEA (S.35).

On-exchange trading volumes were very high in the first half of the year, reaching a peak in May

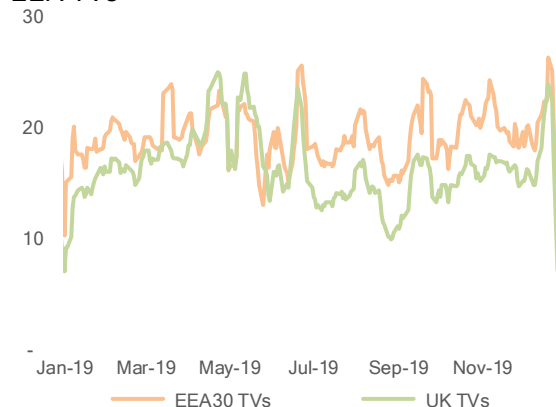
at EUR 1.3tn. This compares to a long-term monthly average of EUR 1tn or 53% of the volumes. Almost 60% of trading volumes in EEA equity instruments occurred on-exchange (S.53). This contrasts with non-EEA equity instruments, for which 87% of trading volumes were concentrated off-exchange (with 2% on RMs and 11% on MTFs).

Volumes in equity instruments traded on exchange were concentrated on UK venues: EUR 8.5tn (60%) versus EUR 5.6tn for other EEA venues. 36 out of 184, i.e. 20% of trading venues are domiciled in the UK, including the top three markets by annual trading volumes in 2019. Other important EEA-member states by trading volumes are Germany (EUR 1.5tn; 11%) and France (EUR 1.1tn; 8%) (S.37).

Focusing on shares, trading volumes of EEA30 shares, meaning shares with legal entity in the EEA excluding UK, are higher on EEA30 TVs on average in 2019 (EUR 5.2tn or 54% of volumes), with the remaining 46% on UK TVs (ASR-MiFID.14). In 2019, trading of shares with a legal entity in the UK is highly concentrated on UK TVs (EUR 2.5tn or 95% of UK shares volumes vs. EUR 0.1tn on EEA30 TVs). Non-EEA shares are also mostly traded on UK TVs, with 90% of their EUR 0.9tn volumes on UK TVs.

ASR-MiFID.14

On-exchange trading volume: EEA30 shares
54% of on-exchange EEA30 trading volumes on EEA TVs



Note: Average trading volumes in EEA (excluding UK) shares by trading venue location (UK vs. EEA30) over five days, in 2019, EUR billion. Trading on regulated markets and multilateral trading facilities only. Sources: FIRDS, FITRS, ESMA.

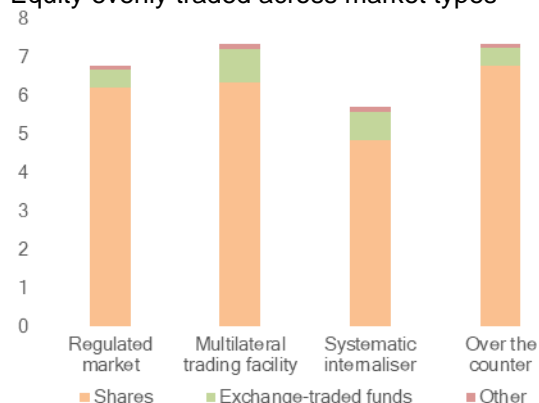
Overall, the largest EEA venues by annual trading volumes were CBOE Europe (MTF) (EUR 3.4tn), Goldman Sachs (SI) (EUR 2.1tn) and the London Stock Exchange (RM and MTF) (EUR 1.9tn) (S.40).²⁷

²⁷ In the context of this analysis, trading venues are identified at segment MIC level.

ASR-MiFID.15

Annual equity trading volumes by instrument and market type

Equity evenly traded across market types



Note: Annual trading volumes of equity and equity-like instruments in 2019 by market and instrument type, EUR trillion. "Other" includes depository receipts and certificates.

Sources: FIRDS, FITRS, ESMA

The number of new MTFs authorised by Member States, where equity and equity like instruments were available for trading, increased from 171 end-2018 to 223 end-2019. In 2019, total annual trading volumes on MTFs amounted to 7.3tn (27% of total EEA trading volumes) (ASR-MiFID.11). Total trading volumes in shares amounted to EUR 3.3tn or 97% of total trading on this venue type (S.42).

The largest MTF in terms of annual trading volumes was CBOE Europe (BCXE). Bloomberg Trading Facility (BMTF) – trading only ETFs – was the fifth largest MTF with EUR 487bn of total annual volumes (S.47).

In 2019, a quarter of trading venues in the EEA were RMs with also 25% of total trading volumes (EUR 6.7tn) occurring on this type of trading venue (ASR-MiFID.15). Given the large number of transactions, the average trade size on RMs (~EUR 8,000 per transaction) was the lowest across venues. The London Stock Exchange was the largest RM (EUR 1.6tn), followed by XETRA (EUR 1.3tn), Euronext Paris (EUR 1.1tn) and Borsa Italiana (0.6tn) (S.46). These top four RMs accounted for almost 70% of total annual trading volumes on EEA RMs.

Since the entry into force of MiFID II/MiFIR, one major development has been the **growth in SI** trading. While the proportion of instruments traded through SIs was significant in 2019 (15,000), it increased by almost 50% between January and December. In 2019, SIs trading volumes in equity instruments amounted to EUR 5.7tn, representing slightly less than 20% of total equity trading in the EEA.

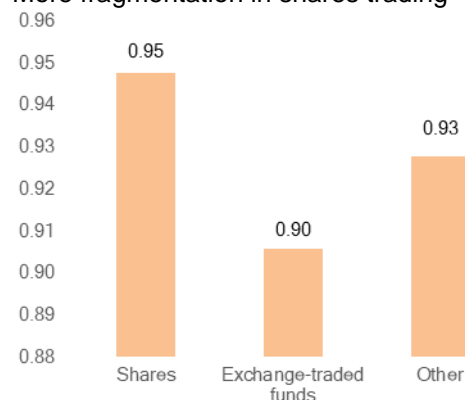
Meanwhile, the number of SIs with permission to trade equity instruments has increased from less than 15 under MiFID I to 73 in 2019. The largest SI for equity trading was Goldman Sachs (EUR 2.1tn, accounting for 36% of trading volumes on SIs). Other important SIs in the EEA are Barclays (EUR 0.5tn), Morgan Stanley (EUR 0.5tn) and Credit Suisse (EUR 0.4tn) (S.43). This confirms the tendency of SIs to be operated by large investment banks. By domicile, the largest SI market is the UK, as 30% of the SIs (including the top 4 firms in terms of trading volumes) in the EEA are domiciled there.

Trading: Shares more fragmented than ETFs

In the context of securities, the **Herfindahl-Hirschman Index** (HHI) can be used as a proxy for market concentration, measuring the extent to which trading is concentrated within instruments or venues. Trading fragmentation is then measured as $(1 - \text{HHI})$.

ASR-MiFID.16

Concentration indicator by instrument type
More fragmentation in shares trading



Note: Fragmentation index of trading volumes on EEA trading venues and systematic internalisers in 2019, by instrument type. "Other" includes depository receipts and certificates. Index calculated as $(1 - \text{HHI})$ and ranging from 0 (monopoly) to 1 (maximum fragmentation).

Sources: FIRDS, FITRS, ESMA

Looking at the fragmentation by instrument type, a value of 0 indicates no fragmentation (i.e. all trading for one instrument occurs on one venue), whereas higher values indicate that trading of an instrument type is fragmented across several venues. Overall, it is based on the sum of the

squares of trading volumes proportions for all venues.²⁸

In line with their higher availability across several countries and venues, the trading fragmentation index of equity and equity-like instruments on EEA trading venues, calculated at MIC level, was highest for shares (i.e. shares had the lowest HHI) (ASR-MiFID.16). In this respect, shares were traded across 243 market segments (60 RMs, 112MTFs, 71 SIs), compared with ETFs that were available for trading on 135 MICs.

The HHI calculation done at the market type level, indicates a larger fragmentation of trading on MTFs, followed by RMs and SIs (S.34).

OTC: 1/3 of trading, large trade sizes

Although the share trading obligation provisions requires investment firms to carry out transactions on a TV or SI, a large portion of equity trading remains OTC.²⁹ OTC trading still represents 26% of total equity trading in the EEA. In 2019, 18,774 instruments were traded OTC, resulting in 67mn transactions worth EUR 6.9tn in terms of trading volumes.

The **average trade size** of equity and equity-like instruments traded OTC, was the largest among all types of trading, suggesting that OTC trading remains preferred for larger trades. With less required transparency, OTC trading can be adopted to lower the execution price impact. Another potential reason for such large figures is that OTC transactions reported under MiFID II may capture technical trades.³⁰

For shares, there is an important discrepancy between on- and off-exchange trade sizes: average trade size on RMs and on MTFs were broadly similar in 2019 (respectively around EUR 8,000 and 9,000); however, the average trade size for OTC trades was more than 11 times higher (around EUR 98,000) and for SIs more than 4 times higher (around EUR 37,000) (S.39).

In the same manner, for ETFs, the average daily transaction size OTC (~EUR 356,000) and on SI

(~EUR 290,000) represents more 10 times the average transaction size on RMs (~EUR 27,000). However, the average ETF transaction size on MTFs is large, with an average of approximately EUR 235,000 EUR (S.40).

Transparency: Increase in lit trading and SIs

In the latest years, a large proportion of equities trading in Europe has shifted from traditional platforms to new types of venues. The most traditional type of equity trading occurs on registered stock exchanges, also known as “lit markets”. MiFID II/MiFIR consolidated the pre-trade transparency regime, which requires trading venues to continuously publish the orderbook, i.e. the current bid and offer prices during normal trading hours, as well as the depth of trading interests at those prices. In equity **lit markets**, i.e. MTFs and RMs, transparency requirements are fulfilled since the order book is public for all participants.

Due to the rapid technological change (e.g. the introduction of high frequency trading), and to the evolving regulatory landscape, the demand for dark pools has increased since the introduction of MiFID I. **Dark trading** is defined as transactions executed under external reference prices, instead of prices based on the internal order book, negotiated trade and large-in-scale pre-trade transparency waivers (T.4).

²⁸ The Herfindahl-Hirschman index is a measure developed and used in industrial economics to assess the extent of concentration/competition and is usually computed on the basis of the sum of the squares of market share(s) of the i firms within an industry. The formula writes as follows:

$$HHI = \sum_{i=1}^N s_i^2$$

²⁹ See Art. 23(1) MiFIR – MiFIR introduces a trading obligation for shares that will require investment firms to ensure that the trades they undertake in shares admitted to trading on a regulated market, or traded on a trading

venue, take place on a RM, MTF, SI, or an equivalent third-country TV. Nevertheless, possible derogations include shares transactions that are (a) non-systematic, ad-hoc, irregular and infrequent; or (b) carried out between eligible and/or professional counterparties and do not contribute to the price discovery process.

³⁰ E.g. ‘give-up’ or ‘give-in’ transactions, where an investment firm passes a client trade to, or receives a client trade from, another investment firm for the purpose of post-trade processing.

T.4

Lit markets and dark pools

Transparency requirements by type of venue

The MiFID II/MiFIR framework aims at pushing a larger proportion of trading into lit markets, where the information on prices and counterparties can be observed by all market participants. The transparency of the order book on trading venue offers the possibility for the investor to either buy a stock regardless of the price (market order), or to negotiate a better price until it reaches a pre-defined limit (limit order).

Alternatively, the traditional form of non-transparent trading used by investment firms occurs OTC, where securities are traded via a broker-dealer network as opposed to on a centralized exchange. However, the MiFID II/MiFIR framework extended post-trade transparency obligations to investment firms trading OTC or through SI, which must publish details of their trades through an Approved Publication Arrangement (APA).³¹

Dark pools go beyond OTC trading, as the intended volume or price of the counterparty are not available neither to the buyer nor to the seller. In this respect, dark pools operate fully outside pre-trade transparency rules. Transactions executed on dark pools are however subject to post-trade transparency requirements. These venues are mainly ran by individual companies, investment banks or exchanges (RMs or MTFs).

There are several reasons why traders are willing to use dark pools, which include avoidance of information leakage, minimisation of market impact costs, and facilitation of the execution of large blocks which may be difficult to achieve on transparent markets due to a lack of depth in the orderbook.³²

To ensure that the transparency regime does not lead to unintended consequences on liquidity, MiFID I introduced four pre-trade transparency waivers, which allow for exemptions from pre-trade transparency requirements in specific circumstances (T.4).³³

Furthermore, in order to limit the amount of trading in equities on dark venues³⁴, waivers from the equity pre-trade transparency regime have been narrowed with MiFID II, through the introduction of the double volume cap mechanism (DVC), which limits the extent to which these waivers can be used.

³¹ See MiFID Article 20.

³² Issues Raised by Dark Liquidity [IOSCO \(2010\)](#).

³³ See MiFIR Art. 4(1) (a) to (c) and DVC mechanism: The impact on EU equity markets; Guagliano, Guillaumie, Reiche, Spolaore, Zanon; ESMA working paper no. x, 2020.

T.5

Waivers and DVC mechanism

DVC suspended 418 instruments end-2019

In terms of pre-trade transparency requirements for equity instruments (shares, ETFs, depositary receipts, and other equity-like instruments) trading venues should disclose information about current bid and offer prices as well as the depth of trading interests at those prices depending on the type of trading system.³⁵ In 2007, MiFIR introduced the concept of pre-trade transparency waivers, allowing where waivers apply, the possibility to waive the obligation for trading venues to disclose this information.

The waivers introduced by MiFID allowed for the creation of dark pools. MiFIR permitted National Competent Authorities to grant four types of waivers, which are will be exhaustively described in the article on transparency calculations.³⁶

To limit the amount of dark trading in equities and to ensure that the use of those waivers does not prevent the proper functioning of the price formation process, MiFID II introduced the double volume cap mechanism (DVC). This mechanism limits trading under the reference price waiver and the negotiated trade waiver in liquid instruments, when there is a concentration of dark trading volumes on a single trading venue, or when dark trading reaches a certain ceiling on EEA trading venues.

In particular, in the case of instruments whose percentage of trading under those waivers on a single trading venue is higher than 4% of the total volume of trading in those financial instruments across all EEA trading venues over the previous twelve months, and whose percentage of trading across all trading venues under the waivers is higher than 8% of the total volume of trading in that financial instrument across all EEA trading venues over the previous twelve months.

The DVC is calculated per instrument, based on the rolling average of trading in that instrument over the previous twelve months. ESMA published the DVC calculations for the first time on 7 March 2018, and continues to publish them since then. DVC suspensions are initially valid for 6 months.

The total number of ISINs suspended as of 31 December 2019 is 418 (330 at EEA level – 8% limit – and 88 at TV level – 4% limit).

In 2019, the largest trading activity in equity and equity-like instruments occurred over the period March-May, when monthly trading volumes averaged to 2.5tn compared to a yearly average of 2.2tn (ASR-MiFID.17). This coincided with a 2ppt increase in OTC trading and a 4ppt decline in lit trading. In the second half of 2019, EEA

³⁴ See MiFIR Art. (5). Further details in the calculation methodology article.

³⁵ Trading systems include order-book, quote-driven, hybrid and frequent batch auctions.

³⁶ See the article on transparency calculations.

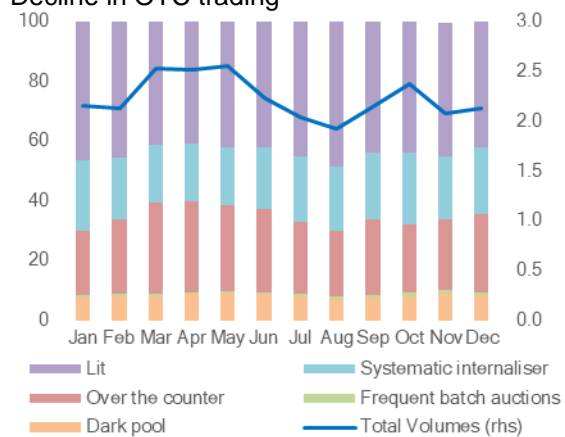
trading volumes in equity instruments declined by 6%, to EUR 2.1tn per month.

Overall, close to half of equity trading is carried out on lit markets (between 40 and 49% of the monthly volumes), and dark pool trading showed no sign of decline since the entry into force of MiFID II, accounting for 8% of total volumes in 2019.

ASR-MiFID.17

Annual equity trading volumes by trading type

Decline in OTC trading



Note: Type of equity trading in the EEA as percentage of total volumes, in %. Total equity trading volumes in tn (rhs). Sources: FIRDS, FITRS, ESMA

Following the first suspension of trading under the DVC mechanism in 2018, **frequent batch auctions** (FBAs) for equity instruments started to gain market share.³⁷ FBAs are a new version of periodic auction, which are triggered by market participants and are typically of very short duration (between 25 and 150 milliseconds). This type of trading still remains a source of concern as it could hamper price formation.³⁸ As of December 2019, frequent batch auctions are limited to about 1% of total trading volumes in the EEA.

Transparency: Pre-trade waivers use rises

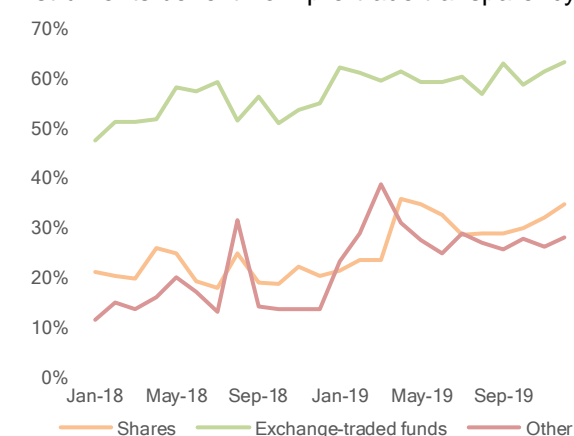
Following the application of MiFID II in 2018, the amount of total on-exchange turnover under the pre-trade waivers increased from 22% in January 2018 to 38% in December 2019, implying that there was still a significant amount of trading that has not been subject to real-time pre-trade transparency. This is particularly the case for ETFs (+16pp

compared to January 2018), with consistently almost half or more than half of the turnover under the waivers (ASR-MiFID.18). For shares and other equity-like instruments the use of waivers has also increased since January 2018 (+14pp and +17pp respectively).

ASR-MiFID.18

Waiver trading activity per instrument type

Instruments benefit from pre-trade transparency



Note: Percentage of turnover executed under pre-trade waivers over total turnover executed on-exchange. Sources: FIRDS, FITRS, ESMA

As regards the number of suspensions triggered by the **Double Volume Cap Mechanism**, 2019 has seen a U-shaped trend in both EU (S.57) and TV level (S.58) suspensions, with the number of outstanding EEA level suspensions passing from 532 in January to 210 in August and 330 in December. The sharp decline at the beginning of 2019 can be explained by the relatively high number of suspensions ordered during 2018 that expired in 2019.

In addition to pre-trade transparency waivers, MiFIR provides possibilities to postpone post-trade transparency of transaction details³⁹ based on their type or size. In particular, for equity instruments, deferred publication can be authorised for transactions that are large in scale when compared to the normal size for that instrument (LIS) or traded on own account by the counterparty. The deferral period can range from 60 minutes to 120 minutes, end of trading day or the end of the next trading day.

³⁷ See [opinion on frequent batch auctions and the double volume cap mechanism](#), published on 4 October 2019.

³⁸ See [ESMA, Final Report, Call for Evidence on Periodic Auctions](#)

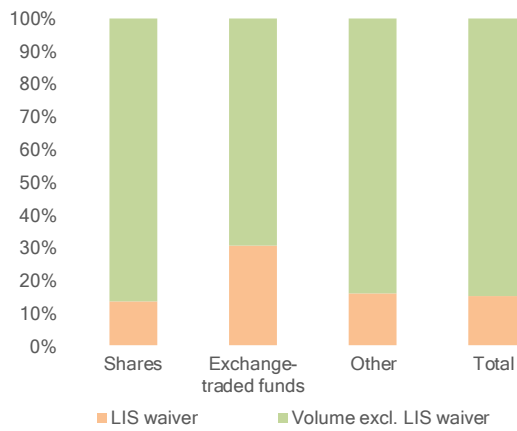
³⁹ Article 6 of MiFIR requires market operators and investment firms operating a trading venue to make public

the price, volume and time of the transactions executed in equity and equity-like instruments. These details should be made public as close to real time as technically possible.

85% of the total equity trading volume did not benefit from this type of deferral from post-trade

ASR-MiFID.19

LIS trading activity under deferral per instrument type
 Small proportion of instruments under post-trade transparency deferrals



Note: Percentage of trading volume under the large-in-scale waiver on-venue in 2019
 Sources: FIRDS, FITRS, ESMA

transparency in 2019 and was thus subject to real-time publication (ASR-MiFID.19). Nevertheless, differences across types of equity instruments persist. In particular, the volume subject to deferred publication was significantly higher for ETFs (31%) than for shares (13%) and other equity-like instruments (16%) in 2019.

Bond markets⁴⁰

Summary

In 2019, over 170,000 bonds were available for trading in the EEA, including 53% corporate and 5% sovereign bonds. 75% of bonds available for trading were issued by EEA-domiciled issuers. Bond trading volumes amounted to EUR 101tn in 2019, with 77% of volumes from sovereign and 18% from corporate bonds. Total EEA nominal amount was EUR 25tn, with the largest nominal amount issued in Germany (EUR 5.0tn) and the UK (EUR 4.9tn). The bond market was characterised by large trade size (average trade size for sovereign bonds of EUR 8.0m, and EUR 2.5m for corporate bonds in 2019). The majority of trading was off-exchange, with OTC and SI accounting for 50% and 26% of bond trading volumes in 2019, and RMs representing only 1% of trading volumes. On-exchange trading volumes are concentrated in the UK, with more than 80% of on-exchange trading on UK trading venues in 2019 (EUR 20tn).

Instruments: >50,000 new bonds annually

The EEA bond market is characterized by a large number of instruments publicly available for trading, with more than 117,300 **bond instruments** available each month in 2019 on average. The number of newly admitted bond instruments on EEA trading venues has boomed since MiFID II, with more than 53,000 yearly admissions of bonds since 2018. However, the overall number of bonds available for trading declined during 2019 by 9,021, as the number of terminations was higher than the number of admissions. Before MiFID I, only 270 bond instruments were admitted on a yearly basis, and 6,300 afterwards (S.67).

Due to their fixed maturity, bond instruments are characterized by a high number of admissions and terminations. In 2019, the average number of monthly admissions (+5,029) and terminations (-5,781) remained stable, except for a high number of terminations due to a change in reporting of a specific venue in November (S.64).

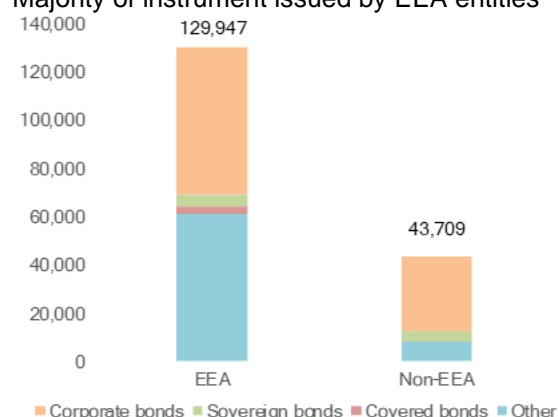
The trend of bond admissions and terminations was similar for instruments admitted on EU27 and UK venues, with 3,502 bonds admitted quarterly on average in one or more EU27 RMs in 2019 and 341 in one or more UK MIC, and 3,326 and 392 terminations respectively (S.84).⁴¹ On MTFs those numbers are even larger, with 63,708 bond admissions on average each

quarter in 2019 in one or more EU27 venue and 77,176 in UK (S.85).

Availability: 3/4 of bonds available issued in EEA

ASR-MiFID.20
Number of instruments available for trading by issuer origin

Majority of instrument issued by EEA entities



Note: Number of bonds available for trading in 2019 by issuer domicile.
Sources: FIRDS, FITRS, ESMA

In 2019, almost 130,000 or 75% of bonds available for trading were issued by EEA-domiciled issuers (ASR-MiFID.20). The largest number of EEA issuers were from Germany and UK (58,728 and 14,392 instruments respectively), accounting for 45% and 11% of EEA issued instruments in 2019 (S.63).

⁴⁰ The analysis is based on reference and transparency data received up to 10 February 2020, and any subsequent corrections by reporting entities on historical figures have not been considered. In the next edition of the Annual Statistical Report on EU securities markets relevant changes will be taken into account.

⁴¹ Looking at the number of instruments admitted and terminated by trading venue location implies some double-counting of the instruments available at the EEA level.

The largest number of non-EEA issued bonds was made by issuers domiciled in the United States, with 20,463 bonds representing 47% of non-EEA bonds instruments available for trading. The large majority of the US bond instruments are in the form of corporate bonds (80%).

Issuance: Corporate bonds most issued instruments

Over 170,000 bonds were available for trading on EEA trading venues in 2019, including 92,137 corporate bonds (53%), 69,184 other bonds (40%) and 8,631 sovereign bonds (5%). Box (T.5) describes the characteristics of other bonds.

T.6

Other bonds – characteristics

Classification issue for half of other bonds

In 2019 among the 69,184 instruments presented in this report as “other bonds” available for trading, there were 6,398 other public bonds (4% of bond instruments), 1,597 convertible bonds (1%) and 61,189 instruments classified as “other bonds” (35%) (ASR-MiFID.4).

Of the remaining 61,189 “other bonds”, a significant proportion can be characterised using market data, categorising some instruments as corporate or financial bonds (20,414 instruments) or supranational and other public bonds (6,605 instruments). However, no information is available for around 35,000 of “other bonds”; this classification issue is currently being investigated.

The large amount of unclassified “other bonds” is introducing potential issues when interpreting the number of bond instruments available for trading. However, most of the instruments classified as “other bonds”, and 99% of the 35,000 instruments where no classification is possible at the moment, report no transactions during 2019. Hence, this potential classification problem does not create issues when analysing bond trading volumes.

Most corporate bonds available for trading were issued in the EEA in 2019 (60,817 instruments or 66% of corporate bonds) (S.66). The largest issuers were Germany (17,144 corporate bonds) and UK (10,664), accounting respectively for 28% and 17% of EEA corporate bonds available. The largest number of issuers of non-EEA corporate bonds were based in the US, with 16,394 bonds issued, accounting for 52% of the overall number of non-EEA corporate bonds.

Just over half of sovereign bond instruments available for trading in the EEA were issued by EEA countries (4,648 bonds or 54% of available instruments), with the highest number of bonds issued in Germany (970 sovereign bonds) and Italy (542). There were 157 UK sovereign bond instruments available for trading. Non-EEA sovereign bonds available for trading were mostly issued by the US (716 bonds) and Japan (484).

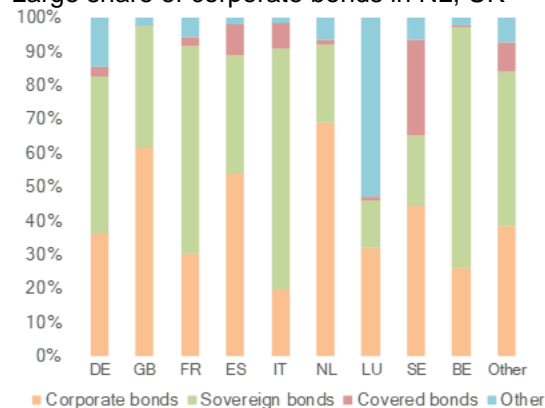
Finally, as of December 2019, the number of **covered bonds** available for trading was 3,704, most of which were issued in the EEA (88% or 3,278 instruments). Non-EEA covered bonds are marginal, with only 426 instruments and EUR 31bn trading volumes (2% of covered bonds trading volumes).

In terms of number, corporate bonds represent the largest type of bond instruments issued for most EEA countries⁴² (61% on average) (S.63), especially in Belgium, where 82% of bonds issued were corporate bonds, and Italy (78%). However, when looking at **nominal amounts**, i.e. the amount that will be repaid to bondholders at maturity, corporate bonds represented 43% (EUR 10.8tn) of the EEA total nominal amount in 2019 (S.91).

ASR-MiFID.21

Nominal amount outstanding by issuer domicile

Large share of corporate bonds in NL, UK



Note: Share of bond nominal amount outstanding, by issuer domicile and bond type in the EEA, in % of bond type in 2019. Sources: FIRDS, FITRS, ESMA.

Sovereign bonds represented less than 4% of EEA issued bonds, but their nominal amount amounted to 11.0tn or 44% of the total EEA nominal amount in 2019. The nominal amount of EEA covered bonds amounted to EUR 1.2tn in 2019, mostly traded in Spain (EUR 0.2tn, 22%) and Sweden (EUR 0.2tn, 17%).

⁴² The only exception is Luxembourg, for which more than 5,900 bond instruments issued, amounting to 59% of its bond instruments, are categorized as “other bonds”. This is due in part to the supranational bonds issued by the

European stability mechanism and the European Investment bank, domiciled in Luxembourg and categorized as the “other bonds”.

The share of corporate bond nominal amount outstanding at the national level is largest in the Netherlands (69% of country nominal amount), UK (61%) and Spain (53%) (ASR-MiFID.21). On the contrary, there is a prevalence of sovereign bond outstanding amount in Italy (71%), Belgium (71%), and France (61%). Finally, because of supranational issuers domiciled in Luxemburg, more than 50% of the bond notional amounts of Luxemburg is composed of other bonds.

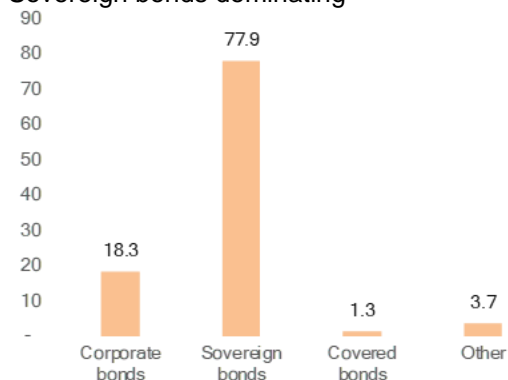
In terms of overall nominal bond amounts in the EEA, the largest issuer country is Germany (EUR 5.0tn) followed by the UK (EUR 4.9tn). Together, they account for 40% of the EUR 25.2tn total EEA bonds nominal amount (S.92).

Trading: 77% of trading volumes in sovereigns

Sovereign bonds were the most traded bond instruments, amounting to 77% of total bond trading volumes in 2019, with an annual trading volume of EUR 77.9tn (ASR-MiFID.22). Monthly trading activity of sovereign bonds fluctuated between EUR 5.1tn and 7.4tn throughout the year, with EEA sovereign bonds composing the majority of volumes (53%).

ASR-MiFID.22

Annual trading volume by instrument type
Sovereign bonds dominating



Note: Annual trading volumes of bonds in 2019 by bond type, EUR trillion. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

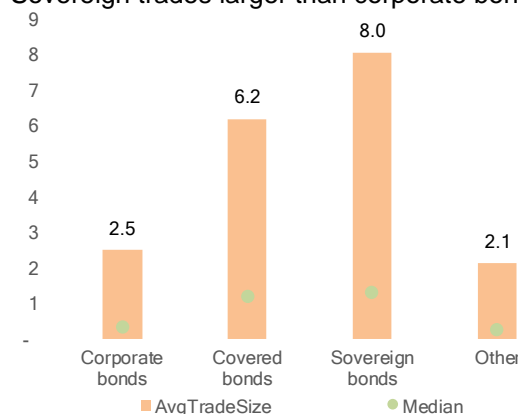
Corporate bonds had a monthly trading activity fluctuating between EUR 1.2tn and 1.9tn in 2019, with an annual trading volumes of EUR 18.3tn or 18% of bond trading. Non-EEA corporate bond trading volumes amounted to EUR 8.3tn or 45% of corporate bond trading in 2019, while representing 34% of corporate bonds available. Finally, with around 206,000 annual transactions and annual trading volume of EUR 1.3tn, covered

bonds represented only 1.3% of bond trading volumes in the EEA.

Compared to the equity market, the EEA bond market transactions are less frequent and larger. The **average trade size** for sovereign bonds was EUR 8.0mln, EUR 6.2mln for covered bonds and EUR 2.5mln for corporate bonds in 2019 (ASR-MiFID.23), compared to around EUR 14,000 for shares. While the number of transactions for sovereign and corporate bonds is low and comparable (9.7mln and 7.3mln respectively) (S.76), there is an important discrepancy in trading volumes (EUR 77.9tn and EUR 18.3tn), which remains consistent when considering the median trade size (EUR 1.3mln for sovereign bonds and EUR 340,000 for corporate bonds).

ASR-MiFID.23

Average trade size by instrument type
Sovereign trades larger than corporate bonds



Note: Average trade size and median transaction size of bonds in 2019 by bond type, EUR million. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

Maturity: shorter maturities for corporate bonds

Looking at the numbers and trading volumes of bonds by their **maturity**, the EEA fixed-income market appears to have preference for instruments with shorter maturity. Residual maturity analysis confirms that secondary market liquidity tends to be concentrated at the beginning and the end of the bond life.

In this report, we look at maturity of bonds at inception. This allows us to present a more precise picture of the lifecycle of bonds, especially regarding secondary market liquidity.

Maturity at inception is calculated as the difference between the maturity date and

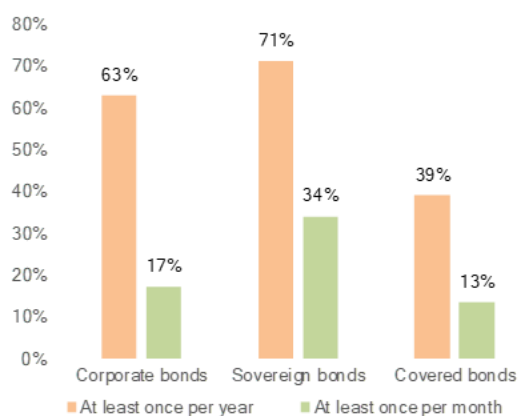
minimum start trading date.⁴³ For sovereign bonds a majority of instruments are issued with maturity at inception of less than 12 years (5,176 instruments or 60% of sovereign bonds). Trading volumes tend to be higher for sovereign bonds with shorter maturity.⁴⁴ Sovereign bonds with maturities of 4 to 8 years account for EUR 21.1tn (27% of sovereign trading volumes) and bonds with maturities of 8 to 12 years account for EUR 23.2tn (30% of sovereign trading volumes) (S.95).

Corporate bonds are issued with shorter maturities, with 63% of the instruments available having a maturity of less than 8 years (57,595 instruments). Similarly to sovereign bonds, the higher share of volumes in 2019 were for corporate bonds with a maturity of 4 to 8 years (EUR 6.1tn, 33% of corporate bonds trading volumes) and 8 to 12 years (EUR 3.95tn, 22%) (S.94).

Liquidity: majority of bonds not traded at all

ASR-MiFID.24

Secondary market liquidity by instrument type
Covered and corporate bonds show lower liquidity



Note: Share of bonds traded at least once per month and once per year in 2019 by instrument type, as % of bond type.
Sources: FIRDS, FITRS, ESMA.

The EEA bond market is characterised by **low secondary market liquidity**, with a monthly share of non-traded instruments averaging 63% for corporate bonds and 47% for sovereign bonds in 2019. This high proportion of non-traded instruments remained stable in 2019 (S.75).

Over the year, only 17% of corporate bonds available for trading were traded at least once a

month (ASR-MiFID.24). Liquidity is even lower for covered bonds, with only 39% of available instruments in 2019 traded during the year, and only 13% traded at least once a month. Overall, as observed on the equity market, the majority of non-traded bonds (71,173 instruments or 70% of non-traded bonds) were available for trading on MTFs.

Venues: bond trading concentrated in UK

The share of monthly trading volumes **off-exchange** fluctuated between 68% and 84% of total trading volumes in the EEA, with the highest percentages observed in the last quarter of 2019 (S.73). Corporate bonds are mostly traded over the counter (EUR 12.3tn, 67%) and on SIs (EUR 3.4tn, 19%) (S.77). In the same manner, 46% of sovereign bond trading volumes were over the counter (EUR 35.6tn), and 27% on SIs (EUR 21.1tn).

On-exchange trading volumes were higher in the first quarter of the year, reaching a peak in March (EUR 2.9tn), and declining afterwards. This compares to a monthly average of EUR 2tn or 24% of on-exchange volumes in 2019.

On-exchange trading volumes are concentrated in the UK, with more than 80% of on-exchange trading on UK trading venues in 2019 (EUR 19.7tn). French and Italian trading venues follow with EUR 2.1tn (or 8%) and EUR 1.4tn (6%) of volumes respectively (S.83). 34% of EEA bond TVs are based in the UK: one RM, 37 out of the 94 EEA bond-trading MTFs, and 22 of the 30 EEA OTFs.

The importance of the UK venues is confirmed by the fact that the 5 first trading venues or SI in terms of bond trading volumes are domiciled in the UK (S.86). In 2019 these venues were Barclays Bank (SI) (EUR 6.7tn), Bloomberg Trading Facility (MTF) (EUR 4.7tn), Tradeweb Europe (MTF) (EUR 4.3tn), Marketaxess Europe (MTF) (EUR 3.5tn), and BGC Brokers (OTF) (EUR 2.2tn).

⁴³ Due to the structure of the data, the minimum starting date is used as a proxy for the issuance date, since the latter is not available.

⁴⁴ To analyse original maturities, fixed-income instruments distribution by age was observed and divided into six quantiles.

Venues: high fragmentation

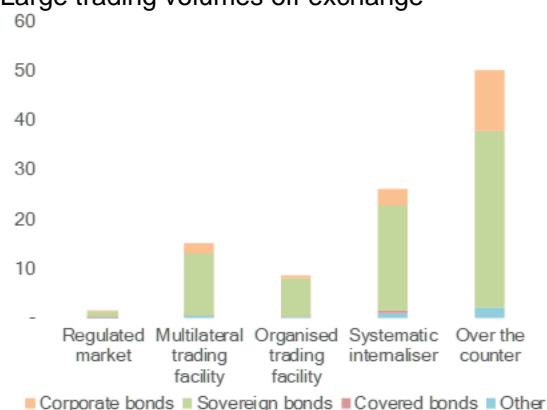
MTFs are the first type of trading venues in terms of number of instruments traded, with 94 bond trading MTFs in the EEA at the end of 2019, including 37 MTFs domiciled in the UK (40%). Total annual trading volumes on MTFs amounted to EUR 15tn (15% of total EEA trading volumes) (ASR-MiFID.25). MTF trading volumes are larger for sovereign bonds (16% of their annual volume) than for corporate (12%) or covered bonds (11%).

The first three largest MTF in terms of annual bond trading volumes concentrated 84% of MTF volumes: Bloomberg Trading Facility (EUR 4.7tn), Tradeweb Europe (EUR 4.3tn) and Market axess Europe (EUR 3.5tn) (S.88).

ASR-MiFID.25

Annual bond trading volumes by instrument and market type

Large trading volumes off exchange



Note: Annual trading volumes of bonds in 2019 by market type, EUR trillion. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

In 2019, OTFs were the second type of venue in the EEA in terms of bond trading volumes, with EUR 8.4tn (8%). There are 30 EEA OTFs with the majority domiciled in the UK (22). OTFs are mostly used for sovereign bond trading, with 92% of their traded volumes in sovereign bonds.

The largest OTFs were BGC brokers (EUR 2.2 tn, 27% of OTFs volumes), GFI Securities (EUR 1.6tn and 19%) and Tradition Securities and Futures (EUR 1.6tn and 18%) (S.90).

Finally, in 2019, there were 51 **RMs** in the EEA, with volumes representing only 1% of bond trading (EUR 1.2tn). Like OTFs, the majority of RMs is composed of sovereign bond trading (91% of RM trading volume). Given that RMs comprised 4.1mln or 21% of the total number of transactions, the average trade size on RMs

(~EUR 293,000 per transaction) was the lowest across venues.

MTS, a RM trading only sovereign bonds, was the largest RM in 2019 (EUR 490bn and 41% of RM bond trading), followed by Borsa Italiana (EUR 158bn), CME Amsterdam (EUR 154bn), and the London Stock Exchange (EUR 120bn). RM volumes are highly concentrated, since those four RMs accounted for 78% of the annual trading volumes on EEA RMs (S.87).

Trading: 76% off-exchange trading

OTC trading represented 50% of total bond trading in the EEA in the 2019, or EUR 50.4tn. With only 1.8mln transactions (10% of the number of transactions in 2019), OTC trade size is large, with an average trade size of EUR 27.4mln. Of the total number of bond available for trading, only 46,679 instruments were traded OTC or 27%, confirming the high proportion of non-traded bonds.

Similarly to equity instruments, the **growth of SI** volumes is also important for bond trading. With EUR 26.1tn bond trading volumes in 2019, bond trading on SI amounted to 26% of EEA bond trading in the EEA, totalling 4,6mln transactions (40% of the number of transactions). SI trade size was also very high, with an average of EUR 5.7mln.

With 102 bond trading SIs in the EEA, their main domiciles are the UK (40) and Germany (21). Barclays was the largest SI with annual trading volumes of EUR 6.7tn (26% of SI volumes). Other SI include BNP Paribas (EUR 2.2tn), SEB (EUR 1.6tn) and Royal Bank of Scotland (EUR 1.2tn) (S.89). These four SIs account for ~45% of SI volumes.

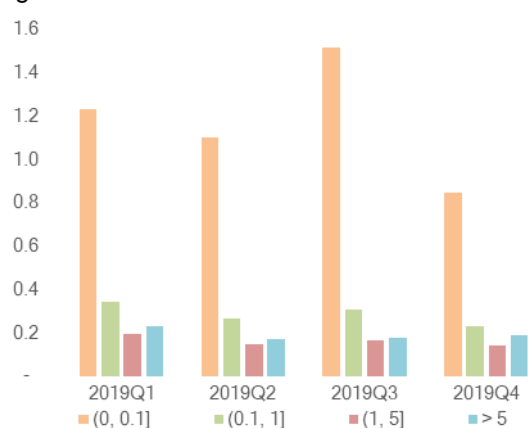
Trade size: OTC >150x bigger than on RM

The important discrepancy between on- and off-exchange **average trade sizes** is confirmed when comparing bond types. In 2019, sovereign bonds had the largest trade size, especially OTC, with an average of EUR 50.2mln, on OTFs (EUR 11.9mln) and on SIs (EUR 9.4mln). Trade size of sovereign bonds was lower on MTFs (EUR 4.4mln), and markedly lower on RMs (~EUR 330,000), 150 times less than the average trade size OTC (ASR.MiFID.26).

ASR-MiFID.26

Trade sizes of liquid bonds

High number of small size trades



Note: Number of transactions (millions) for liquid bonds, per trade size (EUR millions). (0,0.1] - size lower or equal to 100 thousand. (0.1,1] - size between 100 thousand and one million, (1, 5] - size between one and five millions, >5 - size higher than five millions.
Sources: FITRS, ESMA

In the same manner, corporate bonds average trade sizes were larger OTC in 2019 (EUR 13.2mln), on OTFs (EUR 2.0mln), or on SIs (EUR 1.8mln). The average trade size of corporate bonds on RMs was also 150 times less than the average OTC, with an average of around EUR 87,000.

On the contrary, covered bonds had the highest trade size on RMs (EUR 10.7mln) and OTC (EUR 9.7mln), with lower average trading size on SIs (EUR 6.3mln), OTFs (EUR 5.0mln) and MTFs (EUR 2.6mln).

Transaction sizes also depend on the liquidity of the instruments. For bonds classified as liquid less than 65% of bond trades are below or equal to EUR 100,000, and just over 10% exceed EUR 5mln. This pattern is broadly consistent throughout 2019.

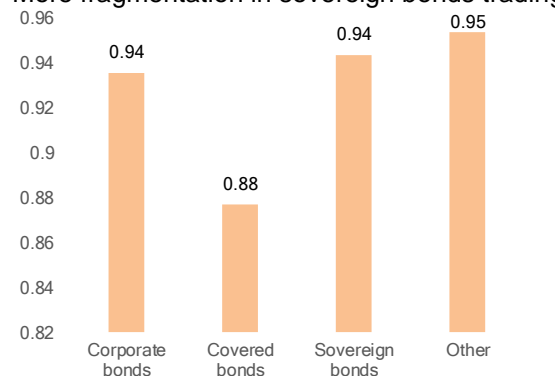
Trading: more concentrated on-exchange

Using the **Herfindahl–Hirschman Index** (HHI) as a proxy for market concentration, a measure of trading fragmentation (measured as $1 - \text{HHI}$) can be calculated at the instrument level. In 2019, sovereign bonds appear to have experienced higher level of trading fragmentation, meaning being traded across several venues in the EEA, compared to corporate bonds (ASR-MiFID.27).

ASR-MiFID.27

Concentration indicator by instrument type

More fragmentation in sovereign bonds trading



Note: Fragmentation index of trading volumes on EEA trading venues and systematic internalisers in 2019, by bond type. "Other" includes convertible bonds and other public bonds. Index calculated as $(1 - \text{HHI})$ and ranging from 0 (complete concentration) to 1 (fragmentation).
Sources: FIRDS, FITRS, ESMA

The HHI calculation done at the level of the market type indicates a larger fragmentation of trading on SIs in 2019, confirming that bond trading on SIs is spread across many venues, as highlighted in the previous paragraphs (S.80). The concentration of trading was higher on MTFs and RMs than on OTFs. Compared to equities, where the fragmentation levels are higher on RMs and MTFs, it confirms that bond trading is more concentrated on-exchange and more fragmented off-exchange.

Liquidity: bond trading activity under waivers

The extension of the pre-trade transparency framework by MiFID II/MiFIR to non-equity, including bond instruments, aims at increasing non-equity market transparency. As for equity instruments, pre-trade transparency waivers are available. For bond instruments, Article 9 of MiFIR provides such waivers for instance if the orders are large in scale (LIS) compared with normal market transaction size, or above a size specific to the instrument (SSTI).

A comprehensive analysis of the use of waivers has been published by ESMA in the consultation paper on the review of MiFIR transparency regime for non-equity instruments.⁴⁵ In this paper, the use of the different waivers for non-equity instruments bonds is assessed for the year 2018, finding that most requests received relate to LIS⁴⁶ waivers (38%).⁴⁷ The outcome of the analysis

⁴⁵ See [Review of MiFIR transparency regime for non-equity](#).

⁴⁶ Article 9(1)(a) of MiFIR.

⁴⁷ This analysis was carried out using a specific request for information from trading venues. Using data reported in FITRS alone does not provide an accurate picture of the

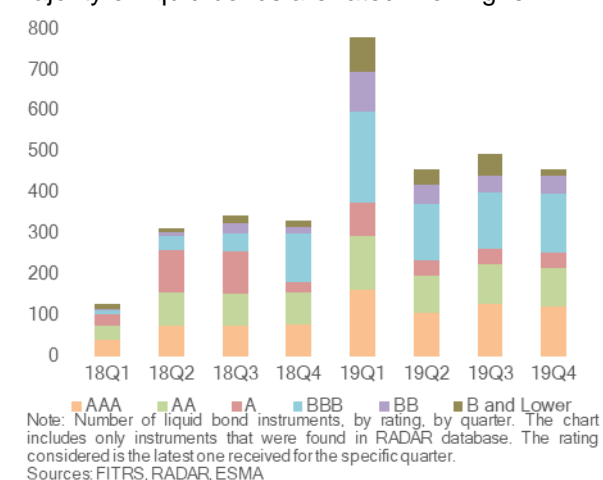
usage of waivers for bonds. Looking at the number and size of transactions carried out on-venue that are below the LIS thresholds, could lead to wrong conclusions, as pre-trade data would be used to estimate the pre-trade

showed that waivers are largely used, with the highest proportion of notional trading volume under waivers in sovereign bonds (50%).

Credit quality: liquid bonds with high ratings

The results of ESMA's quarterly liquidity assessment for bonds⁴⁸ allows for the analysis of the characteristics of liquid bonds. Most liquid bonds (45-80%) have a rating above A. It is worth noting that the share of BBB-rated bonds has been increasing during 2019. In contrast to the liquid instruments, around 75% of illiquid bonds have a rating below A (ASR-MiFID.28).

ASR-MiFID.28
Rating of liquid bonds
Majority of liquid bonds are rated A or higher



transparency, without considering other factors like partial execution.

⁴⁸ See [Latest published bond liquidity assessment](#).

Topical analysis

Calculation methodology

Summary

MiFID II/MiFIR data collections provide a vast source of information on European securities markets, and are further improving data availability on trading activity, market agents and infrastructures. The new requirements center around pre- and post-trade components, such as real-time market order publication or transaction reporting. However, a new and important feature is the creation of a unique database of reference data, that is equally available to all market participants. Taken together, these data allow ESMA to provide for the first time an overview of the financial instruments traded in Europe and their characteristics. This article presents the procedures used to prepare the indicators presented in this report, such as the scope of the covered instruments, the reconciliation of information between different data collections and the detection of outliers.

Introduction

In 2007, MiFID I created a first harmonised transaction reporting regime in Europe, with the aim of detecting and investigating potential market abuse. Following these steps, data reporting requirements under the new MiFID II/MiFIR framework are further improving data availability on trading activity, market agents and infrastructures. If the new requirements center around pre- and post-trade components, such as real-time market order publication or transaction reporting⁴⁹, a new and important feature is the creation of a unique database of reference data, that is equally available to all market participants.

The **Financial Instruments Reference Data System** (FIRDS)⁵⁰ is a data collection system set up and published daily by ESMA in cooperation with EU national competent authorities (NCAs), to support the scope of transaction reporting under MiFIR, as well as market abuse surveillance activities under the Market Abuse Regulation⁵¹.

Furthermore, for the purpose of the calculation of transparency and liquidity thresholds introduced by MiFID II/MiFIR, additional reference and quantitative data are being received and

published by ESMA through the **Financial Instruments Transparency System** (FITRS).⁵²

Within this framework, regulatory authorities have powers to grant exemptions (waivers) from the obligation for market operators and investment firms operating a trading venue to disclose pre-trade data, such as bid-offer quotes and order sizes.⁵³

Since the waivers are linked to the liquidity status of the instrument and its most relevant market in terms of liquidity, the data collected comprises not only reference data, but also daily volumes and trade sizes on European venues, for each instrument subject to transparency requirements.

This report is based on FIRDS data, for reference data, and on FITRS data for both reference and trading activity information. Given the different scope of reporting between the two systems, this article presents the data collection under both systems, and the procedures necessary to enable the analysis. The checking procedures, such as reconciliation of reference data and outlier detection, are explained in detail in this section.

Although the data collected under MiFID II/MiFIR also refers to structured finance products,

⁴⁹ Market order reporting implies that qualifying firms are required to publish their orders in real time to ensure a level playing field for pre-trade price information and price discovery. Transaction reporting refers to the trade information (such as the price, volume and time of execution) reported by qualifying firms for the transactions they conduct. These data collections are used to detect and investigate suspected market abuse or supervision purposes.

⁵⁰ See [Financial Reference Data System Register](#)

⁵¹ Article 4 of Regulation 596/2014.

⁵² See [Financial Instruments Transparency System Register](#).

⁵³ Commission Delegated Regulations 2017/567, 2017/587 and 2017/588, on transparency requirements for equity instruments, require the relevant competent authorities to calculate and publish information related to the liquidity classification, the transparency thresholds and tick size band assessment of equities. Commission Delegated Regulation 2017/583 on transparency requirements for non-equity instruments requires the relevant competent authorities to publish information on the liquidity classification of financial instruments, sizes large in scale compared to the standard market size and the size specific to the instrument.

emission allowances and derivatives, the instruments covered in the report are equities and bonds. The reason behind this focus relies on data quality limitations observed in the data for other non-equity instruments.⁵⁴

Data collection under MiFID II/MiFIR

Reference data are collected on all financial instruments within the scope of MiFID II. Under MiFIR requirements⁵⁵, trading venues (TVs) and systematic internalisers (SIs) must submit instrument reference data in a uniform format to competent authorities, which are required to transmit it to ESMA for subsequent publication on its website for public access. All national competent authorities, with the exception of Poland, have delegated the task of collecting data directly from TVs and SIs to ESMA.⁵⁶

The information received in FIRDS comprises the name, type, admission date and currency of the instrument, as well as periods and trading venues where they are available for trading, but the characteristics can be more extensive depending on the complexity of the instrument (maturity, underlying instrument or index, etc.).⁵⁷

TV reference data reporting consists of instruments that (i) are admitted to trading or traded on a TV, or (ii) for which a request for admission to trading is made, or (iii) which are traded for the first time. SI reporting refers to financial instruments (i) where the underlying instrument is a financial instrument traded on a TV, or (ii) where the underlying is an index, or a basket composed of instruments traded on a TV.

FITRS information covers equity and equity-like instruments (including shares, depositary receipts, certificates and ETFs)⁵⁸, and non-equity instruments (bonds, structured finance products, emission allowances and derivatives).⁵⁹ However, the scope of instruments covered by FITRS is narrower than the reference data received through FIRDS, excluding for example money market instruments (MMIs), pension or private equity funds.

Moreover, the difference between the two data collection lies in the scope of SI reporting. TVs, approved publication arrangements (APAs) and possible consolidated tape providers are expected to report transparency data. Regarding off-exchange trading (OTC and SI), these entities should submit trading activity data in FITRS for instruments traded on a trading venue (TOTV). Although MiFID does not provide a clear definition of TOTV, ESMA issued an opinion⁶⁰ in 2017 with further specification of this concept.

To ensure the reliability of the data, two main verifications are carried out: i) the correct classification of financial securities under the taxonomies of the different legal frameworks, and ii) the analyses of completeness and accuracy of the reported reference and trading activity data.

Instruments scope

Since the statistics displayed in this report are based on data received through FITRS and FIRDS, the instruments analysed must fall under the scope of the transparency requirements. Given the different scope of reporting between the two systems, the following data checks were carried out:

- instruments that fall outside the transparency scope have been flagged⁶¹ according to their Classification of Financial Instruments (CFI) code.
- Equities and bonds traded on repo markets are excluded, as they fall under FIRDS but not FITRS reporting.
- MMIs are excluded, using their CFI code and the maturity at issuance received in FITRS.
- Only instruments traded by TVs in FIRDS were considered. This means that instruments only traded on SIs are not covered in this report.
- Given the different scope of SI reporting between the two systems, all SIs that have reported trading activity data in FITRS for all instruments mentioned in point (iv) are included, independently of whether they submitted reference data in FIRDS.
- Since APAs are not required to submit reference data when reporting off-exchange

⁵⁴ The low level of data completeness and accuracy was the main factor driving the postponement of the first annual transparency publication for non-equity, from April 2019 to July 2020. See ESMA (2020), [Annual transparency for non-equity instruments register publication](#).

⁵⁵ Article 27 of Regulation 600/2014, and Commission Delegated Regulation 2017/585.

⁵⁶ Subsequently, data referring to Polish trading venues are not included in this report.

⁵⁷ The annex to Commission Delegated Regulation 2017/585 lists the 48 fields to be completed.

⁵⁸ Commission Delegated Regulation 2017/587 (RTS1) and Commission Delegated Regulation 2017/588.

⁵⁹ Commission Delegated Regulation 2017/583(RTS2).

⁶⁰ [ESMA opinion on OTC derivatives TOTV](#)

⁶¹ [The CFI code – MiFIR Identifier table](#) flags the instrument types that are outside the transparency scope.

trading activity in FITRS, FIRDS reference data is used. Reference data sent by SIs in FIRDS has not been used.

- The start and end date of trading used to record trading activity refers to the earliest start date and latest end date of trading⁶² submitted by TVs in FIRDS. Any other trading activity data received outside these dates have not been considered.

Furthermore, ESMA and NCAs regularly perform data quality checks on the data received and regularly liaise with reporting entities to request the necessary corrections.

Instrument classification

The complexity and variety of financial instruments and their different regulatory treatment in MiFID II/MiFIR, require a careful assessment of the quality of reference data. The first challenge for correctly classifying instruments is the treatment of inconsistent information across reporting entities and/or across systems.

More than 500 entities (TVs, SIs and APAs) regularly report data to two different reporting data systems (FIRDS, FITRS), often on the same securities, since many instruments are listed on several trading venues and SIs. The reference data used for instruments listed on several venues (which may have submitted inconsistent classifications), is the one submitted by a selected TV⁶³ under the supervision of the relevant competent authority⁶⁴ for the reported instrument.

Furthermore, taxonomies for classifying a financial instrument are not identical in FIRDS and FITRS. Instrument classification in this report relies on two values reported by TVs: the CFI code (RTS 23 field 3) reported in FIRDS and the MiFIR Identifier (RTS 1 field 4, RTS 2 field 3) from FITRS. To reduce the discrepancies among these taxonomies, ESMA validates the incoming data through mapping rules⁶⁵, not accepting the reported data for which the MiFIR Identifier is not consistent with the CFI. However, this validation rule at the data intake stage is not enough to ensure consistency of the instrument classification. For this report, additional checks

have been performed and data that was inconsistently reported was excluded.

LEI misreporting

Trading venues and SIs are obliged to identify each issuer of a financial instrument traded on their systems with a LEI code when making daily data submissions to FIRDS.⁶⁶ Accurate reporting of the LEI of the issuer of a financial instrument is a key element of data quality.

In January 2018, a six-month temporary period was agreed by ESMA and NCAs, where investment firms could provide investment services to their clients with no LEI and TVs could report their own LEI instead of the LEI of non-EU issuers. When this period ended in June 2018, NCAs started to apply their supervisory powers regarding compliance with the LEI requirements.

However, at the beginning of 2020, 1.23% of all instruments reported in FIRDS were still using the LEI of the TV instead of the issuer LEI. Furthermore, a large share of these instruments has a non-EEA ISIN code, which can result in a miscategorisation of their country of issuance, since the TV LEI is domiciled in the EEA.

This misreporting has an impact for the analysis in this report. For bonds, instruments reported with a TV LEI instead of the LEI of the issuer represented a significant share of issued amount (~30%), while a small share of total trading volumes (4%). On the contrary, for equities, these kinds of instruments accounted for only 9% of total market capitalisation, with trading volumes being ~1% of total trading in equity and equity-like instruments.

To give an accurate representation of securities that are actively traded in the EEA, all instruments having a TV LEI instead of an issuer LEI and never traded during the year were excluded from the analysis.

Data completeness

Since early 2018, ESMA assesses the completeness of data on equity and equity like instruments in both FITRS and double volume cap (DVC) systems. ESMA is also performing completeness analyses for bond instruments, for the purpose of the quarterly bond liquidity

⁶² RTS23 field 11 and field 12.

⁶³ The same decision is applied for both FIRDS and FITRS systems, for the publication of reference and transparency data.

⁶⁴ As defined by RTS 22 article 16.

⁶⁵ [The CFI code – MiFIR Identifier table](#) provides the mapping between the two taxonomies.

⁶⁶ Article 3(2) of RTS 23.

assessment and SI regime. In order to ensure adequate data quality for these publications, ESMA is applying a minimum completeness level that an instrument must fulfil in order to be considered suitable for publication in the quarterly bond liquidity assessment.⁶⁷

ESMA publishes on a regular basis completeness indicators for equity and bond instruments based on TV data⁶⁸, with completeness levels now regularly above 95%.⁶⁹ Given the high levels of completeness on TVs data, for the indicators presented in this report, no instrument has been excluded for lack of completeness of the data.

Outlier identification and treatment

In this section we describe the steps taken to identify outliers in terms of trading volumes and how these outliers are treated.

For **equity instruments**, the applied working hypothesis is that daily OTC trading volume should be lower than the total on-exchange volume for that respective month. A record is flagged as a potential outlier to the supervising NCA of the reporting entity if it fulfils the following two conditions:

- The daily OTC volume is more than 3.5 times higher than the total TV volume for that respective month⁷⁰, and
- the daily OTC volume exceeds the monthly TV volume by at least EUR 3m.

For **bonds**, since OTC trading remains high, the methodology aims at detecting misreporting for bonds not denominated in Euro related to currency conversion issues. To implement the test, the monthly average trade size is compared with the total issued nominal amount. A record is flagged as a potential outlier to the NCA supervising the reporting entity if the following conditions are met:

- The monthly average trade size (i.e. monthly trading activity divided by the monthly number of transactions) exceeds the total issued nominal amount, and
- The total issued nominal amount reported to FIRDS is bigger than EUR 10,000.

In this report, all outliers detected by the previously described methods have been excluded.

Finally, ad-hoc data quality checks have been performed, resulting in the exclusion of selected records from the data sample analysed. These included a small number of ISINs, reported by specific entities, whose trading volumes were abnormally high with respect to the small number of transactions. Also, the total issued nominal amount of a small group of non-EEA bond instruments was extremely high, sometimes larger than the debt of their respective country of issuance. These ISINs, when reported by specific entities, were also excluded from the sample (ASR-MiFID.T1). Finally, a small number of bond instruments were miscategorised, reporting an erroneous bond type.

ASR-MiFID.T.1

Number of outliers instruments excluded from the sample

	Raw	Outliers removed	Outliers removed manually
Equities	3,999,260	7,010	1,298
Bonds	9,588,217	14,261	282,305

Note: Number of observations considered. 'Raw' indicates the total number records for the granularity of ISIN, MIC, month. The daily data received in the system has been aggregated monthly. 'Outliers removed' refers to number of records removed using outlier methodology outlined in the text. 'Outliers removed manually' indicates the number of unique instruments removed due to ad-hoc data quality checks.

Sources: FITRS, FIRDS, ESMA.

⁶⁷ [Latest published bond liquidity assessment.](#)

⁶⁸ See completeness indicators on [ESMA website](#).

⁶⁹ The completeness indicators refer only to TV activity, not considering data for SI and OTC. From a technical point of view, completeness checks for these data are not

feasible, given the insufficient information collected to perform this analysis.

⁷⁰ The factor of 3.5 applies to 2019 data; for 2018 data a factor of 3 is applied.

Transparency calculations

Summary

Since 2018, ESMA publishes various reports to support compliance by market participants with the MiFID II/MiFIR transparency regime, including the transparency calculations for new equity and bond instruments and the quarterly liquidity assessment of bonds. For the first time, this article makes use of transparency calculations data to present the characteristics of liquid equity and bond instruments. In 2019, 2,105 equity instruments (1,356 shares and 732 ETFs) were deemed as liquid, a 24% growth from 2018. 90% of EEA liquid shares were issued by medium-large and large issuers, mostly from the financial and consumers goods sector (23 and 22% of liquid shares respectively). Furthermore, 595 bonds were considered liquid at the end of 2019, out of which 61% were sovereign and 19% corporate. A simulation of the criterion used to assess bond liquidity reveals that the low number of liquid bonds results partly from the infrequent trading in bond instruments.

Background

The MiFID II/R reporting regime enlarged the scope of pre- and post-trade transparency requirements from only a limited number of equity instruments to an enlarged scope of equities, as well as bonds, structured finance products, emission allowances and derivatives.

Under the **pre-trade transparency requirements**, trading venues (TVs) and systematic internalisers (SIs) need to provide public current bid and offer prices and the depth of trading interests at those prices which are advertised through their systems for equity and bond instruments, ensuring a level playing field for pre-trade price information and price discovery, unless a waiver is applied.

The MiFID II/MiFIR framework enables national competent authorities (NCAs) to waive the obligation for market operators and investment firms operating a TV to make public pre-trade information. For equity instruments, there are four possible **waivers**:

- Reference Price Waiver (RPW): For systems matching orders based on the midpoint within the current bid and offer generated by other systems, mainly the TV where that instrument was first admitted to trading or the most relevant market in terms of liquidity;
- Negotiated Trade Waiver (NTW): For systems that formalise negotiated transactions;
- Large in Scale (LIS): For orders that are large in scale compared with normal market size, avoiding a negative impacting on the market;
- Order Management Facility (OMF): For orders held in an order management facility, maintained by a TV or an MTF, pending those orders being disclosed to the market.

For bonds and other non-equity instruments, waivers can be applied in the following cases:

- Large in Scale (LIS);
- Order Management Facility (OMF);
- Illiquidity: For instruments which are not deemed to have a liquid market;
- Size Specific to Instrument (SSTI): For actionable indications of interest in request-for-quote and voice trading systems that are above a SSTI;
- Exchange for physical (EFP): For orders for the purpose of executing a transaction in a financial instrument contingent on the execution of a transaction in an underlying physical asset;
- Package orders: For packaged orders where at least one component is above LIS or does not have a liquid market, provided that the package order does not have a liquid market as a whole or where all components are executed on a request-for-quote or voice trading system and are above SSTI.

Under the **post-trade transparency requirements**, market operators and investment firms operating a TV need to make public the price, volume and time of transactions of equity and non-equity instruments traded on a TV. Similar requirements exist for transactions concluded by investment firms OTC. The details of the transactions must be made public as close to real-time as is technically possible, and in any case within 15 minutes after the execution of the transaction for the first three years of application of MiFIR and within 5 minutes thereafter.

Here, deferrals relate to the timing of publication of this information. The deferral period can range from 60 minutes to 120 minutes, end of trading day or the on the second working day after the transaction (T+2), or longer in case of

supplementary deferrals granted by the competent authority, depending on the type or size of the transaction. Specifically, transactions may benefit from deferred publication in the following cases:

For equity transactions,

- LIS compared with normal market size;

For non-equity transactions,

- LIS compared with normal market size;
- related to a financial instrument or a class of instruments for which there is not a liquid market;
- above a SSTI or the class of instruments which would expose liquidity providers to undue risk and considers whether the relevant market participants are retail or wholesale investors.

In the same manner, reference data is needed to determine who reports the trade for the specific instrument involved, and whether it qualifies for deferral. This depends on the instrument, the counterparties involved, buyer or seller status, or whether the transaction qualifies for publication deferral.

To ensure a smooth transition to meeting their responsibilities under the new regime, ESMA has published the Transitional Transparency Calculations⁷¹ for equity and non-equity instruments from July 2017 onwards. The provision of this data is meant to facilitate compliance with the requirements of MiFID II/MiFIR by market participants and supervisors. In addition, ESMA made use of these data to provide an overview of the EU market for Exchange-Traded-Derivatives.⁷²

Since 2018, to support the classification of instruments in terms of liquidity, ESMA publishes regular transparency calculation reports under the supplementing Commission Delegated Regulation (EU) 2017/567. These reports cover transparency calculations for new equity and bond instruments; systematic internaliser calculations for equity, equity-like instruments and bonds; yearly transparency calculations for non-equity and equity instruments; and quarterly liquidity assessment of bonds.

ESMA's transparency calculations are based on the data provided to the Financial Instruments Reference Data System (FIRDS) and the Financial Instruments Transparency System (FITRS) by TVs and arranged publication arrangements (APAs).⁷³ For the first time, this article makes use of transparency calculations data to present the characteristics of liquid equity and bond instruments.

Scope of the article

Coverage: This article focuses on MiFID II equity and equity-like instruments and bond instruments that:

- were publicly available for trading on EEA TVs, and
- were included in either ESMA's annual transparency calculations for equity and equity-like instruments or ESMA's quarterly liquidity assessment for bonds.⁷⁴

Measurement: All statistics are based on FIRDS and FITRS data. For some indicators, additional proprietary data and commercial data are used.

Reporting period: This article covers the calendar years 2018 and 2019.

MiFID II/MiFIR liquidity: It is widely recognised that liquidity is not directly observed or uniquely defined and cannot be captured by one single metric. While the existing literature identifies the following dimensions of market liquidity: tightness, depth, breadth, immediacy and resilience, the conditions that a financial instrument needs to fulfil in order to be considered liquid under MiFID II/MiFIR are somewhat different.

An equity or equity-like instrument is considered liquid when it satisfies certain conditions regarding free float⁷⁵, average daily number of transactions, average daily turnover and whether it is traded on a daily basis.⁷⁶ Similarly, for bonds the definition of a liquid instrument is based on measures related to average daily notional amount and number of trades as well as the

⁷¹ [Transitional Transparency Calculations](#).

⁷² [Trends, Risks, and Vulnerabilities \(TRV\) Report No. 1, 2018](#)

⁷³ See Calculation methodology article.

⁷⁴ Instruments having Poland as relevant competent authority are excluded from this article as Poland is a non-

delegating country and ESMA is therefore not performing these calculations for those instruments.

⁷⁵ For other instruments, the free float is replaced by market capitalization (for depositary receipts), number of units (for exchange-traded funds) and issuance size (for certificates).

⁷⁶ See CDR 2017/567 Articles 1 to 5.

percentage of days traded over the period considered.⁷⁷

Equity transparency

MiFID II/MiFIR builds on the MiFID I pre-trade and post-trade transparency requirements and introduced a tick-size regime to orders in shares, depositary receipts and ETFs. To assist market participants in determining the minimum tick size⁷⁸ and whether pre-trade and post-trade transparency requirements can be waived⁷⁹, ESMA is publishing the results of the different types of transparency calculations for equity and equity-like instruments in its registers. These calculations include:

- the liquidity assessment as per Articles 1 to 5 of CDR 2017/567,
- the determination of the most relevant market in terms of liquidity as per Article 4 of CDR 2017/587,
- the determination of the average daily turnover relevant for the determination of the pre-trade and post-trade LIS thresholds,
- the determination of the average value of transactions and the related standard market size (SMS), and
- the determination of the average daily number of transactions on the most relevant market in terms of liquidity relevant for the determination of the tick-size regime.

The universe of equity and equity-like instruments for which these calculations are performed is determined by (i) the instrument classification in FIRDS and FITRS, (ii) the first admission date, and (iii) the level of completeness of the submitted data.

Liquidity: assessment parameters

The Articles 1 to 5 of CDR 2017/567 lay down the conditions that each equity or equity-like instrument must fulfil in order to be considered liquid under MiFID II. The specific criteria to be fulfilled depend on the instrument type reported to FITRS and the type of calculations. The criteria that an instrument needs to meet in order to be

considered liquid under the annual equity transparency calculations are summarised in table ASR-MiFID.T.3.

ASR-MiFID.T.3

Liquidity assessment parameters under the annual equity transparency calculations by instrument type

Conditions	Shares	Depositary receipts	ETFs	Certificates
Trading frequency	daily	daily	daily	daily
Free float (in EUR, except ETFs)	<ul style="list-style-type: none"> ≥ 100mln for shares admitted to trading on a RM, or ≥ 200mln for shares only traded on MTFs 	≥ 100m	≥ 100 units	≥ 1mln
Average daily nber of transactions	≥ 250	≥ 250	≥ 10	≥ 20
Average daily turnover, in EUR	≥ 1mln	≥ 1mln	≥ 500,000	≥ 500,000

Equity: number of liquid instruments

In 2019, 2,278 equity and equity-like instruments were considered liquid by the annual ESMA transparency calculations. Out of these instruments, 2,105 have an issuer located in the EEA (i.e. 92%), whilst the remaining 173 instruments have a non-EEA issuer. Given the predominance of EEA issuers in liquid equity and equity-like instruments, the remainder of the section will focus solely on EEA instruments.

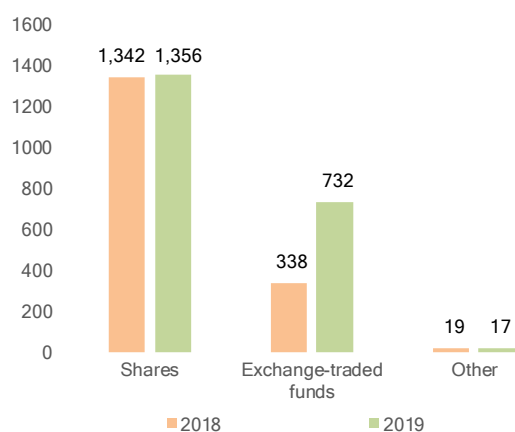
The number of liquid equity and equity-like instruments with an EEA issuer increased by 24% in 2019 compared to 2018. The number of liquid shares was broadly stable, and shares continue to account for the vast majority of liquid instruments in 2019 (64%). The growth observed in 2019 was predominantly driven by ETFs, with the number of liquid ETFs more than doubling between 2018 and 2019.

⁷⁷ See RTS2 Annex III tables 2.1 and 2.2.

⁷⁸ Under RTS 11, the minimum tick size applicable to shares and depositary receipts is based on (i) the average daily number of transactions on the most relevant market in terms of liquidity, and (ii) the price of the order. The minimum tick size for ETFs is based on their price.

⁷⁹ Pre-trade transparency requirements may be waived for transactions, whose size is above the LIS thresholds, and SIs have pre-trade transparency obligation for instrument traded on a TV which are liquid and when dealing with orders up to the SMS. The publication of post-trade information can be deferred for transactions whose size is above the LIS thresholds.

ASR-MiFID.29
Number of liquid instruments in EEA by instrument type
Number of liquid ETFs doubled in 2019

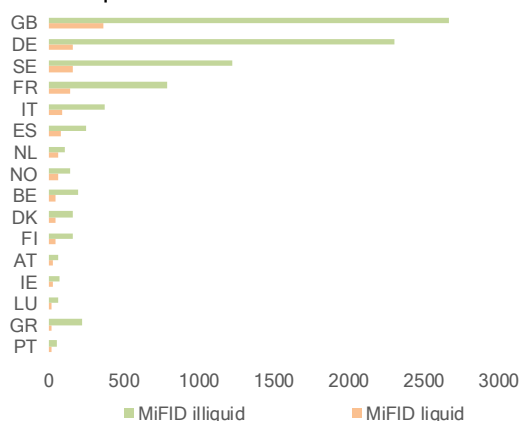


Note: Number of liquid instruments by instrument type.
Sources: FIRDS, FITRS, ESMA

Characteristics of liquid shares

In 2019, 51% of EEA liquid shares were issued in the UK (27%), Germany (12%) and Sweden (12%). These countries were also the predominant domicile of share issuers, with the UK alone accounting for more than a quarter of all EEA shares (ASR-MiFID.30).

ASR-MiFID.30
Liquid and illiquid shares in 2019 by EEA issuer country
UK, DE and SE issuers account for more than half of liquid shares

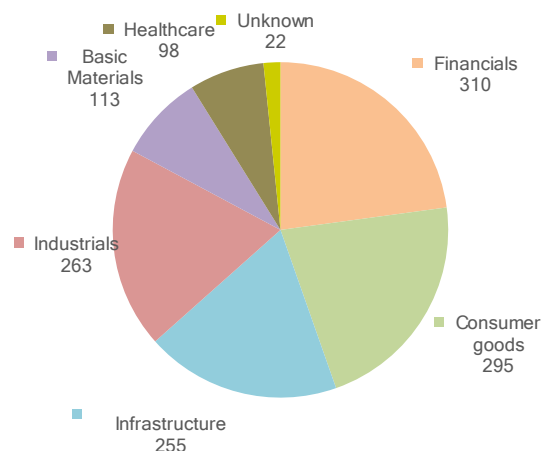


Note: Number of liquid and illiquid shares in 2019 by EEA issuer country. Countries with less than 10 liquid shares are not presented.
Sources: FIRDS, FITRS, ESMA

Splitting liquid shares by sector of activity shows that financials and consumer goods were the most represented sectors, accounting for 23%

and 22% respectively, followed by infrastructure and industrials (each 19%) (ASR-MiFID.31).

ASR-MiFID.31
Number of liquid EEA shares by sector of activity
Financial and consumer goods represent 45% of liquid shares



Note: Number of liquid EEA shares in 2019 by sector of activity.
Sources: FIRDS, FITRS, Refinitiv, ESMA

In terms of market capitalisation, while SME issuers⁸⁰ represented two-thirds of all EEA shares, only three SME shares issued were categorised as liquid in 2019. In contrast, issuers with a market capitalisation of more than EUR 20bn, representing 1% of all EEA shares, accounted for 10% of all the liquid EEA shares. Overall, 90% of liquid shares were issued by medium-large and large issuers, representing around 30% of all EEA shares (ASR-MiFID.32).

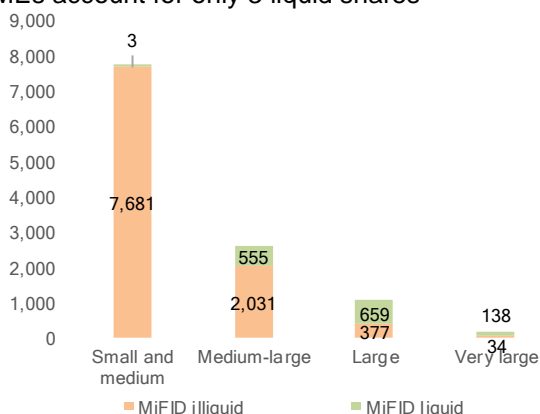
⁸⁰ Market capitalisation classification is defined as follows: "Small and medium" = EUR 0 to 200mn, "Medium-large"

= EUR 200mn to 2bn, "Large" = EUR 2bn to 20bn, and "Very large" more than EUR 20bn.

ASR-MiFID.32

Number of EEA shares in 2019 by market capitalisation and liquidity status

SMEs account for only 3 liquid shares



Note: Number of EEA shares available for trading in 2019 by market capitalisation and liquidity status. "Small and medium" = 0 to 200mn, "Medium-large" = 200mn to 2bn, "Large" = 2bn to 20bn, and "Very large" = more than 20bn
Sources: FIRDS, FITRS, ESMA

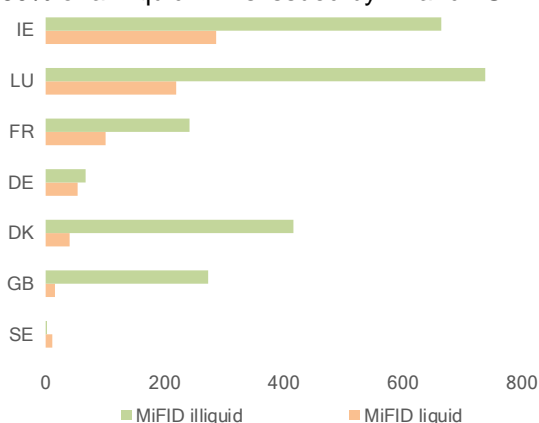
Characteristics of liquid ETFs

Around 60% of EEA ETFs were issued in Ireland and Luxembourg, and these two countries also accounted for 69% of all liquid ETFs in 2019. However, only 30% of ETFs issued in Ireland, and 23% of ETFs issued in Luxembourg are liquid. In contrast, 45% of ETFs issued by Germany and 79% of ETFs issued by Sweden were deemed liquid in 2019 (ASR-MiFID 33).

ASR-MiFID.33

Number of liquid and illiquid ETFs in 2019 by EEA issuer country

60% of all liquid ETFs issued by IE and LU



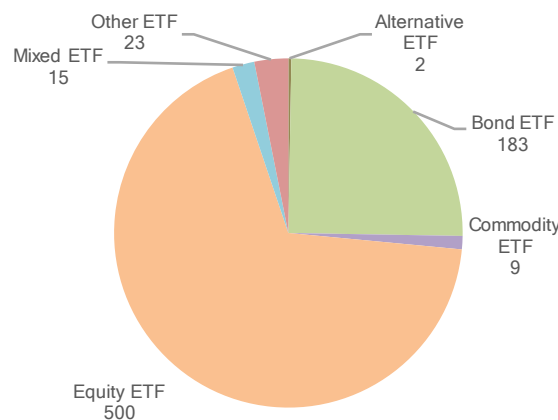
Note: Number of liquid and illiquid ETFs in 2019 by issuer country. Countries with less than 10 liquid ETFs are not presented.
Sources: FIRDS, FITRS, ESMA

Splitting liquid ETFs by underlying assets shows that more than two-thirds of liquid ETFs in 2019 were equity ETFs, followed by bond ETFs (25%) and other ETFs (3%) (ASR-MiFID.36). Compared

to 2018, the share of liquid bond ETFs slightly increased, from 16 to 25%.

ASR-MiFID.34

Number of liquid EEA ETFs in 2019 by underlying asset
Equity ETFs represent more than two-thirds of all liquid ETFs



Note: Number of liquid EEA ETFs by underlying asset class in 2019
Sources: FIRDS, FITRS, Refinitiv, ESMA

Bond transparency

In terms of post-trade transparency, MiFID II requires real-time publication of the price and quantity of trades in liquid bonds. It is possible to defer the publication of post-trade reports if the instrument does not have a liquid market, or if the transaction size is above LIS thresholds, or above a SSTI. In this respect, in order to assist market participants, ESMA publishes, for bond instruments, quarterly liquidity assessments and annual transparency calculations of the LIS and SSTI thresholds at bond type level.

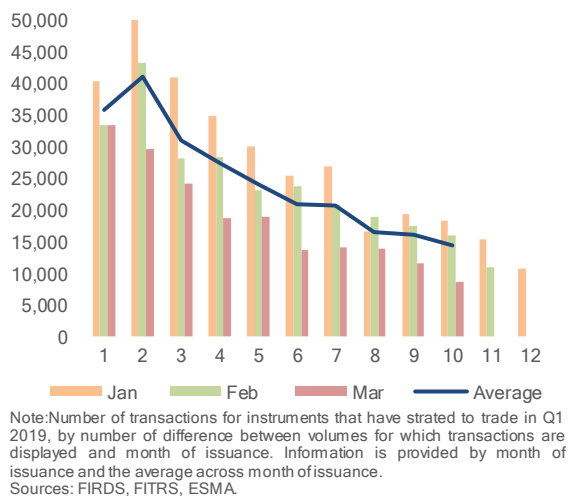
This section covers an overview of ESMA's published results for the quarterly liquidity assessment, including the characteristics of liquid bonds and technical application of the RTS 2 parameters.

Bonds: number of liquid instruments

Unlike equity instruments, many bonds have a short-term liquidity span, with high trading frequency shortly after issuance followed by decreasing trading frequency throughout its life cycle. This behaviour is also supported by looking at the evolution of the number of transactions for instruments issued during the first three months of 2019 (ASR-MiFID.35). Overall, the highest number of trades can be observed in the first two

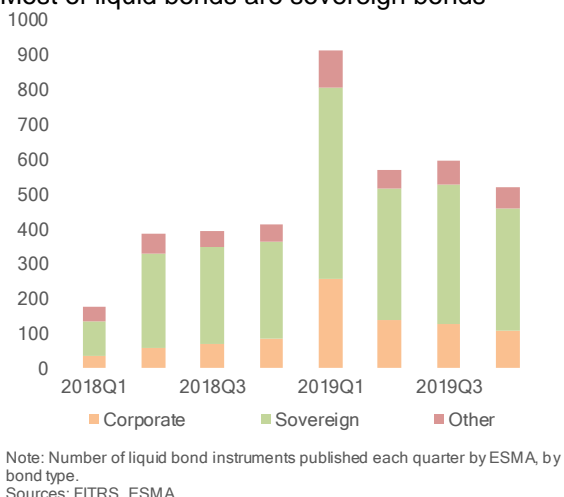
months after the bond was issued, followed by a decreasing trend throughout the year.

ASR-MiFID.35
Number of transactions for newly issued bonds
High trading frequency after issuance



With these characteristics in mind, the Regulation lays down two methodologies for determining the liquidity of a bond instrument at different points in time. The first refers to newly issued bonds, for which the liquidity criteria are based on the issuance size (RTS 2 Annex III table 2.2). The second is based on a quarterly assessment of quantitative liquidity criteria, which includes the daily average trading activity (trades and notional amount) and the percentage of days traded during the quarter.

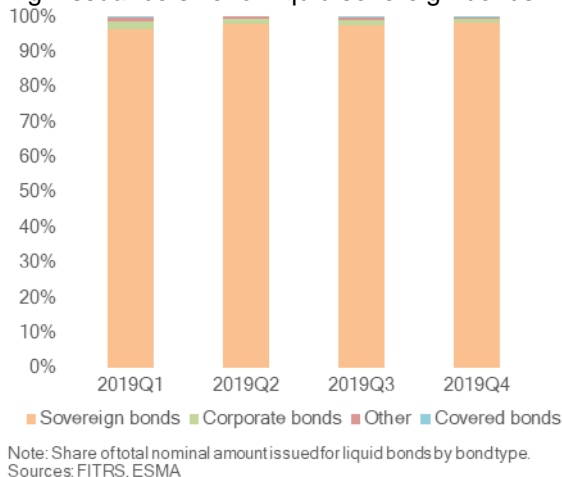
ASR-MiFID.36
Number of liquid bonds
Most of liquid bonds are sovereign bonds



The first bond liquidity assessment has been published by ESMA in May 2018, and is made available each quarter since then. Although an increase in liquid bonds has been observed since 2018, with only 175 instruments deemed as liquid in 1Q18, in 2019 still only a minority of bonds are

assessed as liquid (ASR-MiFID.36). After a peak in the first quarter of 2019, the number of liquid bonds throughout this year was rather stable, fluctuating between 519 and 595 instruments per quarter. The majority of liquid bonds are sovereign bonds (61% in 4Q19) and corporate bonds (19%).

ASR-MiFID.37
Share of issued amount of liquid bonds, by type
High issuance size for liquid sovereign bonds



The nominal amount issued by liquid bonds with EEA issuers is EUR 7.6tn in 4Q19, with sovereign bonds accounting for 98%. Non-EEA issued debt securities, that have been assessed as liquid, make up for a total issued amount of EUR 4.8tn in 4Q19.

Bonds: liquidity assessment parameters

The quarterly liquidity assessment for bond instruments (except ETCs and ETNs) is currently performed on the basis of three parameters. If a bond fulfils those three conditions, it will be considered liquid:

- average daily notional amount greater or equal to EUR 100,000;
- average daily number of trades greater or equal to 15;
- percentage of days traded over the period considered greater or equal to 80%.

To understand the impact of each criteria on the number of bonds deemed as liquid, a simulation of the process is proposed. Although the final results displayed might slightly differ from the ones published every quarter, due to changes in the underlying data, it still serves as a good proxy for understanding the process. The cascade analysis of each regulatory criteria is displayed in the table below (ASR-MiFID.T.3)

ASR-MiFID.T.3

Bond liquidity assessment

Bond instruments not traded on a systematic basis

	1Q19	2Q19	3Q19	4Q19
Total number of bonds	417,288	315,615	333,459	334,610
Criterion 1	23,824	23,641	23,867	24,596
Criterion 1&2	1,092	865	865	715
Criterion 1&2&3	1,043	828	837	666
Criterion 3	3,684	3,033	3,306	2,529

Note: Number of instruments passing each of the RTS2 liquidity criteria as follows: criterion 1 - average daily notional amount > EUR 100,000; criterion 2 - average daily number of trades > 15; criterion 3 - percentage of days traded over the period considered > 80%.
Sources: FITRS, FIRDS, ESMA

Around 30% of bonds for which at least one trade has been submitted in 2019 pass the first criteria of having an average daily notional amount equal or greater to EUR 100,000. However, a considerable number of bonds are excluded when applying the second criteria, i.e. the average daily number of trades. Between 0.9%

and 1.4% instruments remain after applying the average daily number of trades criteria.

The last criteria referring to the percentage of days traded on an instrument confirms that only very few bonds have a high trading frequency during their life cycle (between 3.2% and 4.6%).

The same simulation was also used for the consultation paper on the review of MiFIR transparency regime for non-equity instruments, where the impact of changing criteria thresholds was analysed. For instance, changing the average daily number of trades parameter (criteria 2) from 15 to 10 would increase the number of liquid bonds by about 50%. So, although the overall share of liquid bonds would remain modest, it provides an indication that the low number of liquid bonds is partly due to the trading infrequency of bond instruments.

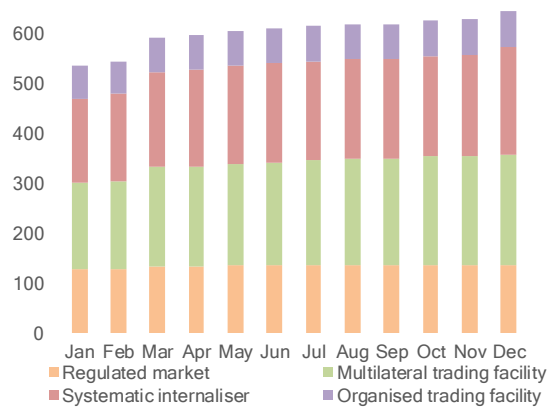
Statistics

Securities markets⁸¹

Securities markets overview

ASR-MiFID-S.1

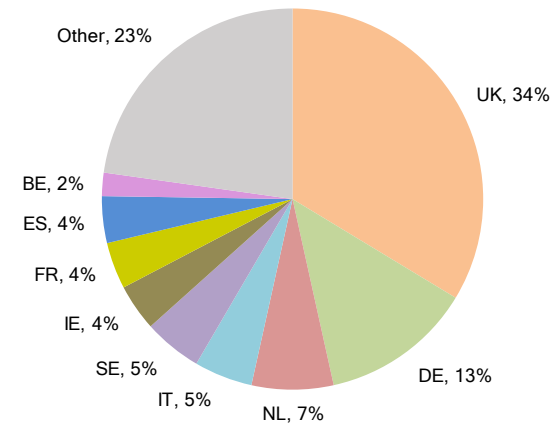
Number of EEA trading venues
700



Note: Number of EEA trading venues in 2019 by type.
Sources: ESMA registers.

ASR-MiFID-S.2

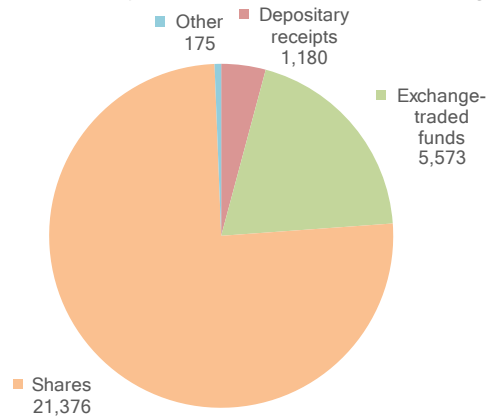
Number of EEA trading venues by domicile



Note: Share of EEA trading venues in 2019 by country.
Sources: ESMA registers.

ASR-MiFID-S.3

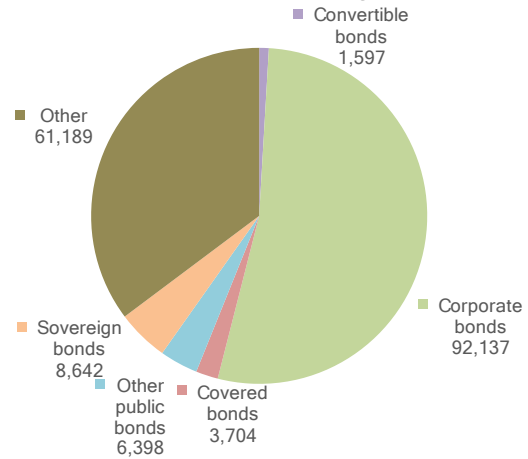
Number of equity instruments available for trading



Note: Total number of equity and equity-like instruments available for trading in 2019.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.4

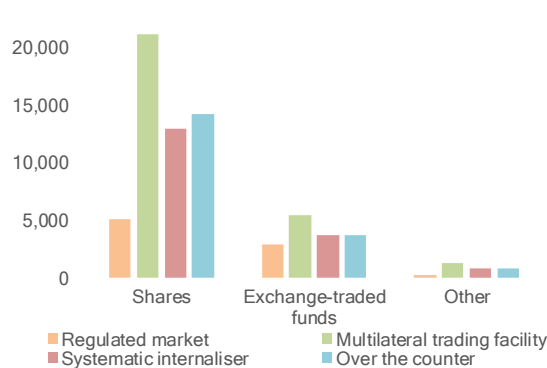
Number of bonds available for trading



Note: Total number of bonds available for trading in 2019.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.5

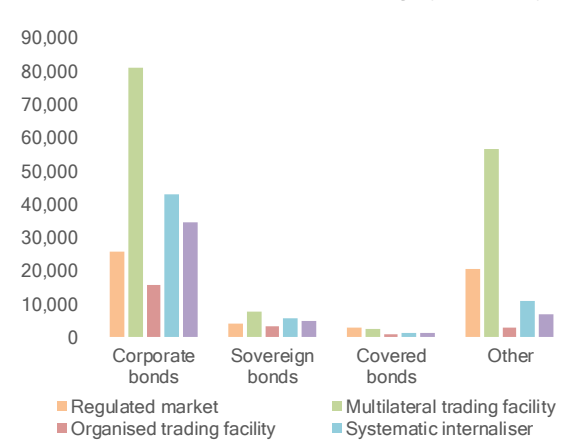
Number of equity instruments available for trading by market type
25,000



Note: Number of equity and equity-like instruments available for trading in 2019, by market type and instrument. Instruments may be available for trading on more than one market type.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.6

Number of bonds available for trading by market type

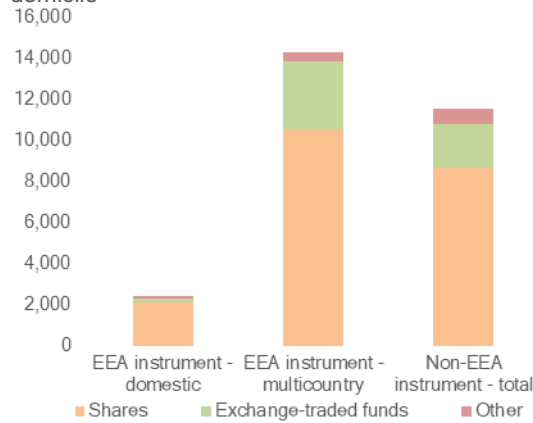


Note: Number of bonds available for trading in 2019, by market type and instrument. Instruments may be available for trading on more than one market type.
Sources: FIRDS, FITRS, ESMA

⁸¹ The analysis is based on reference and transparency data for equity instruments received up to 8 July 2020 and for bond instruments received up to 10 February 2020. Any subsequent corrections by reporting entities on historical figures have not been considered. In the next edition of the Annual Statistical Report on EU securities markets relevant changes will be taken into account.

ASR-MiFID-S.7

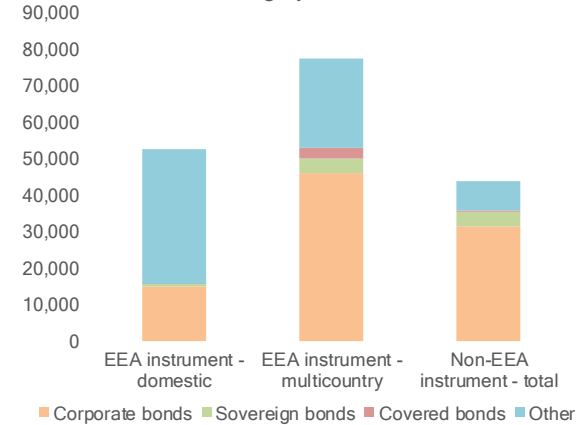
Number of equity instruments trading by issuer domicile



Note: Number of equity and equity-like instruments traded available for trading domestically and cross-border (by comparing issuer country and trading venue domicile) in 2019.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.8

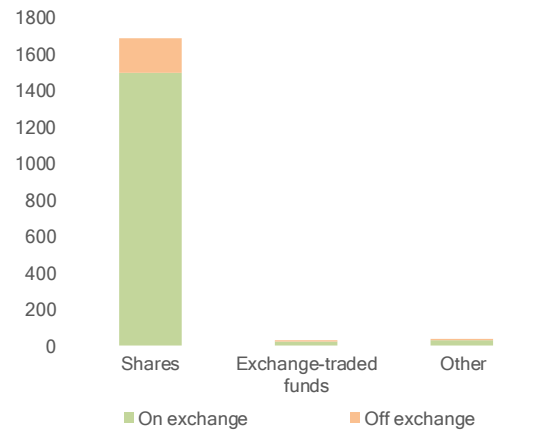
Number of bonds trading by issuer domicile



Note: Number of bonds available for trading domestically and cross-border (by comparing issuer country and trading venue domicile) in 2019.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.9

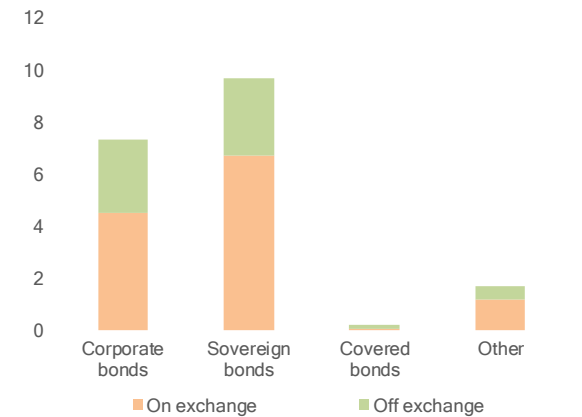
Number of transactions on and off exchange in equity instruments



Note: Number of transactions on and off exchange in equity and equity-like instruments in 2019 by instrument type, in million.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.10

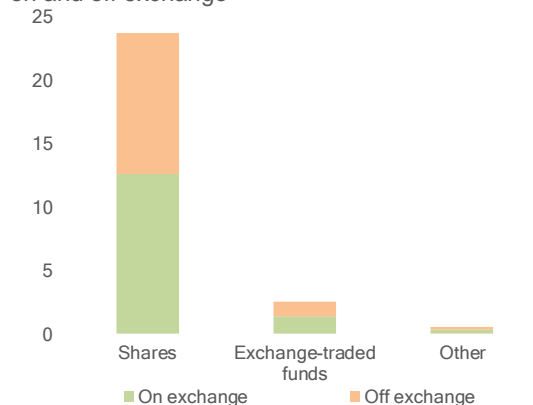
Number of transactions on and off exchange in bonds



Note: Number of transactions on and off exchange in bonds in 2019 by instruments type, in million. "Other" includes convertible bonds and other public bonds.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.11

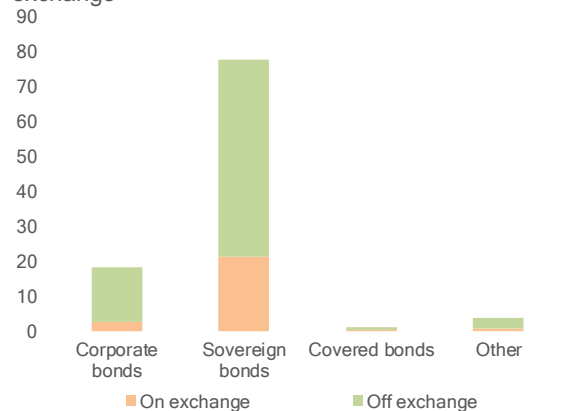
Annual trading volumes of equity instruments traded on and off exchange



Note: Annual trading volumes of equity and equity-like instruments traded on and off exchange (including through systematic internalisers) in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.12

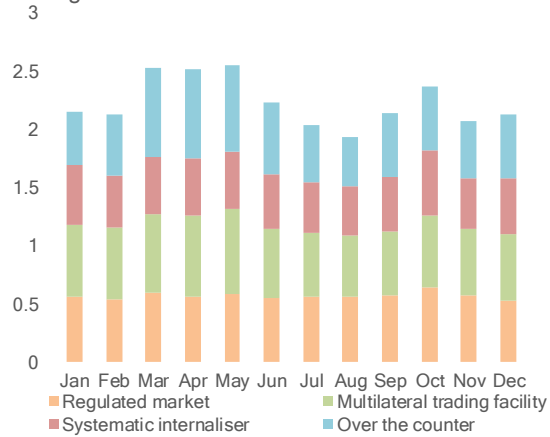
Annual trading volumes of bonds traded on and off exchange



Note: Annual trading volumes of bonds traded on and off exchange (including through systematic internalisers) in 2019, EUR trillion. "Other" includes convertible bonds and other public bonds.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.13

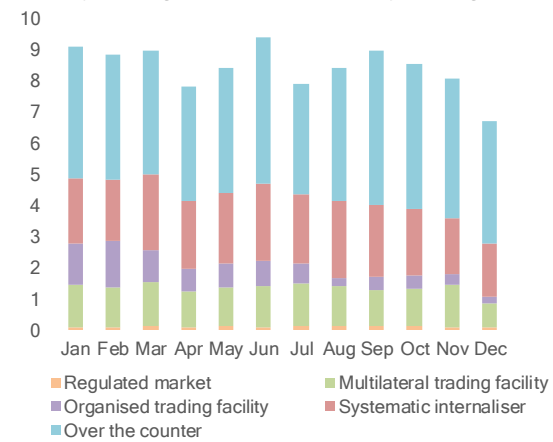
Monthly trading volumes of equity instruments by trading venues



Note: Monthly trading volumes of equity and equity-like instruments in 2019 by trading venues, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.14

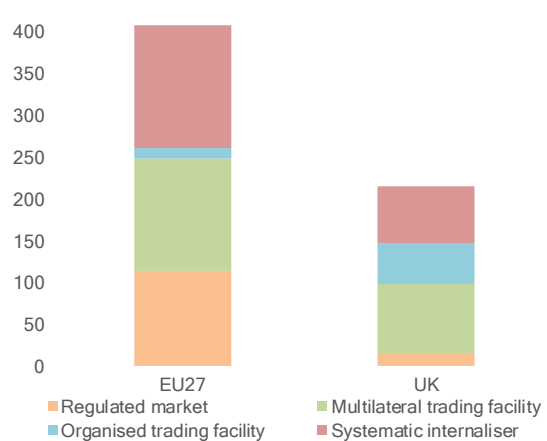
Monthly trading volumes of bonds by trading venues



Note: Monthly trading volumes of bonds in 2019 by trading venues, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.15

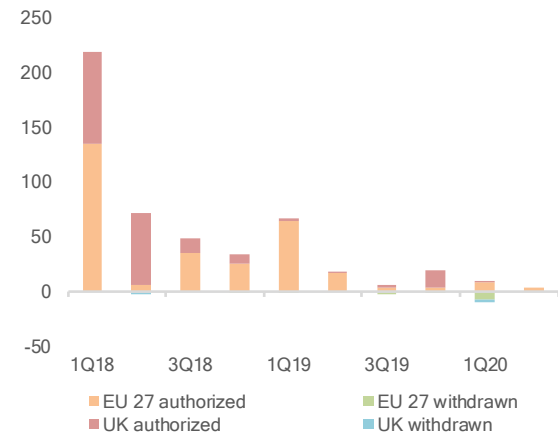
Number of EU27 and UK trading venues and SIs



Note: Number of EU27 and UK trading venues and systematic internalisers in 2019 by type.
Sources: ESMA

ASR-MiFID-S.16

Total number of TVs and SIs authorised and withdrawn



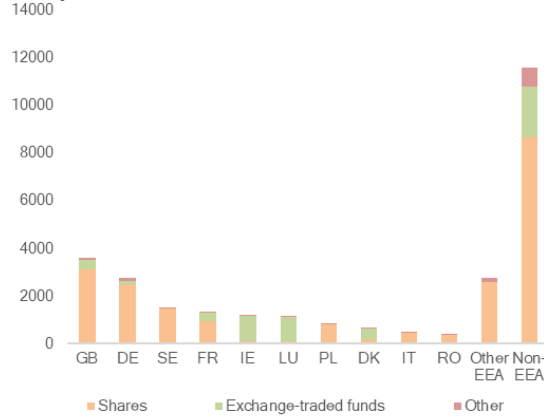
Note: Total number of trading venues and systematic internalisers authorised and withdrawn, from 1Q18 to 2Q20.
Sources: ESMA registers.

Equity markets

Instruments

ASR-MiFID-S.17

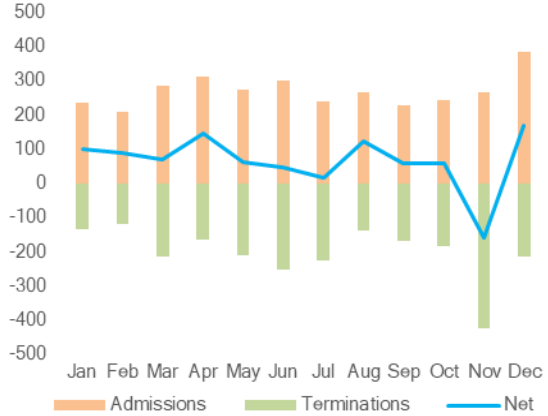
Number of instruments by instrument type and country of issuance



Note: Number of equity and equity-like instruments by instrument type and country of issuance
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.18

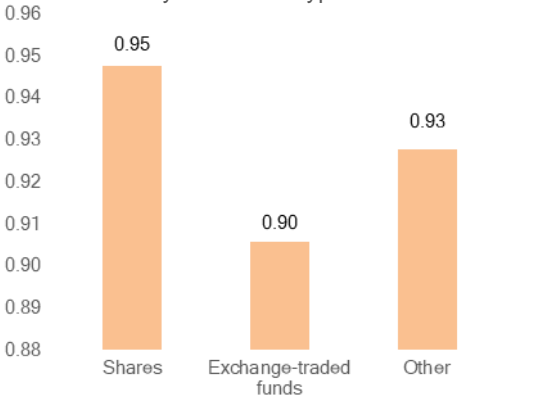
Number of instruments admitted and terminated



Note: Number of equity and equity-like instruments admitted to trading and terminated on EEA trading venues in 2019, and net value, by month.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.19

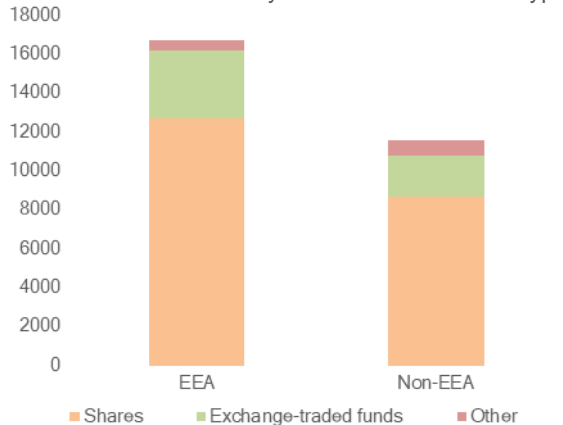
Concentration by instrument type



Note: Fragmentation index of trading volumes on EEA trading venues and systematic internalisers in 2019, by instrument type. "Other" includes depository receipts and certificates. Index calculated as (1-HI) and ranging from 0 (monopoly) to 1 (maximum fragmentation).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.20

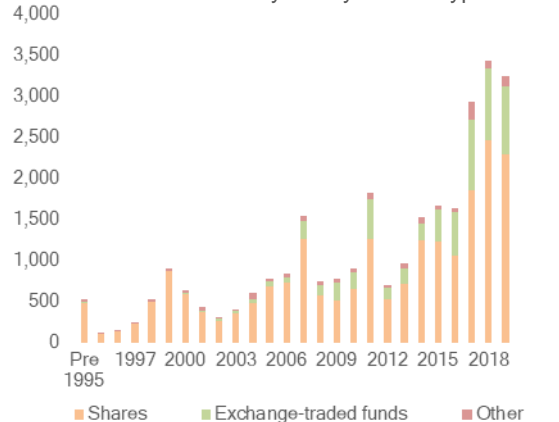
Number of instruments by issuer and instrument type



Note: Number of equity and equity-like instruments available for trading in 2019, by issuer origin and instrument type. "Other" includes depository receipts and certificates.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.21

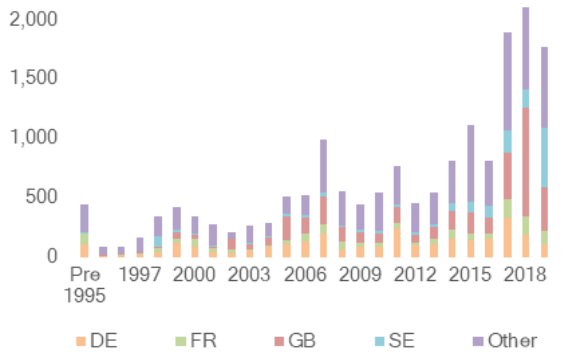
Number of instruments by start year and type



Note: Number of equity and equity-like instruments available for trading in 2019, by ISIN trading start year (including new ISINs issued for previously existing instruments, stock splits, etc.).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.22

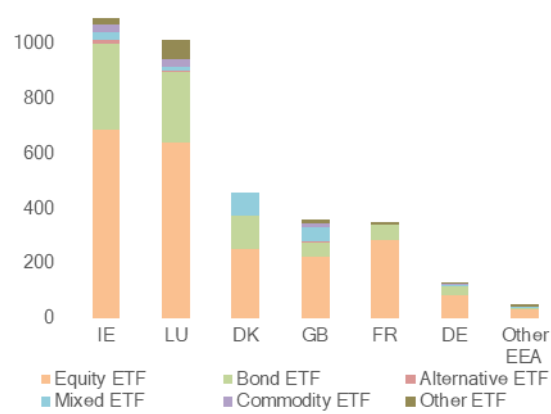
Number of EEA instruments by issuer domicile



Note: Number of equity and equity-like EEA instruments available for trading in 2019 in the EU, by ISIN trading start year and issuer domicile (including new ISINs issued for previously existing instruments, stock splits, etc.).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.23

Number of EEA ETFs by underlying asset

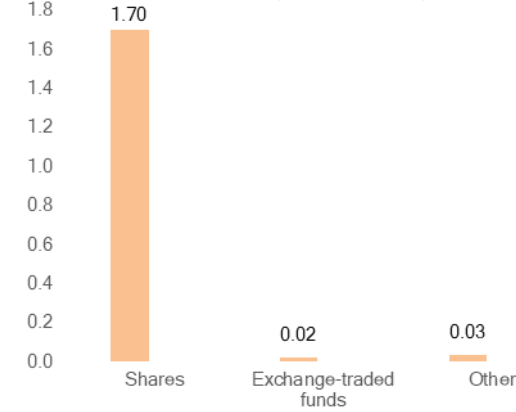


Note: Number of ETFs by underlying asset in 2019. Sources: FIRDS, FITRS, Refinitiv EIKON, ESMA

Trading activity

ASR-MiFID-S.24

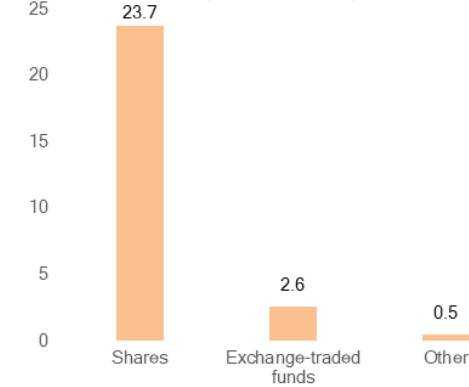
Number of transactions by instrument type



Note: Number of transactions in equity and equity-like instruments in 2019 by instrument type, in billion. "Other" includes depository receipts and certificates. Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.25

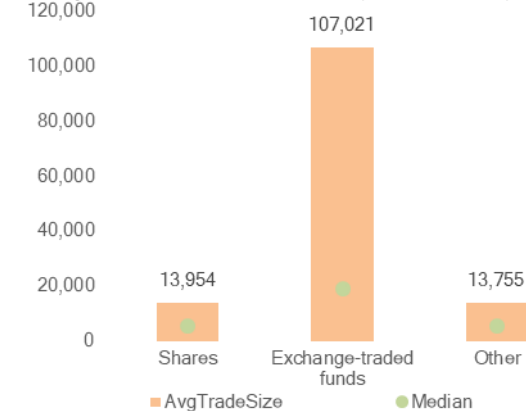
Trading volumes by instrument type



Note: Annual trading volumes of equity and equity-like instruments in 2019 by instrument type, EUR trillion. "Other" includes depository receipts and certificates. Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.26

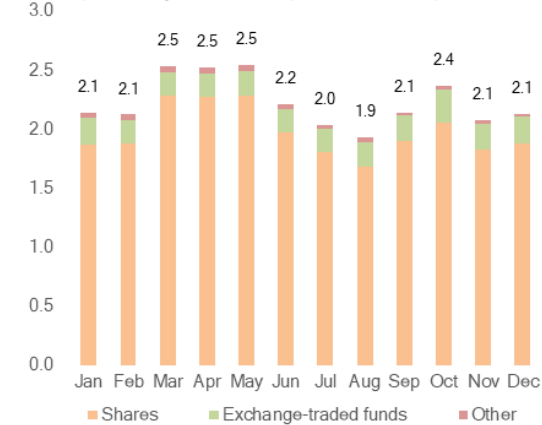
Average and median trade size by instrument type



Note: Average trade size and median transaction size of equity and equity-like instruments in 2019 by instrument type, EUR. "Other" includes depository receipts and certificates. Sources: FIRDS, FITRS, ESMA

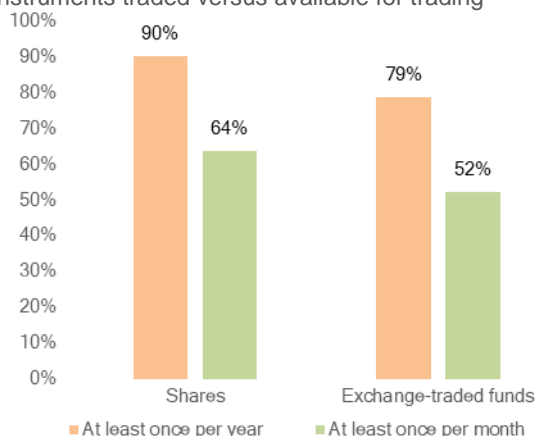
ASR-MiFID-S.27

Monthly trading volumes by instrument type



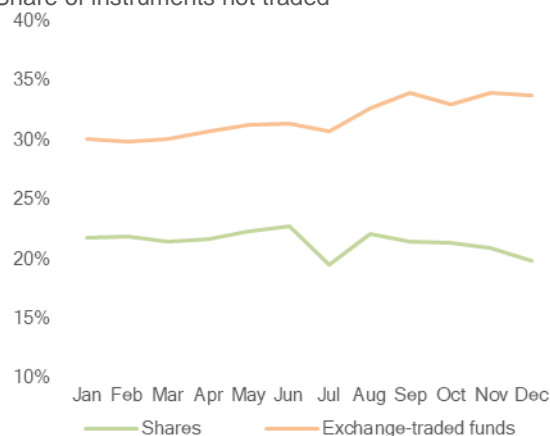
Note: Monthly trading volumes of equity and equity-like instruments in 2019, by instrument type, EUR trillion. "Other" includes depository receipts and certificates. Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.28
Instruments traded versus available for trading



Note: Share of equity and equity-like instruments traded at least once per month and once per year in 2019 by instrument type, as % of instrument type
Sources: FIRDS, FITRS, ESMA

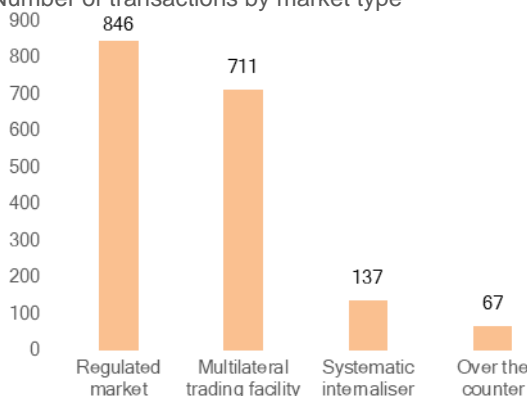
ASR-MiFID-S.29
Share of instruments not traded



Note: Share of non-traded shares and exchange-traded funds in 2019 by month, in % of all instruments available for trading.
Sources: FIRDS, FITRS, ESMA

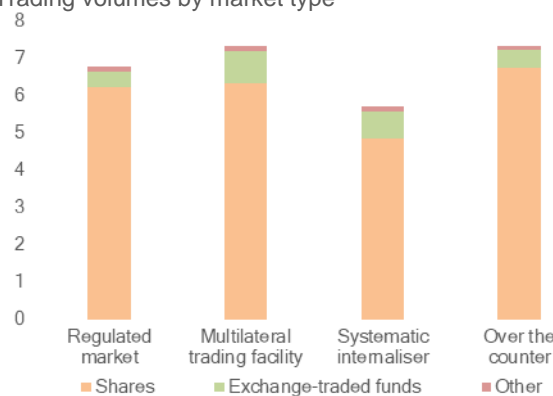
Trading venues

ASR-MiFID-S.30
Number of transactions by market type



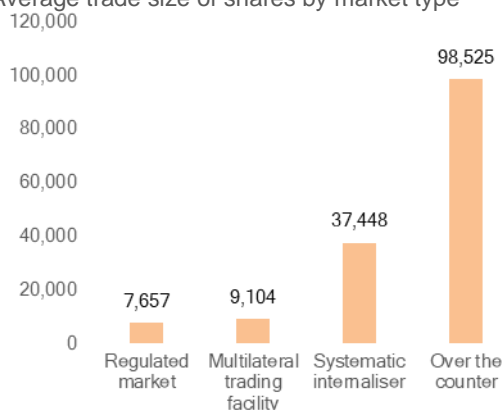
Note: Number of transactions in equity and equity-like instruments in 2019 by market type, in million.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.31
Trading volumes by market type



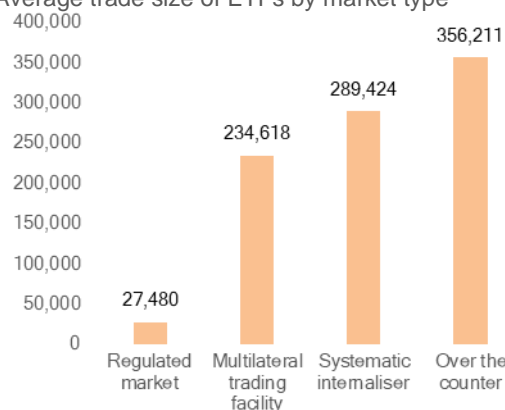
Note: Annual trading volumes of equity and equity-like instruments in 2019 by market and instrument type, EUR trillion. "Other" includes depository receipts certificates.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.32
Average trade size of shares by market type



Note: Average trade size of shares available for trading in 2019 by market type, EUR.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.33
Average trade size of ETFs by market type



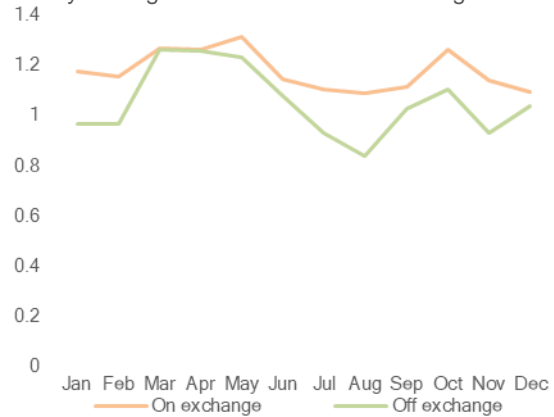
Note: Average trade size of exchange-traded funds available for trading in 2019 by market type, EUR.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.34
Concentration by market type



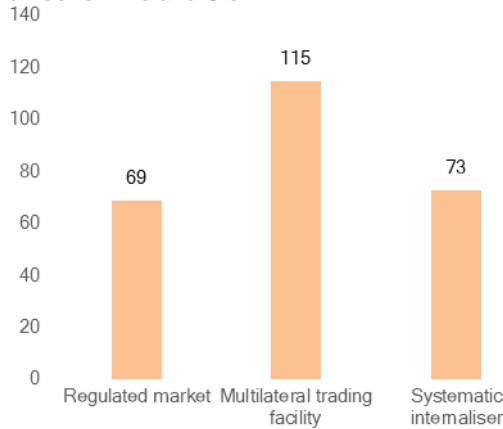
Note: Fragmentation index of trading volumes on EEA trading venues and systematic internalisers in 2019, by market type. Index calculated as (1-HH) and ranging from 0 (monopoly) to 1 (maximum fragmentation).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.35
Monthly trading volumes on and off exchange



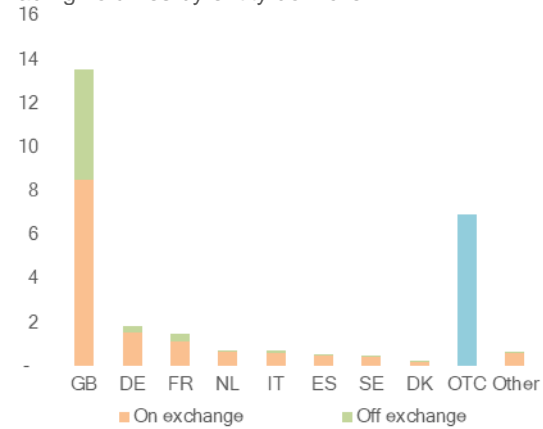
Note: Monthly trading volumes of equity and equity-like instruments traded on and off exchange (including through systematic internalisers) in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.36
Number of TVs and SIs



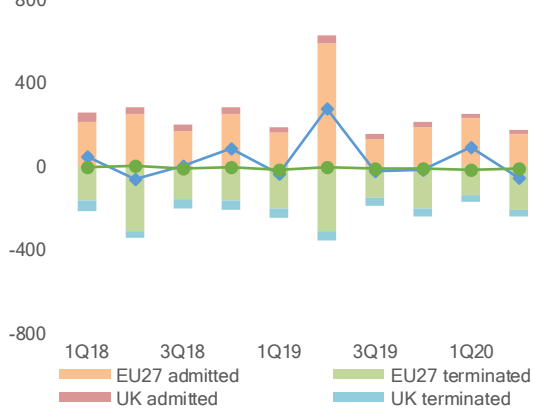
Note: Number of EEA trading venues on which equity and equity-like instruments are available for trading in 2019, by market type.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.37
Trading volumes by entity domicile



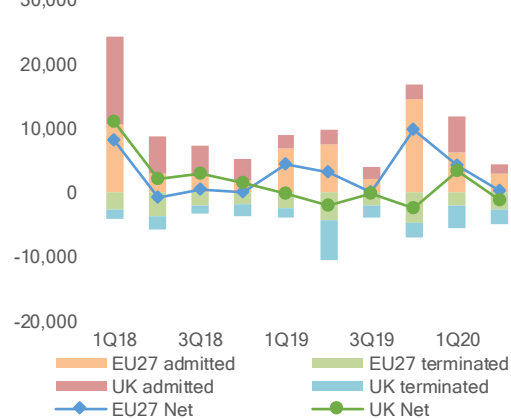
Note: Annual trading volumes in equity and equity-like instruments in 2019 by entity domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.38
Number of equity instruments admitted to trading and terminated in EEA Regulated Markets



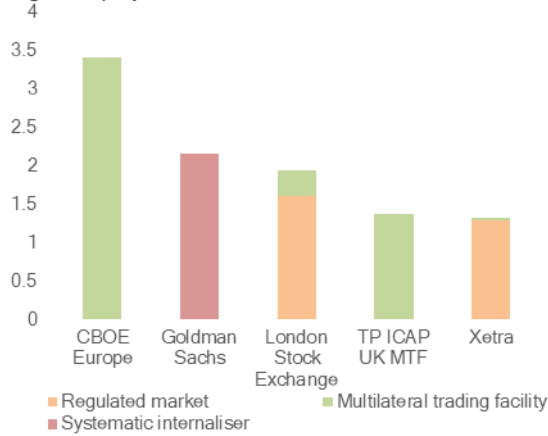
Note: Number of equity instruments admitted to trading and terminated in Regulated Markets, by trading venue location.
Sources: FIRDS, ESMA

ASR-MiFID-S.39
Number of equity instruments admitted to trading and terminated in EEA Multilateral Trading Facilities



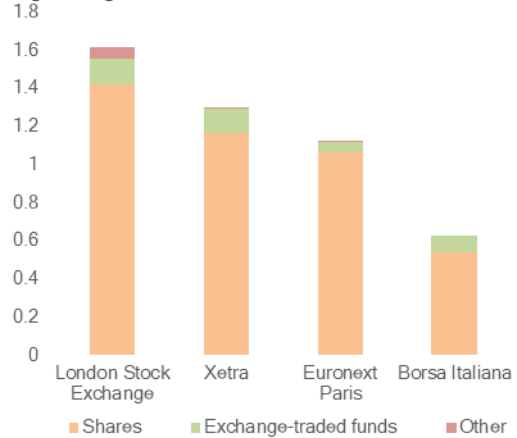
Note: Number of equity instruments admitted to trading and terminated in Multilateral Trading Facilities, by trading venue location.
Sources: FIRDS, ESMA

ASR-MiFID-S.40
Largest equity markets



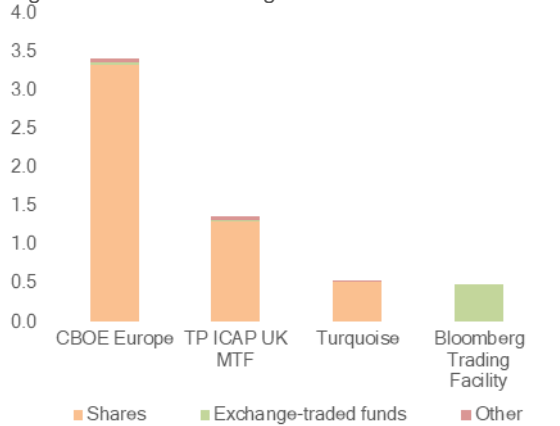
Note: Top markets by annual trading volumes of equities in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.41
Largest regulated markets



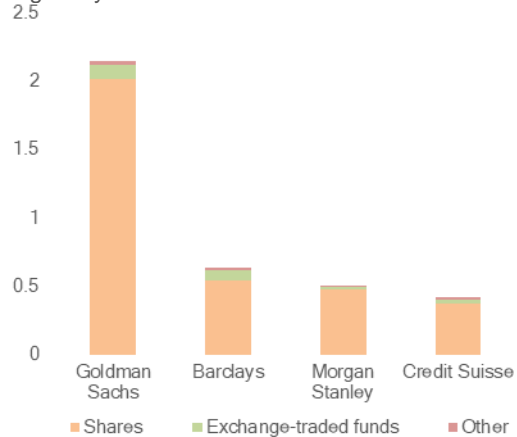
Note: Top regulated markets by annual trading volumes in equity and equity-like instruments in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.42
Largest multilateral trading facilities



Note: Top multilateral trading facilities by annual trading volumes in equity and equity-like instruments in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

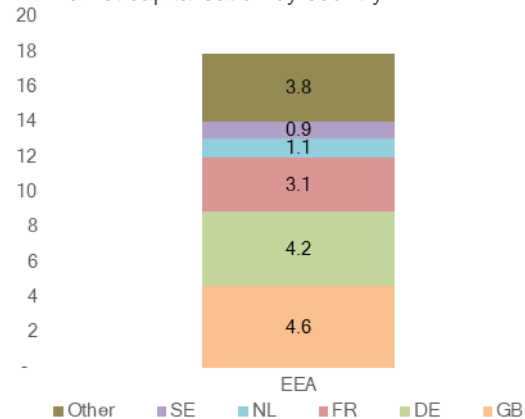
ASR-MiFID-S.43
Largest systematic internalisers



Note: Top systematic internalisers by annual trading volumes in equity and equity-like instruments in 2019, EUR trillion.
Sources: FIRDS, FITRS, ESMA

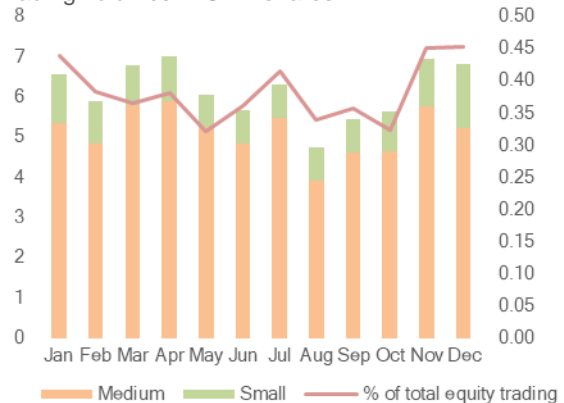
Market capitalisation

ASR-MiFID-S.44
EEA market capitalisation by country



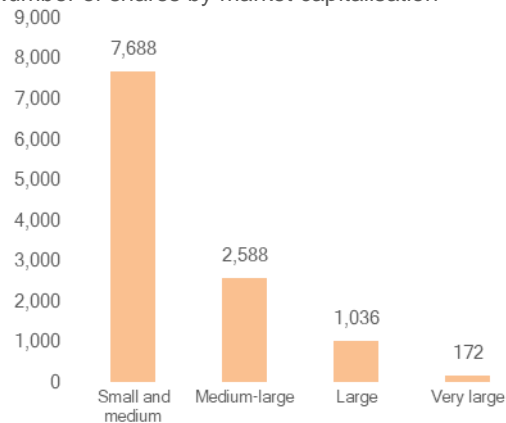
Note: Sum of 2019 EEA market capitalisation by issuer domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.45
Trading volumes in SME shares



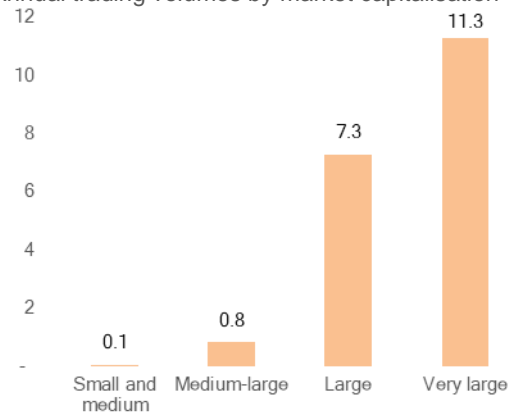
Note: Monthly trading volumes of SME share domiciled in the EEA in 2019, EUR billion, and %share in total equity trading. 'Small'=(0,20mn), 'Medium'=(20mn,200mn).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.46
Number of shares by market capitalisation



Note: Number of EEA shares available for trading by market capitalisation and market type in 2019. "Small and medium"=0 to 200mn, "Medium large"=200mn to 2bn, "Large"=2bn to 20bn, "Very large"=more than 20bn.
Sources: FIRDS, FITRS, ESMA

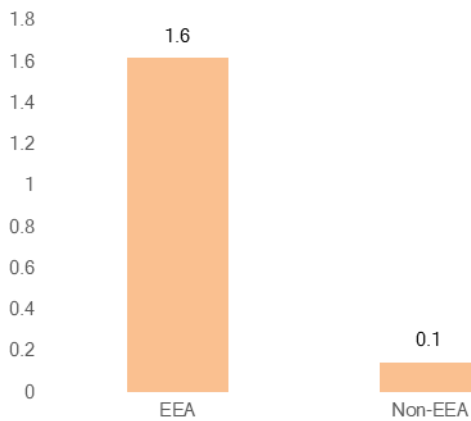
ASR-MiFID-S.47
Annual trading volumes by market capitalisation



Note: Annual trading volumes of shares by market capitalisation in 2019, EUR trillion. "Small and medium"=0 to 200mn, "Medium large"=200mn to 2bn, "Large"=2bn to 20bn, "Very large"= more than 20bn.
Sources: FIRDS, FITRS, ESMA

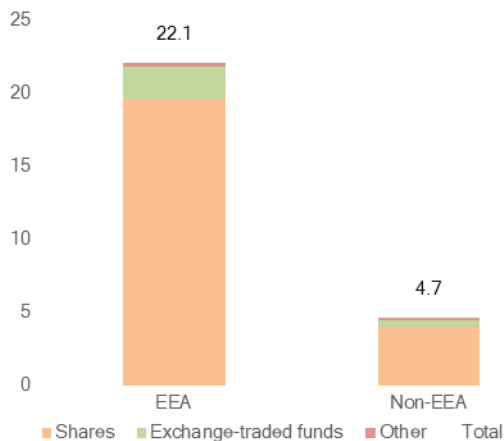
International activity

ASR-MiFID-S.48
Number of transactions by issuer origin



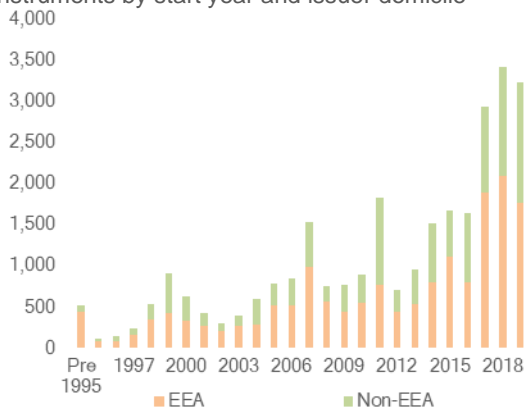
Note: Annual number of transactions of equity and equity-like instruments in 2019 by issuer origin, EUR thousands.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.49
Trading volumes by issuer origin



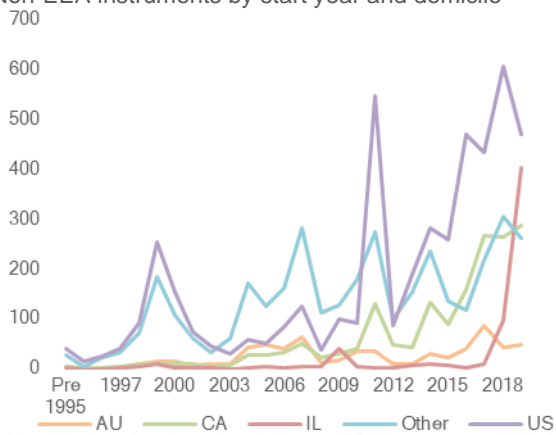
Note: Share of annual trading volumes of equity and equity-like instruments in 2019, by instrument type and issuer domicile.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.50
Instruments by start year and issuer domicile



Note: Number of equity and equity-like instruments available for trading in 2019 in the EU, by ISIN trading start year and issuer domicile (including new ISINs issued for previously existing instruments, stock splits, etc.).
Sources: FIRDS, FITRS, ESMA

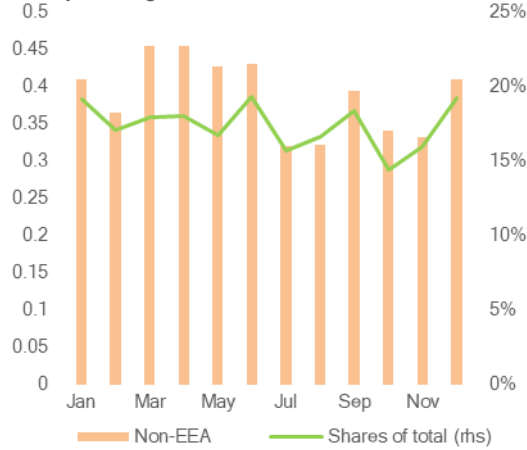
ASR-MiFID-S.51
Non-EEA instruments by start year and domicile



Note: Number of equity and equity-like non-EEA instruments available for trading in 2019 in the EU, by ISIN trading start year and issuer domicile (including new ISINs issued for previously existing instruments, stock splits etc.).
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.52

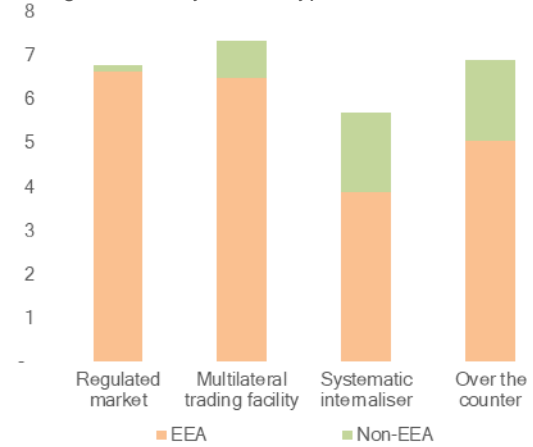
Monthly trading volumes of non-EEA instruments



Note: Annual trading volumes of equity and equity-like instruments in 2019, by issuer domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.53

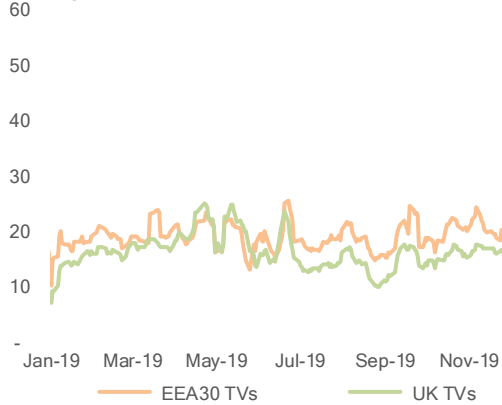
Trading volumes by market type and issuer domicile



Note: Annual trading volumes of equity and equity-like instruments in 2019, by issuer domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.54

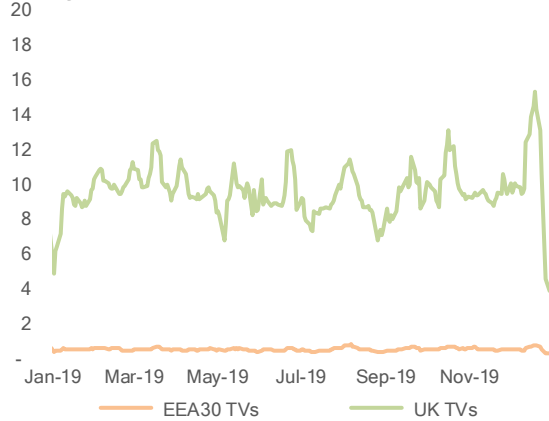
Trading volumes: EEA30 shares



Note: Average trading volumes in EEA (excluding UK) shares by trading venue location (UK vs. EEA30) over five days, in 2019, EUR billion. Trading on regulated markets and multilateral trading facilities only.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.55

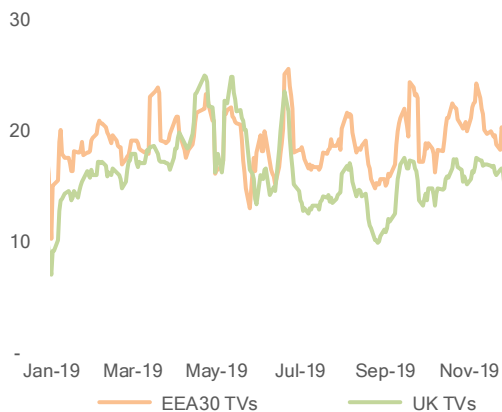
Trading volumes: UK shares



Note: Average trading volumes in UK shares by trading venue location (UK vs. EEA-30) over five days, in 2019, EUR billion. Trading on regulated markets and multilateral trading facilities only.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.56

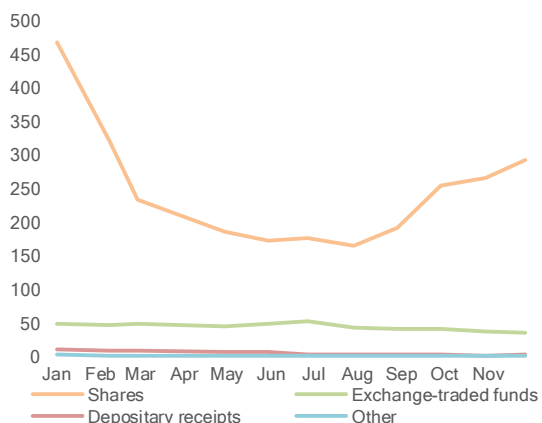
Average trading volumes in shares by TV location



Note: Average trading volumes in EEA (excluding UK) shares by trading venue location (UK vs. EEA30) over five days, in 2019, EUR billion. Trading on regulated markets and multilateral trading facilities only.
Sources: FIRDS, FITRS, ESMA

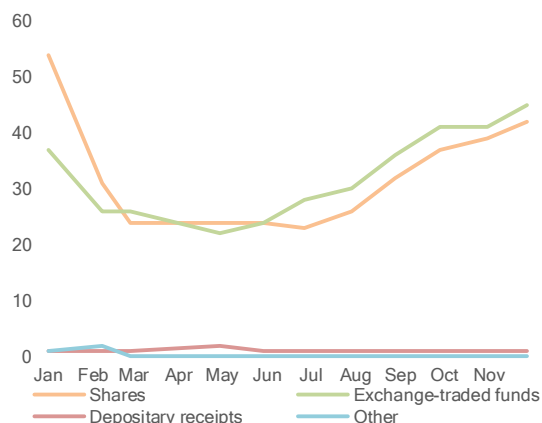
Market transparency

ASR-MiFID-S.57
Double-Volume Cap – EU-level suspensions



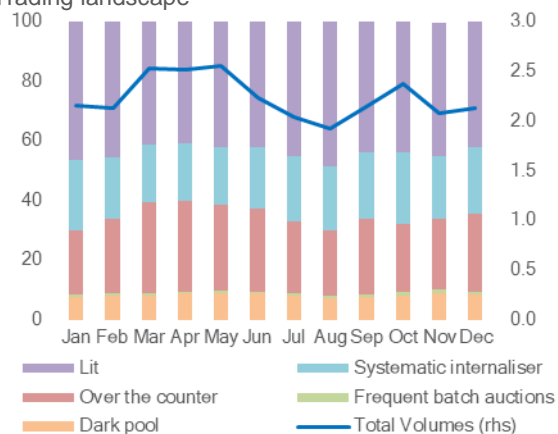
Note: Number of EU-level suspensions per type of instrument in 2019.
Sources: DVCAP, ESMA

ASR-MiFID-S.58
Double-Volume Cap – TV-level suspensions



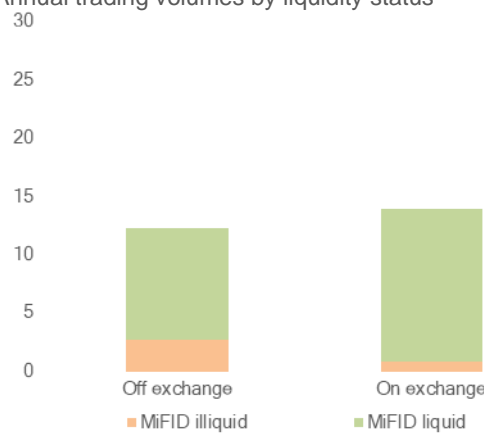
Note: Number of trading venue-level suspensions per type of instrument in 2019.
Sources: DVCAP, ESMA

ASR-MiFID-S.59
Trading landscape



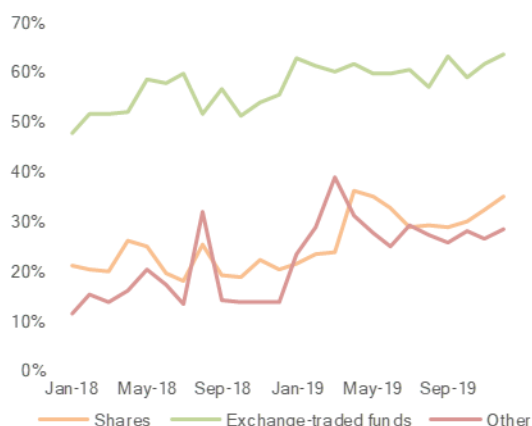
Note: Type of equity trading in the EEA as percentage of total volumes, in % Total equity trading volumes in tn (rhs)
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.60
Annual trading volumes by liquidity status



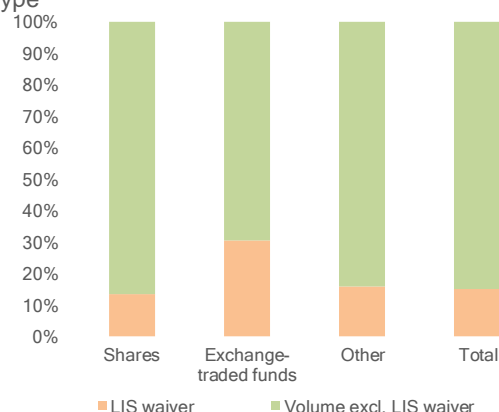
Note: Annual trading volumes in equity and equity-like instruments in 2019 by liquidity status under MiFID transparency calculations, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.61
Waiver trading activity per instrument type



Note: Percentage of turnover executed under pre-trade waivers over total turnover executed on-exchange
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.62
Large-in-scale waiver trading activity per instrument type



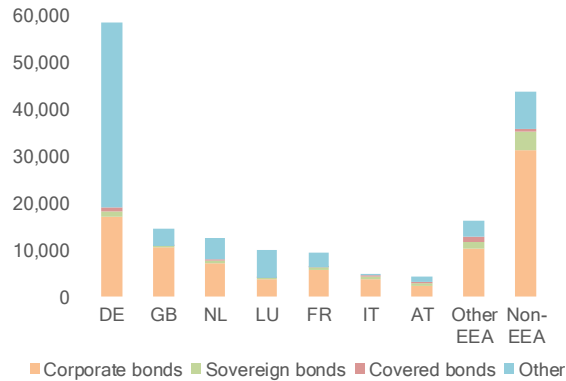
Note: Percentage of trading volume under the large-in-scale waiver on-venue in 2019
Sources: FIRDS, FITRS, ESMA

Bond markets

Instruments

ASR-MiFID-S.63

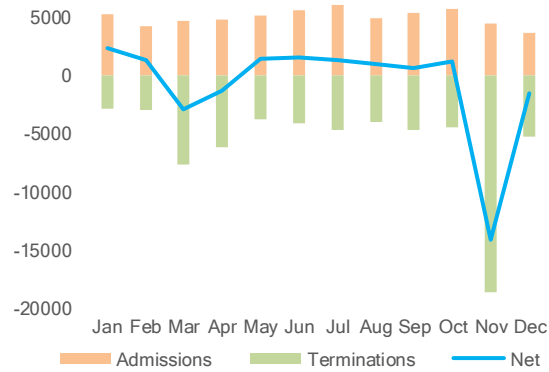
Number of instruments by instrument type and country of issuance



Note: Number of bonds by instrument type and country of issuance. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.64

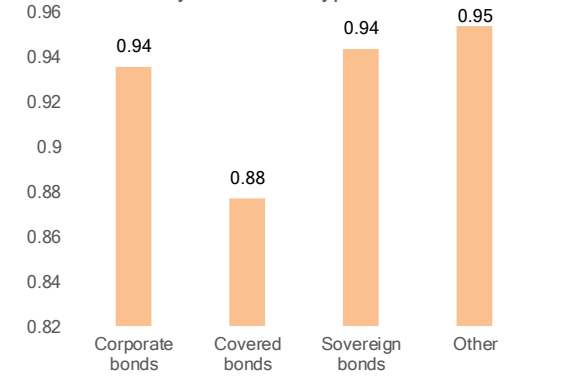
Number of instruments admitted and terminated



Note: Number of bonds admitted to trading and terminated on EEA trading venues in 2019, and net value, by month. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.65

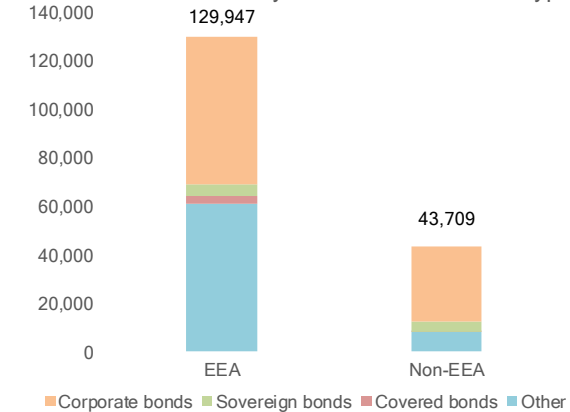
Concentration by instrument type



Note: Fragmentation index of trading volumes on EEA trading venues and systematic internalisers in 2019, by bond type. "Other" includes convertible bonds and other public bonds. Index calculated as (1-HHI) and ranging from 0 (complete concentration) to 1 (fragmentation). Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.66

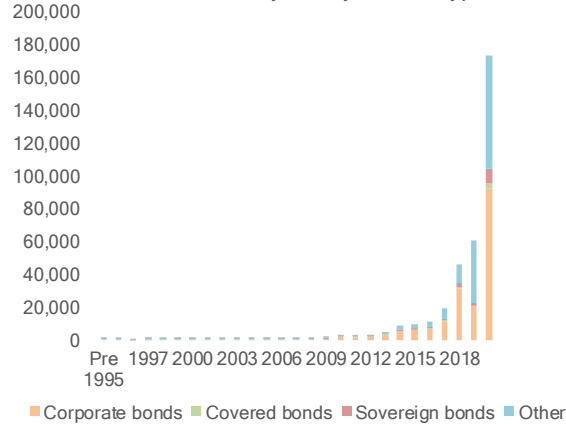
Number of instruments by issuer and instrument type



Note: Number of bonds available for trading in 2019 by issuer domicile. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.67

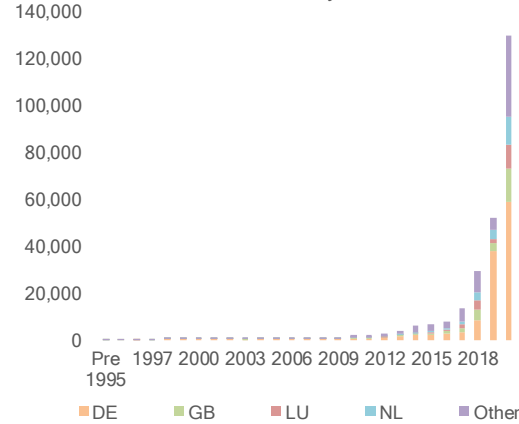
Number of instruments by start year and type



Note: Number of bonds available for trading in 2019, by ISIN trading start year. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.68

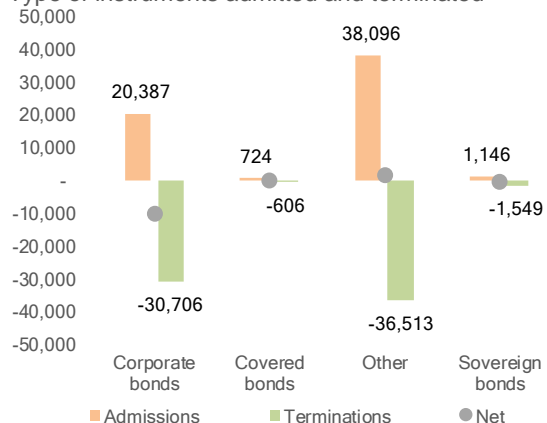
Number of EEA instruments by issuer domicile



Note: Number of non-EEA bonds available for trading in 2019 in the EU, by ISIN trading start year. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.69

Type of instruments admitted and terminated

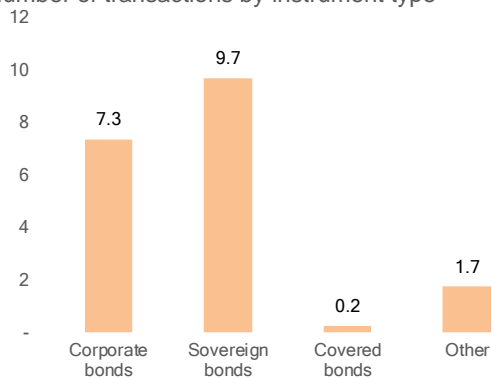


Note: Number of instruments admitted to trading and terminated in 2019, by bond type. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

Trading activity

ASR-MiFID-S.70

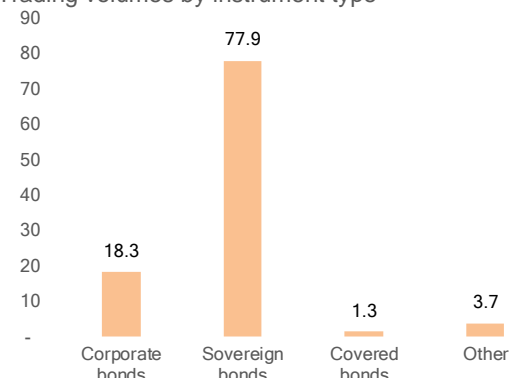
Number of transactions by instrument type



Note: Number of transactions in bonds in 2019 by bond type, in million. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.71

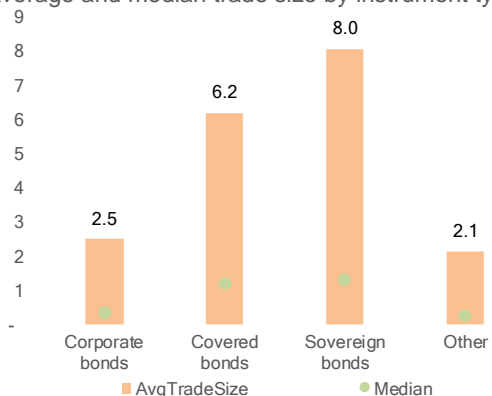
Trading volumes by instrument type



Note: Annual trading volumes of bonds in 2019 by bond type, EUR trillion. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.72

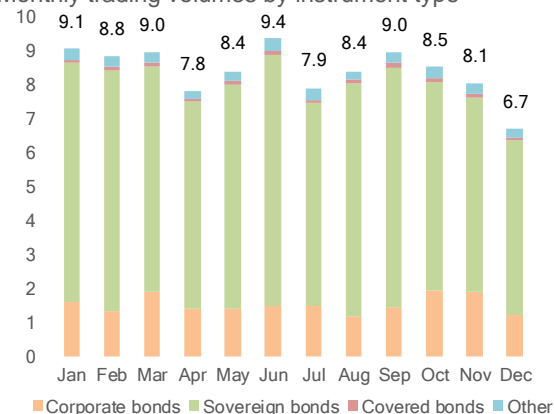
Average and median trade size by instrument type



Note: Average trade size and median transaction size of bonds in 2019 by bond type, EUR million. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

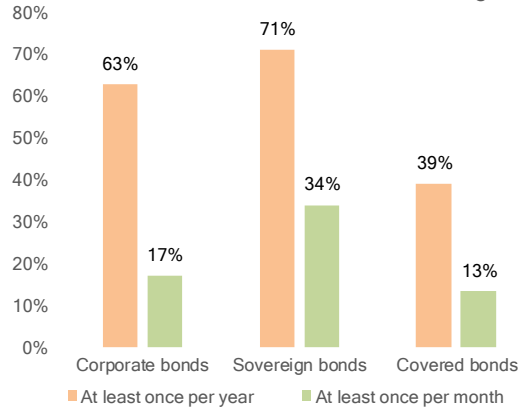
ASR-MiFID-S.73

Monthly trading volumes by instrument type



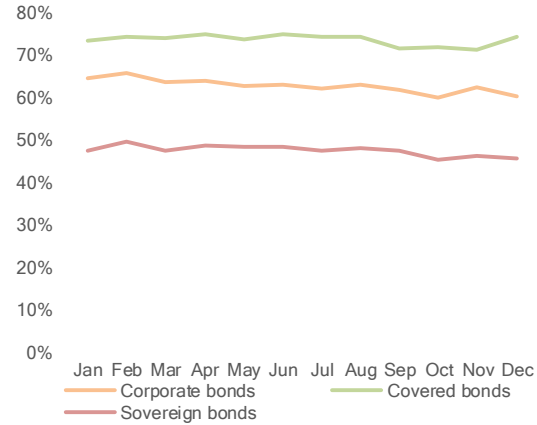
Note: Monthly trading volumes of bonds in 2019 by bond type, EUR trillion. "Other" includes convertible bonds and other public bonds. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.74
Instruments traded versus available for trading



Note: Share of bonds traded at least once per month and once per year in 2019 by instrument type, as % of bond type.
Sources: FIRDS, FITRS, ESMA.

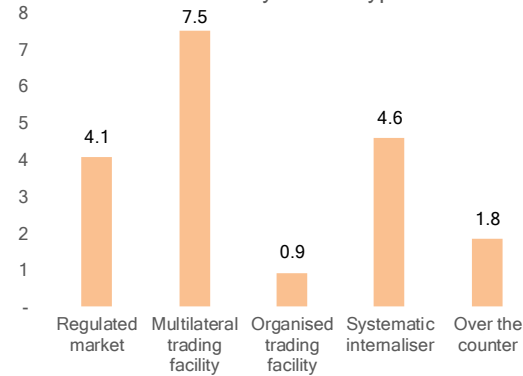
ASR-MiFID-S.75
Share of instruments not traded



Note: Share of non-traded bonds in 2019 by month, in % of all instruments available for trading.
Sources: FIRDS, FITRS, ESMA.

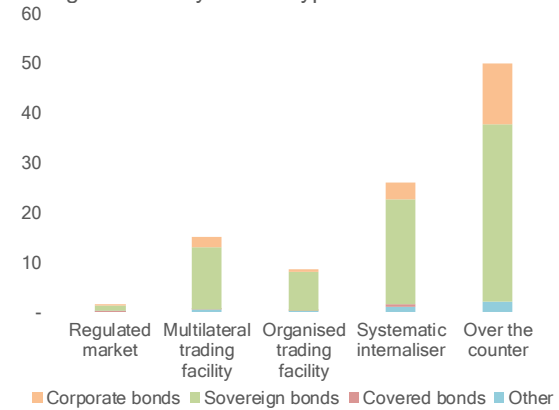
Trading venues

ASR-MiFID-S.76
Number of transactions by market type



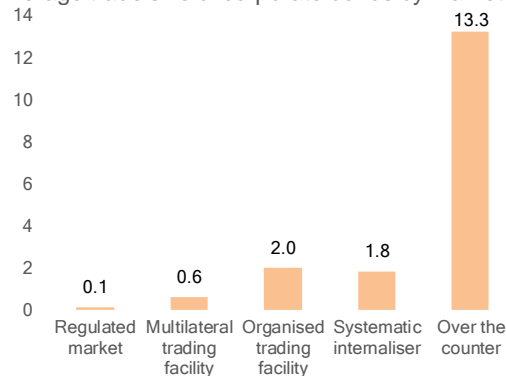
Note: Number of transactions in bonds in 2019 by market type, in million. "Other" includes convertible bonds and other public bonds.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.77
Trading volumes by market type



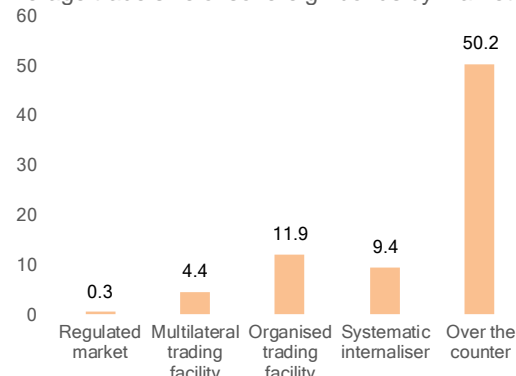
Note: Annual trading volumes of bonds in 2019 by market type, EUR trillion. "Other" includes convertible bonds and other public bonds.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.78
Average trade size of corporate bonds by market type



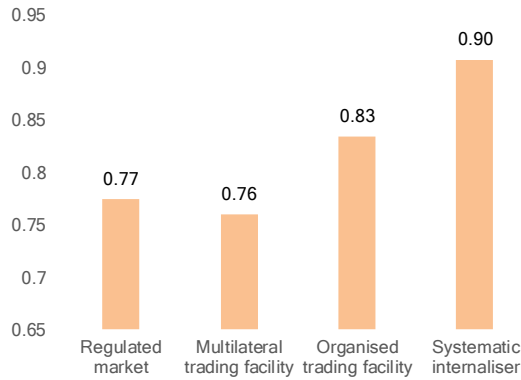
Note: Average trade size of corporate bonds available for trading in 2019 by market type, EUR million.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.79
Average trade size of sovereign bonds by market type



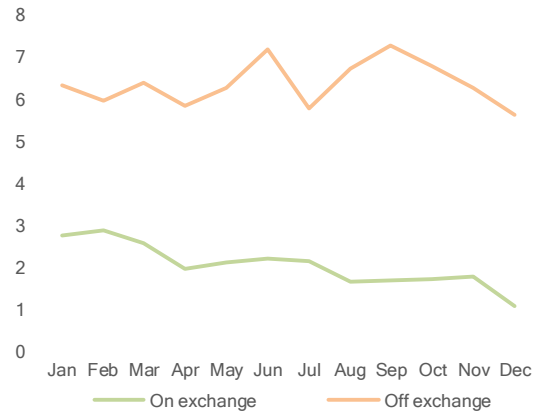
Note: Average trade size of sovereign bonds available for trading in 2019 by market type, EUR million.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.80
Concentration by market type



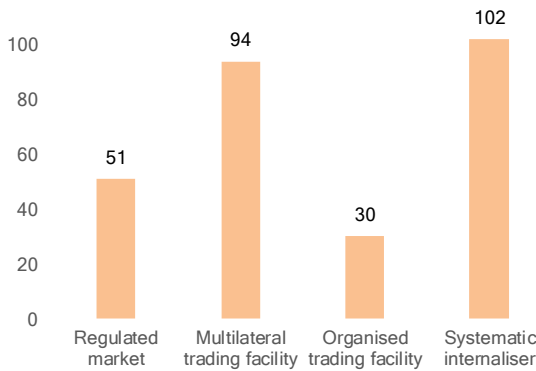
Note: HHI concentration index of trading volumes of bonds on EEA trading venues and systematic internalisers in 2019, by market type. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.81
Monthly trading volumes on and off exchange



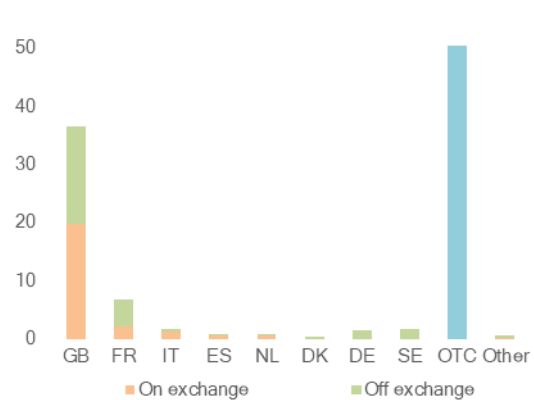
Note: Monthly trading volumes of bonds on and off exchange (including through systematic internalisers) in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.82
Number of TVs and SIs



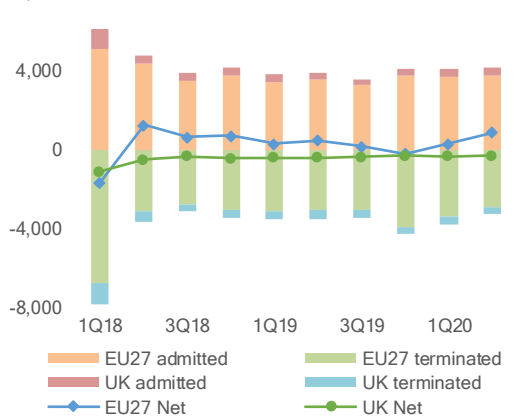
Note: Number of EEA trading venues on which bonds are available for trading in 2019, by market type. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.83
Trading volumes by entity domicile



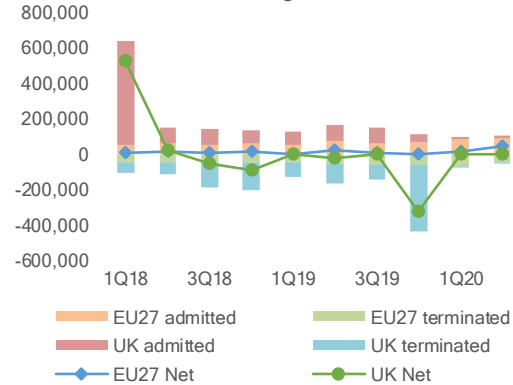
Note: Annual trading volumes in bonds in 2019 by entity domicile. Off exchange only includes SIs EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.84
Number of bonds admitted to trading and terminated in EEA Regulated Markets



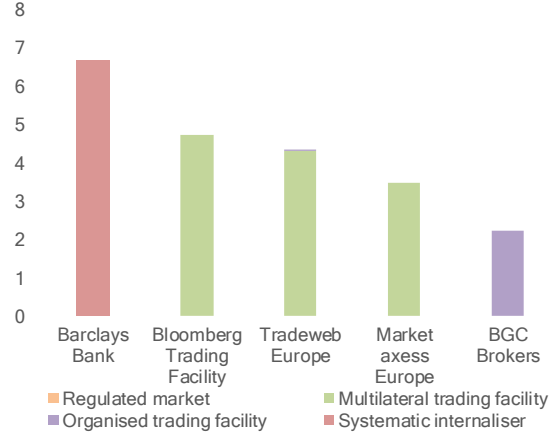
Note: Number of fixed income instruments admitted to trading and terminated in Regulated Markets, by trading venue location. Sources: FIRDS, ESMA.

ASR-MiFID-S.85
Number of bonds admitted to trading and terminated in EEA Multilateral Trading Facilities



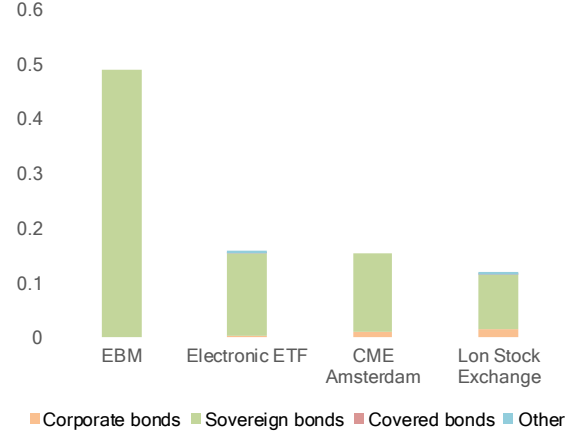
Note: Number of fixed income instruments admitted to trading and terminated in Multilateral Trading Facilities, by trading venue location. Data from one UK MTF have been excluded as they appeared very volatile. Sources: FIRDS, ESMA.

ASR-MiFID-S.86
Largest bond markets⁸²



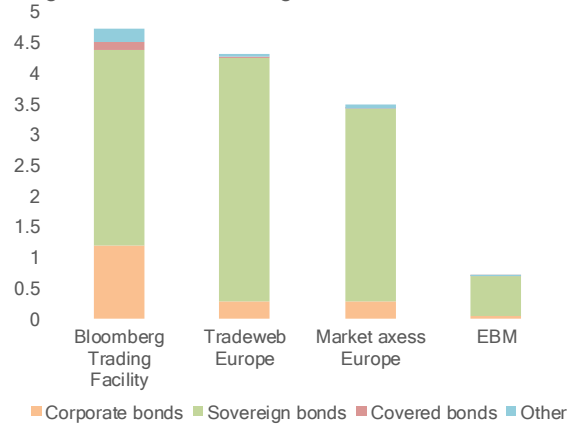
Note: Top markets by annual trading volumes of bonds in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.87
Largest regulated markets



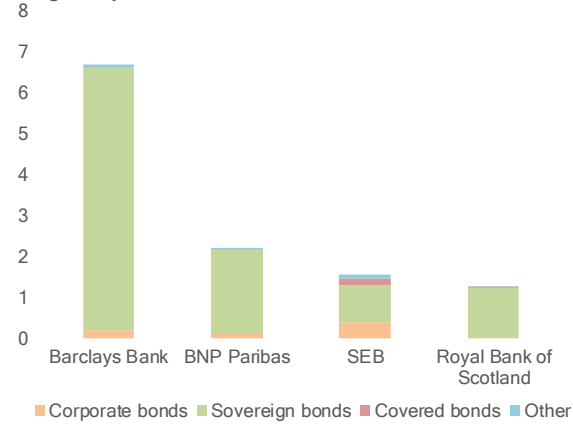
Note: Top regulated markets by annual trading volumes of bonds in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.88
Largest multilateral trading facilities



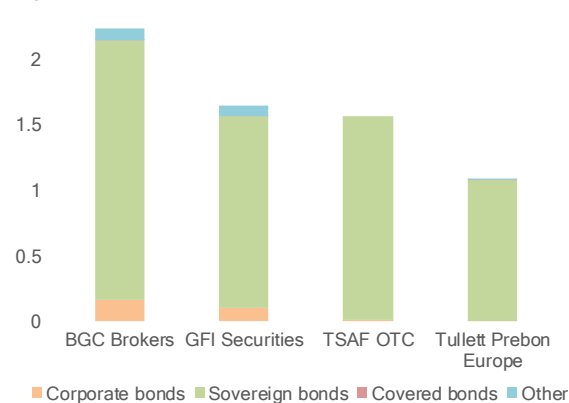
Note: Top multilateral trading by annual trading volumes of bonds in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.89
Largest systematic internalisers



Note: Top systematic internalisers by annual trading volumes of bonds in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.90
Largest organised trading facilities



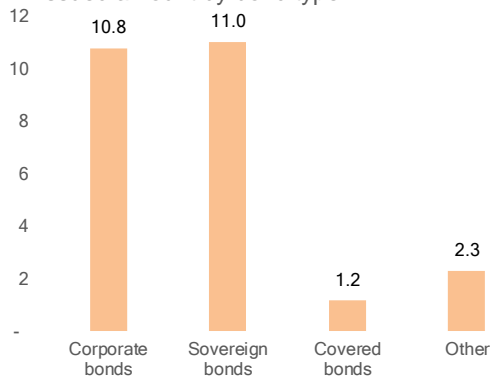
Note: Top organised trading facilities by annual trading volumes of bonds in 2019, EUR trillion. Sources: FIRDS, FITRS, ESMA.

⁸² The analysis is based on reference and transparency data received up to 10 February 2020, and any subsequent corrections by reporting entities on historical figures have not been considered. In the next edition of the Annual Statistical Report on EU securities markets relevant changes will be taken into account.

Issuance size

ASR-MiFID-S.91

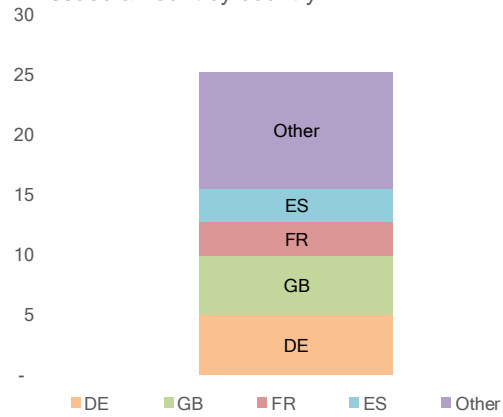
EEA issued amount by bond type



Note: Sum of nominal amount outstanding from EEA issuers in 2019, by bond type, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.92

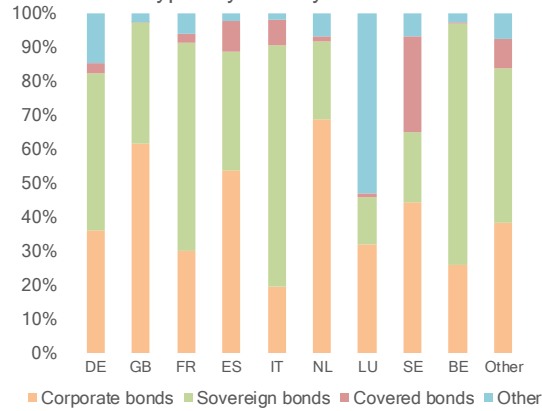
EEA issued amount by country



Note: Sum of 2019 EEA bond notional amount outstanding by country, EUR trillion.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.93

Share of bond types by country

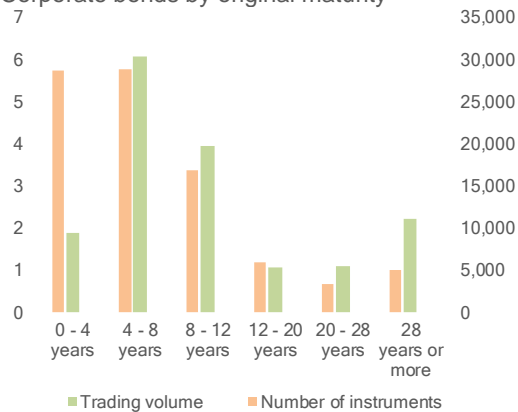


Note: Share of bond nominal amount outstanding, by issuer domicile and bond type in the EEA, in % of bond type in 2019.
Sources: FIRDS, FITRS, ESMA

Maturity

ASR-MiFID-S.94

Corporate bonds by original maturity



Note Annual trading volumes (EUR trillion) and number of corporate bonds available for trading in 2019, by original maturity as of 31 December 2019.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.95

Sovereign bonds by original maturity

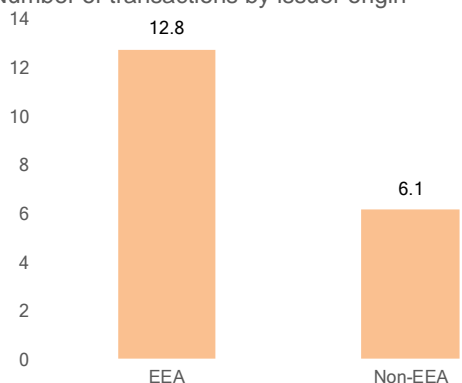


Note Annual trading volumes (EUR trillion) and number of sovereign bonds available for trading in 2019, by original maturity as of 31 December 2019.
Sources: FIRDS, FITRS, ESMA

International activity

ASR-MiFID-S.96

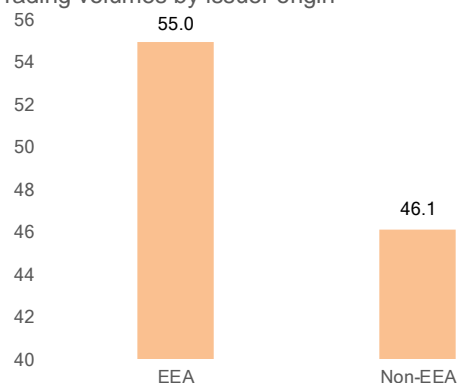
Number of transactions by issuer origin



Note: Annual number of transactions of bonds in 2019 by issuer origin, EUR million.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.97

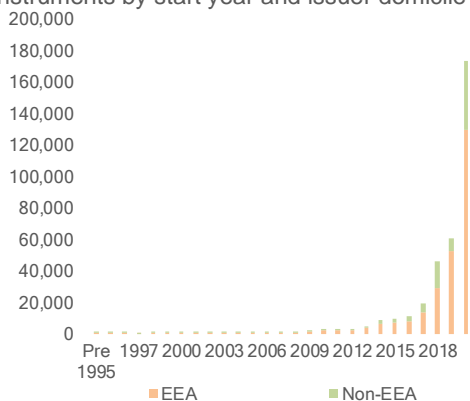
Trading volumes by issuer origin



Note: Annual trading volumes of bonds in 2019 by issuer domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.98

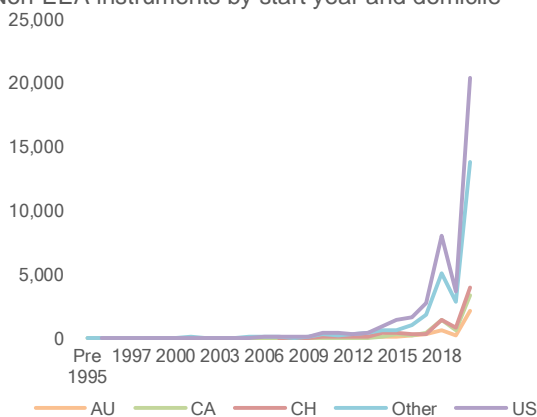
Instruments by start year and issuer domicile



Note: Number of bonds available for trading in 2019 in the EU, by ISIN trading start year and issuer domicile.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.99

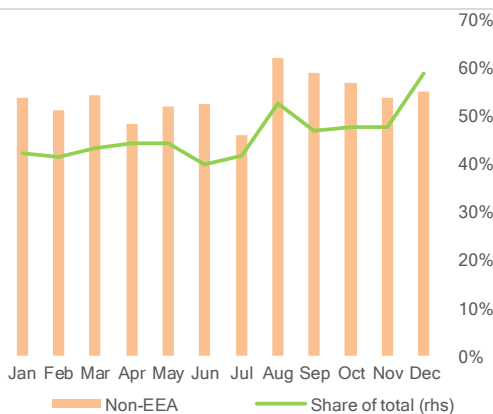
Non-EEA instruments by start year and domicile



Note: Number of non-EEA bonds available for trading in 2019 in the EU, by ISIN trading start year and issuer domicile.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.100

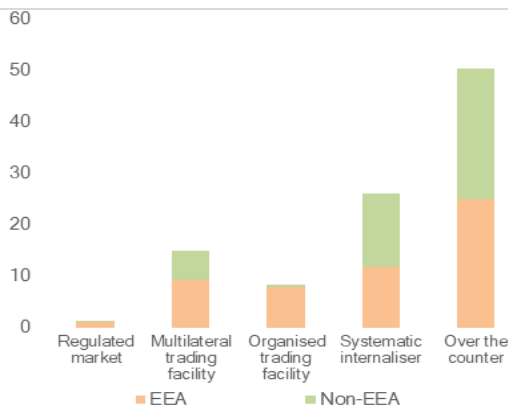
Monthly trading volumes of non-EEA instruments



Note: Monthly trading volumes of non-EEA bonds in 2019, EUR trillion, and share in bond trading (right axis), in %.
Sources: FIRDS, FITRS, ESMA.

ASR-MiFID-S.101

Annual trading volumes by issuer domicile

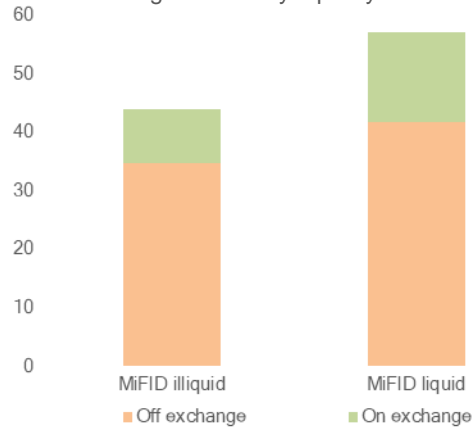


Note: Annual trading volumes of bonds in 2019 by issuer domicile, EUR trillion.
Sources: FIRDS, FITRS, ESMA.

Market transparency

ASR-MiFID-S.102

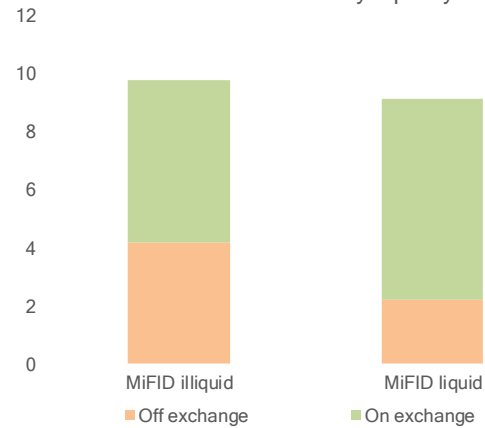
Annual trading volumes by liquidity status



Note: Annual trading volumes in bonds in 2019 by liquidity status under MiFID transparency calculations, EUR trillion
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.103

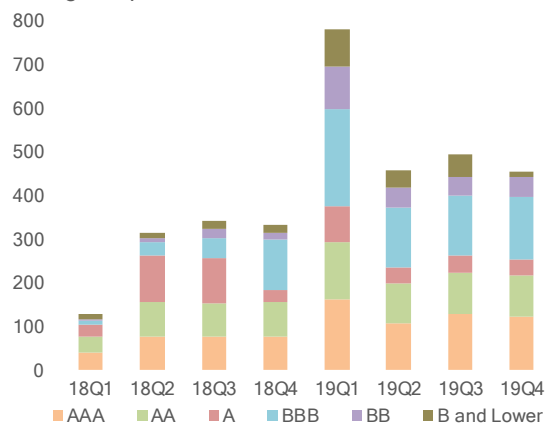
Annual number of transactions by liquidity status



Note: number of transactions of bonds in 2019 by liquidity status under MiFID transparency calculations, EUR million.
Sources: FIRDS, FITRS, ESMA

ASR-MiFID-S.104

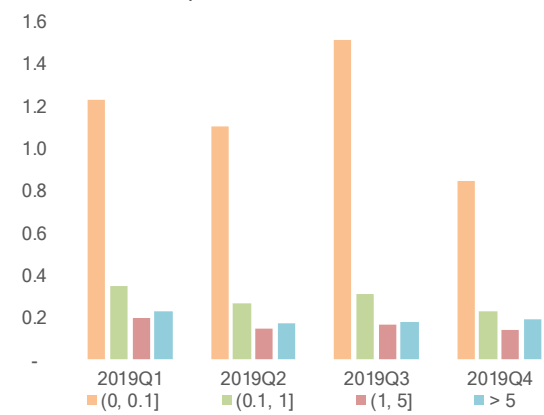
Rating of liquid bonds



Note: Number of liquid bond instruments by rating, by quarter. The chart includes only instruments that were found in RADAR database. The rating considered is the last one received for the specific quarter.
Sources: FITRS, RADAR, ESMA

ASR-MiFID-S.105

Trade sizes of liquid bonds



Note: Number of transactions (millions) for liquid bonds, per trade size (EUR millions). (0,0.1] - size lower or equal to 100 thousand. (0.1,1] - size between 100 thousand and one million, (1, 5] - size between one and five millions, >5 - size higher than five millions.
Sources: FITRS, ESMA

Annex

Glossary

Depository Receipt: Depository receipts are financial instruments negotiable on a regulated market, and which represent ownership of the securities of a non-domiciled issuer. Depository receipts allows investors to hold shares in equity of a foreign company that are traded on a local exchange.

Double Volume Cap (DVC): The double volume cap mechanism (DVCM) (Article 5 of MiFIR) aims to limit the trading under the reference price waiver (Article 4(1)(a) of MiFIR) and the negotiated transaction waiver for liquid instruments (Article 4(1)(b)(i) of MiFIR) in an equity instrument.

Exchange traded fund (ETF): An ETF is a basket of securities that tracks an underlying index, although they can invest in any number of industry sectors or use various strategies. ETFs are in many ways similar to mutual funds; however, they are continuously tradeable on at least one regulated market or multilateral trading facility (MTF).

Financial Instruments Reference Data System (FIRDS): Register of instruments reference data collected under MAR Art.4 and MiFIR Art.27.

Financial Instruments Transparency System (FITRS): Register of equity and non-equity transparency calculation results.

Large in scale (LIS): For orders that are large in scale compared with normal market size, avoiding a negative impacting on the market.

Multilateral Trading Facility (MTFs): Multilateral Trading Facilities are another type of non-discretionary TV. They are operated by a qualifying investment firm, or a market operator, and bring together multiple third-party buying and selling interests in financial instruments, in accordance with non-discriminatory rules, in a way that results in a contract.

Organised Trading Facility (OTF): Organised Trading Facilities are a new type of TV venue introduced by MiFID II that allows trading of non-equity instruments. In the same manner, OTF are multilateral systems in which multiple third-party buying and selling interests in bonds, structured finance products, emission allowances or derivatives are able to interact in the system in a way that results in a contract. A key difference with other TVs lies in the discretionary basis of OTF execution, taking a role in negotiations between market participants. The creation of OTF intends to level the playing field between the various venues for the execution of orders.

Pre-trade transparency refers to the obligation for market operators and investment firms operating a trading venue to make public current bid and offer prices, as well as the depth of trading interests at those prices which are advertised through their systems for financial instruments traded on a trading venue.

Post-trade transparency refers to the obligation for market operators and investment firms operating a trading venue to make public the price, volume and time of the transactions executed in respect to financial instruments traded on a trading venue as close to real-time as is technically possible.

Regulated Market (RM): Regulated Markets are multilateral systems operated by and/or managed by a market operator, which bring together multiple third-party buying and selling interests in financial instruments, in accordance with its nondiscretionary rules, and in a way that results in a contract.

Systematic Internaliser (SI): Systematic Internalisers are investment firms which, on an organised, frequent systematic and substantial basis, deals on own account when executing client orders. They offer a third avenue for trading outside a lit market but without the liquidity disadvantage of pure bilateral OTC transactions. MiFID II/MiFIR introduced the obligation for investment firms to trade most shares on a trading venue or an SI and extended it to non-equity instruments. SIs tend to be operated either by investment banks or by electronic liquidity providers such as high-frequency market makers.

SME GM: MiFID II introduces a new category of MTFs named after 'SME growth markets (GM)', aiming at facilitating access to capital markets for small and medium-sized enterprises. Increased access to diversified sources of finance by smaller businesses in the EU is a key goal of the Capital Markets Union (CMU) agenda. MTFs or MTF segments can be registered as an SME growth market, provided that at least 50% of the issuers with shares available for trading on the relevant exchange have a market capitalisation of less than EUR 200mn.

Trading Venue (TV): A trading venue refers to an EEA trading venue which includes Regulated Markets (RM), Multilateral Trading Facilities (MTF) and Organised Trading Facilities (OTF).

List of abbreviations

APA	Approved Publication Arrangement
ARM	Approved Reporting Mechanism
CMU	Capital Market Union
CTP	Consolidated Tape Provider
DVC	Double Volume Cap mechanism
EMIR	European Markets Infrastructure Regulation
EEA	European Economic Area
EA	Euro area
ESMA	European Securities and Markets Authority
ETF	Exchange-traded fund
FIRDS	Financial Instruments Reference Data System
FITRS	Financial Instruments Transparency System
EU	European Union
ISIN	International Securities Identification Number
LEI	Legal Entity Identifier
LIS	Large in scale
MIFID I	Markets in Financial Instruments Directive – Directive 2004/39/EC of the European Parliament and of the Council
MiFID II	Markets in Financial Instruments Directive (recast) – Directive 2014/65/EU of the European Parliament and of the Council
MiFIR	Markets in Financial Instruments Regulation – Regulation 600/2014 of the European Parliament and of the Council
MTF	Multilateral trading facility
NCA	National competent authority
OTC	Over the counter
OTF	Organised Trading Facility
ppt	Percentage point
RTS	Regulatory Technical Standard
SME GM	SME growth market
SI	Systematic internaliser
SSTI	Size specific to the instrument
TV	Trading Venue

Currencies and countries abbreviated in accordance with ISO standards

