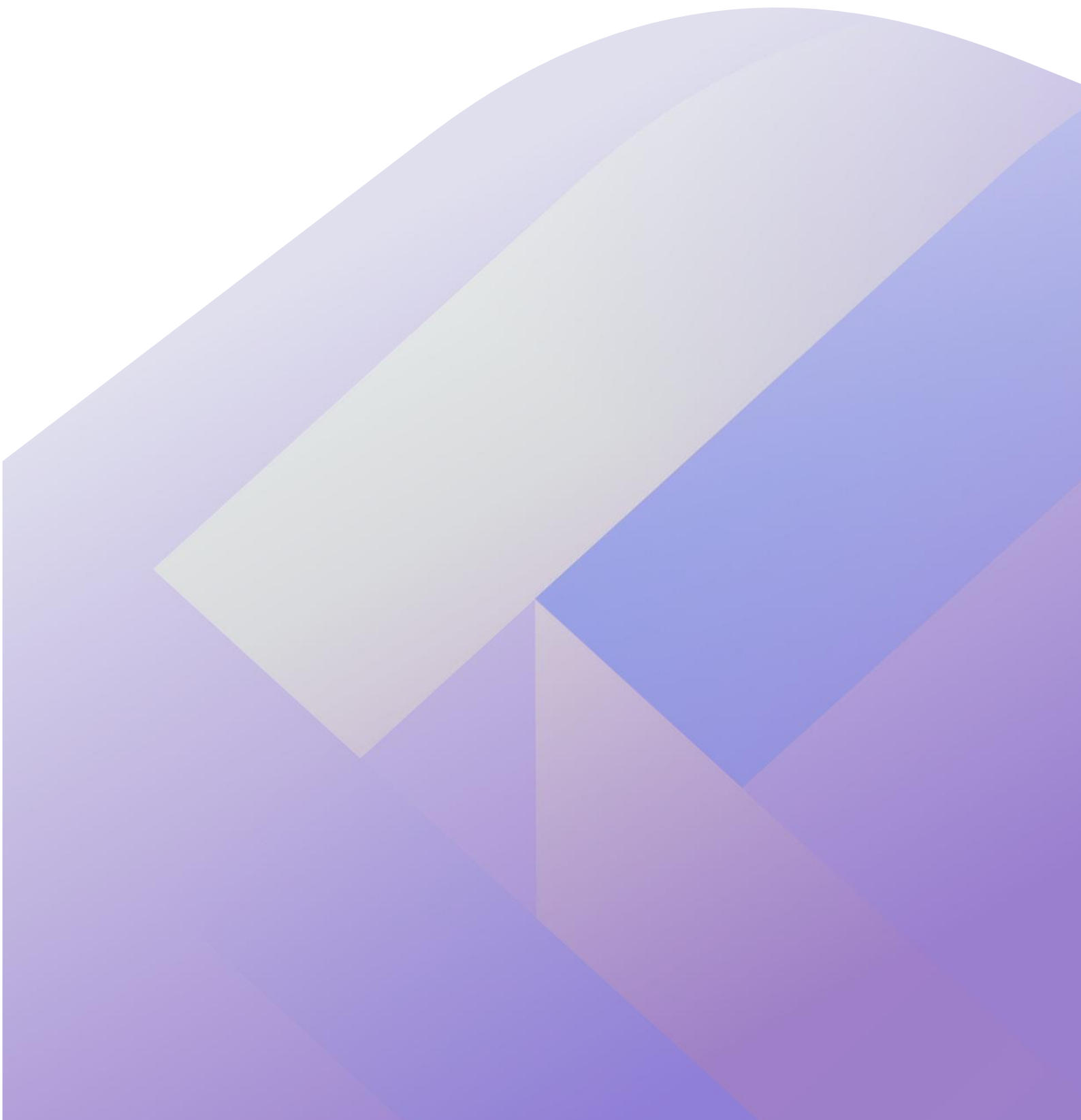


# Final Report

on market outages





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## Acronyms and definitions used

CLOB	Central Limit Order Book
CP	Consultation Paper
CT	Consolidated Tape
DORA	Digital Operational Resilience for the Financial Sector - Regulation (EU) 2022/2554 of the European Parliament and of the Council
EEA	European Economic Area
EU	European Union
ESMA	European Securities and Markets Authority
MiFID II	Markets in Financial Instruments Directive (recast) – Directive 2014/65 of the European Parliament and of the Council
MRMTL	Most Relevant Market in Terms of Liquidity
MTF	Multilateral Trading Facility
NCA	National Competent Authority
OTC	Over the Counter
OTF	Organised Trading Facility
RFQ	Request for Quote
RPW	Reference Price Waiver
RTS	Regulatory Technical Standard
SI	Systematic Internaliser
VWAP	Volume-weighted average price

# 1 Executive Summary

## Reasons for publication

ESMA published a review report on algorithmic trading<sup>1</sup> on 28 September 2021 where it committed to provide guidance on how trading venues should communicate with market participants in case of an outage. As such, on 22 September 2022 ESMA published a consultation paper (CP) on its proposed guidance on market outages<sup>2</sup>.

This final report contains ESMA feedback to the responses received to the CP and includes the final ESMA opinion to NCAs on market outages.

## Contents

This final report presents ESMA's opinion on market outages following the feedback received by stakeholders to the CP. The opinion sets out ESMA's expectations on how National Competent Authorities (NCA) should ensure that trading venues have appropriate communication protocols in place, which arrangements should be in place to avoid an outage affecting the closing auction and how trading venues should ensure the market is provided with an official closing price.

Section 2 and 3 provide a brief introduction and set out the legal background. Section 4 highlights the importance for trading venues to have an appropriate outage plan, setting out ESMA's expectations on how NCAs should require trading venues to communicate appropriately with their members and participants (and the public) and which steps should be taken to reopen trading in an orderly fashion.

Section 5 and 6 explore how trading venues should deal with the case of an outage affecting the closing auction and whether the lack of a reference price can be considered an issue in the context of an outage.

Finally, section 7 provides considerations on non-equity instruments, in particular derivatives markets.

The final ESMA opinion is provided in the Annex to this final report.

## Next Steps

This opinion provides guidance on the requirements that NCAs should require trading venues to have in place to deal with market outages events. ESMA expects that, considering the guidance provided in this opinion, NCAs should ensure that trading venues have in place an appropriate outage plan ready to be deployed in case of an outage.

## 2 Introduction

1. On 26 September 2022, ESMA published a consultation paper (CP) on its proposed guidance on market outages. The CP set out ESMA's expectations on how trading venues should communicate with market participants in case of an outage. The CP also considered that trading venues should do their utmost to ensure continuity of trading during normal trading hours and, more importantly, ensure to the extent possible that an outage does not affect the closing auction. Nevertheless, should the outage prevent the trading venue from running the closing auction, ESMA also proposes guidance on how trading venues should act in these circumstances to ensure the market is provided with an official closing price.
2. ESMA received 29 responses to the consultation from a wide range of stakeholders. The final report presents the final approach which takes into account the responses received to the CP and includes the final ESMA guidance in the form of an ESMA opinion.

## 3 Legal Framework

3. The legal framework set out in Directive 2014/65/EU on markets in financial instruments (MiFID II)<sup>3</sup> includes requirements for regulated markets relating to systems resilience, circuit breakers and electronic trading which are set out in Article 48 of MiFID II. The same requirements apply to multilateral trading facilities (MTFs) and organised trading facilities (OTFs) by virtue of Article 18(5) of MiFID II.
4. Article 48(1) requires trading venues to ensure their systems are resilient, have sufficient capacity and are able to ensure orderly trading under conditions of market stress. Furthermore, these systems need to be fully tested and subject to business continuity arrangements.
5. Commission Delegated Regulation 2017/584 (RTS 7)<sup>4</sup> further specifies organisational requirements to ensure trading venues' systems are resilient and have adequate capacity. The requirements embedded in RTS 7 should also be considered when assessing trading venues' procedures to deal with market outages, in particular in terms of business continuity arrangements. Trading venues should notably have in place business continuity arrangements and plans which should be reviewed periodically (Articles 15, 16 and 17 of RTS 7). The guidance set out in the ESMA opinion is without prejudice to such requirements.
6. Articles 31 and 54 of MiFID II require trading venues to maintain effective arrangements and procedures for the monitoring of their members and participants' compliance with

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<sup>1</sup> [esma70-156-4572\\_mifid\\_ii\\_final\\_report\\_on\\_algorithmic\\_trading.pdf \(europa.eu\)](#)

<sup>2</sup> [esma70-156-6040\\_consultation\\_paper\\_on\\_market\\_outages.pdf \(europa.eu\)](#)

<sup>3</sup> Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (OJ L 173, 12.6.2014, p. 349).

<sup>4</sup> Commission Delegated Regulation (EU) 2017/584 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying organisational requirements of trading venues

their rules. The monitoring should be able to identify, among other things, system disruptions in relation to a financial instrument.

7. Articles 31(2) and 54(2) of MiFID II sets out the requirement for trading venues to immediately inform their national competent authority (NCA) of “*significant infringements of [their] rules or disorderly trading conditions or conduct that may indicate behaviour that is prohibited under Regulation (EU) No 596/2014<sup>5</sup> or system disruptions in relation to a financial instrument*”. Pursuant to the same provisions, the NCA contacted should in turn communicate to ESMA and to the other NCAs the information received by the market operator.
8. Article 81 of Commission Delegated Regulation (EU) 2017/565<sup>6</sup> further clarifies the circumstances in which a trading venue is bound by the requirement to immediately inform its NCA of system disruptions in relation to a financial instrument. The list of such circumstances is detailed in Section A of Annex III of the same Commission Delegated Regulation.
9. Furthermore, Article 81(2) of Commission Delegated Regulation (EU) 2017/565 narrows the requirement to provide information only to such cases where “*significant events which have the potential to jeopardise the role and function of trading venues as part of the financial market infrastructure*” take place.
10. Despite the above MiFID II provisions including requirements on how trading venues should communicate system disruptions to their NCAs, they do not set out any conditions or requirements as to how trading venues should communicate to their members and participants<sup>7</sup> (and the public) in the case of an outage. The absence of such requirements results in very divergent approaches of trading venues and, at least at times, leads to insufficient information being disclosed to members and participants, and the public. ESMA hence deems it necessary to provide guidance, via an ESMA opinion, on the steps trading venues should take to improve communication in the event of an outage that affects their market.

## 4 Communication Protocol

11. The volatility experienced in the past few years has not led to significant disruptions for European Union (EU), including the European Economic Area (EEA), trading venues. Instead, recent market outage events have been linked to trading venues’ own systems rather than these periods of high volatility. While trading venues have become

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<sup>5</sup> Regulation (EU) No 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC (OJ L 173, 12.6.2014, p. 1).

<sup>6</sup> Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive

<sup>7</sup> In the context of this guidance the term “members and participants” also include “clients” for the purposes of OTFs.



increasingly resilient in the past few years, outages still occur and can have a detrimental effect on the smooth functioning of markets.

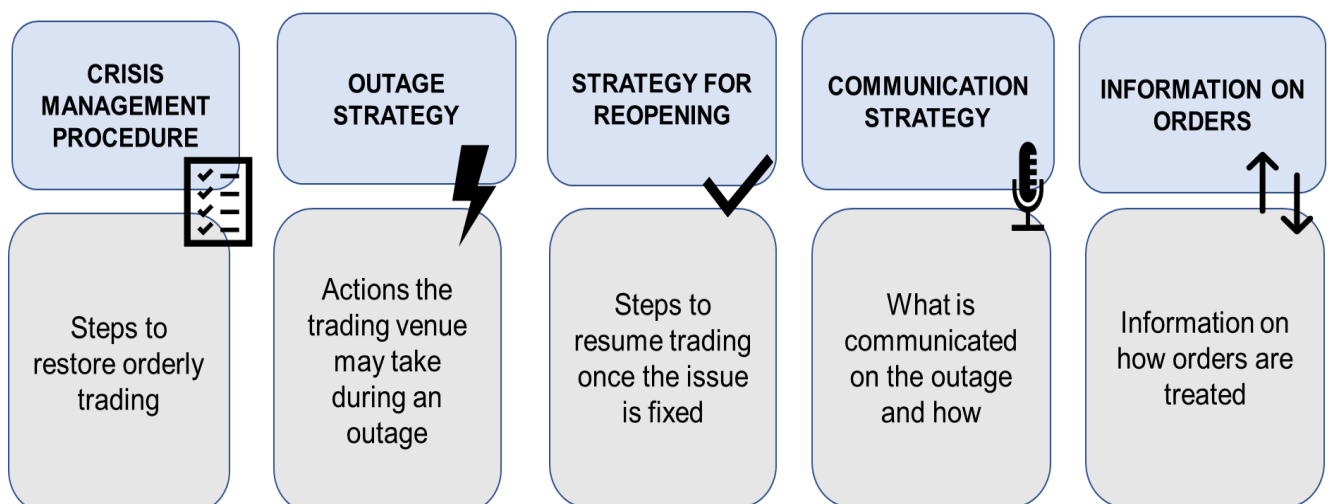
12. It is hence important that trading venues and NCAs continue their efforts to prevent market outages, including with respect to testing and business continuity plans. Despite such efforts, outages are likely to continue occurring. It is therefore important to provide guidance on how outages should be managed. Notably, appropriate communication of an outage that occurs in the primary market, i.e. the main market of the instrument, can limit the detrimental effects on other trading venues, either trading the same instrument or related instruments.
13. The ESMA report on algorithmic trading noted that an outage in the main market impacts the trading activity on other trading venues. In fact, data show that when the main market is down, trading on alternative lit venues also drops in the same proportion as that on the main market, even though these alternative venues could be used to ensure continuity of trading. ESMA identified that miscommunication between trading venues and market participants contributed decisively to this as it created uncertainty about order status on the main market and at which time trading would be resumed.
14. Similarly, miscommunication is equally perceived to be an issue on MTFs and OTFs, as the consequent uncertainty impedes MTF and OTF members and participants to carry out their activity. Therefore, the ESMA guidance focuses on providing NCAs with a clear outline of how trading venues should communicate during an outage.

#### **4.1 The outage plan**

15. The CP set out ESMA's expectations on how NCAs should ensure an appropriate framework is in place to deal with potential outage events and considered that NCAs should require trading venues to have in place a clear outage plan to be deployed in case of an outage.
16. The outage plan should always be deployed during an outage, regardless of its gravity. It should ensure that appropriate and proportionate actions are deployed by the trading venue, according to the reality of the disruption at hand.
17. The outage plan should set out all the steps that will be undertaken by the trading venue to restore orderly trading in case of an outage ('crisis management procedure'). The crisis management procedure should indicate for each step when it needs to be performed and the person/function within the trading venue responsible for its execution.
18. The CP also considered that the outage plan should describe all the actions that the trading venue may take during an outage, as well as any alternative arrangement foreseen for such circumstance ('the outage strategy').

19. The outage plan should clearly describe the trading venues' strategy for reopening, detailing the steps the trading venue will undertake for the resumption of trading once the issue causing the outage has been fixed.
20. In addition, the outage plan should identify how information on outages is communicated (for example via the trading venue website) and what information is to be included in the communication. It should also set out clear procedures on how to treat incoming and existing orders, including defined procedures on trade / order cancellations.
21. The outage plan and any following amendments should be made available to members and participants of the trading venue. In exceptional circumstances, the trading venue may need to change its outage plan at the time of a disruption in order to better address the current outage. In this case, trading venues should communicate immediately to all market participants. The outage plan, and any amendments, should always be made available to the respective NCAs, and the public via the trading venues' public website.
22. NCAs should ensure that trading venues regularly and at least every two years review, test and update the outage plan, to ensure those are always up-to-date and adapted to all possible circumstances.
23. Finally, ESMA considered it as a good practice to include, at a minimum, the principles on which the outage plan is based or a summary of it in the trading venues' rulebook. In any case, NCAs should require trading venues to ensure consistency between the outage plan and the content of the trading venues' rulebook.

**FIGURE 1: CONTENT OF THE OUTAGE PLAN**



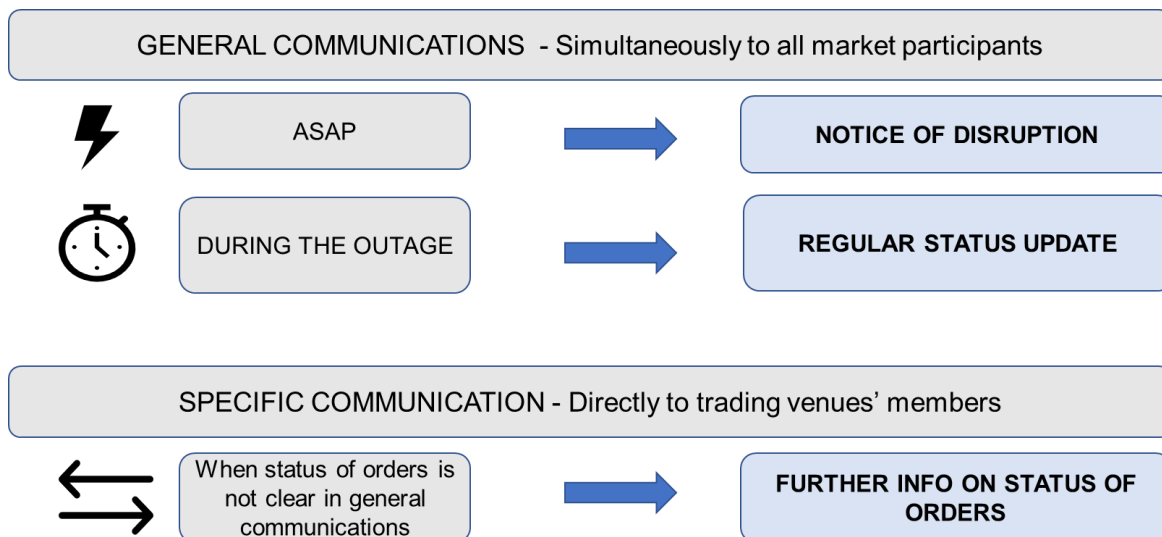
## 4.2 Communication during an outage event

### 4.2.1 Proposal in the CP

24. NCAs should ensure that trading venues provide all market participants (i.e. not only its members and participants but also the public) with a notice of disruption as soon as possible.
25. This notice of disruption should occur via any means which enables the trading venue to communicate simultaneously to market participants. In any case, the notice of disruption should also be published on the trading venue's public website and include a dedicated contact line or person at the affected trading venue allowing market participants to ask questions and share information relating to the on-going outage.
26. NCA should ensure that, following the initial notice of disruption, trading venues provide regular status updates on the outage to all market participants at a fixed time interval (for example every 30 minutes). The frequency of the updates should be specified in the trading venues' outage plan, and the updates should allow for the market participants to follow the development of the situation as closely as possible to real time. The update should be provided even if there are no changes to the information previously provided and indicate the time of publication.
27. NCAs should require trading venues to communicate the anticipated time of resumption in the first available update and, where possible, in the notice of disruption the nature of the outage to the extent possible.
28. The communication from the trading venues should indicate where the whole outage plan can be consulted, highlighting where information on reopening can be found (e.g. by making references to the relevant part of the outage plan). In the exceptional case where any changes had to be made to the outage plan previously published, in order to adapt to the current outage, NCAs should require trading venues to inform market participants accordingly, indicating why a divergence from the outage plan was necessary.
29. Information on the status of submitted orders is crucial to enable market participants to continue trading on alternative venues. Furthermore, where cancellation of orders is still possible (e.g. transactions not already executed), some market participants may find cancellation of orders useful.
30. Therefore, NCAs should require trading venues to:
  - a. indicate which orders were affected making reference where possible to the time when orders were submitted.
  - b. Indicate which orders were cancelled / executed and provide clear procedures for validating cancellations, in case validations are needed by participants.

- c. Indicate whether orders sent during an outage were accepted or rejected in accordance with the procedures defined by the trading venue.
  - d. Where the integrity of the orders has been largely compromised, offer trading participants the removal of all orders from the order book (order book purge).
31. Information on the status of orders should be provided to members and participants as soon as possible and at the latest within one hour from the notice of disruption. Such communication should be provided in a machine-readable format, so that trading systems can automatically include these notifications.
  32. Where it is not possible to communicate the status of orders directly from the updates published, NCAs should require trading venues to communicate directly with their members and participants to ensure clarity on each order.
  33. The CP requested feedback from respondents as to whether the main communication principles have been correctly identified and whether ESMA should develop a template to facilitate the communication between the trading venues and the market.
  34. In addition, respondents were invited to share their views on how trading venues should provide clarity on the status of the orders, including what is the most appropriate timeframe. The CP also requested feedback on whether trading venues should offer an order book purge.

**FIGURE 2: COMMUNICATIONS – TYPES**



#### 4.2.2 Feedback received to the consultation

##### *Communications principles*

35. Respondents almost unanimously supported the principles set forth by ESMA in respect to outage communications in the CP. The only respondent expressing disagreement with the guidance limited his standpoint to fixed income trading venues. Among the favourable respondents, some suggested a more stringent approach, whereas others recommended to take a high level and principle-based approach.
36. Respondents asking for a more stringent approach highlighted that this would ensure consistency in the application of the guidance. Some others suggested including closer scrutiny of NCAs on each trading venue outage plan, more granular information on what the outage notification should include and require the post-mortem exercise (as indicated in section 4.3) to be available not only to regulators but also to the public.
37. Those respondents suggesting a principle-based approach (mainly trading venues) argued that every trading system is different, and therefore flexibility is necessary to ensure trading venues can resolve incidents and tailor communications in the most effective manner.
38. Trading venues considered that a communication to all market participants may create some confusion to those members not affected by the outage and suggested to limit communications only to a specific group of market participants, a specific market segment or a specific contract.
39. These respondents also pointed out that there is an industry standard protocol on outages in equity markets, whose principles are already adhered to by the largest trading venues in the EU. Considering the existence of this protocol, these respondents did not consider guidance additional to the principles set forth therein is necessary.
40. Some trading venues also recalled that IT incidents are covered by Article 14 of the Regulation (EU) 2022/2554 on digital operational resilience for the financial sector<sup>8</sup> (DORA) and call for any new measure to be consistent with the new upcoming framework.
41. Some respondents suggested to extend the communication principles to systematic internalisers (SIs), considering they perform the same activity as regulated markets and MTFs, and to ensure market participants are equally informed.
42. Few respondents advised ESMA to define “outages” to differentiate between prolonged outages and minor disruptions which do not result in the trading interruption. This would in their view avoid a procedure to be triggered in case of limited duration, and overall better define the scope of the guidance.

### Template

43. Most respondents were not favourable to the adoption of a template and considered the proposed ESMA guidance already provides sufficient information to market participants in

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<sup>8</sup> Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011 (OJ L 333, 27.12.2023, p. 1).

case of an outage and consider that trading venues should retain sufficient flexibility to tailor the content of their communication.

44. Only a few respondents were favourable to the template and recognised that this tool could enhance harmonisation, while acknowledging that a minimum level of flexibility should remain.

Information on the status of the orders

45. The vast majority of the respondents considered that a one-hour time frame to provide clarity on the status of the order is too long and thus not fit for purpose. Only a small number of respondents considered the one-hour time frame to be adequate but highlighted the importance of receiving the information on the status of the order as soon as possible.
46. These respondents urged that this information should be provided as soon as possible, and in any case in less than one hour to enable market participants to move to alternative venues.
47. The time limit of one hour does not provide an incentive for trading venues to deliver this information quickly and, on the contrary, may invite trading venues to delay the communication until the expiration of the hour.
48. Some respondents also noted that the status of orders may be deducted from the nature of the incidents and recommended that in those cases trading venues should already include such information in the publication of the notice of disruption.
49. Some respondents had a different view and noted that for severe events, a communication within an hour may not be possible and may even raise the risk to provide incorrect information.

Order book purge

50. The majority of respondents agreed that trading venues could offer an order book purge. In their view, this possibility would give participants more clarity. However, these respondents still stressed that an order book purge is an extreme measure. Therefore, offering an order book purge should be left to the discretion of the trading venue and advised against a systemic or mandatory order book purge.
51. Respondents against the proposal similarly argued that trading venues are best placed to decide on whether or not to put this measure in place, based on the diversity of their technical infrastructure and market models.
52. Some respondents also noted that trading venues already have clear policies in place for orders cancellations, rejections, new orders or removal of existing orders prior to a re-opening. In this respect, it was noted that in case of a continued impossibility to access existing orders, trading venues offer members the possibility to cancel their orders upon request.

### 4.2.3 Conclusion

#### Communication principles

53. Overall, ESMA notes that most respondents, from trading venues as well as their members and participants, broadly agree with the proposed guidance on the outage plan and communication protocols. Moreover, ESMA welcomes the ideas and recommendations to improve the final guidance put forward by respondents.
54. In relation to the **outage plan**, none of the replies disagreed with the proposal in the CP. Therefore, ESMA will keep its recommendation that NCAs ensure trading venues have in place a clear plan to be deployed in case of an outage, as described in the CP. ESMA considers the outage plan should nevertheless provide flexibility for trading venues to tailor it according to the instances at hand and does not intend to describe the content of the outage plan further.
55. ESMA understands the suggestion of clarifying what is meant by “outage” to better define the scope of the outage plan. Nevertheless, ESMA notes that there is currently no legal definition of an outage. Therefore, in order not to artificially limit (or extend) the scope of this guidance ESMA does not intend to provide a definition of an outage. ESMA also notes that the vast majority of respondents did not consider that the introduction of the definition to be an important addition to the guidance.
56. ESMA continues to consider it adequate to update the outage plan every two years to ensure the plan takes into consideration any relevant change occurred at the trading venue.
57. Lastly, ESMA would like to clarify that including a summary of the outage plan on the trading venues’ rule book ensures consistency between the two documents and therefore also kept this proposal.
58. Taking into consideration the **communication during an outage event**, ESMA considers that the positive feedback received provides a solid basis to take the proposal forward. ESMA considers that the proposed guidance leaves sufficient discretion to trading venues to adapt the content of the communications to the case at hand and strikes the right balance between providing full flexibility and a more stringent approach.
59. In this respect, ESMA would like also to clarify that under the guidance trading venues can tailor the content of their communications to the specificities of their systems and remain free to provide any additional information, to liaise directly with their members, or to follow industry standard protocols as far as consistent with the principles introduced in the guidance.
60. However, ESMA recalls that the objective pursued by the guidance is to enable all market participants to be made aware of the outage simultaneously and as soon as possible.



Therefore, ESMA does not consider it appropriate to amend the proposal with respect to the audience of the communications.

61. In relation to where the notice of disruption should be published, ESMA disagrees with the idea to publish only on the trading venue live portal, as this would impede the flow of information to all market participants simultaneously. Nevertheless, the publication on a live portal can be additional to the publication on the website. To avoid conflicting messages, ESMA would suggest NCAs to require trading venues to consider identifying in the communication strategy where the information will be published.
62. In relation to the suggestion to extend the guidance to SIs, ESMA notes that no issues have been raised in respect of market outages affecting SIs. In addition, ESMA notes that the provision on resilience of trading in MiFID II, as identified in section 3, relates only to trading venues.
63. On the suggestion that the guidance should include making the post-mortem exercise public, ESMA provides further reasoning in section 4.3 below.
64. In relation to the interaction between Article 14 of DORA and the guidance proposed, ESMA notes that Article 14 of DORA addresses “communication plans enabling a responsible disclosure of ICT-related incidents”. In particular, the provision requires financial entities to implement communication policies for staff and for external stakeholders.
65. Thus, the scope of DORA covers IT incidents, whereas the guidance proposed by ESMA extends to any outage regardless of the nature of the incident, and thus is broader. Taking into consideration that ICT incidents may be one of the possible causes of an outage (and therefore that some overlaps between DORA and the present guidance may occur), ESMA points out that no element of the proposal is in conflict with the DORA provisions. On the contrary, the proposal is fully in line with Article 14 of DORA which requires financial entities to prepare communication policies for stakeholders.

#### Template

66. ESMA acknowledges that most of the respondents opposed the adoption of a template. Following this indication, ESMA did not introduce any specific form to prescribe how the information requested has to be presented.

#### Information on the status of orders

67. ESMA clarifies that the proposal of the CP requires trading venues to **inform on the status of the orders** as soon as possible, and in any case not beyond the one-hour limit. ESMA expects that the delivery of any information on the status of the orders should occur well before the one-hour limit in most circumstances. Where the information is not immediately available, trading venues should make best efforts to clarify it internally and communicate it within maximum one hour. The proposal does not permit, as some respondents



interpreted, a delay of one hour for the provision of the information when this is already available.

68. ESMA understands stakeholders' concerns that, in some circumstances, a one-hour time limit may be too long but is concerned that setting a more stringent time limit might result in imprecise information being published.
69. Therefore, ESMA emphasises that trading venues should publish all information available on the status of the orders as soon as possible. To this aim, ESMA specifies in the guidance that NCAs should require trading venues to give an indication of which orders may be impacted in their initial outage communication, where this is clear from the outset (e.g. where the outage affects the trading venues' matching engine). Trading venues should then give more exhaustive information on the status of the specific orders as soon as the information is available, and in any case within one-hour.
70. ESMA acknowledges that most of the respondents supported the introduction of an **order book purge** as an extreme measure but stressed that trading venues should be given flexibility on its adoption. Furthermore, trading venues should base their decision on the gravity of the incident, the number of orders affected, as well as technical infrastructure and trading system used.
71. ESMA agrees with this point and the arguments provided. Thus, the guidance recommends that the order book purge is considered by trading venues as one of the possible measures to be inserted in their outage strategy while leaving the deployment of this measure in case of an outage to the discretion of the trading venues, on the base of the circumstances at hand.
72. In summary, ESMA maintains most of its proposal in respect of the outage plan and communications. In addition, according to the feedback received, the guidance:
- expects NCAs to require trading venues to identify in the communication strategy where the information is to be published.
  - Expects NCAs to require trading venues to publish all information available on the status of the orders as soon as possible. This entails (i) specifying in the notice of disruption which orders have been affected, whenever possible, and (ii) adding to this initial communication more exhaustive information on the status of specific orders when it becomes available, and in any case within one hour.
  - Expects NCAs to require trading venues to insert in their outage strategy the order book purge as a possible tool but leave to their discretion on its deployment on a case-by-case basis.

## 4.3 Reopening of trading

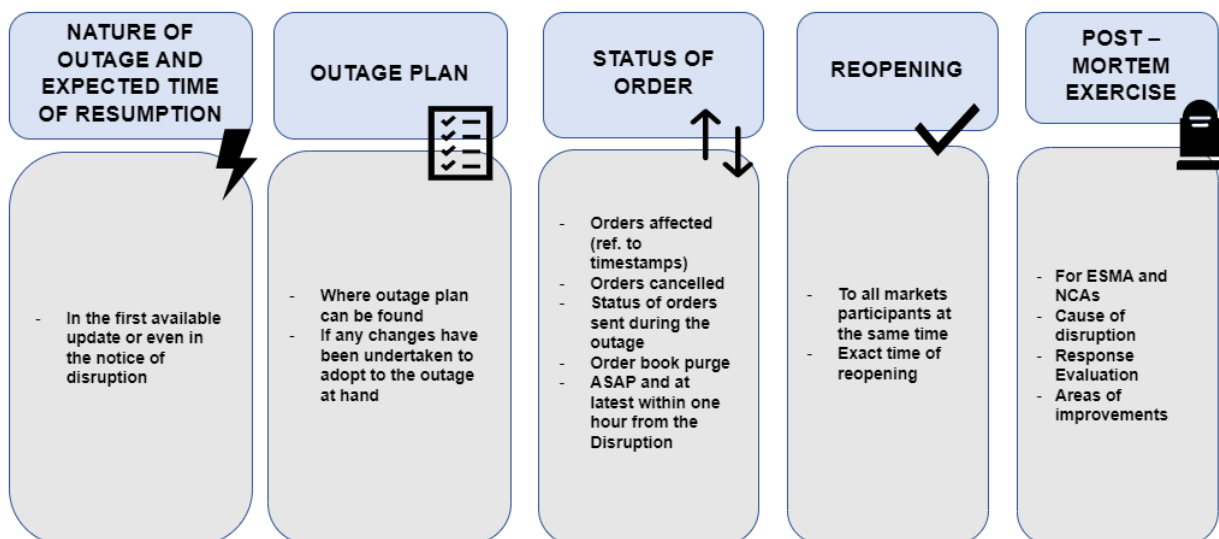
### 4.3.1 Proposal in the CP

73. The CP also introduced considerations on ESMA's expectations on how trading venues should approach the moment where they are ready to reopen trading. In line with the

approach taken at the time of an outage event, once information on reopening is available, it should be communicated to all market participants at the same time and without delay. The information on reopening of trading should be included in the outage status update and should indicate the exact time of reopening. The CP considered that trading venues should ensure a minimum 30-minute notice period is provided.

74. The CP requested stakeholders' feedback on whether to require trading venues that operate a continuous order book model to include a pre-opening phase prior to the resumption of trading.
75. Finally, once the outage event is resolved, the CP considered that trading venues should undertake a post-mortem exercise to understand what caused the disruption, evaluate their response, and identify any potential areas for improvement along with a concrete timeline for remediation and allocation of 'ownership' of the necessary improvements.

**FIGURE 3: COMMUNICATIONS – CONTENT**



#### 4.3.2 Feedback received to the consultation

76. ESMA requested input from respondents with regards to the conditions under which a trading venue should reopen trading following an outage event.
77. The majority of respondents which expressed their view on the conditions for re-opening in general, highlighted that these may vary depending on the outage severity and the trading system employed by the trading venue. It was also stressed that a trading venue should reopen only when able to ensure fair and orderly trading. Thus, these respondents stressed the importance of leaving market operators discretion about the best measure to ensure an orderly reopening of the market.

78. Some respondents favoured a pre-opening phase as this enables them to verify order and cancellation status before continuous trading starts again. On the auction specifically it was noted that (i) this would be particularly suitable in case of market wide outages; and (ii) it would allow for market participants to submit, modify and/or delete orders and optimise the price discovery process by concentrating all trading interests in an organized fashion.
79. Some trading venues, in particular regulated markets, indicated they already have a pre-opening phase in place where no matching occurs, (and/or an auction) in case of outages.
80. Some respondents indicated that if an auction needs to take place, the pre-opening phase should be limited to 15 minutes prior to the scheduled resumption of trading.
81. Some respondents agreed that the time for reopening should be clearly published and accessible to all market participants at least 30 minutes prior to reopening. However, it was noted that this period should be indicative as trading venues should retain the flexibility to reduce this time when the outage had a limited duration. In addition, it may not be appropriate to apply the same timeframe for all instruments.
82. A few respondents also took the opportunity to raise concerns on the obligation to resume trading within 2 hours, as set out in RTS 7, and suggested further consideration on this requirement in light of DORA.
83. Finally, as already indicated in previous feedback, some respondents suggest that the post-mortem exercise should be made public.

#### 4.3.3 Conclusion

84. ESMA acknowledges the importance of leaving the trading venue discretion on how to **reopen trading**, as highlighted in many responses.
85. At the same time, ESMA notes that market participants would welcome a pre-opening phase, subject to the trading venues' discretion in order to facilitate an orderly reopening by permitting the amendment or cancellation of orders before the resumption of trading.
86. In light of the above, ESMA recommends that a pre-opening phase should be considered as a possible course of action in the re-opening strategy of a trading venue while leaving it ultimately to the discretion of the trading venue.
87. In view of the feedback received, ESMA has made adjustments to the **minimum notice period** before resumption of trading.
88. In view of the arguments provided by respondents, ESMA agrees that a 30-minute notice period may be too long in certain circumstances, especially for trading systems other than central limit order books (CLOB), or for those cases where the duration of the outage has been limited.

89. Therefore, for CLOB systems, ESMA amended its guidance to decrease the minimum notice period for re-opening to 15 minutes.
90. In relation to systems other than CLOB, ESMA adjusted its proposal to grant flexibility to trading venues on the minimum notice period. NCAs should ensure trading venues provide market participants with enough time to be ready for the reopening, taking into consideration the outage at hand, the type of the trading system used, the asset classes traded, as well as any other relevant circumstance.
91. Lastly, ESMA took note of the concerns arising in relation to the requirements under RTS 7 to resume trading within 2 hours. ESMA reiterates that the purpose of the present guidance is not to propose any legislative amendments. Any potential change to RTS 7 would be subject to a further ESMA consultation.
92. ESMA disagrees with the proposals of some stakeholders to make the publication of the **post-mortem** exercise public. The objective of such document is to identify areas of improvements for trading venues to avoid future outages and open the dialogue with regulators. The availability of the document only to NCAs and ESMA ensures trading venues provide NCAs with insights which they may be reluctant to publish for confidentiality reasons. Thus, to ensure the utility of the document, ESMA would maintain its initial approach to not request a publication. On the other hand, ESMA understands market participants may be interested in the outcome of the exercise, and therefore it would require the publication from the trading venue of a summary of its findings.

## 5 Closing Auctions

### 5.1 Proposal in the CP

93. The closing price of the trading day is essential for equity markets as it provides the market with a key reference price typically used for the valuation of funds, ETFs and benchmarks. Most times, this closing price is derived from the closing auction. As such, despite the importance of ensuring continuity of trading during normal trading hours, it is even more important to prevent that an outage affects the closing auction of the day.
94. With this objective in mind, the CP considered that NCAs should require trading venues to have clear arrangements in place to ensure the market is provided with a closing price for the day. These arrangements should take particular attention to the eventuality of the trading venue not being able to resume operations in time to hold the closing auction. These arrangements should be clearly specified and communicated to all market participants in the trading venues' outage plan.
95. After many discussions on the topic, including various interaction with stakeholders, the CP did not consider that trading venues should be required to nominate an alternative venue to run the closing auction. Nevertheless, the CP does not preclude a trading venue

from opting for such a solution provided it is clear and transparent to all market participants on its rules and outage policies/procedures' playbook.

96. ESMA considered that in case a closing auction is affected by an outage, other alternatives should also be considered. For example, a trading venue could postpone the closing auction until a later point on the same day or it could use the last traded price as the official closing price. The CP also considered that trading venues should inform market participants on whether they intend to run the closing auction as soon as possible, and in any case at least 30 minutes before the scheduled time.
97. The CP asked market participants for their views on the type of guidance they deem necessary on how to deal with the risk of a trading venue not being able to run their closing auction. ESMA also requested feedback on the need for regulators to mandate an alternative venue, the existence of a cut-off time and the use of the last traded price as the official closing price.

## 5.2 Feedback received to the consultation

98. **General feedback:** Most respondents agreed with ESMA's suggestion that trading venues should have clear arrangements in place to ensure the market is provided with a closing price. Such arrangements should include defined procedures to determine the closing price in the event the market cannot reopen. Some respondents believe there are significant grounds for ESMA to drive industry standardisation of closing price procedures.
99. Overall, market participants agreed that slightly delaying the closing auction would be the preferred course of action. Nevertheless, some respondents cautioned against postponing the closing auction until an unspecified time later in the day. Respondents suggested that the closing auction should occur at a reasonable time to allow the market to close no later than 18:00 CET, for practical reasons related to back-office systems.
100. Regulated markets that provided a view on the type of guidance they deem necessary, noted that most of them already have in place measures that allow them to either use the last traded price as the closing price, or to postpone the auction. These respondents noted that the focus should be on their own resilience and establishing an alternate site recovery.
101. With respect to ESMA's stance on **not mandating trading venues to have an alternative** capable of running the closing auction, the overwhelming majority of respondents agreed with ESMA. The small number of respondents that favour ESMA mandating an alternative venue, recognised the complexity and cost to achieve such an outcome and would prefer alternative solutions.
102. Respondents agreed with ESMA's arguments presented in the CP and added that running such an infrastructure would be very costly for the alternative venue with very limited benefits. In addition, respondents noted that there are significant complexity and operational risks for using an alternative venue at short notice.

103. Nevertheless, a few respondents remarked the significant importance of closing auctions and are of the view that, despite not being mandated, some trading venue may choose to indicate an alternate trading venue if an outage affects their closing auction.
104. There was an overwhelming majority supporting the existence of a **cut-off time** for trading venues to inform market participants on whether or not they intend to hold the closing auction. Respondents considered that it is essential that market participants are given clarity as soon as possible. Those that disagreed with the cut off time considered that the decision should be left at the discretion of the trading venues themselves.
105. Despite most respondents agreeing with the suggested 30 minutes before the normal schedule, some suggested another timing (from as early as two hours before to 20 minutes.)
106. A small number of respondents raised the issue of how to deal with the closing auction if the outage occurs within the cut-off time. Whilst some respondents suggested that the trading venue should automatically pass the responsibility to an alternative trading venue, others considered that it should publish the last traded price as the official closing price.
107. Finally, on whether the publication of the **last traded price** is an appropriate solution, the vast majority of respondents agreed that the last traded price is a solution for those cases where the trading venue cannot run its closing auctions. Nevertheless, respondents were split as to whether the trading venue should publish the last traded price or rather nominate an alternative trading venue to run the auction.
108. Respondents noted that despite agreeing with the last traded price, they do not consider it as a perfect solution (some respondents noting even that it should only be used as a last resort). Respondents consider that a pre-trade consolidated tape (CT) would enhance resilience of markets and provide a more stable benchmark to set a closing price. In their view, the CT would solve the issue of the last trading price potentially being a stale price as it would provide price discovery without interruption. Some industry participants suggest that a potential closing price could be determined using the volume-weighted average price (VWAP) from all venues from across the market around the end of the day. Respondents who were in favour of a pre-trade CTP considered that the last traded price can be a viable solution for the time being, but it should be reviewed as soon as a share CT emerges.
109. Another downside of publishing the last traded price is that it may discourage market participants to move to alternative venues and risk being a stale price.
110. Those respondents who disagreed with the use of the last traded price as an appropriate solution provided some alternatives.
111. Firstly, a respondent considered that to avoid using a stale price that can potentially introduce distortions to the market, a VWAP of the last 10 minutes across all trading venues



that trade the instrument should be used. Nevertheless, the respondent also admits that difficulty with this solution in the absence of a consolidated tape.

112. One of the reasons for respondents to disagree with the use of the last traded price is the consideration that it may cause issues for illiquid instruments as for these instruments there is a greater chance that the fair-trading value has moved considerably. The alternative presented by the respondent is to use a cascading model which considers relevant market conditions and price signals by reference to all liquidity across the market. The exact methodology should be publicly discussed involving trading venues.

## 5.3 Conclusion

113. Considering the feedback received, ESMA kept its approach to require trading venues to have **clear arrangements and procedures** in place to ensure the market is provided with a closing price for the trading day. These should be clearly communicated to all market participants. In addition, the trading venue outage plan should address the potential case where the closing auction is affected.

114. In addition, ESMA reiterates that it is not mandating trading venues to nominate an **alternative venue** to run the closing auctions. Nevertheless, trading venues should have the flexibility to, voluntarily, nominate an alternative venue to run its closing auction.

115. Finally, trading venues should be able to **postpone the closing auction**. To this aim, trading venues should set a time limit after which the closing auction should not be held (for example after 6pm) and should have clear procedures to set an official closing price for the day.

116. Trading venues should inform their members as soon as possible of their intention to postpone the closing auction and give sufficient time for members to prepare. Considering the feedback received, ESMA considers 30 minutes as an appropriate notice period.

117. Therefore, as an example, if the trading venue sets out a cut-off time of 6pm, then the guidance sets out that the latest time they can inform their participants that the closing auction will occur is 5.30pm.

118. ESMA is following the developments in the context of the MiFIR review very closely, in particular the discussions around a potential shares pre-trade consolidated tape and will review this guidance if it deems appropriate.

## 6 Reference Price

### 6.1 Proposal in the CP

119. The CP noted that in the context of the reference price waiver (RPW) the current regulatory framework under MiFIR does not allow market participants to derive the

reference price from a source other than the trading venue where the financial instrument was first admitted to trading or the most relevant market in terms of liquidity (MRMTL). ESMA also pointed out its intention not to provide any guidance at this stage. Nevertheless, it requested feedback from market participants on whether the lack of a reference price could be an issue in the context of an outage.

## 6.2 Feedback received to the consultation

120. Respondents had split views on whether the lack of a reference price is an issue in the context of an outage. On one side, responses from regulated markets considered that the last traded price should be used as the reference price in case of an outage, hence this should not be an issue. These respondents considered that the essential point is to ensure a strong operational framework to prevent outages to happen in the first place, alongside with working to minimise any impacts, and establishing the last traded price as a backup referencing point.
121. On the other side, other market participants saw the lack of a reference price as an issue in the context of an outage. Some respondents considered that in an outage situation, there is an issue with the definition of the MRMTL and proposed to move back to the status quo prior to MiFID II, i.e. the reference price should be a price that is widely published and is regarded generally by market participants as a reliable reference price.
122. Respondents also warned that if an outage were to occur in the main market, all activity under the RPW would cease. A number of respondents considered that, more broadly, reference price books should be allowed to operate on the basis of prices from any alternative trading venues and not only the MRMTL.
123. In addition, most respondents who considered the lack of reference price to be an issue are of the view that the emergence of a pre-trade consolidated tape would allow market participants to derive a reference price at any time. Those respondents considered that the introduction of a consolidated tape would allow market participants to calculate a midpoint reference price based on bids and offers from all trading venues (and OTC) at any point in time.
124. Finally, some respondents considered that the over reliance on the listing market and the MRMTL exacerbate the risk of a single point of failure.

## 6.3 Conclusion

125. ESMA welcomes the feedback received in relation to the lack of a reference price in the context of an auction. ESMA highlights that the current legislative framework under MiFIR does not allow trading functionalities operating under the RPW to continue trading instruments whose reference price derives from a trading venue subject to an outage.



126. Should the ongoing MiFIR review result in amendments to the legal framework for the RPW, ESMA may adapt this guidance if it deems appropriate and/or if mandated by the legislative amendments.
127. As such, in this context ESMA reiterates the necessity for trading venues to have in place the appropriate mechanism, clearly defined on their outage plan, to provide the market with a closing price.

## **7 Outages on non-equity trading venues**

### **7.1 Proposal in the CP**

128. Whilst noting that outage events have more relevance with respect to equity instruments and noting that non-equity instruments trading appears less affected by an outage, the CP considered that the guidance on communication of outages should be extended to all trading venues, regardless of the instruments traded.
129. ESMA considered in the CP that equal expectations on outages communication from all types of trading venues would ultimately contribute to the creation of a level playing field among the different platforms and noted that improved communication during outages occurring on trading venues would enable market participants to more promptly take the necessary arrangements to continue their trading.
130. Nevertheless, in the CP ESMA considered that some of the guidance applicable to equity markets could be less relevant to non-equity trading venues. Specifically, the CP considered that the publication of order information (as of paragraphs 37-39 of the CP) seems less important for those trading venues that do not use central limit order books (CLOB) and may create an unnecessary burden. Thus, in the CP ESMA suggests limiting this publication to trading venues offering a CLOB.
131. The CP also requested feedback from market participants on whether there was any issue relating to trading of non-equity instruments that should be taken into account in the guidance. In addition, ESMA was interested in respondents' views on the direct link between an outage on an equity main market and those derivatives that have these instruments as underlyings.

### **7.2 Feedback received to the consultation**

132. The approach proposed by ESMA to extend the guidance to all types of trading venues, regardless of the instrument traded, received broad support. The majority of stakeholders believed that the guidance on communication around outages should not be limited to equity instruments but should be extended to trading venues focusing on non-equity instruments. Respondents considered that having a clear communication protocol in case of an outage is of benefit to all market participants.

133. Nevertheless, a few respondents argued that it does not appear appropriate or necessary to apply also to non-equity instruments the current granular requirements on communication around outages, due to the different structure of non-equity markets.
134. In this context, ESMA's proposal to exempt non-equity trading venues that do not provide a central limit order books (CLOB) from the obligations to publish order information, as per paragraphs 37-39 of the CP, received broad support.
135. ESMA asked market participants to illustrate any issue relating to trading of non-equity instruments, in particular bonds and derivatives, that should be taken into account in the case of an outage.
136. No particular issues were reported on bonds, mainly due to the fact that bonds are largely traded OTC. However, some respondents highlighted that for RFQ based trading venues the requirement for a minimum of 30 minutes notice prior to a venue reopening after a market outage may be excessive. Those respondents considered that the levels of technical complexity employed by third party applications in the transmission and management of request for quotes and quotes to the RFQ trading venue are typically lower than that of those connected to and managing execution in a CLOB. Market participants therefore suggested that a minimum notice period before market reopening of 10 minutes would be more appropriate.
137. For derivatives markets, several respondents pointed out the importance of having general principles for the daily settlement prices, depending on the underlying assets of the contract and on whether there are deviations from the usual settlement price procedure in case of an outage. Many respondents considered that ESMA should provide guidance on the official and alternative closing price, while some others were of the view that, if the opening or closing auction of the underlying instrument cannot take place for the trading session, the relevant daily settlement price should be calculated according to the methodology defined by the trading venue for each derivative contract.
138. ESMA sought feedback in the consultation on the impact of an outage on an equity main market on markets trading derivatives with these equity instruments as an underlying. The majority of respondents confirmed that there is a direct link and reported that when the equity market is affected by an outage, the market of the related derivative instrument is suspended too.
139. Respondents explained that trading of derivatives is commonly halted by the trading venues if the underlying assets are halted by an outage on the equity main market, since such market is the main hedging source. In fact, it has been reported that, if there are no hedging instruments available, the outage (in particular if it occurs on expiration days) will have a strong negative impact on the turnover for these derivatives.
140. In light of this, several respondents are of the view that the resumption of trading should be coordinated with the resumption of the underlying contracts.

141. Some other respondents had the opposite view and considered that there is no implicit link between trading a derivative and the availability of its underlying. These respondents reported that any direct link or connection that exists is dependent on several factors, including the type of derivative contract, whether the underlying instrument is listed on multiple exchanges and the nature of the outage. Hence, these respondents did not see the need to coordinate the trading phases between a derivative product and its underlying. In their view, market participants should retain the choice of trading the derivative instruments whether the underlying instruments are impacted by an outage.

### 7.3 Conclusion

142. ESMA welcomes the feedback received which allowed to compile a clearer picture of how outages affect non-equity trading venues.

143. ESMA welcomes the support from stakeholders to **apply the same principles on communication** around outages to non-equity markets and to exempt non-equity trading venues that do not use the CLOB from certain obligation to publish order information.

144. ESMA took note of the direct link between an outage on equity markets and the outage on the market of the related derivative instrument. Therefore, ESMA considers it useful to include in the guidance the requirement for trading venues which trade instruments (e.g. derivatives) that may be directly affected by outages on main markets to also include in their outage plan how they intend to deal when an outage affects the main markets.

145. ESMA noted the remarks made by some respondents concerning RFQ trading venues. In this regard, ESMA agrees with respondents and considers that the time of 30 minutes to reopen the market may be too long for systems other than CLOBs. In this context, ESMA reiterates the remarks made above<sup>9</sup> to grant flexibility to trading venues on the minimum notice period.

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<sup>9</sup> Please see paragraphs 99 – 102.

## 8 Annex

### 8.1 Opinion on market outages

#### OPINION

##### On market outages

#### 1 Legal basis

1. ESMA's competence to deliver an opinion to national competent authorities (NCAs) is based on Article 29(1)(a) of Regulation (EC) No 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority)<sup>10</sup> (ESMA Regulation).
2. Pursuant to Article 29(1)(a) of the ESMA Regulation, ESMA shall provide opinions to NCAs for the purpose of building a common Union supervisory culture and consistent supervisory practices, as well as ensuring uniform procedures and consistent approaches throughout the Union.
3. In accordance with Article 44(1) of the ESMA Regulation the Board of Supervisors has adopted this opinion.

#### 2 Background

4. The MiFID II framework includes requirements for regulated markets relating to systems resilience, circuit breakers and electronic trading which are set out in Article 48 of Directive 2014/65/EU (MiFID II). The same requirements apply to multilateral trading facilities (MTF) and organised trading facilities (OTF) by virtue of Article 18(5) of MiFID II.
5. In particular, Article 48(1) of MiFID II requires trading venues to ensure their systems are resilient, have sufficient capacity and are able to ensure orderly trading under conditions of market stress. Furthermore, these systems need to be fully tested and subject to business continuity arrangements.
6. Commission Delegated Regulation 2017/584 (RTS 7)<sup>11</sup> further specifies the organisational requirements to ensure trading venues' systems are resilient and have adequate capacity. The requirements embedded in RTS 7 should also be taken into account when assessing trading venues' procedures to deal with market outages, in particular in terms of business continuity arrangements. Trading venues should notably have in place business continuity

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<sup>10</sup> Regulation (EU) 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC (OJ L 331, 15. 12.2010, p. 84).

<sup>11</sup> Commission Delegated Regulation (EU) 2017/584 of 14 July 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council with regard to regulatory technical standards specifying organisational requirements of trading venues

arrangements and plans which should be reviewed periodically (Articles 15, 16 and 17 of RTS 7). The guidance set out below is without prejudice to such requirements.

7. Articles 31 and 54 of MiFID II require trading venues to maintain effective arrangements and procedures for the monitoring of their members and participants' compliance with their rules. The monitoring should be able to identify, among other things, system disruptions in relation to a financial instrument. Trading venues should deploy the resource necessary to ensure that such monitoring is effective.
8. Article 54(2) of MiFID II sets out the requirement for regulated markets to immediately inform their NCA of "significant infringements of [their] rules or disorderly trading conditions or conduct that may indicate behaviour that is prohibited under Regulation (EU) No 596/2014 or system disruptions in relation to a financial instrument". Pursuant to the same provision, the NCA contacted shall in turn communicate to ESMA and to the other NCAs the information received by the market operator.
9. Article 31(2) of MiFID II sets out identical obligations for investment firms operating an MTF or an OTF and the NCAs receiving the relevant information.
10. Article 81 of Commission Delegated Regulation (EU) 2017/565<sup>12</sup> further clarifies the circumstances in which a trading venue is bound by the requirement to immediately inform its NCA of system disruptions in relation to a financial instrument. The list of such circumstances is detailed in Section A of Annex III of the same Commission Delegated Regulation.
11. Furthermore, Article 81(2) of Commission Delegated Regulation (EU) 2017/565 narrows the requirement to provide information only to such cases where "significant events which have the potential to jeopardise the role and function of trading venues as part of the financial market infrastructure" take place.
12. Whilst MiFID II includes provisions on how trading venues should communicate system disruptions to their NCAs, the framework does not set out any conditions or requirements as to how trading venues should communicate with their members and participants<sup>13</sup> (and the public) in case of an outage. The absence of such requirements results in very divergent approaches of trading venues and, at least at times, insufficient information being disclosed to members and participants, and the public. ESMA hence deems it necessary to publish this opinion providing guidance for NCAs on which steps they should require trading venues to take to improve the communication in the event of an outage that affects their market.

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<sup>12</sup> Commission Delegated Regulation (EU) 2017/565 of 25 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council as regards organisational requirements and operating conditions for investment firms and defined terms for the purposes of that Directive

<sup>13</sup> In the context of this guidance the term "members and participants" also include "clients" for the purposes of OTFs.

## 3 Opinion

### 3.1 Communication protocols

#### The outage plan

13. As part of the trading venues' obligations under Article 16 of RTS 7, NCAs should ensure that trading venues have in place a clear outage plan to be deployed in the case of an outage.
14. The outage plan should always be deployed during an outage, regardless of the gravity of the outage. It should ensure that appropriate and proportionate actions are deployed by the trading venue, according to the reality of the disruption at hand.
15. The outage plan should set out all the steps that will be undertaken to restore an orderly trading in case of an outage ('crisis management procedure'). The crisis management procedure should indicate for each step when it needs to be performed and the person/function within the trading venue responsible for it.
16. With the aim of clarifying what procedures should be followed in case of an outage, as required by Article 16(1)(b), ESMA suggests that NCAs should ensure that the outage plan describes all the actions that the trading venue may take during an outage, as well as any alternative arrangement foreseen for such circumstance ('the outage strategy').
17. The outage plan should clearly describe the trading venue's strategy for reopening, detailing the steps the trading venue will undertake for the resumption of trading once the issue causing the outage has been fixed.
18. In addition, the outage plan should identify how information on outages is communicated (for example via the trading venue website) and what information is to be included in the communication. Furthermore, it is important to clarify how trading venues should treat incoming and existing orders, including defined procedures on trade / order cancellations.
19. The outage plan and any following amendments should be made available to members and participants of the trading venue, their respective NCAs, and the public via the trading venues' public website. In exceptional circumstances, the trading venue may need to change its outage plan at the time of a disruption in order to better address the current outage. In this case, trading venues should also communicate immediately to all market participants.
20. In line with the requirement to periodically review their business continuity arrangements, as per Article 17 of RTS 7, ESMA suggests that NCAs ensure that trading venues review, test and update the outage plan at least every two years, to ensure those are always up-to-date and adapted to all possible circumstances.
21. Finally, ESMA sees it as a good practice to include at least the principles on which the outage plan is based or a summary of it in the trading venues' rulebook. In any case, NCAs should require trading venues to ensure consistency between the outage plan and the content of the trading venues' rulebook.

## Communication during an outage event

22. In accordance with the provisions under RTS 7, in particular with relations to the procedures to be followed in case of a disruptive event, NCAs should ensure that trading venues provide all market participants (i.e. not only its members and participants but also the general public) with a notice of disruption as soon as possible.
23. This notice of disruption should occur via any means which enables the trading venue to communicate simultaneously to market participants. In any case, the notice of disruption should also be published on the trading venue's public website and include a dedicated contact line or person at the affected trading venue allowing market participants to ask questions and share information relating to the on-going outage. The means by which the trading venue communicates to market participants should be clearly stated in the outage plan.
24. NCAs should ensure that, following the initial notice of disruption, trading venues provide regular status updates on the outage to all market participants at fixed time intervals (for example every 30 minutes). The frequency of the updates should be specified in the trading venue's outage plan, and it should permit to follow the development of the situation as closely as possible to real time. The update should be provided even if there are no changes to the information previously provided and indicate the time of publication.
25. NCAs should require trading venues to communicate in the first available update and, where possible, in the notice of disruption the nature of the outage and, to the extent possible, the anticipated time of resumption.
26. The communication from the trading venues should indicate where the whole outage plan can be consulted, highlighting where information on reopening can be found (e.g. by making reference to the relevant part of the outage plan).
27. Information on the status of submitted orders is crucial to enable market participants to continue trading on alternative venues.
28. Furthermore, where cancellation of orders is still possible (e.g. transactions not already executed), some market participants may find cancellation of orders useful.
29. Therefore, NCAs should require trading venues to:
  - indicate which orders were affected making reference where possible to the time when orders were submitted.
  - Indicate which orders were cancelled / executed and provide clear procedures for validating cancellations, in case validations are needed by participants.
  - Indicate whether orders sent during an outage were accepted or rejected in accordance with the procedures defined by the trading venue.
  - Where the integrity of the orders has been largely compromised, offer trading participants the removal of all orders from the order book (order book purge).



30. NCAs should require trading venues to provide information on the status of orders to members and participants as soon as possible and ideally within one hour from the notice of disruption. If possible, trading venues should already give an indication of what orders may be impacted in their initial outage communication, where this is clear from the outset (e.g. where the outage affects the trading venues' matching engine). Trading venues should then give more exhaustive information on the status of the specific orders as soon as the information is available and should do their utmost to provide that information as soon as possible and preferably within one hour.
31. ESMA suggests that the communication on the status of the orders should be provided in a machine-readable format, so that trading systems can automatically include these notifications.
32. Where it is not possible to communicate the status of orders directly from the updates published, NCAs should require trading venues to communicate directly with their members and participants to ensure clarity on each order.
33. NCAs should consider allowing trading venues to offer their members and participants an order book purge in cases where the integrity of the orders has been compromised. Nevertheless, ESMA considers that trading venues should be given the flexibility to use this possibility only where they deem appropriate, based on the gravity of the incident, the number of orders affected, their technical infrastructure and trading system used.

### **Reopening of trading**

34. In line with the approach taken at the time of an outage event, once information on reopening is available, NCAs should require trading venues to communicate the approach to all market participants at the same time and without delay, via the same means as the initial communication.
35. NCAs should also require trading venues to include the information on reopening of trading in one of the outage status updates, indicating the exact time of reopening.
36. NCAs should ensure trading venues provide market participants with enough time to be ready for the reopening, taking into consideration the outage at matter, the type of the trading system used. ESMA considers that, for central limit order book (CLOBs) providing a minimum of 15-minute notice period is appropriate.
37. Finally, once the outage event is resolved, NCAs should ensure that trading venues review their procedures, in line with the requirements under Article 16 of RTS 7, by undertaking a post-mortem exercise to understand what caused the disruption, evaluate their response, and identify any potential areas for improvement along with a concrete timeline for remediation and allocation of 'ownership' of the necessary improvements. The result of this exercise should be communicated to the respective NCA who should subsequently inform ESMA. ESMA suggests trading venues to provide a summary of its findings to the public via their public website.



## 3.2 Closing Auctions

38. Ensuring continuity of trading during normal trading hours is important for the resilience of EU markets, but it is even more important to prevent as much as possible that an outage in the main market affects the closing auction of the day. This could otherwise have a detrimental effect on the price formation process and, more importantly, on the closing price of the trading day, which is a key price reference typically used for the valuation of funds, ETFs and benchmarks.
39. Should the main market not be able to resume operations in time for the closing auction, NCAs should require the trading venue to have clear arrangements in place to ensure the market is provided with a closing price for the day as part of their business continuity obligations under Article 16 of RTS 7. These arrangements should be clearly specified and communicated to all market participants in the trading venues' outage plan.
40. If a trading venue cannot run the closing auction at the scheduled time, NCAs should give them the possibility to postpone the closing auction. However, NCAs should require that such a postponement must be clearly defined ex-ante, i.e. the trading venue should clearly specify in its outage plan in which circumstances this postponement can occur, including a cut-off time.
41. NCAs should require in those cases that trading venues should inform their members as soon as possible of their intention to postpone the closing auction and give sufficient time (for example at least 30 minutes) for members to prepare. Trading venues should set a time limit after which the closing auction should not be held (for example after 6pm<sup>14</sup>) and have clear procedures to set an official closing price for the day.

## 3.4 Outages in non-equity markets

42. Although an outage may not be a major cause of concern for non-equity instruments, equal expectations on outages communication from all types of trading venues would ultimately contribute to the creation of a level playing field among the different platforms. Therefore, NCAs should require trading venues to follow the guidance set out on the communication of outages described in the previous sections.
43. Nevertheless, the obligation to publish order information seems less important for those trading venues that do not use central limit order books (CLOB) and may create an unnecessary burden. Thus, non-equity trading venues do not have to provide information on the status of the orders where those trading venues do not offer a CLOB.
44. For derivatives markets, it seems to be the case that where the cash instrument stops trading, being equity or fixed income, the underlying derivative instrument may stop as well (or vice-versa). Considering such correlation between derivative instrument and their underlying, ESMA expects NCAs to require trading venues which trade instruments (e.g.

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<sup>14</sup> As an example, if the trading venue sets out a cut-off time of 6pm, the latest time they can inform their participants that the closing auction will occur is 5.30pm.

derivatives), that may be directly affected by outages on other trading venues, to include in their outage plan how they intend to deal with an outage that affects their underlying markets.

## **4 Conclusion**

45. This opinion provides guidance on the requirements that NCAs should require trading venues to have in place to deal with market outages events. ESMA expects that, considering the guidance provided in this opinion, NCAs should ensure that trading venues have in place an appropriate outage plan ready to be deployed in case of an outage.
46. ESMA expects that NCAs require trading venues to assess their arrangements and procedures against this opinion and reflect whether any changes should be made.