EU Consolidated Tape for Bond Markets
'Interim' study for the European Commission

ICMA MiFID II Data Workstream - Consolidated Tape Taskforce & Working Group

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Disclaimer

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ICMA would like to thank the individual experts, and their firms, who participated in the ICMA Taskforce and Working Group to carry out the Commission interim study on EU bond consolidated tape.

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Contents

1. Executive Summary

There is a clear intent from EU government officials to create a consolidated tape in Europe. Indeed, a consolidated tape is a means to an end in achieving a key policy objective for the EU Commission: "Deepening the Capital Markets Union". In annex I of the EU Commission work programme for 2020, it states in relation to CMU: "Review of the regulatory framework for investment firms and market operators (MiFIDII and MiFIR), *including the establishment of an EU consolidated tape*". https://eur-lex.europa.eu/resource.html?uri=cellar%3A7ae642ea-4340-11ea-b81b-01aa75ed71a1.0002.02/DOC_2&format=PDF .

In the latter part of 2019, the European Commission requested that ICMA work with its diverse membership to produce an 'intelligence' report that seeks to address four specific topics:

(i) The importance of an EU consolidated tape in bond markets
(ii) An in-depth study of FINRA's Trade Reporting and Compliance Engine (TRACE), including observations and market impacts
(iii) An understanding of the current state of play regarding post-trade data operation and aggregation
(iv) An understanding of the desired 'end-state' for an EU bond consolidated tape, including operating model

This 'interim' report is intended to be an opportunity to receive feedback from the European Commission on the scope and content of the report. The following represents a summary of key elements in the consolidated tape (CT) study:

- This report is based on direct contributions from ICMA Taskforce members, providing information relating to data covering post-trade transparency frameworks in both EU and US bond markets. The members of the Taskforce represent firms from the buy-side, sell-side, trading venue and data provider communities, and are part of a wider ICMA consultative Consolidated Tape working group.

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

- While participants observe both pros and cons of TRACE, the overall impacts are largely perceived to have been positive for market efficiency and liquidity. In particular, the gradual and phased-in approach, with the ability to review and adjust adaptation, is viewed as being an identifiable advantage of the implementation process.

- US bond market liquidity has changed significantly during the time in which TRACE has been phased-in, due to a confluence of factors, including: ongoing electronification, changes in market participants' behaviour, monetary policy, and regulatory change (both prudential and markets regulations).

- With respect to the current status of MiFID II/R post-trade transparency, sell-side and buy-side members have observed the cost of creating transparency but little associated benefit. Transparency in the market would significantly improve with a consolidated tape (CT).

- Taskforce firms further observe that post-trade data is currently scattered across more than 17 authorised publication arrangements (APAs) in the EU (16 understood to be operating bond APAs), which makes aggregating the data extremely challenging due to difficulties accessing the 'public' websites, a lack of consistency in formatting, and data errors**.**

- The Taskforce conclude that any consolidated tape model under consideration may require a potential re-evaluation of the roles that all current market participants play today.

- The post-trade CT should aim to provide a comprehensive, detailed, accurate and meaningful view of where, when and how all trades occurred. In addition, the scope of the bond CT should aim to cover a minimum of 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 minimum 60% of all transactions. The percentage stages would be raised by 10% increments aiming for 80% or better coverage. The phase-in stages will need to be monitored by ESMA and adjusted accordingly (earlier or later) based on consultation with CTP, APAs and trading venues.

- Greater transparency in OTC bond markets and other non-equity asset classes is one of the key objectives of MiFID II and MiFIR. It is also an explicit objective of the Capital Markets Union, and an IOSCO principle. A consolidated tape furthers those objectives.

- The timing of dissemination 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 and ensure a level playing field for all EU market participants.

- Equities and fixed income CT developments should commence at the same time, even though implementation of a fixed income consolidated tape may take longer. It is the Taskforce's understanding that equity and fixed income 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 before a trustworthy consolidated tape for bonds can be implemented.

- The Taskforce primary recommendation regarding a CT provider is for the day-to-day operation of a consolidated tape to be conducted by an entity other than ESMA or the Commission. Under this approach, the CT provider contract should be awarded to a third-party provider with a high level of data management experience as well as related knowledge of the asset class (bonds). The contract should be awarded for no less than five years, the firm awarded the contract should have robust conflict-of-interest rules, and costs to industry participants should be kept to a minimum.

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

- The CTP will collect the raw data and will make it available to all market participants, through a minimum-cost utility model. The CTP will not be prevented for charging market participants for optional enriched data services. There will be robust conflict of interest rules for the CTP and any CTP additional data service offerings, outside the low-cost utility raw data CT offering to market participants.

- Alternatively, ESMA could consider creating a single consolidated bond tape which they govern and operate as a minimum-cost 'utility' for users, as mentioned previously in ICMA's consultation response to ESMA's consultation in 2016.

Next steps: Following the submission of the EU bond consolidated tape 'interim' study to the Commission, the ICMA Bond CT Taskforce will meet to discuss and identify areas for further development to include in the Final CT Bond Study (due end of Q1 2020).

2. EU bond consolidated tape - background

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 a dedicated taskforce of 12 firms, which were part of a larger consultative working group consisting of 63 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

[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

the importance of recognising the differences in instrument characteristics and valuation dynamics between equities and bonds.

In September 2019, ICMA was asked by the European Commission to assist its work in reviewing the regulatory parameters and assessing the feasibility of implementing a consolidated tape for EU bond markets. The European Commission further asked that ICMA work with its diverse membership to produce an "intelligence report" that seeks to address four specific topics:

(i) The importance of an EU consolidated tape in bond markets
(ii) An in-depth study of FINRA's Trade Reporting and Compliance Engine (TRACE), including observations and market impacts
(iii) An understanding of the current state of play regarding post-trade data operation and aggregation
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The final report is due at the end of Q1 2020. In the meantime, ICMA committed to providing an interim report to the European Commission by December 15, 2019. This would also be an opportunity to receive feedback from the European Commission on the scope and content of the report, and to identify areas for further development as well as any critical information gaps that can be addressed in the Final Report.

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.

[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 interim study 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: www.icmagroup.org/assets/documents/Regulatory/MiFID-Review/MiFID-II-R-and-the-bond-markets---the-first-year-06122018.pdf

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, disseminating transaction data for a diverse range of debt instruments in real-time.

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

[7] https://www.nyse.com/data/cta; https://www.ctaplan.com/index
[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

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. ICMA Consolidated Tape Taskforce

Following the request from the European Commission, ICMA created and mobilised a dedicated Consolidated Tape taskforce ("the Taskforce") to produce both the final and interim reports.

This interim 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. The members of the Taskforce represent 35 firms from the buy-side, sell-side, trading venue and data provider communities.

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 Interim Report, and the 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 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 potential challenges to its success, or even realisation.

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.

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 the professional bond market but could also benefit the retail sector more widely as the service develops.

Potential benefits:

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.

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 competition. By enabling investors to compare the prices they receive from liquidity providers with concurrent 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.

Promoting market resiliency. 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.

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.

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 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.

3. Considerations relating to an EU Consolidated Post-Trade Tape for bonds

1. Consolidated tape provides an overview of the bond market (taking into account deferrals) for raw (un-enriched) post-trade data which is available to the public, both professional and retail clients.
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), cancel or correction.
3. Provision of data: Relevant changes to level one of MiFID II required to alter the responsibility for data feed provision from the CTP's obligation to obtain, to the venues' and APA's obligation to provide data to the CTP. However, there should be no mandatory consumption of data. A consolidated tape as a data source should not be confused with best execution, a process which involves a variety of both quantitative and qualitative metrics.
4. CT development paths should be parallel and not sequential (equities and fixed income CT developments should commence at the same time even though implementation of a fixed income CT may take longer). It is the industry's understanding that obstacles for the creation of a CT for equity instruments are lower, technologically speaking. On the other hand, the fixed income market has to solve major data quality issues before a trustworthy consolidated tape in fixed income can be implemented.
5. Post-trade bond data are published in real-time, taking into account MiFID II deferrals and;
    - Should be as soon as practically possible, but no later than 15 minutes
    - Distributed to all market participants - at the same time, including retail participants.

    For a better understanding of market overview, the Commission may consider harmonising the MiFID II deferral regime across the EU.
6. As proposed by ICMA in its consultation response in 2016, it would be preferable for ESMA to create one single consolidated tape, owned and governed by ESMA. This would remove the

trade-off between the desire to have a low-cost CTP for users and finding a way to create commercial incentives to run a CT.

7. Alternatively, a viable commercial consolidated tape provider will in all likelihood require some form of commercial incentives, balancing revenue potential of a CT provider and a minimum-cost solution of market participants.
8. ESMA could:
   - Award a consolidated tape provider contract to third party, determine pricing methodology and monitor contract (including for conflict of interest) for breach of contract.
   - Have supervisory and enforcement authority over consolidated tape provider.
   - Have supervisory and enforcement authority over APAs, including implementation of any level one Commission changes to MiFID II rules, enabling APA mandatory submission of post-trade data to the appointed consolidated tape provider.
9. Providing there is no conflict of interest, the CTP may offer complementary services to market participants.

4. US TRACE – FACTSHEET (how TRACE operates today)

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.[13] 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

[13] See https://www.finra.org/filing-reporting/trace

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."[14]

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. However, transactions over $1 million in certain infrequently traded

[14] "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

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.

1. 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.

2. 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).

3. 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.

4. 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. Which 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.

i. 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.

ii. 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)

iii. 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 world not be disseminated publicly.

5. 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

6. Timing of reporting by FINRA members:

i. 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.

ii. Adjust reporting times by the following for other asset classes[15]:

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)

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

7. How bond trades are reported

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

8. 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

9. 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.

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+."[16]

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"[17] 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.

10. 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.

[16] https://www.sec.gov/rules/sro/finra/2013/34-70009-ex2.pdf

[17] https://www.sec.gov/spotlight/fixed-income-advisory-committee/fimsac-block-trade-recommendation.pdf

11. 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. 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[18]

(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
  - $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.

[18] https://www.finra.org/rules-guidance/rulebooks/finra-rules/7730

(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 subscribers

5. Observations of TRACE impacts 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.

i. <u>Buy-side</u>

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, and this is the norm. Traders take into consideration the impact publishing the price on TRACE will have on their resultant position post-execution. This is 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. While this is not considered late reporting, this can result in prices appearing stale.
    - Dealers (sell-sides) face a penalty for late bookings or rebooking of trades, so sell sides can become sensitive to TRACE violations.
- Trades executed in different jurisdictions are not reported (e.g. EMEA) so you can't always be sure you have a total transparency picture. (helpful to have some way of consolidating an EU/US view as an add on service for a global picture).

ii. 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.

- TRACE strikes a fair balance between timely reported information (maximum delay is 15 minutes) and ensuring liquidity providers are not exposed to the winner's curse (larger trade 6-month volume omissions).

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 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.[19]

iii. Trading venue

Pros

- Trading venues leverage the TRACE data primarily for client service offerings and also internal analysis.

[19] See https://www.sec.gov/comments/265-30/26530-3974442-167144.pdf

- 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.

iv. 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.

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

	TRACE	MiFID Post-trade Transparency
Single or double sided reporting	Single sided reporting (Double sided if two FINRA firms involved).	Single sided reporting
Caps	Trade sizes are capped (1+MM for HY and 5+MM for IG)	No capping

Trade price	Visible for all trades	Deferrals applicable for Large-in-Scale (LIS), Size-specific-to-the-instrument, illiquid instruments at the discretion of the competent authorities. Partially visible (subject to the deferrals applied) • Not visible for EU Sovereigns (indefinite aggregation) • Not visible for 4 weeks for illiquid bonds or SSTI transactions (4 week aggregation) Visible for liquid bonds where no deferral applies. •
Deferrals/Delays	15mins No deferrals for block trades currently. Reporting is required within 15mins. FIMSAC proposed 48hours deferral for block trades (>$1m NIG, >$5m IG)	15mins – 4weeks, based on ESMA liquidity determination and transaction size
Block size exemption	No Volumes are masked for block trades defined as >$1m NIG, >$5m IG.	Yes, LIS threshold
Trade direction	Yes	No
Individual trade legs are visible?	Yes	Illiquid Rates – No, due to Aggregation
Who determines grouping/liquidity metrics for deferrals?	N/A TRACE rules define investment grade and non-investment grade categories determining application of block-size thresholds	LIS thresholds are specified in MiFID rules (level 2 rules), re-calculated periodically (volume over a given period in count and volume plus size of new issue). Liquidity of bonds to be reassessed on a quarterly basis by ESMA.
OTC Derivatives	Covered by CFTC rules	Reported per MiFID II obligations

	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)	
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.)

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

a) Definition – Consolidated tape and Consolidated tape provider - MiFID II

'Consolidated tape provider' or 'CTP' means a person authorised under this Directive to provide the service of collecting trade reports for financial instruments listed in Articles 6, 7, 10, 12 and 13, 20 and 21 from regulated markets, MTFs, OTFs and APAs and consolidating them into a continuous electronic live data stream providing price and volume data per financial instrument, as stipulated in article 4 (53) of MiFID II.[20]

b) Current post-trade data operations in the EU

Approved Publication Arrangement (APA)

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

[20] See Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (MiFID II), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0065

Articles 20 and 21 of Regulation (EU) No 600/2014 [MiFIR], as stipulated in article 4 (52) of MiFID II.

2. Purpose

An APA is an organisation authorised to publish trade reports on behalf of investment firms to increase transparency in the OTC markets by publishing trades for post-trade transparency (and by publishing quotes for pre-trade transparency where SI have decided to rely on APA for such publication).

APAs are required to ensure that they accurately publish the trade reports received from investment firms; and that they have arrangements in place to identify on receipt 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 be able 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.

3. Role

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

- Deferral management: to determine whether or not the trade report is subject to immediate or deferred (extended or indefinite) transparency depending on the liquidity classification of the instrument, trade size and relevant thresholds.
- Filtering of non-reportable trades and suppression from publication, based on eligibility of instruments, reporting responsibility, venue of execution.
- Additional validation based on business validation rules

c) Current level of available post-trade data

Scope of instruments

- Instruments that traded on EU trading venues (RMs MTFs or OTFs) are subject to the transparency requirements

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

Timing of reporting

- As close to real time as technically possible (up to 15 min. for non-equity and 1 min. for equity) for trades subject to immediate reporting.
- Trades that can benefit from deferral can be subject to extended (up to 4 weeks for volume omission) or indefinite deferral. Each NCA has discretion to which deferrals are applicable to the investment firms under its jurisdiction. See section 6.e for further details.

Current MiFID II/MiFIR reporting guidelines:

- **For liquid bonds, post-trade reporting requirements –** near-real time to the public by venue or via APA.
- **MiFIR provides for the ability to defer publication for bonds that:**
    - Have transactions whose size exceeds certain thresholds
    - Are illiquid instruments, and
    - Are package transactions
    - Transaction Identification Code
        - SSTI and LIS (size specific to the instrument & large in scale respectively) levels, as well as liquidity status are calculated by ESMA – and are re-assessed periodically. In situations where deferral is possible, the national competent authority with responsibility for the venue must decide between seven possible regimes.
- See MiFIR Article 11 Deferral regime diagram (section 6e – timing of reporting), summarising the seven possible deferral regimes. For more MiFIR deferral details see annex

Method of reporting (electronic or website, if applicable)

- Via Feed (e.g. FIX) and/or website

d) Current level of post-trade aggregation – 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 the cost of creating 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 17 different authorised publication arrangements (APAs) in the EU (16 understood to be operating bond APAs). It is extremely difficult to aggregate due to difficulty accessing the "public" websites, lack of consistency in format and data errors
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		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-side are being told that the percentage of acquiring the MTF and APA data from XXXX and XXXXXXXX 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.	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.

	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.	
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.
Other		

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	Zagreba?ka burza d.d.	CROATIA	Croatian Financial Services Supervisory Agency (HANFA)
Inactive	vwd TransactionSolutions AG	GERMANY	Federal Financial Supervisory Authority (BaFin)
Total: 17			

8. End State: EU bond consolidated tape

a) Consolidated tape – operating model

Any consolidated tape model under consideration may require a potential re-evaluation of the roles that all current market participants play today.

Third-party Consolidated Tape Provider

The Taskforce primary recommendation regarding a CT provider is for the day-to-day operation of a consolidated tape to be conducted by someone other than ESMA or the Commission. Instead, the CT provider contract should be awarded to a third-party provider with a high level of data management experience as well as related knowledge of the asset class (bonds). The contract should be awarded for no less than five years. This is to allow so whoever is awarded the contract, will 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 their policies, procedures and corporate governance structure ensure independence of the CT provider and the avoidance of conflicts of interest. Conflicts may arise where the CT provider 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 or the Commission should have oversight over the CTP contract and monitor for any breach of contract e.g. data quality, access, pricing etc. Industry participants (buy-side, sell-side and retail) should advise with market functioning expertise.

Supervisory & enforcement:

Per ESA review, ESMA will have supervisory authority and enforcement powers over the consolidated tape provider.

Consolidated tape contract - determination and management:

ESMA will have responsibility for and management of the consolidated tape contract. 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)

Alternative: ESMA-operated CTP

Alternatively and as originally proposed by ICMA in its consultation response in 2016, it may be a consideration for ESMA to create one single consolidated tape, owned and governed by ESMA. This would remove the trade-off between the desire to have a low-cost CTP for users and finding a way to create commercial incentives to run a CT.

ESMA-operated CTP:

- **Mandatory contribution:**
    - Trading venues and APAs would be required to mandatorily provide the post-trade data to ESMA.
- **Minimum cost tape utility for users:**
    - ESMA would be responsible for consolidating the data and distributing the tape to the public and would decide the related cost for consolidating and distributing the data (i.e. utility model).

- As ESMA is currently responsible for handling large amounts of data (e.g. maintaining the Financial Instrument Reference Database System (FIRDS) and performing transparency calculations). This new service would complement well its data mandate.

- **An EU consolidated tape utility should be considered a 'public good'.**
    - This could involve contributions from member states. If necessary, this would be determined in due course by ESMA and the Commission.

b) Obligation to report to consolidated tape provider

Mandatory contribution by TVs and APAs is a critical component for creating a CTP, in order to make a compelling business case for a potential CTP.

Therefore, 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 (TVs) and APAs have an obligation to provide data to the CTP (incentives possibly considered).

- This would require amendments to the Level 1 text of MiFID II.

c) 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 addressable (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 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 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 a minimum of 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 minimum 60% of all transactions. The percentage stages would be raised by 10% increments aiming for 80% or better coverage. The phase-in stages will need to be monitored by ESMA and adjusted accordingly (earlier or later) based on consultation with CTP, APAs and trading venues. It is important to note, the total transaction coverage may need to be phased in over time. For example, beginning with minimum 60% of all transactions. The percentage stages would be raised by 10% increments aiming for 80% or better coverage. The phase-in stages will need to be monitored by ESMA and adjusted accordingly (earlier or later) based on consultation with CTP, APAs and trading venues. Lastly, the EU bond CT is for bonds only and does not include derivative instruments (the post-trade reporting of derivatives such as CDS and IRS would be a separate initiative).

d) Level of information per/instrument to be reported

Raw post trade data - date, time of execution, reported date & time [taking into account current publication and deferral obligations under MiFID II], ISIN, 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 CT provider (CTP) could then derive yields which are fundamental data points in the relative valuation of bonds and comparative analysis of best execution.

e) 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 and Wider Group plans to provide feedback on the MiFID II/R transparency requirements as part of a broader review of MiFID II and MiFIR, expected in 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 "FULJ"	-	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

9. Access to data – Market participants (professional & retail)

a) Available data

CTP will collect the raw data and will make it available to all market participants, through a low-cost utility model. The CTP will not be prevented for charging market participants for optional enriched data services. There will be robust conflict of interest rules for the CTP and any CTP additional data service offerings, outside the low-cost utility raw data CT offering to market participants. The conflict of interest guidelines will be detailed in the CTP contract.

Data will be made available to authorised re-sellers to further re-distribute. The authorised re-sellers have the option of selling 'enriched' versions of the data set (for example, broken out by tenor, credit rating, etc) at higher prices.

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

b) Distribution & consumption models – real-time, historical, end- of- day (excluding commercial considerations)

The consumption of consolidated tape post-trade data should not be made 'mandatory'. The fixed income best execution landscape has been steadily developing since 3rd Jan 2018. A consolidated tape for bond market participants will create efficiencies in terms of access to raw data. However, imposing 'mandatory consumption' of data on firms would prove unnecessary and burdensome. Furthermore, it would risk regressing development of 'evidencing of best execution' to a sole reliance on the post-trade data from a consolidated tape. The result would be the unintended setback of the best execution regime under MiFID II.

As stated in the principles section, the wording in MiFID II level one should be changed from 'CTP's obligation to obtain', to 'venue's obligation to provide' post-trade data.

10. Consolidated tape – Data Quality & Standards

a) 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:

1. **Misclassification of CFI codes**
   Some bonds can have incorrect CFI codes, which completely change their characteristics e.g. a bond that has an incorrect CFI code indicating is it an asset backed or money market instrument instead of a bond. This results in trade reports submitted to an APA with incorrect data populated due to the incorrect instrument classification upstream.

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

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". See table 2 in RTS 2 Annex II .

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 the table 3, Annex II of RTS (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 2n 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' – Percentage 'YIEL' – Yield 'BAPO' – Basis points

In addition, 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.

b) Reporting methodology & format

Reporting format to APAs - methodology should be machine readable and electronic where possible.

Trading venues, SIs and OTC.

- FIX, CSV

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

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

c) 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, "ECNs", etc) and other market participants and in addition to Fixed Income, supports four other asset classes - Equities Collective Investment Vehicles (CIVs), Derivatives, and Foreign Exchange.

11. What should the EU CT borrow from US TRACE?

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

- Analysis on market liquidity prior to and following introduction of CT to understand impact on bond markets.
- Gradual roll-out of CT by (sub)asset class.
- Uniformity of reporting requirements and publication of technical specifications.
- Analysis of data to maintain robust data quality standards prior to public dissemination of data.
- Testing and phase-in procedures for introduction of changes (such as new reporting fields).
- Communication and consultation with stakeholders to validate changes on a technical level.

12. 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[21] should be taken into considerations, notably:

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.

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.

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.

13. Implications of Brexit for EU consolidated post-trade bond data

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 CTs, comprising non-EEA and UK bonds (using appropriate country flags [Swiss flag, UK flag etc].

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.

[21] See https://www.iosco.org/library/pubdocs/pdf/IOSCOPD597.pdf

14. Annex

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 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.