

1 March 2024

FIA EPTA Public Comment on IOSCO's Consultation Report on Market Outages (CR/07/23)

Introduction and principles informing FIA EPTA's response

The European Principal Traders Association (FIA EPTA) represents Europe's leading Principal Trading Firms. Our members are independent market makers and providers of liquidity and risk-transfer for markets and end-investors across Europe. FIA EPTA works constructively with policy-makers, regulators and other market stakeholders to ensure efficient, resilient and trusted financial markets in Europe.

FIA EPTA members welcome the opportunity to respond to IOSCO's consultation on market outages and are supportive of the work being done on this topic, particularly efforts to require trading venues to publish clear comprehensive outages plans on an ex-ante basis. Market resilience is at the core of efficient and competitive financial markets and it is imperative that trading venues clearly outline a well-planned approach to communication and management in the event of a market outage to provide certainty to market participants.

FIA EPTA members believe that trading venues should be required to observe the following issues when developing and implementing outages plans:

1. Clear, meaningful and frequent communication:

- A clear programme of regular and informative market communications by the venue;
- Periodic status updates published at least every 15 – 20 minutes;
- Notice of disruption to be provided as soon as possible upon occurrence of an outage;
- Consider creating a central venue status communications platform to provide a centralised tool to identify outages more quickly and to maintain continuity of trading.

2. Conclusive statement on order status prior to re-opening:

- Clarity on how orders will be managed prior to market resumption (a full order book purge being preferred);
- A venue should not re-open whilst order status is unknown;
- Not forcing venues to adhere to an arbitrary restart deadline.

3. Absolute prioritisation of a venue's ability to operate the closing auction and print a closing price:

- Recognising specific status of the reference price set in the closing auction as being crucial to the proper functioning of financial markets;
- Listing markets to prioritise successful performance of the closing auction over other competing objectives;
- Venues should determine a consistent pre-determined procedure for calculation of alternative closing price;
- Ensuring the continued availability of a market wide reference price – e.g., via Consolidated Tape.

4. A consistent pre-determined methodology for an alternative closing price:

- Methodologies should be deterministic and be disclosed ex-ante in the trading venue’s outage playbook;
- A cascading model of alternative price determination may be considered, by reference to market conditions and accurate price signals;
- Listing markets should communicate conclusively and well in advance that such alternative methodology will be used in substitution for the closing auction.

5. Efficient and robust trading venue governance structures for the management of outages:

- Development and conduct by venues of detailed scenario planning and stress testing of potential outages and the trading venue’s response;
- Aim to ensure resilient outcomes that minimise the disruption to the price formation process in case of an outage;
- Trading venue infrastructure should have effective and immediate standby capabilities;
- It should be a key priority to prevent multi-market outages from occurring (e.g., where an exchange group operates multiple national markets in parallel);
- Venues should use a multi-node system architecture so that the trading platform can continue to operate even if components of the infrastructure fail or falter.

6. Post-mortems should be made public to all market participants:

- Meaningful post-mortems should be made public for review by all market participants so that they can properly understand the trading venue’s analysis regarding the root causes and remedial actions taken;
- Member firms should be enabled to provide appropriate feedback to the trading venue in order to improve outcomes going forward.

FIA EPTA members appreciate IOSCO’s consideration of our comments herein and welcome the opportunity to discuss further and provide additional input as required.

+++++

1. Do you agree with the key findings and/or do you think there are additional aspects of recent market outages that have not been captured?

FIA EPTA members broadly agree with the key findings presented in IOSCO's Consultation Report, subject to the following comments:

Communications during an outage:

The IOSCO Consultation Report notes "[i]t is common practice for market outages to be broadly communicated to market participants." FIA EPTA members observe that often communications by exchange to members about the status of an outage and re-opening are inadequate for the purposes of enabling members to manage risk and understand next steps. This is illustrated by experience of two outages on venues operated by major European exchange groups during 2022:

- During the first of these outages, while appropriate warning was given regarding the halting of the intraday sessions of three of these market segments (including the cancellation of some trades), the exchange gave sudden and belated warning regarding the halting of a *fourth* market. This then was followed by last minute notices (giving market members only a 7-to-10-minute warning) regarding the cancellation of three of the closing auctions. Finally, only after the closing auctions were due to have concluded, did the exchange announce that the closing price for index calculations across all four of the affected markets would be the last traded price. Cancelling the closing auction in this manner had knock on-effects on exchange-traded product markets, post-trade processes such as clearing report creations and derivatives settlement. This incident further reinforced the need for exchanges to have a clear communications framework for outages as well as an established procedure for a back-up closing auction that is enacted in a timely manner.
- In addition, in there was a second outage at another major exchange, in the same month, which caused a halt to continuous trading of its commodities derivatives products and highlighted the importance of timely exchange communication. This venue experienced a technical incident and a failover had occurred on their Commodities segment at 10:46 CET. However, a market-wide notification of the incident on the market status webpage, and that fact that a failover had already been performed, wasn't issued until approximately 30 minutes later at 11:14 CET. This notification included detail that trading of commodity products was halted, with the venue working to resolve the situation in order to resume trading as soon as possible. Although, in this case, there was no direct negative impact to our EPTA members, we believe this notification delay would have caused uncertainty and issues for the wider trading community and reinforces the need for consistent, continuous market status alerts and timely communication.

2. Do you agree with the good practices that IOSCO recommends for trading venues? If not, please explain why and provide further information.

FIA EPTA welcome IOSCO's good practices and are generally in agreement with the recommendations for trading venues. We provide further comments below.

Outage plans:

EPTA members are supportive of IOSCO's proposed good practices, particularly efforts to require trading venues to publish clear comprehensive outages plans on an ex-ante basis.

Market resilience is at the core of efficient and competitive financial markets and it is imperative that trading venues clearly outline a well-planned approach to communication and management in the event of a market outage to provide certainty to market participants.

FIA EPTA members believe that trading venues should be required to observe the following issues when developing and implementing outages plans:

- **Clear, meaningful and frequent communication:** It is absolutely crucial that trading venues adopt a clear programme of regular and informative market communications with periodic status updates published at least every 15 – 20 minutes, with a notice of disruption to be provided as soon as possible upon occurrence of an outage. In this regard, FIA EPTA members propose that a central venue status communications platform be developed as an industry-wide initiative secure venue-status communications platform could provide a centralised tool to more identify outages quickly and to maintain continuity of trading.
- **Conclusive statement on order status prior to re-opening:** Trading venue outage playbooks should include a clear statement on how orders will be managed prior to market resumption. FIA EPTA members have a strong preference for a full order book purge, emphasising that a venue should not be allowed to re-open whilst order status is unknown. FIA EPTA members believe that it is in the best interests of the market and of orderly trading for the appropriate amount of time to be taken to properly resolve an incident before trading is recommenced, instead of forcing trading venues to adhere to an arbitrary restart deadline.
- **Absolute prioritisation of a trading venue's ability to operate the closing auction and print a closing price:** The reference price set in the closing auction is crucial to the proper functioning of financial markets. Listing markets should prioritise successful performance of the closing auction over other competing objectives such as resumption of the continuous trading session. Given that there is no viable alternative to the closing auction at present, trading venues should determine a consistent pre-determined procedure for calculation of an alternative closing price. Additionally, FIA EPTA members see this as an important justification for an effective Consolidated Tape as this infrastructure enhances market resilience by ensuring the continued availability of a reference price.
- **A consistent pre-determined methodology for an alternative closing price:** Specifically regarding the back-up methodologies to be adopted by listing markets to arrive at an alternative closing price, FIA EPTA members would urge that these methodologies should be deterministic and be disclosed ex-ante in the trading venue's outage playbook. Use of such methodologies should be clearly communicated well in advance of the scheduled closing auction. FIA EPTA members have a preference for a cascading model of alternative price determination, by reference to market conditions and accurate price signals. Further, listing markets should communicate conclusively and well in advance of the scheduled closing auction that such alternative methodology will be used in substitution for the closing auction.

- **Efficient and robust trading venue governance structures addressing the management of outages:** These governance structures should include development and conduct of detailed scenario planning and stress testing of potential outages and the trading venue's response thereto, so as to ensure resilient outcomes that minimise the disruption to the price formation process in case of an outage. As best practice and to ensure a high availability, trading venue infrastructure should have effective and immediate standby capabilities. Where an exchange group operates multiple national markets in parallel, it should be a key priority to prevent multi-market outages from occurring. This could be achieved by using a multi-node system architecture so that the trading platform can continue to operate in the event that components of the infrastructure fail or falter.

Communication plans:

FIA EPTA welcome IOSCO's proposed good practices regarding communication plans and highlight the importance of clear, informative and frequent communication. Given the centrality of good communication to effective management of an outage, we provide the following further detail by way of recommendation:

- **Frequency of updates:** Regarding updates to be provided by a venue, FIA EPTA members consider that markets should provide these with a frequency of at least every 15 to 20 minutes. We would emphasise that the updates either need to provide meaningful new information or should limit themselves to confirming the previous status.
- **Initial notification as soon as possible:** FIA EPTA members agree with IOSCO that it is essential that trading venues provide market participants with a notice of disruption as soon as possible. Our members have seen instances of notification after the fact. We have also seen instances where, even though the market status is maintained on a trading venue's communications notice board, that status remains 'green' throughout the period of the outage, thus rendering it irrelevant at best (and misinforming participants that the market is operational when it is not, at worst). To note further that this may cause participants to question their own systems and think the issue is localised to themselves.
- **Clear communication is essential.** FIA EPTA members would like to highlight that currently communications can be scant providing little to no detail as to what the incident is or what is happening. However, conversely, other venues provide instrument by instrument notifications when a single incident is affecting multiple instruments which distracts from the issue at hand and causes undue confusion.
- **Provide a "headline story":** FIA EPTA members would recommend that the main body of the incident alert notification ("headline story") includes a summary of the outage, current status, the segment/market impacted, detail on what the venue is doing to resolve the issue, next steps and confirmation that all other markets/segments are unaffected. Then there should be the ability to click into the notification/link to pull up the more micro details of the exact instruments impacted and other relevant information.
- **Means of communication:** FIA EPTA members would recommend that the main market status page is used to alert market participants of disruptions. In certain cases, venues

have a main 'market status' page/news board but also an 'emergency' news board, the existence of a separate news board means that differing messages are available on both. For ease of use, it would be more efficient to post information about market disruptions on the core 'market status' page/news board.

- **Separate communications function from outage resolution function:** FIA EPTA members would also like to highlight that the person/people operating the dedicated contact line should not also be those individuals trying to resolve the issue: It detracts them from the main task at hand, delays issue resolution and, also, they do not have the time to provide the appropriate level of detail to participants. A technical account manager or someone akin to this role would be more appropriate and we have seen instances where this division of roles has worked very well during recent events.
- **Central communications platform:** FIA EPTA members consider that additional to the direct communication protocols implemented by a trading venue, there exists a need for the development of a central venue-status communications platform. Such a wider market status communication tool will enable market participants to view in one place the published status of relevant trading venues, and, crucially, to communicate anonymously about the observed health of the venues. While the development of such a platform should be market participant-led, public authorities should set out their expectations in this regard.

Re-opening trading:

FIA EPTA members would emphasise that the fundamental principle guiding trading venues which are affected by an outage should be that a trading venue should not be allowed to reopen while the status of orders is still unknown.

That said, we support IOSCO's suggestion that venues include a pre-opening phase prior to the resumption of trading and to have an auction amongst participants before resuming continuous trading.

While FIA EPTA recognises the spirit of the aim to resume trading as rapidly as possible, the reality of IT incidents is that they take time to assess and resolve. The true nature or cause of an incident is often not apparent from its symptoms. In order to properly resolve any incident, a careful analysis must be taken, followed by an orderly fix. Only then can trading be restarted, which must also occur simultaneously with the restart of members' trading systems as well.

Coordinating this properly simply takes time. FIA EPTA believes that it is in the best interests of the market and of orderly trading for the appropriate amount of time to be taken to properly resolve an incident and to restart afterward, instead of forcing trading venues to adhere to an arbitrary restart deadline. Forcing haste in such matters will often lead to further issues later on.

In this regard, FIA EPTA members note that mismanagement of market re-opening was one of the key challenges faced by market participants in the course of recent outages. We would like to stress the need that the timing of market re-opening should be effectively evaluated and risk-assessed in advance. In addition, as indicated earlier in this submission, effective and efficient communication during outages, including in respect of market re-opening is absolutely critical.

Trading venues should ensure that all problems have been identified and resolved prior to re-opening. In advance of re-opening, trading venues should communicate clearly to the market at least 30 minutes prior and re-open on a “round” time increment, as well as place market in pre-open state to ensure participants can cancel/amend orders as required. Prior to re-opening, trading venues should also provide a window for market participants to flag whenever there are any outstanding issues that may be further exacerbated by the market re-opening.

There might be various scenarios for the outage to occur, and each of those should be set out in the playbooks developed by the trading venues. Such playbooks should also set out scenarios under which trading venues will or will not re-open and set out clear procedures for re-opening. To this end, and mindful of further possible scenarios for market outages, we would like to highlight non-exhaustively the following:

1. *Primary market subject to an outage and all trading ceased, but market can resume sometime during the same day:* As indicated above, it is critically important from the market participants’ perspective to avoid rushed re-openings. FIA EPTA members can point to examples of such rushed openings that had resulted in duplicate trades and other unresolved issues from the initial outage, hence only increasing the risks.
2. *Primary market subject to an outage but trading continues on alternative trading venues:* As indicated above, the same principles of careful evaluation, risk assessment and effective and clear communication should apply.
3. *Primary market subject to an outage, only able to run the closing auction:* (Please see our comments on the closing auction below.)
4. *Primary market subject to an outage, remains closed for the duration of the day and can only re-open the following day:* While FIA EPTA members are of the view that rushed market re-openings following an outage should be avoided, it is also necessary to avoid excessively delayed market re-openings, such as the following day. We note that in the case of slow re-openings the lack of proper communication was even more problematic, as market participants continued to carry uncertain market and operational risk and investors carried uncertain financial risks, linked with the fact that the closing price could not be established effectively. That said, we acknowledge that there might be a situation in which a market cannot re-open the same day. In that case it is critically important for a trading venue to have a pre-defined procedure for determining the market closing price (and again, this procedure may differ depending on if the market was closed only for a part of the day, or if the trading venue did not open at all).

Closing auctions/closing prices:

FIA EPTA members agree with IOSCO’s assessment that the closing price is crucial to the functioning of financial markets, including as a benchmark and reference price. We also agree with the proposed good practice regarding trading venues prioritizing running the closing auction and establishing the closing price and that trading venues be required to set out ex ante in their playbooks the methodology they will use to establish a closing price.

FIA EPTA members observe that at this time in the current European market structure there is no viable alternative for the closing auction of the original listing market which is the most relevant in terms of liquidity.

Given that this is the case and given the overwhelming importance of the reference price set in the closing auction, FIA EPTA members consider that listing markets should be held to a very high standard to ensure the integrity of the closing auction process.

As a general principle, FIA EPTA members are of the view that in order to be able to effectively manage any market outages that may occur in the future, trading venues must have efficient and robust governance structures in place. Such governance structures must include development and conduct of detailed scenario planning and stress testing of potential outages and the trading venue's response thereto so as to ensure resilient outcomes that minimise the disruption to the price formation process in case of an outage.

Such scenario planning and stress testing must also include, in particular, an in-depth assessment of the various scenarios under which the ability for a listing market to run the closing auction might be threatened, as well as the actions and measures by the listing market so as to ensure that this risk is mitigated, including that robust alternative, deterministic measures are in place for setting a closing price.

We further consider as follows:

- While it is important for a listing market to have the ability to postpone a closing auction (where it cannot be run at the scheduled time), that the scope for such delays be limited. Given the aforementioned importance of the closing price certainty about the latest time that it can be established is important.
- While venues' trading and connectivity systems should as much as possible be designed with redundancy in mind, this is the more critical for ensuring the continuity of the auction process.
- Whenever an outage occurs, the ability for the listing market to successfully perform the closing auction should have absolute priority over other competing considerations regarding the restart of the continuous trading session.
- In extremis this could mean the listing market concentrates all its efforts on its ability to perform the closing auction and forego any further efforts to reopen beforehand.
- Further, trading venues, as best practice to ensure high availability, should have hot-hot, or at a minimum warm, standby capabilities. This could be achieved using multi-node architecture so that the platform can continue to operate in the event that components of the infrastructure fail or falter.¹
- Also, venues that span multiple national markets, should deploy load balancing capabilities to ensure the flow is spread across separate nodes and avoid concentration of markets and single point of failures. Such a set-up would reduce the risk of failure of all markets going down in tandem and would inherently provide additional standby nodes providing 'hot-hot'

¹ These terms should be understood as follows:

- **Hot-Hot:** Software components are installed and available on both primary and secondary nodes. The software components on the secondary system are up but will not process data or requests. Data is mirrored in near real time and both systems will have identical data. Data replication is typically done through the software's capabilities. This generally provides a recovery time of a few seconds.
- **Hot-Warm:** The software component is installed and available on the secondary node. The secondary node is up and running. In the case of a failure on the primary node, these software components are started on the secondary node. This process is usually automated using a cluster manager. Data is regularly mirrored to secondary system using disk based replication or shared disk. This generally provides a recovery time of a few minutes.

or 'hot-warm' standby failover capabilities. These separate nodes can then be utilised in a failover capacity so that the market of original failure can be restored in a short time frame with minimal impact to the market.

We would reiterate that running a closing auction is a critical element of establishing a reference price for a given instrument – especially considering the increasing amount of trading volumes that tend to execute within the closing auction – the absence of which has significant (and detrimental) knock-on effects in particular for the pricing of instruments that have a given stock as the underlying or component. Using alternative methods to calculate a reference price such as the last traded price will in almost all circumstances deliver an inferior outcome, for example in the case of illiquid stocks or in situations where an outage has been ongoing for a significant amount of the trading day or occurs prior to significant, market-moving news. In these cases, the last-traded price would be a very inaccurate reference point to use as the key input component for instrument valuations.

Regulators should remain open to the possibility of future intervention to require trading venues to designate another trading venue (of their choice), should adoption of these good practices and other regional initiatives, such as the work being undertaken by trading venues and national regulators in Europe in response to the ESMA Final Report on Outages, prove to be insufficient in addressing this issue. Likely this would then need to be one operating on a pan-European basis, as their back-up venue for the purposes of running a closing auction if the venue that is experiencing an outage is not able to resume orderly trading one hour before the scheduled time of the closing auction. As an alternative, venues could also be encouraged to create a common failsafe closing auction execution facility, the operating costs of which could be distributed proportionately across the participating venues.

FIA EPTA members are of the view that a well-designed and properly functioning CT would support continued trading on other markets whilst the primary market is subject to an outage, reducing disruption (including in relation to the availability of the closing price).

Cut-off to inform of no closing auction: FIA EPTA members believe that an unambiguous cut-off time to inform market participants that there will not be a closing auction is critical. We consider that a differentiated approach will be preferable in this regard. Trading venues should provide guidance no later than 30 minutes before the scheduled auction time whether it expects the auction to take place or not. This should include a status update regarding the material issues that still need to be resolved in order for the listing market to be able to run the closing auction and an estimation by the listing market of its ability to do so.

No later than 15 minutes before the scheduled auction time, the trading venue should communicate its final unambiguous decision whether the auction will take place or not. The trading venue should only communicate that it will run the auction if by this time all matters have been fully resolved and the listing market is fully confident that the auction can be performed without issues.

In the case where the trading venue has not completed all remedial steps in time (> 15minutes before the close) the venue should move to an alternative method to producing a closing price. This should be clearly stated in their rule book and could be any of number of processes which may be different depending on instrument and segment, and time of initial issue but should be completely deterministic by the venue and its users.

This alternative closing price should be disseminated through the usual methods, if possible, but also via appropriate alternative methods (e.g., website and direct communication to firms) not later than 15 minutes after the expected closing price.

In this context, we reiterate that outages can occur under various scenarios with different levels of certainty regarding the causes and scope of the problems and the likelihood and feasibility for a timely resolution.

In some situations, an outage may have been caused by a known bug where the trading venue can with certainty communicate that it will be able to resolve the matter in a timely fashion. However, there are other possible scenarios where the problems may be so complex or pervasive as to make it highly unlikely that a timely resolution may be possible. Also, it can be that the trading venue may be too optimistic and overestimate its ability to resolve matters in a timely manner.

In all instances, FIA EPTA members would reiterate the importance for timely, frequent and unambiguous communication to all market stakeholders. As we have set out above, trading venues should implement clear policies whereby in case of a complex outage they should end the continuous trading session and focus exclusively on safeguarding the auction process.

Post-outage plans:

FIA EPTA members agree with IOSCO's observations and good practice recommendations with respect to post-outage plans. We strongly believe that post-mortems following an outage should be made public so as to enable market participants to properly understand the trading venue's analysis regarding the root causes and remedial actions taken. This will also ensure that the firm can provide appropriate feedback to the trading venue in order to improve outcomes going forward.

3. Are there any other good practices that could be considered?

As mentioned above, FIA EPTA members believe it is worthwhile establishing clear expectations of trading venues regarding the following:

- **Conclusive statement on order status prior to re-opening:** Trading venue outage playbooks should include a clear statement on how orders will be managed prior to market resumption. FIA EPTA members have a strong preference for a full order book purge, emphasising that a venue should not be allowed to re-open whilst order status is unknown. FIA EPTA members believe that it is in the best interests of the market and of orderly trading for the appropriate amount of time to be taken to properly resolve an incident before trading is recommenced, instead of forcing trading venues to adhere to an arbitrary restart deadline.
- **Efficient and robust trading venue governance structures addressing the management of outages:** These governance structures should include development and conduct of detailed scenario planning and stress testing of potential outages and the trading venue's response thereto, so as to ensure resilient outcomes that minimise the disruption to the price formation process in case of an outage. As best practice and to ensure a high availability, trading venue infrastructure should have effective and immediate standby capabilities. Where an exchange group operates multiple national markets in parallel, it should be a key priority to prevent multi-market outages from occurring. This could be achieved by using a multi-node system architecture so that the trading platform can continue to operate in the event that components of the infrastructure fail or falter.

- 4. Do you agree that these good practices could also be useful for addressing other causes of market outages, such as those set out in Annex C? If not, please explain why and/or provide further information on what additional good practices may be relevant to these.**

FIA EPTA agree that these good practices could also be useful for addressing market outages caused by other factors, including those set out in Annex C. In particular, ensuring exchanges have a clear, comprehensive outage plan and adopt a clear programme of regular and informative market communications with periodic status updates. Whilst in some of the circumstances envisaged in the Annex C examples may necessarily involve exchanges having severely compromised technology and infrastructure, this nevertheless underscores the importance of adopting multi-node architecture, as outlined above.