ICMA
International Capital Market Association

EU Consolidated Tape for Bond Markets
Final report for the European Commission

ICMA MiFID II Consolidated Tape Taskforce

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Disclaimer

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1. Introduction

This report has been prepared by ICMA in response to a request from the European Commission's DG-FISMA for considerations related to the establishment of a post-trade consolidated tape (CT) for the European bond markets. It is based on input from a broad spectrum of ICMA's members, representing sell-side, buy-side, trading venues, and data providers active in the European fixed income secondary markets. However, consensus view could not be reached on every single aspect of the report. This final report follows an earlier, interim publication, and responds to further feedback from DG FISMA.

The report attempts to address a number of fundamental questions relating to the context, relevance, comparability, scope, design, and governance of a potential consolidate tape. In doing so, it is organised on the basis of the following key questions:

- What is the background for the push for a consolidated post-trade tape for European bond markets, and what should be the principles underlying its design?
- What are the differences to, and the potential lessons learned from the TRACE reporting model in the US?
- What is the current state of the MiFID II post-trade transparency landscape for bonds?
- What are possible options for a re-imagined European consolidated tape, and the key consideration with respect to governance, mandatory contribution, reporting design, revenue sharing, data transformation, repackaging and distribution models?
- What should be the scope of instruments reported?
- How to ensure consistent data quality and standards?

In regard to consolidated tape provider (CTP) potential models, the ICMA CT Taskforce is not advocating for any one particular consolidated tape model or provider. The Taskforce is acting solely in an advisory capacity as to what could be the most widely supported model of CTP.

It is hoped that this report will provide a useful reference point for the ongoing discussions around the creation of a consolidated tape for European bond markets and a representative reflection of the views of market participants, in particular the eventual users of such a tape.

2. Executive Summary

This report is the culmination of work undertaken by ICMA's Consolidated Tape Taskforce in response to a request from the European Commission to assist in its work in reviewing the regulatory parameters and assessing the feasibility of implementing a consolidated tape for EU bond markets. The Taskforce is made up of thirty-six ICMA member firms, including nine buy-sides, twenty-one sell-sides and six trading venues and data providers. The Final Report builds on an interim study published in February 2020.

Greater transparency in OTC bond markets and other "non-equity" asset classes is one of the key objectives of MiFID II and MiFIR. However, in bond markets, MiFID II has yet fully to achieve its objective of creating greater transparency. A key reason for this is held to be the lack of a central database, which aggregates the various post-trade data sources into a single view: also referred to as a "consolidated tape". Instead, post-trade data is fragmented across the different APAs with inconsistent presentation formats and differing modes of machine readability. In addition, insufficient data quality poses a further challenge.

The goal of the bond CT, as perceived by Taskforce members, is to improve transparency, assist decision-making and provide market insights to end-investors, large or small. Adoption of the appropriate structure would benefit the whole market, by providing a centralised, high quality, affordable, trustworthy data source, offering a comprehensive market view. This would bring immediate benefits to the professional bond market but could also benefit the retail sector more widely.

A bond consolidated tape would provide an overview of the bond market (taking into account deferrals) with raw (un-enriched) post-trade data which is available to the public, both professional and retail clients. In achieving this objective, relevant and necessary changes to level one of MiFID II are required. Furthermore, CT development paths for both equities and fixed income should be parallel and not sequential (even though implementation of a fixed income CT may take longer).

The ICMA Consolidated Tape Taskforce recommends considering borrowing a number of elements from TRACE, in particular: (i) Analysis on market liquidity prior to and following any introduction of CT, in order to understand impact on bond markets; (ii) Gradual roll-out of CT by (sub)asset class; (iii) Uniformity of reporting requirements and publication of technical specifications; (iv) Analysis of data to maintain robust data quality standards prior to public dissemination of data; (v) Testing and phase-in procedures for introduction of changes (such as new reporting fields); (vi) Communication and consultation with stakeholders to validate changes on a technical level.

The CTP contract should be awarded for no less than five years. This is to allow whoever is awarded the contract, to have sufficient time to recoup any development costs. In addition, the firm awarded the contract should have robust conflict-of-interest rules in place to assess whether its policies, procedures and corporate governance structure ensure independence of the CTP and the avoidance of conflicts of interest. Day-to-day CT costs to industry participants should be kept to a minimum.

The view of the ICMA Taskforce is that ESMA should have oversight of the CTP contract and monitor for any breach of contract, and that supervision should start as of January of 2022 or as soon as the CTP commences service. ESMA would also work closely with industry participants (buy-sides, sell-sides trading venues, data providers and retail) who are best positioned to advise with collective market functioning expertise and stewardship.

In order to determine the best governance model for the CTP and CT operation, it is necessary to assess the likelihood of the CTP becoming a successful 'going concern'. This involves assessing potential funding, stewardship, management structure and IT operation models. The Taskforce sets out a number of potential models for CTP governance along with the perceived positives and negatives of each model and a view from Taskforce members as to the percentage chance of success for the governance model or combination of models.

According to ICMA's CT Taskforce, there are a few potential governance model options which could in all probability deliver a CT for EU bond markets. Any of the model options outlined could be achieved with decisive strong EU leadership and the will to surmount any associated negative of relevant option models:

- A limited company working with ESMA in a close public- private partnership with outsourced IT operations, could take out a loan to be paid back on a cost recovery basis from user fees, to provide a CTP.
- ESMA could govern through an SRO data entity mechanism. Recovering costs through subscription/membership fees to provide a CTP and.

- ESMA could work with the industry (stewarding day- to- day operations) but have overall governance, recovering costs through NCA increased contributions, to provide a CTP.
- APAs could converge on technical standards and a single business model, recovering costs through industry accepted user fees, in order to work together to provide a CTP.

It is essential that the responsibility for data feed provision should be changed from the CTP's obligation to 'obtain' data, to stating that trading venues and APAs have an obligation to 'provide' data to the CTP, in level one of MiFID II/R legislative framework. This obligation would be extended to self-reporting firms as applicable.

There should be no mandatory 'consumption' of the tape. Good quality, comprehensive post-trade data is only one component in evaluating best execution in bond market. The best execution process is a complex matrix of pre-trade decision making and tools and much more than about execution 'prices.'

Revenue sharing for APAs and trading venues is recommended in order to create timely and reliable post-trade data and to share the costs of producing good quality post-trade data with the CTP. Revenue in the form of revenue sharing will be derived through the concept of a 'data quality score card' and will be proportionate to the volume of data provided by the contributing firm. However, penalties may be considered, such as withholding the revenue 'share', based on the "data quality score card". Once the data quality has reached the required standard, and the reporting standards from firms are operating as should, the view is that the revenue sharing regime may no longer be needed. (A review of the scheme is suggested after the first five years to assess if the revenue sharing scheme should be extended, continue as a permanent scheme or whether it should end.)

The CTP will collect the raw data and will make it available to all market participants, through a minimum-cost model. Firms and/or vendors (including the CTP) will be permitted to purchase the (intraday, one week or full historical) raw post-trade data at a reasonable price and for some, possibly a discounted price, in order to repackage/enrich the raw data for client use or to sell as a value added service. Tiered pricing based on usage (or proportion of usage) will apply (see section 8.5). The enriched data sets for example could be broken out by tenor, credit rate etc. In addition, it is important to note that the raw data version of the CT is in an easily analysed useful form to ensure the tape can be a utility for all market participants. ESMA will monitor data availability and reasonable pricing through oversight and supervision from January 2022.

Regarding data ownership, trading venues, APAs and self-reporting firms should not retain any claim or ownership for the raw post-trade data and therefore should not be able to 'license' the reported post-trade raw data to the CTP. However, it should be noted this is not a 'consensus' Taskforce view among APAs and trading venue members as they do not support this approach, which is a significant change to existing business models (also a departure from existing MiFID II/R publication requirements).

The post-trade consolidated tape should aim to provide a comprehensive, detailed, accurate and meaningful view of where, when and how all price forming trades occurred. Post-trade data must be of the highest quality if it is to be useful for market participants. For example, aiding decision making. The scope of the EU bond CT should aim to cover approximately 80% or better by volume of all bond transactions and across all trading venues and APAs. This is intended to avoid further exacerbating the existing fragmentation in the market and the possibility of different CTPs covering different and potentially overlapping asset classes, which would fail to provide a truly consolidated view of trading across the EU. It is important to note that the total transaction coverage may need to be phased in over time, with ESMA monitoring this process. For example, beginning with 65% of all transactions, moving to 70% and then aiming for 80% or better.

Clear concise and unambiguous instructions for individual MiFID II reporting fields are needed. Reference codes that are used also must be absolutely correct. Currently, data fields in MiFID II are open to ambiguous interpretation, leading to, incorrect data downstream in many instances. For a consolidated tape to be useful, more concise instructions, followed correctly by reporting parties, will need to be implemented.

3. EU bond consolidated tape - background

3.1 Introduction

The concept of a public consolidated tape for EU bond markets has been a priority of ICMA and its members since the earliest discussions around MiFID II/R. In December 2016, ICMA responded to the ESMA Consultation Paper on the *regulatory technical standards specifying the scope of the consolidated tape for non-equity financial instruments.* The ICMA response,[1] drafted by a working group consisting largely of buy-side heads of fixed income or credit trading, endorsed a single consolidated source of raw bond market post-trade data. The response further highlighted concerns that a 'numerous tape' approach could compromise data quality and integrity, and that multiple tapes would likely increase costs for users.

In September 2019, ICMA responded to the ESMA Consultation Paper on the *MiFID II/R review report on the development in prices for pre- and post-trade data and on the consolidated tape for equity instruments.* While the consultation focused primarily on the development of a consolidated tape for equity markets, ICMA saw this as an opportunity to articulate members' views on the importance of developing an affordable, usable, single-source consolidated tape for EU bond markets. The response[2] was drafted with direct input from dedicated taskforce member firms, representing sell-side, buy-side, trading venues, and data providers. Members also viewed this as an opportunity to outline the market specific considerations that underly the creation of an appropriate consolidated tape for fixed income, and the importance of recognising the differences in instrument characteristics and valuation dynamics between equities and bonds.

During the latter part of 2019, ICMA delivered an interim study to the European Commission as a precursor to this final bond CT report, to assist in its work in reviewing the regulatory parameters and feasibility of implementing a consolidated tape for EU bond markets. In addition to the earlier interim study (covering: an in-depth study of US FINRA's TRACE consolidated tape, a description of the current state of aggregation and desired state for EU bond CT) the final report covers: workable governance model options, mandatory/non-mandatory contribution and consumption, reporting design, revenue sharing model and data distribution.

3.2 The importance of a consolidated tape

Greater transparency in OTC bond markets and other "non-equity" asset classes[3] is one of the key objectives of MiFID II and MiFIR. Comprehensive transparency requirements were introduced through MiFID II, MiFIR and related legislative acts which entered into force on 3 January 2018.

Accordingly, market participants and trading venues have published post-trade data[4] on executed bond and other non-equity transactions through Approved Publication Arrangements (APAs), a reporting entity created for the sole purpose of trade reporting[5] (i.e. the public dissemination of transaction details).

However, in bond markets, MiFID II has yet fully to achieve its objective of creating greater transparency.[6] A key reason for this is held to be the lack of a central database, which aggregates the various post-trade data sources into a single view: also referred to as a "consolidated tape". Instead, post-trade data is fragmented across the different APAs with inconsistent presentation formats and differing modes of machine readability. In addition, insufficient data quality poses a further challenge.

The concept of a consolidated tape originates from equity markets in the US and dates back to the late 1970s. The purpose of the consolidated tape was to provide an aggregate view of trade and quote information of equities in real-time across stock exchanges.[7] In US fixed income markets, a consolidated tape was set up in 2002 in the form of the Trade Reporting and Compliance Engine (TRACE) which is operated by FINRA (Financial Industry Regulatory Authority is an independent, nongovernmental organization that writes and enforces the rules governing registered brokers and broker-dealer firms in the United States) to disseminate transaction data for a diverse range of debt instruments in real-time. More information on TRACE can be found in the Annexes 12.3 TRACE Factsheet and 12.4 TRACE Observations of impact on market participants.

1 See: www.icmagroup.org/assets/documents/Regulatory/MiFID-Review/ESMA-CP-on-CTP---ICMA-Submission-for-publication_071216.pdf
2 See: www.icmagroup.org/assets/documents/Regulatory/MiFID-Review/ESMA-CP-on-CT-ESMAMDAICMARESPONSEFORM-5-Sept-2019-060919.pdf
3 Structured finance products, emission allowances and derivatives, in addition to bonds, are referred to as "non-equities" in MiFID II/R.
4 MiFID II/R also introduced pre-trade transparency requirements; however, this is outside the scope of this report which focuses on post-trade transparency.
5 As stipulated in MiFIR Article 21, the term "transaction reporting" refers to non-public reporting of transaction data to national regulators ("national competent authorities") as opposed to "trade reporting" ie public reporting through APAs.
6 See: https://www.icmagroup.org/assets/documents/Regulatory/MiFID-Review/MiFID-II-R-and-the-bond-markerts-the-second-year-201219.pdf
7 https://www.nyse.com/data/cta; https://www.ctaplan.com/index

In Europe, the Capital Markets Union (CMU) recognises the importance of a consolidated tape for financial markets under MiFID II, which *"should increase the attractiveness of the EU capital markets as investment destinations."*[8] In its Report of October 2019,[9] the Next CMU High-Level Group also recommends the establishment of a single Consolidated Tape facility:

"Achieving a Consolidated Tape would make all European market data easily accessible both for professional and retail investors and increase trust for cross-border investments. The European Commission should specify criteria for a single Consolidated Tape covering all execution venues in a delegated act based on MiFID II. Enhancing the quality of market data is needed to make such a tape useful. Such a facility should be non-profit, fall under the responsibility of ESMA and may as a first step cover equity post-trade data."

The creation of a CT is also a recommendation of the European Commission's Expert Group on Corporate Bonds:[10]

"A consolidated tape should be created to collect data on corporate bonds, together with an easy to use interface that allows the extraction of data by markets participants. The creation of this instrument would also greatly facilitate the analysis, supervision and legislation of European corporate bond markets by the national and European authorities. To ensure the quality and comparability of the data, it should be collected by ESMA, who should be responsible for producing this consolidated tape."

The promotion of transparency of trading information is a principle of IOSCO.[11] IOSCO further recommends (in the context of corporate bond markets) that *"[w]here there is transparency of post-trade data…regulatory authorities should take steps to facilitate the consolidation of that data."*[12]

However, efforts to develop a consolidated tape have been unsuccessful in the past due to concerns around the high costs for its development in a restrictive regulatory environment with a lack of clear commercial benefits, despite widespread demand from market participants in both equities and bond markets. MiFID II laid out requirements for the voluntary establishment of consolidated tape providers (CTPs), thereby paving the way for *multiple* rather than a single CTP. Furthermore, the fact that MiFID II does not mandate the submission of transaction data to CTPs, as is the case in the US, is considered to be a key hindrance for the emergence of a consolidated tape. In other words, there is no commercial incentive for potential CTPs to acquire the post-trade data, nor for APAs to provide the post-trade data to a CTP.

Nonetheless, it is important to take note of ESMA's recent announcement:

"ESMA recommends real-time consolidated tape for Equity"

5 December 2019; ESMA has published a first review report on the development of prices for market data and on the consolidated tape for equity, following the application of the Markets in Financial Instruments Directive (MiFID II) for nearly two years.

This seems to open the way for an EU bond consolidated tape.

3.3 ICMA CT Taskforce

Following the request from the European Commission, ICMA created and mobilised a dedicated Consolidated Tape taskforce ("the Taskforce") to produce the CT report.

This report is based on direct contributions from ICMA Taskforce members, providing market intelligence of post-trade transparency frameworks in both EU and US bond markets. The Taskforce draws on a variety of perspectives from a diverse group of ICMA members. However, consensus Taskforce view could not be reached on every single aspect of this report. The Taskforce represents nine buy-side firms, twenty-one sell-side firms and six trading venue and data provider firms, thirty-six members in total.

These firms are part of a wider ICMA consultative Consolidated Tape working group ("the Working Group") of 65-member buy-side, sell-side, trading venue and data provider firms. ICMA believes that there is unique value in distilling and conveying such a broadness and depth of views from across the industry and hopes this report, and the

8 An Action Plan on Building a Capital Market Union (2015), European Commission
9 See: https://nextcmu.eu/wp-content/uploads/2019/10/The-Next-CMU-HL_DO.pdf
10 Improving European Corporate Bond Markets (2017), European Commission Expert Group on Corporate Bonds
11 Objectives and Principles of Securities Regulation (2017), IOSCO
12 Regulatory Reporting and Public Transparency in the Corporate Bond Markets (2018), IOSCO

subsequent Final Report, provide useful context and intelligence for the European Commission, as well as other EU market regulators and policy makers.

The Taskforce attempts to provide the European Commission with a better understanding of the need for a CT in the European bond market and the unique problems that a CT for bonds would solve, while also identifying the workable models for structure and operation.

3.4 Bond/Equity markets – drivers for CT

While bond markets and equity markets share a few challenges – such as fragmentation of infrastructure, and an unlevel playing field, that benefits those who can afford to pay for data – it is widely understood that their ecosystems are profoundly different. One only has to view the asset classes' market structure and protocols to see the differences: Request-for-Quote (RFQ) protocols in fixed income versus order books for equities; OTC trading (more OTC trading than on-venue trading in bonds) versus local equity exchanges; and the fact that there are approximately thirty-three times more listed bonds than listed equities in Europe.

These differences suggest that the drivers for a CT in these markets are also different. For bonds, the rationale is principally the need for a true consolidated picture of the market that is reliable, accessible and trustworthy.

3.5 Benefits of an EU post-trade bond consolidated tape

The goal of the bond consolidated tape (CT), as perceived by Taskforce members, is to improve transparency, assist decision-making and provide market insights to end-investors, large or small. Adoption of the appropriate structure would benefit the whole market, by providing a centralised, high quality, affordable, trustworthy data source, offering a comprehensive market view. This would bring immediate benefits to professional bond markets and benefit the retail sector as well.

Potential benefits:

Levelling the playing field with respect to access to information. A post-trade CT removes existing information asymmetries, where certain market participants may have greater visibility regarding ongoing trading activity than other investors. This enables investors to assess more accurately current market dynamics, increasing overall investor confidence, particularly during times of market volatility.

Promoting market resilience. The removal of existing information asymmetries contributes to market resiliency by ensuring that changes in supply and demand are more efficiently reflected in current price levels. In addition, without a neutral and reliable source of current market trading activity, investors may be more likely to pull back during times of volatility.

Promoting competition. By enabling investors to compare the prices they receive from liquidity providers with concurrent (and anonymous) trading activity across the market, a post-trade CT promotes price competition as investors are able to demand more accountability from their liquidity providers. In addition, new liquidity providers are more likely to enter the market, as they are able to access information regarding current market dynamics, including trading volumes and pricing, on an equal basis as existing liquidity providers.

Improved fund valuations. The accuracy and immediacy of fund valuations is directly contingent on the ability to value accurately the underlying securities. Improved transparency in bond markets will help managers to maintain accurate valuations of their fixed income funds. This equally applies to fixed income exchange traded funds (ETFs) and would help to maintain a closer relationship between the net asset value (NAV) of the underlying fund and the price of the related ETF through better facilitation of the creation and redemption process.

Facilitating more accurate assessments of execution quality. A post-trade CT can be used for transaction cost analysis and best execution assessments, as it provides a neutral and reliable source of current market trading activity against which to reference execution quality. Evidencing best execution is also generally a compliance requirement, where again the existence of a CT could support observance.

More accurate pricing of derivatives. Prices in derivatives, such as futures, options, and credit default swaps, should reflect the value of the underlying cash instruments. Where it is difficult to find accurate market valuations of the underlying security, derivatives pricing can diverge from fair value, creating additional risks and costs for investors looking to hedge their exposures. Improved transparency in bond markets will therefore help to facilitate more accurate pricing, and potentially greater liquidity, in related derivatives.

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Informed decision making. The CT may allow regulators and NCAs to understand the evolution of liquidity in order to make informed decisions.

Facilitating automation. Greater efficiencies in bond markets can be achieved through the automation of many processes, including the pricing and execution of orders. The ability to automate such processes successfully is contingent on comprehensive, accurate, and timely market data, which a CT would go far in providing.

Supporting the CMU. A post-trade CT for bonds strengthens EU capital markets by linking together the disparate trading venues and APAs across the EU, enhancing investor confidence due to increased transparency in the market. Stronger and more liquid EU capital markets promote capital formation, job creation, and economic growth.

4. Principles for an EU Consolidated Post-Trade Tape for bonds

When considering a consolidated tape for EU bond markets, The Taskforce believes it is important to keep in mind five driving principles:

1. **MiFID II Level one changes:** Relevant changes to level one of MiFID II are required to alter the responsibility for data feed provision from the CTP's obligation to obtain, to the venues', APAs, and eligible Investment Firm obligation to provide data to the CTP
2. **Scope:** Relevant and necessary changes to level one of MiFID II required to enable a bond consolidated tape to make public at least the following bond data: date, time of execution, reported date & time (taking into account current publication and deferral obligations under MiFID II), ISIN, price, venue, volume (taking into account various member state deferral regimes regarding volume omission and/or aggregation), amendment or cancel.
3. **Timeline:** There is a view that an equity CT should be developed and delivered first, followed by a bond CT. This view is not shared by ICMA's Taskforce. The Taskforce believes IT development paths should have parallel equity and bond asset class commencement and not sequential. It is the industry's understanding that equity and bond consolidated tapes will both face technical implementation challenges, but it is the Taskforce's impression that bond markets have particularly challenging data quality issues to overcome. Time and investment will be required for data quality and complex deferral regime improvements, before a reliable CT for bonds can be realised. Therefore, there should be no delay, in relation to timeline of an equity consolidated tape, for commencement of IT development for a bond CT.
4. **Balanced governance & cost model:** Any governance model should have ESMA working closely with industry participants (buy-side, sell-side, trading venues, data providers and retail), who are best positioned to advise with collective market functioning expertise and stewardship, to enable the CTP to become a successful 'going concern'.

   Furthermore, in order to facilitate data quality and reliable post-trade consolidation, an incentive may be considered in the form of revenue sharing for trading venues and APAs. Such a revenue sharing initiative may incentivise data contributors to more accurately and efficiently provide data to the CT by receiving a 'share' of the revenue, based on their data submission qualities. This may help create a balanced revenue potential for a CTP and data contributors.
5. **Purchase of post-trade data:** Firms and/or vendors (including the CTP) will be permitted to purchase the (intraday, one week or full historical) raw post-trade data at a reasonable price and for some, possibly a discounted price, in order to repackage/enrich the raw data for client use or to sell as a value added service. Tiered pricing based on usage (or proportion of usage) will apply (see section 8.5). The enriched data sets for example could be broken out by tenor, credit rate etc. In addition, it is important to note that the raw data version of the tape is in an easily analysed useful form to ensure the tape can be a utility for all market participants. ESMA will monitor data availability and reasonable pricing through oversight and supervision from January 2022.

In order to meet the needs of the market and satisfy the bottom line of any prospective CTP (whether public, private or combination of both), it is necessary to assess the key differences between TRACE and MiFID II and what should be borrowed from the TRACE regime for the creation of an EU bond CT. What follows, represents a contrasting study between current EU post-trade bond aggregation practices and the qualities desired for the 'end-state' EU post-trade bond CT.

5. Post-trade transparency – key differences between US TRACE and EU MiFID II

	TRACE	MiFID II Post-trade Transparency
Real-time submission	• Obligation to submit trade real-time and in less than 15min.	• Obligation to submit trade real-time and in less than 15min. • From 03 Jan 2022, real-time and in less than 5min.
Single- or double-sided reporting	• Single sided reporting (Double sided if two FINRA firms involved, leading to double reporting, market volumes can be overestimated).	• Single sided reporting
Trade price	• Visible for all trades	• Visible for trades of liquid instruments and under SSTI and LIS thresholds = not subject to any deferrals.
Real-time publications	• Yes	• Yes, for trades of liquid instruments and under SSTI and LIS thresholds i.e. not subject to any deferrals.
Deferrals	• Deferrals are based on trade size and are composed of 2 publications: - Real-time: trade details with volume capped (1m HY, $5m IG) - Publication: 6 months later: all trade details • FIMSAC proposed 48hours deferral for block trades (>$1m NIG, >$5m IG)	• 7 deferrals regimes, based on SSTI, LIS and liquidity. • The volume omission regime is composed of 2 publications: • The volume omission regime is composed of 2 publications: - D+2, before 19h00: trade details without volume - Publication: 4 weeks later before 09h00: all trade details
Trade direction	• Yes	• No
Individual trade legs are visible?	• Yes, in real-time except for block trades, which are published with capped notionals. The full, uncapped size of block trades is published as part of a historical dataset six months after the calendar quarter in which they were reported.	• Yes, for liquid trades below SSTI. • Yes, in real-time except for illiquid and above SSTI/ LIS thresholds which trigger deferrals • Deferred trades may have individual trade details published after expiration of applicable deferrals when “full details” of the trade are made public (second publication) The longest deferral period is 4 weeks from the initial publication for non-sovereign debt. • For sovereign debt where deferrals are applied, no individual trade leg detail is published, there is an initial publication only providing all details except quantity, or, an aggregated publication of more than two trades
Who determines grouping/liquidity metrics for deferrals?	• TRACE rules define investment grade and non-investment grade categories determining application of block-size thresholds	• Thresholds and liquidity are specified in MiFID rules (level 2 rules). • ESMA calculates SSTI and LIS on a yearly basis and liquidity assessment on quarterly basis.

	TRACE	MiFID II Post-trade Transparency
Who reports	• All registered dealers report (not the Buy-Side) • Trades between 2 dealers are reported by each dealer and made public = market volume can be overestimated • Trades executed on trading venues are reported either by the dealer the buy-side entity transacts with, or the trading venue's registered broker dealer. • If however, the trade is executed through an all- to- all protocol on a trading venue, then the trading venue, as the intermediary between two buy-sides/sell-sides– will report the trade.	• All MiFID II Investment Firms must report • There is a reporting hierarchy (Systematic Internaliser & seller) so that only 1 trade between 2 counterparties is made public = market volume published is representative. • The reporting hierarchy may have led to an increased number of sell-side investment firms to opting-in as systematic internalisers, to take on the reporting obligation for their clients. o This reporting hierarchy has some limitations in terms of "right reporting" as SI status is defined at the level of a LEI. For example, how to differentiate between an EEA branch (SI) of a non-EEA firm and the same non-EEA firm (not SI), while both have the same LEI. • Where a trade has been executed on a venue, the venue has the obligation to report the trade.
Assisted Reporting	• No	• Possible for any firm but requires dedicated legal contract between firms. • Where a sell-side firm is not required to be an SI (does not meet the criteria) and does not choose to opt-in, the firm may offer "assisted reporting" to their clients which allows the client to leverage their connectivity to an APA and submit the trade on their behalf. Note: the reporting obligation still remains with the client and therefore may require additional bilateral legal contracts between firms.
OTC Derivatives	• Not covered by TRACE • Covered by CFTC rules • Reported to Swap Data Repository (SPR) • Mostly covered by CFTC rules (except for single-name CDS, which is subject to SEC rules) • Reported to a Swap Data Repository (SDR), with real-time publication of all trades, except a 15-minute deferral for block trades (which have volume capped)	• Reported per MiFID II obligations
Single-name CDS	• No (pending implementation of SEC rules)	• Reported per MiFID II obligations (per the above) (Many are illiquid, yet Index CDS are not.)

6. What should the EU CT borrow from the US regimes?

6.1 What should the EU CT borrow from US TRACE?

The ICMA Consolidated Tape Taskforce and Wider Group recommends considering the following elements from TRACE:

6.1.1 Liquidity analysis

- Analysis on market liquidity prior to and following any introduction to the CT, in order to understand impact on bond markets.

6.1.2 Gradual roll-out

- Gradual roll-out of CT by (sub)asset class.

6.1.3 Uniformity of reporting requirements

- Uniformity of reporting requirements and publication of technical specifications.

6.1.4 Data quality standards

- Analysis of data to maintain robust data quality standards prior to public dissemination of data.

6.1.5 Testing and phase-in

- Testing and phase-in procedures for introduction of changes (such as new reporting fields).

6.1.6 Active industry participation

- Communication and consultation with stakeholders to validate changes on a technical level.

6.2 What should the EU CT learn from other US regimes?

Next to the US TRACE framework, it is appropriate to draw attention and learn from the experience of the US regulatory framework on swap trading.

6.2.1 No mandatory trading protocols

Several protocols and workflows will contribute to a bond consolidated tape either bilaterally or multi-laterally. Workflow could include some of the following: agency trading, portfolio trading, ETF trading, anonymous trading or voice trading. Trading protocols to further contribute to the consolidated tape would likely be: RFQ (request for quote), RFS (Request for streaming), Click to Trade, Move to Venue (Processed Trades), All-to-All etc (non-exhaustive list).

Selective or multiple RFQ will continue to dominate as the primary protocol[13], due to the customised nature of bond markets but the protocols and workflows mentioned above will continue to make their presence known and contribute to bond trading and post-trade reporting onto the bond consolidated tape.

However, it is unlikely that a CLOB (central limit order book, more suited to equity or exchange based asset classes) will become the main protocol for bond trading, as CLOBS require a 'coincidence of want' and natural liquidity.

One only has to look at the experience of Swap Execution Facilities (SEF) in the US under Commodities and Futures Trading Commission (CFTC) obligations, to see evidence of what happens when imposing a specific trading protocol to a market and asset class, onto another. The following excerpt from a CFTC white paper outlines an example, https://www.cftc.gov/sites/default/files/2018-04/oce_chairman_swapregversion2whitepaper_042618.pdf (26 April 2018, page 47, see annex III):

13 https://www.icmagroup.org/assets/documents/Regulatory/Secondary-markets/Time-to-act-ICMAs-3rd-study-into-the-state-and-evolution-of-the-European-investment-grade-corporate-bond-secondary-market-040320.pdf

"**The Order Book Requirement**. The Order Book Requirement required SEFs to incur costs to develop and maintain Order Books for every swap listed by a SEF, … The CFTC imposed the requirement based upon its belief, at the time, that market participants would utilise the Order Book…including prices and quantities."

The adverse consequences of restrictive execution methods have been global fragmentation of swaps markets and pushing swaps liquidity formation and price discovery away from the SEF platforms, contrary to Congressional intent.

The authors concluding; "A better approach would be to follow the clear intent of Title VII of Dodd Frank and allow SEFs to trade swaps 'through any means of interstate commerce' instead of through artificial, prescriptive execution methods. Swaps markets have unique challenges in liquidity formation that are only exacerbated by imposing forms and practices taken from highly liquid, exchange-traded futures markets."

As a final point, if mandatory cleared and largely standardised, products such as Swaps cannot function on an order book, bonds which are not mandatorily cleared and standardised, will clearly not be suitable on a central limit order book.

While the US derivatives market and SEF trading pre- and post-trade practices are not identical to EU post-trade bond markets, the example of the failure of one market's protocol incorrectly mandated onto another is useful. Particularly when it comes to determining the best way forward for sensible EU trading practices, trade contribution to EU bond consolidated tape and a workable bond market overview for the EU.

7. Current State: EU post-trade bond consolidated data – baseline study

7.1 Current post-trade data operations in the EU: Approved Publication Arrangement (APA)

7.1.1 Definition

'Approved publication arrangement' or 'APA' means a person authorised under this Directive to provide the service of publishing trade reports on behalf of investment firms pursuant to Articles 20 and 21 of Regulation (EU) No 600/2014 [MiFIR], as stipulated in article 4 (52) of MiFID II.

7.1.2 Purpose

An APA is an organisation authorised to publish post- trade transparency reports on behalf of investment firms and some trading venues to increase transparency in bond markets. Some APAs also provide a service to publish SI quotes for pre-trade transparency, however, unlike post-trade reports, this is an optional service for SI's who may choose to publish their own quotes. One of the differences between post-trade and pre-trade SI quote publications is SI quotes are attributed whereas post-trade reports are unattributed i.e. anonymous. Therefore, as the SI is named in the quote, they may publish the quotes directly themselves.

APAs are required to ensure they accurately publish the trade reports received from investment firms; and that they have arrangements in place to identify on receipt any trade reports that are incomplete or contain information that is likely to be erroneous. To do this, APAs use a range of validation rules to identify erroneous reports.

APAs are required to 'efficiently and consistently disseminate [post trade reports] in a way that ensures fast access to the information, on a non-discriminatory basis and in a format that facilitates the consolidation of the information with similar data from other sources'.

7.1.3 Role

Beyond its core regulatory functions, APA may provide additional services such as

- Deferral management: to determine the timeliness of the publication i.e. whether the trade report should be published real-time or is subject to a deferral depending on the liquidity classification of the instrument and/ or the trade size according to the relevant thresholds calculated by ESMA.
- Filtering of non-reportable trades and suppression from publication, based on eligibility of instruments ToTV (with the exception of instruments out of scope e.g. US treasury bill and other money market instruments) reporting party responsibility, venue of execution etc. Investment firms choose to submit all their trade reports to their APA for a more accurate and standardised eligibility validation.
- Current level of available post-trade data.

7.2 Current level of available post-trade data

7.2.1 Scope of instruments

- Instruments that are ToTV (traded on [EU] trading venues – RMs, MTFs or OTFs) eligible, are subject to the MiFIR transparency requirements, with the exception of instruments out of scope e.g. US treasury bill and other money market instruments.

7.2.2 Level of information

- Trading date and time
- Instrument identification code type
- Instrument identification code
- Price
- Venue of execution
- Price notation
- Price Currency
- Quantity
- Notional amount
- Notional currency
- Publication Date and Time
- Venue of publication
- Transaction Identification Code
- Applicable Post Trade Indicator flags

7.2.3 Reporting timelines

- Trade reports are required to be reported to the APA as soon as technically practicable (ASATP) from trade execution and within 15 min, for non-equity and 1 min. for equity.
- Trade reports are required to be made public:
    - Real-time ASATP
    - +15mins after the initial publication (delayed data) details.

"Real-time" publications are required where bonds are considered liquid and/ or are below SSTI/ LIS (size specific to the instrument & large in scale respectively) size thresholds as determined by ESMA. Liquidity levels for bonds are calibrated each quarter and bond size thresholds are calibrated annually by ESMA. The results are published on ESMA's website.

7.2.4 Deferrals

- Deferrals are available to "delay" the initial trade report publication by certain prescribed periods. There is a standard ESMA deferral of T+2 and further supplementary deferrals which each NCA has discretion to authorise for the investment firms within its jurisdiction. Where trades have a deferral regime applied, the associated deferral type is required to be published by including the relevant flags (post trade indicator flags) along with the required trade details. See MiFIR Article 11 Deferral regime diagram (section 6e – timing of reporting), summarising the seven possible deferral regimes. For more MiFIR deferral details see section 10.3.

Furthermore, MiFIR provides the ability to defer publication for bonds meeting the following criteria:

- Exceed certain size thresholds as determined by ESMA
- Are illiquid instruments as determined by ESMA, and
- For certain types of package transactions

7.2.5 Method of reporting (electronic or website, if applicable)

- Via API/ feed (e.g. FIX)
- File upload/ cut & paste
- User interface (UI)

7.3 Current level of post-trade aggregation

7.3.1 EU market participant observations

	Experiences of post-trade data aggregation today:	
	Buy-side	**Sell-side**
Overall view	• In the current state, the buy-side carry much of the cost (in relation to IT budgets) of creating aggregated transparency but do not get much gain from it yet. This would significantly improve with a TRACE-like consolidated tape. • It is very hard to determine regional coverage gaps or accurate size distributions – the picture is partial and noisy.	• Post-trade data is scattered amongst 20 different authorised publication arrangements (APAs) in the EU (17 understood to be operating bond APAs). It is extremely difficult and quite expensive to aggregate due to difficulty accessing the "public" websites, lack of consistency in format and data errors. • 285 venues add to the fragmentation.
View on whether there is aggregation of post-trade data today	• Some providers offer a comprehensive a la carte menu, I.e. they resell the post trade feeds in one place which in theory enables aggregation. In practice the cost (significant 6-digit yearly cost) and the resource required to fully aggregate and quality control for the data, makes this challenging to use, especially when compared with TRACE. • Outcome: de facto the current aggregation does not provide investors with the transparency they need.	• Some vendors, notably 3, are aggregating various APAs data to different degrees, but their product is still in development. Their main challenges are access to other APAs data and data licencing.
Experiences of reporting to APAs	No comment	• Sell-sides had a reasonable experience reporting to APA of choice with no major issues.
Percentage level today of trade capture, offered by aggregators	• Buy-sides are being told that the percentage of acquiring the MTF and APA data from MTF X and APA Y is around 70% but have no way to validate this and are unsure if that percentage is applicable at a granular level. It is extremely costly to buy more than one APA's data – yet to see 90%+ you would need to buy ALL data sources; buying one APA is unlikely to be more than 50% of market, additionally lowered by the many data errors. • It is difficult to identify precisely what buy-sides are missing, but it is estimated buy-sides are receiving 60% of the total, and the cost of getting that extra 40% is substantial.	• Sell-sides think that aggregators capture between 50 and 75% of market volume, but there is no empirical way for to ascertain. The vendor that currently captures the largest share is not using MIFID 2 data sources but sources that were applicable pre-MIFID 2. Their information is still the most complete and timely in the market.

	Experiences of post-trade data aggregation today:	
	Buy-side	**Sell-side**
Comments on usability of currently available post-trade data	• Not usable yet, due to high level of data cleansing, costly and inefficient process of acquiring the data. Additionally, a time-consuming and complex second layer of aggregation across APAs was necessary. In future buy-sides see potential for TCA if data quality is better / buy-sides have a TRACE style tape. Price discovery benefits are very limited currently, not least because of the delays, exacerbated by the extra aggregation and cleansing layers (cleansing: format differences, data errors, extreme values, data spikes etc)	• Some degree for price discovery/ pricing. • For market share and decisions, it is possible to see the MIC for trading venues if it is an SI (SINT) or XOFF, reported so it is possible to see market share between trading venues and trading venue vs non-trading venues. •
Impact of deferrals on post-trade aggregation, if any	• While deferrals are important for large/ illiquid trades, aggregated data that is delayed becomes of limited use.	• Deferrals are appropriately calibrated to protect and incentivise liquidity provision. If data is complete, deferrals may only impact usability for real time algorithms.
How aggregation vendors compare with one another	• The aggregated post-trade data is different from vendor to vendor. • There are differences in quality control, ids, formats etc – aggregation is expensive and a substantial challenge, in particular for those who do not have the size of the largest asset managers.	• Most operate APAs and trading venues. Different degrees of completeness and pricing.
The one key requirement according to the buy-side regarding post-trade data	• The buys-side requires “one view of all post-trade bond data”. • A central self-contained consolidated tape at reasonable commercial costs and quality.	• It must be complete in one source.

7.3.2 EU APAs registered on ESMA website

STATUS	APA	Home Member State	Regulator
Active	Bloomberg Data Reporting Services B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	BME REGULATORY SERVICES	SPAIN	Comisión Nacional del Mercado de Valores (CNMV)
Active	BULGARIAN STOCK EXCHANGE	BULGARIA	Financial Supervision Commission (FSC)
Active	CBOE Europe B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	CME Amsterdam B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	Deutsche Börse Aktiengesellschaft	GERMANY	Federal Financial Supervisory Authority (BaFin)
Active	Euronext Paris SA	FRANCE	Autorité des Marchés Financiers (AMF)
Active	Hellenic Exchanges - Athens Stock Exchange SA	GREECE	Hellenic Capital Market Commission (HCMC)
Active	KELER Központi Értéktár Zrt.	HUNGARY	Central Bank of Hungary
Active	Nasdaq Stockholm Aktiebolag	SWEDEN	Finansinspektionen (FI)
Active	Oslo Børs APA	NORWAY	Norwegian Financial Supervisory Authority
Active	Tradeweb EU B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	Trax NL B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	UnaVista TRADEcho B.V.	NETHERLANDS	Netherlands Authority for the Financial Markets (AFM)
Active	Wiener Börse AG	AUSTRIA	Austrian Financial Market Authority (FMA)
Active	Zagrebačka burza d.d.	CROATIA	Croatian Financial Services Supervisory Agency (HANFA)
Total 16			
*Inactive	vwd TransactionSolutions AG	GERMANY	Federal Financial Supervisory Authority (BaFin)

8. End State: EU bond consolidated tape

CT as it relates to governance, mandatory contribution, reporting design, revenue sharing, data transformation, repackaging and distribution models

The CTP contract should be awarded for no less than five years. This is to allow whoever is awarded the contract, to have sufficient time to recoup any development costs. In addition, the firm awarded the contract should have robust conflict-of-interest rules in place to assess whether its policies, procedures and corporate governance structure ensure independence of the CTP and the avoidance of conflicts of interest. Conflicts may arise where the CTP is engaged in other activities such as acting as a market operator, investment firm or trade repository. Lastly, it is understood that day-to-day CT costs to industry participants should be kept to a minimum.

The view is that ESMA should have oversight over the CTP contract and monitor for any breach of contract e.g. data quality, access, pricing etc. This includes the awarding of the contract "on an exclusive basis and that no other entity shall be authorised as a consolidated tape provider in accordance with Article 27a of regulation (EU) No 600/2014". (ESA review) Furthermore, it is known that in January of 2022, ESMA will have supervisory authority and enforcement powers over the consolidated tape provider (https://www.esma.europa.eu/sites/default/files/library/esma80-199-332_confidential_supervision_ar_2019_wp_2020.pdf p. 33). However, the Taskforce view is that ESMA should work closely with industry participants (buy-side, sell-side and retail) to advise, providing collective market functioning expertise and stewardship.

8.1 Governance models

In order to determine the best governance model for the CTP and CT operation, it is necessary to assess the likelihood of the CTP becoming a successful 'going concern'. This involves assessing potential funding, stewardship, management structure and IT operation models. In regard to stewardship, it is important to have bond market expertise to provide insight and input into the board. Asset class expertise and stewardship should be at the forefront of any model design for a consolidated tape, whether bonds or indeed beyond bonds (e.g. equities, derivatives etc). Industry participants from each asset class should have control of their own products, ensuring sweeping cross-asset statements will not be enforced, which could create operational challenges.

The Taskforce sets out below the potential models for CTP governance along with positives and negatives of each model and a view from the CT Taskforce and wider CT working group as to the percentage chance of success for the governance model or combination of models. In order for one model or a combination of models to become the likely CTP candidate, it will be necessary to resolve any of the perceived 'negatives' outlined.

8.1.1 CTP governance summary

	Operating model				Funding Model							
CTP Governance Model options	**Managed by**	**Stakeholder stewardship - ESMA?**	**Stakeholder stewardship - Industry rep.?**	**IT by**	**Mandatory membership fees from IFs & TVs to ESMA**	**Mandatory fee increase for NCAs and/or EC to ESMA**	**Private funding (TBD)**	**Initial funding**	**Data feed - end user fee?**	**Pricing methodology determined by?**	**Profit Making**	**Scope of traded vol.**
1. ESMA governance												
a. SRO Data Entity, governed by ESMA	SRO Data Entity and outsourced 3rd party	**Y**	**Y**	Outsourced to 3rd party	**Y**	n	n	Fees from IF & TVs to ESMA	n	SRO, ESMA AND industry stakeholders	n	80%
b. CT operated and governed by ESMA	ESMA	**Y**	**Y***	ESMA	n	**Y**	n	Mandatory fee increase for NCAs	n	ESMA	n	80%
2. Public/Private Partnership - Limited company												
Public/Private Partnership - Ltd cy	Limited Company with ESMA & industry stakeholders	**Y**	**Y**	Limited Company (potentially using some outsourced services)	n	n	**Y**	Initial loan	**Y**	Limited Company with ESMA & industry stakeholders	Reinvested	80%
3. APAs consortium												
a. Managed by APAs consortium	APAs consortium	n	n	APAs consortium	n	n	**Y**	Investment by APAs	**Y**	APAs consortium	**Y**	80%
b. With Industry Stakeholders Committee	APA consortium & industry stakeholders	n	**Y**	APAs consortium	n	n	**Y**	Investment by APAs	**Y**	APA consortium & industry stakeholders	**Y**	80%
4. Independent firm												
a. By Non-financial markets firm	Independent firm	n	n	Independent firm	n	n	**Y**	Investment by Ind. firm	**Y**	Independent firm	**Y**	80%
b. By financial markets firm	Independent firm	n	n	Independent firm	n	n	**Y**	Investment by Ind. firm	**Y**	Independent firm	**Y**	80%

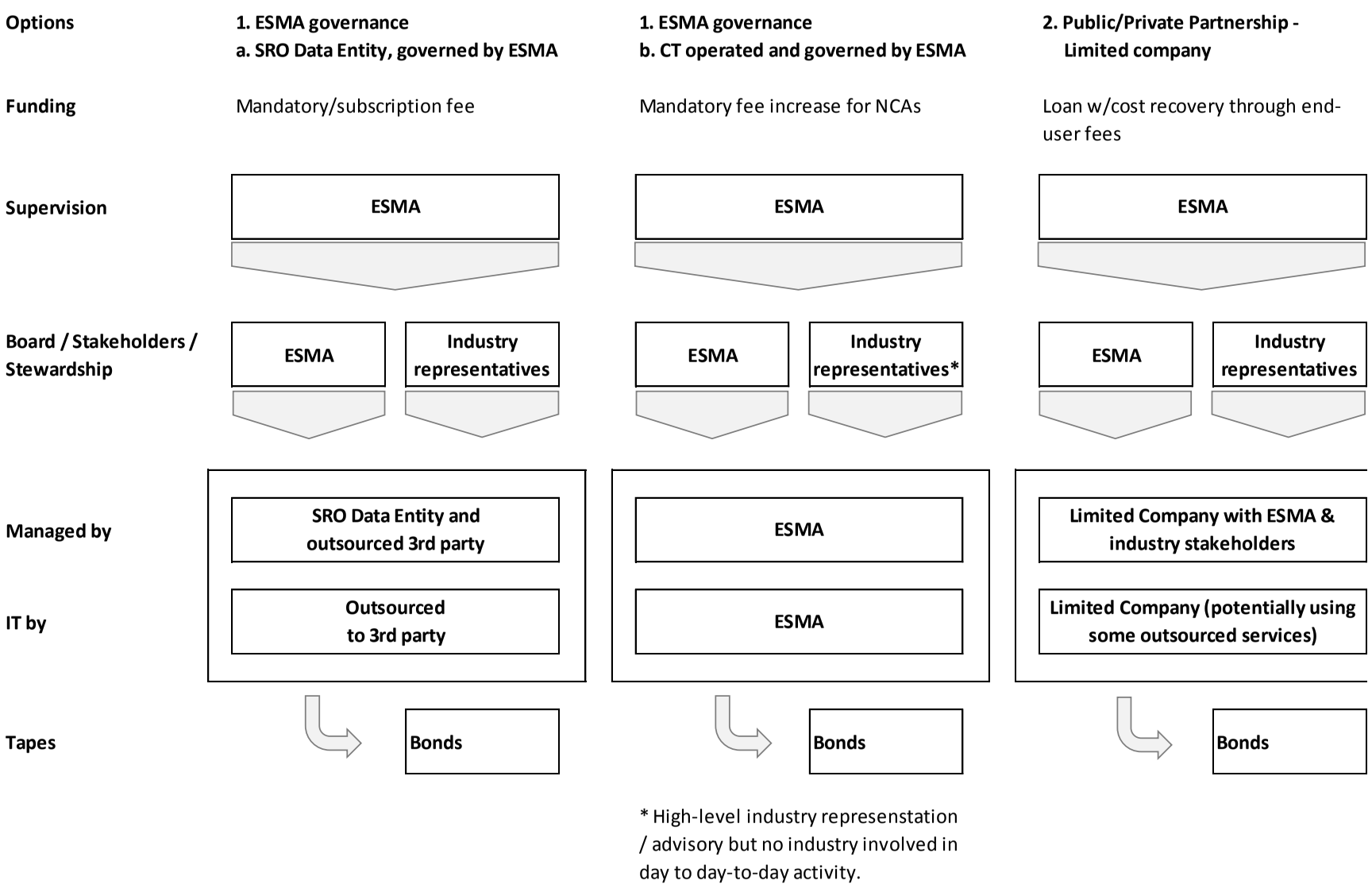
* High-level industry represenstation/advisory but no industry involved in day to day-to-day activity.

Note: As of January 2022, ESMA will supervise directly all APAs and the CTP.

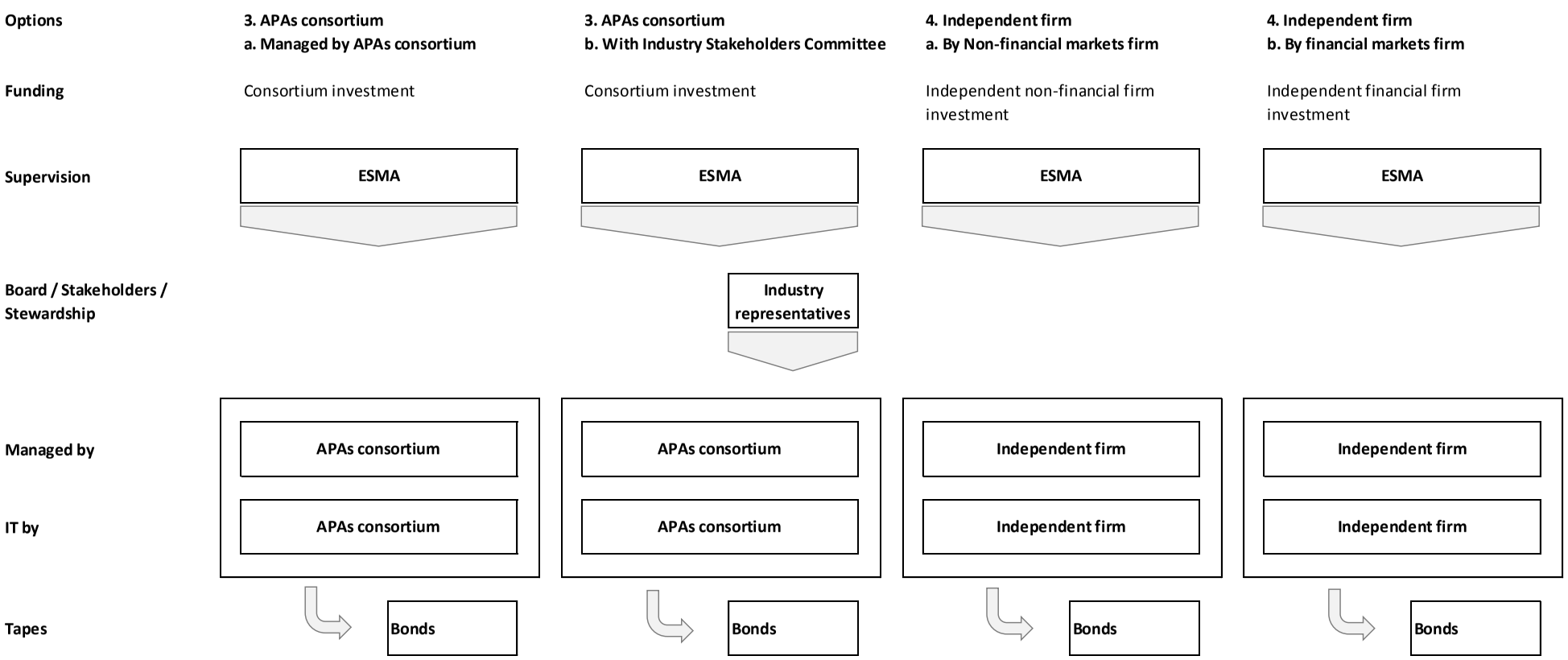
Legend

CTP = Consolidated Tape Provider
EC = European Commission
IF = Investment Firm = Buy-side, Sell-Side, SI or not
SRO = self regulatory organization
TV = Trading Venue = RM, MTF, OTF

8.1.2 CTP Governance model option overview



* High-level industry represenstation / advisory but no industry involved in day to day-to-day activity.


Options
3. APAs consortium
a. Managed by APAs consortium
3. APAs consortium
b. With Industry Stakeholders Committee
4. Independent firm
a. By Non-financial markets firm
4. Independent firm
b. By financial markets firm
Funding
Consortium investment
Consortium investment
Independent non-financial firm investment
Independent financial firm investment
Supervision
ESMA
ESMA
ESMA
ESMA
Board / Stakeholders / Stewardship
Industry representatives
Managed by
APAs consortium
APAs consortium
Independent firm
Independent firm
IT by
APAs consortium
APAs consortium
Independent firm
Independent firm
Tapes
Bonds
Bonds
Bonds
Bonds

8.1.3 Governance model options: positives and negatives

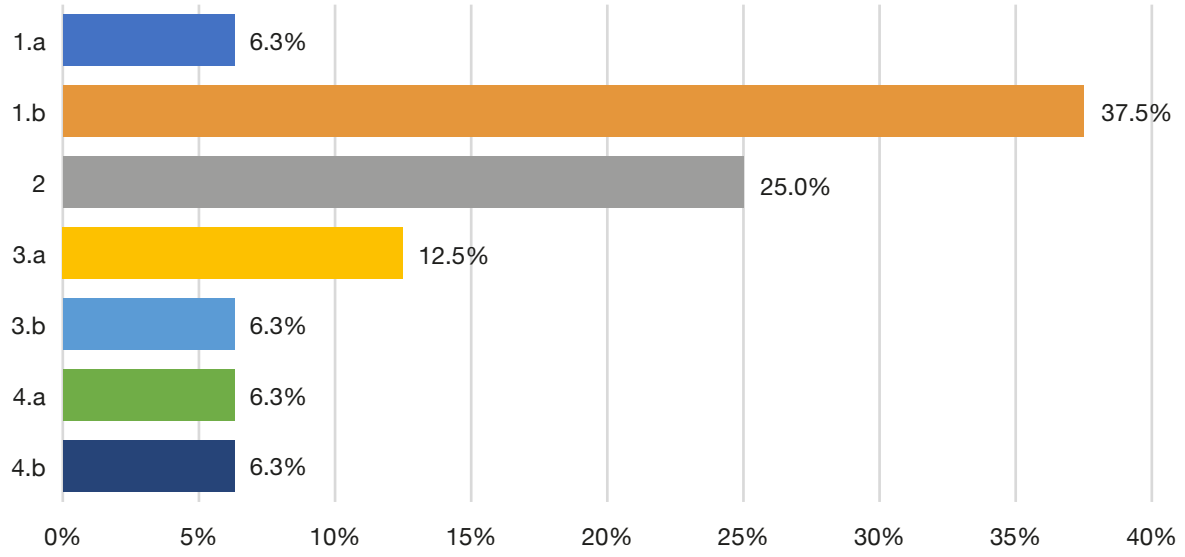
	Positives	Negatives
1. ESMA governance		
a. SRO Data Entity, governed by ESMA	1. Funding spread across EU, no end user specific fee. 2. ESMA and industry involved in governance. 3. More palatable for trading venues to mandatorily provide post-trade data to ESMA rather than commercial entity. 4. ESMA (with possibly NCAs) and industry "in the driving seat" and to collaborate in stewardship, i.e. at finding pragmatic solution to complex and costly detailed reporting implications (problems of reference data, lack of golden sources, asset classes mapping…). Better understanding of challenges, possibly quick adaptation of regulatory guidance (e.g. phase approach per product type). 5. Gain in pragmatic and financial market products knowledge from the regulators / industry collaboration.	1. Collection of membership fees will be a challenge. Many firms will not pay up front and on time. This could prove a problem for cash flow. 2. First movers will end up subsidising other firms, which will be financially punitive for the firms that pay the membership fee first. 3. Mandatory subscription/membership with mandatory payments, may not be legally acceptable in various countries across the EU. Some member states may not be able to regulate and force their region's investment firms to pay for the CT. 4. If there is mandatory subscription/ membership, it could mean if a firm wanted to opt out, they couldn't. If a firm does not want to use the data, they should not be forced to subscribe and should be able to opt out.
b. CT operated and governed by ESMA	1. Avoids conflicts of interest 2. Share core costs across NCAs, as a public good 3. ESMA has control over fees 4. ESMA (with possibly NCAs) and industry "in the driving seat" and to collaborate in stewardship, i.e. at finding pragmatic solution to complex and costly detailed reporting implications (problems of reference data, lack of golden sources, asset classes mapping…). Better understanding of challenges, possibly quick adaptation of regulatory guidance (e.g. phase approach per product type). 5. Gain in pragmatic and financial market products knowledge from the regulators / industry collaboration.	1. A CT operated and governed by ESMA as an independent body has been ruled out by the European Commission. The European Commission has said they will not fund ESMA operating the CT, it needs to be a commercial self-funding operation. 2. Member states funding the CT, would in reality mean the NCAs fund the CT. Member States may not wish to increase their contributions to ESMA's budget to fund the tape.

	Positives	Negatives
2. Public/Private Partnership - Limited company		
Public/Private Partnership - Ltd company	1. No mandatory subscription/membership fees 2. Industry and ESMA influence on day- to -day activity though board membership or observer status 3. Loan based, so no cash flow issues. Cost recovery comes from end user fees. Once the data quality is sorted, the view is the CT will be a 'going concern' and will easily pay for itself through market demand. 4. While there are differences in operating models, this model is similar to current existing industry providers.	1. Unclear as to whether a Limited company can have ESMA as board members or observers. 2. Also unclear as to whether ESMA can together with industry representatives co-direct operational strategy 3. Cost recovery is based on end user's usage and fees.
3. APAs consortium		
a. Managed by APAs consortium	1. Speedy implementation as APAs could leverage existing infrastructure and resources. 2. No disruption to current business models 3. No amending of current reporting obligations 4. No impact from Brexit, APAs would already be operating within both the UK and EU.	1. ESMA will have oversight of all APAs and of the CTP as of January 2022. This may act as a disincentive to create the consortium in the first place, due to oversight of any consortium revenue model. 2. Other firms (outside the consortium) may not be able to redistribute or transform the raw data. In effect, the consortium would control all use in the market of the post-trade raw bond data. 3. No industry input into pricing methodology 4. No industry input into operational direction 5. May prove challenging for APAs to converge on technical standards and one business model 6. Regional APAs may be prevented from joining the consortium, if there is no oversight by ESMA.

	Positives	Negatives
b. With Industry Stakeholders Committee	1. Industry representation and input for actioning 2. Industry input into pricing methodology 3. No disruption to current business models 4. No amending of current reporting obligations 5. No impact from Brexit, APAs would already be operating within both the UK and EU.	1. Conflicting 'wants' from industry representatives who may want something for free that the consortium would view as chargeable. This could prove challenging to overcome. 2. APAs may not want oversight from ESMA. As of January 2022, ESMA will have oversight of all APAs and of the CTP. This may act as a disincentive to create the consortium in the first place, due to oversight of any consortium revenue model. 3. May prove challenging for APAs to converge on technical standards and one business model 4. Regional APAs may be prevented from joining the consortium, if there is no oversight by ESMA.
4. Independent firm		
a. By Non-financial markets firm	1. May have superior technology and data management and storage. 2. With pre-existing knowledge of data, may be cheaper for the end-user (TBD). 3. May be able to take on all data management activities from ESMA, including FIRDS and FITRS calculations. 4. Market is not required to fund initial build costs. 5. Profit motivated, so may build a superior product.	1. No industry input into pricing methodology and governance, leading to conflicts of interest 2. May not want to be regulated, which could prove a disincentive in becoming a CTP. 3. No industry end-user control or input into raw post-trade data consumption, distribution, redistribution or transformation. 4. If a radical model is produced, this may prove too disruptive for the industry to adopt. 5. May not really understand the complex interdependent nature of bond market trading. 6. End user fees may be higher
b. By financial markets firm	1. Has an understanding of trading relationships, expertise in terms of bond market and bond data management. 2. Infrastructure in place for existing market participants. 3. Oversight by ESMA, January 2022. 4. Market is not required to fund initial build costs. 5. Profit motivated.	1. No end-user input into pricing methodology, governance, conflicts of interest 2. No end-user control or input into raw post-trade data consumption, distribution, redistribution or transformation. 3. Other trading venues and APAs may not wish to send data to a competitor. 4. Fees may be higher.

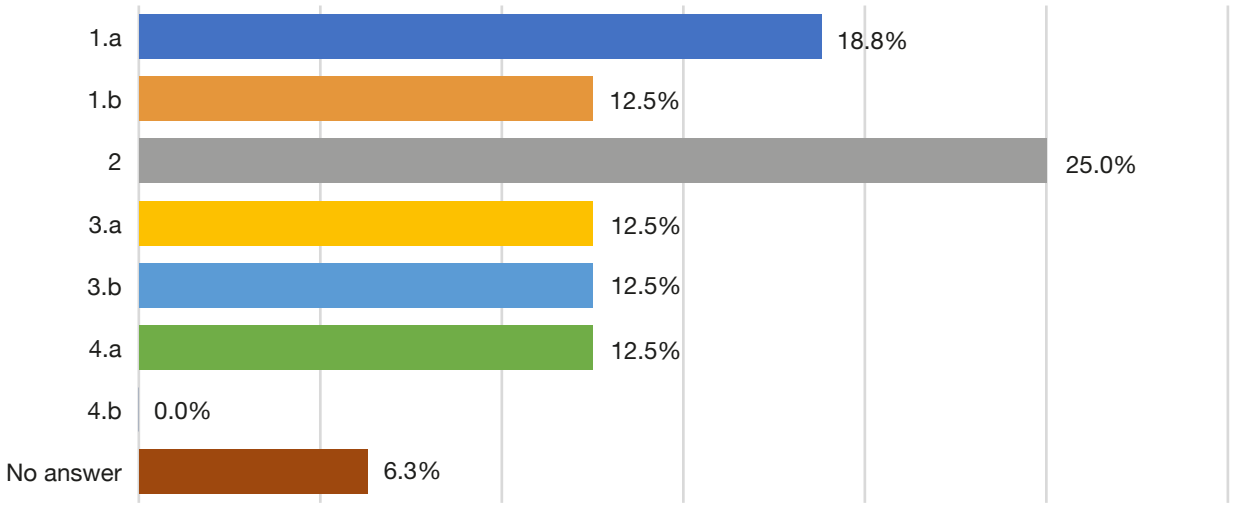
8.1.4 Taskforce views on best governance model options

Q1 Which CTP governance model option do you like best?



1. a. ESMA governance of an SRO Data Entity, governed by ESMA. Funded through mandatory membership/ subscription industry fees.
1. b. **ESMA governance of a CT operated and governed by ESMA. Funded by mandatory fee increase for NCAs.**
2. Public/Private Partnership - Ltd company. Funded through loan w/cost recovery through end-user fees.
3. a. APA consortium managed by consortium of APAs. Funded by consortium investment and cost recovery through end-user fees.
3. b. APA consortium with Industry Stakeholders Committee. Funded by consortium investment and cost recovery through end-user fees.
4. a. Independent firm by non-financial markets firm. Funded by the non-financial market firm investment and cost recovery through end-user fees.
4. b. Independent firm by financial markets firm. Funded by the financial market firm' investment and cost recovery through end-user fees.

Q2 Which CTP governance model single option do you think is the most realistic to emerge?



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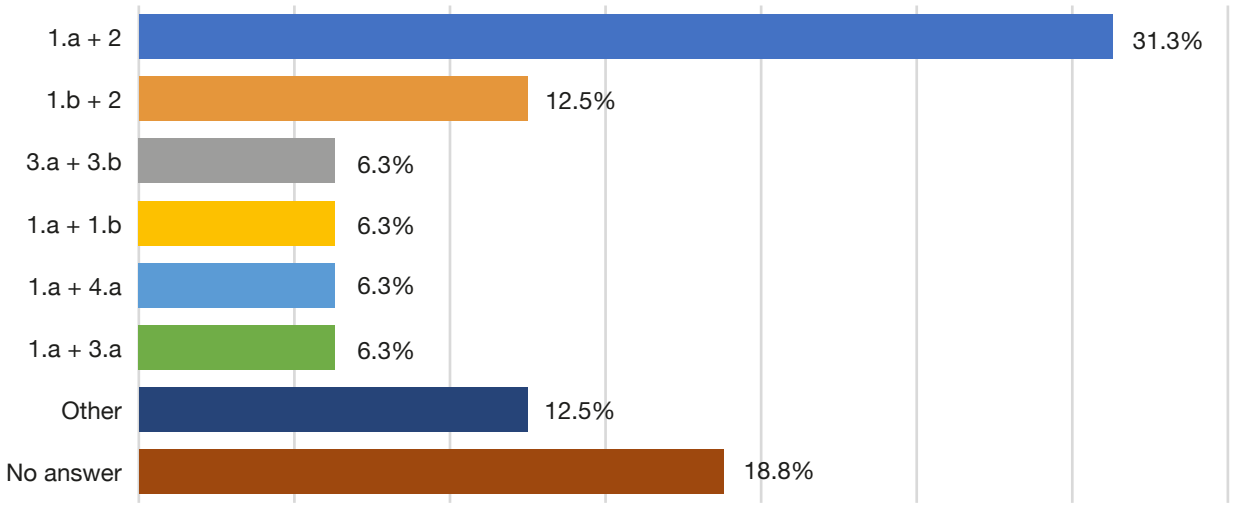
4. b. Independent firm by financial markets firm. Funded by the financial market firm' investment and cost recovery through end-user fees.

Q3 Which CTP governance model combination of options do you think is the most likely to emerge - 1a + 2, 1b + 2 or other?



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3. a. APA consortium managed by consortium of APAs. Funded by consortium investment and cost recovery through end-user fees.

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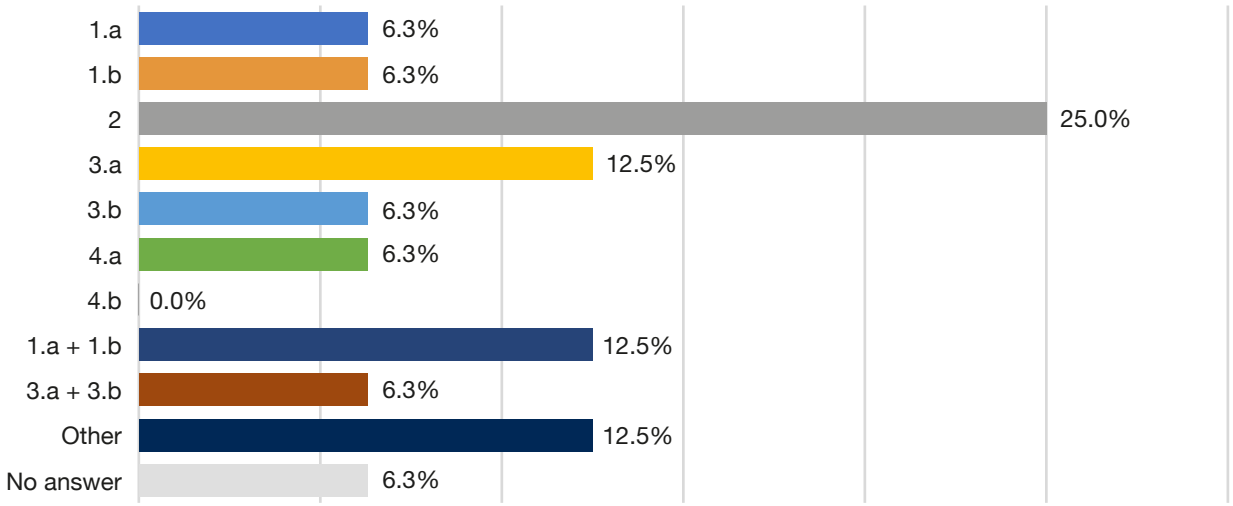
4. a. Independent firm by non-financial markets firm. Funded by the non-financial market firm investment and cost recovery through end-user fees.

4. b. Independent firm by financial markets firm. Funded by the financial market firm' investment and cost recovery through end-user fees.

Other comments relating to potential combination of models that may be the most likely to emerge for a CTP:

- 1b, with outsourced IT to 3rd party or 1a with mandatory contribution from NCA / EC to ESMA
- No combination will emerge
- Like for the governance model single option, the firm does not know and thinks it is impossible to predict at this stage.

Q4 Which CTP governance model option or combination of model options is best suited for multiple asset classes (e.g. equities and bonds) CTP governance?



1. a ESMA governance of an SRO Data Entity, governed by ESMA. Funded through mandatory membership/ subscription industry fees.
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4. b. Independent firm by financial markets firm. Funded by the financial market firm' investment and cost recovery through end-user fees.

Other comments relating to model (s) that may best suit multi-asset class (exchange/non-exchange based) CTP:

- "1c" i.e. 1b but where the IT is outsourced to a 3rd party like in 1a as ESMA often does not have either the budget, the skillset or the capabilities.
- 1b, with IT outsourced to 3rd party or 1a with mandatory contribution form NCA / EC to ESMA
- Should be an independent regulated operator due to the potential conflicts of interest.

The survey was answered by ICMA's CT Taskforce members (9 buy-sides, 21 sell-sides, 6 trading venues and data providers) as they had the most informed views regarding potential CTP models. The models options supported the most were: 1. Public/private partnership - Ltd company. Funded through loan w/cost recovery through end-user fees. 2. ESMA governance of an SRO data entity, governed by ESMA. Funded through mandatory membership/ subscription industry fees and 3. ESMA governance of a CT operated and governed by ESMA. Funded by mandatory fee increase for NCAs.

The most popular combination of models supported were: ESMA governance of an SRO data entity, governed by ESMA. Funded through mandatory membership/subscription industry fees *combined* with public/private partnership - Ltd company. Funded through loan w/cost recovery through end-user fees.

Lastly, the model or combination of models that Taskforce members viewed as best suited to multiple asset classes (exchange based e.g. equities, exchange traded derivatives and non-exchange based e.g. bonds and non-exchange traded derivatives) was the public/private partnership – Ltd company. Funded through initial loan w/cost recovery through end user fees.

The ICMA CT Taskforce believes there are a few governance potential model options which could in all probability deliver a CT for EU bond markets. Any of the governance models outlined could be achieved with decisive strong EU leadership and the will to surmount any associated negative of relevant model options:

- A limited company working with ESMA in a close public- private partnership with outsourced IT operations, could take out a loan to be paid back on a cost recovery basis from user fees, to provide a CTP.
- ESMA could govern through an SRO data entity mechanism. Recovering costs through subscription/membership fees to provide a CTP.
- ESMA could work with the industry (stewarding day- to- day operations) but have overall governance, recovering costs through NCA increased contributions, to provide a CTP.
- APAs could converge on technical standards and a single business model, recovering costs through industry accepted user fees, in order to work together to provide a CTP.

8.2 Contribution and consumption

8.2.1 Mandatory contribution

It is essential that the responsibility for data feed provision should be changed from the CTP's obligation to 'obtain' data, to stating that trading venues and APAs have an obligation to 'provide' data to the CTP in MiFID II/R. This obligation would be extended to self-reporting firms if applicable.

APAs, self-reporting firms (where applicable) and trading venues would be required to mandatorily provide the post-trade data to the CTP as soon as technically possible, taking into account deferrals.

8.2.2 Non-mandatory consumption

There should be no mandatory 'consumption' of the tape. It has been suggested that the only way to operate the CTP as a 'going concern' is to mandate consumption of the CT by all market participant end users. ICMA buy-side and sell-side members do not agree. The expectation is that if the quality of the tape is high, affordable and accessible then this in itself will generate demand for the tape, without forcing users to purchase it. Even at the start, if the CTP solely aggregates what is currently being published by APAs, the result will be a reduction in cost for end users as market participants will not have to purchase the traditionally more expensive and purely commercial aggregators on top of the already purchased APA data feeds. The consolidated tape with good quality post trade data providing an overview of the market, could be enough for firms who only want to view raw post-trade data. Furthermore, the data volumes the end users would be viewing at the start should be in the 60% – 70% range of total trading (maybe even more). Therefore, there is no reason to consider this centralised aggregated post-trade CT will not create high demand.

However, providing flexibility and optionality is also important for the EU market participants. It is likely that some firms will not wish to consume the full raw post-trade consolidated tape and may instead prefer to purchase data directly from selected venues/APAs. Users may only be interested in trading in particular instruments or in particular geographic markets. Thus, providing further reason why the consolidated tape should not be mandatorily consumed through regulatory obligation. For further information on uses and benefits of a consolidated tape, see section 3.5.

Mandatory consumption of post-trade execution data does not equal 'best execution'. Proving best execution (or 'achieving the best possible result for customers when executing their orders via execution venues or OTC') should not be overly simplified to observing just post-trade pricing. The best execution process is a complex matrix of pre-trade decision making and tools and much more than execution 'prices.'

One only has to look at the RTS 28 best execution reporting framework under MiFID II/MiFIR. RTS 28 which has so far proved unsuccessful, as firms cannot illustrate *exactly* what is the best 'price'. For example, when evidencing best execution for corporate bonds, pricing is not the determining factor, best execution is mostly analysed on a spread basis.

Moreover, it is is unrealistic to expect a firm to provide a 'price' as evidence of best execution when that firm's trade may be the only trade for that bond in a week.

Lastly, when it comes to best execution, size does matter. A major buy-side participant can often be observed trading in large block sizes, that trade may involve a sell-side providing balance sheet and other sell-side risk taking assistance (execution immediacy, hedging w/ derivatives, repos etc). This sell-side risk assistance is reflected in a

higher executed price. If a smaller firm or retail market participant were to execute the same bond but in a smaller or retail size, that trade price would be lower, as sell-side balance sheet would not have been used. Therefore, obligating market participants to mandatorily consume the post-trade data for best execution purposes would likely be impractical at best, and misleading at worst.

Instead, the buy-side views a CT as a further valuable tool in the toolbox for pre-trade price discovery. In addition to consumption of pre-trade axe and inventory data, the CT will also provide buy-side market participants with an overview of the market, resulting in informed investment decision making.

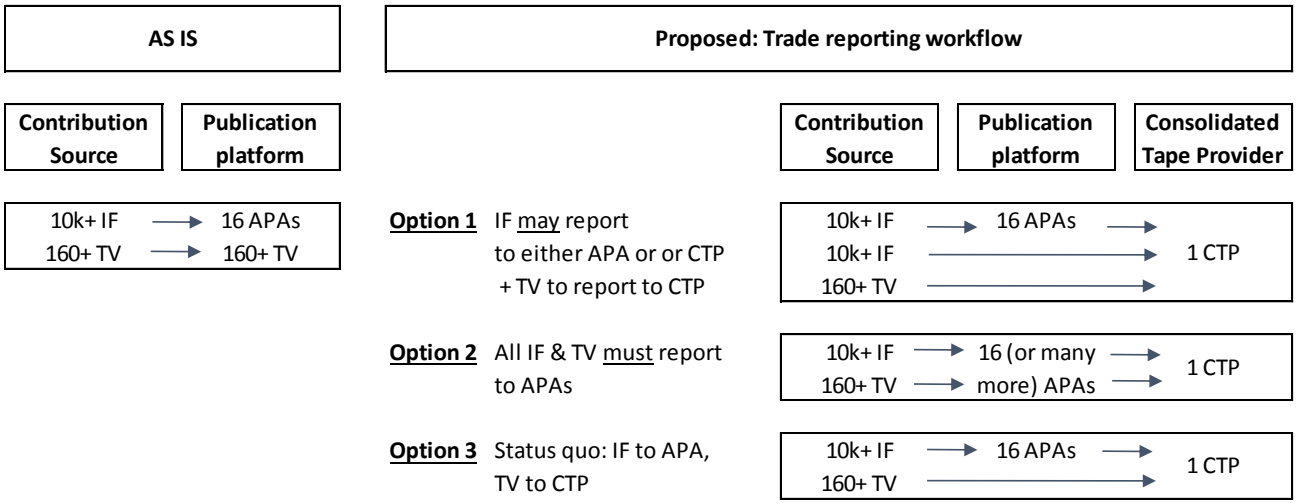
8.3 Reporting model options

Most of the large APAs and trading venues operate in both the EU and UK. The APA and trading venue numbers used in this report reflect operating entities within the EU. Currently in the EU and UK there are 430 + trading venues and 20 + APAs as well as 12,000 + investment firms. However, the following tables cover only the EU, 160 + trading venues, 16 (active) bond APAs and 10,000 + investment firms.

It is key to get the reporting model correct as it will have to support the EU 160 + trading venues and 16 APAs and possibly a few self-reporting firms. All reporting workflow options will flow into one centralised consolidated tape provider.

In the current situation,

- Investment firms must report to APAs and
- Trading Venues display their MiFID II transparency on their own platform, with some TV using APAs.



Legend

CTP = Consolidated Tape Provider
TV = Trading Venue = RM, MTF, OTF
IF = Investment Firm = Buy-side, Sell-Side, SI or not

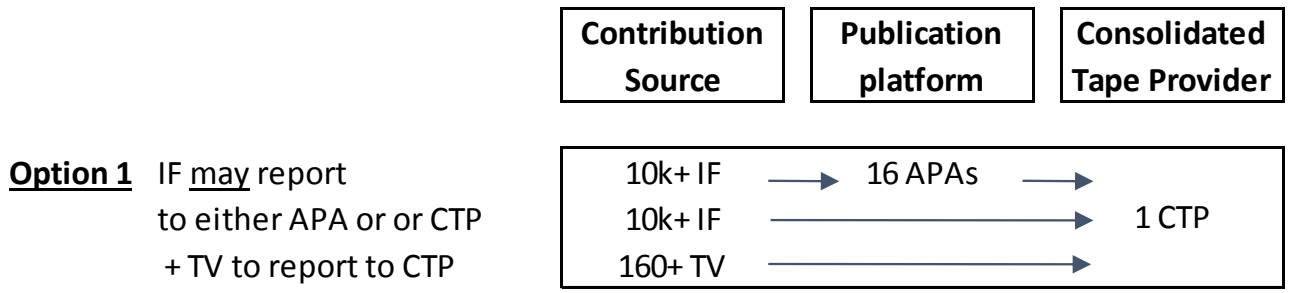
Links / List

List of Investment Firms, RM, MTF, OTF, APA
- 160+ TV is the number of Equity & Non-Equity Trading Venues in the EU, excluding UK.
- 10k+ IF is the number of all MiFID Investment Firms (accross all asset classes)

https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_upreg#

8.3.1 Option 1

Proposed: Trade reporting workflow



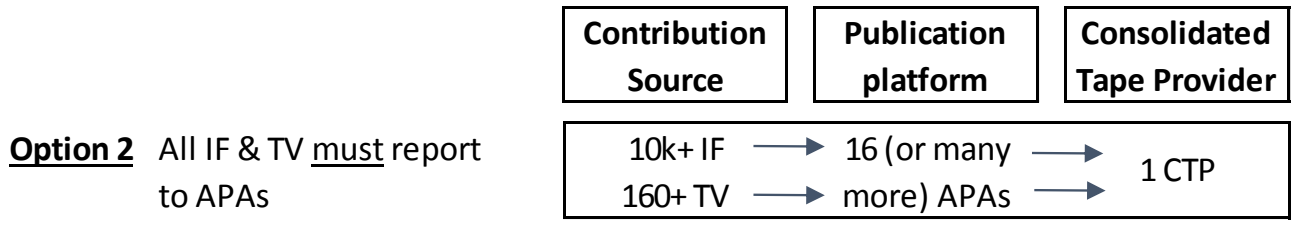
Besides APAs and trading venues reporting to the CTP, MiFID II (Title V) language could be modified to allow investment firms to have the option to self-report to the CTP. The Investment firm will register first as a 'self-reporting' investment firm with ESMA.

The CTP would be permitted to carry out assisted reporting activities (determining who reports, applying MiFID II deferrals, data cleansing etc) similar to APA services for self-reporting investment firms, if they wished to pay for those services. The quality of the CTP assisted reporting services would be required to be of similar standard to APAs.

- **The 'Self-reporting investment firm' will be subject to similar regulatory requirements as APAs** (eg data cleansing and data quality) , and will have the obligation for correctly applying MiFID II transparency regime e.g. ESMA liquid bond list, post-trade deferrals, daily quantitative transparency reporting to the regulator (ESMA) etc, if not using the CTP for assisted reporting.
- **The 'Self-reporting investment firm' will not be required to publish their name.** Currently APAs mask the names of the individual investment firm's trade reporting.
- **The 'Self-reporting investment firm' will be subject to fines similar to APAs for suboptimal data quality and procedures.** The obligations regarding data quality are the same for the self-reporting investment firm, whether using the CTP for assisted reporting or reporting directly to the CTP themselves. This is in order to create good quality data and a standard in the bond market. Lastly, should the investment demonstrate continual breach of its reporting obligations the "self-regulatory" status may be denied.

8.3.2 Option 2

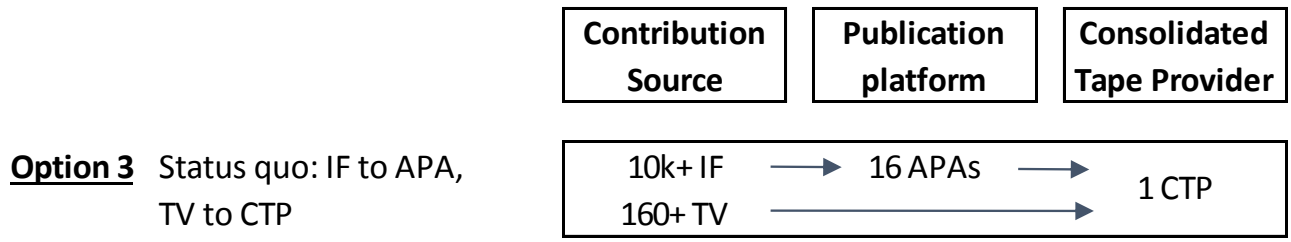
Proposed: Trade reporting workflow



- **Trading venues and investment firms report to APAs. Then APAs mandated to report into single-source CTP.**
- All MTFs, OTFs, RMs and SIs are required to report to APAs. All APAs, through a standardised API pipe, report to the single-source CTP.
- Change in concept for APAs, will be reflected in MiFID II level one.

8.3.3 Option 3

Proposed: Trade reporting workflow



- **Who reports:** "Status quo" to today but mandated to report into single-source CTP.

Legend

CTP = Consolidated Tape Provider
TV = Trading Venue = RM, MTF, OTF
IF = Investment Firm = Buy-side, Sell-Side, SI or not

Links / List

List of Investment Firms, RM, MTF, OTF, APA
- 160+ TV is the number of Equity & Non-Equity Trading Venues in the EU, excluding UK.
- 10k+ IF is the number of all MiFID Investment Firms (accross all asset classes)

https://registers.esma.europa.eu/publication/searchRegister?core=esma_registers_upreg#

8.3.4 Reporting design positives and negatives

	Positives	Negatives
Option 1		
	1. Firms will have the flexibility to use their own technology resources (which would need to be robust) to build APA capabilities to report directly to a CTP. 2. Costs are internal to the firm for reporting to the CT, no middleman. Cost savings for firm in the long run. 3. Problem resolution is potentially faster. Communication is direct between firm and CTP. 4. More streamlined reporting process for investment firms, potentially less chance of errors.	1. Increases the touchpoints and costs for the CTP to connect with. This could possibly result in making it less attractive for a prospective provider to volunteer to take on the role of CTP, too many connections. 2. Self-reporting firms (trading across multiple asset classes) will have to report direct to CTP for bonds but could find themselves, in the beginning, reporting through APAs for other asset classes, such as derivatives and even to a different CTP for equities. This could increase costs instead of decrease cost for the self-reporting investment firms 3. The CTP may be forced to pass on the costs to the industry for multiple self-reporting investment firm connection costs. 4. Increased risk of data quality issues, if self-reporting firms do not cleanse post trade bond data accurately.
Option 2		
	1. Small chance of post-trade publishing errors with less touchpoints/connections to the CTP. 2. APAs will be regulated by ESMA 2022, which could involve oversight regarding pricing methodology, data quality and access -TBD.	1. For those not currently trade reporting to an APA, they will incur the cost of doing so. 2. No flexibility to self-report, if desired. 3. Trading venues could end up creating their own APAs as they will not want to report to rival venues, incurring costs for those trading venues. However this could depend on each venue's cost / benefit analysis.
Option 3		
	1. No change required, stay the same as today allowing priority focus on other initiatives. 2. No additional cost/ resource burden for industry participants 3. Majority of key reporting parties (SI/ sell-side) bedded down process & happy with existing APA reporting lines.	1. No flexibility for firms who wish to self-report and no potential benefit of CTP cost savings and error resolution streamlining.

8.4 Revenue sharing model

The purpose of revenue sharing for APAs and trading venues is to create timely and reliable post-trade data and to share the costs of producing good quality post-trade data with the CTP. However, penalties may be considered, such as withholding the revenue 'share' or reduced 'share' due to low performing data cleansing determined by an industry accepted 'data quality score card'. 'Higher score equals greater share' (more details below and in Annex 12.1).

A revenue share time limit review will be built into the revenue share regime. 5 years after go-live of bond CTP, a review of the revenue share scheme will take place to consider continuing with the revenue sharing regime or removing. Once the data quality has improved and the reporting standards from firms are operating to a high standard, the Taskforce view is twofold, the revenue sharing regime may not be needed and could be removed or it may be necessary to continue CTP revenue sharing as a more permanent regime.

To qualify for a 'share', the data provider must be able to demonstrate the required data cleansing validation rules. Entities carrying out data cleansing exercises on aggregated post-trade data, should qualify to receive revenue sharing from the CTP (regardless of who governs and/or operates the CTP). The amount of the share will be determined by the 'data quality score card' and will be proportionate to the volume of data provided by the contributing firm. The exception would be self-reporting firms as the revenue sharing scheme is only considered for firms that cleanse 'aggregated' data i.e. have multiple data submissions from multiple entities or are a "trading venue" with multiple member firms.

- The 'data quality score card' validates the quality of the data received from the aggregating trading venues and APAs to determine the proportion of revenue share. The specific details and outline of the data quality scorecard can be found in the Annex 12.1.
- APAs may decide to incentivise firms to ensure higher quality data being sent to APAs. They may pass a portion of their share back to their clients.
    - Alternatively, as per RTS13, APAS may look to penalise member firms for data quality issues such as errors and number of cancel/ amends processed.
- Trading venues, APAs and self-reporting firms should not retain any claim or ownership for the raw post-trade data and therefore should not be able to 'license' the reported post-trade raw data to the CTP. However, it should be noted this is not a 'consensus' Taskforce view among APAs and trading venue members as they do not support this approach, which is a significant change to existing business models (also a departure from existing MiFID II/R publication requirements). Various raw post-trade data usage types will apply as stated below in section 8.5. Revenue in the form of revenue sharing will be derived through the 'data quality score card' and will be proportionate to the volume of data provided by the contributing firm.
- Trading venues and APAs will continue to charge for proprietary market data that they directly distribute 'at source'.
    - This would ensure no disruption to this revenue stream and will provide more flexibility for firms who prefer to buy data directly from venues and APAs or that do not wish to buy a full consolidated tape.

8.5 Data transformation, repackaging and distribution models

Firms and/or vendors (including the CTP) will be permitted to purchase the (intraday, one week or full historical) raw post-trade data at a reasonable price and for some, possibly a discounted price, in order to repackage/enrich the raw data for client use or to sell as a value added service. Tiered pricing based on usage (or proportion of usage) will apply (see section 8.5). The enriched data sets for example could be broken out by tenor, credit rate etc. ESMA will monitor through oversight and supervision from January 2022.

However, important to note that the raw data should be in usable form, meaning the data should be easily downloadable and understood by all users. The raw data feed for market participants who only need the raw data content should need no other data feeds.

Data Publication:

Post-trade bond data is published in real-time, taking into account relevant MiFID II deferrals and;

- Should be "made public" as soon as technically practicable and within 15 minutes from executions.
- Publicly available to all market participants - at the same time, including retail participants.

Tiered fees

Differentiated fees, based on various usage types will apply such as:

1. Ad hoc or retail use [TBD]
2. Market participant use [TBD]
3. Redistributor of raw post-trade data for reselling or client [significant proportion] servicing provision use [TBD]
4. Distributor for derived data for reselling or client [significant proportion] servicing provision use [TBD]

Data provided to professionals should be in a standardised machine-readable format. Non- professional end-users would require it in a variety of suitable formats including flat files to ensure that they will be able to access the data, even if their own systems are not sophisticated.

The Taskforce view is that ESMA should have oversight over the CTP contract and monitor for any breach of contract e.g. data quality, access, usage, pricing etc. Industry participants (buy-side, sell-side, trading venues, data providers and retail) should advise with market functioning expertise.

9. Scope of instruments to be reported

The post-trade consolidated tape should aim to provide a comprehensive, detailed, accurate and meaningful view of where, when and how all price forming trades occurred. Post-trade data must be of the highest quality if it is to be useful for market participants. For example, aiding decision making.

Under the current Article 65 of MiFID II and European Commission Delegated Regulation 2018/63, a non-equity CTP is not required to consolidate 100% of all transactions for all non-equity instruments across all trading venues and APAs. Instead, the current MiFID II rules envisage that there could be multiple non-equity CTPs, which may choose to specialise in one or more asset classes. This would be on the provision that any such non-equity CTP must meet the minimum coverage requirements to consolidate at least 80% of the total volume and transactions for each relevant asset class published by all trading venues and APAs in the EU.

Recital 3 of the European Commission Delegated Regulation states that the intention of this approach was to lead CTPs to publish information that is of significance from a user perspective while avoiding the high costs stemming from including all information published by all APAs and all trading venues. However, adopting this model going forward could further exacerbate the existing fragmentation in the market as it could lead to different CTPs covering different and potentially overlapping asset classes and fail to give a truly consolidated view of trading across the EU.

For this reason, the scope of the EU bond CT should aim to cover approximately 80% or better of all volumes of bond transactions and across all trading venues and APAs. It is important to note, the total transaction coverage may need to be phased in over time. For example, beginning with 65% of all transactions, moving to 70% and then aiming for 80% or better. The phase-in staging will need to be monitored by ESMA and adjusted accordingly based on consultation with CTP governance committee representatives, which should include industry representatives. Important to note that again this report and its proposals relate solely to EU bonds and does not include derivative instruments (the post-trade reporting of derivatives such as CDS and IRS would be a separate initiative).

9.1 Instrument reporting and level of information per/instrument to be reported

Eligible instruments to be reported to the CT, would be determined by ToTV (traded on a trading venue) under MiFID II/R guidelines, with the exception of instruments out of scope e.g. US treasury bill and other money market instruments.

Raw post trade data covers: ISIN, date, time of execution, reported date & time [taking into account current publication and deferral obligations under MiFID II], price, venue, cancel or correction. While the CT should have execution prices (taking into account MiFID II's deferrals) as a mandatory data item in the CT, additional data items such as yields, will in all likelihood be required by market participants. Therefore, once there is a consolidated view of prices in the CT, the CTP could then derive yields which are fundamental data points in the relative valuation of bonds and comparative analysis of best execution.

9.2 European trading time zone post-trade 'virtual' consolidated tape

The CT will remain valuable data source after Brexit. The ICMA CT Taskforce preference is to encourage an industry (virtual) 'trading time zone-dependent' consolidated tape. With this in mind, the Taskforce suggests the CTP should not be prevented from offering a service that incorporates individual CT 'modules', comprising non-EEA and/or UK bonds, using appropriate country flags [Swiss flag, UK flag etc] to create the 'virtual' European time zone bond consolidated tape.

The Taskforce would like to stipulate, even if a (virtual) 'trading time zone-dependent' CT was not feasible and the CT only consolidated EU27 transactions (where firms had to separately 'bolt on' UK transactions as such), given the fragmentation across the EU27, an EU27 CT would be greatly valuable to the market.

9.3 Timing of reporting

The timing of reporting should be in line with the existing MiFID II/R post-trade transparency regime. However, harmonisation of MiFID II deferral regimes (including aggregation and omission) across the EU should be considered in order to avoid fragmentation (see diagram below) and ensure a level playing field for all EU market participants as set out in ICMA's position paper on MiFID II/R trade reporting deferral regimes of May 2017.

The ICMA Consolidated Tape Taskforce working with ICMA's MiFID II Working Group (MWG) plans to provide feedback on the MiFID II/R transparency requirements as part of a broader ESMA review of MiFIR transparency for bonds, due 14 June 2020.

Table 39: General description of the supplementary deferral regime at the discretion of the CA (part II)

		Article 10(1)(a)(i) of the draft RTS	Article 10(1)(a)(ii) of the draft RTS	Article 10(1)(b) of the draft RTS	Article 10(1)(c) of the draft RTS (non-sovereign debt only)	Article 10(1)(d) of the draft RTS (sovereign debt only)	Article 10(1)(b) and (d) of the draft RTS applied consecutively (sovereign debt only)
Initial publication	Content	All details except the quantity using the flag "LMTF"	Aggregated publication of at least 5 transactions using the flag "DATF"	All details except the quantity using the flag "VOLO"	Aggregated publication of transactions executed over the course of one calendar week using the flag "FWAF"	Aggregated publication of transactions executed over the course of one calendar week using the flag "IDAF"	All details except the quantity using the flag "VOLW"
	Timing	As close to real time as possible	The next day before 09.00 am local time	As close to real time as possible	The following Tuesday before 09.00 am local time	The following Tuesday before 09.00 am local time	As close to real time as possible and
Second publication	Content	All details of the transaction and using the flag "FULF"	All individual transactions with all details using the flag "FULA"	All details of the transaction and using the flag "FULV"	All individual transactions with all details and using the flag "FULI"	-	Aggregated publication of transactions executed over the course of one calendar week using the flag "COAF"
	Timing	Before 7pm local time on the second day after initial publication	Before 7pm local time on the second day after initial publication	Before 9am local time four weeks after initial publication	Before 9am local time four weeks after initial publication	-	The following Tuesday before 09.00 am CET four weeks after the initial publication

10. Consolidated tape – data quality & standards

10.1 Data quality

Clear concise and unambiguous instructions for individual MiFID II reporting fields are needed. Reference codes that are used also must be absolutely correct. Currently, data fields in MiFID II are open to ambiguous interpretation, leading to in many instances, incorrect data downstream. For a consolidated tape to be useful, more concise instructions, followed correctly by reporting parties, will need to be implemented.

Specific examples of post-trade reporting fields that go to APAs and how they impact the bond market follow:

10.1.1 Misclassification of CFI codes

Some bonds can have incorrect CFI (classification of financial instrument) codes, which completely change their characteristics e.g. a bond that has an incorrect CFI code indicating it is an asset backed or money market instrument instead of a bond. This results in trade reports receiving incorrect treatment when published due to conflicting instrument classification upstream.

Although this is seen to be an "edge-case" impacting a small population of bonds However, it should be addressed..

10.1.2 Notional vs quantity

Instructions should be made clearer regarding populating the fields for 'quantity' and 'notional'. Including, what exact circumstances qualify a bond for an exception to the rule for 'notional amount'. For example, it is understood sovereign bonds and corporate bonds should have "notional amount" populated whereas, ETC's and ETN's should have "quantity". Is the notional amount the "face-value" of the trade executed or monetary value. See Annex 12.6 for more information.

10.1.3 Flags and details for the purpose of post-trade transparency

While it is evident that clear concise and unambiguous instructions for individual MiFID II reporting fields are needed, reporting parties must also follow those instructions. In table 3, Annex II of RTS 2 (https://ec.europa.eu/finance/securities/docs/isd/mifid/rts/160714-rts-2-annex_en.pdf) example (see below), it is understood some reporting parties populate 'PERC' instead of 'MONE' in the "price notation" field, causing inaccuracies in published data. See example of RTS 2 in table below with correct instructions:

Price notation	For all financial instruments	Indication as to whether the price is expressed in monetary value, in percentage or in yield	RM, MTF, OTF, APA, CTP	'MONE' – Monetary value 'PERC' – Per-centage 'YIEL' – Yield 'BAPO' – Basis points

- Flags are required in order to identify whether a particular trade was executed as part of a portfolio trade or ETF. These trades involve a basket of securities of unique issuers for a single agreed price for the entire basket executed. Pricing per ISIN is sometimes not in context, as it is part of the overall basket. Hence, the net proceeds are not indicative of the pricing of the individual constituents.
- Some reporting parties populate equity flags in reports for bonds. For example, 'TNCP' (transactions not contributing to price discovery) an equity only flag, can at times be found in a bond only reporting field.
- Furthermore, there appears to be a non-standard practice for cancel/amend flags. Resulting in inaccurate reporting on trades and volumes.
- Incorrect use of supplemental deferral flags. Sometimes the full details, post deferral, are not provided with the relevant deferral flags.

10.1.4 Publication of 'Zero' price trades.

- APAs in some instances are publishing trades with zero prices. These zero trades are bypassing current validation process. E.g. OTR US treasuries.

10.1.5 Incorrect publication timestamp compared with time of execution

- Trades published with much earlier timestamps
- Trades published with execution times at weekends
- In certain circumstances, trades for bonds have not been reported after an extended deferral period (non-sovereign bonds)

10.1.6 Aggregated trades

- Some aggregated trades are published as a single execution, with one single timestamp, not reflecting the aggregation.

10.2 Reporting methodology & format

Reporting format from APAs and trading venues to Consolidated Tape Provider:

- CTP makes available a standard API across all APAs and TVs (with standardised unambiguous formatting with a connectivity protocol standard such as FIX). All APAs and trading venues code to the CTP provided API.

Trading venues, SIs and OTC to public.

- FIX, CSV

10.3 Data standards

The primary standard used in bond trading (and indeed in other asset classes) is FIX. The recommendation from industry participants is to use FIX to streamline and standardise post-trade practices in relation to consolidated tape activities.

FIX Background:

The Financial Information eXchange (FIX®) Protocol effort was started in 1992 by a group of institutions and brokers interested in streamlining their trading processes and FIX has allowed firms globally to benefit from efficiencies derived through the electronic communication of the full trading lifecycle.

FIX is an open message standard controlled by no single entity, that can be structured to match the business requirements of each firm and their trading partners (including pre-trade, trade and post trade partners). It covers all data elements that are required to be shared between firms to ensure a robust trading process that is understood across the industry and it sits within a framework that provides structure (through message definitions), but allows flexibility for bi-lateral bespoke process to exist (for example the creation of a user defined data elements).

Benefits of FIX:

- Provides institutions, brokers, and other market participants a means of reducing risk by through the automation of the trading process and provides clear and unambiguous implementation guidance
- Provides an open standard that leverages the development effort so that industry participants can efficiently create links with a wide range of counterparties.
- Provides ready access to the industry by vendors, with the incumbent reduction in marketing effort and increase in potential client base.

Openness has been the key to FIX's success. For that reason, FIX has remained vendor and infrastructure neutral and is used by a variety of firms and vendors. It has become the inter-firm messaging protocol of choice.

FIX has grown from its original buy-side to sell-side roots and is now used by markets (exchanges, electronic crossing networks, etc) and other market participants. In addition to fixed income, supports four other asset classes - equities, derivatives, foreign exchange and collective investment schemes.

11. IOSCO recommendations on regulatory reporting and public transparency in corporate bond markets

For the establishment of a Consolidated Post-Trade Tape for bonds in Europe, the 2018 IOSCO Recommendations on Regulatory Reporting and Public Transparency in Secondary Corporate Bond Markets[14] should be taken into considerations, notably:

11.1 Recommendation 2

To facilitate cross-border understanding amongst regulators of corporate bond markets, regulatory authorities should make a clear framework and underlying methodology of regulatory reporting and transparency available.

11.2 Recommendation 6

Regulatory authorities should implement post-trade transparency requirements for secondary market trading in corporate bonds. Taking into consideration the specifics of the market these requirements should be calibrated in a way that a high level of post-trade transparency is achieved. They should also take into account the potential impact that post-trade transparency may have on market liquidity. Post-trade transparency requirements should include at a minimum, the disclosure of information about the identification of the bond, the price, the volume, the buy/sell indicator and the timing of execution.

11.3 Recommendation 7

Where there is transparency of post-trade data relating to corporate bonds, regulatory authorities should take steps to facilitate the consolidation of that data.

14 See https://www.iosco.org/library/pubdocs/pdf/IOSCOPD597.pdf

12. Annex

12.1 Data Quality Scorecard

- Due to Coronavirus, ICMA's CT Taskforce resources have dispersed and are currently unavailable to provide the scorecard's granular detail. Once the current situation normalises the annex will be updated with the data quality scorecard outline.

12.2 No mandatory trading protocols

https://www.cftc.gov/sites/default/files/2018-04/oce_chairman_swapregversion2whitepaper_042618.pdf (page 47, 26 April 2020)

- Focus on trading protocols in the US Swap markets
- Swaps Markets in Transition: Understanding the CFTC's Proposed Rule on SEFs, 20 December 2018

On November 30, 2018, the Commodity Futures Trading Commission ("CFTC") proposed extensive amendments to the rules applicable to trading swaps on a swap execution facility ("SEF").[15] Many of these amendments are in line with recommendations contained in CFTC Chairman J. Christopher Giancarlo's white paper on swaps regulation reform, which he published in March 2018[16], as well as other comments of market participants.

If adopted, the SEF Proposal would transform the manner in which market participants transact on SEFs and the regulatory requirements applicable to SEFs. According to the CFTC, the SEF Proposal is designed to tailor the regulatory requirements for SEF trading to the swap markets. […]

Notably, the amendments would eliminate current requirements for the use of order book and/or request for quote (RFQ) methodologies for certain categories of swaps that are subject to the mandatory trading requirement under the Commodity Exchange Act (the CEA), and instead allow execution of swaps through a SEF or DCM using a wide range of execution methodologies.

- As described in the SEF Proposal, when the CFTC first adopted its regulatory framework for SEFs in 2013, it relied too heavily upon its experience regulating the futures markets where contracts are standardized.[17] The standardization of futures contracts allowed futures trading to occur via bids and offers executed on a structured order book (or through limited exceptions).
- With this experience in mind, in the 2013 SEF Rule, the CFTC transplanted the concept of order book trading onto the market for swaps traded on a SEF.
- However, through its implementation efforts, the CFTC has found that because swaps are more customized relative to futures, the use of an order book to trade swaps on a SEF is not suitable in all instances.
- In an attempt to increase trading activity on SEFs, the SEF Proposal moves away from the futures model of an order book, and toward a more flexible approach that provides SEFs with significantly more discretion regarding the methods of execution for swaps traded on their respective platforms.

Sources:

- Willkie Farr & Gallagher LLP, Swaps Markets in Transition: Understanding the CFTC's Proposed Rule on SEFs, 20 December 2018, https://www.willkie.com/~/media/Files/Publications/2018/12/Swaps_Markets_in_Transition_Understanding_the_CFTCs_Proposed_Rule_on_SEFs.pdf
- Shearman & Sterling, CFTC Considers Revamp of SEF Regulatory Framework, 05 February 2019, https://www.shearman.com/perspectives/2019/02/cftc-revamp-of-sef-regulatory-framework

15 See Swap Execution Facilities and Trade Execution Requirements, 83 Fed. Reg. 61946, 30 November 2018 ("SEF Proposal").
16 See CFTC, "CFTC Chairman Unveils Reg Reform 2.0 Agenda", 26 April 2018, https://www.cftc.gov/PressRoom/PressReleases/7719-18
17 See also Core Principles and Other Requirements for Swap Execution Facilities, 78 Fed. Reg. 33476, 04 June 2013 ("2013 SEF Rule").

12.3 US TRACE – Factsheet (how TRACE operates today)

12.3.1 Background – creation of TRACE

The Trade Reporting and Compliance Engine ("TRACE") is the FINRA-developed vehicle that facilitates the mandatory reporting of over-the-counter secondary market transactions in eligible fixed income securities.[18] It is the successor to the Fixed Income Pricing System ("FIPS") developed by the NASD in the early 1990s.

In March 1990 the United States Senate Committee on Banking, Housing, and Urban Affairs convened hearings into "Lessons to be Learned from the Drexel Failure [bankruptcy of Drexel Burnham Lambert in February 1990] and Possible Regulatory Changes". In those hearings, senators were concerned about the lack of transparency in the high yield secondary market and suggested developing a quotation system for those securities. In his response Chairman Breeden indicated that the SEC shared this concern and in May 1990 had requested the NASD consider whether any existing quotation systems could be adapted to high yield securities. By March 1991, NASD had largely completed the development of the Fixed Income Prototype System, later renamed the Fixed Income Pricing System ("FIPS").

Daily high and low prices of 35 actively traded high yield bonds became public information in April 1994, by June 2001 there were 3,000 issues in the FIPS database. All NASD-regulated broker dealers were required to report trades in the 50 most actively traded high yield securities within 5 minutes of the trade and trades in all other issues had to be reported by the end of the day. Quotes and pricing for the top 50 or "FIPS 50" bonds were then made available to the public.

In 1998, SEC Chairman Arthur Levitt sought to expand transparency in fixed income markets saying:

"The sad truth is that investors in the corporate bond market do not enjoy the same access to information as a car buyer or a homebuyer or, dare I say, a fruit buyer. And that's unacceptable. Guesswork can never be a substitute for readily available price data."[19]

To address this issue, he directed the NASD to *"adopt rules requiring dealers to report all transactions in U.S. corporate bonds and preferred stocks to the NASD and to develop systems to receive and redistribute transaction prices on an immediate basis".* As a result, on January 23, 2001 the Securities and Exchange Commission approved rules proposed by the NASD requiring NASD members to report secondary market transactions in eligible securities and rescinding the FIPS reporting requirements.

To promote transparency without negatively impacting liquidity, FINRA adopted a measured, phased approach to corporate bond trade dissemination that began in 2002 with the most actively traded and liquid bonds.

Public dissemination of transaction information was implemented in three phases. This allowed FINRA to study the impact of transparency on liquidity in the U.S. corporate bond market.

In a parallel effort, the time in which to report a transaction was reduced gradually from 75 minutes on July 1, 2002, to 45 minutes on October 1, 2003, to 30 minutes on October 1, 2004, and finally to 15 minutes on July 1, 2005, to allow for more timely data to be disseminated to the public with minimal impact to reporting firms.

During Phase I, effective on July 1, 2002, public transaction information was disseminated immediately upon receipt for the larger and generally higher credit quality issues: (1) Investment-Grade debt securities having an initial issue of $1 billion or greater; and (2) 50 Non-Investment-Grade (High-Yield) securities disseminated under FIPS2 that were transferred to TRACE. Under these criteria, FINRA disseminated information on approximately 520 securities by the end of 2002.

Phase II, fully effective on April 14, 2003, expanded public dissemination to include transactions in smaller Investment-Grade issues: (1) all Investment Grade TRACE-eligible securities of at least $100 million par value (original issue size) or greater rated A3/A- or higher; and (2) a group of 120 Investment-Grade TRACE-eligible securities rated Baa/BBB and 50 Non-Investment-Grade bonds. As Phase II was implemented, the number of disseminated bonds increased to approximately 4,650 bonds.

In Phase III, fully effective on February 7, 2005, approximately 99 percent of all public transactions and 95 percent of par value in the TRACE-eligible securities market were disseminated immediately upon receipt by the TRACE System.

18 See https://www.finra.org/filing-reporting/trace

19 The Importance of Transparency In America's Debt Market", Speech by SEC Chairman Arthur Levitt. https://www.sec.gov/news/speech/speecharchive/1998/spch218.htm

However, transactions over $1 million in certain infrequently traded Non-Investment-Grade securities were subject to dissemination delays, as were certain transactions immediately following the offering of TRACE-eligible securities rated BBB or below.

Since January 9, 2006, all transactions in public TRACE-eligible securities have been disseminated immediately upon receipt. Effective March 1, 2010, TRACE began requiring the reporting of transactions in U.S. Agency debentures, as well as primary market trades transactions in TRACE-eligible securities. Primary market transactions are subject to dissemination, with the exception of list or fixed offering price and takedown transactions.

Effective May 16, 2011, TRACE began requiring the reporting of transactions in asset-backed and mortgage-backed securities. Since November 2012, TBA transactions are disseminated to the public, and since July 22, 2013, MBS transactions also became subject to dissemination. Effective June 30, 2014, TRACE began disseminating transactions executed pursuant to SEC Rule 144A.

12.3.2 Governance

TRACE is managed by the Financial Industry Regulatory Authority, Inc. ("FINRA"), a successor to the National Association of Securities Dealers and the member regulation and enforcement operations of the New York Stock Exchange. FINRA is a private, non-governmental organisation and acts as a self-regulatory organisation (SRO). A self-regulatory organisation (SRO) is a non-governmental organisation which has the power to create and enforce stand-alone industry and professional regulations and standards. In the case of a financial SROs, such as a stock exchange or FINRA, the priority is to protect the investor by establishing rules, regulations, and set standards of procedures which promote ethics, equality, and professionalism.

The Securities and Exchange Commission is the government agency which acts as the ultimate regulator of the securities industry, including FINRA.

The NASD was founded in 1939 and was registered with the SEC in response to the 1938 Maloney Act amendments to the Securities Exchange Act of 1934, which allowed it to supervise the conduct of its members subject to the oversight of the SEC.

In July 2007, the SEC approved the formation of a new SRO to be a successor to NASD. The NASD and the member regulation, enforcement and arbitration functions of the New York Stock Exchange were then consolidated into the Financial Industry Regulatory Authority (FINRA).

FINRA regulates OTC trading in equities, corporate bonds, securities futures, and options. Firms dealing in securities that are not regulated by another SRO (including equity exchanges), such as by the Municipal Securities Rulemaking Board (MSRB), are required to be member firms of FINRA.

12.3.3 Where to report

FINRA members report trades directly to FINRA through the TRAQS system (web-interface): www.finratraqs.org

Trades may also be reported via FIX, CTCI (until Feb. 2020).

12.3.4 Obligation to report

The FINRA member reports in transactions in secondary market in eligible securities between a FINRA member and a customer or a non-FINRA member.

For transactions between two FINRA members, both FINRA members will be obliged to report the transaction. Asset managers are not required to report.

"Dealers" are required to register with FINRA as members. Not all firms who trade securities are registered with FINRA.

Some market participants are not FINRA registered. For example, many principal trading firms are not registered because they do not meet the definition of "dealer," as set forth in the Exchange Act and interpreted by the SEC. Because they are not dealers, they are not required to register with the SEC, become members of FINRA, or report their activity to TRACE.

12.3.5 Scope - Eligible Security Types Include:

"Eligible" TRACE bonds are any bonds that are US dollar denominated. TRACE members determine which bonds qualify as 'eligible'. US denominated bonds that are traded outside the US by TRACE members, will still have to report to TRACE. Sovereign and private issuers (domestic or foreign) are not considered 'eligible' for TRACE reporting.

FINRA currently exploring foreign sovereign US denominated bonds as potentially eligible for TRACE reporting. FINRA soliciting comment from members.

If this moves forward, FINRA would file a rule change with SEC. This would be followed with more opportunity for FINRA members to comment and FINRA to analyse. Once comment period concludes and the concept is accepted, foreign sovereign US denominated bonds eligible for TRACE reporting, could then become a rule.

(a) Credit & Agency:

- Investment-grade debt, including Rule 144A
- High-yield and unrated debt of U.S. companies and foreign private companies, including PORTAL-designated debt
- Medium-term notes
- Convertible debt and other equity-linked corporate debt not listed on a national securities exchange
- Capital trust securities
- Equipment trust securities
- Floating rate notes
- Global bonds issued by U.S. companies and foreign private companies
- Risk-linked debt securities (e.g. "catastrophe bonds")
- Effective March 1, 2010, U.S. Dollar denominated debt securities issued by an Agency or issued or guaranteed by a Government Sponsored Enterprise (i.e. FNMA, FHLMC)

To summarise: US dollar denominated debt issued by a private company and traded through a FINRA member is subject to reporting.

(b) Securitised:

- Asset Backed Securities (ABS)
- Asset Backed Securities that are not Disseminated (ABSX)
- Mortgage Backed Securities (MBS)
- Collateralised Mortgage Obligations (CMO)
- To Be Announced (TBA)

(c) Treasuries/Sovereigns:

- On October 2016, the Securities and Exchange Commission ("SEC") approved proposed rules requiring FINRA members to report certain transactions in Treasury Securities. The requirement applies to all Treasuries except Savings Bonds. Transactions in Treasury Securities are not subject to public dissemination. Excludes auctions, repo and non-marketable securities (savings bonds).
- In July 2019, FINRA published a proposal to expand TRACE reporting requirements to collect information on trades in foreign sovereign debt securities that are U.S dollar denominated. If adopted, trades in U.S. dollar-denominated foreign sovereign debt securities would be subject to same-day reporting and would not be disseminated publicly.

12.3.6 Level of information Reported:

Each TRACE trade report shall include the following:

- CUSIP number or if a CUSIP number is not available at the Time of Execution, a similar numeric identifier (e.g., a mortgage pool number) or a FINRA symbol;
- Size (volume) of the transaction:
  - For a transaction in a Securitised Product traded TBA ("TBA transaction"), report the original face value of such security.

- For a transaction, other than a TBA transaction, in a Securitised Product that is subject to amortisation, report the original face value of such security and, if a member uses a Factor to execute the transaction that is not the most current Factor publicly available at the Time of Execution, report the Factor used.
- For a transaction in a Securitised Product that does not amortise, report the total par value, principal value or original face value of such security.
- For a transaction, other than a TBA transaction, in a Securitised Product that is executed in an agency capacity and subject to a commission charge, report the original face value of such security and the Factor used to execute the transaction.

- Price of the transaction (or the elements necessary to calculate price, which are contract amount and accrued interest) or, for When-Issued Transactions in U.S. Treasury Securities executed before the Auction for the security, the yield as required by paragraph (d)(1) of this Rule;
  - For When-Issued Transactions in U.S. Treasury Securities executed before the Auction for the security and conducted on a principal basis, report the yield, which must include the mark-up or mark-down, of the security in lieu of price.
- A symbol indicating whether the transaction is a buy or a sell;
- Date of Trade Execution ("as/of" trades only);
- Contra-party's identifier (MPID, customer, or a non-member affiliate, as applicable);
- Capacity — Principal or Agent (with riskless principal reported as principal);
- Time of Execution
- Reporting side executing broker as "give-up" (if any)
- Contra side Introducing Broker in case of "give-up" trade
- The commission (total dollar amount), if applicable
- Date of settlement

12.3.7 Timing of reporting by FINRA members:

(a) Credit

A FINRA member must report a transaction in a TRACE-eligible security as soon as practicable but no later than within 15 minutes of the Time of Execution.

Trades executed prior to 8AM EST must be reported on the same day but no later than 15 minutes after TRACE opens.

Trades executed less than 15 minutes before TRACE closes (6:30 PM EST) must be reported no later than 15 minutes after the TRACE system opens on T+1 and if reported on T+1 must be designated "as/of" and include the date and time of the transaction.

(b) Adjust reporting times by the following for other asset classes[20]:

Credit: 15 minutes

Agencies: 15 minutes

TBAs: 15 minutes

Spec-Pools: 60 minutes

CMOS: 60 minutes

CDOs and CMBS: Same day

Treasuries: Same day

Note: the definition of "Time of Execution" is the time when the Parties to a Transaction agree to all of the terms of the transaction that are sufficient to calculate the dollar price of the trade (additional details for when-issued trades)

20 https://www.finra.org/filing-reporting/trade-reporting-and-compliance-engine-trace/trace-reporting-timeframes

12.3.8 How bond trades are reported

Trades are reported via FIX, CTCI (Computer to Computer Interface) or via TRAQS (Web interface).

12.3.9 Distribution & Consumption model - timing

See Distribution and Consumption Model section for form of distribution.

Segment	Trade Reporting	Current Status
Corporate Debt	July 1, 2002	Reportable within 15 minutes, Real-time dissemination of all securities.
Agency Debentures	March 1, 2010	Reportable within 15 minutes, Real-time dissemination of all securities.
To-Be-Announced	May 16, 2011	GD reportable in 15 minutes. NGD reportable in 1 hour. Disseminated as of November 12, 2012
Specified Pools		Reportable within 1 hour of execution. Dissemination based on pool characteristics as of July 22, 2013.
Asset Backed Securities		Reportable within 15 minutes of execution Dissemination as of June 1, 2015
CDO & CMBS		Reportable on T (as of 11/18/2011). No Dissemination.
CMO/REMIC/RMBS		Reportable on T (as of 11/18/2011). Dissemination implemented on March 20, 2017. Trades under $1 million disseminated real-time. Information on trades over $1 million provided in weekly and monthly reports.
US Treasury	July 10, 2017	Reportable on T+0. No Dissemination

12.3.10 Trade Dissemination Volume Caps:

As part of the initial TRACE implementation in July 2002, FINRA established dissemination protocols that included certain caps to protect market liquidity. Disseminated TRACE transaction data includes price, time of execution, size and other information. The size disseminated is the total par value of the trade, subject to the limits of the applicable dissemination cap

- For investment grade TRACE-eligible securities and agency debt securities, the current dissemination cap is $5 million, and a transaction in excess of $5 million is disseminated as "$5MM+."
- For non-investment grade TRACE-eligible securities, the current dissemination cap is $1 million, and a transaction in excess of $1 million is disseminated as "$1MM+."

Effective October 2, 2017, FINRA is reducing the delay period applicable to Historic TRACE Data for corporate bonds and agency debt, including Rule 144A transactions in such securities, from 18 months to **6 months**. The text of the amendments is available in the online FINRA Manual. 17 Jul 2017.

Trades volumes are then disclosed after 6 months.

FINRA recently announced additional caps as part of the dissemination of transaction information on agency pass-through mortgage-backed securities traded to be announced (TBA transactions).

- For TBA transactions eligible "for good delivery," the dissemination cap is $25 million, and a transaction in excess of $25 million will be disseminated as "$25MM+."

- For TBA transactions "not for good delivery," Agency Pass-Through MBS traded in Specified Pools, SBA-backed ABS traded in TBA and Specified Pool transactions, the dissemination cap is $10 million, and a transaction in excess of $10 million will be disseminated as "$10MM+."[21]

In another recent development, the SEC's transparency subcommittee of the fixed income market structure advisory committee (FIMSAC), formed to consider the impacts of transparency on corporate and municipal bond markets, developed the concept for a pilot"[22] to analyse the current dissemination protocols for block trades in corporate bonds and whether there should be an alternative approach, for example 48-hour deferred trade reporting rather than the immediate reporting with masked volumes which is currently in place. The idea is to test if a 48-hour deferral of large block trades would spur liquidity in block-side trades of corporate bonds.

The Subcommittee identified the potential impact of current dissemination protocols for block trades in corporate bonds. Accordingly, the Subcommittee developed the concept for a pilot to study an alternative approach. The alternative approach would raise the dissemination caps (for investment grade corporate bonds from: "5MM+" to "10MM+", for non-investment grade corporate bonds from: "1MM+"to "5MM+"and modify the dissemination time frames by 48 hours after execution time (or later depending on the time of receipt of the trade report i.e., trades reported after hours will be disseminated more than 48 hours after execution time) for trades above the caps.

In April 2019, FINRA released a request for comment on the design of the pilot. FINRA received more than 30 comment letters in response. At the February 2020 FIMSAC meeting the Chairman noted that FINRA continues to evaluate the comments received. If there is a decision to move forward with the pilot, the design would be open to further public comment prior to implementation. Any FINRA decision to move forward with a 48hr deferral, is pending consultation with the Securities and Exchange Commission.

12.3.11 Access to data (market participants, retail, academics etc.)

FINRA requires all **REAL TIME** feed recipients to execute a Distributor License Agreement. The agreement requires feed recipients to report the number of **REAL TIME** display users, and if external distribution, the number of displays per firm. Distributors are not permitted to re-distribute a **REAL TIME** feed without first confirming with FINRA that the recipient has entered into a Distributor Agreement.

12.3.12 Ownership of data

Members report the post-trade data to FINRA. FINRA then owns the data. FINRA then monetises the data through distribution and consumption fees.

12.3.13 Distribution & Consumption model – pricing

Data is distributed through a broadcast feed from FINRA to authorised resellers. The broadcast feed is in XML format. FINRA decides the specification for the proprietary field names and values (very clear cut).

Data fees[23]

(a) Authorised Re-sellers

Current Data

- $60/month per display application per Data Set of Real-Time TRACE transaction data, or
- a flat fee of $7,500/month per Data Set of Real-Time TRACE transaction data, entitling Professionals to make unlimited internal use of such Data Set(s) through any number of display applications.
- Vendor real-time data feed: $1,500 per month for continuous receipt of TRACE transaction data
  - Can be discounted to $400 /month for qualifying tax-exempt firms
- Vendor daily snap-shot feed: $250 per month for end of day receipt of data

Historical data:

- One-time set-up fee of $2,000, may be discounted to $1,000 for tax-exempt firms

21 https://www.sec.gov/rules/sro/finra/2013/34-70009-ex2.pdf
22 https://www.sec.gov/spotlight/fixed-income-advisory-committee/fimsac-block-trade-recommendation.pdf
23 https://www.finra.org/rules-guidance/rulebooks/finra-rules/7730

- $2,000/calendar year per Data Set for receipt of Historic TRACE Data, except for qualifying Tax-Exempt Organisations. The data is enabled for internal use and internal and/or external display application. Bulk re-distribution of data is not permitted.
  - Re-distribution fee: Charge of $1/CUSIP per calendar year within each dataset per recipient of the data with a maximum fee of $1,000 per calendar year per recipient

(b) End-Users

- Fee imposed by authorised re-distributor
- Real-Time data fee pass-through payment to FINRA of $60 per user/month for real-time TRACE access or a flat fee of $7,500 for a firm-wide license
- Non-real time data charge: None

(c) Academic Access

- $500 set-up fee
- $500/calendar year for receipt of Academic Corporate Bond TRACE Data. Redistribution of data is not permitted.

(d) TRACE Security Activity Report

- $750 per month, $250 per month for qualify institutions

(e) End-of-day TRACE Transaction File

- $750 per month for each data set
- $250 per month for qualifying institutions
- Free for real-time data feed subscribe

12.4 TRACE Observations of impact on market participants

Market liquidity has changed significantly over the time in which TRACE has been phased-in, due to a confluence of factors, including: ongoing electronification of secondary market trading, changes in market participants' behaviour, monetary policy, and regulatory change (both prudential and markets regulations). Below are anecdotal ICMA member comments and observations of TRACE impacts on buy-side, sell-side, trading venue and finally data provider market participants. Some of the comments within these sections may contradict other member's comments in the same section.

12.4.1 Buy-side

Pros

- The impact of TRACE on the market was largely driven by the actual public dissemination of transaction data, reporting all trades within 15 minutes in sizes up to $5m in IG corps and $1m in non-IG corps. The transparency caused traders to widen spreads and reduce the size they would price, according to one buy-side firm.
  - 20 years on, the market has adapted, wider spreads are the norm. Traders take into consideration the impact publishing the price on TRACE will have on their resultant position post-execution. This is also factored into the risk price available to the client.
- The fact that TRACE immediately discloses the occurrence of all trades, including blocks (but with capped notionals to reduce information leakage), directly contributes to the benefits of TRACE. This comprehensive coverage of market trading activity facilitates more accurate assessments of execution quality, a clear understanding of market dynamics, and levelling of the playing field, promoting competition.
  - The buy-side commented further; some academic research found that TRACE has reduced transaction costs for block trades, citing the 'Stacey Jacobsen, Southern Methodist University and Kumar Venkataraman, Southern Methodist University - April 30, 2018.' study.
- More accurate end of day pricing used to calculate Net Asset Valuation (NAV) for mutual funds and ETFs. Particularly important because retail investors enter and exit these products at NAV.
- More pricing data facilitates measuring bond liquidity and the liquidity risk of mutual funds and ETFs. This gives retail holders greater understanding of the liquidity risks implicit in these products.

- Greater ability to check execution against prevailing market prices and keep trading costs low (this is supported by the academic literature).
- Increases competition among liquidity providers, lowering the barrier to entry for new market makers while also providing market context around bids/offers
- TRACE is an important input into both sell-side pricing algorithm and automated execution processes on the buy-side. As such it is a catalyst for more electronic trading.
- TRACE is consistent, clear where the data is coming from, readily available to all and there is a decent ability to provide input from market participants int the trade process.
- Improved transparency of prices
- Reduced transactions costs
- Ability to price curves, relative value ETF baskets because of high confidence in pricing quality and availability.

Cons

- Potentially reduces the ability to trade larger size e.g. block.
- Reported prices may be stale
    - Late reporting e.g. 3pm may mean a price is printed that is from earlier in the day e.g. 10am and is not relevant to where the market actually is at present time. However, important to consider the nuances around the reporting as some market participants can become 'married' to the TRACE print seeing that as the correct price.
    - The Dealer (sell-side) may work an entire indication of interest (or request for quote), fill a part of it initially, but will not book the trade until the end of the day when the total indication or part thereof, has been completed. They will book and report the trade at an average price. This can result in prices appearing stale.
    - Furthermore, Dealers (sell-sides) face a penalty for late bookings or rebooking of trades, so sell sides can become sensitive to TRACE violations. E.g. Clients and dealers agree to work the order over the day and book the executed trades at the end of the day. But Dealers incur penalties from TRACE when executing this way, so at times can be reluctant.
- Trades executed in different jurisdictions are not reported (e.g. EMEA) so market practitioners can't always be sure they have the total transparency picture (A further help to market participants would be to have some way of consolidating an EU/US view as an add on service to TRACE/future EU CTP for a global picture).

12.4.2 Sell-side

Pros

- TRACE has sensible rules for the intraday price and volume with block size delay/cap at a specific threshold.
- TRACE is operated by FINRA which is a non-profit Self-Regulatory Organisation, operated by a Board of Governors with broad representation from across the industry and public. As such, TRACE is operated on a non-commercial and impartial basis at reasonable cost to providers and users of the data.
- Measured, phased-in approach to the introduction of TRACE:
    - The ultimate aim of TRACE was to increase transparency and at the same time optimise liquidity. To ensure liquidity was not negatively affected, a phased approach was adopted, beginning with the dissemination of the most actively traded and liquid bonds. In 2003, smaller investment grade issues were phased in and later, in 2005 this was extended to non-investment grade corporate bonds, delaying dissemination for certain non-Investment Grade trades. The creation and rollout of a consolidated tape for fixed income instruments in the U.S. was gradual and phased in to allow for the adjustment in additional transparency. Valued by users.

Cons

- Certain aspects of TRACE reporting require manual input by members, including setting up new bonds and making amendments. This is inefficient and creates the risk of human error. The platform would benefit from use of modern API technologies for submission.

Impact on block trades

- Real-time TRACE reporting has contributed to a decline in block size liquidity.
- Being able to trade larger blocks is crucial for both buy-side and sell-side market participants. Where buy-side

counterparties of FINRA members have large positions to liquidate or purchase, trading larger blocks allows these counterparties to manage their liquidity needs in a cost-effective and efficient manner. With market impact concerns in mind, if a sell-side firm looks to break a large trade into smaller trades, trading costs can increase in line with operational risk.

- The existing price transparency regime, with near-immediate dissemination of trades, does not facilitate block liquidity as it could impact the ability of broker-dealers to offset the risk undertaken when transacting with their clients. While volumes can be masked, trade prices are still disclosed, and it can be relatively easy for certain market participants to identify when a block trade has taken place when coupled with valuations and market colour. This market impact risk has the effect of further deterring broker-dealer willingness to take on more principal risk.
- Between 2007 and 2013, the average trade size for the 1,000 most active issuers has dropped almost 35% between 2007 and 2013, and the portion of block trades greater than $5mm has declined over this same period by almost 15%, according to one sell-side's response (2 June 2018) to the SEC FIMSAC's[24] recommendation to create a pilot program to study the implications on market liquidity of a change in the disclosure regime for block-size trades in corporate bonds.[25]

12.4.3 Trading venue

Pros

- Trading venues leverage the TRACE data primarily for client service offerings and also internal analysis.
- For price discovery and pre-trade analytics
- Provide Transaction Cost Analysis for execution on the platform
- Normalise, Enrich and distribute data to clients
- Leverage TRACE data with other inputs to construct a composite price
- Input to several proprietary pricing and analytic modules
- Reference prices for post-trade analysis
- Enhanced displays of real-time and delayed TRACE reports

Cons

No obvious 'cons' to report.

12.4.4 Data provider

Pros

- Continuous Evaluated Pricing for Best Execution
- Fixed Income Best Execution Score Calculation
- Fixed Income Best Execution Score Uses:
  - Best Ex Scores rank the execution quality of a trade versus other comparable trades within a selected universe. The Best Ex Score represents the percentage of trades that were executed at a less favourable level within the selected universe compared to our Continuous Evaluated Price. The numerical value of the score represents the percentage of all trades executed with larger price mark-ups than the selected trade. The higher the score, the "better" the execution quality of the trade compared to the intra-day reference price.

Cons

No obvious 'cons' to report.

24 A formal mechanism through which the SEC can receive advice and recommendations on fixed income market structure issues.
25 See https://www.sec.gov/comments/265-30/26530-3974442-167144.pdf

12.5 References - MiFID II/R Post-trade transparency: deferral regimes

- ICMA, May 2017, MiFID II/R Post-trade transparency: trade reporting deferral regimes. An ICMA Position Paper, www.icmagroup.org/assets/documents/Regulatory/Secondary-markets/MiFID-II-Post-trade-transparency---ICMA-Position-Paper---trade-deferral-regimes-%284-May-2017---Final%29.pdf

- BNP Paribas, February 2018, Factsheet MiFID II - Focus on Post-Trade Transparency - Feb 2018, see Deferral regimes for Non-Equity instruments on pp. 10-14, https://cib.bnpparibas.com/documents/factsheet-mifid-ii-focus-on-post-trade-transparency.pdf

- MiFIR Regulation (EU) No 600/2014, Article 11 - Authorisation of Deferred Publication

MiFIR - ARTICLE 11 - AUTHORISATION OF DEFERRED PUBLICATION

1. Competent authorities shall be able to authorise market operators and investment firms operating a trading venue to provide for deferred publication of the details of transactions based on the size or type of the transaction.

In particular, the competent authorities may authorise the deferred publication in respect of transactions that:

(a) are large in scale compared with the normal market size for that bond, traded on a trading venue, or for that class of bond traded on a trading venue; or

(b) are related to a bond, traded on a trading venue, or a class of bond traded on a trading venue for which there is not a liquid market;

(c) are above a size specific to that bond, traded on a trading venue, or that class of bond traded on a trading venue, which would expose liquidity providers to undue risk and takes into account whether the relevant market participants are retail or wholesale investors.

Market operators and investment firms operating a trading venue shall obtain the competent authority's prior approval of proposed arrangements for deferred trade-publication and shall clearly disclose those arrangements to market participants and the public. ESMA shall monitor the application of those arrangements for deferred trade-publication and shall submit an annual report to the European Commission on how they are used in practice.

2. The competent authority responsible for supervising one or more trading venues on which a class of bond is traded may, where the liquidity of that class of financial instrument falls below the threshold determined in accordance with the methodology as referred to in Article 9(5)(a), temporarily suspend the obligations referred to in Article 10. That threshold shall be defined based on objective criteria specific to the market for the financial instrument concerned. Such temporary suspension shall be published on the website of the relevant competent authority.

The temporary suspension shall be valid for an initial period not exceeding three months from the date of its publication on the website of the relevant competent authority. Such a suspension may be renewed for further periods not exceeding three months at a time if the grounds for the temporary suspension continue to be applicable. Where the temporary suspension is not renewed after that three-month period, it shall automatically lapse.

Before suspending or renewing the temporary suspension of the obligations referred to in Article 10, the relevant competent authority shall notify ESMA of its intention and provide an explanation. ESMA shall issue an opinion to the competent authority as soon as practicable on whether in its view the suspension or the renewal of the temporary suspension is justified in accordance with the first and second subparagraphs.

3. Competent authorities may, in conjunction with an authorisation of deferred publication:

(a) request the publication of limited details of a transaction or details of several transactions in an aggregated form, or a combination thereof, during the time period of deferral;

(b) allow the omission of the publication of the volume of an individual transaction during an extended time period of deferral;

(c) regarding non-equity instruments [bonds] that are not sovereign debt, allow the publication of several transactions in an aggregated form during an extended time period of deferral;

(d) regarding sovereign debt instruments, allow the publication of several transactions in an aggregated form for an indefinite period of time.

In relation to sovereign debt instruments, points (b) and (d) may be used either separately or consecutively whereby once the volume omission extended period lapses, the volumes could then be published in aggregated form.

12.6 References - MiFID II/R Post-trade transparency: RTS 2, Annex II, Table 2

- List of details for the purpose of post-trade transparency: https://ec.europa.eu/finance/securities/docs/isd/mifid/rts/160714-rts-2-annex_en.pdf

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