



European Securities and
Markets Authority

Consultation Paper

MiFID II/MiFIR review report on the development in prices for pre- and post-trade data and on the consolidated tape for equity instruments



Responding to this paper

ESMA invites comments on all matters in this paper and in particular on the specific questions summarised in Annex 1. Comments are most helpful if they:

1. respond to the question stated;
2. indicate the specific question to which the comment relates;
3. contain a clear rationale; and
4. describe any alternatives ESMA should consider.

ESMA will consider all comments received by **06 September 2019**.

All contributions should be submitted online at www.esma.europa.eu under the heading 'Your input - Consultations'.

Publication of responses

All contributions received will be published following the close of the consultation, unless you request otherwise. Please clearly and prominently indicate in your submission any part you do not wish to be publicly disclosed. A standard confidentiality statement in an email message will not be treated as a request for non-disclosure. A confidential response may be requested from us in accordance with ESMA's rules on access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by ESMA's Board of Appeal and the European Ombudsman.

Data protection

Information on data protection can be found at www.esma.europa.eu under the heading [Legal Notice](#).

Who should read this paper

All interested stakeholders are invited to respond to this consultation paper. This consultation paper is primarily of interest to users of market data and trading venues, but responses are also sought from any other market participant including trade associations and industry bodies, institutional and retail investors.

Table of Contents

1	Executive Summary	7
2	Introduction	8
3	Developments in prices for pre- and post-trade transparency data from regulated markets, MTFs, OTFs and APAs	10
3.1	Overall developments.....	10
3.1.1	Feedback received from trading venues and market data users.....	11
3.1.2	ESMA questionnaire to trading venues and APAs on market data issues	13
3.2	The application of the provisions to provide market data on a reasonable commercial basis since 3 January 2018.....	15
3.2.1	The legal framework.....	15
3.2.2	Availability of RCB information	16
3.2.3	Quality of RCB information published.....	17
3.2.4	Alternative approach	20
3.3	The application of the provisions to provide data on a disaggregated basis	22
3.3.1	The legal framework.....	22
3.3.2	The application of data disaggregation in practice.....	23
3.4	The application of the provisions to make available data free of charge 15 minutes after publication	24
3.4.1	The legal framework.....	24
3.4.2	The application of the provisions to make available data free of charge 15 minutes after publication in practice.....	24
4	The consolidated tape for equity instruments	26
4.1	The MiFID II legal framework	26
4.1.1	The consolidated tape and the Commission’s review of its functioning.....	26
4.1.2	Authorisation of equity instruments CTPs and related requirements.....	28
4.2	The reasons for the lack of a CTP for equity instruments	30
4.2.1	Limited rewards of providing an equity CT.....	30
4.2.2	Strict regulatory requirements for providing an equity CT	32
4.2.3	Competition by non-regulated entities	33
4.3	Availability, timeliness and quality of post-trade information by existing commercial entities	33
4.3.1	The landscape of entities providing post-trade transparency information.....	33

4.3.2	Assessment of the availability, timeliness and quality of post-trade information for equity instruments by existing commercial entities	37
4.4	Assessment of the risks of having no CTP for equity instruments in the EU	41
4.5	Assessment of key factors for the successful establishment of a CTP	42
4.5.1	Quality of the data input to the CTP.....	47
4.5.2	Mandatory reporting of post-trade data by trading venues and APAs	48
4.5.3	Mandatory consumption	49
4.5.4	Coverage – trading venues and APAs and asset classes.....	49
4.5.5	Publication time of the consolidated data	50
4.5.6	Number of CTPs and related competition.....	52
4.5.7	CTPs' fees	52
4.6	The impact of Brexit on the establishment of an equity CT	53
5	Annexes	55
5.1	Annex 1 Summary of questions.....	55
5.2	Annex II High-level summary of ESMA roundtables with trading venues, data vendors and data users on market data issues and the equity CTP	58
5.3	Annex III – Data vendors	62

Acronyms and definitions used

APA	Approved Publication Arrangement
ARM	Approved Reporting Mechanism
CDR 2017/565	Commission Delegated Regulation (EU) 2017/565 on organisational requirements and operating conditions for investment firms and defined terms under MiFID II
CDR 2017/567	Commission Delegated Regulation (EU) 2017/567 on definitions, transparency, portfolio compression and supervisory measures on product intervention and positions
CP	Consultation Paper
CQ	Consolidated Quote
CSA	Canadian Securities Administrators
CT	Consolidated Tape
CTA	Consolidated Tape Association
CTP	Consolidated Tape Provider
DRSP	Data Reporting Services Provider
EC	European Commission
ETF	Exchange-traded fund
EU	European Union
ESMA	European Securities and Markets Authority
FINRA	Financial Industry Regulatory Authority
FIRDS	Financial Instruments Reference Data System
FITRS	Financial Instruments Transparency System
IP	Information Processor
MiFID II	Markets in Financial Instruments Directive (recast) - Directive 2014/65 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
MMT	Market Model Typology
MTF	Multilateral Trading Facility
NCA	National Competent Authority
NI	National Instrument
OTC	Over-the-counter
OTF	Organised Trading Facility
Q&A	Question and answer

RCB	Reasonable Commercial Basis
Regulation NMS	Regulation National Market System
RTS	Regulatory Technical Standard
RTS 1	Commission Delegated Regulation (EU) 2017/587 on transparency requirements for trading venues and investment firms in respect of shares, depositary receipts, exchange-traded funds, certificates and other similar financial instruments and on transaction execution obligations in respect of certain shares on a trading venue or by a systematic internaliser
RTS 13	Commission Delegated Regulation (EU) 2017/571 on the authorisation, organisational requirements and the publication of transactions for DRSPs
RTS 14	Commission Delegated Regulation (EU) 2017/572 specifying the offering of pre- and post-trade data and the level of disaggregation of data.
SEC	Securities and Exchange Commission
SI	Systematic Internaliser
SIP	Securities Information Processor
SME	Small and Medium Enterprises
UK	United Kingdom
US	United States of America
UTP	Unlisted Trading Privilege

1 Executive Summary

Reasons for publication

MiFID II/MiFIR provide for a number of review reports requiring the European Commission (EC), after consulting ESMA, to present a report to the European Parliament and the Council on various provisions. This consultation paper (CP) covers the review provisions on the development in prices for pre- and post-trade transparency data from regulated markets, multilateral trading facilities (MTFs), organised trading facilities (OTFs), approved publication arrangements (APAs) and consolidated tape providers (CTPs) as well as the functioning of the consolidated tape (CT) for equity instruments as provided for in Articles 90(1)(g) and 90(2) of MiFID II and Article 52(7) of MiFIR. Since these mandates are closely linked, ESMA decided to cover them in one single review report.

Contents

Section 2 presents the scope of the issues covered in the CP: the development of prices for pre- and post-trade transparency data and the functioning of the CT. Section 3 assesses the development of prices for market data and the application of the main MiFID II/MiFIR provisions aiming at reducing the cost of market data: the requirement to publish market data on a reasonable commercial basis (RCB), the requirement to provide market data in a disaggregated format, and the requirement to make market data available free of charge 15 minutes after publication.

Section 4 assesses the functioning of the CT by analysing the reasons for the lack of an equity CT in today's environment, the availability, timeliness and quality of the current data offer for post-trade transparency data in equity markets and the risks of not having an equity CT. On the basis of this analysis, ESMA identifies potential success factors for establishing an equity CT. Furthermore, section 4 briefly assesses the impact of Brexit on establishing an equity CT.

The Annex presents a high-level summary of the roundtables with trading venues, data users and data vendors held at ESMA on 15 and 16 May 2019 as well as a detailed assessment of the market data services currently offered by data vendors.

Next Steps

Based on feedback received from stakeholders, ESMA will develop the final review report. ESMA intends to submit the final report to the Commission in December 2019.

2 Introduction

1. MiFID II/MiFIR requires the EC, after consulting ESMA, to present a report to the European Parliament and the Council on many provisions. This CP covers the following three mandates for reviewing the MiFID II/MiFIR provisions:
 - Article 52(7) of MiFIR: the development in prices for pre- and post-trade transparency data from regulated markets, MTFs, OTFs, APAs and CTPs. The EC should present the report by 3 July 2020.
 - Article 90(1)(g) of MiFID II: the development in prices for pre- and post-trade transparency data from regulated markets, MTFs, OTFs and APAs. The EC should present the report by 3 March 2020.
 - Article 90(2) of MiFID II: the functioning of the CT for equity instruments. The EC should present the report by 3 September 2019.
2. Since these mandates are closely linked, ESMA decided to cover them in one review report. ESMA engaged in a dialogue with the EC to agree on the timeline for delivering ESMA's advice. Due to uncertainties in the context of the United Kingdom (UK) withdrawal from the EU and its implication on the landscape of entities providing pre- and post-trade market data, ESMA and the EC agreed to delay ESMA's delivery of the report on the CT for equity instruments to December 2019. To avoid splitting closely interconnected topics, ESMA and the EC agreed to anticipate the timeline for the delivery of the reports under Article 52(7) of MiFIR and 90(1)(g) of MiFID II to December 2019.
3. This report covers the assessment of the MiFID II/MiFIR provisions in the area of market data aiming at improving the quality and availability of market data and reducing costs for market participants when purchasing data as well as the provisions for the equity CT. Most notably, these provisions include:
 - The obligation to make pre-trade and post-trade data available separately (Article 12 of MiFIR);
 - The obligation to make pre- and post-trade data available on an RCB, to ensure non-discriminatory access to that data and to make available data free of charge 15 minutes after publication (Article 13 of MiFIR, and Articles 64 and 65 of MiFID II);
 - The obligation for systematic internalisers (SIs) to make quotes public to other market participants on an RCB; and
 - The requirements for the CT for equity instruments (Article 59-65 of MiFID II, in particular Article 65(1) of MiFID II).
4. These provisions are further specified in implementing and delegating Regulations, most notably:

- Commission Delegated Regulation (EU) 2017/565 (CDR 2017/565) further specifies the data provision obligations for DRSPs (Articles 84-89);
 - Commission Delegated Regulation (EU) 2017/567 (CDR 2017/567) further specifies the data provision obligations for trading venues and SIs (Articles 6-11);
 - Commission Delegated Regulation (EU) 2017/572 (RTS 14) further specifying the offering of pre- and post-trade data and the level of disaggregation of data; and
 - Commission Delegated Regulation (EU) 2017/571 (RTS 13) further specifying the authorisation, organisational requirements and the publication of transactions for data reporting services providers (in particular Articles 13,14, 15,19 and 20).
5. Furthermore, ESMA issued supervisory guidance on the market data provisions in the ESMA Q&A on MiFID transparency issues and the ESMA Q&A on market structure issues.
 6. This CP seeks stakeholders' views on ESMA's initial assessment on the development in prices for market data and the equity CT. This initial assessment takes into account feedback received from stakeholders during a set of roundtables held on 15 and 16 May 2019 with trading venues, data vendors and data users respectively (see the summary in Annex II). Furthermore, the CP also includes feedback received from trading venues and APAs, following a questionnaire that ESMA addressed to them in the summer of 2018.
 7. There remains significant uncertainty on the timing and conditions of Brexit. ESMA's assessment covers the EU28, i.e. including the UK. ESMA's reflections on the possible way forward to address deficiencies identified distinguish, where possible and necessary, between an EU28 scenario (i.e. before Brexit) and an EU27 scenario (i.e. after Brexit).
 8. Section 3 of the CP assesses the developments in prices for pre- and post-trade transparency data. The section starts with a preliminary assessment of overall developments of prices for market data following the application of MiFID II/MiFIR before assessing the impact of the three main provisions in this area: 1) the requirement to provide market data on an RCB, including the possibility of replacing the current transparency plus approach by an alternative approach such as price regulation, 2) the requirement to provide disaggregated data, and 3) the provision to make market data available free of charge 15 minutes after publication.
 9. Section 4 of the CP assesses the functioning of the equity CT. The section presents the applicable legal framework, assesses the reasons for the lack of the emergence of an equity CT so far and the availability and quality of post-trade information provided by existing commercial entities. Moreover, section 4 includes an assessment of the risks of not having an equity CT in the EU, presents key factors necessary for the successful establishment of a CT and discusses the potential impact of Brexit on a CT.

10. Based on the responses and feedback received, ESMA will prepare the final review report for submission to the EC. Respondents to this consultation are encouraged to provide the relevant information, including quantitative data, to support their arguments or proposals.

3 Developments in prices for pre- and post-trade transparency data from regulated markets, MTFs, OTFs and APAs

11. The discussion on the cost of market data in the EU has been very controversial for many years with opposing views expressed by trading venues selling such data and market data users buying market data.
12. Already back in 2010, when consulting on the review of MiFID I, the EC stressed that prices for trading data were considered as being too high, in particular in comparison with the US, and should be brought down to a reasonable level. Contributions from stakeholders to that consultation, and to the general discussion on the prices for market data, ranged from banks and buy side firms calling for market data prices to be fixed at marginal cost plus a reasonable profit margin, to trading venues arguing that their existing charging schemes were reasonable and disputing the evidence of high prices for market data in Europe. These split views on the level of prices for market data in the EU were illustrated by two studies of Copenhagen Economics (2012)¹ and Oxera (2014)².
13. This section of the CP assesses the overall developments in prices for pre- and post-trade data in the EU since the application of MiFID II/MiFIR and of the various provisions introduced to lower the cost of market data: (i) the publication of pre- and post-trade transparency data on an RCB, (ii) the obligation to provide pre- and post-trade transparency data on a disaggregated basis, and (iii) the requirement to make pre- and post-trade data available free of charge 15 minutes after publication.
14. Given that pre- and post-trade transparency requirements for equity instruments other than shares and for non-equity instruments have been only introduced in MiFID II/MiFIR, with reference to these asset classes it is challenging to assess at this stage developments in the market data price. In light of this, Section 3.1 focusses on developments in equity markets. Section 3.2-3.4 covers both equity and non-equity markets.

3.1 Overall developments

15. Before assessing how market participants are complying with the granular transparency requirements set out in MiFID II/MiFIR, it is worth looking at the overall developments since

¹ The study was commissioned by the Danish and Swedish Securities Dealers Association. The Copenhagen Economics study recommended a bottom-up price regulation prescribing a price limit for raw data.

² The study was commissioned by Deutsche Börse, Nasdaq OMX, NYSE Euronext and SIX Swiss Exchange. The Oxera study concluded that there was no justification for regulating venues' data prices, which would distort the market. However, Oxera recognised that there might be benefits from more transparency about how venues recover their costs.

MiFID II/MiFIR has been applied, in particular to consider whether MiFID II/MiFIR delivered on its objective of ensuring that market data is available to market participants in an easily accessible, fair and non-discriminatory manner. The MiFID II/MiFIR provisions also intended to decrease the average cost of the market data and make them available to a wider range of market participants.

3.1.1 Feedback received from trading venues and market data users

16. Compared to the situation before the application of MiFID II/MiFIR, it can be observed that while on some limited aspects data users and trading venues share a common assessment, in other areas the different perceptions of market data users and trading venues have persisted.
17. Both trading venues and market data users acknowledge that, in an environment driven by technological development, the demand for market data and its value is increasing. This is for instance reflected in a shift in the consumption from display to non-display data³. Furthermore, MiFID I and II resulted in increased competition in equity markets and in a wider choice of execution venues. Since market data can address the adverse effects of a more fragmented trading environment, demand for market data increased. Both groups also concur that market data vendors play an important role in the value chain of market data and that the discussion on the price of market data should include the assessment of the role of data vendors.
18. However, data users and trading venues continue to disagree as to whether the price for market data is reasonable, as also documented in two new studies published by Copenhagen Economics⁴ and Oxera⁵.
19. In the view of data users, market data prices are too high and have not decreased since MiFID II/MiFIR is applied. Moreover, market data users stress that in some cases (e.g. for the use of non-display data) prices have significantly increased. For many market data users, trading venues do not charge based on the costs for producing and disseminating market data but rather on the value of the data for market data users. Data users also stress that it is not possible to substitute market data from the main pool of liquidity by market data from other trading venues. Therefore, the demand for market data is relatively inelastic and the competitive pressure on prices for trading venues is low. The Copenhagen Economics study highlights, for instance, that revenues from market data differ significantly across trading venues⁶. Under the assumption that the cost for providing and disseminating market data should be somewhat comparable, this variation of revenues is unlikely to be driven only by the cost of market data.

³ The terms display and non-display data are defined differently across trading venues. Broadly speaking, display data is data that is consumed on a screen by a human user, whereas non-display data is directly fed into trading algorithms, i.e. non-displayed. Moreover, some trading venues also consider the use of the data for determining whether display or non-display fees apply.

⁴ <https://www.copenhageneconomics.com/dyn/resources/Publication/publicationPDF/6/466/1543587169/pricing-of-market-data.pdf>

⁵ <https://www.oxera.com/wp-content/uploads/2019/03/design-of-equity-trading-markets-1.pdf>

⁶ The study mentions, based on data obtained from the annual reports of trading venues, that market data revenues ranged from EUR 14 to 213 million.

20. Market data users also stress that since the application of MiFID II/MiFIR new market data fees have emerged, such as fees for SIs consuming data, fees for data used for risk management purposes or for market abuse monitoring purposes. In addition, some data users complain that trading venues as well as data vendors request a share in profits generated by the direct use of market data obtained from trading venues and market users. The requirement to provide data free of charge 15 minutes after publication resulted in some trading venues introducing fees for providing delayed data where the delayed data is used for commercial purposes.
21. Data users are generally reporting that data policies have become much more granular and more difficult to understand to the extent that users consider it extremely difficult to know in advance how much they will be charged for a specific service. For example, in some cases, trading venues have close to 200 different items on their price list. In addition, users are frequently required to sign non-disclosure agreements when entering into market data agreements, which prohibit them from sharing information on the level of fees paid. There have also been complaints that market data policies change too frequently and some market data users have now dedicated staff to monitor these developments or subscribe to services provided by market data vendors to track these developments. Finally, data users express concerns about the current auditing practices of trading venues, which frequently result in significant fees for market data fees charged ex post.
22. The perception of the majority of trading venues on the developments of prices for market data differs significantly from the perception of data users. Firstly, trading venues stress that MiFID II/MiFIR did not result in higher prices of market data as reflected in the stable revenues of trading venues from market data. This observation is also included in the Oxera study, which shows that the share of revenues coming from market data services has been relatively stable over the last years⁷ and that aggregate market data revenues increased in recent years by only 1% per year in real terms and reached 245 million EUR in 2018⁸.
23. Trading venues acknowledge that MiFID II resulted in some price adjustments, with price increases but also price decreases (e.g. for private investors). They also agree that in some areas new fees have been introduced to reflect developments in the use of market data (e.g. shift in consumption to non-display data).
24. Secondly, trading venues do not share the view that the prices charged for market data are unreasonable. They stress that the provision and distribution of market data is a joint product and cannot be disentangled from the provision of trading services. Therefore, the prices of market data should recover some of these joint costs. Finally, mainly regulated markets refer to their contribution to price formation and to the provision of other services

⁷ According to the study the share of revenue stemming from market data ranges from 20-50% of total revenues for trade execution and market data.

⁸ This figure differs from the data presented in the Copenhagen Economic report (see footnote 6). The different numbers can be at least partially explained by the different scope of trading venues covered in the two studies, different reference periods (2017 vs. 2018) and the use of different sources and definitions (the Oxera study received the information directly from FESE members, the Copenhagen Economics study uses data from annual reports).

to the economy (e.g. the listing of SMEs, offering trading in illiquid instruments), which should in their view be reflected in the price of market data.

3.1.2 ESMA questionnaire to trading venues and APAs on market data issues

25. In the summer of 2018, ESMA submitted a questionnaire to regulated markets, MTFs, OTFs and APAs via national competent authorities (NCAs) seeking information on the application of the obligations to provide market data on an RCB and the overall market data policy. ESMA received 92 responses to the questionnaire from 43 regulated markets, 25 MTFs, 12 OTFs and 12 APAs, covering all types of financial instruments traded on EU trading venues and/or reported by APA, including shares, depositary receipts, ETFs, bonds and derivatives.
26. About half of the respondents determine the market data policy at a group level and three quarter of the respondents charge for making market data available in real-time. More than 90% of regulated markets charge for market data, whereas MTFs (53%), OTFs (73%) and APAs (62%) charge less frequently.
27. The different approaches towards charging for market data are also reflected in the ratio of revenues from market data compared to overall revenues. For about 50% of respondents (including both trading venues and APAs), market data revenues constitute 0-10% of overall revenues⁹ and for about 40% of respondents market data revenues constitute 10-25% of all revenues. For the remaining 10% of respondents the share of market data revenues to total revenues is above 25%. There were no significant differences between the share of market data revenues from Q1 2017 to Q1 2018.
28. 80% of the respondents charge different prices to different categories of users. When evaluating the responses received to the questionnaire, ESMA identified very heterogeneous approaches across trading venues and APAs for defining categories of customers. Whereas some entities define categories on the basis of the type of user (e.g. vendors, market members, professional users, ordinary users, end users) others define categories based on the use of the data (e.g. view only rights, derived rights, non-display data, display data, customers using market data for commercial products, customers using market data for investment decision making purposes) or a combination thereof.
29. Moreover, trading venues and APAs use different terminology and definitions for specifying categories of users and use cases of market data, making it challenging to compare the market data policies of trading venues and APAs in the EU and to obtain an overview of the pricing for market data in the EU.
30. The questionnaire also developed specific use cases¹⁰ to obtain information on the level and evolution of market data prices. In view of the very few entities that provided feedback

⁹ Based on revenues in the first quarter of 2017 and 2018.

¹⁰ E.g. how much do you charge for the provision of real-time data for shares/bonds/derivatives to an investment fund for internal use?; how much do you charge for the provision of real-time data for shares/bonds/derivatives to an SI for quoting obligation purposes?

to these use cases, the heterogeneity of market data policies across the EU, the limitation of the questionnaire to a few specific use cases only and the short application period of MiFID II/MiFIR (e.g. most entities did not offer pre- and post-trade data separately prior to the application of MiFID II, the transparency regime for instruments other than shares only started with the application of MiFID II), it is difficult to draw firm conclusions on the development of prices across the board.

31. Nevertheless, on a high-level, it can be noted that there are very diverse practices for charging market data fees, with some trading venues and APAs charging very low or no fees and other entities charging fees that seem excessively high. To get better insights into the overall development of the prices of market data, ESMA has recently submitted another questionnaire to trading venues and APAs, the results of which will feature in the final report to the EC.
32. In view of the above analysis of the different perceptions of data users and trading venues and the questionnaire on market data, ESMA considers it premature to form a firm view on the overall developments of the prices for market data at this stage. While it appears that the price of market data may not have increased overall, there are some indications that in areas and for use cases where there is high demand for market data, fees have increased. Moreover, it seems that currently market data prices are not only charged on the basis of the costs for producing and disseminating market data but also reflect the value of the data for data users.
33. In order to finalise the assessment of the overall developments of market data prices, ESMA encourages stakeholders to provide concrete quantitative evidence on the development of prices since the application of MiFID II. Such concrete evidence can be submitted on a confidential basis in addition to a general consultation response.

Q1: Have prices of market data increased or decreased since the application of MiFID II/MiFIR? Please provide quantitative evidence to support your answer and specify whether you are referring to equity and/or non-equity instruments.

Q2: If you are of the view that prices have increased, what are the underlying reasons for this development?

Q3: Following the application of MiFID II/MiFIR, are there any market data services for which new fees have been introduced (i.e. either data services that were free of charge until the application of MiFID II or any new types of market data services)?

Q4: Do you observe other practices that may directly or indirectly impact the price for market data (e.g. complex market data policies, use of non-disclosure agreements)? Please explain and provide evidence.

3.2 The application of the provisions to provide market data on a reasonable commercial basis since 3 January 2018

3.2.1 The legal framework

34. Article 64 and 65 of MiFID II require APAs and CTPs to publish post-trade market data on an RCB. A similar requirement for trading venues, but applying to both post- and pre-trade data, is provided in Article 13 of MiFIR. Moreover, SIs are required to make public their quotes on an RCB, following the provisions in Articles 15 and 18 of MiFIR.
35. In the technical advice provided to the EC in December 2014, ESMA analysed how to specify the provisions to publish market data on an RCB and developed criteria ensuring that charges are fair, reasonable and non-discriminatory.
36. When developing its technical advice, ESMA considered three options for implementing the RCB provisions: i) a transparency plus approach, ii) a revenue share limitation and iii) applying a long-run incremental cost-plus methodology (LRIC+).
37. After the public consultation and considering all feedback received, ESMA advised on choosing the transparency plus approach, i.e. enhancing the public transparency of pricing and of market data related policies. The objective of this solution was to provide more information on the pricing of market data, which should enable data users and supervisors to effectively compare the offerings, spot best practices as well as monitor compliance. The other two solutions were assessed as difficult to apply in practice and therefore unlikely to be effective in the context of market data pricing.
38. The final specification of the concept of RCB is provided in the Articles 84-89 of CDR 2017/565 (for data reporting service providers) and Articles 6-11 of CDR 2017/567 (for trading venues and SIs). Those regulations require that the market data price should be:
 - a) based on costs of producing and disseminating such data and may include a reasonable margin (Article 85 of CDR 2017/565 and Article 7 of CDR 2017/567),
 - b) offered on a non-discriminatory basis to all clients (Article 86 of CDR 2017/565 and Article 8 of CDR 2017/567),
 - c) charged according to the use made by the individual end-user (Article 87 of CDR 2017/565 and Article 9 of CDR 2017/567), and
 - d) available without being bundled with other services (Article 88 of CDR 2017/565 and Article 10 of CDR 2017/567).
39. In addition to those provisions, in order to increase transparency, timeliness and comparability of information on market data prices, CDR 2017/565 and CDR 2017/567 provide a number of requirements regarding prices and other terms and conditions (Articles 89 and 11):

- a) current price lists' publication,
 - b) advance disclosure with a minimum of 90 days' notice of future price changes,
 - c) information on the content of the market data,
 - d) disclosure of revenues obtained from making market data available and the proportion of that revenue compared to the total revenues, and
 - e) information on how the price was set, including the cost accounting methodologies used and the specific principles.
40. The data provision obligations of CDR 2017/565 and CDR 2017/567 do not apply to trading venues, APAs, CTPs and SIs that make market data available to the public free of charge (Articles 84(2) and 6(2) respectively).
41. The following three sections assess the application of the transparency plus approach in practice – covering both the availability of the RCB information (section 3.2.2) as well as the quality of the information disclosed (section 3.2.3) – and discuss whether changes and/or further guidance on the transparency plus approach (section 3.2.4) are needed to deliver on the MiFID II/ MIFIR objective to lower the cost of the market data and to make it available to market participants in an easily accessible, fair and non-discriminatory manner.
42. Sections 3.2.2 and 3.2.3 focus on the application of the RCB provisions by trading venues and APAs since ESMA has only very limited information on the application of the RCB provisions by SIs. ESMA is interested in receiving feedback from stakeholders on the application of the RCB provisions by SIs.
43. Section 3.2.4 discusses the possibility to move from the transparency plus approach to a more restrictive approach for regulating the prices of market data, such as a revenue cap or LRIC+ model.

3.2.2 Availability of RCB information

44. According to ESMA's assessment based on information provided in response to the questionnaire on market data, the level of availability of the RCB disclosures by trading venues and APAs is generally positive. Only around 10% of the trading venues and APAs under the review did not disclose the required RCB information on their website.
45. The areas which proved to be most problematic were the disclosure of the revenues from market data activity (17% of trading venues/APAs failed to disclose this information) as well as information on how the price for the market data was set (12% of the trading venues/APAs did not publish any information with this respect).
46. ESMA has followed up with the relevant NCAs on those trading venues that did not disclose all the information and as of April 2019, the vast majority of trading venues and APAs

comply with the basic transparency requirements by publishing on their websites all the necessary disclosures.

47. So far, regarding the SIs disclosures, ESMA has not received a lot of feedback on whether the RCB disclosure provisions are being complied with. While ESMA received some feedback that SIs generally provide access to the quotes free of charge and, in consequence, do not need to disclose the RCB information, it appears at the same time that some SIs publish their quotes via APAs which charge users for accessing that data. ESMA would be interested in gathering further feedback on this topic.

Q5: Do you agree that trading venues/APAs/SIs comply with the requirement of making available the information with respect to the RCB provisions? If not, please explain which information is missing in your view and for what type of entity.

3.2.3 Quality of RCB information published

48. In order to allow ESMA to better understand the quality and comparability of the content of the RCB disclosures, the questionnaire also requested trading venues and APAs to provide detailed information on how the various requirements are currently complied with. The assessment of the feedback received to the questionnaire is presented below and is complemented by further input received from trading venues and market data users.

49. Overall, the exercise revealed that for some of the RCB disclosure requirements current practices across trading venues and APAs differ significantly, making it difficult for users to compare the information. Moreover, in some areas the information currently provided by many trading venues and APAs does not empower users to determine how the price for market data was set.

50. ESMA considers that many of the issues identified may be addressed by issuing further guidance setting out its expectations on the content and format of the RCB disclosure requirements.

Obligation to provide market data on a non-discriminatory basis

51. Most of the trading venues and APAs contributing to the questionnaire and charging for the provision of market data charge different prices to different categories of customers.

52. The assessment of the objective criteria used revealed very heterogeneous practices for categorising customers making it difficult for users to compare the different approaches used. While some trading venues and APAs distinguish categories of customers based on very broad criteria (e.g. internal vs commercial purposes, professional vs non-professional users, data vendors vs other users) others rely on a very granular categorisation. The objective criteria used refers to either the nature of the customer (e.g. data vendor, professional user, financial intermediary, market member, etc.) and/or the intended use of data (e.g. redistribution of data, non-display vs display data, index calculation usage, CFD

information usage, etc.). Furthermore, the information is not provided in an uniform format, which makes it more challenging to access it and analyse its content.

53. ESMA considers that the usability and comparability of the information provided could be improved by providing regulatory guidance on the level of granularity expected and the terminology used (e.g. professional vs. non-professional user, display vs. non-display data). ESMA considers that an excessively granular approach for categorising customers resulting de facto in one or very few customers per category may be contradictory to the obligation to provide market data on a non-discriminatory basis. Finally, it could also be considered requiring publishing information using a standardised template.

Per user fees

54. The requirement to charge for market data on a per user basis aims at avoiding that users have to pay various times for the same market data received by various data vendors and/or directly from the trading venue. Charging on a per user basis requires trading venues and APAs to establish direct relationship with users. Since the establishment of such operational controls may be disproportionately high for smaller entities, trading venues and APAs may derogate from this requirement as long as they publish the reasons for it on their website.
55. ESMA noted that there may be different interpretations of the requirement to charge on a per user basis, and that some respondents interpret the requirements as charging according to the use made by individual end-users of the market data rather than on an individual per user basis. Moreover, those entities not offering data on a per user basis publish the reasons on their website, even though the justification in some cases is limited to stating that it would be disproportionate without providing further explanations.
56. Finally, ESMA received complaints from users that, while trading venues and APAs introduced the possibility to charge on a per user basis, in practice it is very difficult to benefit from it.
57. ESMA is considering issuing supervisory guidance specifying further the concept of charging on a per user basis. It could also be clarified that entities not offering data on a per user basis need to explain the underlying reasons for making use of the derogation.

Disclosure of current price lists

58. Based on the assessment of the price lists disclosed and complaints received from market data users, the usability and comparability of the information is limited. Price lists are in most cases very long documents with complex terminology. Moreover, each entity uses its own terminology making it difficult to compare price lists across the different entities.
59. ESMA, as well as some stakeholders, see merit in working on supervisory guidance harmonising the definition of terminology used, as well as publishing the price lists in a

more standardised and streamlined format thereby making it easier for users to understand and compare price lists.¹¹

Advance disclosure with a minimum of 90 days' notice of future price changes

60. The advance disclosure of price changes aims at ensuring that market data users are made aware of potential price changes at an early stage, thereby enabling them to consider alternative sources of market data should they not be in a position to accept the proposed price changes.
61. The questionnaire did not gather feedback on the advance disclosure of future price changes. According to feedback provided by market data users provided during the roundtable and in bilateral meetings with ESMA, not all trading venues and APAs currently comply with the requirement of publishing the price list changes with a minimum of 90 days' notice. Moreover, market data users claim that often there are no substitutes to the market data providers, which forces users to accept any price change.

Information on the content of market data

62. It appears that there are heterogeneous interpretations towards the information that should be disclosed. For instance, concerning the pre-trade and post-trade market data ratio some market participants report the ratio between pre-trade orders and post-trade transactions while others report how much of the information they provide related to pre-trade and post-trade.
63. Concerning information on the number and total turnover of instruments covered there appear to be inconsistent approaches concerning the granularity of the information to be disclosed (e.g. all instruments vs. disclosure at the level of asset class or more granular), and the appropriate reference period.
64. ESMA would see merit in issuing supervisory guidance on the content of market data to be disclosed.

Information on revenue from market data

65. ESMA considers that the information is not presented in a consistent way and it is difficult to compare the information across entities (e.g. information provided at different levels, use of unclear terminology, use of different reference periods).
66. ESMA considers that the usability and comparability of the information could be improved via supervisory guidance to ensure a consistent presentation and the use of a standardised terminology and publication format.

¹¹ See also paragraph 53.

Information on how the price is set

67. ESMA is of the view that the way most trading venues and APAs comply with this provision does not enable data users to fully understand how the price for market data is set and does not allow to compare the information disclosed.
68. In particular, only qualitative information is provided, unclear terminology is used, and no clear information on the cost allocation methodologies is disclosed. ESMA notes that most respondents allocate joint costs based on the revenues generated by the provision of market data and other services provided. However, this approach appears to be not fully in line with the requirement to provide market data on the basis of costs (Article 85 of CDR 2017/565 and Article 7 of CDR 2017/567).
69. In ESMA's view the usability and comparability of the information disclosed could be improved by issuing supervisory guidance clarifying ESMA's expectations. Such guidance could, for instance, require entities to disclose some quantitative information (e.g. cost ratios, allocation key for allocating costs), standardise the terminology and the methodology used and require the publication in a standardised format.

Q6: Do you share ESMA's assessment on the quality of the RCB information disclosed by trading venues, APAs and SIs? If there are areas in which you disagree with ESMA's assessment, please explain.

Q7: Do you agree that the usability and comparability of the RCB information disclosed could be improved by issuing supervisory guidance? If yes, please specify in which areas you would consider further guidance most useful, including possible solutions to improve the usability and comparability of the information.

3.2.4 Alternative approach

70. When delivering its technical advice to the EC on the most appropriate approach for implementing the requirement to provide market data on an RCB, ESMA rejected more intrusive approaches such as implementing a revenue share limitation or limiting data charges by reference to costs, such as an LRIC+ model and recommended the current transparency plus approach. Nevertheless, the technical advice to the EC highlighted that this approach should be reviewed after a certain period to assess whether it resulted in changes to the level of data charged or whether additional action appears necessary.¹²
71. Therefore, if it is considered that the transparency plus approach for implementing the RCB concept is not delivering, including in case of issuing further guidance further specifying ESMA expectations, more intrusive measures should be reconsidered. This could, for instance, include the possibility to introduce an LRIC+ model or a revenue cap as

¹² See Final Report: ESMA Technical Advice to the Commission on MiFID II and MiFIR, p. 274, 19 December 2014. Available at: https://www.esma.europa.eu/sites/default/files/library/2015/11/2014-1569_final_report_-_esmas_technical_advice_to_the_commission_on_mifid_ii_and_mifir.pdf

discussed at the time of the technical advice. Such alternative approaches are likely to require the need to change the current Level 2 provisions and possibly also the MiFID II/MiFIR Level 1 text.

72. For instance, one option that could be considered is a revenue cap model which would allow trading venues to recover the costs for providing market data, including an appropriate part of joint costs, plus an ex ante specified margin. Such an approach would require an amendment of the Level 1 and or Level 2 text to clarify the basis on which trading venues and APAs can charge for market data and to specify how to determine the costs for producing and disseminating market data and how to determine an appropriate margin.
73. This model could also reflect the different roles of trading venues for price formation as well as for the overall economy. For instance, trading venues contributing to the quality of price formation or listing small and medium enterprises (SMEs) could be allowed to charge higher margins compared to dark pools using reference prices from price forming trading venues.
74. ESMA is aware that in the past many stakeholders expressed strong opinions against this alternative approach. Nevertheless, ESMA believes that a more restrictive approach cannot be excluded, if the current approach does not deliver on its objectives. Moreover, ESMA also received feedback from some stakeholders that the current approach cannot work in practice in the absence of a specification of what constitutes a reasonable margin and as long as trading venues and APAs do not disclose information on the actual costs for providing and distributing market data.
75. ESMA therefore encourages stakeholders to reflect on whether the current approach of RCB is delivering against the MiFID II objectives or whether a more intrusive alternative approach should be considered. In particular, ESMA would be interested in views of stakeholders on the revenue cap model sketched out above as well as on any other alternative approach.
76. The establishment of a CT (see section 4) would to some extent address the concerns around the costs of market data. A CT could de facto set a maximum price that trading venues could charge for market data covered by the CT. Therefore, should there be a CT, trading venues and APAs could, in principle, charge no more for their data than users would have to pay for the data stream of the CT.
77. At the same time, it should be stressed that the CT cannot address all concerns around the prices of market data. First, the current discussion focusses on the CT for post-trade data in equity instruments. Pre-trade equity and non-equity data as well as post-trade non-equity data would not be covered and market data policies of trading venues and APAs would not be affected for these data items.

Q8: Do you think that the current RCB approach (transparency plus) can deliver on the objective to reduce the price of market data or should it be replaced by an alternative

approach such as a revenue cap or LRIC+ model? Please justify your position and provide examples of possible alternatives.

Q9: Do you consider that a revenue cap model as presented above might be a feasible approach to reduce the cost of market data? Which elements would be key for successfully implementing such a model?

3.3 The application of the provisions to provide data on a disaggregated basis

3.3.1 The legal framework

78. The MiFIR provisions on data disaggregation aim at ensuring that users of market data only pay for data they are interested in rather than being forced to buy bundled data, which may include data of little interest for users.

79. Article 12 of MiFIR introduces the requirement for trading venues to make available pre- and post-trade data separately. Moreover, Article 12 of MiFIR mandates ESMA to develop draft RTS specifying the offering of pre-trade and post-trade transparency data, including the level of disaggregation of the data to be made available to the public.

80. While customers may have an interest in a high level of data disaggregation, ultimately up to the instrument level, a high level of data disaggregation also implies higher costs for trading venues for producing the various data feeds which may ultimately result in higher costs for market data, in particular for data feeds for which there is only little demand.

81. When developing the RTS ESMA aimed at finding the right level of data disaggregation balancing the advantages of providing disaggregated data against the possible costs of highly disaggregated data. Article 1(1) of RTS 14 therefore requires trading venues to disaggregate data along four main criteria: asset class (separating equity instruments from equity-like instruments, and distinguishing fixed income, emission allowances and different asset classes of derivatives), the country of issue for shares and sovereign debt, the currency, and scheduled daily auctions as opposed to continuous trading.

82. In order to limit the burden for trading venues when providing disaggregated data, Article 1(4) of RTS 14 allows trading venues to provide such disaggregated data only upon request. Article 1(5) of RTS 14 clarifies that trading venues may, in addition to providing disaggregated data, also offer bundles of data.

83. ESMA issued a Q&A providing further guidance on the concept of providing disaggregated data on request, clarifying that any individual or entity could make a request for disaggregated data and that trading venues should reply to those requests as quickly as possible and not discriminate between requests of the same category.

3.3.2 The application of data disaggregation in practice

84. Following the application of the data disaggregation provisions since 3 January 2018, all trading venues in the EU separate pre- and post-trade data in their market data offerings. In addition, most trading venues also offer bundled pre-and post-trade data.
85. Trading venues are ready to offer disaggregated data along the criteria set out in RTS 14 on request. According to feedback received from trading venues to date, there have been only few requests for disaggregated data.
86. Most trading venues have set up procedures and notification forms for processing data disaggregation requests. Such procedures aim at ensuring that data disaggregation requests are treated in a coherent manner and set out the timelines from the initial request for disaggregated data to the ultimate delivery of disaggregated data.
87. Data users complained that data disaggregation resulted ultimately in higher prices. While it led to more granular data offers, it also resulted in an overall higher level of fees to be paid by users for buying market data since now more data packages have to be bought to get the same overview that previously just one package was providing. According to users, due to concerns that further disaggregation requests may result in overall higher prices, there is only very little demand for disaggregated data.
88. Most users do not obtain market data through direct feeds of trading venues but via data vendors. Prior to the application of MiFID II, trading venues had raised concerns that data vendors might not pass through the level of disaggregation to end users. According to information provided by market participants, data vendors offer some disaggregated data but not the full spectrum. This could be explained either by a lack of demand of clients of data vendors for such data or by the unwillingness of data vendors to provide certain disaggregated data.
89. ESMA preliminarily concludes that the requirement to disaggregate data did not result in contributing to lower costs of market data. It appears that data disaggregation may have rather contributed to a higher complexity of market data policies by increasing the various data packages offered, which may ultimately increase costs for market data. Given that the data disaggregation requirements have been implemented by trading venues and data users only recently and that changes to the regime would go hand in hand with implementing and ongoing costs for market participants, ESMA would not recommend making changes to the level of data disaggregation to be provided.
90. Nevertheless, ESMA considers it important to understand why there has been, to this date, only limited demand for disaggregated data. Should this be linked to potential barriers for accessing disaggregated data, corrective measures might be necessary to ensure that users can access disaggregated data in an a fair and easily accessible manner.

Q10: Did data disaggregation result in lower costs for market data for data users? If not, please explain why?

Q11: Why has there been only little demand in disaggregated data?

3.4 The application of the provisions to make available data free of charge 15 minutes after publication

3.4.1 The legal framework

91. MIFID II/MIFIR also requires that market data should be made available to the market participants free of charge 15 minutes after publication. This obligation concerns APAs and CTPs (Article 64 and 65 of MIFID II), as well as trading venues (Article 13 of MIFIR).
92. Following many questions and complaints from market participants on the application of this provision, ESMA provided further guidance (ESMA Q&As on transparency issues., Q&A 9 and 10 on general transparency topics¹³).
93. Q&A 9a clarifies that the market data provided free of charge 15 minutes after publication should replicate the information published on an RCB and be made available directly to end users. Q&A 9b specifies that trading venues, APAs and CTP may not impose redistribution fees on redistributors or third parties, unless where redistributors/third parties charge for the distribution of data and or commercialise value-added services created from such data.
94. Q&A 10 clarifies which types of practices of trading venues and APAs are not considered as compliant with the regulatory requirements. Furthermore, the Q&A explains that APAs and trading venues should adapt the format in which data is provided to the needs of users. When the data is accessed in large amount and on regular basis, the information has to be provided in the machine-readable basis to ensure that it can be accessed through robust channels allowing for automatic access. In addition to this, market data should also be accessible in human-readable format, for an average user to be able to access the necessary information, e.g. through web-search tools.

3.4.2 The application of the provisions to make available data free of charge 15 minutes after publication in practice

95. Based on the responses to the questionnaire from trading venues and APAs around 30% of the trading venues / APAs did not comply with the requirements to make market data available free of charge 15 minutes after publication. While follow-up work with NCAs resulted in an increase of the compliance level (even though not always in full compliance with the ESMA Q&A), a significant number of trading venues does currently not make available the data free of charge and ESMA continues to receive complaints from data users concerning the lack of compliance.

¹³ https://www.esma.europa.eu/sites/default/files/library/esma70-872942901-35_qas_transparency_issues_0.pdf

96. ESMA received feedback, mainly from the trading venues, that machine-readable data is not useful for retail investors, since they are not appropriately equipped to benefit from such data. In the view of trading venues data in machine-readable format is used mainly by redistributors/third parties that use the data for commercial purposes. Therefore, many trading venues consider it unfair to offer machine-readable data free of charge 15 minutes after the publication of the data. This argument is put forward with regard to pre- and post-trade data, but in particular with respect to pre-trade data. The large majority of trading venues comply with the obligation to provide the data in human-readable format on their website.
97. Data users, on the other hand, explain that the free data is extremely useful, and they benefit from it for a variety of reasons, such as data reconciliation, financial research, or position valuation. However, users continue to find it very challenging to obtain the data free of charge from some of the trading venues and APAs. For instance, some entities require to sign complex market data agreements, others continue rendering it impossible to use the information, e.g. by displaying data as an image or only displaying single ISINs at a time, other entities appear to ignore requests for such data.
98. Since MiFIR does not distinguish between different types of users to which the data should be made available free of charge 15 minutes after publication, ESMA does not consider that the legislator intended to make the data available free of charge to retail users only but to any type of user. Nevertheless, ESMA agrees, as it is already reflected in Q&A 10, that trading venues and APAs may publish the data using different formats depending on the type of user accessing the data. As specified in Q&A 9b, ESMA agrees that under certain circumstances, trading venues and APAs may be allowed to charge a fee for such data, i.e. in case redistributors charge for the distribution of the data and where the data is used to create added-value services.
99. ESMA has been made aware by data users that some trading venues and APAs consider any use of market data as an added-value service and therefore charge for providing delayed data. ESMA sees merit in further clarifying the concept of value-added services to ensure a consistent application of the concept.
100. Moreover, ESMA will consider further action should the compliance with the publication obligation not improve in the future.

Q12: Do trading venues and APAs comply with the requirement to make available data free of charge 15 minutes after publication? If not, please explain in which areas you have identified deficiencies

Q13: Do you consider it necessary to provide further supervisory guidance in this area (for instance by reviewing Q&As 9 and/or 10) Please justify your position and explain in which area further guidance may be needed? Please differentiate between pre- and post-trade data.

4 The consolidated tape for equity instruments

4.1 The MiFID II legal framework

4.1.1 The consolidated tape and the Commission's review of its functioning

101. MiFID II sets out the regulatory framework for data reporting service providers (DRSPs), which includes APAs, approved reporting mechanisms (ARMs) and CTPs. CTPs are entities authorised to:

- collect post-trade reports for equity-like financial instruments (namely, shares, depositary receipts, ETFs certificates and similar instruments) and non-equity financial instruments (namely, bonds, structured finance, emission allowances, derivatives) from trading venues and APAs, and
- consolidate them into a continuous electronic live data stream providing price and volume data per financial instrument¹⁴.

102. It is important to note that MiFID II designs the requirements applicable to “voluntarily established” CTPs, whereas it does not mandate the establishment of a CT in the EU and does not oblige trading venues and APAs to submit transaction data to a CTP for their consolidation. The latter solution is the one chosen by the legislation of the US¹⁵.

103. With the provisions on CTPs, MiFID II¹⁶ distinguishes between the CT for equity or equity-like financial instruments and non-equity ones. MiFID II expected that the equity financial instruments CT would contribute to creating a more integrated European market and make it easier for market participants to gain access to a consolidated view of trade transparency information. In particular, the competition among several providers should allow to achieve technically highly sophisticated and innovative solutions, “*servicing the market to the greatest extent possible and ensuring that consistent and accurate market data is made available*” (Recital 117 of MiFID II). MiFID II recognises that the establishment of a CT for non-equity financial instruments is more difficult to implement, and potential providers should be able to gain experience with the equity one before constructing the other (Recital 118 of MiFID II).

¹⁴ In addition to these services, which are mandatory to be authorised as a CTP, Article 13 of the RTS 13 states that CTPs can provide additional services, which include the provision of pre-trade transparency data, historical data, reference data, research, the processing, distribution and marketing of data and statistics on financial instruments, trading venues, and other market-related data, and the design, management, maintenance and marketing of software, hardware and networks in relation to the transmission of data and information. Finally, CTPs may perform other services which increase the efficiency of the market, provided that such services do not create any risks on the quality of the CT or the independence of the CTP that cannot be adequately prevented or mitigated.

¹⁵ For instance, this is the case for the legal framework applicable in the US. See, among others, Regulation National Market System, Rule 603 — Distribution, consolidation, and display of information with respect to quotations for and transactions in NMS stocks. Rule 603(b) provides that “*every national securities exchange on which an NMS stock is traded and national securities association shall act jointly pursuant to one or more effective national market system plans to disseminate consolidated information, including a national best bid and national best offer, on quotations for and transactions in NMS stocks. Such plan or plans shall provide for the dissemination of all consolidated information for an individual NMS stock through a single plan processor.*”

¹⁶ See Recitals (117) and (118) of MiFID II.

104. While MiFID II opted for a commercial solution for providing a CT, co-legislators considered it necessary to provide for a CT to be appointed through a public procurement process if the envisaged mechanism did not lead to the timely delivery of an effective and comprehensive CT for equity and equity-like instruments¹⁷. Through the report to the European Parliament and Council provided for by Article 90(2) of MiFID II, for the purposes of which this CP is drafted, the EC has to assess the functioning of the CT against the following criteria:

- the availability and timeliness of post trade information in a consolidated format capturing all transactions irrespective of whether they are carried out on trading venues or not;
- the availability and timeliness of full and partial post trade information that is of a high quality, in formats that are easily accessible and usable for market participants and available on a reasonable commercial basis.

105. Should the EC conclude that the CTPs have failed to provide information in a way that meets the abovementioned criteria, it should accompany its report by a request to ESMA to launch a negotiated procedure for the appointment through a public procurement process run by ESMA of a commercial entity operating a CT¹⁸.

106. Article 90(2) of MiFID II provides that the report on the functioning of the equity instruments CT should be delivered by 3 September 2019. In this respect, in July 2018, the EC asked ESMA to provide its contribution for the report on the CT by the beginning of March 2019. However, due to the high number of MiFID II/MiFIR review reports to be prepared in parallel and the unknown impact of Brexit, ESMA suggested to the Commission services an adjusted timeline for the delivery of the whole set of review reports¹⁹. The Commission services agreed to the proposed timeline, which would result in a delay of the various reports by six to twenty-four months compared to the original regulatory deadlines. With reference to the report on the equity CT, ESMA suggested to deliver it by December 2019, together with the review report on the development in prices of the pre-trade and post-trade data.

¹⁷ See Recital (117) of MiFID II.

¹⁸ In this respect, Article 90(3) of MiFID II further provides that the Commission is, where the procedure for the appointment of a CTP is launched, empowered to adopt delegated acts specifying measures in order to: (a) provide for the contract duration of the commercial entity operating a consolidated tape and the process and conditions for renewing the contract and the launching of new public procurement; (b) provide that the commercial entity operating a consolidated tape shall do so on an exclusive basis and that no other entity shall be authorised as a CTP; (c) empower ESMA to ensure adherence with tender conditions by the commercial entity operating a consolidated tape appointed through a public procurement; (d) ensure that the post-trade information provided by the commercial entity operating a consolidated tape is of a high quality, in formats that are easily accessible and usable for market participants and in a consolidated format capturing the entire market; (e) ensure that the post trade information is provided on a reasonable commercial basis, on both a consolidated and unconsolidated basis, and meets the needs of the users of that information across the Union; (f) ensure that trading venues and APAs shall make their trade data available to the commercial entity operating a consolidated tape appointed through a public procurement process run by ESMA at a reasonable cost; (g) specify arrangements applicable where the commercial entity operating a consolidated tape appointed through a public procurement fails to fulfil the tender conditions; (h) specify arrangements under which authorised CTPs may continue to operate a consolidated tape where the empowerment provided to appoint an exclusive CTP is not used or, where no entity is appointed through the public procurement, until such time as a new public procurement is completed and a commercial entity is appointed to operate a consolidated tape.

¹⁹ https://www.esma.europa.eu/sites/default/files/library/esma70-156-907_letter_chair_to_eu_commission_on_the_mifid_review_reports.pdf.

4.1.2 Authorisation of equity instruments CTPs and related requirements

107. The provision of CTP services is subject to the authorisation by the NCA²⁰, which is granted where the latter is satisfied that the CTP complies with all the requirements set forth by MiFID II. Such authorisation may be withdrawn where, among other things, the conditions under which the authorisation was granted are no longer met (see Articles 59, 61 and 62 of MiFID II). RTS 13 supplements MiFID II as regards the authorisation process for CTPs, organisational requirements and the publication of transactions for CTPs and other data reporting services providers²¹.

108. ESMA has to publish on its website the list of CTPs authorised in the EU. As of the date of this CP, there are no authorised CTPs in the EU (see Section 4.2 of this CP for further information).

109. The main requirements applicable to CTPs include the following ones:

- The obligation to consolidate the data:
 - i. from all regulated markets, MTFs, OTFs and APAs (Article 65(3) of MiFID II)²². Where a new TV or APA starts operating, a CTP has to incorporate their data in its tape as soon as possible, and in any case within six months from the start of their operations (Article 15 of RTS 13);
 - ii. relating to all equity financial instruments (Article 15 of RTS 13). For instance, equity CTPs could not choose to consolidate only shares or ETFs, but are obliged to include shares, depositary receipts, ETFs, certificates and other similar financial instruments.²³
- The need to have adequate policies and arrangements in place to:
 - i. collect the post-trade data,
 - ii. consolidate them into a continuous electronic data stream,
 - iii. make the information available to the public as close to real time as is technically possible, and

²⁰ As of 2022, ESMA will be the competent authority for CTPs.

²¹ The RTS 13 details the information which CTPs have to submit in the framework of the authorisation process as regards the management and corporate governance.

²² With reference to the non-equity instruments consolidated tape, Article 15a of the RTS 13 has identified a different criterion, since the consolidation of data of all trading venues and APAs is difficult to achieve. In particular, it identifies the threshold of at least 80 % of the total number of transactions or volume of transactions in the relevant asset class published in the Union by all APAs and all trading venues. In this respect, see the Final Report, Draft RTS specifying the scope of the consolidated tape for non-equity financial instruments of 31 March 2017 (ESMA/2017/70-8792942901-40) https://www.esma.europa.eu/sites/default/files/library/esma70-872942901-40_rts_net_final_report.pdf.

²³ On the contrary, Article 15a of RTS 13 provides that the non-equity CTPs may decide to consolidate one or more types of non-equity financial instruments.

- iv. provide the service on an RCB (see section [3.2.1] above on the legal sources on the RCB)²⁴.

In addition, following 15 minutes after the CTP published it, the information has to be made available free of charge.

- CTPs should be able to efficiently and consistently disseminate the information:
 - i. in a way that ensures fast access to it,
 - ii. on a non-discriminatory basis. In particular:
 - the data should be available at the same price and on the same terms and conditions to all customers falling within the same category in accordance with published objective criteria (Article 86 of the CDR 2017/565), and
 - the information to be published has to be sent through all distribution channels at the same time, including when the information is made public as close to real time as technically possible or 15 minutes after the first publication (Article 19 of RTS 13).
 - iii. in formats that are easily accessible and utilisable for market participants (in this respect, see Articles 14 and 20 of RTS 13).
- the need to provide a minimum set of information to consolidate and make available to the public. Such information should include, among other things, the ISIN, transaction price and volume, the transaction time, the relevant venue.

110. In addition, the following requirements apply to CTPs:

- Management requirements. The members of the CTP's management body have to meet the standard of the sufficiently good reputation, sufficient knowledge, skills and experience and commitment of sufficient time to perform their duties. They are also required to act with honesty, integrity and independence of mind to effectively challenge the decisions of the senior management where necessary and to effectively oversee and monitor management decision-making where necessary²⁵.

²⁴ The fees charged by CTPs have to be charged on a 'per user basis', unless this is disproportionate to the cost of making market data available, having regard to the scale and scope of the market data. CTPs also have to make market data available without being bundled with other services and have to make easily available to the public the price and other terms and conditions for the provision of the market data.

²⁵ The Guidelines on the management body of market operators and data reporting services providers of 28 September 2017 (ESMA70-154-271, available at this link <https://www.esma.europa.eu/press-news/esma-news/esma-publishes-guidelines-suitability-assessment-management-body-market>).

- Further organisational requirements:
 - i. The need to operate and maintain effective administrative arrangements designed to prevent conflicts of interest (Article 65(4) of MiFID II)²⁶.
 - ii. The need to have sound security mechanisms in place. Such mechanisms should guarantee the security of the means of transfer of information and minimise the risk of data corruption and unauthorised access²⁷.

4.2 The reasons for the lack of a CTP for equity instruments

111. More than a year following the application of MiFID II, a CT is still to arise in the EU. Despite calls from different market participants raising the benefits such initiative would bring to the market, there remain a number of challenges that have prevented a CT from emerging so far.

112. In ESMA's assessment this seems to be linked to mainly three reasons. Firstly, the business case for the provision of a consolidated tape is difficult to justify. Secondly, the provision of this service is subject to strict regulatory requirements. Thirdly, any potential CTP would face competition from non-regulated entities. The following sections provide more details on the underlying reasons for the current lack of a CTP for equity instruments in the EU.

4.2.1 Limited rewards of providing an equity CT

113. A CTP is faced with several challenges in order to put a business case together. First, in order to consolidate all post-trade data on equity instruments, a CTP needs to obtain post-trade data from all trading venues offering trading in equity instruments in the EU and all APAs reporting transactions in equity instruments. In the vast majority of cases, trading venues and APAs will ask for a fee for the provision of such data.

114. Based on the feedback ESMA received to the questionnaire from trading venues and APAs, it appears that the cost for such data would be currently high and would reach on average 69,000 €²⁸ per year. The level of fees charged by APAs would on average be lower than the fees charged by the trading venues. It should be noted that most trading venues and APAs would charge around 10,000€ per year, with a few trading venues having very

²⁶ In particular, MiFID II identifies as a source of conflicts of interest the case of a CTP that is also a market operator, investment firm or trade repository, since in these cases some clients would use the entity's services to meet their regulatory obligations and other clients would be purchasing data from the same data reporting services provider (if conflicts are left unaddressed, this could lead to a situation where the data reporting services provider has an incentive to delay publication or submission of data or to trade on the basis of the confidential information it has received). In order to prevent conflicts of interests, CTPs need to have in place inventories of existing and potential conflicts of interests, and, where needed, to provide for the segregation of duties and business functions. RTS 13 contains provisions detailing the measures that CTPs need to take to prevent conflicts of interests.

²⁷ In addition, CTPs have to maintain adequate resources and back-up facilities in place in order to offer and maintain its services at all times. The RTS 13 further details the security mechanisms, business continuity, testing methodologies, management of incomplete or potentially erroneous information.

²⁸ Arithmetic mean calculated on basis of the responses received to the questionnaire.

high charges ranging from 120,000€ to as high as 700,000€, thereby increasing the average cost.²⁹ Moreover, it is important to highlight that many trading venues and APAs currently have not specified the level of fees they would charge to a CTP since no CTP was authorised so far.

115. Since an equity CT needs to include 100% of the transactions in equity instruments, it would need to buy data from more than 150 trading venues and APAs resulting in costs of about 10 million Euros per year. In addition to obtaining the data from trading venues and APAs, the CTP would also have costs for establishing connections to all trading venues and APAs, consolidating and disseminating the data. The costs of operating a CT would hence be considerable.
116. Furthermore, it is unlikely that there would be significant demand for real-time consolidated data, in particular in view of the high fees a CTP would have to charge in order to recover its expenses. There are no provisions in EU law requiring the consumption of consolidated data, which would create an unconditional demand for a CT. Moreover, under the MiFID II best execution obligations investment firms are not required to assess the execution criteria across all EU execution venues and have to take into account a range of criteria in addition to price (e.g. costs, speed, likelihood of execution). However, the retail best execution obligation puts more emphasis on the price of financial instruments, which may potentially generate some demand for a CTP³⁰.
117. It is also worth noting that a CTP is required to make data available free of charge 15 minutes after publication. In consequence, there is only a 15 minute window during which the CT can generate revenues. Moreover, compared to market data published directly by trading venues and APAs, CTPs would always report the consolidated data with some latency due to the need to receive the data from trading venues and APAs, distributed across the EU, and consolidate it. Unless trading venues and APAs would be prevented from publishing market data before it has been published by a CT, market data users in need of real-time data would continue to rely on the real-time data provided directly via trading venues and APAs.
118. Nevertheless, the real-time data provided by the CT, even with some inevitable latency, could be of value for data users that are using the data for valuation purposes, risk management or back office activities, if the data comes at a reasonable price. If the price is too high and/or in the absence of a mandatory use, users might rather rely on delayed data, which the CTP has to provide 15 minutes after publication.
119. Finally, many stakeholders expressed concerns about the low level of post-trade data quality, in particular for OTC transactions reported by APAs. This concerns both the content of the data as well as the lack of standardisation. In order for a CTP to build a business

²⁹ It appears questionable how charging fees of up to 700,000€ per year can be reconciled with the requirement to provide market data on an RCB.

³⁰ When executing orders for retail clients investment firms must take into consideration all factors that will allow it to deliver the best possible result in terms of the total consideration, representing the price of the financial instruments and the costs related to execution.

case, the consolidated data distributed by it needs to be of high quality to be of value for potential clients. This does not appear to be the case currently.³¹

120. Overall, it seems very challenging to develop a viable business case for an equity CT under the current legal framework.

4.2.2 Strict regulatory requirements for providing an equity CT

121. The requirements under Article 65 of MiFID II as further specified in Article 15 of RTS 13 set out the framework for the provision of a CTP³². Several regulatory challenges emerge when looking into those requirements.

122. To provide the services described in MiFID II, a CTP has to go through an authorisation process whereby compliance with the conditions for authorisation and the organisational requirements under Title V of MiFID II is checked. Furthermore, a CTP is subject to ongoing supervision by the relevant CA. The authorisation process and the ongoing supervision may be perceived by a potential CTP as time consuming and burdensome, in particular since the activity can also be performed by a non-regulated entity (see section 4.2.3).

123. A CTP is required to cover all equity financial instruments traded in the EU. This includes all transactions in shares, depositary receipts, ETFs, certificates and other similar financial instruments concluded on EU trading venues or published by an APA. While for non-equity instruments the legal empowerment gave ESMA some flexibility for allowing the CTP to specialise in certain asset classes, the Level 1 text for the equity CT did not allow ESMA to introduce the possibility for the CTP to specialise in only some types of equity instruments. Requiring the CTP to cover all equity and equity-like instruments makes it more challenging to establish a CT. Moreover, it is unlikely that potential users would be interested in consolidated data covering all equity and equity-like instruments but would be rather interested in the information for certain instrument types only.

124. By virtue of having to cover the whole market, the CTP needs to connect to every single EU trading venue (regulated market and MTF in the case of equity instruments) and APA that trade and/or report relevant equity instruments, regardless of its market share and relevance for the EU market. Hence, a CTP has to establish connections to every trading venues and APA, which is costly and technically challenging.

125. In addition, a CTP is required to include data from new trading venues and APAs, at the latest 6 months after the new trading venue/APA starts operating. While this approach ensures that the CT quickly integrates all trading venues and APAs, it adds to the challenges of operating a CTP.

³¹ See section 4.3 for a detailed assessment of the availability, timeliness and quality of post-trade transparency data.

³² See section 4.1 for an overview of the requirements for CTPs.

126. Finally, as trading venues and APAs, a CTP is required to provide data free of charge 15 minutes after publication, thereby limiting the time during which a CTP can generate revenues.

4.2.3 Competition by non-regulated entities

127. A CTP would also face competition from non-regulated entities such as data vendors. The activity of providing consolidated information of the market is not mandated to be regulated as a CTP and currently data vendors provide consolidated information, in particular of on-venue trading.

128. These entities despite providing broadly the same service as a CTP are not regulated as such and are hence not subject to the authorisation process or ongoing supervision as a CTP would. Furthermore, they are not subject to any further requirements such as the requirements to provide data on an RCB, to provide information free of charge 15 minutes after publication and to cover 100 per cent of the market.

129. As such, it seems that non-regulated entities have a significant competitive advantage compared to a potential CTP, thereby making it more attractive to provide CTP-like activities without a CTP authorisation. It should be noted that in the absence of amendments to the regulatory framework and in the case a CTP would be appointed by a public procurement process, data vendors would still compete with the CTP. In order to avoid such competition, it could be considered to require data vendors either to be regulated as a CTP or withdraw from selling consolidated post-trade data.

Q14: Do you agree that the identified reasons, in particular the regulatory framework and competition by non-regulated entities, make it unattractive to operate an equity CT?

Q15: Do you consider that further elements hinder the establishment of an equity CT? If yes, please explain which elements are missing and why they matter.

Q16: Please explain what CTP would best meet the needs of users and the market?

4.3 Availability, timeliness and quality of post-trade information by existing commercial entities

4.3.1 The landscape of entities providing post-trade transparency information

130. In the absence of a CTP, post-trade data is scattered across trading venues providing post-trade information related to on-venue trading, and APAs providing post-trade information related to off-venue transactions executed by SIs and investment firms.

131. Table 1 below provides an overview of the number of trading venues and APAs in each jurisdiction that reported quantitative reports related to the activity on equity and equity-like instruments (shares, ETFs, depositary receipts, certificates and other equity-like

instruments) to FITRS (Financial Instruments Transparency System) in 2018. The top 15 trading venues and APAs are provided in Table 2. If a trading venue or an APA did not report to FITRS or did not provide reference data to FIRDS (Financial Instruments Reference Data System) in 2018 it is not included in the tables. Finally, chart 1 presents the split between on-venue and off-venue trading executed in 2018 on all equity and equity-like instruments.

Table 1 - The list per country of entities providing post-trade transparency information

COUNTRY CODE	COUNTRY	RMs	MTFs	APAs
AT	AUSTRIA	2	1	1
BE	BELGIUM	1	4	-
BG	BULGARIA	1	2	-
CY	CYPRUS	1	1	-
CZ	CZECH REPUBLIC	2	2	-
DE	GERMANY	14	13	1
DK	DENMARK	3	3	-
EE	ESTONIA	1	1	-
ES	SPAIN	4	2	1
FI	FINLAND	3	3	-
FR	FRANCE	1	2	-
GB	UNITED KINGDOM	6	29	5
GR	GREECE	1	1	5
HR	CROATIA	1	1	1
HU	HUNGARY	1	1	-
IE	IRELAND	1	3	-
IS	ICELAND	3	3	-
IT	ITALY	3	5	-
LI	LIECHTENSTEIN	-	-	-
LT	LITHUANIA	1	1	-
LU	LUXEMBOURG	1	1	-
LV	LATVIA	1	1	-
MT	MALTA	1	1	-
NL	NETHERLANDS	1	1	-
NO	NORWAY	2	1	1
PL	POLAND	-	-	-
PT	PORTUGAL	1	2	-
RO	ROMANIA	1	1	-
SE	SWEDEN	4	8	1
SI	SLOVENIA	1	1	-
SK	SLOVAK REPUBLIC	1	1	-
		64	96	16

(*) The table includes trading venues and APAs (in terms of segment MICs) that reported quantitative data reports related to the trading activity of equity and equity-like instruments to FITRS in 2018.

(**) The number of Polish venues and APAs is zero because Poland is a non-delegating country, i.e. an NCA who has not signed a Delegation Agreement with ESMA on the Instruments Reference Data Project

Source: FITRS

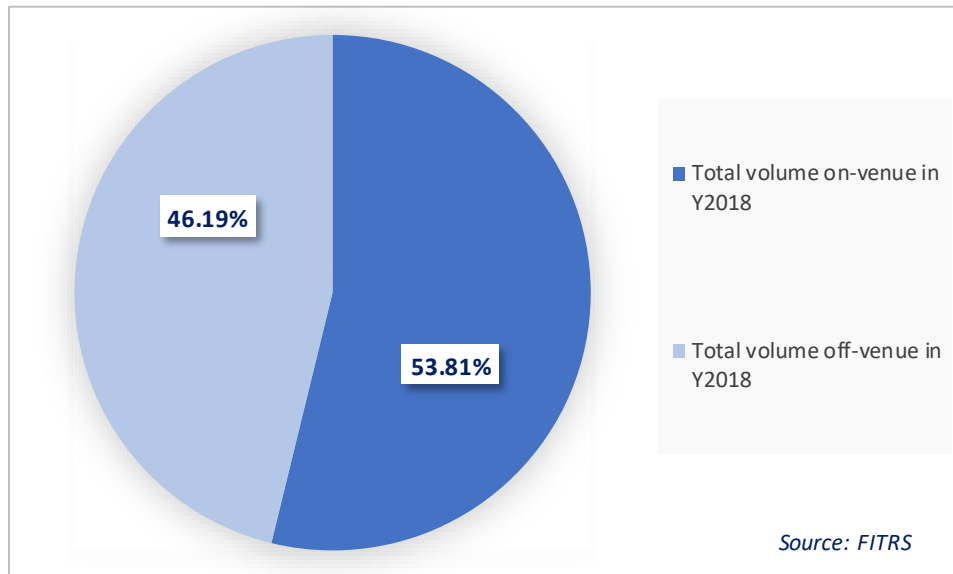
Table 2 – Top 15 trading venues and APAs

TRADING VENUE/ APA NAME	OPERATING MIC	ENTITY TYPE	MARKET SHARE
CBOE	BOTC	APA	23%
CBOE	BCXE	TV	11%
TRADEWEB	TREA	APA	9%
TRADEWEB	TREU	TV	8%
TRAX	TRAX	APA	8%
LONDON STOCK EXCHANGE	XLON	TV	7%
LONDON STOCK EXCHANGE	ECHO	APA	5%
TP ICAP	ICPM	TV	4%
XETRA	XETR	TV	4%
EURONEXT - PARIS	XPAR	TV	4%
TURQUOISE	TRQX	TV	2%
BORSA ITALIANA	XMIL	TV	2%
EURONEXT - AMSTERDAM	XAMS	TV	2%
BME	BMEX	TV	2%
NASDAQ	XSTO	TV	1%

Source: FITRS

(*) The table includes trading venues and APAs that reported quantitative data reports related to the trading activity of equity and equity-like instruments to FITRS in 2018

Chart 1 – On-venue vs. off-venue trading



132. Besides trading venues and APAs, data vendors are also present in the market. Indeed historically, the most common route by which market data provided by trading venues reaches end-users is through intermediaries acting as data redistributors or data aggregators. These are data vendors who typically aggregate data from multiple sources and distribute them to subscribers.

133. The two largest players are Bloomberg and Thomson Reuters/Refinitiv, with global market shares in 2017 of 33.2% and 23% respectively³³. There are also several independent data providers which specialise in particular areas. Furthermore, there is a group of companies offering additional data, such as indices and ratings.

134. Table 3 below provides an indication of the type of data offered by each data vendor.

Table 3 – Data provided by data vendors³⁴

	Real-time data	Historical data	Pre-trade data	Post-trade data	Equity and equity-like instruments	Non-equity instruments
Bloomberg Market Data – “B-PIPE”	✓	✓	✓	✓	✓	✓

³³ Source: [The design of equity trading markets in Europe](#)

³⁴ See Annex III for a detailed overview on data provided by data vendors.

Thomson Reuters/Refinitiv – Elektron	✓	✓	✓	✓	✓	✓
Morningstar	✓	✓	✓	✓	✓	✓
Fidessa	✓	✓	✓			✓
ICE Consolidated Feed/ Interactive data	✓	✓	✓	✓	✓	✓
QuantHouse	✓	✓	✓	NA	NA	NA
MarketAxess	✓	✓	✓	✓		✓
VWM data services	NA	NA	NA	NA	NA	NA
Six Financial Information	NA	NA	NA	NA	NA	NA
MTS data	✓	✓	✓	✓		✓
BMLL	NA	NA	✓	NA	✓	✓

NA means that it was not possible to assess if the related type of data is offered by the data vendor

4.3.2 Assessment of the availability, timeliness and quality of post-trade information for equity instruments by existing commercial entities

135. According to Articles 6 and 20 of MiFIR as well as Article 64(1) of MiFID II, trading venues and APAs are required to make public information on the price, volume and time of transactions as close to real-time as technically possible. These requirements are further specified in RTS 1, in particular in Articles 12-16 and tables 2, 3 and 4 of Annex I and in Article 18 of RTS 13. Post-trade transparency information provided by data vendors is not subject to these requirements.

136. This section assesses the post-trade information currently published by trading venues, APAs and data vendors along three dimensions: availability, timeliness and quality. The

assessment covers only the provision of market data in real-time and does not assess the provision of post-trade data 15 minutes after publication (delayed data).

4.3.2.1 Availability

137. According to the information available to ESMA, all trading venues and APAs make post-trade information available to the public via direct connections (direct distribution) and/or via data vendors (indirect distribution). Most trading venues and APAs charge data users for accessing post-trade information. While some trading venues and APAs provide the information free of charge where it is not used for commercial purposes, users that want to access real-time market data directly have to enter into market data agreements with trading venues and APAs and establish and maintain the necessary technical infrastructure. Since the establishment of the necessary technical infrastructure requires significant investments, typically only big users receive market data via direct connections.

138. Most smaller data users obtain market data via data vendors, in particular post-trade data of trading venues but also data published by APAs. Market data vendors serve both as redistributors of data as well as data aggregators. Data vendors typically use a subscription pricing model where access to the data is available for an annual fee. Subscribers of data vendors are required to apply for and license additional products in order to obtain real-time data through data vendors. Furthermore, when redistributing data from trading venues, data vendors typically pay a redistribution fee to the exchange for the licensing of the data. These distribution fees, including a mark-up, are passed through to end users.

139. It therefore appears that post-trade information from trading venues and APAs is available to users. Furthermore, the aggregation of data by data vendors replicates to some extent a consolidated tape.

140. However, the market data aggregated by data vendors does not cover 100% of the market. In particular, small and/or highly specialised equity trading venues, and data from APAs may not be included as the costs for aggregating post-trade information from all trading venues and APAs would be significant, and there would be only limited demand for such data.

Q17: Do you agree that real-time post-trade data is available from both trading venues and APAs as well as data vendors and that the data is currently not covering 100% of the market, i.e. including all equity trading venues in the EU and all APAs reporting transactions in equity instruments? If not, please explain.

4.3.2.2 Timeliness

141. Trading venues and APAs are required to publish market data as close to real-time as technically possible. According to Article 14 of RTS 1, transactions concluded during daily trading hours on trading venues as well as OTC transactions concluded during the daily trading hours of the most relevant market in terms of liquidity determined in accordance

with Article 4 of RTS 1 or during the investment firm's daily trading hours have to be published in any case within one minute.

142. Information on transactions concluded on a trading venue outside of the daily trading hours as well as OTC-transactions concluded outside of the investment firm's daily trading hours or the daily trading hours of the most relevant market in terms of liquidity has to be published before the opening of the next trading day. Concerning transactions benefitting from a deferral pursuant to Article 7(1) of MiFIR, they should be published no later than at the end of the relevant period set out in tables 4-6 of Annex II of RTS 1, i.e. at the latest at the end of the trading day.
143. ESMA has not been made aware of concerns that trading venues and APAs do not make data available, including where a deferral applies, in a timely manner.
144. While data vendors are not subject to the requirements set out above, ESMA is not aware of particular concerns regarding the timeliness of market data accessed via data vendors.

Q18: Do you agree that post-trade data is provided on a timely basis and meets the requirements set out in MiFID II/MiFIR and in the level 2 provisions? If not, please explain.

4.3.2.3 Quality

145. In order to ensure the comparability of the information published, Article 12(1) of RTS 1 as well as tables 2-4 of Annex I of RTS 1 set out the details and the format of the information to be provided for each transaction. Furthermore, Article 12 sets out the requirements for cancelling or amending previously published trade reports. These requirements apply to transactions concluded on trading venues as well as OTC-transactions of investment firms published by APAs.
146. Under MiFID I many stakeholders expressed concerns about the quality of trade reports for OTC-transactions in shares. It was considered that many transactions were published twice and that information on key elements of the transaction (e.g. volume and price) was frequently erroneous. MiFID II/MiFIR aimed at improving the quality of post-trade data of OTC-transactions by introducing the data reporting service of operating an APA, which publishes all trade reports for OTC-transactions. Moreover, while MiFID I already specified which party of a transaction was responsible for reporting the transaction, it was considered that further clarification was needed under MiFIR to avoid double-reporting or the lack of reporting of transactions.
147. Article 20 of MiFIR requires investment firms to publish all OTC-transactions via an APA. Furthermore, Article 12(4)-(5) of RTS 1 provides clarity on which investment firm that is party to a transaction is required to make the information public via an APA. The reporting obligation is attached to the seller of the transaction unless only one of the counterparties to the transaction is an SI and is acting as the buying firm, in which case it will be for the

buyer of the transaction to make public the information via an APA. Finally, Article 12(6) clarifies that two matching trades entered at the same time and at the same price with a single party interposed should be considered as a single transaction.

148. Article 64 of MiFID II sets out the requirements to be met by APAs. These requirements are further specified in RTS 13 and include, in particular, provisions on the management of incomplete or potentially erroneous information (Article 10), the publication of data in a machine-readable format (Article 14), and aiming at avoiding double-reporting of equity transactions (Article 16).

149. Following the application of MiFID II since 3 January 2018, ESMA has been made aware of a number of concerns, mainly focussing on the quality of OTC-transactions.

150. Based on feedback received from stakeholders the following shortcomings on the quality of the content of market data (either directly by trading venues and APAs or via data vendors) have been identified:

- Inconsistent reference data (e.g. equity instruments reported as non-equity instruments and vice versa, inconsistent classification of equity instruments);
- Missing attributes for trades (e.g. transaction time, ISIN, price, ...);
- Publication of erroneous information (e.g. incorrect/improbable price or quantity, improbable transaction times, inconsistencies between time of publication and time of transaction);
- Duplicative trading reports for OTC transactions;
- Inclusion of non-price forming trades/non-addressable liquidity for transactions reported by APAs;
- Inconsistent use of the flags for the purpose of post-trade transparency as specified in Table 4 of Annex I of RTS 1 (e.g. inconsistent use of the cancel and amendment flags); and
- Late publication of trade reports not benefiting from a deferral or after the lapse of the deferral.

151. On some of these issues ESMA has already issued supervisory guidance to improve market data quality. For instance, in the first months of the application of MiFID II, many APAs reported non-addressable activity for SI transactions such as requests for market data. In autumn 2018 ESMA issued a Q&A clarifying the reporting of requests for market data. ESMA also issued further guidance on the use of flags for the purpose of post-trade transparency in the form of Q&As.

152. This guidance was welcomed by market participants and led to some improvement in the quality of market data. Nevertheless, ESMA continues to receive many concerns on the quality of market data.

153. In addition to issues related to the quality of the content of market data, stakeholders have expressed concerns regarding different data standards used by reporting entities, making it more challenging to consolidate the data. Furthermore, while Article 64 requires APAs to publish trade reports in a machine-readable format to enable fast access to the information and ease the consolidation with similar data from other sources, MiFID II does not include a similar explicit requirement for post-trade transparency information published by trading venues. This is likely to add further challenges to the consolidation of data and may undermine the provision of a high-level quality data set.

154. ESMA considers that the deficiencies identified on the content and the publication standards for market data make it challenging to consolidate data into a real-time data feed, either by data vendors or a potential CT. Moreover, ESMA is of the view that improved data quality is not only a prerequisite for establishing a CT but also indispensable for ensuring that post-trade transparency information published enables market participants to obtain a comprehensive and accurate view of the market thereby contributing to improved price discovery. ESMA therefore considers that a first and indispensable step is to ensure a high degree of data quality and the use of the same, or at least easily comparable data standards, across trading venues and APAs.

Q19: Do you agree with the issues on the content of data and the use different data standards identified or do you consider that important issues are missing and/or not correctly presented?

Q20: Do you agree that the observed deficiencies make it challenging to consolidate data in a real-time data feed? If yes, how could those deficiencies best be tackled in your view?

4.4 Assessment of the risks of having no CTP for equity instruments in the EU

155. In order to assess the risks of not having a CTP it is worthwhile to start from the benefits of having such entity.

156. Firstly, a CTP would provide consolidated post-trade data that would be available on a timely manner. Secondly, a CTP would invest in improving the quality of the data reported in order to provide meaningful information to market participants. Furthermore, in order to use post-trade data for the same (type of) instrument traded on different venues or OTC it is essential that such data can be consolidated. A CTP would provide such data to market participants in an easily accessible and immediately usable format.

157. As a result, post-trade information related to the trading activity on and off-venue for any equity and equity-like instrument would be available in a single place and in the same

format, and at lower prices compared to obtaining the data from every single trading venues and APA. Last but not least, the CTP would be required to provide data for free 15 minutes after publication.

158. In conclusion, the risks of not having a CTP correspond to the risks of not having the benefits that the presence of a CTP can provide.
159. Nevertheless, the costs of not having a CTP could be reduced by requiring trading venues and APAs to provide post-trade data in a more standardised format (e.g. providing the information in the same currency and currency unit or using the same standards and technology) and/or having more detailed and clearer reporting rules. This would decrease significantly the cost of consolidation and be accessible in terms of costs and technologies to many entities of very different sizes.
160. Furthermore, the cost of not having a CTP are somewhat limited by the presence of data vendors which, as mentioned in the previous section, provide a similar service to the one of the CTP without being regulated. Moreover, the presence of a CTP might incentivise data vendors to rethink their offer, (e.g. they could provide data that can be immediately consolidated or already consolidated) and to provide better services at reduced prices. Hence, the presence of a CTP would reduce the market power of data vendors, but also of trading venues and APAs.
161. Finally, not having a CTP would fail the intended objective of a more integrated European market where market participants could easily gain access to a consolidated view of trade transparency information which could also serve other purposes such as reconciliation or market analysis.

Q21: What are the risks of not having a CTP and the benefits of having one?

4.5 Assessment of key factors for the successful establishment of a CTP

162. Building on the analysis in the previous section, this section aims at identifying factors which could render the operation of a CTP commercially viable and could therefore positively impact the establishment of a CT in the EU. This sections also reflects on factors that proved successful for the operation of equity CTs in the US and Canada (see the two boxes below describing the CTs in the US and Canada).
163. The identification of such factors is based on ESMA's observation of the EU market, the regulatory framework for CTs applicable in other jurisdictions and on preliminary feedback obtained by market participants.
164. While each factor is important as such, ESMA is aware that some of the factors are closely interlinked and/or may be contradictory with respect to each other. At this stage,

ESMA assesses the key factors independently and does not consider possible interlinkages. ESMA intends to include in the final report a holistic assessment of the key factors for establishing a CT, which could be the starting point for developing a governance model for a publicly mandated CT.

The Consolidated Tape in Canada

In Canada, the requirements relating to transparency and the consolidated feed are part of National Instrument (NI) 21-101³⁵.

Part 7 of this instrument requires a marketplace³⁶ to provide accurate and timely information regarding orders/trades for the exchange-traded securities displayed/executed by the marketplace to an information processor (IP). That pre- and post-trade information cannot be disclosed to any person or company before that information is available to an IP. The IP must produce an accurate consolidated feed in real-time showing the information provided to the information processor.

In Canada, the IP is selected by the Canadian Securities Administrators (CSA). Part 14 of NI 21-101 sets out the operation and regulatory requirements an IP needs to comply including:

- a requirement to provide prompt and accurate order and trade information and to not unreasonably restrict fair access to such information;
- a requirement to provide timely, accurate, reliable and fair collection, processing, distribution and publication of information for orders for, and trades in, securities;
- an obligation to maintain reasonable books and records; and
- certain system requirements, including an annual independent systems review.

TMX IP (part of the Toronto Stock Exchange group) has been the IP for exchange-traded securities other than options since 2009 and it has been announced in 2018 that it will continue to act as an IP until the end of June 2022³⁷. TMX IP collects data from relevant marketplaces (currently 15) and is authorised to consolidate and disseminate this data.

An IP supports the transparency requirements by collecting, consolidating and disseminating marketplace data and thus making available at least one source of consolidated data to investors and market participants. The transparency requirements and in particular the availability of timely and accurate data are critical to the regulatory

³⁵ https://www.osc.gov.on.ca/en/SecuritiesLaw_rule_20190418_21-101_marketplace-operation.htm.

³⁶ "marketplace", means (a) in every jurisdiction other than Ontario, means (i) an exchange, (ii) a quotation and trade reporting system, (iii) a person or company not included in clause (i) or (ii) that (A) constitutes, maintains or provides a market or facility for bringing together buyers and sellers of securities, (B) brings together the orders for securities of multiple buyers and sellers, and (C) uses established, non-discretionary methods under which the orders interact with each other, and the buyers and sellers entering the orders agree to the terms of a trade, or (iv) a dealer that executes a trade of an exchange-traded security outside of a marketplace, but does not include an inter-dealer bond broker, and (b) in Ontario has the meaning set out in subsection 1(1) of the *Securities Act* (Ontario).

³⁷ CSA Staff Notice 21-324 *Information Processor for Exchange-Traded Securities other than Options* was published in 2009 to inform the public that TMX IP would act as an IP until 30 June 2022.

framework and support fair and efficient markets and confidence in those markets. However, whilst there is a requirement for all trading venues to send their market data to a regulated IP, its use is not mandatory.

The consolidated information provided by the IP facilitates compliance by marketplace participants with relevant regulatory requirements that apply in a multiple marketplace environment by ensuring the availability of consolidated data that meets regulatory standards and which users can use to demonstrate or evaluate compliance with these requirements. However, despite the requirement that a marketplace send the information to the IP at least at the same time as any other company, since the IP has to consolidate the information, its feed will be slower than direct feeds due to the latency added by the consolidation process. Therefore, those firms that are speed-sensitive (for example high frequency traders) will always connect directly to marketplaces to avoid latency issues. In addition, because of the timing of the introduction of the IP, many marketplace participants had already established mechanisms to consolidate data across marketplaces and these approaches continued to be used after the launch of the IP.

The IP is required to establish, in a timely manner, an electronic connection to each marketplace that is required to provide transparency information, and also to enter into an agreement with each such marketplace. The agreement must set out that the marketplace will provide the IP information in accordance with the transparency requirements and that it will comply with any other reasonable requirements set by the IP. Since there is a legal obligation to trade shares on-exchange (i.e. no OTC trading), the IP will consolidate transparency information for the overall market.

The TMX IP uses a "pass-through" fee model, where the contributing marketplaces enter into contractual agreements with data vendors and subscribers directly, allowing each marketplace's fees to be passed through to the clients and paid to the marketplaces. To recover some of its operational costs the TMX IP charges a monthly administration fee for access to the Consolidated Products. The fees are published on the TMX IP's website and reviewed by the CSA.

The consolidated tape in the US

Consolidated tapes (CTs) have been used in the United States of America since the mid-1970s, and are therefore a stable and important feature in the US trading data landscape. The main legal requirements underlying the establishment and functioning of CTs are included in Section 11A of the Securities Exchange Act of 1934 (Act). Regulation National Market System (Regulation NMS) adopted by the Securities and Exchange Commission (SEC) under Section 11A of the Act includes certain market data rules which are intended to promote the wide availability of market information to investors. Reference is made, *inter*

alia, to rules 600, 601, 602, 603 and 608 of Regulation NMS.³⁸ A summary of the main features of the U.S. consolidated data regime is included below. For any detailed information, please refer to the above mentioned rules of Regulation NMS.

First, national securities exchanges and FINRA are required to act jointly pursuant to national market system plans to establish CTs for NMS stocks (Rule 603(b) of Regulation NMS). Under the plans, national securities exchanges and national securities associations³⁹ are required to submit their best-priced quotations for and transactions in NMS stocks to a data processor designated by the plans (mandatory contribution). The plan processors disseminate consolidated information, including a national best bid and national best offer, on quotations for and transactions in NMS stocks. Such plans provide for the dissemination of all consolidated information for an individual NMS stock through a single plan processor (Rule 603(b) of Regulation NMS). The obligation to submit data to a single plan processor concerns both pre-trade data (quotation) and real time post-trade (transaction) data (Rules 601, 602 and 603 of Regulation NMS).

In addition, no securities information processor, broker, or dealer shall provide, in a context in which a trading or order-routing decision can be implemented, a display of any information with respect to quotations for or transactions in a stock without also providing, in an equivalent manner, a consolidated display for such stock (mandatory use under the so-called Vendor Display Rule, Rule 603(c) of Regulation NMS). Furthermore, for best execution purposes under the Act and FINRA rules, broker-dealers must use reasonable diligence to ascertain the “best market” for the relevant security. Among the factors considered in determining whether a FINRA member has used reasonable diligence is the number of markets checked (see FINRA Rule 5310⁴⁰).

The CT national market system plans and amendments thereto have to be filed jointly by all of the exchanges and FINRA for approval by the SEC (Rules 601 and 608 of Regulation NMS). Among other things, under Rules 601 and 608 of Regulation NMS, the information that the plans must submit to the SEC includes:

- the manner of collecting, processing, sequencing, making available and disseminating the transaction data;
- the manner of consolidating transaction data from the exchanges and national securities associations;
- applicable standards and methods which will be utilized to ensure promptness of reporting, and accuracy and completeness of transaction reports;
- terms of access to the transaction reports; and,
- establishing or changing a fee collected on behalf of the participants of the Plan.

³⁸ 17 CFR 242.600 through 242.603 and 17 CFR 242.608 can be found online in the U.S. Code of Federal Regulation at https://www.ecfr.gov/cgi-bin/text-idx?SID=e6a142e898fa89643580d8f86579ac4d&mc=true&node=pt17.4.242&rgn=div5#se17.4.242_1601.

³⁹ Associations of brokers and dealers are registered pursuant to Section 15A of the Act. The Financial Industry Regulatory Authority, Inc. (FINRA) is currently the only registered national securities association.

⁴⁰ Available at this link http://finra.complinet.com/en/display/display_main.html?rbid=2403&element_id=10455.

As of today, there are three joint-industry plans for CTs in the U.S: the Consolidated Tape Association (CTA) Plan, the Consolidated Quotation (CQ) Plan (CTA/CQ Plans), and the Joint Self-Regulatory Organization Plan Governing the Collection, Consolidation, and Dissemination of Quotation and Transaction Information for Nasdaq-Listed Securities Traded on Exchanges on an Unlisted Trading Privileges Basis (Nasdaq/UTP Plan).⁴¹ Pursuant to the CTA/CQ Plans and the Nasdaq/UTP Plan, three separate networks disseminate consolidated data for equity securities: (1) Network A for securities listed on the New York Stock Exchange LLC (NYSE); (2) Network B for securities listed on exchanges other than NYSE and The Nasdaq Stock Market LLC (Nasdaq); and (3) Network C for securities listed on Nasdaq.

Under the CTA/CQ Plans and the Nasdaq/UTP Plan, revenue from fees, after deduction of direct Plan expenses, is allocated to each equity symbol in accordance with the Plan's revenue allocation formulas. Pursuant to the formulas, the revenue for each symbol is then distributed to each Plan Participant (exchanges and FINRA). Revenue for each symbol is allocated 50% for quoting activity and 50% for trading activity of participants in the symbol. The NMS Plan revenue allocation formulas are intended to allocate plan revenues to Plan Participants for their contributions to public price discovery and promote wider and more efficient distribution of market data.⁴²

Pursuant to the statutory authority in Section 11A of the Act, Rule 603 of Regulation NMS requires the distribution of information with respect to quotations for or transactions in a stock on terms that are fair and reasonable, and not unreasonably discriminatory. The fees imposed on CT data subscribers are filed with the SEC and published on the Plans' websites.

Different types of subscriptions are offered with varying fee amounts. For instance, they include professional subscriber charges, non-professional subscriber charges, per query charges, enterprise license charges, redistribution charges, non-display use charges, direct data access charges, indirect data access charges, and other type of charges in the Plan's fee schedule.⁴³

With reference to the use of the CTs, the SEC staff identified a number of issues.⁴⁴ One issue is latency, since data from CTs is slower than exchange proprietary data feeds due in

⁴¹ As of the date of this Consultation Paper, the participants in the CTA/CQ Plans and Nasdaq/UTP Plan include the Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., Cboe Exchange, Inc., Financial Industry Regulatory Authority, Inc., Investors Exchange LLC, Nasdaq BX, Inc., Nasdaq ISE, LLC, Nasdaq PHLX LLC, Nasdaq Stock Market LLC, New York Stock Exchange LLC, NYSE American LLC, NYSE Arca, Inc., NYSE Chicago, Inc., and NYSE National, Inc. The CTA/CQ Plans and Nasdaq/UTP Plans, as approved by the Securities and Exchange Commission, are available on the websites: www.ctaplan.com and www.utpplan.com.

⁴² For instance, for the detailed provisions covering the allocation of expenses and income, see Section XII of the CTA Plan, available on www.ctaplan.com.

⁴³ Among others, see <https://www.ctaplan.com/publicdocs/ctaplan/notifications/trader-update/Schedule%20Of%20Market%20Data%20Charges%20-%20January%201,%202015.pdf>.

⁴⁴ Equity Market Structure 2019: Looking Back & Moving Forward, speeches by Chairman Jay Clayton and Brett Redfearn, Director, Division of Trading and Markets, Remarks at Gabelli School of Business, Fordham University, March 8, 2019, available at <https://www.sec.gov/news/speech/clayton-redfearn-equity-market-structure-2019>.

part to communications protocols, aggregation times, and geographical latencies associated with single point of consolidation. The consequence is that certain market participants that subscribe to the CTs may also decide to purchase data directly from the exchanges to provide competitive execution services to their clients and to meet their best execution obligations. In this respect, the SEC staff indicated that it will consider whether to recommend changes to ensure that consolidated data is timely disseminated. Another issue is the content of the consolidated data and whether the current information disseminated by CTs is sufficient for trading in the US markets. For example, SEC staff has indicated that it is considering several key areas including odd lots and depth of book. In addition, the SEC staff is also looking at other key areas, including the governance of the Plans, the transparency of costs and revenues associated with the Plans together with other exchange related businesses, and into an assessment of the contribution by the CTs to fair and efficient access to market data.

4.5.1 Quality of the data input to the CTP

165. The consistency and comparability of data coming from different sources is a prerequisite for ensuring meaningful post-trade transparency and the successful establishment of a CT (see also Article 90(3)(d) of MiFID II). In particular, as indicated above, CTPs should consolidate data from APAs and trading venues, that would submit to the CT their data stream. This requires that the data coming from TVs and APAs abide by the same quality standards.

166. Section 4.3.2.3 above describes the MiFID II framework on data quality and the key issues observed, which mainly concern the data published by APAs. It is apparent that, if the data submitted to the CT are not consistent, there is no purpose in using (or subscribing to) a CT.

167. Many trading venues currently adhere to the standards developed by the Market Model Typology (MMT) Initiative, which covers post-trade data across all asset classes subject to MiFID II⁴⁵. MMT is also working towards extending the standards to OTC transactions as well as providing further guidance on issues where heterogeneous approaches have been identified.

168. In light of the above, adequate data quality is a precondition for a CTP's success, through:

⁴⁵ See <https://www.fixtrading.org/mmt/>, which indicates that "in addition to the work on standards for RMs and MTFs, we continue to attract wide-ranging industry support for the standards and are working to expedite their broad implementation, notably to define OTC trading reporting rules". See also the 2017 Yearly Progress Report – MMT, available on the same webpage.

- The standardisation of the reporting. This should ensure that reporting rules are clear (to avoid, for instance, the double reporting) and that both TVs and APAs use the same format.
- Mechanisms to reduce reporting errors. This could be achieved by an industry-led initiative (such as FIX MMT), further ESMA guidance or a combination thereof.

Q22: Would you be supportive of an industry-led initiative to further improve data quality and the use of harmonised standards or would you prefer ESMA guidance? Please explain.

Q23: In addition to the standardisation of the reporting and format, as described before, did you identify any further relevant data quality issue to be considered for the successful establishment of CTPs?

4.5.2 Mandatory reporting of post-trade data by trading venues and APAs

169. MiFID II does not oblige trading venues and APAs to submit their dataflows to CTPs, nor does it set forth (more) favourable economic conditions for CTPs to get such data. The only obligation that applies is that trading venues and APAs have to make public the information on an RCB. As indicated in Section 4.2.1 above, access to the direct dataflow from APAs and TVs is costly. Coupled with the regulatory requirement that CTPs are obliged to consolidate data from each and every trading venue and APA, the provision of the CTP service may become particularly expensive and discourage operators from entering the CTP business.

170. A factor which could make a CTPs' business more viable is the mandatory reporting to CTPs by TVs and APAs (as also reflected in Article 90(3)(f) of MiFID II), either (i) by requesting trading venues and APAs to provide data to the CTP and be in charge for the maintenance of the CTP, or, (ii) by setting forth criteria to determine the price that CTPs should pay to trading venues and APAs for the data.

171. The first solution, to oblige the venues to report the data to a CT, is the one currently used in the US⁴⁶.

Q24: Do you agree that the mandatory contribution from trading venues and APAs to a CTP would favour the establishment of CT?

Q25: Do you have preferences between the option of (i) requiring trading venues and APAs to contribute data to the CT, or, in alternative (ii) setting forth criteria to determine the price that CTPs should pay to TVs and APAs for the data? If so, please explain why.

⁴⁶ See Regulation NMS, § 242.603(b), pursuant to which exchanges have to "act jointly pursuant to one or more effective national market system plans to disseminate consolidated information".

4.5.3 Mandatory consumption

172. In addition to the mandatory contribution by trading venues and APAs to the CT, the feedback received from market participants considers also a success factor for the establishment of a CT the mandatory consumption of consolidated data by investment firms.

173. For instance, the framework in force in the US on CTs requires the mandatory consumption of consolidated data⁴⁷.

174. As a matter of fact, where the mandatory reporting from trading venues and APAs would have an impact on the conditions at which the CTP receives the data for the consolidation, the mandatory consumption would grant the CTP a relevant number of subscribers. Nevertheless, in case the mandatory consumption is enacted, it will be important to ensure that CTPs' fees are charged on an RCB and offered on a non-discriminatory basis (see section 4.5.7).

175. There would however remain a challenge that some investment firms may not necessarily seek to obtain access to market data from all EU execution venues given their local or limited market coverage. Mandating these firms to subscribe to the CTP may lead to some inefficiencies for these firms and raise questions about the uneven allocation of costs.

176. ESMA understands that such mandatory consumption is also likely to impact other rules and requirements in MiFID II and might require amendments of the current Level 1 and 2 frameworks.

Q26: Do you agree that the mandatory consumption could favour the establishment of a CT? If not, please explain your concerns associated with the mandatory consumption.

Q27: Would mandatory consumption impact other rules in MiFID II and if yes, how?

4.5.4 Coverage – trading venues and APAs and asset classes

177. The MiFID II framework provides that CTPs should consolidate data (i) from all trading venues and APAs in the EU, which means that they consolidate 100% of the transactions on equity instruments, and (ii) concerning shares, depositary receipts, ETFs, certificates and other similar financial instruments.

178. As indicated above, the consolidation from all the trading venues and APAs and of all the mentioned instruments renders the CTP's role difficult to perform and costly. Section 4.3.1 above indicates that, as of the date of this CP, there are 170 TVs and APAs dealing with equity instruments in the EU. In addition, the regulatory framework provides that any

⁴⁷ See Regulation NMS, § 242.603(c).

new TV or APA has to be on-boarded by the CTP within a maximum of 6 months. By way of comparison, the participants of the Consolidated Tape Association, one of the consolidated tapes based in the United States of America, are 16⁴⁸.

179. In light of the above, another relevant factor for the successful establishment of a CT is the definition of the scope of data covered by the consolidation. In this respect, two options are possible:

- Reducing the percentage of covered transactions

This option has already been adopted in RTS 13 for non-equity CTPs, that are allowed to consolidate data representing at least 80% of the total number of transactions in the relevant asset class published in the EU by all APAs and TVs.

However, as regards equity instruments, reducing the percentage of covered transactions by diminishing the number of covered venues and APAs could imply that smaller trading venues, where local and / or illiquid shares are traded, would not be included in the consolidation, thereby possibly resulting in the CT to publish data only on the most liquid venues and instruments for which the demand is high. In other words, this could increase the risk of creating an uneven playing field among trading venues, since only the most liquid ones might be “represented” in the CT.

- Reducing the scope of covered financial instruments

This further option would consist of allowing the CT to focus on the consolidation of one or more financial instruments (for instance, shares), choosing thereby not to consolidate all equity instruments listed above. This is already possible for non-equity CTPs, which can choose to consolidate “one or more” asset classes included in Article 15(a) of RTS 13. This second option of reduced coverage could pose the risk that certain financial instruments are not covered by a CT.

180. As per the case of the current framework on non-equity CTPs, the two options above can be combined.

Q28: Do you consider it necessary that the CT covers all trading venues and APAs and the whole scope of equity instruments or would you be supportive of limiting the coverage of the CT? Please provide reasons for your preference and explain your preferred approach.

4.5.5 Publication time of the consolidated data

181. The MiFID II regime provides that CTPs should make the information available to the public as close to real-time as is technically possible. At the same time, data should be

⁴⁸ <https://www.ctaplus.com/index>.

provided free of charge 15 minutes after publication. The time of publication of the consolidated data is one of the elements which orients users' choices and has therefore an impact on the successful establishment of a CTP.

182. There are three possible solutions as regards the timing of publication of consolidated data. The first one is the real-time publication, as currently envisaged in MiFID II, the second one the delayed publication and the third one a tape of record.

183. Real time publication of consolidated data inevitably entails latency with respect to the availability of post trade data but based on feedback received by data users the CT data would still be of significant interest (see Section 4.2.1 above).

184. The second scenario is to limit the consolidation to delayed data. Since MiFID II provides that delayed data, 15 minutes after the initial publication, has to be provided free of charge, as of today such solution would be commercially viable only for delays which are shorter than 15 minutes. For delays over 15 minutes, amendments to MiFID II would be required in order to allow the collection of fees and make the CTPs' activity economically viable.

185. ESMA considers this option as second best, since: (i) it may reduce the number of users of a CT compared to a CT providing real-time data; (ii) it would not present benefits as regards the infrastructure and maintenance costs for a CT, since it would require in any case to receive and consolidate continuous data flows (i.e. in practical terms it would not present substantial differences from the real-time CT's organisation).

186. A tape of record CT publishing information at the end of the trading day would have the advantage of requiring a much simpler infrastructure. At the same time, it would be beneficial to get feedback from market participants on the information to be included. Possible information would be the daily aggregated volume traded and the price of transactions. Notwithstanding the fact that the end of day publication could allow to keep the fees of the CT lower, since it would not need to get continuous data from TVs and APAs and also the complexity and maintenance costs of the infrastructure would be lower, ESMA deems that it would substantially deviate from the spirit of the CTP as described in MiFID II.

187. For these reasons, ESMA would at this point in time recommend establishing a CT providing real-time consolidated data

Q29: Do you agree with ESMA's preferred model of real-time CT? If you consider that, on the contrary, the delayed or tape of record CT are preferable, please indicate the reasons of your preference.

Q30: Are there any measures (either technical or regulatory) that can be taken in order to mitigate the latency impacts?

4.5.6 Number of CTPs and related competition

188. MiFID II does not set limits on the number of CTPs which could be authorised in the EU. However, as a matter of fact, the presence of numerous CTPs, especially when offering the same services, would diminish the number of users per CTP, thereby resulting in a commercially less interesting opportunity for the providers. This could therefore discourage potential CTPs to apply for the authorisation. This is also reflected in Article 90(3)(b) of MiFID II which provides for the possibility that the CT is operated on an exclusive basis and that no other entity should be authorised as a CTP.

189. Moreover, since data vendors could compete with a potential CT without (i) sustaining the costs linked to the authorisation and ongoing compliance with the requirements applicable to authorised CTPs, and (ii) being bound by the duty to provide the data on an RCB, it could be considered to amend MiFID II to prevent data vendors from offering services which are substantially similar to those of authorised CTP (see Section 4.2.3).

190. On the other hand, it could be argued that allowing the CTP to provide its service on an exclusive basis would create a monopoly, which – if not properly regulated and supervised – may result in excessive fees due to the absence of competition and may undermine incentives to provide the consolidated data on a cost-efficient basis. Allowing some competition to the CT, e.g. by data vendors' and APAs' consolidating post-trade information on a limited coverage basis could alleviate concerns and potential inefficiencies of a monopoly but may make it less attractive to operate the CT.

191. In light of this, ESMA deems that a success factor for the establishment of a CTP in the EU could be to grant the right for operating the CTP on an exclusive basis for a limited contract duration (see Article 90(3)(a) of MiFID II). When considering a limited contract duration, ESMA considers it important to reflect that the development of a CT until it is operational would require a significant amount of time and that too short a duration might result in high costs for operating the CT and ultimately high costs for consuming.

Q31: Do you agree that the CT should be operated on an exclusive basis? To what extent should other entities (e.g. APA or data vendors) be allowed to compete with the CTP?

Q32: Should the contract duration of an appointed CTP be limited? If yes, to how many years?

4.5.7 CTPs' fees

192. MiFID II requires CTPs to provide the service on an RCB. Feedback from market participants indicates that they would be interested in subscribing to a CT, provided that the fees applied are fair, also since many of them would anyway need to purchase data in addition from data vendors and/or trading venues.

193. In light of the above, ESMA is interested in the views of market participants on what they would consider as a fair fee for obtaining consolidated data (for instance, for a monthly

or annual subscription), with particular reference to real-time data and under the assumption that the CT covers all trading venues and APAs in the EU and all equity instruments.

194. ESMA deems that a model that could result in acceptable fees for the market participants (which would entail a subsequently higher number of users) is the following: (i) the CTP is allowed to recover the costs for consolidating and distributing the data plus an appropriate margin to be further specified, and (ii) trading venues and APAs contributing to the CT are entitled to a certain part of the revenues of the CT. The allocation key for distributing the revenues to contributing TVs and APAs could for instance be done based on their respective market share and/or reflect the contribution to price formation of the contributing entities.

Q33: Please indicate what would be, in your view and on the basis of your experience with TVs and data vendors, a fair monthly or annual fee to be charged by a CTP for the real-time consolidation per user?

Q34: Would you agree with the abovementioned model for the CT to charge for the provision of consolidated data and redistribute part of the revenues to contributing entities? If not please explain.

4.6 The impact of Brexit on the establishment of an equity CT

195. The EU equity markets are integrated with significant trading activity taking place across the EU. While the trading activity for most equity instruments remains concentrated on the market of first admission, many (liquid) instruments are also traded to a significant extent on other trading venues, most notably MTFs established in the UK.

196. It is unclear to what extent trade flows currently executed on UK trading venues will move to the EU27 following Brexit. While it is expected that some trading will migrate to the EU27, in particular to trading venues from the UK establishing new entities in the EU27, it is also expected that some EU instruments will continue to be traded on UK trading venues and OTC. Hence, in order to reflect the full picture of European trading activity in equity instruments, and being mindful of the uncertainty of future trade flows, a CT also post-Brexit should ideally reflect the EU27 and the UK trading activity.

197. Feedback provided by market participants indicates that the value of the CT would be higher if it included also UK data but that there would still be value in a tape including only EU27 data. Should the CT only cover the EU27, its technical development might be easier since it would be only required to consolidate EU27 trading venues and APAs, which in all likelihood would constitute a lower trading volume and fewer trading venues than in the current EU28 environment.

198. Market participants suggested that while the UK will no longer be subject to the EU regulatory framework after Brexit, and in consequence the EU27 CT would not be required to integrate non-EU data in its data stream, the CT could integrate such data on a voluntary

basis. While this could be considered, it is important to highlight that such a voluntary integration would nevertheless require significant cooperation between the EU27 and the UK to ensure regulatory alignment between the two legal frameworks, for instance to avoid double-reporting of OTC-transactions via EU27 and UK APAs into the CT.

199. Hence, even though the voluntary integration of UK data (and possibly data from other major jurisdictions) appears on the first glance as an easy way to ensure a full coverage of the CT, it would de facto require full regulatory alignment of the post-trade transparency framework to work in practice. It should also be noted that even though the US and Canada equity markets are significantly integrated, the consolidated tapes operated in both the US and Canada cover only transactions executed on US and Canadian trading venues respectively.

200. It should also be considered whether the establishment of an EU27 CTP in the absence of an UK CTP might impact the equity trading landscape in the EU27 and the UK and the level playing field in particular. On the one hand, one could argue that introducing a mandatory CT in the EU27 could create extra-costs for market participants and thereby make the EU27 less attractive. On the other hand, it could be argued that an EU27 CT would enable market participants to obtain the full overview of the trading activity in equity markets, reducing fragmentation and making the EU27 equity markets more attractive.

201. The impact of an EU27 CT on the equity trading landscape will ultimately depend on the governance model chosen for establishing a CT, on the UK's approach towards establishing a CT in the UK after Brexit and on the broader applicable regulatory framework in the UK and the EU27 following Brexit.

Q35: How would Brexit impact the establishment of a CT? Would an EU27 CTP consolidating only EU27 transactions be of added value or would a CT that lacks UK data not be perceived as attractive?

Q36: In your view, how would an EU27 CT impact the level playing field between the EU27 and the UK? Please explain.

5 Annexes

5.1 Annex 1 Summary of questions

Q1: Have prices of market data increased or decreased since the application of MiFID II/MiFIR? Please provide quantitative evidence to support your answer and specify whether you are referring to equity and/or non-equity instruments.

Q2: If you are of the view that prices have increased, what are the underlying reasons for this development?

Q3: Following the application of MiFID II/MiFIR, are there any market data services for which new fees have been introduced (i.e. either data services that were free of charge until the application of MiFID II or any new types of market data services)?

Q4: Do you observe other practices that may directly or indirectly impact the price for market data (e.g. complex market data policies, use of non-disclosure agreements)? Please explain and provide evidence.

Q5: Do you agree that trading venues/APAs/SIs comply with the requirement of making available the information with respect to the RCB provisions? If not, please explain which information is missing in your view and for what type of entity.

Q6: Do you share ESMA's assessment on the quality of the RCB information disclosed by trading venues, APAs and SIs? If there are areas in which you disagree with ESMA's assessment, please explain.

Q7: Do you agree that the usability and comparability of the RCB information disclosed could be improved by issuing supervisory guidance? If yes, please specify in which areas you would consider further guidance most useful, including possible solutions to improve the usability and comparability of the information.

Q8: Do you think that the current RCB approach (transparency plus) can deliver on the objective to reduce the price of market data or should it be replaced by an alternative approach such as a revenue cap or LRIC+ model? Please justify your position and provide examples of possible alternatives.

Q9: Do you consider that a revenue cap model as presented above might be a feasible approach to reduce the cost of market data? Which elements would be key for successfully implementing such a model?

Q10: Did data disaggregation result in lower costs for market data for data users? If not, please explain why?

Q11: Why has there been only little demand in disaggregated data?

Q12: Do trading venues and APAs comply with the requirement to make available data free of charge 15 minutes after publication? If not, please explain in which areas you have identified deficiencies

Q13: Do you consider it necessary to provide further supervisory guidance in this area (for instance by reviewing Q&As 9 and/or 10) Please justify your position and explain in which area further guidance may be needed? Please differentiate between pre- and post-trade data.

Q14: Do you agree that the identified reasons, in particular the regulatory framework and competition by non-regulated entities, make it unattractive to operate an equity CT?

Q15: Do you consider that further elements hinder the establishment of an equity CT? If yes, please explain which elements are missing and why they matter.

Q16: Please explain what CTP would best meet the needs of users and the market?

Q17: Do you agree that real-time post-trade data is available from both trading venues and APAs as well as data vendors and that the data is currently not covering 100% of the market, i.e. including all equity trading venues in the EU and all APAs reporting transactions in equity instruments? If not, please explain.

Q18: Do you agree that post-trade data is provided on a timely basis and meets the requirements set out in MiFID II/MiFIR and in the level 2 provisions? If not, please explain.

Q19: Do you agree with the issues on the content of data and the use different data standards identified or do you consider that important issues are missing and/or not correctly presented?

Q20: Do you agree that the observed deficiencies make it challenging to consolidate data in a real-time data feed? If yes, how could those deficiencies best be tackled in your view?

Q21: What are the risks of not having a CTP and the benefits of having one?

Q22: Would you be supportive of an industry-led initiative to further improve data quality and the use of harmonised standards or would you prefer ESMA guidance? Please explain.

Q23: In addition to the standardisation of the reporting and format, as described before, did you identify any further relevant data quality issue to be considered for the successful establishment of CTPs?

Q24: Do you agree that the mandatory contribution from trading venues and APAs to a CTP would favour the establishment of CT?

Q25: Do you have preferences between the option of (i) requiring trading venues and APAs to contribute data to the CT, or, in alternative (ii) setting forth criteria to determine the price that CTPs should pay to TVs and APAs for the data? If so, please explain why.

Q26: Do you agree that the mandatory consumption could favour the establishment of a CT? If not, please explain your concerns associated with the mandatory consumption.

Q27: Would mandatory consumption impact other rules in MiFID II and if yes, how?

Q28: Do you consider it necessary that the CT covers all trading venues and APAs and the whole scope of equity instruments or would you be supportive of limiting the coverage of the CT? Please provide reasons for your preference and explain your preferred approach.

Q29: Do you agree with ESMA's preferred model of real-time CT? If you consider that, on the contrary, the delayed or tape of record CT are preferable, please indicate the reasons of your preference.

Q30: Are there any measures (either technical or regulatory) that can be taken in order to mitigate the latency impacts?

Q31: Do you agree that the CT should be operated on an exclusive basis? To what extent should other entities (e.g. APA or data vendors) be allowed to compete with the CTP?

Q32: Should the contract duration of an appointed CTP be limited? If yes, to how many years?

Q33: Please indicate what would be, in your view and on the basis of your experience with TVs and data vendors, a fair monthly or annual fee to be charged by a CTP for the real-time consolidation per user?

Q34: Would you agree with the abovementioned model for the CT to charge for the provision of consolidated data and redistribute part of the revenues to contributing entities? If not please explain.

Q35: How would Brexit impact the establishment of a CT? Would an EU27 CTP consolidating only EU27 transactions be of added value or would a CT that lacks UK data not be perceived as attractive?

Q36: In your view, how would an EU27 CT impact the level playing field between the EU27 and the UK? Please explain.

5.2 Annex II High-level summary of ESMA roundtables with trading venues, data vendors and data users on market data issues and the equity CTP

ESMA organised three separate roundtables on market data issues and the consolidated tape provider (CTP) for equity instruments. Each session was dedicated to a different group of stakeholders, including trading venues (“TVs”), data vendors (“data vendors” or “vendors”) and data users (“data users” or “users”).

Market data issues

With the introduction of MiFID II, several issues emerged in relation to market data, in particular with regard to the following aspects:

- Market data prices: data users registered an increase of market data prices and considered that the price increase is not in line with the costs of generating data. Moreover, data users pointed out that TVs are charging higher fees (higher prices for systematic internalisers (SIs), higher prices for non-display data) and introduced new types of fees (i.e. fees for the use of data for risk management, for market abuse monitoring).

Users reported that market data fees are not under competitive pressure, while trading fees and brokerage fees are. This was confirmed by some representatives of trading venues since the markets are focused on certain geographical areas.

According to TVs, the prices of market data overall have not increased, especially regarding equity data. While there have been increases in some areas, in other areas the prices for market data decreased. TVs stressed that the demand for data has increased. Several TVs, as well as some data users, pointed out that data vendors contribute to increase the prices by adding their mark-up to the final price and that they do not provide transparency on the price formation nor predictability of the final price, mainly because vendors do not have to comply with the MiFID II transparency requirements.

Data vendors confirmed that some fees increased on their side, because they reflect not only the additional tasks of vendors such as consolidating data, distributing data and establishing connections to venues, but also the fees that TVs charge for using their data. Data vendors, as well as users, expressed concerns that TVs restrict their ability to create value-added services. e.g. considering the consolidation of data as derived data and applying additional fees.

- Provisions on reasonable commercial basis (RCB): according to the majority of TVs, the requirement to provide market data on an RCB as introduced by MiFID II has been fully implemented and this is demonstrated by the fact that the prices of market data overall have not been increased. Most of those TVs were supportive of developing a common standard of disclosure to be used by all trading venues. One representative of a TV however considered that the RCB principle does not deliver since there is a

lack of enforcement. Based on this view, there should be some price regulation to ensure that market data is provided on an RCB.

Data users consider that the RCB concept in its current application does not allow to understand the pricing of market data since no information on costs is available. In their view there is no reasonable relationship between the costs for producing and disseminating market data and the fees charged. Data users asked to clarify this concept, in particular with respect to the pricing of for market data, i.e. costs and the reasonable margins to correct the asymmetry of forces between market data providers and users. Moreover, some data users considered that the current approach cannot deliver in reducing the prices for market data.

- Data quality from APAs and SIs: according to TVs, vendors and users, the quality of APA data is poor for two reasons: 1) lack of a standardised reporting model for OTC data resulting in erroneous and duplicate reports; and 2) OTC data often not being published in a machine-readable format. Data users reported that APAs do not provide reliable data and do not apply the RCB provisions. TVs, vendors and data users agree on the need to improve the quality of data published by APAs, including for SI transactions, suggesting the publication of a standardised handbook on how to submit the data, in order to improve the quality and the usability of the same.
- Usage of disaggregated data: Both TVs and vendors registered very little demand for disaggregated data. According to some TVs, the benefits of disaggregation did not reach the final users because it is not passed through the whole distribution chain.

Data users confirmed the limited demand for disaggregated data, due to concerns that the demand for disaggregated data might further increase the prices for market data. According to data users, disaggregation led to an arbitrary split of market data offerings that forces users to buy multiple packages of data to get the desired data, which results in overall higher prices since more packages have to be bought.

- Free data 15 minutes after publication: according to TVs, the publication of data on a TV's website required by the regulation and as further clarified in the Q&A is not technically feasible and further clarification is needed. Furthermore, some TVs are doubtful about the real need or consumption of data by end users, since they receive very little demand for this data. Data users agreed that the current data delivery method is often usable since it is not provided in a machine-readable format, but considered the 15 minutes delayed data as extremely useful and important.

Equity CTP

The roundtables discussed the reasons for a lack of an equity consolidated tape provider ("CTP") in the EU and the possible governance model towards establishing a consolidated tape (CT):

- Lack of CTP: TVs, users and data vendors agreed that no CT has emerged due to the high costs of developing it and the lack of a commercial incentive, taking into consideration the necessary investment to become a regulated entity, to obtain the data from all trading venues and APAs and to commercialise it during a limited time window of 15 minutes. In addition, trading venues considered that if there had been demand for consolidated data, data vendors as commercially driven entities would have already developed it.

Data vendors acknowledged that while they are currently offering a sort of CT for non-equity instruments in real-time, it would not be advantageous to become a regulated entity and have the high costs of developing and implementing an equity CT without any certainty of recovering the investment. Generally, data vendors did not see much demand for an equity CT.

Governance Model: TVs stressed that it is not possible to compare the EU market with the US and Canada due to the much higher number of TVs in the EU. Besides, in the US the CTP is used for best execution purposes, which are solely based on price, while in the EU best execution depends on multiple factors. Moreover, TVs believe the system in the US does not add much value as it cannot compete with the data feeds from the TVs, which forces the users to pay twice for the same information.

In terms of governance model, vendors considered that a 100% threshold of coverage is not feasible and that they would not be willing to be bound by the obligation to cover the whole market. The necessary conditions to develop a CT would include facilitating the process of aggregating data, mandating the use of the tape and allowing other service providers to offer the same service.

For users, the pricing model of the CTP is very important, as well as commercial incentives, and a revenue share split model similar to the US one could be considered, even though it cannot be fully replicated due to differences in market structure. It was acknowledged that both a real time and a delayed model for a CTP would add value, depending on the use case for the CT. Most users considered that getting the data in real-time, even with a small delay, is still a good outcome, even though in case of low latency trading users would still need to connect to the TVs directly. Users were of the view that there would be willingness to consume the tape at a reasonable price, if the data is of high quality. Hence, their general feedback was that there is demand for a CTP and willingness to pay for it.

- Reporting Standards: TVs, users and data vendors agreed that the current level of data quality, in particular for OTC transactions, is low, resulting in a lack of interest in APA data in the industry. In order to establish a CT better data quality and the implementation of specific reporting standards across Europe would be a precondition, as it represents one of the main challenges and costs in the data processing. Data users mentioned that a general effort to develop common standards is already being made through the Market Model Typology (MMT).

- Brexit: When questioned about the possible impact of Brexit on the establishment of a CT, TVs argued that the lack of UK data would make a CT obsolete. From the data vendors perspective, the demand for data would remain unchanged since the market is global and not European; it is clear that a CT without UK data would not be complete. On the other hand, users believe a CT could be useful even without UK data.

5.3 Annex III – Data vendors

Data vendor	Brief description of the data offer
Bloomberg Market Data – “B-PIPE”	<ul style="list-style-type: none"> • provides data covering all asset classes covered by the Bloomberg Terminal, i.e. 35 million instruments across asset classes, aggregated from 330+ exchanges and 5000+ contributors; • provides real-time market data from Bloomberg’s global ticker plants, additional local ticker plants in financial hubs to serve customers with lower latency data. Real time market data includes (i) trades, best bid/ask, index points (ii) market depth (iii) referential data for options and future chains; • streams delayed data and end-of-day reference prices for all exchange-traded securities with usage recommendations by Bloomberg algorithms; • provides either granular information on a trading venue or a normalised view, making the received data actionable; • provides access to Bloomberg’s Volume Weighted Average Price and Bloomberg Generic Price, the market consensus price for corporate and government bonds.
Thomson Reuters/Refinitiv – Elektron	<ul style="list-style-type: none"> • offers real-time data including over 80m instruments spanning more than 500 exchanges and 1,000s of OTC markets; • it integrates real-time, reference or tick history content easily across the front-, middle-, and back-office systems.
Fidessa	<ul style="list-style-type: none"> • provides full-depth, real-time market prices for foreign exchange and money markets rates; • also provides historical data.
ICE Consolidated Feed/Interactive data	<ul style="list-style-type: none"> • covers 23+ million instruments, 300+ venues and 600+ sources; • offers real-time, delayed and conflated services for the full order book; • offers continuous evaluated pricing for fixed income.

MarketAxess	<ul style="list-style-type: none"> • provides end-of-day pricing in illiquid and liquid fixed-income securities. By relying on real traded prices and quotations sourced from a wide range of dealers; • it also provides a near-real time view of post-trade transparency across all asset classes for activity reported to the Trax APA and pre-trade data published by Trax on behalf of Systematic Internalisers.
MTS data	<ul style="list-style-type: none"> • provides fixed income pre-trade and post-trade transparency data sourced from a trading community of over 500 unique counterparties; • delivers (i) executable – not indicative – benchmark prices direct from the interdealer platform offering market-leading liquidity, (ii) continuous pricing throughout the trading day with market depth and all associated volumes, (iii) tight bid-offer spreads, (iv) reference data from the source, (v) official open and close price fixings calculated by MTS each day using the traded/tradable prices from the MTS system and (iv) high frequency tick data, daily cash and repo trading summaries – historical data direct from source.