

European Equities

Introduction

The MiFIR Review provides an opportunity for the EU to strengthen its capital markets, making them more attractive to global investors (a pre-requisite to growth), and advancing the longstanding goal of a fully formed Capital Markets Union.

In the case of shares and ETFs, the potential changes include enhancing price formation and transparency by delivering a pan-EU Consolidated Tape, as well as other changes to the transparency framework for trading.

The topics can be rather technical in nature, and the proposals leave room for interpretation (and different commercial perspectives). Understanding the nuances of these topics – what the proposals mean in practice, how they could benefit investors, and how they might alter the attractiveness of EU markets – can at times be daunting for those who have not spent their careers focussed on financial markets.

The MiFID Review is also taking place against the backdrop of the UK making changes to its own regulatory framework – and so there is a heightened need to understand the interplay between the regulatory framework of the EU and its near-neighbour.

This document aims to assist those seeking to understand and participate in the policy debate by providing some context to certain areas of the current review, and to encourage debate and discussion by providing our views on questions that have frequently been asked in response to the recent proposals from the EU Commission.

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Equities Consolidated Tape: Myths & Reality

Basics

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What do we mean by "pre-trade data" and "post-trade data"?

Irrespective of when the data is made available (e.g. in realtime, or on a delayed basis), Pre-Trade data means the quotes and indicative prices published by pre-trade transparent venues.

Similarly, irrespective of when the data is made available, Post-Trade data means the trades made public (across all market mechanisms).

Value Proposition and Use Case Scope

How is market data purchased/licensed today?

There are many permutations according to which market data fees and licensing conditions vary:

- > By **venue**: Each venue sets its own licensing framework and fee schedule
- > By **use case**: Different fee schedules apply depending on what a customer will use the market data for with many firms paying multiple licenses for the same data to cover these different use cases
 - "Displayed use" (e.g. presentation of the data on a screen for a human being to see) or
 - > For different categories of **"Non-displayed use"** (e.g. discrete fees for algorithmic trading, risk management, market making, SI quoting, Price Referencing etc.)
 - > "Redistribution" the right to share the data to (and collect fees from) other firms (and subsequently report their receipt/usage of the data and pass on the collected revenues to the exchange)
- > By data **content**: Different fee schedules apply depending on whether Last Sale, Top of Book or Depth of Book data is consumed (all defined in the *Glossary of Terms, pg. 19*).
- > By technical **delivery mechanism**: Fees may vary depending on whether data is delivered via a direct low-latency connection, via a slower connection, or via a market data redistributor.

Each venue requires firms consuming data (and/or licensed redistributors of market data) to report their usage/clientele by each permutation of the above factors (annually or more frequently) and reserves the right to periodically audit data consumers/ redistributors to validate the accuracy of that reporting.

An investment firm consuming data from all EU exchanges will likely be subject to onerous audits multiple times each year by different exchanges.

What is the additional value of an EU CT over and above what exists today?

Sourcing equity pricing data from each of Europe's national stock exchanges and pan-European MTFs requires consumers (whether firms or individuals) to enter into multiple different data licensing agreements – each with their own contractual terms, licensing frameworks (basis for counting "users" or "devices"), audit procedures and technical delivery mechanisms – which imposes significant costs on consumers and on data redistributors (which are also passed onto consumers).

Given these complexities and costs, most firms choose to "ration" the use/availability of market data to their retail clients and/or to their employees – restricting the subset of shares or venues for which they receive data, giving them only a partial view of true pan-EU liquidity – and thereby undermining the ambitions of an integrated EU market in which all investors have access to the information about all shares trading on all EU venues.

An equities CT would offer a dramatically simpler alternative – the ability to source price data on all EU shares and from all EU venues via a single contract, uniform licensing arrangements, simplified audit procedures, and one technical delivery mechanism – and consequently will significantly lower the barriers to consume pan-European data and thereby:



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- 1. By providing a single reference/view of price, promote a pan-European approach to investment,
- 2. Encourage greater retail participation in EU equity markets via improved data access and enhanced investor protections.

What are the use cases of a pre-trade CT for equities?

The primary function of a realtime pre- and post-trade equities CT is to provide data for non-latency-sensitive use cases, particularly the on-screen display of data for retail and professional investors.

A realtime pre-trade and post-trade CT would provide all investors (retail and professional) access to pricing data they need to make investment and execution decisions (in any and all EU shares – as noted previously) and to validate that brokers are seeking best execution for them – representing a significant investor-protection enhancement.

Without pre-trade data, investors can't know if brokers are seeking out the best available price, or are accepting a poorer outcome. With pre-trade data, investors will be able to compare their achieved price to the CT price at the time they sought to trade, and thereby encourage brokers to do better for them.

Pre-trade data is especially essential to facilitate investment in less liquid shares such as those of SME's; because less liquid shares trade infrequently (sometimes not even once per day), post-trade data alone can be hours or days outdated, and up-to-date pre-trade data (including the current Best Bid and Best Offer, which may diverge significantly from the most recent traded price) is absolutely essential for making investment and execution decisions, and for risk-management and valuation purposes.

A CT with pre-trade data is also essential to enhance best execution measurement for retail orders and thereby to facilitate a more informed debate about the merits/demerits of PFOF.

If mandatory inclusion of pre-trade data is not politically achievable, is there an alternative?

Whilst mandatory inclusion of pre-trade data from the outset is the preference of most data consumers and would deliver the full benefits of a CT across EU capital markets, it faces significant political opposition.

Absent the mandatory inclusion of pre-trade data from the outset, the next best solution is to commit to the phased inclusion of pretrade data. A clear commitment at launch to the phased inclusion of pre-trade data would improve the prospects for the CT, and would make it a more viable opportunity for prospective CTPs to step forward and compete to operate the CT.

A phased approach could be achieved either by allowing individual National Competent Authorities to require inclusion of pre-trade quotes for securities listed in their market, or by allowing (and incentivising) venues to volunteer their pre-trade data in return for a greater share of the revenues.

What is outside the use cases of a pre-trade CT for equities?

An equities CT will not serve for latency-sensitive activities such as market making, high frequency trading, or algorithmic trading. For these activities, firms will continue to source direct feeds from individual venues for two reasons:

- 1. As a result of consolidating data prior to redistribution, the CT will be a fraction of a second slower than firms will be able to achieve via consuming direct exchange data feeds, and so firms engaged in such latency-sensitive activities will continue to source direct data feeds.
- 2. The CT will include only limited (Top of Book) pre-trade data, whilst firms typically need complete Depth of Book data for the named activities.

Sourcing in such a manner is necessary to meet the business needs of these users. Importantly, the CT will not therefore directly impact the business model or revenues of exchanges in relation to the dissemination of direct data feeds.



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Economic Considerations for the Equities CT

Is there a real business case for an entity today to raise its hand to deliver the CT in equity markets?

There are multiple live conversations amongst market participants and infrastructure providers regarding becoming a CTP (Consolidated Tape Provider) – including firms that certainly have the technical experience to successfully deliver.

One or more commercial entities will certainly step forward providing the equity CT approach meets these minimum conditions:

1. The CT must be real-time and include both pre-trade and post-trade data – as this is the only model which will ensure the CT meets a market need and will generate enough revenue to be economically viable whilst offering consumers more affordable pan-EU data

- 2. The CT pricing model and revenue sharing model must be fair both to data consumers and to all contributors
 - **a.** The CTP selection process should not seek to maximise revenue for data contributors, but instead should seek to balance the needs of contributors and consumers.
 - **b.** The revenue share model should reflect the "informational value of data" discussed in *What data to be included in the CT* would help the EU achieve broader objectives?, pg. 8, and meet the objectives laid out in *How would the introduction of a CT* impact the market data revenues of small stock exchanges?, pg. 6

How should a pre- and post-trade Equities Consolidated Tape data be priced to consumers?

The purpose of a CT is to make pan-EU data more easily accessible and more affordable when compared to the complexity and cost associated with a "sum of the parts" approach, and in so doing encourage consumption and distribution of pan-EU data from all venues, thereby improving decision making and investor outcomes and realisation of the CMU objectives.

Additionally, the provision of market data is a valuable service to a range of market participants and market data contributors should be appropriately compensated for providing such services.

Hence the CT pricing model should be set to represent value to consumers (providing a cost-competitive alternative to direct feeds for a subset of consumers and use cases), without eliminating the ability of exchanges to monetise market data in other respects.

The price of a CT including Level 1 (top of book) pre-trade data for equities could be calibrated relative to a "sum of the parts" cost, as is currently under consideration in the United States.

Is the current proposal on revenue sharing acceptable?

No. As proposed, the revenue sharing model is discriminatory, anti-competitive, and would solely benefit the very largest Regulated Markets that already earn significant revenue from listings fees and opening/closing auctions.

Given its position as the largest pan-EU trading venue, and also as operator of the largest APA for EU shares, Cboe expects to contribute one out of every two trades on the EU CT. Its data is clearly indispensable – and yet the current proposal suggests the Cboe would receive no compensation or share of CT revenues because it does not offer primary listings to corporate issuers.

Exchanges providing corporate listings services already earn ~€400million per year from listing fees and from the monopoly over Opening/Closing auctions that automatically accrues to the listing exchange. Listing is a highly profitable endeavour for large Regulated Markets, requiring no additional subsidy, and hence there is absolutely no justification for tying CT revenues to the provision of corporate listings.

The proposal to share CT revenues only to Regulated Markets (and not to MTFs including pan-European venues or growth markets for SME shares) would see revenues transferred from competitive pan-EU venues to large incumbent national stock exchanges, and in so doing:

> Distort competition amongst trading venues, undermining the level playing field principle, and likely leading to higher costs for investors

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Frequently Asked Questions regarding **Key Equities Topics in the MiFIR Review**

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> By assigning revenues to large incumbent stock exchanges, reduce the scope to ensure that the introduction of a CT enhances the revenues and viability of smaller national stock exchanges

Recognising that the introduction of an equities CT to significantly enhance participation in EU equity markets and improve their long-term development prospects will require all venues (and APAs) to provide a subset of their data (and likely forgo a subset of their data revenues), It is essential that all venues (and APAs) making such a data contribution and short-term revenue sacrifice share in the long-term rewards.

How would the introduction of a CT impact the market data revenues of small stock exchanges?

The CT would enhance the revenues of small stock exchanges for two reasons:

- 1. Small exchanges have very limited market data revenues today because there is a small subscriber audience for their data (which must be sourced under a discrete contractual license). Inclusion of their data in a CT would dramatically (by orders of magnitude) increase the number of subscribers receiving their data raising the profile of their listed shares to the global community of investors. Even with a small share of overall CT revenues, small exchanges would be beneficiaries of this wider distribution, and thus see revenues increase. As important issuers whose shares are listed on these smaller exchanges would see their pool of potential investors dramatically expanded to include EU and global investors subscribing to the EU CT.
- 2. If necessary, the revenue distribution model of the CT can be specifically tailored to protect and even enhance the market data revenues of smaller exchanges. This becomes more easily achieved if any cross-subsidy to larger regulated markets (as implied by the Commission's original proposal for revenue sharing that benefits Regulated Markets only) is eliminated.

What should be the objectives of a CT revenue-sharing model?

The CT revenue sharing model should seek to:

- **a.** Appropriately and fairly recognise and reward the contribution to price formation from all different contributors (bilateral/ multilateral, pre-trade/post-trade)
- **b.** Support pre-trade transparent multilateral venues contributing the most to price formation whether or not they contribute pre-trade data by reflecting the hierarchy of informational value described below in answer to the question *What data to be included in the CT would help the EU achieve broader objectives?, pg. 8*
- c. Encourage pre-trade transparent venues to contribute their pre-trade quotes/prices to the CT through a revenue-sharing formula that establishes clear incentives to do so.
- d. If deemed necessary (e.g. if proven that the introduction of a CT harms rather than enhances the market data revenues of smaller exchanges), adjust the mechanism to provide targeted support for smaller exchanges for whom market data revenues are essential to their viability where small exchanges would be narrowly defined e.g. as those admitting/listing fewer than 20 liquid instruments (using the existing definition in CDR (EU) 2017/567), or those with Average Daily Turnover below an agreed threshold (e.g. €150million) and admitting instruments from one country only.

Is there a risk that users will end up having to pay venues twice for the same data (once directly, and another time via the CT)?

A CT is not intended to completely replace direct data feeds from venues. By design, a pre- and post-trade CT will contain only the "top of book"¹ and "last sale"² data from each venue, and will not satisfy use cases (whether low-latency or otherwise) that require "depth of book"³ data.

¹Top of Book data – this is pre-trade data including (for continuous markets) the Best Bid Price and Volume, Best Offer Price and Volume, and (for auctions) the Indicative Price and Indicative Volume, as well as (for all mechanisms) the Instrument/Market status (e.g. Open, Closed, Suspended, In Auction, etc.)

²Last Sale Data – this is post-trade data including the last traded Price, Volume, Trade Time and Trade-category (e.g. continuous, auction). For some trading activity (e.g. OTC, or trading under the LIS waiver) this can be the only data available as there is not pre-trade data available.

³Depth of Book data – this is pre-trade data, and includes Top of Book data plus (for continuous markets, and for some auction markets) multiple



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The minority of market participants that desire low-latency data for algorithmic trading strategies typically seek "depth of book" data, and so will most likely continue to consume direct data feeds from venues as it suits their business models. Because depth of book data already incorporates the top of book data, they will have no need for the CT, and should not be expected or forced to purchase it.

The majority of market participants (that need to know the current price, so as to support investment, risk management or valuation decisions) will typically only need top of book and last sale data, and hence will not need to purchase direct data feeds from venues.

Firms that buy market data for multiple different purposes (e.g. for on-screen displayed use, and also for algorithmic trading) already pay separately for each of these use cases. So to the extent that they continue to buy direct exchange data for one use case, whilst switching to the CT for another, there will be no new need to pay twice.

Is mandatory consumption of the CT either necessary or desirable?

Neither. As previously noted, the CT will support some, but not all, investment and trading use cases. Because not all market participants will need the CT, mandatory consumption would increase costs to consumers by forcing them to purchase data they have no use for.

Technical / Implementation Considerations for the Equities CT

Would it be "complicated" to launch a CT that includes both pre-trade and post-trade data in one step?

No.

There are already many data vendors and market participants who consolidate pre- and post-trade data from many venues for their own use, or for redistribution. The barriers are not technical nor operational in nature, but contractual/commercial.

Those who say a pre- and post-trade CT is "too hard" are most likely opposed to the introduction of a CT for commercial reasons, or believe that delaying introduction of a pre-trade CT is a political necessity to dilute opposition to the introduction of any type of CT.

Does it make sense to start with post-trade data, and introduce pre-trade data at a later stage?

No, it is a mistake that will lead to failure of the CT initiative, and therefore a failure for investors and issuers. It lacks ambition and will result in a sub-optimal solution that will not provide the benefits to investors that would otherwise be realised with a pre-trade CT.

Moreover, there is no question that a CT that can only sell post-trade data will be less financially viable than one that can meet investors' broader needs. Given the limited evidence of commercial demand for real-time post-trade data, in such an eventuality it is not likely that any commercial entity will risk its capital to introduce a CT for which there is an insufficient market.

Would an equity CT be difficult/compromised/useless due to latency issues?

No, that is a misleading assertion made by those opposed to a CT.

It is true that geographic distances separating European venues will introduce latencies of up to 20 milliseconds (twenty thousandths of a second) to receive/consolidate the data, but this is not a material issue because:

> All large brokers already create an internal consolidated EBBO quote for the purpose of order routing amongst competing venues. They typically consolidate direct low-latency feeds from each venue, because they need low-latency data with which to make automated low-latency trading decisions.



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> Similarly – there are numerous well established market data vendors (e.g. Bloomberg, Refinitiv, Factset) who already consolidate prices from multiple venues to compose an EBBO for redistribution via their proprietary financial desktop software.

Importantly, as noted in *What is outside the use cases of a pre-trade CT for equities?, pg. 4*, a CT would not be targeting latency-sensitive trading activities that require full Depth of Book data with the lowest possible latency (such as market making, high frequency trading or algorithmic trading) – but would instead be providing an accessible and affordable alternative suitable for on-screen displayed use by human beings, as well as for risk management and valuation purposes. For human consumption, data latency of 100ms (1/10th of a second) would be undetectable, and hence the CT could be achieved with more affordable technology than is currently deployed by most large brokers and data vendors.

Designing the Content of the Equities CT

What data to be included in the CT would help the EU achieve broader objectives?

The EU has the broader policy objective of supporting on-venue trading and pre-trade transparent mechanisms. If this were reflected in the type of data included in the CT as well as reflected in the revenue-sharing model, this would support the EU's broader objectives to encourage more on-venue trading in pre-trade transparent market mechanisms.

- 1. Data from multilateral venues (both regulated markets and MTFs), representing liquidity that is by law accessible to all market participants, contribute more to price formation than data from bilateral execution mechanisms (SIs, RFQ markets, OTC) where liquidity may be addressable only by a subset of market participants having a bilateral commercial relationship with the provider of that liquidity.
- 2. By virtue of how executions are achieved and therefore how market participants read the resulting data, post-trade data from pre-trade-transparent bilateral activity contributes more to price formation than post-trade data from non-pre trade transparent bilateral activity, whilst data relating non-addressable liquidity are of no price forming utility at all.
- **3.** Pre-trade data from bilateral trading mechanisms (e.g. SI & RFQ) cannot be included in a CT, because the prices displayed would not be universally accessible to market participants (and only to those having a bilateral relationship with an SI, or the single participant submitting the RFQ).
- **4.** The inclusion of pre-trade data (quotes and indicative prices) from pre-trade transparent multilateral venues provides a more complete picture of, and therefore a greater opportunity to participate in, price formation than post-trade (execution) data alone.
- **5.** Hence there is a clear hierarchy of the informational value of data in contribution to price formation (listed from most to least valuable)
 - a. Both pre-trade data (quotes, indicative prices) and post-trade data (trades) from multilateral mechanisms
 - **b.** Post-trade data (trades) from multilateral mechanisms that do generate quotes or indicative prices (e.g. lit continuous and auction mechanisms)
 - **c.** Post-trade data (trades) from multilateral mechanisms that do not generate pre-trade quotes or indicative prices (e.g. mechanisms relying on RPW & LIS waivers to pre-trade transparency)
 - d. Post-trade data from bilateral or OTC mechanisms (which can be easily sourced via APAs)

Reflecting this hierarchy of informational value in the CT revenue sharing model -- by allocating revenues to venues/providers in accordance with their contribution to price formation -- would create strong commercial incentives to grow activities that contribute most to price formation.



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What pre-trade data (quotes & indicative prices) should ideally be included in a CT?

Included:

> Top of Book data (defined in *The Transparency Framework for Equities Trading, pg. 11*) from every pre-trade transparent regulated market and MTF operating a multilateral matching model (i.e. excluding RFQ which is bilateral in nature), ensuring that all quotes are addressable to all market participants.

Excluded:

- > Quotes from bilateral mechanisms (e.g. SI quotes, RFQ responses neither of which are addressable by all market participants) should be excluded, as to include such data would make the CT Bids/Offers non-actionable.
 - This approach is logically consistent with the rationale for a purely post-trade CT for Bonds the bilateral nature of Bond liquidity provision similarly makes it problematic to consolidate customer-specific quotes from different liquidity providers, given that such quotes would not be generally addressable by the public.
 - It might still be possible for the CT to distribute such bilateral quotes/prices, but they should not be incorporated into the European Best Bid or Best Offer.

To be determined based on consumer feedback:

> Inclusion of Depth of Book data from all venues would extend the use cases a CT could address, but would significantly increase the risk and complexity of introducing the CT.

What post-trade data should be included in a CT?

Included:

> Last Sale data from every regulated market and MTF (including orderbook, off-orderbook and RFQ execution data), and data on off-venue price-forming trades from APAs (which incorporates SI and OTC activity).

Excluded:

> Data on non-price-forming trades

What is the basis for determining which instruments/listings can have their prices consolidated?

For the CT to be useful – whether for pre-trade decision making or as a benchmark for subsequently accessing execution quality – prices should only be consolidated across instruments/listings that are fungible from a settlement perspective:

- > When an investor sells a security, they need to do so via an exchange/MTF/broker that expects them (or their custodian) to make their shares available in the same Central Security Depository in which they are held. To do otherwise would require the investor to relocate their shares from one CSD to another, which incurs cost and operational risk.
- > Given the above practicality, it would be misleading to represent a consolidated Best Bid or Offer that includes prices from venues that would not receive/deliver the shares into the investor's chosen CSD, as these prices would not represent addressable liquidity (unless the additional expense/inconvenience of depot relocation was somehow factored in)
- > Examples in which it would be problematic to aggregate quotes include:
 - Dual listed securities on two discrete national exchanges, each of which directs settlements to a discrete national CSD
 - Similarly, multiple listings of an ETF on different national exchanges

This means that neither the ISIN alone, nor ISIN+Currency represent a sufficient basis for determining what can be consolidated.

Instead, the CT needs to replicate the approach already implemented by market participants when they consider the set of venues across which a Smart Order Router should access liquidity – which is to include the settlement location (CSD) as a component.



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Regulatory Considerations

What are the appropriate criteria on which to select the Consolidated Tape Provider (CTP) for equities?

The EU Commission's proposed criteria upon which ESMA should select a Consolidated Tape Provider (CTP) might be construed as requiring ESMA to maximise the revenues to data contributors without consideration for the cost to data consumers. Interpreted in this manner, the selection criteria would put the interests of exchanges above those of investors, and could be a recipe for an expensive failure.

The criteria to select a CTP based on maximisation of revenues to data contributors should be clarified to require maximisation of the proportion of revenues to be shared to data contributors – thereby ensuring that the most cost-efficient CTP is selected.

The criteria should also be extended to ensure that the price to consumers of the data is cheaper than a "sum of the parts" equivalent. A pan-EU pre-trade equities CT including Level 1 quotes & indicative prices should be available at a significant discount versus purchasing Level1 data individually from each venue. This would encourage consumption of pan-EU data.

Should the introduction of a CT be accompanied by changes to the Best Execution order-handling rules?

Not at this time. The EU best execution framework already allows firms to give consideration to all factors contributing to the best client outcome. Whilst the introduction of a CT will enhance best execution and investor protection, no changes to the rules are required.

A US-style approach (in which brokers must get the best price for each child order, and exchanges cannot execute outside the consolidated Best Bid or Offer) would be poorly suited to the current EU framework because it would:

- > Necessitate order-routing by/amongst venues (not currently something exchanges are permitted to do under the EU regulatory framework); and
- > Introduce significant complexity for market participants such as the requirement for Intermarket Sweep Orders (ISOs) and the development of additional supervision/reporting tools, which are necessary features of a best-ex regime that seeks to limit execution outside the consolidated BBO.

Should the introduction of a CT be accompanied by changes to the Best Execution reporting?

In the case of institutional order flow, where performance is rigorously measured at the parent-order level, there is no need for new rules in respect of best execution evidencing/reporting.

In respect of retail order flow, consideration should be given on whether best execution reporting obligations (RTS28) should be amended to require assessment of execution outcomes vs. the prevailing EBB or EBO from the CT.

How should OTC trading data be captured by the CT (the role of APAs)?

The Approved Publication Authority ("APA") framework was created by MIFID II to ensure appropriate post-trade transparency of offvenue trading, and requires firms engaging in off-venue trading to report their trades via an APA for onward publication to the public in accordance with MiFIR/MiFID rules. APAs must receive reported trades from hundreds of investment firms and brokers, and validate whether reported trades qualify for deferred publication, and/or whether other trade flags are appropriate – and hence must support complex business logic that is not applicable to on-venue trading.

Requiring a CT to replicate this complex business logic and to accept and validate OTC data submissions from hundreds of market participants would introduce more complexity and risk to the delivery of a CT. It would also force every investment firm to make the technical investment (with resulting costs) to switch from their chosen APA to the CT.

Hence requiring APAs to submit data to the CTP (subject to being appropriately compensated within the revenue share model) for inclusion in the CT would minimise disruption to market participants and minimise risk to the delivery of a CT, whilst leaving the door open to firms to contribute directly to the CT if that better suited their needs.



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Conclusions on the Consolidated Tape

A realtime pre- and post-trade Consolidated Tape is essential to the future success of EU capital markets in a globally competitive world. Such a CT would represent a significant step forward towards an EU Capital Markets Union, putting the interests of global investors above the commercial preferences of those who benefit from the currently fragmented nature of EU market data.

Properly implemented, it will:

- > Simplify investors' access to pan-EU data, reducing cost and complexity, and thereby improving transparency and price formation.
- > By encouraging consumption of pan-EU data, improve the visibility (and economics) of smaller stock exchanges and of the shares listed on them, in support of the CMU objectives.
- > Provide a better benchmark for execution decisions and best execution measurement, thereby improving standards of investor protection.
- > Through a fair revenue sharing model, support competition that drives efficiency and innovation that benefits investors.
- > By encouraging greater consumption of pan-EU data, improve the resilience of EU markets to technical failures and cyberincidents affecting one individual venue.

The Transparency Framework for Equities Trading

What can/should EU regulation of secondary equity trading seek to achieve?

How should we measure the effectiveness of the overall framework for equities secondary trading?

A well-regulated market should deliver:

- > Utility & cost effectiveness through competition (and regulation that supports competition) that helps intermediaries reduce investor costs and enhance investor returns. In this context, intermediaries include venues, principal trading firms, banks/brokers, and telecoms & infrastructure providers, whilst the investors include retail investors, institutional investment managers and asset owners (i.e. pension & sovereign wealth funds).
- > **Fairness** ensuring that no group of participants are systematically advantaged/disadvantaged at the expense of another and with a particular focus on outcomes for end investors (vs. intermediaries)
- > Liquidity tailoring the transparency regime (pre- and post-trade) to ensure that investors, principal trading firms providing liquidity and bank intermediaries are able to expose their trading interests in the market, without fear of excessive information leakage or adverse price movement
- > **Transparency** ensuring that real-time pre- & post-trade equity pricing data is available to all investors at a reasonable cost, and without undue legal/technical barriers, via the creation of a real-time pre- and post-trade Consolidated Tape
- > Ease of Access encouraging development of an equity culture

⁴https://www.nasdaq.com/docs/optimizing-markets-for-today-and-tomorrow



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Where are the relative weaknesses in the EU framework vs. other jurisdictions?

Since MiFID II, the EU framework for equities trading has prioritised one narrow aspect of transparency (and specifically a regulatory preference for a certain type of trading model – a lit continuous Central Limit Order Book "CLOB") - above other objectives such as fairness for all market participants and enhanced liquidity.

Whereas volumes in North American and Asian markets have grown dramatically in the last 5-10 years, volumes in EU shares have stagnated overall and have witnessed a drift away from continuous trading and towards the closing auctions (primary listing exchange auctions as a proportion of total volumes have doubled from 11.4% to 22.6% over the last 10 years).

- > The EU has sought to drive investors towards continuous lit CLOB trading by constraining the alternatives without appreciating that CLOBs are not necessarily the best market model in all circumstances (because as detailed in *Are Price-Time prioritised central limit order books (CLOBs) best in all circumstances and for all market participants?, pg. 15*, they can favour one subset of participants). This is not to dispute the essential role of CLOBs in the ecosystem, but rather to note that over-promoting their use or restricting the alternatives is harmful to investors (as argued recently by NASDAQ on page 14 of their Framework for U.S. Equities Market Reform⁴).
- > The EU has failed to address investor demand for a pre- and post-trade real-time consolidated tape ("CT"), which is an essential ingredient:
 - > to promote global access to EU equity markets;
 - > to enhance investor protection by providing a clear benchmark against which execution decisions can be taken and assessed; and
 - > to address the complexity of assembling pan-EU data by creating an alternative to the independent purchase of data from every individual venue under its own licensing terms.
- > The EU has protected the revenues/profits of intermediaries (at the direct expense of investors) by limiting or failing to enhance competition, in particular by failing to enforce disaggregation of datasets where there is no competition (e.g. opening/ closing auctions);

If the overall goal is to improve investor outcomes and broaden participation and liquidity in EU equity markets, this approach does not appear to be delivering. Whilst some intermediaries and exchange operators might argue for the EU to double-down on "transparency" and further promote CLOBs whilst continuing to ignore other factors relevant to investors, there is a consensus amongst institutional investors (e.g. as evident in the policy positions of EFAMA, BVI) that the EU needs to give greater precedence to other factors – including the availability of consolidated market data, and the availability of diverse trading mechanisms.

Why has EU regulation been so focussed on "transparency" and promoting CLOBs in particular?

Lobbied by vested interests, policy makers have conflated transparency with fairness and the public good, accepting arguments that alternatives to continuous lit trading on Central Limit Order Books (CLOBs) make markets less fair, or generate poorer outcomes. This is simply not true.

Insufficient attention has been paid to the needs of investors – particularly institutional investors who manage money on behalf of retail clients. Institutional investors have been clear⁵ that they greatly value diversity of market mechanisms and that they oppose moves to constrain these alternatives. And, as noted in *Are Price-Time prioritised central limit order books (CLOBs) best in all circumstances and for all market participants?, pg. 15*, they do not experience Continuous Lit CLOBs to be superior to or fairer than these alternatives.

Whilst FESE have long argued for restrictions on alternative trading modalities, including midpoint trading under the RPW, this position has been directly contradicted by NASDAQ who recently published the following advice⁶ to SEC to:

"Respect the legitimate needs of investors to use non-displayed orders to meet their varied trading objectives. The Commission

⁷ Based on an analysis of execution commission data by client domicile, and by the proportion of SI activity in EU shares taking place on UK-regulated SIs vs. EU SIs.

⁵EFAMA public position on the CT. BVI comments on the RPW "We advocate that pre-trade transparency waivers are maintained as an effective means of meeting the needs of institutional investors, such as fund managers, to be able to place orders without market impact, thus avoiding adverse signalling effects which might be exploited to the disadvantage of the investors"

⁶https://www.nasdaq.com/docs/optimizing-markets-for-today-and-tomorrow



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should heed lessons from the MiFID II experience in Europe and resist the temptation to re-establish balance between lit and dark markets by imposing coarse caps or blunt restrictions on dark trading. The European experience demonstrates that such approaches are complex, difficult to calibrate properly and tough to administer effectively. Moreover, they only serve to eliminate flexibility for market participants that need or prefer to trade in the dark for valid reasons, including to facilitate block trading and to trade at the midpoint of the NBBO."

What proportion of investors and liquidity in EU instruments on EU venues are there due to the STO?

Approximately 75-80% of institutional liquidity⁷ in EU instruments comes from non-EU institutional investors.

These investors (and their brokers) are not (and could not be) subject to EU rules such as the STO. They bring their liquidity to EU venues by choice, and hence EU markets must retain their competitiveness/ attractiveness so as to continue to attract their liquidity.

How has trading in EU (and global) equities evolved?

Why do investors' large orders get traded in (increasingly) small pieces?

As discussed in *Are Price-Time prioritised central limit order books (CLOBs) best in all circumstances and for all market participants?, pg. 15,* average trade sizes have decreased substantially since MiFID was introduced in 2008.

Against a backdrop of declining order and trade sizes, investors need to adjust their own behaviour to limit/mitigate "market impact" – whereby the price moves adversely whilst the institution is trying to trade, and a poorer outcome is achieved than had been anticipated.

Market impact is caused by trading too "aggressively" – seeking to trade too fast, or in too large a size - relative to the available liquidity in the market place. Accordingly, in response to declining order and trade sizes in the market, institutions increasingly use more "passive" or "participatory" execution strategies, that seek to trade more slowly and in smaller sizes, by breaking larger orders into many smaller pieces – further driving the feedback loop of declining order and trade sizes.

This continual decline in average order and trade sizes is a reflection of investors' challenges in achieving good outcomes via continuous Central Limit Order Books.

Why have average order & trade sizes on European venues declined?

There are several reasons:

1. Tick sizes

In the years following MiFID I, venues adopted more granular "minimum price variants", otherwise known as tick sizes. MiFID II ensured harmonised tick sizes amongst venues – albeit much more granular that had previously been the case. With a more granular tick-size regime, there are more price points at which market participants can express their willingness to buy/sell – and so liquidity that used to be aggregated at one price point is now spread across a number of price points. This has led to substantially lower Bid/Ask spreads (greatly benefiting retail investors), but also to a reduction in the available quantity at each price point (liquidity is "atomised", resulting in smaller order/trade sizes), and to more frequent but smaller price changes.

2. Electronification/automation of execution



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To interact with markets in which liquidity is spread across many more price points and is faster moving, institutional investors have adopted electronic/algorithmic execution. Algorithmic trading is better able to participate in faster moving and atomised markets, and additionally is more systematic, repeatable and measurable than having a human trade manually – and hence easier to evolve in pursuit of best execution. In doing so they have discovered that execution algorithms perform better by trading more passively/progressively - trading orders that are of similar sizes – or perhaps slightly smaller sizes - than those already in the orderbook so as to avoid causing market impact (creating an adverse price reaction before an execution is completed).

3. Increased retail participation in equity markets during the pandemic

So does SMS still represent average order or trade size?

No – the SMS is approximately 2-4x the average trade size in Central Limit Order Books (CLOBs), and (based on data from two of the largest neo-brokers) is approximately 10x the median retail trade size

Even before trade sizes declined, the Standard Market Size did not reflect average order or trade sizes during continuous trading hours because it took into account Closing Auction activity. Closing auctions generate much larger order and trade sizes because they aggregate 25% of total market volume at a single point in time.

If SMS is to be used to calibrate venue/participant behaviour during continuous trading, it should be recalibrated to reflect average order and trade sizes only during continuous trading.

The Lifecycle of an Institutional Order, and what it means for Transparency

How do institutional investors approach execution?

This diagram shows a typical decision tree, with sensitivities to different factors (green=high, red=low) depending on the investment objective. As illustrated, a broker's Smart Order Router (SOR) will generally access a number of different venues, including CLOBs where large orders are likely to cause adverse price impact. Because the SOR will access these different venues, broker algorithms are typically configured to break large parent orders into a series of small child orders.

Should these smaller "child orders" be afforded protection from market impact and exploitation?

Yes! As noted, large institutional orders are now traded progressively in smaller child slices. That does not mitigate investors' or brokers' appetite to seek best execution (so as to maximise investment returns for savers), nor their legal obligation to pursue it. And because an institution will have hundreds of child slices to trade, the ability to mitigate market impact and achieve price improvement on these child slices quickly adds up to parent order performance and improved investment returns.

Should child orders be allowed to trade at a better price if one is available?

Yes! Irrespective of child order size - if a better price is available, most brokers would consider their legal duty to capture if for their client.

Forcing brokers to trade at a worse price would be bad for investors, and (if, as seems inevitable, restrictions on price improvement and midpoint trading applied only to EU firms or on EU venues) would be bad for the competitiveness of EU markets and participants.

Hence a minimum size threshold for trading at the midpoint – applicable to child orders – makes no sense and will harm investors.

⁸ e.g. Closing Auctions, Frequent Batch Auctions, midpoint venues benefitting from the Reference Price waiver, block trading venues benefitting from the Large-in-Scale waiver, and Systematic Internalisers



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What is the value of diverse market models and trading modalities? Are Price-Time prioritised central limit order books (CLOBs) best in all circumstances and for all market participants?

CLOBs certainly have a high level of familiarity and transparency. However, other market models can provide significant utility for equities investors.

CLOBs (based on price/time priority) can benefit faster (high frequency, low latency) participants which can be of particular concern to institutional investors who have larger orders to execute.

With time measured in nanoseconds (billionths of a second) or microseconds (millionths of a second), CLOBs are least likely (amongst market models) to see two natural investors interact directly with one another – because they are less likely to arrive sufficiently close to one another in time. Instead, both natural orders are likely to interact with intermediaries with specialised low latency trading capabilities. If the intermediaries are profitable, the resulting executions for investors can be inferior than if they had interacted directly with one another.

Why do market institutional investors and their brokers value alternatives to Continuous Lit orderbooks?

Institutional investment managers compete to raise assets (e.g. from retail investors) on the basis of their investment performance track record. With the growth of passive investing (tracking the same index benchmarks), it is the implementation of the strategy (the execution of the purchases and sales as stocks are added/removed from indices) that differentiates one investment manager from another. Similarly, institutions measure the "skill" of their brokers according to their ability to minimise implementation shortfall – by managing market impact and the opportunity cost/risk of delay. So both investment managers and brokers have strong commercial incentives to seek optimal implementation/execution.

Institutional investors and their brokers also have legal obligations to pursue best execution – seeking the best possible outcome.

Amongst practitioners (setting aside professional liquidity provider intermediaries and incumbent stock exchanges), there is a nearuniversal consensus that a diversity of market models⁸ can complement continuous lit Central Limit Order Books (CLOBs), and provide avenues via which orders can be executed more favourably (at a better price), and/or more quickly (thereby reducing the risk inherent in delaying execution).

How do alternative market models serve institutional investors' needs?

Alternative market models (Closing Auctions, Frequent Batch Auctions, Large-in-Scale block trading platforms, Midpoint-Referencing systems, and Systematic Internalisers) generally do one of three things:

- > Reducing the need for /frequency of intermediation. If two natural counterparties (one buying, the other selling) meet each other directly, without each requiring capital commitment by an intermediary (which naturally comes at a cost), they will both get a superior price (e.g. they can trade at the Mid, rather than the buyer paying the Offer and the seller receiving the Bid), and neither party will need to unwind the trade they have just done (which would cause additional market impact).
- > Reducing information leakage and market impact (adverse price movement). If an investor can trade whilst limiting adverse price movement as a consequence of their activity, they will achieve a better price. Limiting the information disclosed about orders is key to avoiding information leakage.
- > Marking additional liquidity available over and above what can be provided in a CLOB, and thereby reducing investors' execution costs.

How do LIS venues serve institutional investors' needs?

In the case of **Large In Scale** block-trading venues, the minimum size is generally too big for high-frequency risk-taking intermediaries, and so LIS venues tend to be dominated by flow originating from institutional investors – and thereby enabling direct interaction between natural buyers and sellers. However – due to the absence of liquidity providers, the natural matching rate in LIS venues is ~5% - meaning that on 95% of occasions and investor is unlikely to find an immediate counterparty. That low success rate is acceptable because no pre-trade information is published, and hence a patient institution can post an order to an LIS venue without any fear of information leakage or market impact, whilst in parallel seeking liquidity in other venue types.



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How do Closing Auctions serve institutional investors' needs?

In the case of **Closing Auctions**, the time of day and fact that continuous trading has ceased discourages intermediation – since there will be no opportunity to unwind any risk assumed.

Additionally, because many investors are benchmarked against the closing price (e.g. on cash flows into and out of a portfolio), significant liquidity is aggregated at this point in time (approximately 25% of all market volume is traded at the Close), and so Closing Auctions offer a high certainty of execution.

Given this high certainty of execution – and the fact information leakage is less of a concern (because continuous trading has ceased for the day, some (though not all) operators choose to publish pre-trade data about the order imbalance in addition to publishing the indicative equilibrium price/volume as required under MiFID.

How do Frequent Batch Auctions serve institutional investors' needs?

In the case of Frequent Batch Auctions, randomisation of the trade time (up to 100ms) discourages intermediation by latencysensitive traders, and hence participation is dominated by patient institutional order flow. As with all mechanisms that predominately bring natural buyers and sellers together without professional liquidity providers, execution certainty remains lower. And because these FBAs operate contemporaneously with Continuous Lit markets (and hence it is important to protect market participants from information leakage) all FBA operators publish the MiFID-required pre-trade data about the indicative equilibrium price/volume, but do not elect to publish additional information on the order imbalance.

It is clear that publishing information about unsatisfied order imbalances (the unexecuted proportion of which will subsequently need to trade in a lit continuous market) whilst continuous markets are open would lead to the immediate exploitation of this information, to the detriment of clients trying to use Frequent Batch Auctions.

How do RPW Midpoint venues serve institutional investors' needs?

The midpoint represents a globally accepted standard of the fair price at which a natural buyer and natural seller should trade, with neither party paying the other a premium for immediacy, and with no signalling that will drive a subsequent price move higher or lower. The midpoint should be considered a valid execution price point regardless of trading mechanism or trade size – a position that has been adopted in the UK by the FCA.

If trading at the midpoint is restricted, then a match between a natural buyer and a natural seller must necessarily be completed at a price that favours one over the other.

Indeed, as argued by NASDAQ, restrictions such as the DVC (or amended restrictions as proposed by the EU Commission) "only serve to eliminate flexibility for market participants that need or prefer to trade in the dark for valid reasons, including to facilitate block trading and to trade at the midpoint".

How do Systematic Internalisers serve institutional investors' needs?

Sis facilitate the provision of liquidity on a bilateral basis. Brokers and market makers can provide additional liquidity bilaterally to their clients that they could or would not be willing to provide to all market participants through CLOBs. By making this additional liquidity available bilaterally, Sis can improve outcomes for their clients.



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The Impact of Diverse Market Models on Transparency and Price Formation Do on-exchange alternatives to Continuous, Lit CLOBs pose a threat to price formation?

No. As noted, the success rate of most of these alternatives is low, and hence Lit Continuous order books will always dominate onvenue trading volumes.

Additionally, many of these alternatives actively contribute to price formation:

- > Closing Auction and Frequent Batch Auction services publish pre-trade data on the indicative volume and price exactly as MiFID stipulates.
- > RPW, LIS & FBA services all publish post-trade data realtime, with the trading mechanism & venue clearly identified.

But the real question is "Do policy makers need to worry about protecting CLOBs as a key mechanism for price formation?".

Do policy makers need to worry about protecting CLOBs as a key mechanism for price formation?

No quantitative evidence has yet been produced of any harm to CLOB price formation arising from any on-exchange alternative. Indeed, no evidence has yet been presented of any quantifiable harm/risk to price formation, regardless of attribution.

The EU Commission and ESMA should prioritise collecting data/evidence ahead of making further changes to the transparency framework.

What proportion of orders and trades would be impacted by a 2xSMS minimum size for orders relying on the Reference Price Waiver?

Based on Cboe data, 90% of orders and 94% of trades across existing RPW orderbooks would fall below the 2xSMS threshold, and hence not be eligible to trade on an EU venue. Even if the threshold were to be reduced to 1xSMS, it would exclude 80% of orders and 82% of trades.

What would be the impact of severely constraining midpoint matching on EU venues?

Non-EU firms and their non-EU brokers (neither being subject to the EU STO), and representing >75% of the institutional liquidity in EU instruments, would likely search for midpoint liquidity on non-EU venues/SIs (neither of which will be constrained by the amended EU rules), potentially precipitating an off-shoring of liquidity in EU instruments, to the detriment of EU venues and EU investors/intermediaries.

EU firms would be forced to trade on EU venues/SIs, and so would no longer be able to achieve midpoint price improvement.

- > EU investors would incur additional transaction costs that would act as a drag on investment performance, harming their competitiveness.
- > EU brokers would lose competitiveness in servicing non-EU institutional investors, as they would not be able to compete with non-EU brokers still able to seek midpoint liquidity.
- > Non-EU venues would benefit at the expense of EU venues.

⁹https://www.nasdaq.com/docs/optimizing-markets-for-today-and-tomorrow



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Conclusions on the Transparency Framework

Institutional investors value diversity in the trading landscape, giving them flexibility to pursue best execution according to their needs and preferences.

Whilst some exchanges have argued that this diversity threatens to undermine price formation, no quantifiable empirical evidence has been produced to support these assertions.

In addressing US regulators, NASDAQ have specifically warned against the EU approach, calling on the SEC⁹ to:

"Respect the legitimate needs of investors to use non-displayed orders to meet their varied trading objectives" and not to "eliminate flexibility for market participants that need or prefer to trade in the dark for valid reasons, including to facilitate block trading and to trade at the midpoint."

Given the high proportion of liquidity in EU instruments that originates outside the EU (and hence is not subject to the EU Share Trading Obligation), moves by the EU to restrict diversity on its venues and within its regulatory perimeter (in contradiction to the preferences of global investors) are likely to have the unintended and unwelcome consequence of driving liquidity offshore to third countries that are more respectful of investors' needs and preferences.

In respect of the transparency regime, unless/until quantitative empirical evidence has been gathered in support of further changes, the EU should avoid arbitrary interventions that are more likely to do harm as they are to do good, and instead focus its energies on the one change that will dramatically improve transparency and investor outcomes – introducing a realtime pre-trade Consolidated Tape.

Glossary of Key Terms

CT – Consolidated Tape

- CTP a Consolidated Tape Provider
- **CLOB** an acronym for Central Limit Order Book, or Continuous Limit Order Book – names commonly used for continuous lit trading mechanisms.

Depth of Book of Data – this is pre-trade data, and includes Top of Book data plus (for continuous markets, and for some auction markets) multiple additional levels of Price and Volume data for both Bids and Offers, and (for auctions) auction imbalance information.

- FBA Frequent Batch Auction (also known as a Periodic Auction)
- EBB the consolidated European Best Bid
- EBBO the consolidated European Best Bid and Offer

EBO - the consolidated European Best Offer

- Last Sale Data this is post-trade data including the last traded Price, Volume, Trade Time and Trade-category (e.g. continuous, auction). For some trading activity (e.g. OTC, or trading under the LIS waiver) this can be the only data available as there is not pre-trade data available.
- LIS Large in Scale
- RPW Reference Price Waiver
- SI Systematic Internaliser

Top of Book Data - this is pre-trade data including (for

continuous markets) the Best Bid Price and Volume, Best Offer Price and Volume, and (for auctions) the Indicative Price and Indicative Volume, as well as the Instrument/Market status (e.g. Open, Closed, Suspended, In Auction, etc.)

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