

To: All Members and other interested parties

Ref: 19/256

Classification: General updates Trading

Date: 12 August 2019

Subject: **POST-TRIAL DATA ANALYSIS OF ELECTRONIC CLOSING PRICES AND TRADE-AT-SETTLEMENT ORDER BOOKS**

Summary

1. The London Metal Exchange (the “**LME**” or the “**Exchange**”) is seeking feedback from Members, Clients and other interested parties in respect of the datasets appended to this Notice, which were gathered during the electronic Nickel Closing Price trial. In order for market participants to fully assess the effectiveness of the trial, the LME has extended the period of market engagement to allow stakeholders to provide further input based on the data gathered.
2. The presentation in the Appendix to this Notice sets out the key interim data points that the LME has drawn from the trial. This data represents a subset of the data that is available, and the LME would welcome feedback from market participants on other datasets that it would be useful for the LME to consider. At this stage, no definitive conclusions have been drawn from the data in the Appendix, pending LME extending the period for market participants to provide feedback.

Defined terms

3. Terms not otherwise defined herein shall have the meaning ascribed to them in the Rules and Regulations of the LME (“**Rulebook**”).

Background

4. LME Notice 17/302, dated 7 September 2017, provided market participants with the summary of feedback received in response to the LME’s Discussion Paper on Market Structure, and published the LME’s strategic pathway (“**Strategic Pathway**”). The Strategic Pathway proposed that LME would trial electronic pricing for a range of prices.



5. With regard to price discovery, there were a number of responses to the Strategic Pathway from market participants who are highly supportive of procedures used on the Ring to determine the Official Prices (discovered on the 2nd Ring close, and largely used by physical participants) and Closing Prices (used primarily for end-of-day valuation and margining purposes). However, there were also a number of respondents who expressed a preference specifically around an electronic pricing methodology for determining the Closing Prices for consistency with most other markets which they trade. The LME committed to retaining discovery of the Official Prices in the Ring, but acknowledged that there existed an opportunity to consider an evolution of the Closing Price discovery mechanism.
6. It was therefore stated that the LME would undertake an exploratory period whereby the Closing Prices for a subset of the LME's base metal contracts would be derived from an electronic mechanism, supported by electronic TAS functionality.
7. The trial (LME Notice 18/195) commenced on 18 March 2019, and concluded on 18 June 2019. During the trial, the 3-month Nickel Closing Price was determined exclusively by reference to an LMEselect pricing window via the volume weighted average price ("VWAP") functionality. In parallel, the LME also introduced trade-at-settlement ("**TAS**") functionality for the same contract. The LME would like to thank its Members, and their clients, for participating in this trial, and to thank all market participants for their ongoing engagement with the trial.
8. This exploratory period took place between 18 March 2019 and 18 June 2019 for the 3-month Nickel Closing Price, after which discovery of this price returned to the Ring on 19 June 2019. TAS functionality for the 3-month nickel order book continues to be available.

Key Data Points

9. Prior to the commencement of the trial, the LME committed to reviewing and assessing the full impact of the trial based on its observations, as well as feedback received from market participants. The deadline set for the latter (in LME Notice 19/031) was 2 July 2019. However, no formal feedback was received during this period. As a result, the LME is extending this period to 30 September 2019. Market participants are therefore asked to submit any feedback in relation to the trial to market.engagement@lme.com by this revised date.
10. In order to help market participants with this, the LME has proposed the presentation in the Appendix to this Notice, which covers key data points that the LME believes are useful to highlight in relation to the trial.



Next Steps

11. The extended market engagement will close on 30 September 2019.
12. Following the end of the extended market engagement period, the LME will review of data from, and feedback in relation to, the trial. This data will be considered against the factors set out in paragraph 8 above, and in light of any additional considerations that the LME determines to be relevant. The LME will subsequently inform the market by Notice of its findings and intended course of action in relation to the 3-month Nickel Closing Price. The LME's assessment of the 3-month Nickel trial will also consider whether it would be beneficial to conduct further trials in relation to other Nickel Prompt Dates and/or other metals.
13. Should the Closing Price discovery for any 3-month contract move to an electronic process more permanently, the LME will then carefully consider the potential next steps, such as trialling an electronic Closing Price process for Carries and other Prompt Dates. The LME believes this would require significant further input from market participants due to the complex nature of the LME base metals date structure, and the fact that a large portion of Carry trades are done through both the Ring and inter-office venues. In this instance, the LME would engage with market participants on how to approach a trial period for determining Carries and all other non 3-month Prompt Dates.
14. If the recommendation is that the current process for setting the Closing price in the Ring should continue, then no further immediate action will be taken.
15. It is expected that this decision will be made during Q4 2019 and will be communicated to the market accordingly.
16. Until a decision is reached regarding the trial, the LME remains fully committed to optimising its existing pricing and trading infrastructure. As such, the LME is today also issuing a Notice (LME Notice 255) regarding the extension of afternoon Kerb trading in light of the successful zinc trial that took place earlier this year. It should be noted, however, that the changes being implemented as a result of the zinc trial do not prejudice the LME's decision regarding the electronic Closing Price trial.

Questions

17. Please submit any questions relating to this Notice or to the trial more generally to market.engagement@lme.com.



James Cressy
Chief Operating Officer

cc: Board directors
User Committee
All metal committees
Ring Dealers Committee
Traded Options Committee
Warehousing Committee
Physical Market Committee

LME Notice 19/256 – Appendix Electronic Closing Price Trial

TAS & VWAP – data analysis

12 August 2019



SETTING THE GLOBAL STANDARD



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Executive summary

Executive summary

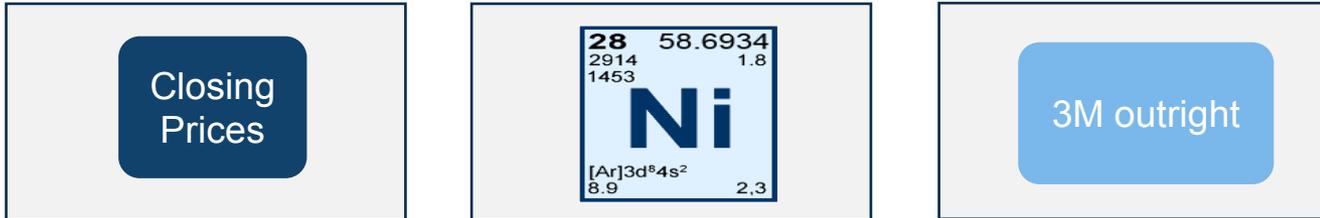
- During the electronic Closing Price trial (18 March 2019 to 18 June 2019) LMEselect was the exclusive venue for determining the 3-month nickel Closing Price using a volume weighted average price (VWAP), coupled with the introduction of trade-at-settlement (TAS) functionality
- The information contained within this presentation is a sub-set of the available data, which the LME believes provides useful insight to the electronic Closing Price trial, though is not a complete representation of all relevant data
- While overall volumes did increase during the trial period, the volume of contracts indirectly linked to the Closing Price reduced modestly (TAS and “C code”^a type trades), while those directly relating to price discovery (VWAP or Ring) increased
- Participation during the trial in the VWAP period was good, due to the existing broad access to LMEselect by participants
- Participation in TAS was mixed, with 21 Members participating in total, though only 9 on average each day. Client participation in TAS was limited (we understand largely due to the functionality not being offered by some Members and ISVs), but grew significantly during the trial
- As can be seen from the volume data, there was a shift during the trial (between VWAP, “C code” and TAS volumes) which may be as a result of trading behaviour starting to change
- The data does show some price divergence between a Ring discovered Closing Price, and prevailing prices on LMEselect at the time, though over a short timeframe after the Closing Price discovery, this divergence reduced
- The temporary nature of a trial means market activity may not have reflected what would happen if the VWAP discovered Closing Price process was permanent. As such data should be interpreted cautiously
- Further comment is welcomed on the trial, both on the data contained within the presentation, and any other relevant information. To accommodate this, the LME has extended the period for feedback from market participants until 30 September 2019. This feedback will be an important factor in the decision making progress

a – “C code” trades are agreed prior to the Closing Price being discovered, but with the price linked to the as yet unknown Closing Price, often given as “market-on-close” orders

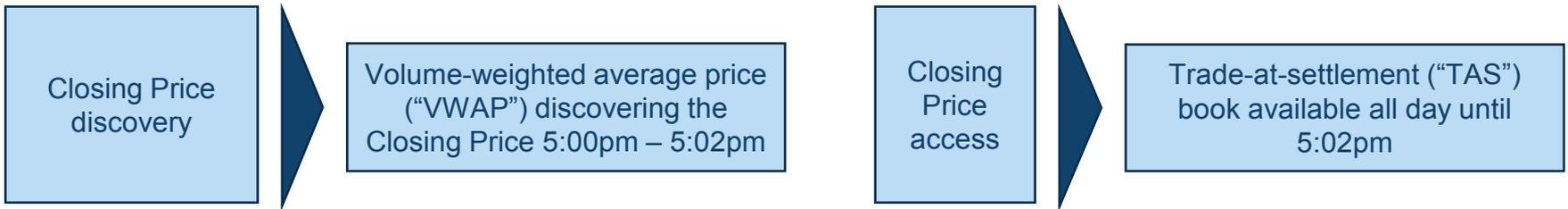
Background

Background

Scope of the trial



Approach



Process



Key considerations

There are strong arguments for and against establishing 3-month Closing Prices electronically using LMEselect

Pros

- ✓ Broader direct participation in price discovery
- ✓ Eliminates price divergence between venues
- ✓ Standardises and simplifies the price discovery process compared to other futures markets
- ✓ Potentially increased market depth / liquidity on LMEselect
- ✓ Price discovered via the most liquid of the LME's venues for the 3-month price

Cons

- x Potentially reduces capability for Clients to obtain guaranteed Closing Prices
- x Concerns of increased price volatility with increased algorithmic trading involvement in the Closing Price
- x Loss of the Ring “brand value” if it is no longer the venue for price discovery
- x Electronic settlement alone is not a “silver bullet” for attracting increased electronic participation
- x Potentially challenges the viability of the Ring business model for some, which could impact liquidity

Volume data

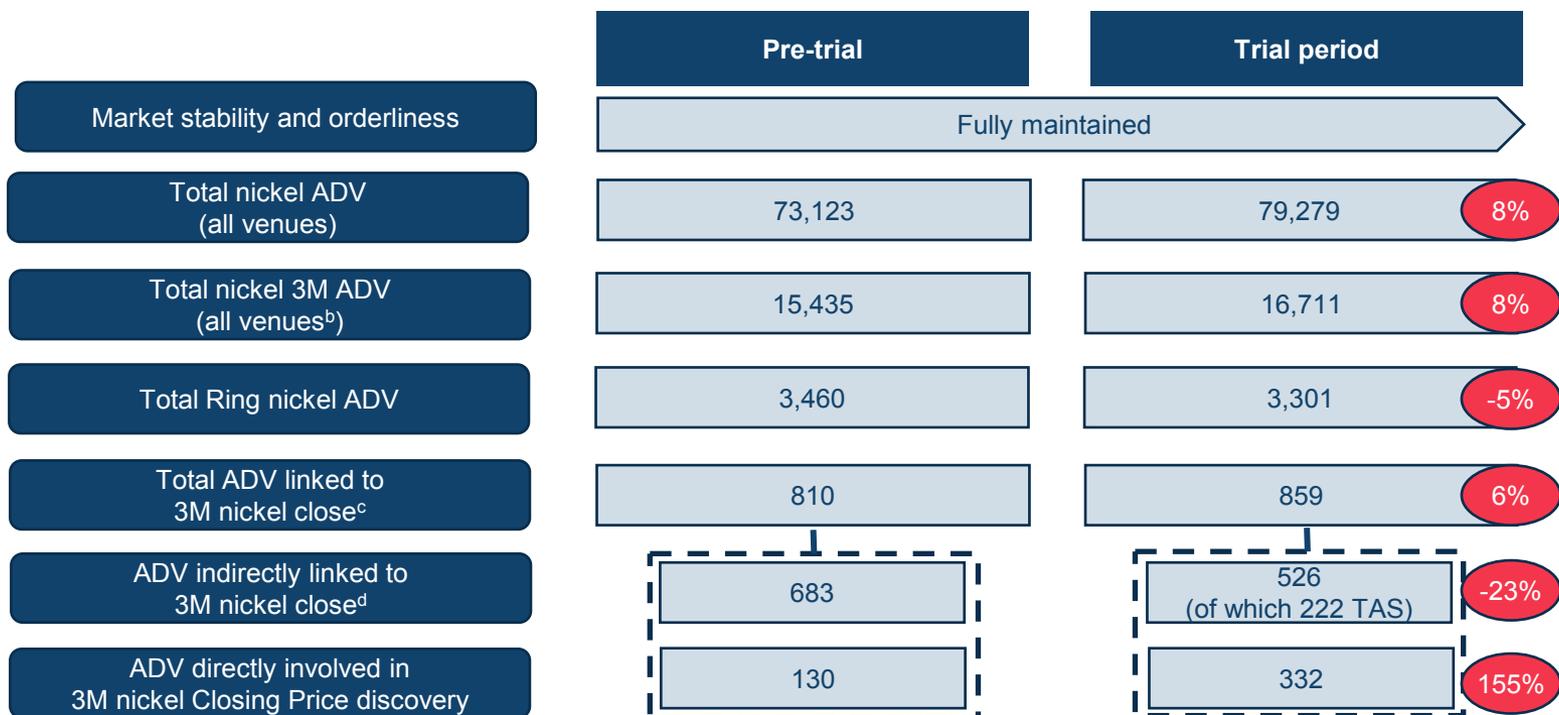
Overall volumes

Mixed overall impact on volumes

For the purposes of all data analysis on the following slides, the periods are defined as:

Pre-trial period: 14 Dec 2018 – 15 Mar 2019 (63 days)^a

Trial period: 18 Mar 2019 – 18 Jun 2019 (63 days)



a: on 24 Dec and 31 Dec the Closing Price was established at 14:00, which is reflected in the data

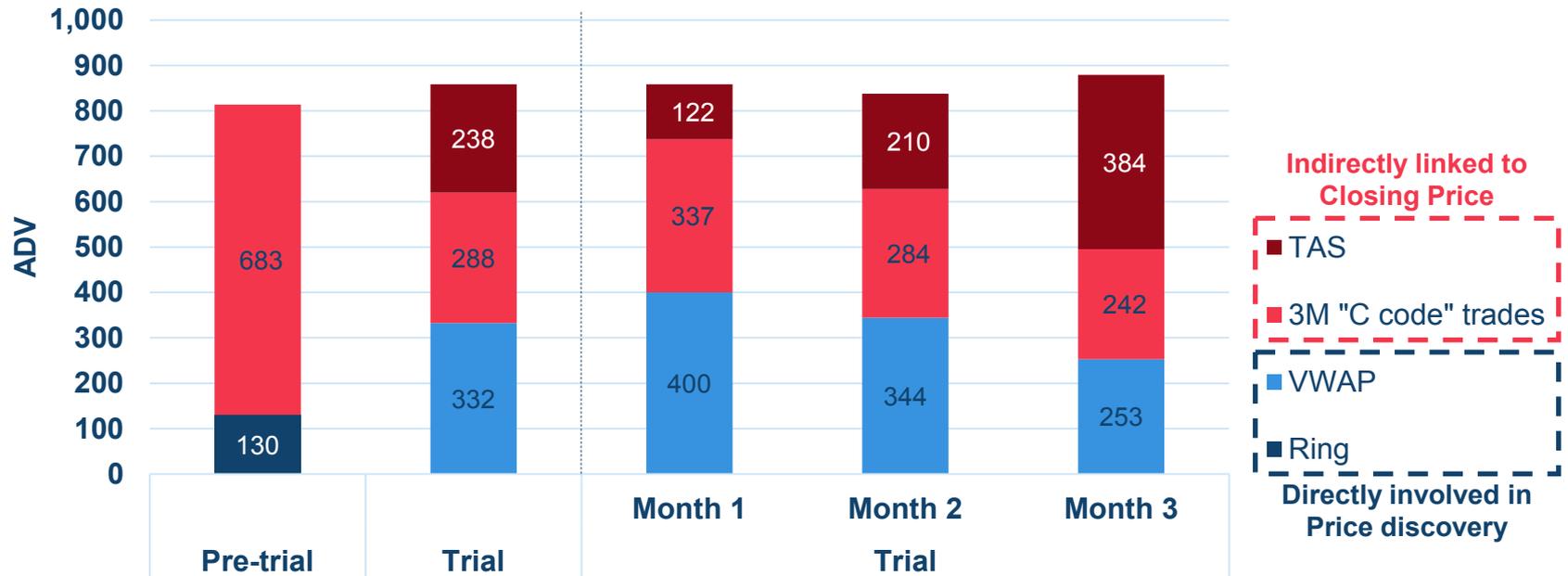
b: Market trades (trades at current market price excluding member give-up and administrative trades)

c: LMEselect Member and Client, total of all 3-month "C code", TAS, and Ring or VWAP (when used for price discovery) trades

d: LMEselect Member and Client, combination of "C code" and TAS trades

Trial showed evolution of VWAP and TAS

Price discovery vs. price participation



- Members regularly net their Closing Price orders to mitigate execution risk. Only a netted amount is directly involved in price discovery and more trades are “linked to Closing Price”, booked as “C code” trades
- Netting is also believed to have occurred during the trial, though direct participation in the price discovery process clearly increased (see slide 12)
- Overall, the total of volume either directly or indirectly linked to the Closing Price grew modestly (6%). However, there were trades during the VWAP period (17:00-17:02) which were taking place in LMEselect during the pre-trial period, that are not reflected in this graph as they were not linked to the Closing Price discovery

Participation data

Participation – price discovery

Direct participation in the price discovery process grew as expected, due to wider connectivity to LMEselect compared to number of Ring-trading Members

	Pre-trial	Trial
Member activity	Ring	VWAP
# of direct participants: total	9	326
# of direct participants: average per day	4.4	39
# of direct participants: min in a day	2	13
# of direct participants: peak in a day	9	66

- Direct participation in the VWAP is measured as the number of Tag 58s (a unique electronic identifier) trading during the VWAP period. As such, it may record multiple traders within each trading firm
- The Ring process allows Ring trading Members to funnel many indirect participants' interests into the Ring discovered Closing Price
- More participants were directly involved in the LMEselect discovered VWAP Closing Price

Participation – linked to Closing Price

Member usage of trades indirectly linked to the Closing Price was relatively consistent

Member activity	Pre-trial	Trial		
	“C code”	TAS	“C code”	Total
# of Members: total	34	21	27	33
# of Members: average per day	12	9	6	11
# of Members: min in a day	3	4	2	6
# of Members: peak in a day	19	12	15	17
% volume via LMEselect GUI	n/a	74%	n/a	n/a
% volume via FIX API	n/a	26%	n/a	n/a

- Overall there was similar participation from Members in trades indirectly linked to the Closing Price (but not directly contributing to it) before and during the trial
- The relatively high portion of volume from the LMEselect GUI (which is only available to Members), shows that access to the TAS market was somewhat restricted as some Members and ISVs were not able to offer it due to the trial nature of the VWAP process

Indirect price participation

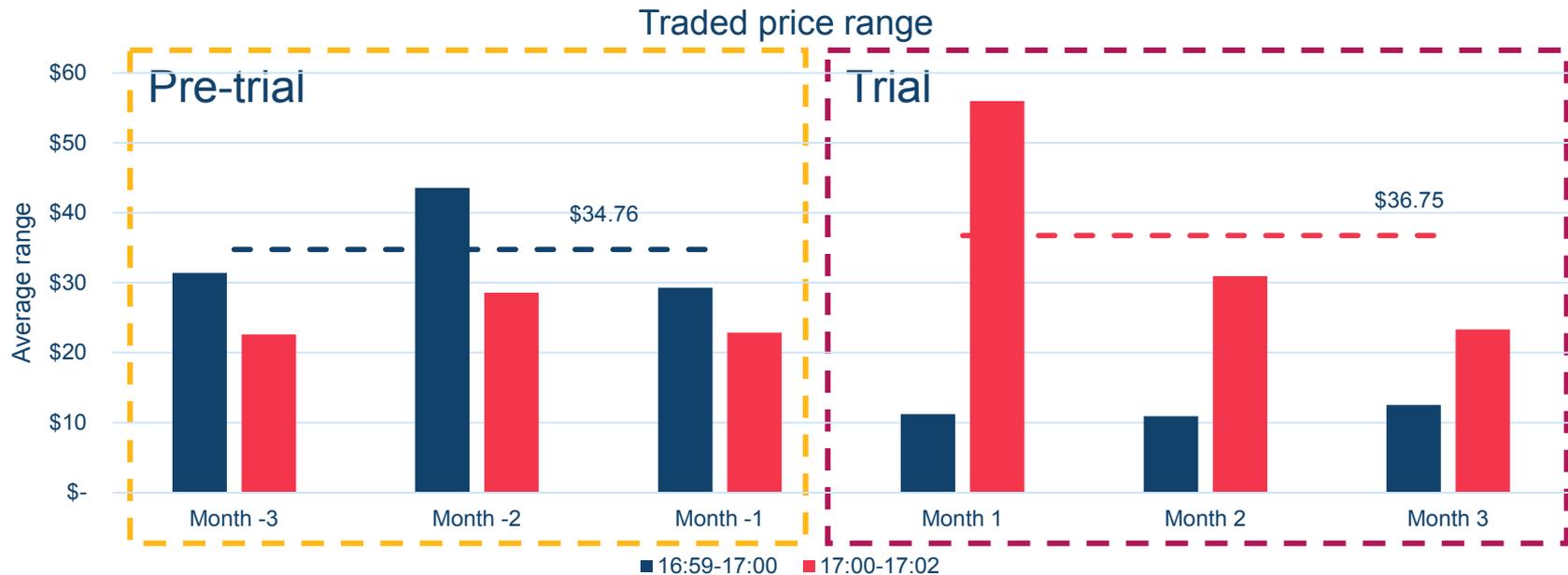
Additional commentary

- Ahead of the trial, some Members were concerned that “guaranteeing the close” during the trial would be significantly impacted. Informal feedback thus far has been mixed, though relatively limited, with some participants reporting no change to their processes, others reporting improvements in their access (due to transparency of TAS) and others finding it more challenging to get trades guaranteed against the Closing Price – the LME would welcome further feedback on this matter in particular
- During the trial, the TAS market began with only natural order flow; with no liquidity providers active. It was often not quoted or one sided for the majority of the day. From late April, liquidity providers began trading, and showed good daily liquidity by the end of the trial
- Use of TAS grew significantly during the trial, though the use of “C codes”, and direct trading in the VWAP fell as business processes appeared to adjust
- Due to the relative newness of TAS contracts, many Members were not able to give access to Clients during the trial, and most ISVs were also not able to offer the TAS contract

Price data

Price ranges

Limited impact to traded ranges on LMEselect around the Closing Price discovery period



- Average LMEselect price ranges did not appear to be significantly different between the pre-trial and trial periods
- Price range narrowed between month 1 and month 3 of the trial

Price discovery

Overview of analysis on pre-trial price data

- An occasional criticism of the Ring discovered Closing Price is that it is not representative of the whole market (i.e. there is price divergence between venues). This has been analysed by comparing the Ring discovered Closing Price to the “available price range”, which we define as – during a specified time period – the range of the lowest top-of-book bid to the highest top-of-book offer on LMEselect. This definition captures the range of top-of-book liquidity, a wider range than that captured by only those prices which traded
- The VWAP was used as the Closing Price at all times during the trial. By definition, the VWAP Closing Price is always within the range of traded prices on LMEselect
- 40% of Ring discovered Closing Prices were outside of the “available price range” on LMEselect during the Closing Price period (16:59-17:00), but this shrunk to 8% when widening the period slightly (16:59-17:02), suggesting that price divergence is generally short lived
- On average the first 3-month quote in the Ring was 20 seconds before the end of the trading session. This is due to the Ring discovered Closing Price being defined as the last traded price, thus Ring traders “go late” in order to accurately target the Closing Price, which may be a factor contributing to price divergence

Price discovery

Ring discovered Closing Price versus the LMEselect “available price range” during the Ring price discovery session 16:59-17:00

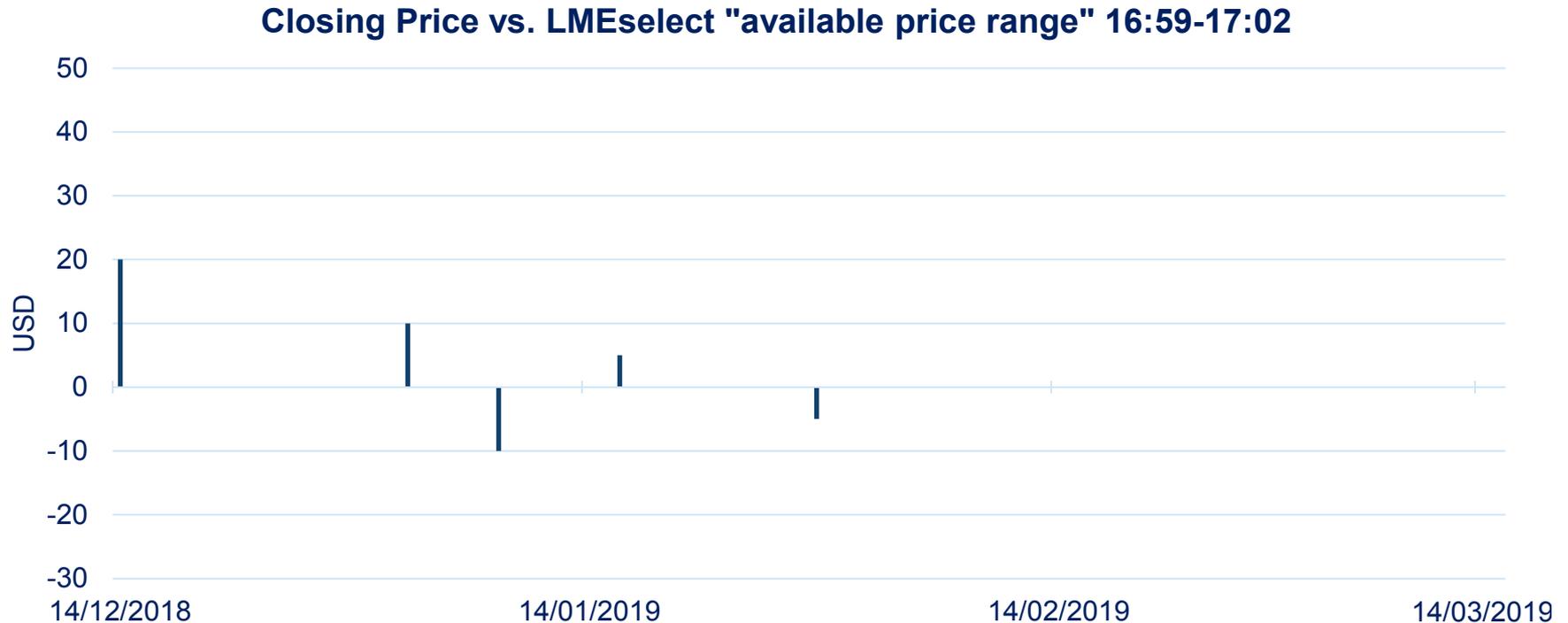
Closing Price vs. LMEselect "available price range" 16:59-17:00



- 40% of Ring established Closing Prices were outside of the “available price range”, with a maximum deviation of \$45

Price discovery

Price divergence is generally short-lived, seen by looking at “available price range” during wider 16:59-17:02 period



- 8% of Ring Closing Prices were outside of the low-bid to high-offer range, with a maximum deviation of \$20

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