

Consultation Paper

Anomalous Order Thresholds (AOT) on ASX 24 products

30 May 2025

Invitation to comment

ASX is seeking submissions in response to this consultation paper by 30 June 2025

Submissions should be sent to:

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Attention: [insert contact officer] Person to send comments to

ASX prefers to receive submissions in electronic form.

If you would like your submission, or any part of it, to be treated as confidential, please indicate this clearly. All submissions will be provided to regulators on request. They may also be published on the ASX website, unless they are clearly marked as confidential or ASX considers that there are reasons not to do so.

ASX is available to meet with interested parties for bilateral discussions on the Title.

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Consultation Paper

Anomalous Order Thresholds on ASX 24 products

1. Executive Summary

1.1. Overview

ASX operates the main listed derivatives exchange in Australia, providing futures and options contracts on interest rates, debt, equities and commodities for the Australian and New Zealand markets.

As required under ASIC ASX 24 Market integrity Rules, Market Operators are required to have in place order entry controls for Anomalous Orders for defined Relevant Products. In the case of ASX 24, the Relevant Products are Equity Index Futures.

ASX currently does not apply volatility controls for ASX 24 interest rate, debt, commodity, electricity and environmental contracts.

1.2. Purpose of the Consultation Paper

The purpose of the consultation paper is to seek feedback from market participants on the application of Anomalous Order Thresholds (AOT) on ASX 24 Interest Rate and Commodity Futures.

The consultation paper is presented in four sections. The first section provides an overview of the different types of volatility controls used globally. The second section provides an overview of the ASX AOT mechanism as well as the other price controls currently supported. The third section addresses the application of ASX 24 AOT functionality to the Interest Rate Futures complex. The fourth section outlines ASX's position on the application of AOT to the commodity contracts. We are also taking the opportunity to seek Participant feedback on different volatility control mechanisms currently not supported on the ASX 24 platform and in the Operating Rules.

ASX invites submissions on the questions set out in paper and summarised in Appendix 1.

2. Summary of Volatility Controls used Internationally

Volatility controls are designed to maintain Fair, Orderly and Transparent (FOT) markets when responding to extreme volatility events. A well-designed volatility control should not impede orderly price formation in times of extreme volatility. These controls should be calibrated such that the market continues to provide price transparency, support execution opportunities and the ability for the market to reassess fair value based on all available information.

Globally, derivative exchanges apply different volatility controls based on local regulatory requirements, industry best practice and their own assessment on the market dynamics and volatility of each contract.

2.1. Types of Volatility Controls and Best Practice Principles

2.1.1 FIA Best Practice Principles

In September 2023, FIA¹ published a paper titled [*Best Practices in Volatility Control Mechanisms*](#). The objective of the paper is to provide best practices for the design of Volatility Control Mechanisms (VCMs) for derivative exchanges.

¹ The Futures Industry Association (FIA) is a global trade organization for futures, options and centrally cleared derivatives markets.

These best practices were developed in consultation with derivative exchanges, market participants and international regulators.

Table 1: Best Practices on the Design of VCMs:

- VCMs should be designed to avoid unduly disrupting markets and interfering with price discovery.
- Exchanges should focus on keeping markets trading and trading interruptions should be triggered sparingly.
- Multiple VCMs may be necessary to address different types of triggering events.
- Design features of a VCM should be based on the specific characteristics of the market or the prevailing market environment, such as time of day effects.
- Some VCMs or combination of VCMs may not be appropriate for all markets.
- Information on VCMs, including parameters, thresholds and triggers applicable in normal and stressed markets, as well as how they operate in practice, should be publicly available and replicable.
- Exchanges should regularly review their VCMs.
- Any changes to VCM criteria should be promptly communicated to market participants.
- Exchanges should notify the marketplace when a market-wide VCM is triggered.
- VCMs should be active across all trading hours, but parameters may be adjusted for different trading sessions or hours.

Source: *Best Practices for Exchange Volatility Control Mechanisms*, FIA September 2023

2.1.2 IOSCO Final Report on Volatility Controls

The [IOSCO² report](#) provides a summary of the volatility control mechanism used by Exchanges. The report also makes several recommendations for the implementation and operation of volatility controls, including the requirement to appropriately calibrate and monitor parameters and provide transparency to market participants when the controls are triggered.

² International Organisation of Securities Commissions (IOSCO) is the international body that brings together the world's securities regulators and is recognised as the global standard setter for financial markets regulation.

2.1.3 Types of Volatility Control Mechanisms

The following are preventative mechanisms:

Price Limits

Price limits can be applied by Exchanges to set a maximum price trading range for Contracts(s) for a prescribed period, typically daily. Price limits can be asymmetrical, that is, the upper and lower limit can be skewed on the upside or downside from the current market price.

Price limits can be hard limits for the trading period, meaning orders cannot be entered outside of the price limit range until the next trading session. Some exchanges do support the ability to expand the upper or lower limit following a market halt to permit continuation of trading. ASX applies Price Limits in the form of static Extreme Trade Range (ETR) for cash equity markets and a dynamic ETR for specified contracts on ASX 24.

Price Bands

Price bands can be set by exchanges to prevent orders outside of the defined bands from entering the platform. Typically, price bands will result in the order being rejected if it is outside the price range set by the Price Band. Price Bands are dynamic and, as such, require a refreshed reference price to support ongoing price discovery. The application and use of Price Bands does not impact continuous trading in normal circumstances. ASX applies a form of dynamic price bands to specified ASX 24 futures contracts.

Circuit Breakers

Circuit breakers are a form of volatility control that add a dynamic element to the mechanism. Circuit breakers can act to interrupt or pause continuous trading, providing the market with the opportunity to pause and digest event information that caused the heightened volatility. ASX and ASX 24 markets do not use circuit breakers.

3. ASX 24 Volatility Controls, Price Protection Limits and Erroneous Price Measures

ASX uses several rules and system applications today to mitigate and manage potential FOT events, including:

Table 2: Current ASX 24 Controls by Contract

ASX 24 Contracts	Control Type	Control Description
Equity Index Futures:	Preventative	Price Limit (AOT/ETR)
S&P/ASX 200 Index Futures	Preventative	Trade Protection Limits
Mini SPI 200		
S&P/ASX 200 Gross Total Return Index Futures		
S&P/ASX 200 Financials-x-A-REIT Index Futures		
S&P/ASX 200 A-REIT Index Futures		
S&P/ASX ex S&P/ASX 100 Gross Total Return Index Futures		
Interest Rate Futures:	Preventative	Trade Protection Limits
30 Day Interbank Cash Rate Futures	Corrective	ASX 24 Cancellation Policy
90 Day Bank Accepted Bill Futures		
New Zealand 90 Day Bank Bill Futures		
3 Year Treasury Bond Futures		
5 Year Treasury Bond Futures		

10 Year Treasury Bond Futures
20 Year Treasury Bond Futures

Commodity Futures:	Preventative	Trade Protection Limits
Australian Base Load Electricity Futures		
New Zealand Base Load Futures	Corrective	ASX 24 Cancellation Policy
Australian Peak Load Electricity Futures		
New Zealand Peak Load Electricity Futures		
Australian Base Load Electricity Cap Futures		
Victorian Wholesale Gas Futures		
Wallumbilla Natural Gas Futures		
Environmental Futures		
Eastern Australia Wheat Futures		
Eastern Australia Feed Barley Futures		

Options over Equity Index Futures:	Preventative	Trade Protection Limits
SPI 200 Options	Corrective	ASX 24 Cancellation Policy

Options over Interest Rate Futures:	Preventative	Trade Protection Limits
90 Day Bank Bill Options		
NZ 90 Day Bank Bill Options	Corrective	ASX 24 Cancellation Policy
3 Year Treasury Bond Options		
10 Year Treasury Bond Options		
3 Year Intra-day and Overnight Options		
10 Year Intra-day and Overnight Options		

Options over Commodity Futures:	Preventative	Trade Protection Limits
Australian Base Load Electricity Futures		
New Zealand Base Load Futures	Corrective	ASX 24 Cancellation Policy
Eastern Australia Wheat Futures		
Eastern Australia Feed Barley Futures		

1. **ASX 24 Operating Rules: Section 3200 – Request for Cancellation.** Included in section 3200 are rules dealing with trades that occur in the Extreme Trade Range (ETR). These rules set out clearly where trades are automatically cancelled. Cancellation Policies by their nature are not a preventive mechanism. Rather, the Cancellation Policy which sets the process and thresholds for dealing with potential erroneous trades are a Reactive Control.

For all contracts except for SPI 200, Mini SPI 200 and the S&P/ASX 200 sector indices, ASX sets out the Reference Price and Cancellation Ranges including the ETR (see ASX 24 Operating Rules Procedure 3200.9). For these contracts, the automated Anomalous Order Threshold/No Cancellation Range is not applied, meaning no orders will be automatically rejected.

2. **Anomalous Order Thresholds** (currently applied to ASX 24 Equity Index Futures only). As set out in the ASIC ASX 24 Market Integrity Rules (MIR), ASX is required to apply Order Entry Controls and to have in place adequate controls to prevent transactions in the Relevant Products from executing in the Extreme Trading Range (ASIC ASX 24 Market Integrity Rules Part 8.1 and Part 8.2). To meet the ASIC ASX 24 MIR requirements, ASX sets out in the ASX 24 Operating Rules Procedures (section 3200.10) the AOT/NCR ranges, reference price calculation and the rules regarding applying the Regulatory Halt and process for re-opening the market. Further details on AOT are set out in section 4.1 of this Consultation Paper.

3. **Pre-trade Risk Management (PTRM) and Trade Protection Limit (TPL) settings.** TPLs allow Participants to set price reasonability checks. TPLs can be applied at the Participant or Member Unit level and can be set for product categories or individual tradeable instruments. The limits are set in the product's trading unit (i.e. basis points, index points, or cents). TPLs apply during all trading phases where order entry is allowed and checks that the price entered is within the configured price range, away from either the last traded price or prior settlement price.

TPLs can be created using the ASX Administration and Risk Terminal (ART). TPLs are not mandatory from a functional perspective but there are regulatory obligations under MIRs. TPLs perform a similar function to AOT, which is required to be applied under the ASIC MIRs to the SPI, Mini SPI, and Sector futures. A user can set their TPL narrower than the MIR limits but if the TPLs are set wider than the relevant AOT, then the narrower AOT will apply.

3.1. The ASX 24 Anomalous Order Threshold mechanism

ASX applies exchange-defined order entry controls to prevent anomalous trading in ASX 24 contracts in accordance with the ASIC MIRs being the index and sector futures. In the Open Session state, the Trading Platform calculates an AOT reference price from trading in the spot contract and applies offsets to generate a reference price in the non-spot months. The AOT reference price is initially set as the spot contract's opening price and is updated regularly to reflect the Volume Weighted Average Price (VWAP) over a rolling time period. The offsets, applied to serial and non-spot quarterly months, are based on the prior settlement price differential to the spot contract.

The Trading Platform calculates a percentage or absolute range from the AOT reference price as the lower and upper price bands for order entry. Bids which are higher than the upper price bands and offers that are less than the lower band are rejected by the trading platform.

In the event the AOT reference price needs to be reset, ASX can invoke a Regulatory Halt. The Regulatory Halt is a momentary pause in trading followed by a 2-minute Pre-Open phase. Spread and User Defined Combinations (UDCs) orders are purged centrally when one or more underlying legs are halted.

3.1.1 Reference Price Calculation

The reference price is determined based on a VWAP of executed trades in the OPEN session state. The VWAP price is calculated over a pre-determined interval e.g. 30 seconds. The longer the interval, the more trades and volume can contribute to the reference price. However, a longer interval can result in the inclusion of trade prices that are no longer at current market levels, resulting in a reference price that may be considered stale.

All traded prices are included in the calculation of the Reference Price except for off-market trades (EFP and Block Trades), spread to spread trades and UDC trades.

The upper and lower price band is applied to the dynamic reference price using a predetermined threshold (e.g. 0.5%) and is refreshed frequently (e.g. every 30 seconds).

Wider bands can be applied to the non-spot month contracts, reflecting the potential for larger trading ranges.

3.1.2 The dynamic Reference Price ASIC waiver

The ASIC MIRs set out the obligations for market operators to have in place AOT and Extreme Trade Range settings for Equity Index Futures products.

The ETR reference price as required under the MIRs is a static price. Under these rules ASX is required to apply a static reference price based on the first traded price.

ASX currently has a waiver to allow for the calculation and use of a dynamic Reference Price for the ETR in relation to equity index futures. In considering your response to the consultation questions please be aware that ASIC may determine to remove the waiver. In this case, ASX would apply a static reference price which once calculated on the Open trade would be fixed for the trading session, unless a Regulatory Halt was applied. Currently, the MIRs do not apply to extreme price movements for ASX 24 interest rate and commodity futures contracts.

4. Consultation Scope and Proposal

This consultation is presented in two sections. Section one examines the potential to apply AOT to the interest rate contracts. Section 5.2 examines considerations for the ASX 24 commodities product set.

4.1. Application of AOT for ASX 24 Interest Rate Products

4.1.1 Contracts in-scope for consideration

The following ASX 24 contracts are considered in scope for the consultation on extending the application of AOT beyond the current Equity Index Futures:

- 30 Day Interbank Cash Rate Futures
- Australian and New Zealand 90 Day Bank Bill Futures
- 3, 5, 10 and 20 Year Treasury Bond Futures

Not in-scope for AOT consideration are the serial, quarterly and one-session options over the Interest Rate Futures contracts listed above.

Questions:

1. Do you support the application of the current Anomalous Order Threshold (AOT) mechanism to the ASX 24 Interest Rate Futures contracts?
2. In your view, are there any contracts where AOT may not work effectively? Please provide rationale.
3. If ASX applied AOT to ASX Interest Rate Futures, what minimum notification period is required for readiness activities in your firm?

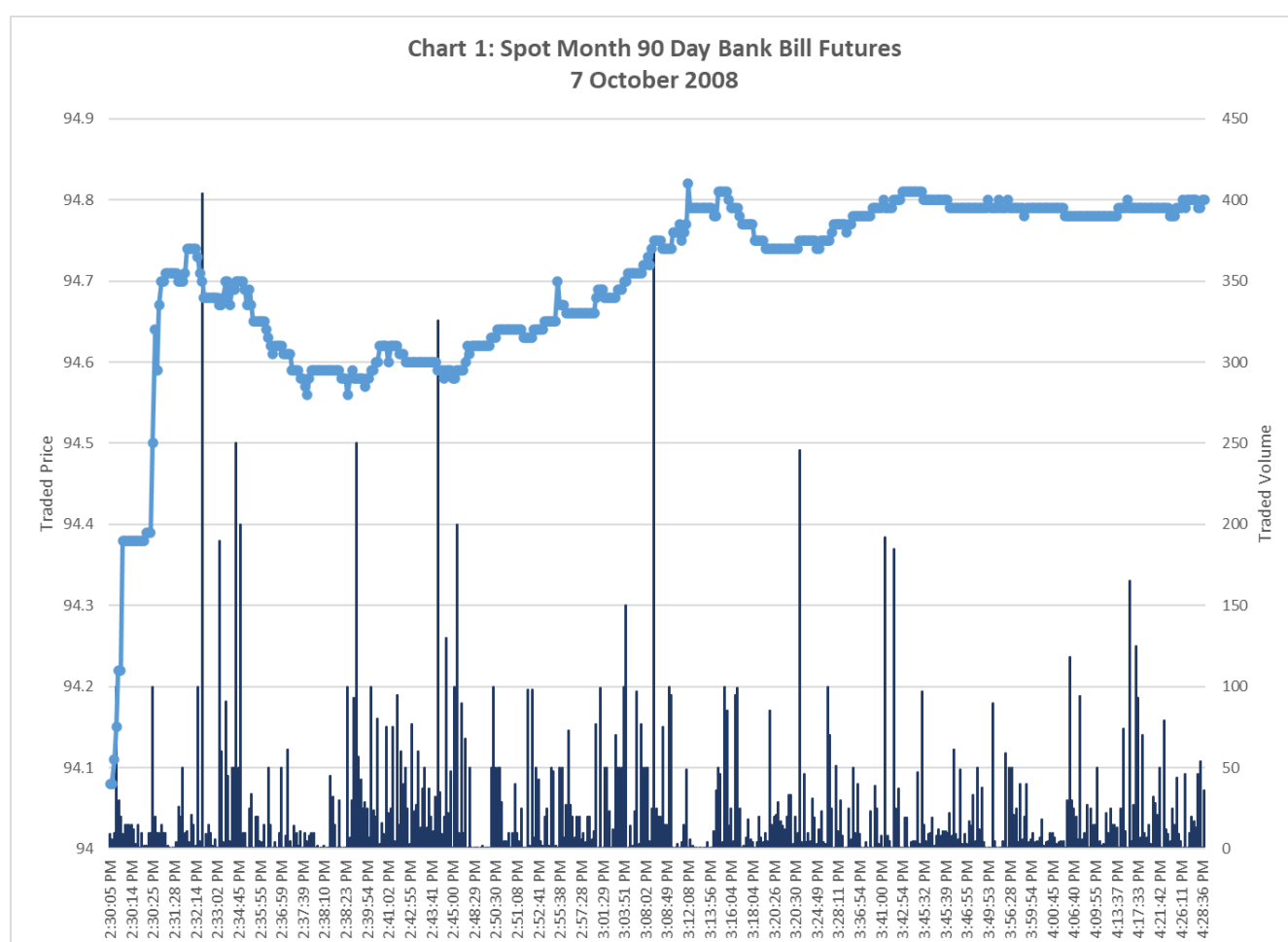
4.1.2 Proposed AOT Parameters for ASX 24 Interest Rate Futures

For the most part, prices in ASX Interest Rate Futures are relatively stable. As such, there are a relatively small set of examples to analyse for calibrating AOT parameters. A key consideration in setting the Upper and Lower Price Bands is factoring potential price reactions to changes in the Official Cash Rate (OCR) by the Reserve Bank of Australia (RBA) or any geopolitical shocks.

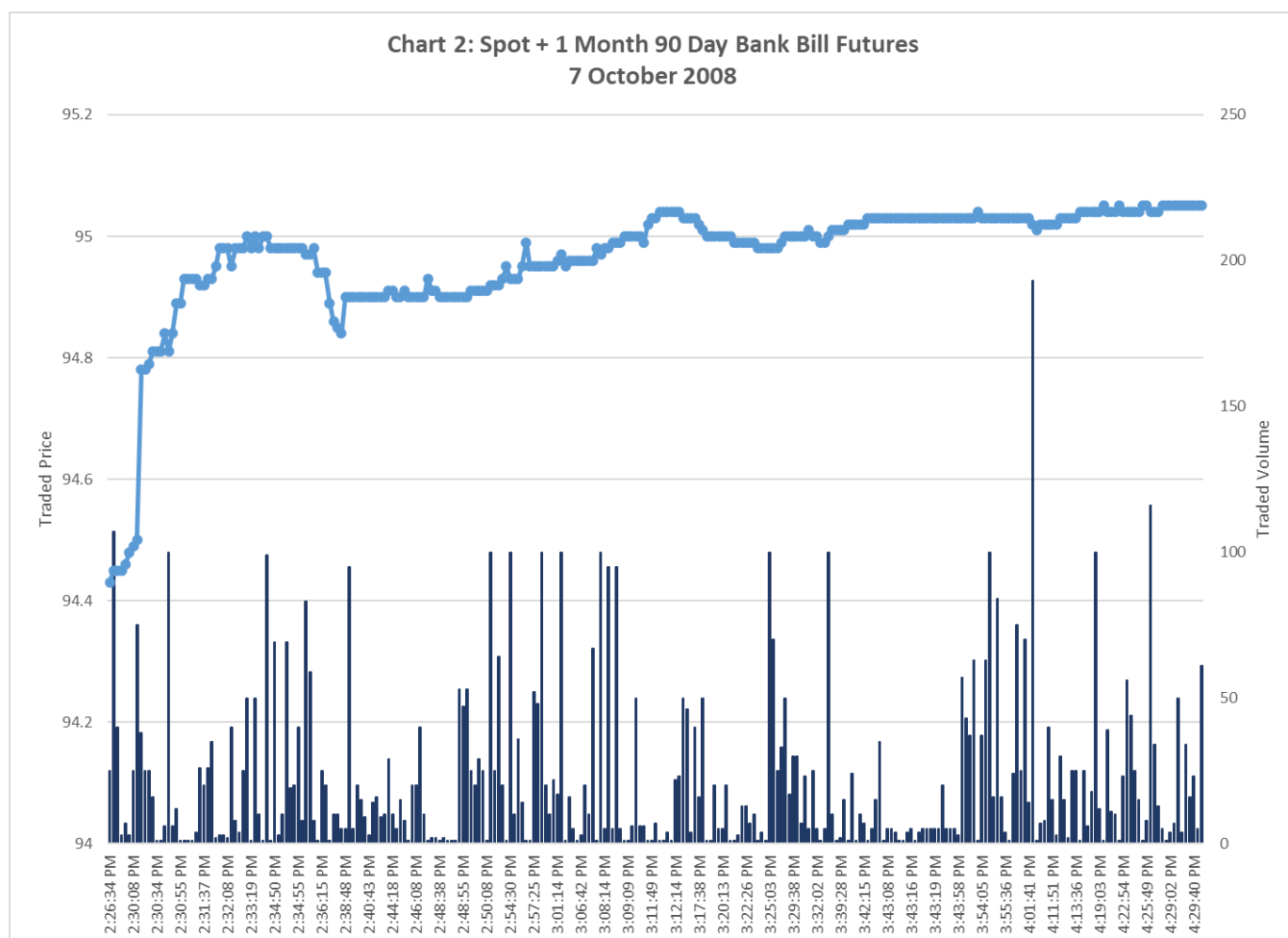
An unanticipated change in the OCR has the potential for the market to gap and re-price at the new level. Historically, the RBA OCR changes occur in 25bp increments, however, there have been periods where the RBA has changed the cash rate by 50 basis points and on rare occasions by 75 or 100 basis points.³

There have been occasions where, in response to an unexpectedly large change in the OCR the spot Bank Bill price has gapped as the market revised fair value. For example, on 7th October 2008 in response to Global Financial Crisis the RBA cut the OCR by a full percent (100bps). This resulted in the spot month Bank Bill Futures price trading up 68bps in the 2 minutes post the announcement. The largest price gap in this instance was 16bp when trading jumped from 94.22 to 94.38, due to participants trading multiple price levels through the book. Refer to Chart 1 below.

For the same trade date, the spot + 1 90 Day Bank Bill Futures contract did show a large gap between traded prices following the OCR announcement. As can be seen in Chart 2, the last traded price moved from 94.50 to 94.78 - a 28 basis point jump.



³ In the period Jan 1990 to August 2024 RBA has changed the cash rate by 50bp or greater 35 times (out of the 91 times the cash rate has changed)
www.rba.gov.au/statistics/cash-rate



Based on analysis and in consideration of the price dynamics of interest rates it is proposed to apply the volatility controls set out in Table 1 below.

Parameter definitions:

Reference Price – a dynamic price that resets at regular intervals throughout the trading day based on market activity.

VWAP lookback period – Refers to the duration used to monitor the Volume Weighted Average Price (VWAP), e.g. 30 seconds.

Refresh frequency – Refers to the frequency with which the reference price will be calculated.

The upper and lower price band is applied to the dynamic reference price using a predetermined threshold (e.g. 0.4% or 40 basis points) and is refreshed frequently (e.g. every 15 seconds)

Table 3: Proposed Volatility Control Parameters

Futures Contract	VWAP Lookback period	Refresh frequency	Basis Points Upper and Lower Band	Spot add on (contract months 2 to 6)	Spot add on (contract months 7+)
30 Day Interbank Futures	30 seconds	15 seconds	40bps	40(+5)bps	40 (+10) bps
90 Day Bank Bill Futures	30 seconds	15 seconds	40bps	40(+5)bps	40 (+10) bps
NZ 90 Day Bank Bill Futures	30 seconds	15 seconds	40bps	40(+5)bps	40 (+10) bps
3 Year Treasury Bond Futures	1 minute	30 seconds	30bps	None	n/a
5 Year Treasury Bond Futures	1 minute	30 seconds	30bps	None	n/a
10 Year Treasury Bond Futures	1 minute	30 seconds	30bps	None	n/a
20 Year Treasury Bond Futures	1 minute	30 seconds	30bps	None	n/a

4.1.3 Limitations and market implications of AOT

1. AOT will not prevent trades on the Open falling into the ETR or QCR. AOT requires a reference price to set the AOT range. The reference price is calculated as a Volume Weighted Average Price (VWAP) over a defined period.
2. In the event a Regulatory Halt is required to reset the market after a volatility event, all spread and non-GTC orders will be purged from the matching engine orderbook.

When could a Regulatory Halt be triggered?

The market may be put into a Regulatory Halt where the system is unable to calculate a reference price that is reflective of current market conditions or where the AOT falls outside of the ETR. This may occur in limited circumstances (listed below).

1- Market open: the AOT will be set based on the first trade of the session. If no price is established during the auction and no trading occurs on the open no reference price will be set. If the market has moved substantially the first trade may fall into the ETR and will be cancelled. A Regulatory Halt will be initiated to reset to AOT reference price. This could occur on a Monday morning following a major event over the weekend e.g. emergency rate move, unexpected global event.

2- RBA rate announcement (unexpected): Monetary policy announcements are made at 2:30pm. In the lead up to the market announcement, market participants generally pull their orders resulting in very thin liquidity. Limited trading occurs in the 10 minutes preceding an RBA announcement. If the RBA were to raise or lower rates unexpectedly, this could cause the market to gap in which case the 2:29pm VWAP would become stale resulting in order rejects and potentially a trading halt. This scenario is more likely to occur in the Short Term Interest Rate (STIR) products which are more highly correlated to short term market events/announcements.

3- Major economic data release/ world event (unexpected): like the above, major economic data releases occur at 11:30am. A significant unexpected data release or world event may have the ability to cause the market to gap. This scenario is the least likely of the 3.

Questions:

4. Do you agree with the proposed AOT parameters set out in Table 3 on page 11?
5. If you answer no to Q3, what are the parameters you would like ASX to consider?

4.2. Considerations for AOT for ASX 24 Commodity Products

ASX currently does not apply any Volatility Control Measures to the commodity products, being Australian and New Zealand Electricity Futures, Gas Futures, Grain Futures and Environmental Futures.

As AOT uses a dynamic Reference Price, based on trading activity within a relatively short window, for contracts that are infrequently traded or traded off-market more than in the lit orderbook, the resultant Reference Price may not be appropriate (blocks and EFP's are not included in the Reference Price calculation).

To work effectively, an AOT requires consistent and frequent trading throughout the day over relatively short time intervals (i.e. 1 minute), in order to calculate an accurate Reference Price. The most liquid ASX 24 commodity products trade less frequently than other ASX 24 asset classes such as interest rates and equities. This leaves substantial gaps in traded price data during which crucial information is required to form a dynamic and accurate Reference Price. This, combined with the fact that the energy market is highly volatile with prices sensitive to seasonality, geopolitical events, and availability of supply, could lead to situations where the Reference Price becomes stale and is not representative of the current market.

AOT parameters must be applied across all contracts although the parameters can be set wider further out the curve or on longer dated expiries. The spot contract sets the initial Reference Price for the entire curve, adjusting forward contracts based on the difference in the spot and relevant forward contract prior day settlement price. AOT parameters are then applied to this reference price.

As most commodity markets don't trade in a linear fashion given the underlying price is driven by seasonality, this makes it difficult to apply set price bands across the entire curve.

For less frequently traded markets, an alternative type of Volatility Control Mechanism may be more appropriate.

Questions:

6. Do you agree with ASX's position that the current AOT mechanism is not appropriate for the ASX 24 Commodities products? If you responded no, please provide your rationale.
7. Do you agree that ASX should apply a different type of Volatility Control Mechanism, for example Price Limits?
8. What type(s) of Volatility Control Mechanism is appropriate for ASX commodities?

Appendix A: Summary of Consultation Questions

Questions:

1. Do you support the application of the current Anomalous Order Threshold (AOT) mechanism to the ASX 24 Interest Rate Futures contracts?
 2. In your view, are there any contracts where AOT may not work effectively? Please provide rationale.
 3. If ASX applied AOT to ASX Interest Rate Futures, what minimum notification period is required for readiness activities in your firm?
 4. Do you agree with the proposed AOT parameters set out in Table 3 on page 11?
 5. If you answer no to Q3, what are the parameters you would like ASX to consider?
 6. Do you agree with ASX's position that the current AOT mechanism is not appropriate for the ASX 24 Commodities products? If you responded no, please provide your rationale.
 7. Do you agree that ASX should apply a different type of Volatility Control Mechanism, for example Price Limits?
 8. What type(s) of Volatility Control Mechanism is appropriate for ASX commodities?
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