The Study on the Creation of an EU Consolidated Tape

FINAL REPORT

Executive Summary

Market Structure Partners
September 2020

EUROPEAN COMMISSION

Directorate-General for Financial Stability, Financial Services and Capital Markets Union
Directorate C — Financial Markets
Unit C.3 — Securities Markets

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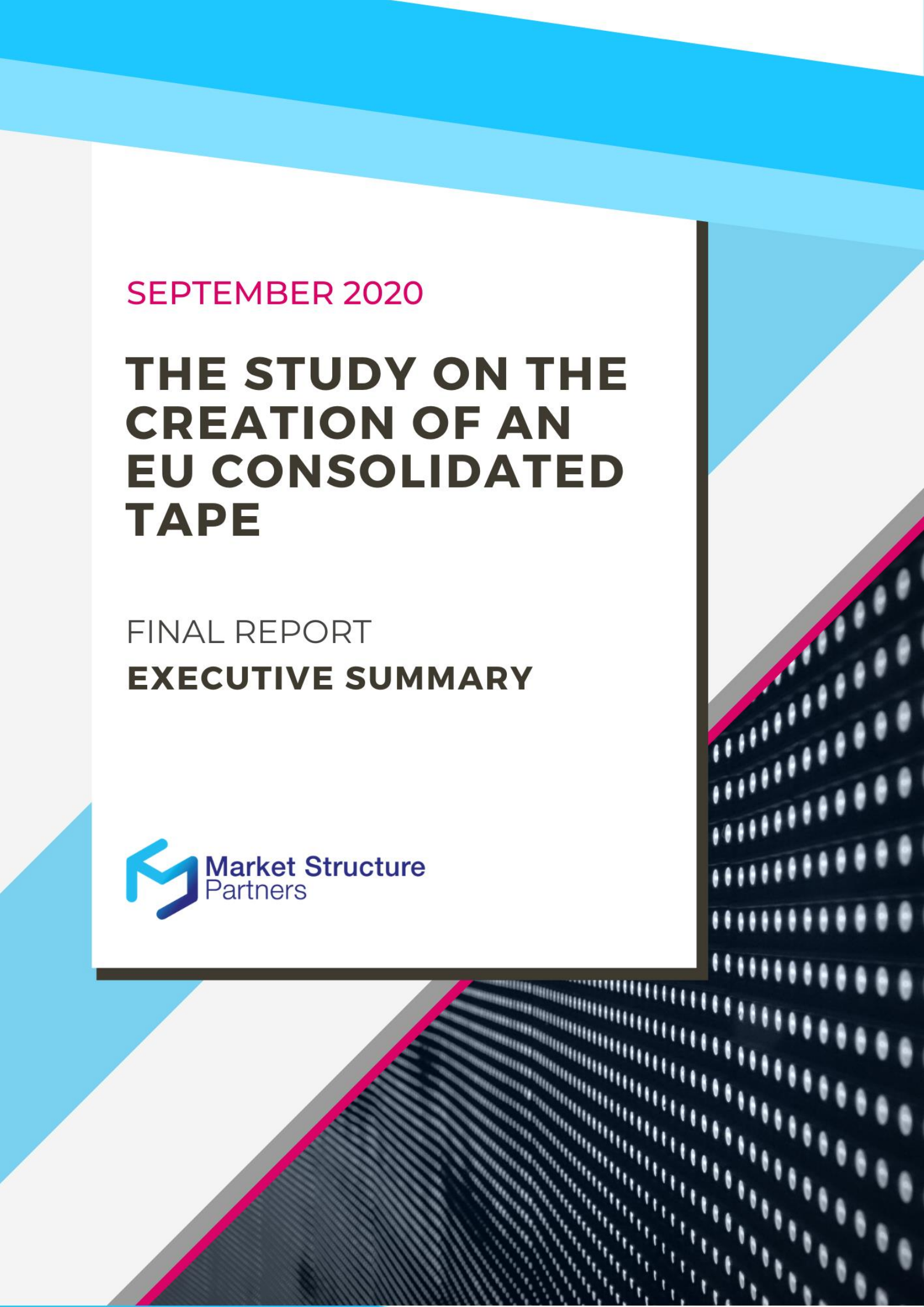

Market Structure Partners

ABOUT MARKET STRUCTURE PARTNERS

Market Structure Partners is an independent consulting firm specialising in global capital markets structure.

We aim to deliver real benefit to society by providing valuable, non-biased, strategic advice and consultancy services with the utmost integrity to help enhance and develop capital market structures.

The Market Structure Partners (MSP) team undertaking this work is entirely made up of experienced industry practitioners who have broad geographic, asset class and cross-functional knowledge. Team members are based in Europe and North America.

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INTRODUCTION

This study analyses the demand and potential use cases for consolidated market data delivered via a consolidated tape for European financial markets. The study also considers the benefits that would arise from it and the challenges to creating it. It also recommends the optimal architecture for consolidation. It is composed of the following 12 Chapters, which examine in turn:

1. **The study scope, background and approach**
2. **What is market data and how is it consolidated?**
3. **Data feeds and data consumption**
4. **The demand and potential use cases for consolidated data**
5. **The benefits that would arise from consolidated data**
6. **The challenges to delivering consolidated data**
7. **Lessons learnt from literature review and field research into North American data consolidation frameworks**
8. **The optimal architecture for successful data consolidation in Europe**
9. **Operational and technical design feasibility, costs and funding**
10. **Consolidated data in the context of the EU 27 markets (Ex UK)**
11. **What can be achieved under the current legal and regulatory framework?**
12. **Conclusions and recommended actions**

1. STUDY SCOPE, BACKGROUND AND APPROACH

European Financial Markets Regulators had hoped that the Markets in Financial Instruments Directive and Regulation (MiFID II/MiFIR, hereafter jointly referred to as MiFID II) would create a regulatory environment in which commercial competing consolidated tape providers (CTPs) would emerge. However, no CTP in any asset class has materialised. In case this occurred, a provision was made in the law for the European Commission (EC) to request The European Securities and Markets Authority (ESMA) to create a CTP through a public procurement process.

The scope of this study was to consider the need for consolidated pre- and post-trade data in equities and equity-linked instruments (hereafter summarised as equities) and post-trade data in fixed income securities, whether issued by governments, supranationals or corporates (hereafter summarised as bonds). All statements in the study are applied to both asset classes unless otherwise specified.

The study also had to research US and Canadian data consolidation frameworks and propose an architecture and design for European data consolidation based on the findings and user feedback.

The study approach involved field and literature research as well as interviews and workshops with 189 data users and stakeholders and 11 industry associations. Most of these users and stakeholders are active across the majority of European markets (EU 27 & UK) in their respective asset classes.

2. WHAT IS MARKET DATA AND HOW IS IT CONSOLIDATED?

Consolidated Tape Data (CT data) refers to the collection of pre- and post-trade data derived from multiple sources across financial markets that is disseminated through a single, standardised, data feed.

Pre-trade data comprises the visible prices and volumes of orders that are placed in order-driven markets and the visible quotes that are advertised in quote-driven markets.

Under MiFID II rules, firms classified as **Qualified Investment Firms (QIFs)** create and handle orders on behalf of investors and must forward equity orders to **Trading Venues (TVs)**. However, if an order meets certain exceptions criteria, such as being large in scale, it can be withheld. QIFs can also deal on their own account but, if they do so frequently, they become **Systematic Internalisers (SIs)** and must quote the prices at which they are prepared to deal publicly, either on a TV or through another channel.

TVs **match** orders on Central Limit Order Books (CLOBs) and clear through a central counterparty that manages **counterparty risk**. All orders that can be **seen** are considered **firm** as participants can interact with them via the matching system. Where **quotes** are made public in equity or bond markets, they are typically firm up to the **advertised size.** However, further negotiation may be required between participants for reasons such as the creditworthiness of each counterparty or for a larger size trade.

Post-trade data comprises the **prices** and **volumes** of trades that have been executed against both the orders and quotes that were visible, as well as trades executed against orders and quotes that were not visible to the entire market. It also includes **end-of-day statistics**.

Participants define the visible orders and quotes that they can interact with as **"addressable liquidity"**. It is very important for measuring market liquidity and the success of trading strategies. Post-trade data is expected to hold **sufficient information** in the form of **flags** to ascertain whether the liquidity was addressable at the time of the trade.

Under MiFID II, trades in any instrument (including EU and non-EU) that are traded on a trading venue (TOTV) must be made transparent to the market, subject to deferrals which allow for delayed publication of some trades.

TVs aggregate and publish pre- and post-trade data captured from the matching of orders on their systems. If QIFs and SIs **negotiate trades off-venue** they must be reported to **Approved Publication Arrangements (APAs) for aggregation and publication**. APAs often handle deferral **calculations and publication for their customers.** MiFID II allows competing aggregators. **Hundreds of TVs and APAs** already exist across asset classes.

TVs and APAs are obliged to **publish** their aggregated **post-trade data** to CTPs when they exist**.** The law envisages **multiple competing CTPs** but there are currently none.

TVs, APAs and CTPs are all regulated entities under MiFID II. However, **TVs can self-regulate** by setting their own rules and sanctioning their **members** without requiring other regulatory intervention whereas **APAs and CTPs are dependent on their clients to adhere to EU regulatory standards and enforcement,** which can only be moderated by National Competent Authorities (NCAs).

3. DATA FEEDS AND DATA CONSUMPTION

Market data feeds are the medium by which pre-trade and post-trade data for each market are disseminated.

Pre-trade data can be shown at **individual price levels** or **aggregated** to show the interest at each price level. The simplest approach is to take the top-level best bid and best offer, known as the **BBO.** If data is aggregated, then the depth of information that is shown needs to be decided. The most detailed approach is to show the entire depth of the book. Alternatives are to take a subset of data down to a certain level (e.g. **3 or 5 levels)**, for which a **volume-weighted BBO** could be calculated if required.

Data can be taken via a **real-time streaming data feed,** which also contains important **administrational event information** (e.g. trading halts). Such a feed can be delivered in speeds of nanosecond-level accuracy, known as **low latency**. It can also be taken in static files or clips of data.

Historical data is a record of pre- and post-trade data that is **stored** and available for analysis.

Firms that publish data often do so for **economic profit** and put contracts in place to govern how data is paid for, what levels of data are seen and who can access and use the data. The pricing and contractual terms can have many variations that lead to **multiple contractual complexities.**

A prospective European CTP must collect data from all TVs and APAs in many different formats and negotiate at least **one contract,** but **often many more**, with each individual TV and APA.

4. DEMAND FOR CONSOLIDATED TAPE DATA

Multiple-use cases exist for CT data, across a broad set of financial market stakeholders, undertaking many different functions through the value chain. Broad use cases for CT data can be summarised as:

- Issuance
- Asset Allocation
- Portfolio/Investment Management
- Pre-Trade Analysis
- In-flight Monitoring of trades
- Post-Trade Analysis/ Best Execution
- Middle and Back Office Processes/Valuations
- Funding and Collateral Management/Securities Lending
- Market Surveillance
- Risk Management
- Performance Measurement
- Regulatory Oversight
- Audit
- Contributing to environmental improvement practices (reducing data processing)

- Many of these functions involve risk management activity. For example, CT data would be used across all **three lines of defence** that companies typically deploy to manage risk: front-line functions that **own and manage risk**, functions that exist to **challenge** the front-line and functions that provide **assurance** to the wider market.
- The critical requirements identified for European CT data in these use cases are:
    - **Real-time, pre-trade equity order** data with **5 levels** of order book depth from each TV (pre-trade quotes are not critical) and **auction imbalance data**. A volume-weighted BBO taken from the 5 levels may help some users.
    - **Depth** of data in equities is more important **than nanosecond speed**. Provided that 5 levels of depth are visible, then data delivered in milliseconds is sufficient.
    - **Real-time, post-trade** data feeds in equities (milliseconds) and bonds (5 minutes).
    - Dissemination of **session administration** event information such as trading halts.
    - **End-of-Day** or **Session Statistics**.
    - **Historical data**, which is important for ad hoc post-trade analysis by many functions.
    - A **comprehensive data** set of everything TOTV but an ability to **delineate** the data between EU and non-EU instruments or subsets thereof would be useful.
- All elements of the CT data are desired but **post-trade** and **historical data** are priorities.
- If this CT data was readily available, it is estimated that **tens of thousands** of **professional participants** and many more **retail investors** would be likely to use it.

5. THE BENEFITS OF CONSOLIDATED DATA

The total benefits of CT data cannot be quantified. Nevertheless, it is known that many firms that are responsible for managing and trading **trillions of euros of assets** on behalf of investors report that the current lack of CT data means they have to rely on **sub-optimal data** when seeking to do their jobs for those investors.

If CT data existed, then a **small subset of financial intermediaries** who currently gain a potential advantage from the **data asymmetries** in the market would lose out. This subset includes firms that can use their scale or technology to overcome the current challenges in compiling accurate data to gain a competitive advantage or those who profit from selling their data. However, other participants including retail and institutional investors, issuers, regulators and third-party firms providing oversight services would all clearly benefit from all of the following:

a) **Improved trade outcomes**: More accurate forecasting of trading costs and broadening awareness of liquidity options.

b) **Independent and accurate data for detecting errors and misdeeds:** Helping uncover issues, which may otherwise remain undetected.

c) **Increased pricing accuracy:**

   i. Leading to improved portfolio valuations for investors who are often misled by inaccurate data.

   ii. Improving the quality of benchmark calculations, which are used to judge performance.

   iii. Supporting better derivative pricing.

d) **Improved liquidity risk management and capital allocation processes:**

   i. Under-estimations of liquidity risks come at the expense of end investors who may get trapped in failing funds.

   ii. Over-estimations of liquidity risks come at the expense of the capital raiser as capital may be allocated too conservatively.

e) **Promotion of innovation, competition and lit markets**: Without visibility of all available liquidity:

   i. The primary and secondary market models of incumbent TVs are being forced on the market and different liquidity provision and listing models cannot emerge.

   ii. Brokers are not held accountable by their clients for their smart-order routing decisions because clients cannot easily see the flow and create an audit trail

   iii. Inaccurate and over-inflated figures about the amount of off-venue liquidity are misleading participants to route trades away from lit markets.

   iv. The increasing cost of processing data is creating barriers to entry in all parts of the industry, which leads to industry concentration.

f) **Improved regulatory calculations and regulatory policymaking:**

   i. Regulators are currently implementing policy, monitoring compliance and designing new regulation with inadequate data sets.

   ii. Without one official source of pan-European data, firms with vested interests and the largest resources can use sub-sets of data to lobby for or against change that may not benefit the broader market.

Additionally, a single CT data infrastructure would be more cost and energy-efficient than the current multi-layered and multi-lateral processing arrangements thus **reducing impact on the environment.**

6. CHALLENGES TO CONSOLIDATING DATA

The **technology** required to consolidate market data is **not considered a challenge** as it is already proven and widely used in the market. The **challenges** for individual firms or potential European CTPs wanting to consolidate data **are structural, organisational and economic** and are as follows:

a) **The price of data is not determined by market forces, which makes CT data unviable:**

- The current **direct** and **indirect cost** of consuming and managing multiple data feeds **drives users to economise** by taking a subset of the available market data as a **proxy for the whole market**. This subset is typically sourced from the **dominant TV or APA** in each market.
- This **reinforces** the **pricing power** and market models of the largest TVs and APAs and allows them to **price their data as if it represented the entire market**.
- These TVs and APAs have **no requirement or commercial incentive** to price data at a value that reflects its worth in the context of consolidation or for the purposes of facilitating CT data. To do so would not only show competing TVs' liquidity, which is currently obscured by the lack of CT data, but also potentially **take away profit** as some firms may replace their current sub-set of pre- and/or post-trade data from the incumbent with the CT data if it was available.

- Currently, a data consolidator has **no control over the cost** being ascribed by each TV or APA. The liquidity provision models of the largest equity TVs generate huge quantities of data, which increases processing costs but may not always be useful to many participants. The price a TV puts on its data (especially where it is used as a proxy for the whole market) may not be the same as the value that the market puts on it when the data is consolidated, and the worth of the contribution from each TV is assessed.
- A consolidator must either **absorb** all the costs or pass them on. If a consolidator **passes all the costs and contracts**, as prescribed by each aggregator, directly to users, then these users will **continue to economise** by taking subsets of data, rendering consolidation a **waste of time and resource** for the CTP. The **dominance** of the largest TVs and APAs continues to be reinforced.

b) Data Quality and Complexity

- TVs and APAs have **bespoke data standards,** which must be translated by a CTP.
- Data submissions by QIFs and SIs are of poor quality. Issues identified include **ambiguities or inconsistencies** in the rules, **subjective interpretation** of the rules, **abuse** of the rules or **misuse** of flags as well as a **lack of mandated market-wide technical operating standards** for the reporting of trades**.**
- Complex and low-quality data **requires significant effort and resources** to clean and compile and consolidators may not have resources or the incentive to clean it.

c) Lack of Data Governance and Enforcement of Data Standards:

- Issues relating to **completeness**, **timeliness** and **quality** need **immediate resolution** for data to be of value to users. **ESMA** and the **NCAs** are **too far removed** from the technical interfaces in the market where the data is submitted to be able to identify and address the issues that arise in real-time.
- If issues span more than one market, **NCAs manually** seek cross-market information from each other, resulting in **time lags** for identifying and fixing issues. A true picture of the market may be lost for some time, possibly **months or years.**
- There is currently **no centrally agreed penalty mechanism** for poor data submissions to aggregators and consolidators or agreement about how such a regime might be implemented across different jurisdictions.
- At present, data **quality** is **best at TVs**, as they can enforce standards on their **members** and use **matched data** for immediate reconciliations. It is **worst at APAs** which do not have such members, are **not empowered** to enforce penalties and may not see two sides of a trade to help reconciliations. APAs may also have **conflicts of interest** if their parent company is also operating a TV or data vendor.

d) Other Factors that Make Data Less Viable for Consolidation

- A **lack of harmonised rules**. Examples are **NCAs** which can **determine** their own **deferral periods** for publishing post-trade bond data and SIs being treated differently to TVs which results in **different tick size and clock synchronisation** obligations.
- The requirement to report everything that is traded on a trading venue (TOTV) leads to both **EU** and **non-EU** instruments being included in the data. This creates considerable “noise” when trying to establish what is EU instrument data.
- ESMA’s phased approach to reporting bond trades based on their liquidity means that the current **population of bond** instruments available for publication **is low**.

These problems are cumulative; each user makes multiple discretionary decisions about the data sets they use based on commercial factors and subjective judgements about the data. As a result, participants in Europe are not guaranteed to have the same data for any instrument as their peers.

7. LESSONS LEARNT FROM LITERATURE REVIEW AND FIELD RESEARCH INTO NORTH AMERICAN DATA CONSOLIDATION FRAMEWORKS

North American market data frameworks are not a panacea or an exact model for European CT data but, along with the academic and industry literature available, they offer some important insights, particularly about organisational, economic and legal arrangements that are needed at different points of market evolution. Many of these insights resonate with European participants. These are:

- **Optimum data quality** occurs when there is **no competition at either aggregation or consolidation level a**nd exclusive aggregators and consolidators can **use self-regulation to mandate standards** and **uniformly enforce rules** on their members.
- An entity that has the exclusive responsibility for enforcing rules and standards for CT data should be recognised in the law so that it can enforce its own rules as well as any relevant laws. The **regulatory authorisation** of any data contributor to that entity should **depend** on its membership of the entity and **willingness to abide by its rules.**
- Entities with **exclusive responsibilities** should **not be conflicted** and their **governance** requires **balanced** consideration of data user and stakeholder needs**.** Otherwise, they may pursue **business models** that are **not in the best interests of the broader market.**
- An **exclusive consolidator** may be a priority (for Europe) because a consolidator can start by **working with all the stakeholders** in the market, including the different aggregators, whereas aggregators only work in the interest of a subset of stakeholders.

The widest use of consolidated data occurs when:

- There is a **single technical, contractual and pricing interface** for **receiving data** from the aggregators and also for the consolidator to **disseminate the data** to the consumer.
- The underlying data is **not acquired or passed on** by the consolidator **at prices set by each aggregator**. Instead, CT data is sold at one price and the revenue generated is **shared** between aggregators based on the value of each data set to the overall CT data.

Sufficient detail must be provided in the CT data for users to ascertain current liquidity and trading intentions. This data should be defined in the law but with the flexibility to provide for future enhancements. It includes:

- **Depth of data (3-5 levels),** which is **more important than a single BBO.**
- **Administrational event information** and **auction imbalance data.**

Without depth of data, the **introduction of lot sizes** would have to be considered. Otherwise the BBO could be determined by a single share which may not be meaningful.

Shared revenue allocation models, based on the value of data, can be used to facilitate competition and drive changes in trading behaviour and liquidity provision. These must be carefully calibrated and monitored to incentivise the right behaviours and allow for flexibility to adapt.

Mandated use of a tape for **best execution may not be suitable for Europe** due to the underlying market structure (e.g. lack of homogenous clearing and settlement across the region). It also requires trade-offs between the benefits for retail size orders and disadvantages for institutional size orders.

Mandated use of a tape to display CT data **to independent retail investors** is beneficial and should be available to them for free in order to prevent inferior products from being developed and used.

The **data constituents** of CT data need to be clearly defined and understood to allow for the correct interpretation of the data and to incentivise optimum behaviours. For example, If TVs have differences in the way they report orders versus trades then the data may not be easily comparable. Similarly, if minimum lot sizes exist, then care is required to ensure that they do not adversely impact trading behaviour.

Aggregators and/or consolidators need to have **strong reconciliation processes** and capabilities to be able to clean data. This includes visibility of both sides of unmatched, off-venue trades.

CT data increases transparency and reduces costs. However, consideration must also be given to the effect of transparency when trying to execute large orders in illiquid markets, as transparency may result in market makers being less willing to commit risk capital to facilitate a trade.

8. THE OPTIMAL ARCHITECTURE FOR SUCCESSFUL DATA CONSOLIDATION IN EUROPE

In order to successfully deliver the critical requirements described in Chapter 4, the following architecture is recommended as the optimal and holistic foundation (compromises are likely to limit the successful development of CT data) on which to build European CT data:

- An **exclusive** consolidated tape provider (ECTP) that is not subject to competition and is run as a utility should be created. It should have **no conflicting business interests**.
- The ECTP must be **regulated and empowered by ESMA** to establish and **enforce market-wide operating standards** and a **harmonized set of rules, including penalties** and other sanctions that have a sufficient impact on behaviour. It should also be **recognised in the law** and be able to enforce market data regulations.
- All data aggregators should be **obligatory members**, should contribute to its funding and follow its rules. QIFs and SIs should be allowed to **self-aggregate** and also become members of the ECTP.
- **Authorisation** of an aggregator's on-going business should be **directly linked** to its membership of the ECTP and its willingness to abide by the rules.
- **Balanced governance** of the ECTP with representation and input from all users is required. No single stakeholder or stakeholder group should have undue influence. A majority of independent directors is required at the Board level.
- The ECTP must be able to **acquire** and **store** all pre-, post-trade, end-of-day and historical data freely without contractual obligations and at the same speed as proprietary offerings A **revenue sharing mechanism** to share the revenue between contributors **based on the value** of the quality of each of their data sets to the overall consolidated data should be established.
- **Sufficient pre-trade** order and **administrational event** data must be provided to the tape and this must be defined in the law.
- The ECTP must be able to **monitor data quality**, **resolve issues** and **reconcile** data quickly. Reporting to the ECTP should be in real-time **(no deferral management elsewhere)** and **double-sided trade reporting,** with an identifier attached by both parties, should be introduced for **unmatched trades.**

Other **ancillary issues**, which could also be addressed to enhance the viability of CT data include increasing the population of **eligible bonds** for consolidation, harmonising bond deferral publication rules **and separating the bond and derivative RTS data formats**. Display of free CT data **to independent retail investors** should be mandated.

An ECTP could deliver other advantages such as creating a **dynamic deferral regime** for temporary liquidity spikes in bonds and **calculating and disseminating reference data** for ESMA. A **volume-weighted** official European **BBO** for equities could be implemented if required.

9. OPERATIONAL AND TECHNICAL DESIGN FEASIBILITY, COSTS AND FUNDING

CT data **for both equities and bonds can be delivered via the same ECTP organisational structure and high-level technical design.** This allows economies of scale to be achieved and provides **flexibility** for phasing in of different instruments and functionality over time.

The ECTP would have a **permanent executive and staff** and a Board made up of stakeholder representatives and independent directors. Additional advice would be sought through industry

committees focusing on product, technical requirements and rules. The organisational detail and operating model of the ECTP would be determined through the governance structure and would need to address:

- **Its terms of reference, corporate and commercial structure, the strategic direction, business plan,** and **priorities**, as well as the **standards, inputs, outputs, obligations, rules, responsibilities and technical requirements.**
- Creation and management of **membership categories.** These would exist for different stakeholder types and each category would have different rights and obligations.
- Enforcement of its **rules** and management of **appeals** processes.
- Determination of the **reasonable commercial cost** at which data should be sold and the **appropriate allocation and contractual mechanism for revenue sharing** between contributors.
- Decisions about how any **profits** from other activities should **be distributed.**
- Selecting the **outsourced technology** provider/s through a competitive **tender process**.

It is assumed that the technology would be **outsourced.** However, the high-level technical design to deliver the CT data is possible using established technology solutions and is expected to contain:

- Multiple **"engines" with core processing logic,** which would be used to interact with other components and provide "plug and play" **flexibility** in the overall architecture. This allows for **scalability** and for different functional elements or asset classes to be added over time**.**
- **Machine learning** algorithms for identifying data anomalies.
- Use of the **cloud** for the storage of historical data.
- Operations across **two data centres** in Europe, which could be expanded as required. The choice of where to situate the data centres would be determined by the ECTP stakeholders. The combined technology would allow data to be processed in **tens of milliseconds**, but users will experience differences in latency depending on their location and so a technical design that assures **accurate time stamping will be critical**.

The costs and funding of the organisation, including the setting up and running of the outsourced technology described above, are estimated as follows:

- The **set-up** costs of the ECTP would be in the order of **€11 million** (€9 million for post-trade data in equities and bonds and an additional €2 million for pre-trade data in equities).
- This **set-up funding** could be raised and covered by levying a one-off joining fee from current data aggregators and SIs with an average contribution of **€25,000 per member**.
- **Annual running costs** of the ECTP for all asset classes in scope are estimated in the range of **€6 million to €7 million**.
- Recurring funding of over **€7 million per annum** could be obtained with a membership fee levied on current data aggregators and SIs of an average of **€16,000** per entity per annum. Other revenues may be generated through additional services and fines.
- If the ECTP is being run on a not-for-profit basis, any **profits not required** for future investment could be **returned to the members**. Revenues from data sales would be allocated back to data users and aggregators based on the agreed revenue share scheme.

10. CONSOLIDATED DATA FOR THE EU 27 MARKETS (EX. UK)

The impact of the UK's departure from the EU cannot yet be fully assessed but the **need for CT data within the EU 27 markets** will be **equally important** without the UK because:

- There is **no discernible difference** between the **data requirements** and issues raised by participants **within the EU 27** and **outside of the EU 27**. Investors who want to in-

vest in EU 27 markets **still need quality CT data** to manage their portfolios, risk and regulatory obligations.

- If the UK is not granted equivalence, there will be a **proliferation of EU-based TVs, SIs, QIFs and APAs**, as UK based firms seek an EU presence. This will not only **increase the number of data sources** and but also **increase the number of trades** because QIFs and SIs may undertake back-to-back trading between their EU and non-EU entities in order to manage client orders and risk.
- Specifically for equities, MiFID II's Share Trading Obligation (STO), which ensures that EU investment firms must direct their trades in EU equities to a TV or SI within the EU, means that **liquidity pools are likely to be split** between the UK and the EU. This may generate **arbitrage opportunities** and potentially **reduce trade sizes on lit markets**. This will contribute to **larger volumes of trade reports** and an even greater requirement for **quality pre- and post-trade data** to provide a **complete picture** of market liquidity.
- Overall, these **data complexities will increase costs** and further highlight the need for CT data.
- In the event that the UK, or another third country, creates **competing off-shore pools** of liquidity in EU instruments for non-EU 27 Investors, CT data will be critical to help the EU compete for capital and liquidity from those investors.

11. LEGAL ANALYSIS OF THE PROPOSED ARCHITECTURE/DESIGN

The current legislative framework **does not allow the full implementation** of the proposed architecture and design, particularly **in relation to pre-trade data**. However, some significant steps could be taken under the **current legislative framework**. These are:

- The EC can exercise its power to request ESMA to use its **public procurement process** to establish an ECTP, clearly specifying that it should be run as a non-conflicted utility with balanced governance and allowed to develop its own rule book (including standards) and compliance framework (including sanctions and penalties) under ESMA's oversight. Using this process, steps can also be undertaken to ensure that:
    - TVs and APAs could be **mandated to be members** of the ECTP.
    - Real-time **post-trade** data could be freely obtained from members and stored for **historical** purposes. The price at which CT data could be sold to end-users (after 15 mins it would be free) could be determined and an **agreed revenue allocation** model could be created to share revenues amongst those that contribute the data.

A number of other enhancements could also be achieved to improve data usability and quality:

- With political goodwill, the current rules for **bond deferrals could be harmonised.**
- ESMA could i**ncrease the population of bonds** in scope for post-trade reporting.
- Regulatory Technical Standards **(RTSs) could be amended and enriched** to specify data formats and double-sided trade reporting with identifiers could be introduced for unmatched trades.

However, the following cannot be achieved without further legislative **amendments** or **new legislation:**

- Consolidation of **pre-trade** data because TVs are not currently mandated to submit pre-trade data to any CTP and pre-trade data is not defined in the law.
- Full ECTP **recognition and delegation** of powers to allow it to enforce market data laws.
- Legally **linking the authorisation** of the data aggregators to a requirement that they are members of the ECTP.
- **Mandating data generators** such as SIs to be members of the ECTP (although they could become voluntary members or the ECTP could also become an APA).
- Achieving **full consistency** in the data submitted by **TVs and SIs,** as they are not subject to the same pre- and post-trade transparency regimes.
- Introducing a **vendor display rule** for retail investors.

- Formal **delineation between EU and non-EU instruments.**

To move forward the EC is faced with two possible alternatives, both of which have advantages and disadvantages:

Option 1: Commence the creation of an ECTP under the current legislation

+ The initial development and implementation of CT data could progress but would **require very clear specifications and careful management** of the procurement process. Clear milestones would be needed to measure progress and finalise decisions.
+ Stakeholders should gain **valuable practical experience** in implementing CT data and resolving issues. This experience could be used as a proof-of-concept for a fully recognised ECTP in future legislation. However, the ECTP may not have the full powers needed to improve data quality and stakeholders may not cooperate or be unable to agree on some issues.
– The **equity** market would have to **adapt to a hybrid state** and may find it hard to establish and consume post-trade CT data whilst pre-trade data is still being taken via direct feeds.
– There is a **risk** that the **legislation** required to deliver the full CT data and the ECTP is **not achieved** or is achieved in a manner that is **inconsistent** with the initial design.

Option 2: Defer any development until the full legislative framework is in place

+ The delivery of any form of CT data would be **delayed** but eventually, the tape could be created and designed with **more regulatory certainty**.
– The practical **experience** and knowledge gained under Option 1 would be **foregone.**
– Market participants need data improvements as soon as possible. Legislative change **could take too long** or **lobbying and vested interests** could impact the proposed design of the tape and **undermine its integrity, usefulness and viability**.

12. CONCLUSIONS AND RECOMMENDED ACTIONS

There is **high demand** for CT data and the **benefits of delivering the data clearly outweigh the cost of implementing it.** An official source of CT data for the EU 27 markets may be even more important once the UK leaves the EU.

It is **impractical to expect multiple competing commercial consolidators** of data to emerge at this point of the market's evolution. This is because the underlying data that needs to be consolidated resides across many competing commercial entities, some with disproportionate economic leverage and conflicts of interest. These entities have inconsistent quality checks, data models and interfaces and operate under a federated model of supervision and enforcement in multiple jurisdictions.

The **optimum design and delivery** of such data is through an **exclusive consolidated tape provider** that is run as a **utility** and brings data stakeholders together to resolve the current challenges in consolidation.

The full solution cannot be implemented without further legislative change and there are clear advantages and disadvantages to commencing the development under the current legislative framework versus waiting for new legislation. However, the delivery of CT data for the EU is already **long overdue**. Enough stakeholders appear ready to **engage** to help bring it to fruition and to **delay further** raises the **risk** that it may not be delivered at all. The recommended action is:

- The EC should move forward under Option 1. It should pursue its power in MiFID II to request ESMA to use its public procurement process to follow clearly specified parameters and establish an ECTP for post-trade data as soon as possible.
- ESMA and the NCAs should be encouraged to review government bond deferral rules and to reconsider the phased approach on assessing liquidity in bonds.
- The EC should also seek to introduce further legislative changes to fully support the ECTP for consolidation of pre- and post-trade data.

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