Discussion Paper on Market Structure

April 2017

LME Clear
An HKEX Company

LME
An HKEX Company

SETTING THE GLOBAL STANDARD

Table of Contents

1. EXECUTIVE SUMMARY

1.1. Background to the Discussion Paper

For well over a century, the London Metal Exchange has stood at the centre of the global base metals trading ecosystem. Working together with its members and the industry which it serves, the LME facilitates pricing, risk management and investment activities which underpin the efficient functioning of the global metals markets.

The history of the LME, in common with almost all markets, has been one of continual change. This has been precipitated both by technological advancements in the physical metals markets which the LME serves (for example, the continual process of changing contract specifications to reflect improvements in the smelting process) and also evolving behaviours in the market infrastructure space (for example, the advent of electronic trading, and the impact of regulation).

It has always been the case that any contemplated change to the LME's market structure gives rise to a broad spectrum of opinions from the LME's stakeholder universe, and it is therefore natural that there will always exist a degree of tension within the LME's market. However, the sale of the LME to HKEX Group in 2012 ushered in a new era for the market, where for the first time in its history, economic ownership and decision-making at the LME were not controlled directly by its users. This, combined with a fee increase and commercialisation strategy, has precipitated a vigorous market debate in respect of fundamental questions relating to the LME's market structure. Several of these items are not new, predate the HKEX acquisition of the LME, and have prompted debate (without any definitive conclusion) at the LME for many years. Many elements of market structure are undergoing significant impact from unprecedented levels of new regulation. But, in summary, it is now clear that direction needs to be provided to the market in respect of these topics. And, to this end, the LME is seeking feedback from all relevant stakeholders in order for the LME to come to a fully informed view.

Accordingly, the Boards and Executive of the London Metal Exchange and LME Clear (collectively referred to as the "LME" in the context of this document) have decided to issue this Discussion Paper to the market, in order to solicit views on these items. In the final analysis, strategic decisions as to the future of the LME must be taken by the LME – but the LME will take proper account of the views expressed by its underlying market in response to this Discussion Paper.

1.2. Guiding principles for the LME's market structure

Throughout this Discussion Paper, the LME has attempted to be guided by the following principles:

1. **To protect those features which are core to the LME's market and its physical user base.** The LME strongly believes that any proposed reform must be viewed through the lens of the LME's core mission, namely to provide pricing, risk management and terminal market services to the global physical metals industry

2. **Where market structure can be standardised without violating principle (1), this should be considered in order to enhance attractiveness.** In general, non-physical participants prefer a market structure based on the more "standardised" model adopted by most of the LME's peers. While the LME, as stated in principle (1), wishes to protect and maintain all

those features of the physical market which are important for its core mission, it simultaneously does not believe in differentiation purely for the sake thereof

3. **Maximise participation and "democratise" the LME.** As a general principle, the LME believes that the interests of a market (in terms of price discovery, execution liquidity and the financial interests of the LME itself) are served by broader participation. Furthermore, the LME prioritises a "democratised" market, where market structure facilitates equal access for all participants

4. **Seek growth opportunities**. The market as a whole benefits from growth. The LME views growth opportunities as falling into two categories:

    i. Truly new offerings, which market participants may choose to either adopt or ignore – these do not require change to existing market structure, and hence will not impact those who choose not to adopt them. While these do not need to be raised in the Discussion Paper in the sense of requiring market feedback on the potential negative consequences, some of these initiatives (such as enhanced client clearing solutions) are included in order to provide a broader sense of the LME's potential market evolution
    ii. Opportunities arising from the potential evolution of market structure. These may be highly attractive for the LME – but, because they would only be feasible if market structure were modified, they are accompanied by risks of unintended consequences for other market users. An example of such a growth opportunity would be an effort to attract greater third Wednesday electronic liquidity to the LME – while this may be attractive in terms of growth potential, it may also have unintended consequences for certain market participants. Accordingly, and in line with principle (1), these growth opportunities will only be pursued if any accompanying negative market structure impacts can be mitigated

5. **Cater for forthcoming market challenges, particularly those arising from regulation**. The LME views a key element of its role as helping its members and clients address market change; to the extent that market structure can be adapted to cater for this, and again without violating principle (1), the LME is keen to explore such development

1.3. Structure of the Discussion Paper

The structure of this Discussion Paper is set out graphically in Figure 1.

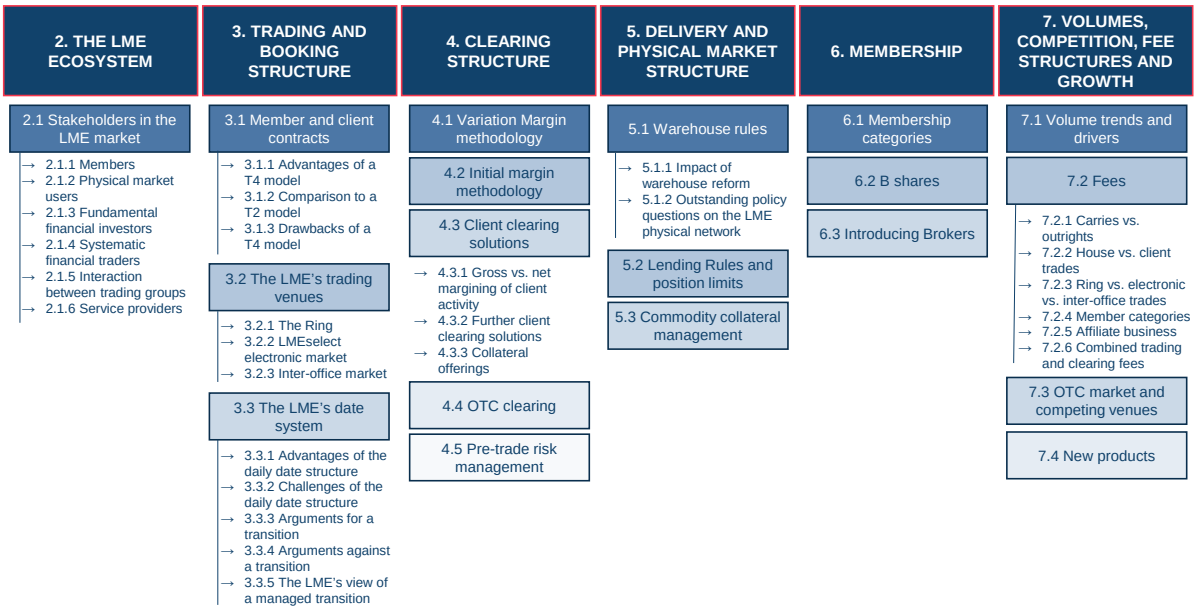

Figure 1: Items in this Discussion Paper

Each section concludes with an "LME analysis" box, and a "discussion questions" box:

LME ANALYSIS

- **The "LME analysis" box sets out the LME's current analysis and (if relevant) proposed policy position in respect of the topic under consideration**
- **In formulating its analysis, the LME has attempted to strike the correct balance between providing guidance to the market on its thinking, while simultaneously accepting that no final decision should be reached without full market feedback (which is, of course, the purpose of this Discussion Paper)**

DISCUSSION QUESTIONS

- **The "discussion questions" box contains numbered questions, on which the LME would like to solicit market feedback**

Where appropriate, data has been included to illustrate points and to provide respondents with information relevant to the questions under consideration. Certain of this data has not been published before by the LME, but it is felt important to provide this disclosure in order to fully inform the market debate which the LME hopes to stimulate. Important notes on the data are contained in Section 9.

It should be noted that (unless otherwise indicated), the Discussion Paper relates to the LME's core base metals market. The forthcoming LMEprecious market, and the LME's new steel products, operate under a different market structure, and so are not within the scope of this analysis. Respondents are, however, welcome to offer observations on these segments if they so desire.

Finally, this Discussion Paper has deliberately been written in plain English, and seeks to avoid technical language or defined terms. Accordingly, it is not intended to provide a technically in-depth analysis, or a full summary of relevant LME rules and other regulations. Respondents seeking more detailed information are invited to contact the LME.

1.4. Market engagement process

The LME intends to undertake a wide-ranging market engagement programme, on the basis of this Discussion Paper, running from 24 April 2017 to 30 June 2017. All metals market participants (including, but not limited to, LME members, physical market participants, financial market participants, warehouse operators and regulators) are invited to review the Discussion Paper, and provide views to the LME. During the discussion period, the LME will accept formal submissions via the following two channels:

- The LME will accept written responses to the Discussion Paper, which should be e-mailed to DiscussionPaper@lme.com. It would be most helpful if responses could follow the question structure set out in the Discussion Paper, but the LME will accept responses in any reasonable format. Respondents do not need to address all questions if their interest is limited to a subset thereof. Please note that it will not be possible to take into account responses received after 1800 BST on 30 June 2017

- The LME will undertake formal meetings (subject to reasonable logistical and scheduling availabilities) to discuss the issues raised in the Discussion Paper. Requests for meetings should be e-mailed to DiscussionPaper@lme.com. LME attendees at the meeting will then draft a meeting note for approval by the meeting counterparty concerned. This meeting note (if arising from a meeting scheduled as set out above, and if approved before 1800 BST on 30 June 2017) will then be taken as a formal submission to the discussion process

Market participants are additionally welcome to discuss the topics raised in the Discussion Paper with the LME in the ordinary course of their dealings, and feedback received in the context of such engagement may be used by the LME in the course of analysing and understanding the market's views on the items in the Discussion Paper. However, responses can only be guaranteed to be included in the LME's formal considerations if submitted via one of the two routes above.

The LME may need to share responses received with regulatory authorities or its legal or other professional advisors, or as required by law. The LME may also publish anonymised versions, or extracts thereof, of the responses to the Discussion Paper, unless respondents specifically identify any aspect of their response which they believe requires confidentiality.

The LME is grateful to members of the User, Warehousing and Physical Market committees for input on draft sections of this Discussion Paper, which was sought in order to ensure that the way in which the LME has described current operation of the market is in line with user experience and understanding.

Any queries as to the market engagement process should be directed to:

Georgina Hallett
Chief of Staff
London Metal Exchange
10 Finsbury Square
London
EC2A 1AJ

DiscussionPaper@lme.com
+44 (0) 20 7113 8780

1.5. Next steps

This is a Discussion Paper, and the results of this Discussion Paper will not oblige the LME to implement (or refrain from implementing) any policy measures as a result of market feedback. Furthermore, this Discussion Paper is not a formal consultation[1], and should not be viewed as such. However, the LME has made clear its strong desire to work closely and cooperatively with its market, and reaction to this Discussion Paper will be of material assistance in the LME understanding the views of its stakeholders.

The LME also fully expects that, on many of the issues under consideration, market feedback will not be unanimous – rather, it will become apparent that there exists a broad diversity of (often contradictory) opinions. In making a final decision, the LME will of course take account of market feedback, alongside any other relevant matters.

Following the discussion period and an analysis of the feedback, the LME intends to publish an outcomes document, in which it will articulate the feedback which it has received during the discussion period, and its resulting decisions on the items raised in the Discussion Paper. To the extent that such conclusions involve changes to the LME's current market structure, these will be achieved via the LME's normal governance structures which, in some cases, may in due course involve formal consultation with the market (for example, the LME will consult users in the usual way in respect of any proposed changes to LME rules relating to its regulatory functions, save for minor changes of an administrative or commercial character). Any changes made may be subject to regulatory approval.

1.6. The LME's financial interest

As the market is aware, the LME receives fees from a number of different sources, including trading, clearing, warehousing and data distribution. The range of LME fees is set out on the LME's website and in the annual fees notices published by the LME. The LME therefore has a material commercial interest in its market structure and the fees which it charges; indeed, a number of the topics under consideration in this Discussion Paper could have a material impact on the LME's financial interests. Notwithstanding this, the LME's primary focus is the orderly operation of its market, which is essential in order for the LME to ensure that the market functions in an orderly manner in accordance with its regulatory obligations. It is also important to the LME's value as an ongoing business.

[1] In accordance with the requirements of REC 2.14 or otherwise

The LME therefore views its interests as being broadly aligned with those of its stakeholders, given that an effective market structure is (i) more likely to be consistent with the LME's regulatory obligations, and (ii) would be expected to generate greater economic activity, to the benefit of all market participants. Clearly, in the specific matter of fees, the LME's commercial interest is well-understood, and this Discussion Paper (specifically Section 7.2) discusses this matter further.

2. THE LME ECOSYSTEM

SUMMARY

- The underlying trading participants in the LME market can be divided into (i) physical users, (ii) fundamental financial investors, and (iii) systematic financial traders
- Members are the crucial link in bringing business to the LME. Historically, clients (especially physical users) have traded on the basis of prices quoted by members, who then lay-off some or all of the underlying risk on the LME's trading venues
- However, a significant portion of the market (especially in the financial community) now trades on the basis of displayed prices on the LMEselect screen, with members playing a brokerage role
- The LME believes that its three broad categories of user, facilitated by its members, together represent a mutually-supportive ecosystem. The LME is aware of concerns in respect of algorithmic traders, but believes these are common to most markets, and notes regulatory efforts to ensure that the activities of such participants are sympathetic to the other users of the markets in which they operate

It is crucial, before considering the details of the LME's market structure, to have a full understanding of the complex and diverse ecosystem in which the LME operates. Any decisions around market structure must be made with the interests of all relevant stakeholders in mind, and so firstly those stakeholders must be identified, and their interests analysed and fully understood.

There exist many reference works on the LME, and this section does not attempt to replicate such authorities in terms of providing an LME "primer". Instead, the aim of this section is to identify the key considerations for the LME's user base, so that potential market structures can be assessed in terms of their impact.

2.1. Stakeholders in the LME market

At a high level, the LME classifies its stakeholders into the following broad groupings:

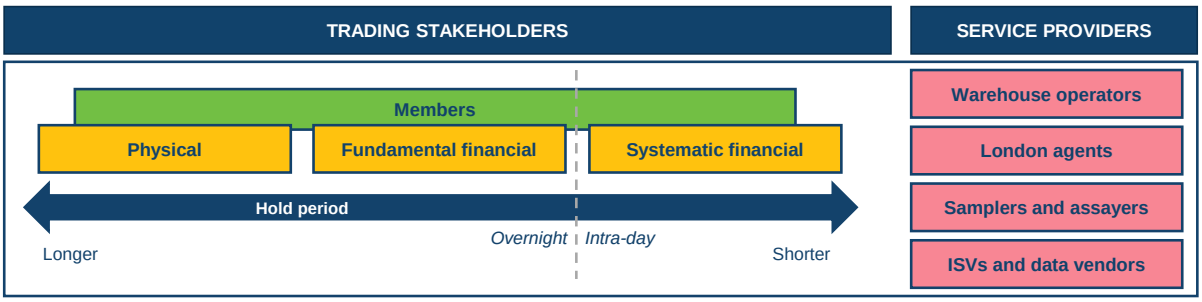

Figure 2: LME stakeholder groups

Of course, any attempt at classification is difficult – there will always be participants who defy simple groupings. In particular, the role of "merchants" in the LME market (who span both physical and financial) is very significant. Furthermore, the classification does not imply that fundamental financial investors cannot also operate a "systematic" methodology for trading into and out of positions – this could, for example, include commodities trading advisors ("CTAs"). The distinction, in the context of

this Discussion Paper, is primarily whether the positions are held intra-day, or overnight. However, for the purposes of this Discussion Paper, the LME believes that this classification provides the optimal analytical structure.

The relative contribution of LME stakeholders is set out in Figure 3.

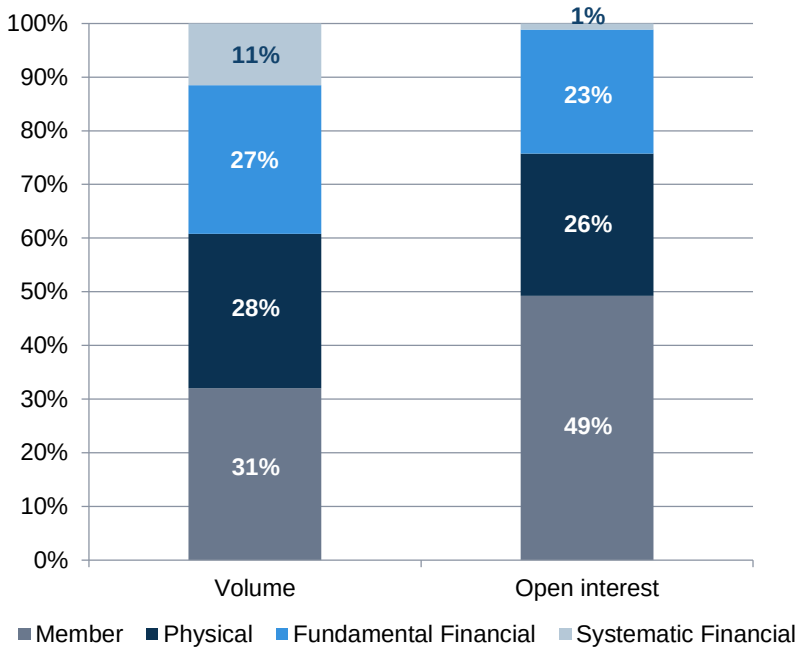

Figure 3: LME market activity by stakeholder group (2016)

2.1.1. Members

The LME's members are fundamental to the market's ability to function. As a general matter, end users are rarely able to access any exchange directly – rather, the role of members is to intermediate access, providing credit, risk management and execution services to clients ("brokerage"). As such, the LME is dependent on its members to bring business to its market, and can only succeed if its members too are successful.

However, the LME would argue that the role of the members in its market is even more important than on other exchanges. As is further set out below, the LME market is extremely flexible, with the result that many market participants require bespoke forward metals exposures (for example – to hedge the daily average nickel price between 8-May-17 and 21-Jul-17), which represents such a specific request that no exchange could provide a liquid venue on which to execute this precise contract. Accordingly, on the LME, members generally operate a "dual capacity" or "dealer" model, "making" prices to their clients (often for very bespoke contracts) on a risk basis, and then laying-off components of that risk, as appropriate, on the LME market ("jobbing" or "running a card"). Certain key elements of the LME's market structure – in particular, the "T4" booking model (see Section 3.1) and the date structure (see Section 3.3) materially facilitate such activities.

It is in this context that members represent the largest contributor to both volumes and open interest in the analysis of Figure 3. This should not be taken as suggesting that members run

large proprietary positions for their own account; rather, the member positions will, primarily, be facilitating underlying client positions.

2.1.2. Physical market users

The physical trade has always stood at the centre of the LME's market proposition. In general, the physical trade seeks three services from the LME: pricing, hedging, and a physical market of last resort.

Physical trade pricing is conducted on the basis of the LME's published metals prices – and, in particular, the daily cash price, which the LME is uniquely able to provide by virtue of its date structure, as further set out in Section 3.3. The LME's cash price is a daily "spot" price for each of its metals, and is treated as the global reference price for that metal. Accordingly, the LME views its cash price as its most important asset and the basis of its "virtuous circle" with the market – because the LME cash price is embedded into physical supply contracts worldwide, it is this price which participants need to hedge, which drives trading activity onto the LME, and on the basis of which the cash price can be effectively discovered. The LME understands that its rolling three month forward date is of far more limited direct relevance to the physical industry, beyond providing a "proxy" for a forward reference point in certain physical supply contracts, particularly in the scrap industry.

The trading requirements of the physical industry are extremely broad – but, in general, the desire of a physical participant is to hedge metals price risk. Such risk generally arises from entry into a physical forward sale or purchase agreement, generally at a future ("floating") LME cash price, and often via an "averaging" contract, under which the buyer agrees to purchase metal from the seller at the daily average of the LME cash price between two specific dates (the "quotation period", or "QP"). Accordingly, the requirement of the physical user is to enter into a financial transaction which converts this "floating" exposure into a "fixed" exposure. Different hedgers will employ slightly different tactical trading approaches to achieving such conversion – but in general, the conversion is the underlying economic aim, as shown diagrammatically in Figure 4.

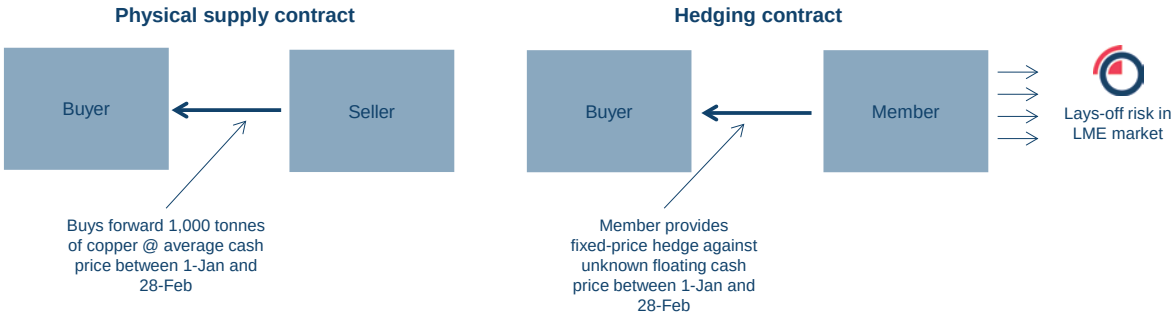

Figure 4: Structure of a typical physical hedging contract

The third element sought by the physical market arises from the LME's warehousing network, and in particular, the role of the warehouses as the physical market of last resort (even though very few physical consumers directly take metal from LME warehouses). This topic is further addressed in Section 5.1.

2.1.3. Fundamental financial investors

The LME classifies fundamental financial investors as being those participants looking for exposure to metals prices over a period of time, and certainly with a position holding period of more than one day (i.e. looking to hold overnight exposure). The reasons why such exposure is sought are varied, but a typical example is a "macro" fund, seeking exposure to metals prices as a proxy for global macroeconomic performance. Other strategies falling into this category could include longer-term arbitrage trades. Many CTAs would fall under fundamental financial investors as well. Furthermore, many retail investors would sit in this grouping, given their desire for price exposure over a period of days or longer, but with no desire to hold all the way until the cash date.

In general, the requirements of this user group are different to those of the physical market. Whereas physical market participants are concerned about precise exposure to specific dates and averaging periods, fundamental financial investors are seeking a more general exposure to prices. However, unlike physical participants, fundamental financial investors are concerned about ongoing position liquidity – a fund manager may choose to enter, or liquidate, a position at any time based on a trading strategy, or exogenous factors such as fund redemptions. Accordingly, position liquidity represents a key driver for such participants.

Accordingly, a monthly futures market structure is the most "natural" investment venue for such participants, because they do not need the granularity of a daily date system, and the concentration of trading on a single prime date each month ensures that liquidity is available to both enter and exit positions at will. Furthermore, if positions are coming close to delivery, and the investor wishes to maintain the financial exposure, such positions can be easily "rolled" back by trading a carry between the month on which exposure is currently held, and a further-forward month.

As set out in more detail at Section 3.3, the LME's equivalent of a standardised monthly futures date is its "third Wednesday" contract. However, in general, this date is not highly liquid on the LME's "lit" trading venues (the Ring or LMEselect), which means that fundamental financial investors seeking such exposure must achieve it through other means – for example, by trading multiple legs which together deliver third Wednesday exposure, or by accepting bilateral pricing from an LME member. As for physical clients, LME members are absolutely willing to take risk and offer third Wednesday contracts to this community. However, the views of the user base are subtly different – in the physical space, it is generally understood that no exchange orderbook could provide natural liquidity on the bespoke averaging instruments which they wish to trade, and hence the intermediating role of members is strongly welcomed, with physical users entirely willing to pay for the service that they receive. Fundamental financial investors, on the other hand, are well aware that the LME could (if it so chose) modify its market structure to provide "native" liquidity on third Wednesdays – and so certain sections of the community are less keen to participate on the LME, as they view the market structure as introducing a specific "inefficiency" into their execution model. These questions are considered in greater detail in Section 3.3.

2.1.4. Systematic financial traders

"Systematic" traders are a key constituent of the user base of most well-developed electronic markets. These participants will look for, and trade on the basis of, technical trends or short-term arbitrage opportunities. Such participants generally do not have a fundamental view on the asset

underlying the contract, but instead interpret signals sent by other market participants (in terms of order or trade activity) to discern the likely short-term direction of the market, and trade accordingly. The trading strategies may be executed by computers ("algorithmic") or by humans ("point and click").

Systematic financial traders are arguably the user group least exposed to the specificities of the LME market, given that the trading strategies they employ are often common across many venues. In particular, such participants will look specifically for the most liquid electronic contracts and dates, and concentrate their activities in such instruments. Furthermore, the average hold period will be less than one day, and few systematic participants will wish to maintain positions overnight – therefore, as long as an instrument demonstrates intra-day liquidity, it will be suitable for such a trading strategy. Accordingly, questions of market structure (and, most specifically, the question of liquid electronic dates in Section 3.3) are far less relevant – the systematic trading community will operate wherever electronic liquidity can be found. For the LME market, this is overwhelmingly the rolling three month forward date.

Systematic traders also operate by far the least "member-intermediated" model of all LME participant groups. Because trading profits arise from technical trends in the electronic market, the trades must be executed on that electronic market – there is more limited scope for members to provide risk prices to this community, since trading outcomes would be (by definition) a zero-sum game between the member and the client. Accordingly, members facilitating market access by systematic traders are acting broadly in a "pure brokerage" capacity – i.e. providing access to the LME's central electronic market, in exchange for a brokerage commission per trade.

More broadly, the issue of systematic traders has generated significant attention across the market infrastructure space. In particular, "high frequency" traders ("HFTs") have been viewed with unease by more "traditional" market participants, given the perception that HFTs use speed advantages to react more efficiently than other participants, hence reducing the overall quality of execution for the remainder of the market.

There is no formal definition of HFTs, but the LME does not believe that its market structure is particularly attractive to participants whose sole advantage is one of speed. In particular, and in contrast to many peer exchanges, the LME's current assessment is that it does not offer (or charge for) "co-location", under which participants pay to place their trading engines as close as possible to an exchange's matching engine (instead, LME participants can take advantage of a point-of-presence close to the LME's servers in the datacentre – but this does not, in the view of the LME, create the same "arms race" in terms of speed). Furthermore, unlike key peer venues, the LME does not offer a reduced "day trader" rate specifically to attract this type of business. However, it is the case that – at the margin – a trader who can access the LMEselect platform more quickly will enjoy a benefit of execution over a trader with slower access.

However, the LME fully recognises that participation on its market by systematic traders (who need not be HFTs) is significant, is increasing, and has been encouraged to grow further via its New Market Participant and Liquidity Provider incentive programmes. The LME further recognises that certain systematic trading strategies are perceived as removing liquidity from the market, and also as exaggerating price movements (although it should be noted that the LME has never suffered from the type of "flash crash" experienced in other electronic markets). It should further be noted that systematic traders on the LME employ a wide range of trading strategies – and while it is undoubtedly the case that certain such strategies compete with other user groups for execution in the orderbook, certain other strategies may instead add to liquidity.

The LME would note that forthcoming regulation (and, in particular, MiFID II) will have a significant impact on the systematic trading sector more generally. Given that the LME does not consider itself to have a greater representation than peer markets of these types of traders (in fact, it probably has less), it seems most sensible to the LME that it converge with the broader regulatory environment, and – rather than making specific policy in respect of systematic traders on the LME market – implement the relevant industry-wide regulation which is intended to ensure that the potentially negative influence of this type of activity can be mitigated, while allowing legitimate participants to benefit from their trading strategies.

However, there also exists the potential for the LME to introduce specific features into its LMEselect electronic trading platform to further mitigate any potential benefit of execution speed. Such features would modify LMEselect's current "price-time priority" model, under which orders at the same price level are executed in the order they were received by the matching engine. The LME would be interested in the view of its market on the desirability of such "speed bumps" in the operation of the LMEselect matching engine.

2.1.5. Interaction between trading groups

A key question in respect of the groups of participants outlined above is the relationship which exists between them. Each of the three groups provides both benefits and problems for the other two:

- Physical participants ultimately provide the trading activity which makes the LME price relevant, and it is this price relevance which fundamental financial investors desire. Furthermore, physical trading activity provides liquidity in which other participant groups can operate

- Fundamental financial investors provide greater liquidity, reducing the frictional cost of hedging for physical participants. And fundamental financial investors also provide liquidity in which systematic financial traders can operate

- Systematic financial traders provide price arbitrage across the LME price curve and between markets, and certain strategies may also add liquidity (although other strategies may aggress the orderbook and subtract liquidity)

The subtlety of the relationship is the fact that each stakeholder group occupies a different part of the forward curve. In general, physical participants enter on arbitrary dates to match their commercial agreements, and exit on the cash date (with the cash price being their key focus). Fundamental financial investors will enter and exit on third Wednesday dates, and will very rarely hold a position into the front end of the curve, through to the cash date. And systematic financial traders will limit their exposure to the three month forward date, given its liquidity.

2.1.6. Service providers

The LME ecosystem would not exist without the contribution of the LME's service providers, including its warehouse operators, samplers and assayers, listed brands (many of which are produced by physical participants who are also physical market users per Section 2.1.2), independent software vendors ("ISVs"), data distributors and others. While the precise details of the LME's market structure may be less fundamentally relevant for these groups, their general

engagement in the LME market is crucial to the ongoing efficient operation of the LME. Additionally, many items in respect of the delivery mechanism (per Section 5) will be directly relevant to warehouse operators in particular.

LME ANALYSIS

- **The LME believes that a well-functioning market can feature involvement from all three groups of traders identified in the LME's market mapping, given their broadly symbiotic relationship – however, the balance between the three is crucial**
- **Given the LME's market structure, members are instrumental in providing clients with the risk exposure they desire. The specific nature of the LME's market means that (especially for physical participants) it would never be possible to provide, on a central orderbook, the precise averaging exposure which clients seek**
- **The LME recognises market concerns in relation to systematic traders, but also recognises that many systematic traders generate volume and liquidity for the LME. The LME therefore believes the most appropriate course of action is in the context of broader sectoral regulation**

DISCUSSION QUESTIONS

- **2.A Do you agree with the LME's market mapping? Are there other elements of the ecosystem which need to be considered in the context of this Discussion Paper?**
- **2.B Do you agree with the proposed approach to systematic trading strategies on the LME market? Would you wish the LME to investigate technical approaches to mitigate the potential benefits of speed on the LMEselect market?**

3. TRADING AND BOOKING STRUCTURE

SUMMARY

- **The LME's trading and booking structure is highly differentiated, marked specifically by (i) its distinction between exchange and client contracts, (ii) its three venues, and in particular its inter-office market, and (iii) its date structure**
- **These three features are interlinked, and evolved primarily to facilitate a model whereby members make bespoke risk prices to clients, which can then be fully or partially hedged by the members on the market**
- **While this remains a powerful functionality of the LME's market for bespoke client requests, the strengths of the system can also be used to avoid the use of the LME's central liquidity pools when executing more standardised business. As financial participants increasingly demand (in particular) a visible pool of third Wednesday liquidity, the LME's market structure provides incentives for such business to be executed through a variety of alternative routes, which results in dispersed liquidity pools which reduce both the perceived and actual liquidity of the market, and may inhibit the uptake of LME trading**

At the core of the LME are its trading activities, which operate under a bespoke market structure. A combination of the LME Ring, the date structure and the "T4" booking model make the LME different to other trading venues.

As an initial note on terminology, it is often stated that the LME is a "forwards", rather than a "futures", market. There is no formal definition of the difference between "forwards" and "futures" – however, the key features which the LME understands to constitute a forwards market are its rolling date system (Section 3.3) and contingent variation margining structure (Section 4.1).

3.1. Member and client contracts

There are broadly two types of LME contract – member trades (creating "exchange contracts"[2]) and client trades (creating "client contracts"). A member may trade with any other member, and create an exchange contract, whereas a client may only trade with one of the members with whom that client has a business relationship. This is referred to as a T4 model.

3.1.1. Advantages of a T4 model

The basis for this structure is that – as set out in Section 2.1.2 – the LME evolved to service physical market clients, and the trading requirements of physical market clients generally require an LME member to provide a "risk price" to that client, and then lay-off some or all of that risk as appropriate in the market.

[2] This will change as a result of the amendments confirmed in LME notice 17/166 dated 4 April 2017. Due to the "open offer" changes, the concept of an "exchange contract" which is later novated to the clearing house will no longer exist; instead, "cleared contracts" will arise from the outset between the clearing house and each member. The concept of "client contracts" will still exist. However, this does not affect the thrust of the analysis set out above, namely that there are broadly two types of contract: (1) those between members (or between the members and LME Clear), and (2) those between members and clients

3.1.2. Comparison to a T2 model

In contrast, the vast majority of peer markets operate a "T2" structure. Under this model, there is no distinction between a member and a client trade – if a member executes a trade on behalf of a client, the market trade can be booked directly to the client's clearing account. The T2 model can, however, still support the T4 model of a different trade being executed between (i) client and member, and (ii) member and market.

3.1.3. Drawbacks of a T4 model

Given the flexibility provided by the T4 model, and the fact that the LME market demonstrates significant member risk intermediation, there would not appear to be any immediate need to change this structure. The primary drawback of the T4 model is in respect of fees, and consequent unintended behavioural impacts.

As a general observation, a member can book a client's business two ways: on-exchange, or over-the-counter ("OTC"). In most standard T2 futures markets, the member's decision to deal with the client on an OTC basis should not be materially impacted by the consideration of exchange fees. This is because – provided the member is choosing to lay-off some element of that risk in the market, which the LME understands is the usual practice – an exchange contract must be created. If the client is dealt with OTC, then the exchange contract is posted to the member's house account; if instead the client is dealt with on-exchange, then the exchange contract is posted to the client account. In either case, one trade is created. While it is true that some peer exchanges offer discounted fees for house (vs. client) trades under the T2 model, such discounts are often only available if the member can show that the economic benefit of the trade accrues to their own account (i.e. an exchange trade backing an OTC client position would not qualify for the lower rate).

Under the T4 model and the LME's current fee schedule, however, the fee incentive to take a client OTC is considerably stronger. This is because the client contract costs twice as much as the exchange contract; accordingly, servicing a client on an OTC basis can cause fees to be reduced to one-third of those charged for servicing a client on a cleared basis. While it can, of course, be argued that the LME is providing a lower level of service in this instance (because clearing services are not provided for the client leg), a fee disparity of this magnitude is not, in the view of the LME, commensurate with the difference in service level, and is inconsistent with comparable practices on peer exchanges.

As such, the LME's view is that the T4 model is not, itself, problematic – and, indeed, offers significant execution flexibility which is important in the context of the LME's market structure. While such flexibility could also exist under a T2 market structure – indeed, it could be argued that T2 provides greater flexibility given it can support a T4 model as set out above – there does not appear to be a sufficiently compelling rationale for structural change at the current time, except perhaps as a client clearing option as further considered in Section 4.3.2. However, T4 does also offer scope for fee avoidance which, under the LME's current fee model, provides a significant financial incentive to enter into OTC client relationships, rather than issuing client contracts, and requires additional unnecessary booking complexity for back-to-back client business. This issue is further addressed in the discussion of fees in Section 7.2.2, and in the proposal for a client clearing model as set out in Section 4.3.2.

3.2. The LME's trading venues

The LME operates three separate trading venues for the execution of member-to-member trades – the Ring (open-outcry), LMEselect (electronic), and the inter-office market (sometimes called the "telephone" market, although inter-office trades can be executed through any bilateral or multilateral communications channel).

3.2.1. The Ring

The LME Ring has historically stood at the centre of the LME's price discovery activities. As with most trading venues, open-outcry trading represented the initial means of execution. And although the LME has introduced an electronic trading system (LMEselect), which now transacts greater volumes than the Ring, the significance of the Ring is preserved because of both its role in executing key carry business (especially carries between three months and third Wednesdays, and rolls between third Wednesdays), but also the fact that official and closing prices are determined in the Ring (which is a feature of the LME's rules and procedures), giving that venue a natural advantage in the executing business which aims to transact at, or on the basis of, the LME's official or closing prices (most significantly, the cash price).

The LME has undertaken significant internal study and market engagement as to the functioning of the Ring (for example, the 2014 Ring review, the results of which are set out in notice 14/187 : A180), and the LME's subsequent work to further optimise price discovery on the Ring (for example, the recent changes to separate the closing of carry and outright trades). It is not the aim of this Discussion Paper to revisit this analysis in detail; however, it is appropriate – in the context of considering market structure – to ensure that the conclusions of this work remain valid.

A question which has been raised historically is the desirability of providing a "trade at settlement" ("TAS") functionality. The LME already offers the option for inter-office trades to be agreed, prior to a relevant Ring or Kerb, with such transactions being settled at the relevant closing price (unknown at the time of booking). Under a TAS model, an electronic orderbook would be made available to facilitate the matching of such trades electronically, with orders then being allocated to trades, which again would settle at the relevant closing price. While the LME believes this functionality may be attractive to market participants, it is also concerned that such functionality may divert closing-price liquidity away from the Ring, hence reducing the volume of trading on which the prices would actually be derived, and reducing the volume of business available to the Ring. However, the views of the market on this question are welcomed.

3.2.2. LMEselect electronic market

The LME believes that its LMEselect platform provides effective electronic execution to users. The key criticisms of LMEselect are not related to the system itself, but rather its role within broader debates as to LME market structure – and, in particular, the question of where the key electronic liquid dates should sit, as further explored in Section 3.3. As is set out in that section, certain routes forward may require an uplift of LMEselect's processing power, and hence an enhanced version of the system – but the core LMEselect offering remains, in the view of the LME, performant for the current mandate of the electronic market.

3.2.3. Inter-office market

The inter-office market is a differentiated feature of the LME ecosystem. Trades are executed bilaterally between members, or between members and their clients, in the inter-office market, subject to the rules of the Exchange, and, through their entry into the matching system, the trades are brought into clearing. While functionality similar to this is offered by other exchanges, it is more normally for cleared "over the counter" trades, rather than for trades made pursuant to the rules of the Exchange *ab initio*, and made available as part of block-trade functionality, which can only be used for trades above a certain "block limit". With the LME market, on the other hand, trades as small as one lot can executed on the inter-office market. Furthermore, a number of peer venues operate on the basis that "brought-on" trades should attract a higher fee than those executed on-screen or another central venue, in order to provide economic incentivisation for the execution of business on the central limit orderbook, where it can be shown to the market (hence maximising displayed liquidity) and contribute to price discovery. The LME, on the other hand, does not charge a premium for the execution of business away from its "lit" trading venues (i.e. via the inter-office market).

While the LME understands that the majority of dealer-to-dealer trading is currently conducted on the basis of gross booking onto the Exchange, with OTC-booked dealer-to-dealer transactions generally limited to instruments which are not Exchange-eligible (for example – variance swaps, hybrids, exotics and longer-than-clearing instruments), it may be beneficial to formalise this approach, as is the case on peer markets. Accordingly, the LME believes it would now be sensible to consider a model whereby inter-office trades in respect of more liquid prompt dates are subject to a more stringent set of behavioural restrictions than currently apply. In particular, the LME would look to require the creation of inter-office trades which match the underlying business which has been executed in the OTC space, rather than allowing a more netted model.

In this context, the LME believes it appropriate to consider also an enhanced model of Exchange for Related Positions ("EFRPs") whereby OTC positions could more effectively be brought onto the LME.

3.3. The LME's date system

The LME's date system is a contentious issue. At its heart, the LME's date system is an exceptionally powerful tool for risk management and investment in the metals market, as shown in Figure 5. The LME's "prompt date" structure allows positions to be booked on any valid settlement day, from tomorrow ("TOM", T+1), through the cash date (T+2), out to three months forward. Between three months and six months forward, positions can be booked on to any weekly (Wednesday) date. And beyond six months, positions can be booked onto any monthly (third Wednesday) date, out to 123 months (in the case of aluminium and copper; other metals have shorter forward curves).

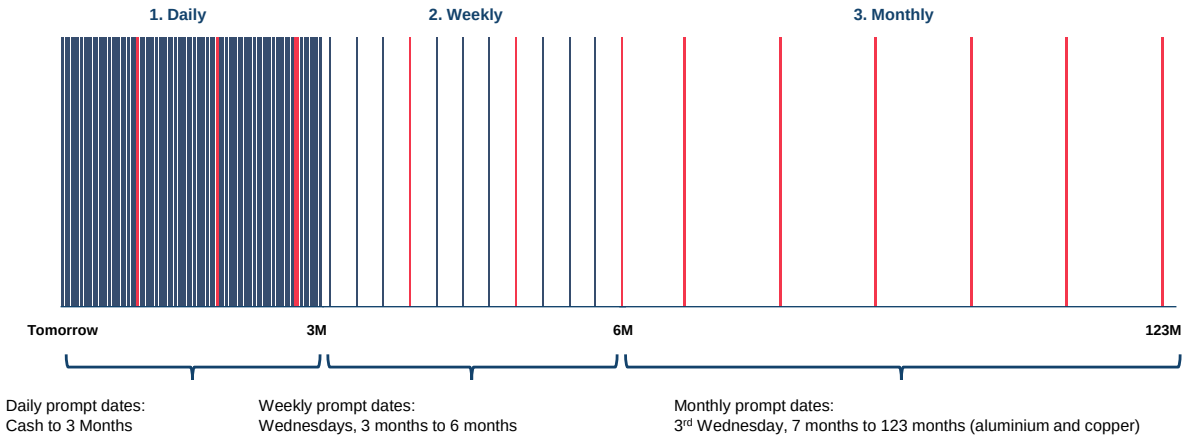

Figure 5: The LME date system

3.3.1. Advantages of the daily date structure

The most important date in the forward structure is the cash date. As set out more fully in Section 2.1.2, the global physical base metals market uses the LME's cash price as a reference in its contracts, and generally prices transactions based on the daily average of the LME cash price over a pre-defined period. And it is only because of the LME's date system that the daily price can be provided – standard monthly futures markets are only able to produce a "front month" price, which (depending on time of the month) may be as much as one month away from the spot market.

3.3.2. Challenges of the daily date structure

Although the flexibility of the date structure is fundamentally a positive factor for the LME, it does raise an important question in respect of the LME's central execution venues (the Ring and LMEselect). In general, futures or forwards markets prefer to concentrate liquidity on a few key dates in order to maximise orderbook depth and hence certainty of execution. It is not feasible for every date in the LME's date system to be liquid on the Ring or LMEselect, and indeed this is not the case.

A key observation is that, although the three month forward date is the customary liquidity inception point, this is not because there is a fundamental desire on the part of the market to have exposure to the three month date. More generally, an analysis of open interest on the LME market indicates that the majority (67%) of such open interest sits on third Wednesday dates. This is consistent with the analysis in Section 2.1.3, which suggests that many participants (in particular, fundamental financial investors) do indeed seek exposure to third Wednesday contracts, as it represents the "standard" monthly date on the LME.

There therefore exists a potential disparity, in that (i) the electronic (and Ring) liquidity inception point (the three month forward date) is not a date to which users generally wish to have access, and that (ii) the date is different to the date to which most (but by no means all) market participants want to be exposed. This sets the LME apart from the vast majority of peer markets, in which the electronic liquidity inception point is generally the same as the date to which market participants wish to be exposed (which is, in the case of a standard monthly futures market,

broadly guaranteed, given the lack of other dates which can act as electronic liquidity inception points).

3.3.3. Arguments for a transition

The core argument for a transition is that the current model of third Wednesday execution (via risk prices made by members) represents a limitation on the usability of the market by certain participants. Although the LME is confident that third Wednesday liquidity can be sourced in depth from a broad variety of members by any client looking to transact, the fact that this liquidity is available only bilaterally via such members (and hence does not exhibit standard pre-trade transparency) creates difficulties for certain fund participants whose investment mandates require the demonstration of best-execution and historical liquidity of the underlying instrument. This is easy to achieve via a monthly futures market structure, since the listed instrument is generally liquid on-screen in respect of at least one monthly future. For third Wednesday contracts on the LME, it is far harder to evidence the same liquidity and best-execution.

Ultimately, the argument for a transition is predicated on the belief that such a transition would be at worst neutral, and most likely positive. Such an argument is based on the view that no market participant fundamentally desires three month forward exposure, and so positions generally need to be carried from the three month forward date to the date on which exposure is actually required. On that basis, according to this argument, a move to a liquid market on third Wednesdays does not disadvantage any market participant looking for a bespoke date exposure, since they can equally easily carry positions from the liquid third Wednesday to their target date. On the other hand, users looking for third Wednesday exposure will benefit from not having to enter into an adjustment trade, hence reducing friction in their execution.

3.3.4. Arguments against a transition

There are two key arguments against a transition of the electronic liquidity inception point to a third Wednesday date.

The first is the fact that many market participants operate business models which are aligned with the current method of execution. A wholesale change would require a re-engineering of these models, which would also require (at the very least) time for adjustment. The same argument applies to the LME as a business – if execution of third Wednesday business were to move overnight to a liquid LMEselect contract on third Wednesday dates, the LME would lose significant carry business, which would have an immediate and negative financial impact on the LME's fee economics. While it would clearly be hoped that such loss would be outweighed by the volumes arising from new market participants attracted by a more liquid third Wednesday market, this clearly cannot be guaranteed.

The second concern in respect of such a transition arises from the view, held by much of the LME's market, that the residual open interest on a three month forward prompt date is significant in respect of the cash trading which takes place on that prompt date when it becomes the LME's cash date, three months later. By this argument, there are certain dates which have little fundamental open interest, and (in the absence of the residual open interest from historical three month trading), the ability of the LME to achieve a liquid cash market (and hence produce a meaningful cash price, which is vital for the global physical industry per Section 3.3.1) would be compromised.

Ultimately, it is impossible to tell whether the absence of a liquid rolling three month date would impact cash trading, although the LME would welcome market views on this matter. Furthermore, the experience of the LMEprecious market, once launched, may be instructive, given that the LMEprecious date structure will combine a cash date with a monthly electronic liquidity model.

3.3.5. The LME's view of a managed transition

Ultimately, the LME accepts that there exists a significant debate among users of its market in respect of dates. The general principle of the LME's flexible date structure does not appear to be in question; rather, the issue is specifically about the dates on which forward electronic liquidity should be concentrated. On the one hand, some stakeholders (certain members, and broadly the physical industry) believe that the LME should not change its current model of liquidity centred on the three month forward date, believing (per Section 3.3.4) that any change could imperil both existing business models, and the continuity of the cash price. On the other hand, a different set of stakeholders (certain other members, and broadly, the investment community) believe that (per Section 3.3.3) the LME must adapt its model in order to compete with peer exchanges featuring a more straightforward market structure.

The LME's position (on which market feedback is welcomed) is that, over time, evolution to a monthly electronic liquidity model is likely, given the current development of market activity towards monthly dates. However, equally, the LME is conscious that it has, via its "liquidity roadmap" initiatives, been seen by many of its stakeholders as overly keen to effect a transition to a monthly model of this nature. Accordingly, the LME sees its proper role as being to prepare the market for a potential move to an electronic monthly structure – but that this would represent a two-phased process:

- In the first phase, work should continue to provide electronic liquidity on third Wednesday dates, but without the market being "directed" to any given execution mechanism. In particular, it is not proposed that fee discounts are provided to incentivise the trading of third Wednesday outrights over three month outrights. This would be, therefore, a true "user choice" model, which would be achieved through one or more of the infrastructural steps outlined below. While it would be hoped that those parties advocating for enhanced LME third Wednesday liquidity would take advantage of the LME's changes, the LME also accepts that it is generally difficult for a market to trade on two liquidity points, and it may therefore be the case that – without more active intervention – the third Wednesday dates do not become liquid. However, in the first phase, no effort would be made to migrate liquidity, even in this event

- A second, contingency, phase would be prepared, in the event that it became apparent (through LME volume data) that, at some future point, the LME's lack of a liquid third Wednesday offering was giving rise to a material loss of business to competitor venues or the OTC market. The market's views are welcomed as to the "trigger point" at which such route would need to be engaged (if at all)

In relation to the potential infrastructural modifications for the first phase, potential routes for consideration are set out below:

- **Provision of liquidity on third Wednesday electronic dates.** It must be remembered that the LMEselect electronic trading platform already offers all valid LME dates for trading, including third Wednesday dates. Accordingly, there is no restriction on any market participant

posting bids and offers, and transacting monthly electronic business, on the LME's electronic market. The LME has historically believed that the best route to enable user choice is to ensure that displayed electronic liquidity is made available on the monthly LMEselect dates (as a complement to the existing, highly liquid three month forward price), such that users enjoy a choice of execution model

- **Provision of implied pricing services on LMEselect.** A related approach is to enable the LMEselect platform to deliver "implied pricing" (or "chaining") services, whereby the electronic trading system will join together (i) a quoted outright for a given date, and (ii) a quoted carry between that given date and a second date, to produce a "synthetic" quoted outright on the second date. A user aggressing the "synthetic" outright on the second date then triggers a "chained" transaction

- **Provision of a separate financial contract.** An alternative route to the promotion of liquidity on the third Wednesday prompt dates of the main contract would be the provision of a separate, monthly, cash-settled futures contract targeted at financial investors. The contract would have to meet the following key criteria: (i) provide liquid trading of the same contract over a longer period of time than one day, (ii) be cash-settled, (iii) use a Realised Variation Margin methodology, as further explained in Section 4.1, (iv) enable users to take long and short positions, and (v) provide leveraged margined exposure to the underlying metal. An alternative approach could potentially be achieved via a cash-settled Contract for Difference ("CFD") product

- **Provision of a permissioned dealer-to-client platform separate to LMEselect.** An approach to bridge the gap between single dealer-to-client screens, and the fully public LMEselect orderbook, would be for the LME to sponsor the creation of a permissioned, centralised dealer-to-client platform, which would operate separately to LMEselect. Under this model, dealers and clients would be encouraged to subscribe to the system, with each dealer permissioning the clients to whom it wished to stream third Wednesday prices, and each client permissioning the dealers from which it wished to receive streamed third Wednesday prices. A client would then see an aggregated feed of prices from its permissioned dealers, which could be executed. The LME would clearly prefer that execution (as would be the case for a client order-routing on LMEselect) resulted in the creation of an LME client contract, although it may be necessary to facilitate an optional OTC-booked model in order to achieve initial dealer support

LME ANALYSIS

- **The LME believes that its T4 booking structure, inter-office trading and date structure facilitate the market's unique ability to make bespoke risk prices to its physical market clients, and would not propose to modify this underlying proposition**
- **However, when applied to more liquid prompt dates (and, in particular, third Wednesday outright trades), the LME is concerned that its market structure does not provide proper incentivisation for the use of its "lit" execution venues**
- **The LME believes that this has a number of potentially significant negative consequences, including (i) depriving the market of full pre-trade transparency with the result that certain clients choose not to participate in the LME market, (ii) creating a significant fee disparity between participants based on their particular business model, and (iii) the concentration of activity in the hands of a more limited number of**

members with aggressive internalisation strategies

- **The issues relating to the T4 booking model are related to operational complexity and fees. Potential fee modifications are covered in Section 7.2.2, and a proposal for a client clearing solution is covered in Section 4.3.2**
- **The issues relating to inter-office trades could be addressed by rules on the use of such trades for liquid LME prompt dates, and greater transparency through the implementation of market-standard EFRP transactions**
- **The date structure is fundamentally a positive for the LME, and the only point at issue is that of the electronic liquidity inception point – that is to say, whether users of the electronic market would more naturally wish to enter positions via the three month forward date, or a fixed third Wednesday date, or, indeed, utilise a separate financial contract. While the LME does not propose to precipitate a change to trading behaviour via its rules, it believes that it must plan for a potential industry-led managed transition to a more monthly market structure**
- **The LME continues to believe that the Ring represents the appropriate venue for the assessment of its prices, while recognising the continuous need to ensure the resilience of pricing and the alignment of observed Ring and electronic prices**

DISCUSSION QUESTIONS

- **3.A Do you agree with the LME's analysis of the advantages and disadvantages of the T4 contract booking structure? Do you believe that the market should be concerned by the fee incentives to book clients OTC, rather than via an LME client contract?**
- **3.B Do you agree with the LME's view that the Ring continues to represent the best venue for pricing activity? Do you see any need for a more formalised "trade at settlement" functionality?**
- **3.C Do you agree with the LME that the inter-office market is an important flexible tool for the transacting of business on illiquid prompt dates, but that it is appropriate to review whether more stringent rules should be considered for liquid prompt dates, to ensure that the booked trades correspond to the underlying flows of gross business between members? Furthermore, do you believe that EFRP transactions should be implemented?**
- **3.D Do you agree with the LME that the flexibility of the date structure is a key asset for the market?**
- **3.E Do you believe that, within the context of the date structure, the electronic liquidity inception point should remain as a rolling forward three month date, migrate to a fixed third Wednesday date, adopt a hybrid model, or migrate to a separate financial contract? If you support evolution, over what time period do you believe that such evolution should take place?**
- **3.F Do you agree with the LME's proposal to adopt a two-phase process, with the first phase being a "user choice" model whereby electronic monthly liquidity is made available but no incentive is provided to adopt such trading, and a second contingency phase is undertaken if it becomes apparent that the LME market is losing significant volumes due to the absence of a liquid third Wednesday offering? If so, (i) which infrastructural developments would you support to achieve the "user choice" model of the first phase, and (ii) what "trigger criteria" would you propose in respect of the second phase?**

4. CLEARING STRUCTURE

SUMMARY

- **The LME currently uses Discounted Contingent Variation Margining ("DCVM") as its variation margin model which involves profits on a trade not being paid until the settlement date of the contract; some market stakeholders have suggested that an alternative approach – specifically Realised Variation Margin ("RVM") that is common across virtually all other exchange traded and cleared markets – might represent less of a barrier to entry to the LME market and will free up capital for many market participants**
- **The LME calculates Initial Margin using the CME SPAN methodology[3]. This remains a highly effective and regulatory compliant approach to clearing; however, this methodological approach does have disadvantages as well as advantages and is typically less accurate than more sophisticated margin models such as Value at Risk ("VaR") which would better capture the date structures and spread risks of LME portfolios. Many market participants have suggested that, despite the additional complexity of a VaR model, the enhanced accuracy would free up capital for market participants and allow for the provision of greater credit to clients**
- **The LME believes that it can further enhance its clearing solution by providing a broader set of client clearing solutions, in respect of booking structure, contract flexibility and risk controls**
- **Offering an OTC-cleared solution for base metals derivatives contracts which reference LME prices alongside the existing exchange contracts would provide members with additional flexibility to introduce client business to central clearing which has been executed OTC under different contractual models**

4.1. Variation margin methodology

The LME Clear variation margin methodology is DCVM. This methodology evolved from the margin methodology used in the bilateral OTC forwards market when central clearing was first introduced into the LME market. The key feature of the DCVM methodology is that cashflows are realised at the settlement date, a factor which may be suitable for a physical market participant using the contract to hedge a physical transaction. Given the clearing house needs to be protected from potential defaults, in practice, the forward profits and losses are discounted to their Net Present Value ("NPV"), and in the case of losses, collateral is collected on a daily basis to cover these losses, while the profits are held as an asset for the account of the clearing member and is available for offset against other margin requirements of that member's account. These profits or losses are realised through the movement of cash on the settlement date. In comparison, profits and losses under an RVM model are exchanged on "trade date + 1" which is the standard methodology for virtually all exchange traded and centrally cleared contracts.

The arguments for using DCVM are two-fold being (i) that it reflects the cashflow requirements of the trade market more accurately as the trade participants will not have the cash to meet daily margin requirements (albeit under DCVM this only applies where the transaction is in profit), and (ii) that it

[3] "SPAN" is a registered trademark of the Chicago Mercantile Exchange Inc., used herein under licence. Chicago Mercantile Exchange Inc. assumes no liability in connection with the use of SPAN by any person or entity

enables certain members to provide additional credit to clients on the basis of the netting effect of the omnibus account structure. This has implications for default management and porting which are explained in more detail below.

As such, the net credit DCVM of one client can be used at LME Clear to support the margin requirements of other clients within the same Net Omnibus Account ("NOSA"), minimising the collateral requirements of the clearing member and enabling them to provide additional credit facilities to their clients. Credit extension is an important service provided by members to the LME market and enables certain participants to access the LME market that might not otherwise be able to participate.

It is worth noting that the use of DCVM is unique to the LME market. Other markets have phased it out due to uncertainties over the economics of trade execution in circumstances where it is not certain how the variation margin on the trade will be supported throughout its lifecycle, the economics being very different where cash is posted (and as such has a value to the pledgee as a reusable asset) against government securities which may be held in a separate segregated account and as such has no reusable value.

The technical arguments for an RVM model are that it reduces the credit exposure of market participants to the CCP; accordingly, it also reduces the regulatory capital cost of members to use the LME market by reducing the overall exposure of members under regulatory capital rules, and provides certainty over the economics of a trade because the receipt is always in full title transfer of cash in the currency of the contract. In addition, in the event of default, the use of DCVM combined with a client NOSA structure significantly reduces the likelihood of the successful porting of client positions. In the event of a default LME Clear will seek, wherever possible, to "port" or transfer the client positions and associated collateral to another clearing member, either through the "porting" of the entire account, and all clients in that account, to the same clearing member, or through a concept known as "partial porting" where each client is ported to a potentially different clearing member.

The logistical difficulties of whole NOSA porting are potential significant. To seek the consent of each client in the NOSA in a limited time period to port to the same clearing member, and also to seek the consent of the clearing member to accept all clients in that account is a highly unlikely outcome. The more likely outcome is that "partial porting" is triggered and each client requests porting to their preferred clearing member – circumstances where DCVM becomes an obstacle to porting due to the requirement to protect the CCP being exposed to losses for which it has no collateral. In short, the interdependencies between clients in a NOSA under DCVM are far more complex than under an RVM model.

The default management implications of DCVM are further amplified in a default auction through the potential difficulties in financing large profits held through credit DCVM. Clearing members are aware that LME Clear is in the process of implementing a mandatory auction process and the existence of large DCVM profits in an auction portfolio will require all clearing members to provide a bid, and by extension, finance the existence of those profits until settlement.

The practical arguments in favour of RVM are based on the simplicity of the model and standardisation with practice across other centrally and bilaterally cleared derivative contracts. For financial participants, the benefits of RVM include the ability to realise profits and losses on a daily basis. Indeed, the LME understands that some financial participants do not use the LME market because they are unable to manage the risk of profits or losses being held until future settlement.

RVM could be introduced either through a "big bang" conversion on a specified date, or on a rolling basis whereby all new contracts from a certain date are on a RVM basis, while existing contracts remain on a DCVM basis until settlement date. The benefit of a big bang approach is that the market only has one margining method for a given contract, while the advantage of a rolling implementation would be that contracts originally entered into on a DCVM basis would remain on that basis until settlement. The LME notes that, as the contracts have different, albeit very close, economic terms, it is not possible to combine DCVM and RVM for the same contract, so the LME market would have to decide whether to retain the current DCVM model or move to RVM for any given contract.

Given the regulatory capital benefits, the ease of porting and default management improvements, and the process standardisation benefits of RVM, the LME does believe that consideration should be giving to moving to RVM over time, given this model seems likely to benefit the majority of members and clients. However, the LME is also conscious that such a move could give rise to challenges for certain clients (particularly in the physical space), especially in relation to financing which is often facilitated by that member using DCVM. While this is clearly a "zero-sum game" (clients would, in total, benefit as much from the return of uncrystallised profits as they would suffer from having to fund uncrystallised losses), the fact that such a model is embedded into the LME's market structure would likely mean that the negative impact on those now having to fund margin could, from a market utility perspective, offset the positive impact to those receiving positive cashflow.

There are additional implications of moving to an RVM methodology, including the impact on the market risk exposure of LME contracts (as profits are then realised T+1, rather than at settlement) and consequent implications on the pricing of calendar strips at average prices. These impacts would have to be carefully managed with the market during any transition.

Accordingly, the LME would propose that, even if the market supports a transition to RVM, the LME does not effect such a transition until it is confident that those who would be negatively affected are able to source the required collateral to support such a move, and hence continue their trading activities. The LME believes that the key to such availability of cash would be the introduction of collateral management services, as more fully set out in Section 5.3.

The LME would welcome market views both on the possible conversion from DCVM to RVM, and on the methodology for implementing such a change.

4.2. Initial margin methodology

The LME faces a similar decision regarding the calculation methodology for initial margin. At present, the LME uses CME SPAN methodology licensed from CME to calculate initial margin. SPAN is a model initially created by CME in the 1980s for futures markets and works well for relatively straightforward futures markets with a small number of settlement dates; it is widely accepted in futures markets globally and derives relatively stable margin parameters. There have been continual improvements in the use of CME SPAN over the years and, since the launch of LME Clear, the CCP has made several improvements that have improved the accuracy of the model and enabled members and clients to better recognise the inherent correlations within their LME portfolios. However, it is clear that the number of improvements that are available under the CME SPAN model are limited going forward and the methodology remains unable to calculate initial margin for interest rate and foreign exchange risk.

Since the financial crisis, there has been an increasing trend for CCPs to move to VaR models that better reflect the risk of large portfolios of trades. There are numerous different types of VaR models ranging from simple through to the significantly complex involving many different simulations of potential market movements, and several of these models may provide many of the benefits of CME SPAN, such as predictability and stability, whilst recognising the date structure of the LME market and the inherent correlations of spread portfolios.

The LME believes that the adoption of a VaR-based model to replace a SPAN-based model would likely lead to more accurate levels of initial margin for a given level of market risk and would better reflect the date structures inherent in the LME market. VaR-based models are increasingly considered to be industry standard and most members, clients and ISVs have systems that can cater for VaR-based models.

4.3. Client clearing solutions

Clients of LME members are an important segment of the LME market and, accordingly, it is important for the LME to provide solutions that enable its members to deliver services which clients want, which facilitate access to the LME market, and which deliver added value wherever possible. The LME believes that there are several potential areas where it can make changes which would enable members to provide better services to their clients.

4.3.1. Gross vs. net margining of client activity

The LME currently offers three types of accounts, a house account and two types of client account – a NOSA and an Individual Segregated Account ("ISA"). The NOSA account operates on a net basis versus the LME's members who then margin their clients on a gross basis as they see fit. Under the EMIR regulation, it is a requirement for the LME to charge a minimum of two days liquidation period. US-based clearing houses for commodity futures can, under Dodd-Frank, operate under a one day minimum liquidation period but are required to collect all initial margin from members for client business on a gross basis. This disparity in liquidation periods leads, regardless of the risk appetite of the CCP, to increased initial margin requirements – c. 40% higher in the EU than in the US.

The LME will be required under MiFID II to provide a Gross Omnibus Segregated Account ("GROSA") for indirect client business i.e. clients of clients, and accordingly, will create a new gross client account structure that will be in place in time for MiFID II implementation in January 2018.

The GROSA account structure operates through the CCP calculating the initial and variation margin of each client on an individual basis which has the direct benefit of CCP protection of positions and collateral, and removes all of the obstacles to "partial porting" of both positions and collateral under the NOSA structure.

Under the EU / US equivalence regime, it will be possible for LME Clear to offer an account structure similar to the US gross account through the GROSA structure but which will benefit from a liquidation period that is likely to be closer to one day[4] for direct client business in a gross account, subject to real-time clearing. Accordingly, it may be possible, subject to regulatory

[4] Article 26 RTS 153/2013

approval, for the LME to extend the new GROSA from indirect clients to also include an offering for direct client activity.

The LME understands that provision of credit to clients is an important feature of the LME market, that its members provide this credit extension service to their clients, and that for some members, the NOSA structure is an important element that facilitates credit extension. Accordingly, the LME would like to retain the flexibility to preserve the current NOSA model but seeks to provide an alternative GROSA account for both indirect and direct client activity in order to give clients the ability to utilise the LME market on a similar basis to their utilisation of the US futures markets.

4.3.2. Further client clearing solutions

One further potential improvement to client clearing relates to the T4 booking model structure fully explored in Section 3.1, whereby all client business, including business undertaken on an agency basis, needs to be booked via the house account of its clearing member. For some clients, this T4 model introduces unnecessary complexity in booking and does not reflect the "agency" nature of the execution model that the client wishes to use. Some clients would therefore like to have a standard booking model where the client trade is booked straight to the client account and does not need to cross the house account – this model is often referred to as T2.

4.3.3. Collateral offerings

The LME offers members the ability to operate a number of different accounts in order to hold their own positions, client positions and collateral in the most appropriate manner for their business. Section 4.3.2 details a potential enhancement to the account structures. All of the collateral management processes within LME Clear are structured around the client posting collateral to the member who, in turn, posts collateral to the CCP. This model works well for the CCP but involves a "grossing up" of the member's balance sheet under certain regulatory capital rules that may add to the cost of clearing client business.

The LME is aware that there are a number of other potential models for posting collateral, including "agency" models which involve the posting of collateral from the client to the CCP or through a Central Securities Depository ("CSD"). These models are in place at many other CCPs that clear other products, and the LME would like to understand whether this model of collateral posting would provide benefits to members or clients in the context of impending regulatory capital or other requirements.

4.4. OTC clearing

The LME market currently offers a wide range of standardised contracts that provide members and clients with the ability to manage risk in the metals markets. However, some of the common types of bespoke contracts in base metals and other products that clients typically choose to execute with their members do not find their way onto the LME and into clearing. Examples of the types of contracts that clients might wish to centrally clear include those in a broader range of currencies, averaging contracts including balance-of-month contracts, cash-settled contracts with non-standard sizes, and less liquid products that are not suited to the LME's order-book.

Currently, the LME supports the execution of bilaterally-negotiated trades through the inter-office market which is then booked as an LME exchange contract. Other markets also offer the ability to

execute OTC business and then bring into clearing, either as an exchange contract or directly as an OTC contract at the CCP.

Over the next few years, OTC commodity derivatives business will be subject to the EMIR Risk Mitigation Rules for Financial and Non-Financial Counterparties. These rules will require Variation Margin ("VM") to be exchanged and in due course, Initial Margin ("IM") to be calculated and held gross by each counterparty. These rules are intended to progressively capture increasing amounts of activity and will have a growing impact on non-financial counterparties or clients of the market that transact more than €8bn in notional. A non-cleared OTC contract held bilaterally will require both VM to be exchanged and IM to be calculated and exchanged based on a minimum 10 day liquidation period – significantly higher than a cleared OTC contract which, depending on the type of contract, will require IM to be calculated on a minimum liquidation period which could range from one to five days.

OTC clearing can – in addition to the standard default management, multilateral netting and credit protections of a CCP – provide additional flexibility that may be of benefit to clearing members and clients. As an example, there is no requirement for trade data publication on CCPs, and the contractual terms used to document the client transaction (e.g. a client contract may have been documented under an ISDA agreement or a bespoke Terms of Business contract) may be easier to reflect as an OTC-cleared contract.

Contracts that are OTC-cleared could not be fully fungible with LME contracts, but the LME could offer margin offsets within the same Default Fund structure as well as the ability to Exchange For Future ("EFF"), a model found in many other markets.

4.5. Pre-trade risk management

The LME currently provides some risk management tools to enable members to manage the exposure of their clients to the market. The LME currently offers a pre-trade risk management system which allows members to set certain high level limits for business transacted on LMEselect at an account level to control the overall size of activity on this platform.

However, for an LME member who wishes to manage their real-time exposure against active trading clients or Non Clearing Members ("NCMs"), it may be helpful to have additional controls at individual account and trader-level embedded in the LME systems, which enable members to set position and either initial margin or variation margin limits against particular accounts or traders.

Under the analysis of principle 4 of Section 1.2, client clearing solutions represent an "additive" growth initiative, which should not adversely impact any market participant. However, the LME remains keen to hear the views of its market on whether such offerings would be of assistance to participants.

LME ANALYSIS

- **The LME understands its current clearing methodology – both for variation and initial margining – to be functioning effectively. However, it is also cognisant that other methodologies may offer greater functionality and market access – and, as such, is happy to consider a transition**

- **The LME is aware that it is unique in continuing to apply a DCVM model for variation margin and there are many advantages to a potential migration to RVM; however, this needs to be considered in the context of the impact of credit provision to clients and the associated implications for client "porting" and default management**
- **Adoption of a VaR-based model to replace a SPAN-based model would likely lead to more accurate levels of initial margin for a given level of market risk. VaR-based models are increasingly considered to be industry standard and most members, clients and ISVs have systems that can cater for VaR based models**
- **Providing a GROSA account as an alternative to a NOSA account may provide additional opportunities for members to provide services to certain types of clients who do not require credit extension**
- **The LME believes that it should provide central utility solutions that enable members to provide additional services to their clients**
- **The LME could offer members the ability to provide, in addition to the current T4 model, a client clearing model based on a T2 booking model, where members are offering an agency execution service that will enable their clients to book trades directly to the client account without having to book through the member's house account**
- **The LME could offer members the ability to clear for clients certain additional types of contracts in addition to those currently offered on the LME trading systems, including additional currencies, averaging contracts including balance-of-month contracts and cash-settled contracts in non-standard sizes**
- **The LME could enable members to manage client exposure through an additional series of controls, including position-level controls and margin-level controls**

DISCUSSION QUESTIONS

- **4.A Do you agree with the LME's assessment of the relative benefits and disadvantages of DCVM and RVM?**
- **4.B Do you agree with the LME's assessment of the relative benefits and disadvantages of SPAN and VaR?**
- **4.C Do you consider that the LME should move to an RVM model? If so, over what time period, and using a "big bang" or rolling method of transition? Do you agree that such a transition should not take place until the LME has ensured that other collateral management solutions have been introduced for those clients who may be impacted by a reduced availability of financing?**
- **4.D Should the LME offer a choice of VaR and SPAN methodology, stay with SPAN or transition to VaR?**
- **4.E If you consider that the LME should move to a VaR methodology, how quickly do you think this transition should happen?**
- **4.F Should the LME provide an additional GROSA account for direct client activity alongside its current offering of NOSA and ISA?**
- **4.G Should the LME offer an additional booking model in addition to the current T4 model for agency style business that would enable members to book certain types of client business directly to the client account?**
- **4.H Should the LME offer additional clearing flexibility to enable members to book "futurised exchange contract" types of business to client accounts that are currently**

not traded on the LME's trading systems, including additional currencies and further types of average contracts, such as balance-of-month contracts and cash-settled non-standard contract sizes?

- **4.I Should the LME offer an additional OTC clearing service, in addition to the current exchange contracts, to enable members to offer clearing of OTC contracts that reference LME prices, but are executed under different contractual terms?**
- **4.J Should the LME offer additional pre-trade controls as a central utility to enable members to control client activity, including controls over positions and margin levels?**

5. DELIVERY AND PHYSICAL MARKET STRUCTURE

SUMMARY

- **The LME's warehouse rules have addressed the issue of structural queues, but have also resulted in a more complex warehousing environment, in which stocks have left LME-licensed warehouses**
- **The LME has been urged to consider a number of issues post-warehouse reform, including operational queues, stock levels, the attractiveness of the LME network and possible simplification of its rules, although it is unclear whether this can be achieved without relaxing the protections available to users of the market**
- **There is simultaneously interest in whether the LME should expand its network of Good Delivery Locations, and the market should consider whether the addition of further delivery locations is positive for LME contracts**
- **As stocks have fallen, the ability of participants to accumulate significant positions has increased, and it may be appropriate to take further action to limit the exposure which any one party may hold**
- **The LME's warehousing network (through both LMEsword and LMEshield) also provides significant opportunities, especially in respect of collateral management and transformation solutions**

5.1. Warehouse rules

Since July 2013, the LME has engaged in a comprehensive review and reform of its physical delivery network, starting with a three month market-wide consultation. The context for this, together with an overview of the LME warehouse network, is explored in full in the consultation report published in November 2013 following the consultation process, and complete details of the warehouse reform programme as a whole have been set out in various LME notices[5]. The LME would not intend, then, that this Discussion Paper revisit the background to, or actions in respect of, warehouse reform. However, the LME is cognisant that such an all-encompassing reform programme has had a significant impact, not only on the rules and regulations which govern the LME physical network, but also, by extension, on the operation of the LME's physical network, and the way in which market participants and the network interact.

Given that the LME now considers its warehouse reform programme (being those items announced in November 2013) to be completed (following the implementation of charge-capping on 28 December 2016 and the first rent and FOT rates submitted under this cap coming into effect on 1 April 2017), the LME believes it is appropriate to address some of the outstanding questions which pertain to the ongoing effective operation of the LME's physical network, and which the LME has been requested to consider by certain of its core stakeholders within the warehousing and physical market communities. To the extent, then, that some analysis of the impact of warehouse reform is necessary to provide sufficient context, this is included below.

[5] All of these notices can be found on the LME website at http://www.lme.com/trading/warehousing-and-brands/warehousing/lme-warehouse-reform/

5.1.1. Impact of warehouse reform

The LME's warehouse reform programme identified the effect of embedded (or "structural") queues as creating a discount between the free market price of metal and the value of an LME warrant in a warehouse with queues. By extension, this caused the LME price to trade at a discount to the free metal price, which was then observed by the market as the free market price of metal trading at a premium to the reported LME price. Although the LME accepted that there would always be a premium due to the "in-warehouse" nature of the LME contract – requiring, for example, the payment of a load-out or free-on-truck ("FOT") charge to convert an LME warrant into free metal – the effect of the queues was to increase this premium as a proportion of the "all-in" free metal price. Thus, queues and the associated premiums created difficulties for the metals community in respect of both the discovery of the "all-in" price, and the effective hedging of that price.

As a result, the reduction of structural queues (and the associated premiums) was a primary policy aim of the warehouse reform programme, and the LME would note that structural queues at all five of the warehouses affected by such queues at the start of the warehouse reform programme in 2013 have fallen (per Figure 6), with only one of these queues remaining at over 50 days as at the end of March 2017. In turn, this has reduced the queue-based element of market premiums (per Figure 7).

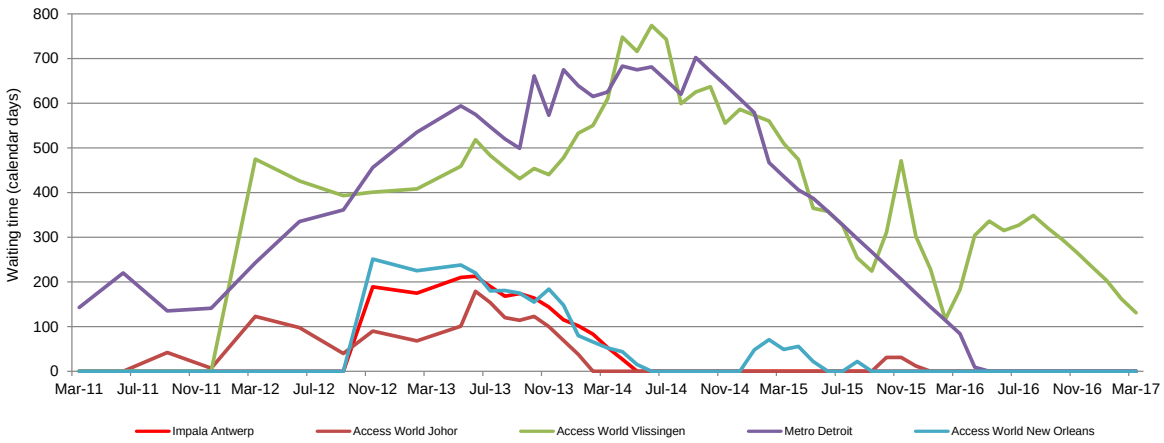

Figure 6: Queue development at the five affected warehouse on 1-Jul-13 (31-Mar-17)

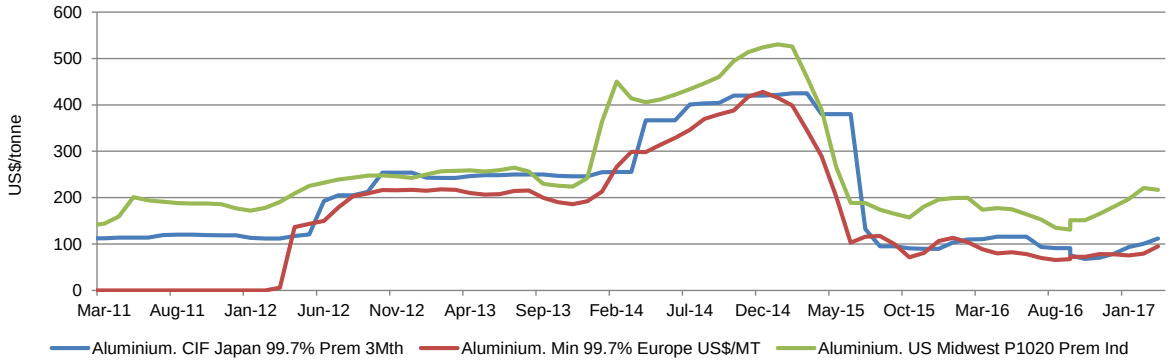

Figure 7: Development of market premiums (31-Mar-17, data per Metal Bulletin)

5.1.2. Outstanding policy questions on the LME's physical network

Although, as Figure 6 and Figure 7 demonstrate, the reform programme has achieved, or is in the process of achieving, its primary goals, the resulting behavioural change has, in turn, raised a number of questions relating primarily to the target "normal" state of the LME's physical network.

- **Ongoing emergence of operational queues.** The LME has always maintained that structural queues (as discussed above) are distinct from operational queues (i.e. queues which emerge as part of the normal course of business of running a warehouse company, usually as a result of significant cancellations at one warehouse location, and against which the warehouse operator generally cannot protect itself). Indeed, the LME considers that, while structural queues were largely responsible for devaluing the warrants caught up in such queues, operational queues are an inevitable element of running a logistical operation which undertakes responsibility for the movement and storage of such quantities of material.

  The warehouse reform programme was never intended to (and nor indeed did the LME view this as a feasible policy goal, even if it were proposed) prevent such operational queues from emerging. Instead, the intention of the reform was to ensure that metal in such queues would be delivered out in a timely fashion, while respecting both the desire of the metal owner to take possession promptly (and not be unfairly financially penalised for the existence of a queue), and the logistical challenge inherent for a warehouse company in loading out significant tonnes of metal expeditiously.

  In particular, the Queue-Based Rent Capping ("QBRC") rule was designed to remove the financial incentive for warehouse owners to allow a structural queue to build up, and thus limit queues to those arising solely for operational reasons. To take a recent example, as per the warehouse company stocks and queue data report of 28 February 2017, one of the LME's listed warehouse operators has seen a queue of 136 days emerge at its sheds in Busan, falling to 122 days at the end of March, which appears to be driven by large cancellations and, thus, to represent an operational rather than a structural queue[6].

  A further impact of QBRC is that it should protect those taking delivery of warrants on the LME market from receiving warrants in a warehouse subject to a queue (be it structural or operational). This is because the impact of QBRC is to provide, in effect, rent relief for warrantholders in the queue, which tends to make those warrants more valuable than the average LME warrant due to the cheaper, or free, storage

- **Stock levels in the LME network.** The LME has always been clear that warehouse reform in the pursuit of structural queue reduction would have consequences beyond its primary policy aims; indeed, a number of participants in the warehouse reform process highlighted that principal amongst these consequences would be a reduction of stock stored in LME-listed warehouses. That this impact has materialised is demonstrated in Figure 8.

[6] This is based on the evidence currently available to the LME. The LME reserves the right to investigate further and / or change its assessment in the event that further information were to come to light

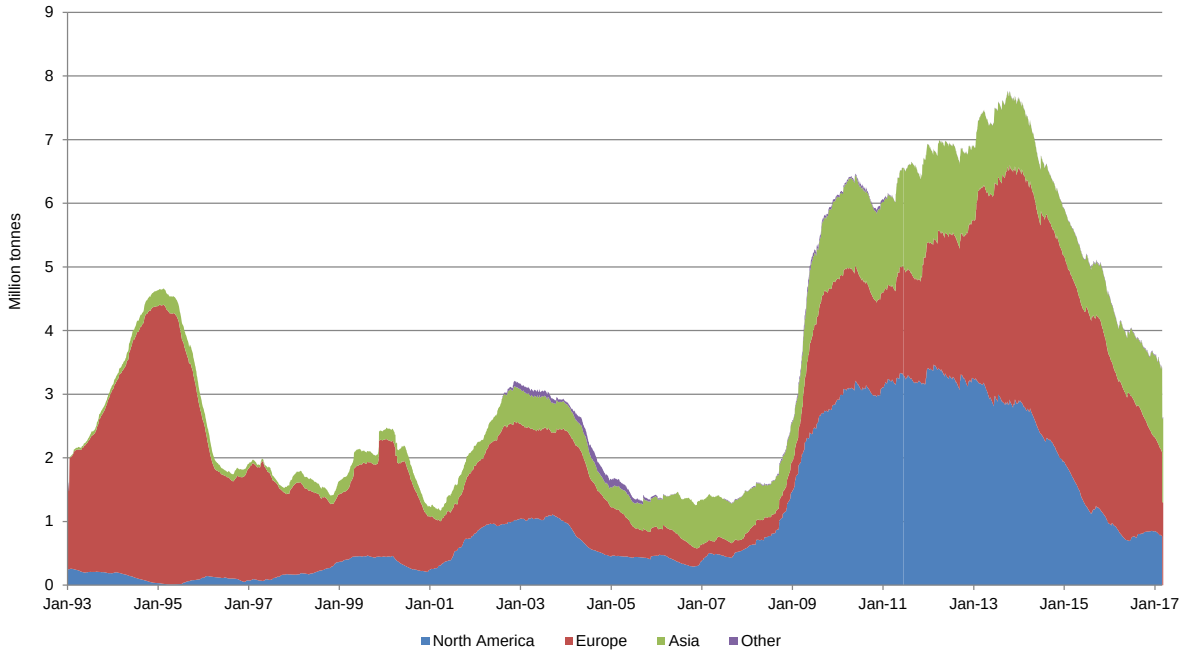

Figure 8: Historical stock levels in LME-listed warehouses (31-Mar-17)

Reduced stock levels have given rise to a number of concomitant concerns, namely (i) that they create an increasingly opaque market due to a reduced ability by the market to track or monitor the movement of metal in non-LME warehouses, (ii) that the LME risks stock levels falling below those necessary to enable orderly delivery against any of its physically-settled contracts, and (iii) that reduced stocks provide conditions to facilitate backwardations, given the greater scope for a market participant to take control of a significant portion of those stocks in time of low warrant supply, compared to times of high warrant supply.

Although the LME agrees that the first of these is a consequence of warehouse reform, the LME cannot prioritise transparency at the expense of the primary role of its physical network; namely, to allow for the possibility of physical settlement of an LME contract. This speaks to the second concern, which the LME does not assess as an imminent threat. Although Figure 8 does illustrate that LME stock levels have reduced, it also demonstrates that they been significantly lower in the past and that stocks remain, comparative to historical norms, relatively high. Further, in reality, very little metal is required to be held on-warrant to allow for the orderly settlement of any such contract.

Additionally, the LME's analysis indicates that the warehouse reform programme has not, in fact, precipitated a one-way flow of metal out of the LME system. Figure 9 demonstrates that stock levels, although reducing overall, are not falling evenly across the global network, but disproportionately at the last two principal "affected" warehouses – Pacorini (now Access World) Vlissingen and Metro Detroit (noting that Metro Detroit has not had a queue since May 2016). Across the remainder of the LME network, stock levels have broadly stabilised.

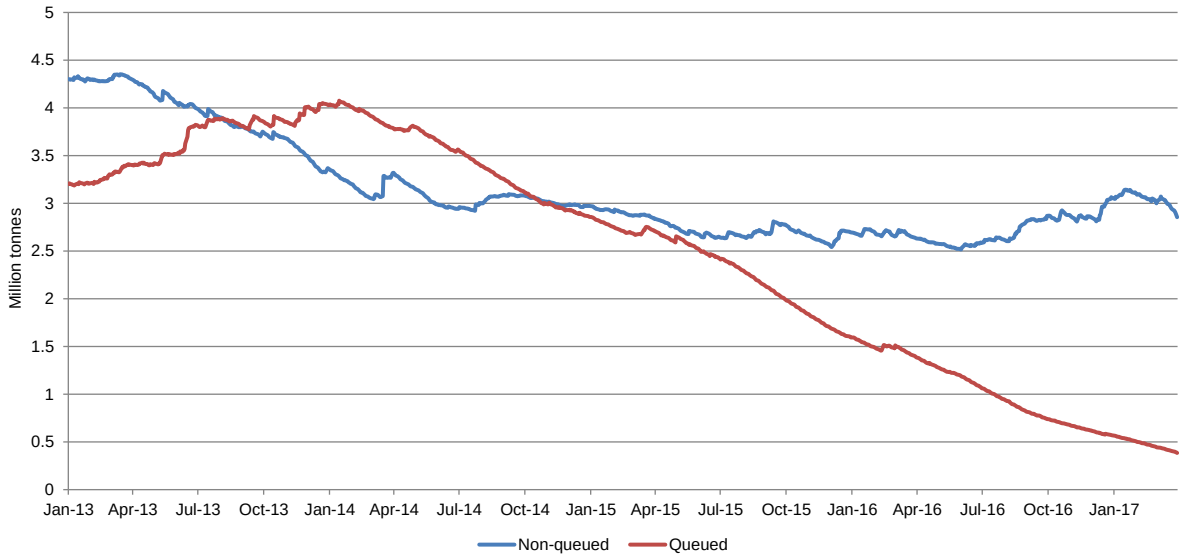

Figure 9: Stocks over time at queued vs. non-queued warehouses (Jan-13 – Mar-17)

In respect of backwardations, it is not clear that the role of LME policy should be to maintain a perpetual state of contango – a backwardation may be an appropriate signal that more metal is needed in the LME warehousing network, and hence act as the counterbalancing force to precisely the concern outlined above in respect of a lack of metal in the network (although equally, it is also not to permit the maintenance of a non-fundamentally justified backwardation). To the extent that the market believes backwardations on the LME to be unreflective of prevailing market conditions, the LME believes this should be addressed via primarily policy action and is exploring its options in this regard, as outlined below in Section 5.2.

Thus, in summary, although the LME recognises the validity of concerns about the potential flow of metal off-warrant, it was, and continues to be, a necessary, however unwelcome, corollary of taking positive action against embedded queues

- **Can, and should, the LME warehouse rules be simplified?** Since the completion of the warehouse reform programme, a number of market participants have approached the LME and urged it to consider the possibility of simplifying the warehouse regime. The warehouse reform programme has resulted in the introduction of two key items: the Linked Load-In / Load-Out Rule ("LILO") and QBRC. While, in the view of the LME, both policy elements were necessary as part of the warehouse reform journey, it is now appropriate to review the ongoing suitability of the overall policy package, and the LME welcomes views in this regard

- **Can more metal be attracted to LME warrant, and what is the "normal" state of the LME warehousing network?** A key concern from many market participants is the ability of the LME warehousing network to attract metal. As set out above, the LME does not believe that current stock levels are low, on a historical basis – rather, stocks are falling from a structural high driven by queue activity. Furthermore, while the LME aims to create an attractive warehouse network which metal owners would wish to utilise, it is not a policy aim of the LME to maximise stocks in the warehouse network.

The LME would note in this regard that – absent a driver to place metal on LME warrant (for example, a need to deliver onto the LME for contract settlement, or a requirement by a financing party for metal to be held on-warrant) – it is likely that cheaper storage will be available on an off-warrant basis. Even though those placing metal on LME warrant generally do not pay the headline warehousing charges (as they are able to negotiate a lower cost of storage), this will still be more expensive than off-warrant storage, since LME warranted storage is a premium service (such as requiring indoor storage and higher levels of reporting). As such, the natural state will be for metal to be held off-warrant, unless there is a business case for warranting. Although some market participants have argued that incentives (both queue-based incentives, which are not explicitly banned, but also incentives which are not predicated on the existence of a queue) artificially inflate the stocks of LME-warranted metal, it is equally the case that – in the absence of such incentives – the LME system would likely see even less metal stock.

Therefore, while the LME has come under pressure to further limit the set of allowable incentives (in particular, to ban "lifetime" or "evergreen" incentives, in which a party depositing metal in a warehouse negotiates a share of all future rental income from future owners, for as long as the metal remains in the warehouse), the LME believes that further interference risks straying into an area of warehouses' commercial judgement (namely, their willingness or otherwise to underwrite incentive payments). However, the LME is open to differing views from its market

- **Good Delivery Locations ("GDLs").** Related to the issue of reduced stocks and the relative attractiveness of the LME storage network has been a question about the optimal global geography of the LME's GDLs – are there gaps in the LME's physical network footprint, and how proactively should the LME be in moving to address such gaps? These questions have been given added pertinence by the concerns, as outlined above, that warehouses have been disincentivised from accepting warrants over a certain total tonnage, given the risks inherent within QBRC that significant amounts of that tonnage should be cancelled, rendering the warehouse susceptible to QBRC provisions. It has been suggested that, if existing warehousing companies cannot, or will not, accept tonnage over a certain amount, the answer is for the LME to license new locations to support a model which prioritises many warehouses with small total tonnages, over a more consolidated model where fewer large warehouses manage the majority of the stock.

  The LME's position is that it welcomes applications from new delivery locations and will consider these in good faith (pursuant to the guidelines set out following the LME's consultation on its logistical review, the results of which were published on 2 March 2015) with the support of the Warehousing Committee, the Physical Market Committee, and relevant metals committees, but would welcome thoughts from market participants, both as to potential other locations and the extent to which the LME should be proactively pursuing these

5.2. Lending Rules and position limits

The LME is required to have in place arrangements for the monitoring and management of positions held on its market, and in particular those dominant positions which could have an undue influence upon the price formation process. However, it should be noted that the holding of a dominant position does not necessarily mean that the price formation process is or has been subject to such undue influence.

The LME's Lending Rules are the primary mechanism by which dominant positions are managed, requiring those position-holders to provide liquidity to the market at pre-defined levels relative to prevailing market prices.[7] However, positions are only calculated with regard to on-exchange net positions held on TOM (i.e. positions for delivery on the following business day), and cash (i.e. positions held for delivery in two business days' time), plus any warrant holdings. It is only where the net position is in excess of 50% of total stocks that a position is considered to be dominant and hence subject to Lending Rules.

The LME is aware that some market participants have questioned whether the Lending Rules are an appropriate position management mechanism where significant positions have been built-up in further-listed prompt dates, and which would not be included in the calculation used to determine the existence of a dominant position under the Lending Rules. This is of particular concern where it is considered that the development of such significant positions may have resulted in undue influence being exerted upon the price formation process, and that such influence may have gone undetected by the LME and / or not be subject to any action on the part of the LME. Whilst it should be noted that the LME has the power, via the Special Committee, to take such action as is deemed necessary to maintain a fair and orderly market with regard to any position held on the market, historically such action has been restricted to the operation of the Lending Rules.

Although the Lending Rules are well understood, and accepted by members and their clients, the forthcoming MiFID II regulations will introduce the concept of position limits to the LME market. These limits will be set not by the LME, but by the FCA and will apply to all prompt dates, not just TOM and cash as is the case for the application of the Lending Rules. The introduction of position limits will not replace the requirement for the LME to have in place arrangements for the management of positions, and hence the Lending Rules will remain in full force and effect, but it does provide an opportunity to review them to ensure that they remain an appropriate and effective mechanism for managing dominant positions.

The LME is aware that suggestions have been made in the recent past regarding the extension of the calculation of dominant positions to include those held on further-listed prompt dates, as well as suggestions that the threshold for the determination of dominancy be reduced from the current 50% of stocks combined with changes in the threshold and premiums at which liquidity should be provided to the market. Whilst the LME is keen to listen to all suggestions for changes that would result in a more effective position management regime, it is concerned to ensure that any such change would not give rise to inappropriate behaviour on the part of market participants, and in particular to ensure that neither short or long position-holders would unduly benefit from any such change. It should also be noted that concerns expressed about the effectiveness of the Lending Rules may have been addressed via the warehouse reform package and hence in the LME's current assessment no change is required at this time, at least for the LME's more-liquid contracts.

5.3. Commodity collateral management

A key challenge for the global metals (and, more broadly, commodities) market is the need for asset owners to raise cash against their investments – and, on the other side of the equation, for banks and other parties to efficiently offer financing to such asset owners. The LME is aware that a significant element of the usage of its market is attributable to financing transactions – giving rise both to warrant transfers on the LMEsword platform, and forward trading on the LME market in order to

[7] Where a position is in excess of 50% then liquidity is to be provided at ½% of the cash price, if in excess of 80% then at ¼%, and if in excess of 90%, then at the cash price

hedge price movements during the financing period. Financing is important both as a profit-seeking transaction in itself, but also as part of a broader industry need for collateral management and transformation – that is, the general service of raising cash against financial assets. A particular driver of the need for cash is an increased move to the central clearing of commodity derivative forward positions, which requires the posting of cash margin against positions, and which must be funded (including by means of collateral transformation against the underlying physical commodities which are being hedged).

While the LME market provides the underlying tools required for financing, no concerted effort has been made to package together services specific to financing or collateral transformation. However, the LME believes that it can offer significant such services to the market, including in relation to:

- **LMEsword** – although primarily deployed as the warrant management system to support the physical settlement of LME contracts, LMEsword has become the *de facto* standard for custody of LME-deliverable metal. By providing a mechanism for metal to be represented by warrants and transferred between parties (either in settlement of an LME contract, or bilaterally via an "ex-cleared" warrant transaction), the LME provides an effective and trusted mechanism to effect the physical metals transfers crucial to an efficient financing market

- **LMEshield** – in 2016, the LME launched the LMEshield service, which builds on the services of LMEsword to broaden the LME's offering in this space. In particular, LMEshield extends the range of eligible commodities which can be placed on-receipt, broadens the geographies in which warehouses can be licensed, and adds financing-specific functionality (for example, receipt pledging)

The LME believes that, by further building out the LMEsword and LMEshield offerings (for example, by leveraging LME Clear's facilities to enable a delivery-versus-payment service), significant efficiency can be brought to the market. Per the analysis in principle 4 of Section 1.2, the LME views such developments as being positive for all market participants in that no market structure change is required; however, the LME is interested in the views of its market as to how such a service can most helpfully be offered. In particular, the LME believes that it is well-positioned to offer both a delivery vs. payment system for commodities, and also a commodity repo system for LMEsword and LMEshield receipts.

LME ANALYSIS

- **The LME considers that its warehouse reform programme has achieved its primary policy objectives, while accepting that there have been additional consequences, such as falling stocks. The LME believes that operational queues are not an outcome of reform, rather an element of normal logistical activity**
- **The LME would be pleased to consider both expanding its GDL network, and simplifying its warehouse rules. However, the LME's priority remains the maintenance of an orderly market, such that the value of warrants in its warehouse network is reflective of the "all-in" price of metal – a priority which demands both that GDLs meet LME regulations, and that warehouse rules adequately protect the market**
- **The LME considers that the existing Lending Rules, together with the daily reporting of positions and Accountability Levels regime, are effective means by which positions, including dominant long positions, can be managed and are consistent with the LME's regulatory obligations**

- **However, the LME is keen to understand whether there is any appetite for change to the current regime, particularly in light of the forthcoming introduction of FCA-determined position limits under MiFID II**
- **Any change must not result in the encouragement of inappropriate behaviour on the part of market participants and the LME further considers that changes must apply equally to all LME physically-delivered contracts**
- **The LME believes that the implementation of a DvP solution for LMEsword warrants and LMEshield receipts would significantly reduce intra-day exposures across the LME market and would enable greater liquidity and efficiency for metal holders**
- **The LME believes that the development of a commodity repo service for LMEsword warrants and LMEshield receipts could provide the opportunity for commodity owners to maximise the liquidity of their asset holdings**

DISCUSSION QUESTIONS

- **5.A Do you agree with the LME's overall assessment of its warehouse reform programme, including its position on operational queues?**
- **5.B Do you think the LME should pursue rule simplification and if so, what do you think represents the optimal balance between market protection and simplification? Alternatively, do you think that some rules should be further strengthened?**
- **5.C Are there locations which you believe the LME should assess as potential GDLs, and would you like to see an expansion of the GDL network?**
- **5.D Do you agree that the Lending Rules are well understood and accepted by market participants, and that they provide appropriate protection against the potential impact of lower stock levels?**
- **5.E Do you consider that the inclusion of positions held on further-listed prompt dates would be appropriate when determining whether a position is dominant or not?**
- **5.F Do you consider that the current Lending Rules threshold limits (both percentages and premium level) are appropriate?**
- **5.G Do you agree that the LME should develop a DvP solution for LMEsword warrants and LMEshield receipts?**
- **5.H Do you agree that the LME should explore the development of a commodity repo service for LMEsword warrants and LMEshield receipts, modelled on the existing repo market for securities?**

6. MEMBERSHIP

SUMMARY

- **Members sit at the core of the LME's ecosystem, and the LME believes that its membership structure serves its market well**
- **Residual challenges include (i) accommodating regulatory change and demand from entities wishing to undertake and clear group business, and (ii) reacting to demand from entities wishing to self-clear and provide execution-only services to clients**
- **The LME's category 4 membership structure has been revised recently, although value of the category 4 proposition to the proprietary trading community remains limited**
- **The LME is committed to the role of B shares in its membership structure**
- **The role of Introducing Brokers is becoming increasingly significant, especially as the LME moves into the ferrous space and looks to grow its options offering**

6.1. Membership categories

The LME believes that its membership category structure remains appropriate for the nature of its core base metals market; but with minimal enhancements, it could accommodate an even wider range of market participants. Within the current framework, the category 1 (Ring-dealing), category 2 (effectively a General Clearing Member, or "GCM") and category 3 (effectively an Individual Clearing Member, "ICM") have a clear role and structure, and the LME believes that they operate effectively. The importance of the LME's membership in terms of providing dealing and brokerage services to its market is more fully set out in Section 2.1.1.

The LME feels that certain improvements to the flexibility of its membership structure could be effected – in particular:

- The introduction of an "affiliate account" into the CCP account structure, to be made available for all clearing memberships. This would be offered at no additional cost to GCMs, but ICMs would be required to pay a supplement over and above the current category 3 annual subscription charge and acquire an additional number of B shares in order to receive the additional benefit of an affiliate account to undertake group business. The fees that would apply to the affiliate account are covered in Section 7.2.5

- A new membership category which could maintain a house account at LME Clear, but no client accounts (OSAs or ISAs) and could therefore be offered as an enhancement to category 3 membership. Such ICMs would be required to pay a supplement over and above the current category 3 annual subscription charge and acquire an additional number of B shares in order to receive the additional benefit of being able to execute (and give-up) client business

- Offering a fee benefit to proprietary trading category 4 members, as further set out in Section 7.2.4, to recognise the greater degree of commitment to the LME market exhibited by those who choose to become category 4 members

6.2. B shares

As previously stated[8], the LME has no current intention to revise B shareholding requirements for base metals membership. Indeed, as a result of the LME's recent consultation on membership arrangements for the LMEprecious service, the LME took account of the concerns of members around the originally-proposed lack of requirement for LMEprecious GCMs and ICMs to hold B shares, and revised its rules to create such a requirement.[9]

In general, the LME is conscious that the holders of its B shares are keen to maintain, and if possible increase, the value of their holdings. Because B shares are a condition of membership, the value of B shares will naturally be maximised if more market participants look to become members, and hence be required to purchase shares. In this manner, the interests of the LME and the B shareholders are aligned, in terms of a desire to maximise membership participation, provided that candidate participants are suitably qualified for membership.

In this context, the LME is regularly made aware by candidate members that the process of acquiring B shares can be difficult to undertake. This is for two core reasons:

- Firstly, there is no transparent facility for expressing interest in selling or buying B shares. Such a facility was made available (through a third-party provider) until 2014, at which point the third-party provider withdrew their provision and the service ceased. Since that time, prospective buyers of B shares have been forced to contact existing B shareholders (who can be identified from the public share register) in order to source B shares, which does not appear to represent an efficient process.

  The LME would therefore propose, if agreeable to its B shareholders, to re-engage a third-party provider to restore the provision of a facility whereby interest expressed by both buyers and seller of B shares could be made visible. The LME would welcome the views of its market on the precise operation of such a service – and, in particular, whether the market would support the "printing" of trade details (including price), or whether the facility should simply match potential buyers and sellers, without releasing details of the eventual trade.

  It should be noted that the LME is unable to operate such a facility itself, because the Exchange does not have the relevant regulatory permissions. Therefore it would be necessary to appoint a third-party in order to operate such a facility

- Secondly, the LME (unlike many peer venues) does not offer any form of B share "leasing" scheme[10]. For some potential LME members, the capital investment required to purchase the required B shares can be prohibitive, and such participants would prefer to enter into a "leasing" arrangement, whereby a holder of excess B shares can (through an appropriate legal or rules-based mechanism) allow the prospective member the benefit of the shares (in particular, the ability to use those shares to satisfy the LME's shareholding requirements for membership) in return for a bilaterally-agreed "rent" paid to the holder of excess B shares. The LME believes that such a facility would heighten the ability of potential members to gain

[8] See LME notice 17/116 published on 4 April 2017 at paragraph 28

[9] See LME notice 17/116 published on 4 April 2017

[10] Note the LME uses the term "leasing" in its broadest sense. Strictly speaking, it is not possible to "lease" a share. Legally, a "leasing" arrangement would have to be either (a) a sale and repurchase ("repo") arrangement, or (b) an arrangement whereby an existing shareholder with a surplus of B shares allows an applicant member to count those surplus shares towards the B shareholding requirement for the purposes of its membership application

access to the market, and additionally the ability of holders of excess B shares to create economic value from those shares, even if there is not an offer for outright purchase in the market.

The LME recognises the potential concern from the holders of excess B shares that, by introducing a "leasing" mechanism, the LME may reduce the demand for outright purchase of shares, as potential purchasers may choose instead to follow a "lease" route. However, the view of the LME is that the market will price efficiently, and that the "lease rate" will be linked to the outright sale offer price on the basis of the prevailing discount rate. The views of the market on the question of B share "leasing" are welcomed

6.3. Introducing Brokers

A further dimension in which the LME's market structure may be optimised is in relation to the role of Introducing Brokers. These are brokers who, although not LME members (and therefore not having the benefits of membership, including the right to execute or clear trades) play the role of "arranging" trades between clients of members, or between a member and a client, which are then processed by the member or members concerned.

Introducing Brokers have been active on the LME since at least 2000 when a notice was issued[11] formalising the arrangements which need to be put in place; the LME has issued subsequent guidance in 2016 and 2017[12]. The LME understands (but would welcome market feedback on this topic) that members and clients generally welcome the participation of Introducing Brokers, given that the trades arranged by the Introducing Brokers may otherwise not have been brought together, and hence the total execution potential (for clients) and fee pool (for members) is increased. However, two significant drawbacks of the LME's current Introducing Broker structure have been raised:

- Firstly, there is no route for an Introducing Broker to have a direct relationship with the LME; rather, the Introducing Broker must operate under the aegis of an existing LME member, with that LME member taking full responsibility for the activities of the Introducing Broker. This can render it more difficult for Introducing Brokers to access the market. Accordingly, the LME would be interested in the views of its stakeholders as to the possibility of Introducing Brokers being approved and supervised by the LME itself. This could represent a new category of membership (as Introducing Brokers have limited rights), or be introduced as a specific Introducing Broker status. Of course, in order to bring about any trade, Introducing Brokers would still require a relationship with LME members, in order for the trade to be executed and cleared. The key change would be that, in order to obtain Introducing Broker status, the entity would need to enter into an agreement with the LME, governing the terms on which the Introducing Broker could have access to the matching system (and any other LME systems, if relevant)

- Secondly, the mechanism for an Introducing Broker to bring about a trade on the LME is more logistically complex (for all parties) than on peer exchanges. The general scenario is that the Introducing Broker wishes to arrange a trade between Client A (who is a client of LME Member M) and Client B (who is a client of LME Member N). On the LME, such business would be booked utilising agency and give-up agreements (necessitating such agreements to be in place, hence requiring significant back-office coordination between all parties). On the other

[11] Notice 00/385 : A378 : R012 dated 15 September 2000
[12] Notice 16/202 : A196 dated 3 June 2016 and notice 17/047 dated 2 February 2017

hand, many peer venues offer an automated facility, whereby Members M and N can authorise the Introducing Broker to arrange trades for Clients A and B, respectively. With this facility in place, the Introducing Broker can log in to the exchange's trade matching system and input the details of the trade between Client A and Client B. The details are then sent to Members M and N to verify on behalf of their respective clients (with the counterparty in each case not displayed, i.e. preserving the confidentiality of the Introducing Broker's business relationships). Once verified, the trade would be booked and cleared as if Member M and Member N had agreed the trade directly between themselves

The LME believes that an enhanced Introducing Broker model could be helpful, particularly in respect of markets where this style of execution is the standard model (for example, options and ferrous products) – with the benefit of bringing more volume to the LME, and more execution and clearing flow for LME members. However, the views of the market in this regard are welcomed. In particular, it may be appropriate to consider whether the role of Introducing Brokers should be strengthened particularly in respect of new products (for example, the LME's ferrous contracts) and those where it is looking to build liquidity (for example, its options suite).

LME ANALYSIS

- **The LME believes that its membership structure serves its market well, but would benefit from further enhancement in order to accommodate a broader range of participants and grow the membership**
- **Introducing an affiliate account to all clearing memberships will allow affiliate business to be booked to a separate OSA / ISA affording a differential fee to be applied to those trades, and allow ICMs to undertake group business without having to become a GCM**
- **Permitting category 3 members to additionally execute and give-up trades for clients will allow for wider participation in LME membership**
- **The LME's commitment to its B shareholders remains steadfast, and the LME is prepared to invest in further facilities to enhance access to B shares, allowing holders of excess B shares to dispose of these, while making LME membership more straightforward for potential candidates and further increasing demand for B shares**
- **Optimisations to the category 4 proprietary trader structure, and an enhanced role for Introducing Brokers, will, in the view of the LME, enhance volume, and hence revenue streams for the membership through whom such trades would be executed and cleared**

DISCUSSION QUESTIONS

- **6.A Do you agree that the LME's membership structure provides broadly the correct interface between the LME and its underlying market?**
- **6.B Do you agree with the LME's proposal to introduce an affiliate account for all clearing memberships such that a differential affiliate client fee can be applied and ICMs can undertake group business without having to become GCMs – thus introducing more flexibility into the membership structure?**
- **6.C Do you agree with the LME's proposal to enhance the category 3 membership category to allow for execution-only client business?**

- **6.D Do you agree with the LME's view that the category 4 proprietary trading model would need to enjoy a fee benefit (beyond fees paid by a standard client of a member) in order to gain traction?**
- **6.E Do you agree with the LME's proposal for (i) a facility for the sale and purchase of B shares, and (ii) a B share "leasing" facility?**
- **6.F Do you agree with the LME's proposal to enhance the role of Introducing Brokers in its market?**

7. VOLUMES, COMPETITION, FEE STRUCTURES AND GROWTH

SUMMARY

- **Recent volume trends on the LME have been negative, driven by a combination of lower warehouse stocks, reduced volatility, depressed fund allocation to the commodity sector and increased fees**
- **While fees are ultimately a commercial matter for the LME (subject to the requirements of applicable law or regulation), it is appropriate for this Discussion Paper to consider whether the LME's fee structures incentivise behaviour which is beneficial to the market. In a number of respects, the LME believes that changes to the relative levels of fees may be appropriate, in order to maintain a level playing field for all LME participants**
- **The LME is comfortable with the use of its pricing and delivery infrastructure for OTC activities by its members. However, such comfort would not extend to the use of its facilities for trades executed on competitor platforms (subject to the requirements of applicable law or regulation)**
- **The LME undertakes an in-depth process for the analysis of new products, including extensive market engagement. It maintains a continual review of both the LME's existing product suite, and potential new products (a number of which are currently under consideration) to ensure contracts offer genuine value to the markets they serve**

7.1. Volume trends and drivers

Much of the commentary on the drop in volumes has focused on the potential impact of fee increases which were implemented in January 2015 and which have been broadly interpreted as the primary cause of falling volumes. The LME itself has always maintained that it is too simplistic to identify the cost of trading as the sole cause of declining volumes, but would instead point to a broader range of factors, which – while acknowledging the impact of fee changes – does take a broader economic picture into account. However, in aggregate, the LME recognises that volumes on its market have fallen over recent years, while volumes on peer exchanges have, in certain cases, risen over the same period.

7.2. Fees

At the outset, it should be noted that the absolute level of fees is a commercial matter for the LME, and it would not be appropriate to address such levels in the context of this Discussion Paper. However, the LME does consider it appropriate to consider fee structures – that is, the relative levels of fees charged for particular trading activities on the LME.

Accordingly, in the context of this section, it is easiest to analyse fees through a "revenue-neutral lens" – that is to say (assuming the LME's total fee revenue is to remain constant) whether there exist modifications which should be made in order to rebalance fees between particular groups or particular types of trading activity. As a second-order effect, it must then be considered that fees will influence trading behaviour, and so volumes would be expected to adjust on the basis of any revised fee schedule.

Clearly, the LME may separately make a decision to change the overall fee burden, based on commercial or other factors. However, this would ultimately be a matter for the LME, and should not be viewed as within the scope of this Discussion Paper.

7.2.1. Carries vs. outrights

The LME accepts that, in setting its 2015 commercialised fee levels, the analysis undertaken in respect of fees did not fully reflect the specific features of the carry market. In particular, analysis in respect of fee burden was calculated with reference to outright transactions, which necessarily makes fees look less onerous (calculating fees as a proportion of the value of an outright sale or purchase). Carries are necessarily more fee-sensitive, given that the value of the contango or backwardation being traded (and, by implication, the profit opportunity available from such trade) may be much smaller than the value of (or profit opportunity arising from) the outright.

The LME has subsequently made an adjustment to its fee schedule (converging the cost of member short-dated carries from 90c to 50c per leg per lot per side), but understands that – even at this reduced fee level – the fee burden of a short-dated carry is sufficiently significant that trading behaviour has been impacted. Accordingly, the LME believes that it could be appropriate to consider a modification to the fee schedule, whereby fees on certain carries are reduced, perhaps subsidised by higher fees on outright trades.

In particular, the LME would consider further reducing the fees on short-dated carries, and modifying the definition of short-dated carries such that any carry with legs 15 days or fewer apart would count as “short-dated” (as opposed to the current definition, where both legs need to be within 15 days of TOM).

The LME could also consider reducing the fees on carries between the three month date and a third Wednesday date, given that there currently exists a significant fee benefit to those participants who can internalise calendar spread risk in the provision of third Wednesday prices to their clients. This would then help to level the competitive landscape between members making such prices.

7.2.2. House vs. client trades

As set out more fully in Section 3.1.3, the LME’s T4 structure and current fee model strongly reward the booking of client business on an OTC basis, with a cost of only one-third of that of a trade booked into a client account. This disparity is believed to be considerably greater than on peer venues and, in the view of the LME, exerts a financial incentive to book business in a manner which may not be optimal for the needs of the underlying client.

The LME therefore believes that it would be appropriate to consider an adjustment to the fee schedule, whereby the disparity between member and client trades would be closed (with a higher member fee funding a lower client fee). Under this model, a member entering into a house trade and then booking a client OTC would pay more than currently (as the member fee would have been increased), whereas a member entering into a house trade and then booking an LME client contract would pay less than currently (as the decrease in the client contract fee would more than offset the increase in the member fee). The LME recognises that this could be disadvantageous for members entering into complex structures, given that – in this scenario – there are a number

of member trades backing one single client contract. However, in general, the member trades would comprise one outright trade (to enter into the position) and a number of carries (to adjust the position to the desired date). To the extent that carry trades are further discounted as contemplated in Section 7.2.1, execution costs for this type of business could also be reduced in aggregate. Under this model, it may also be appropriate for "true" member house trades (i.e. principal or proprietary trades designed to expose the member's own capital, as opposed to managing risk arising from an OTC client book) to retain their current, highly discounted treatment.

7.2.3. Ring vs. electronic vs. inter-office trades

The LME has historically provided a discount for member trades executed on the Ring, driven by the recognition (as further set out in Section 3.2.1) that Ring dealers incur a significant cost in maintaining trading teams on the floor. The LME believes that such a discount remains valid, particularly in the context of a potential reduction in carry fees as set out in Section 7.2.1. Indeed, one effect of the 2016 reduction in short-dated member carry fees was that the cost of non-Ring (i.e. LMEselect and inter-office) execution has now been reduced to the cost of Ring execution (50c per leg per lot per side), and it may now be appropriate to restore the discount previously attributable to the Ring.

On a related topic, it may be appropriate for the LME to offer discounts for specific trading activities undertaken on the Ring. In particular, Ring traders often undertake "level carry" activities, which are used to adjust mismatched position on a trader's card. As such, it may beneficial for the LME to offer specific discounts in respect of such trading.

An additional venue-related issue which has been raised to the LME is the fee treatment of clients undertaking order-routed execution directly onto the LMEselect market – in particular, that the LME rules require (in the case of order-routed electronic business) the booking of both an exchange contract and a client contract. As such, there is no ability for such clients to take advantage of potential fee reductions arising from the OTC booking of contracts as set out in Section 7.2.2. While, as set out above, the LME believes that the fee "gap" between OTC and client contract execution should be reduced, it remains the case that – while such disparity exists – those clients order routing trades through a member using the LMEselect API are disadvantaged since they have no ability to avoid a full fee burden. It may, therefore, be appropriate for a further discount to be provided for participants who execute order-routed electronic business, and hence bring activity to the LMEselect screen.

7.2.4. Member categories

As set out further in Section 6.1, the LME's category 4 proprietary trading offering has not seen significant take-up, primarily because there is no fee advantage in taking this membership category, compared to remaining as a client of a member. This is in contrast to many peer markets, where an NCM status generally allows proprietary traders to execute at a lower fee rate. The LME does, therefore, believe that it may be reasonable to offer a lower fee to category 4 proprietary trading members, especially on the basis that this will stimulate trading volumes, which will have a consequent benefit for the category 1 and 2 members who clear the business arising from the category 4 members.

This would also help to address a peculiarity of the LME's market, namely that – at present – the only way that proprietary trading firms can access a lower fee rate is to become category 3 (ICM) members. While any qualified applicant is welcomed as a category 3 member, such participants have noted that, on other exchanges, they would more naturally apply for an NCM category, and the LME is hence an outlier in this regard.

7.2.5. Affiliate business

A number of LME members book business into affiliates of the legal entity which holds their LME membership. In general, under this structure, business is transacted for the affiliate by the member entity booking a member trade, with a client contract then written between the member entity and the affiliate. This is, structurally, a client trade, with a consequent fee impact as set out in Section 7.2.2. A number of such members have commented that they are unable to achieve the desired benefit from their membership, as the particularities of their corporate structures prevent them from enjoying the benefits of member execution fees.

Any rebalancing of member and client fees pursuant to Section 7.2.2 would, to a degree, address this disadvantage. However, it may be appropriate to go further, and instigate a discounted "affiliate client contract" fee, which would provide further fee savings. This could also be deployed in the context of a broader "affiliate account" structure, as explored in Section 6.1, which would allow affiliate business to be booked into a specific clearing account (at the lower rate), and hence also mitigate concerns as to the co-mingling of affiliate and "true" client business in a member's omnibus client account.

7.2.6. Combined trading and clearing fees

The LME currently has separate trading and clearing fees, which is a continuation of the policy incorporated when the LME did not operate its own clearing house. Now that the LME does operate its own clearing house, it may be appropriate to consider simplifying the tariff structure by offering a combined trading and clearing fee.

The potential advantage of a combined trading and clearing fee is simplification of calculation and reconciliation of fees for members and clients. The LME understands that peer venues in Europe (and hence subject to the same regulatory requirements) adopt this approach for the convenience of their users. Furthermore, if the LME chooses to develop a client clearing solution, then a simplified tariff model will also simplify implementation.

The potential disadvantage of a combined trading and clearing fee is a loss of transparency of the separate cost elements of the transaction.

7.3. OTC market and competing venues

The LME is differentiated among trading venues by its extremely close relationship with the OTC market. This is facilitated by a number of elements of the LME's market structure, with three key areas being worthy of note:

- **Trades booked on the LME, but where client exposure is provided OTC.** This model is fully considered in Section 3.1; as discussed in that section, the LME believes this is a valuable

capability for members and the market, although it may be appropriate to revise the fee schedule in order to ensure that the financial advantage of such behaviour is attenuated

- **Member-to-member trades executed OTC, with net positions then booked as inter-office trades.** As set out in Section 3.2.3, a key feature of the inter-office market is its flexibility, including the ability to book net positons. The LME continues to believe that such flexibility is a valuable element of the market, although (as also set out above), the LME does believe that, on more liquid dates, it would be appropriate to link the creation of inter-office trades more closely to the underlying business, such that the volumes and prices booked in the inter-office market reflect the actual economic flows to which they relate. The LME understands that a one-for-one booking model represents standard market practice, and such a revision should hence be clarificatory in nature

- **True OTC trades using LME prices and / or delivery.** It is also possible for market participants to enter into pure OTC trades, which are never brought onto the LME's infrastructure (even in a netted manner). However, these trades may well be settled in cash against the LME's quoted prices or physically via either the "ex-cleared" transfer of LME warrants within LMEsword, or the transfer of unwarranted metal conforming to the LME's brand and quality specifications. By contrast, it should be noted that certain peer exchanges do not permit the "ex-cleared" transfer of warrants – i.e. their exchange warrants can only be transferred in settlement of a contract executed on that exchange, and not against a trade booked on an OTC basis, or on a competitor venue.

  Given the strong relationship between the LME and its members, such OTC activity (undertaken by members) has historically been viewed as a strength of the LME system, and the LME confirms this position. However, it should be noted that the LME's view in this regard does not extend to trades which have been booked on a competitor trading venue (a regulated exchange, MTF, OTF or otherwise). It is not, in the view of the LME, appropriate for its pricing and settlement infrastructure to be used (except as required by applicable law or regulation) where trades have not been executed on the LME, or at least on the closely-linked true OTC market

7.4. New products

The LME believes in a focused process for launching new, or adjusting existing, contracts, including a full programme of engagement with the market. A new commodity contract only has a genuine chance of success if it helps solve real problems faced by the industrial clients for whom the contract is intended. Support throughout the physical value chain is critical to ensure liquidity can be developed by natural buyers and sellers, and facilitated by brokers and market-makers. In order to gain this support, the LME engages actively with the physical market and the member community from the first idea for a new product, through design of the contract specifications, to the launch and their ongoing review to identify potential improvements. In the interest of completeness, the LME feels it appropriate to lay out its current product development pipeline, and would welcome the views of the market in this respect:

- **Ferrous metals:** Following the successful launch of LME Steel Scrap and LME Steel Rebar in November 2015, the LME has received significant engagement from the ferrous market to extend its product offering to cover other parts of the steel value chain, especially a solution for the Hot Rolled Coil (HRC) market

- **Precious metals:** The LME is committed to ensuring its new LMEprecious offering provides the best possible service for the precious metals community. In addition to the announced gold and silver futures contracts, the LME is considering launching platinum and palladium futures contracts to enhance the service it is currently providing through LMEbullion to the PGMs market

- **Options:** The existing LME options remain a key part of the base metals markets. The LME will continue to evaluate the current market structure and processes to ensure that the market is as transparent, efficient and functional as possible for both physical and financial market participants, and consider possible structural developments, to both increase the ease of access for new participants, and increase liquidity for all. The LME also believes that options markets should naturally form a part of its new product offerings, and as such will look to establish options markets for all new contracts when the market is ready

- **Aluminium premiums:** as part of its warehouse reform package, the LME introduced a set of physically-settled aluminium premium contracts. These were requested by the market on the basis that – in an environment of historically high premiums driven by warehouse queues – concern had been raised as to the effectiveness of the existing survey-based price discovery mechanism. The physically-settled contracts were, therefore, a crucial element of the LME's assurances to the market (and to regulators) that it was committed to ensuring the quality of price discovery in the aluminium market, and would (in the view of the LME) have represented a viable pricing tool in an environment of sustained premiums.

  However, in parallel with the introduction of these physically-settled premium contracts, the LME's warehouse reform programme began to exert a downward influence on premiums. As premiums returned to historical levels, the market requirement for a new pricing source fell away, and market participants took the view that the effort required to re-paper contracts (in order to replace the incumbent survey-price premiums with a new LME physically-settled premium) was no longer justified. Accordingly, the LME's physically-settled premium contracts have not gained traction.

  The LME continues to believe that the provision of such contracts was an important backstop element of the warehouse reform programme, and also believes it appropriate to maintain the availability of the contracts for use in the (unlikely) event of a future return to a structurally high premium environment. However, at the same time, the LME acknowledges the receipt of a large number of requests also to list contracts cash-settled to the incumbent survey-priced premiums, allowing aluminium market participants to trade base LME aluminium prices, and the premiums (calculated as a differential to those base LME aluminium prices) on the same market

- **Supporting lower-liquidity contracts:** the LME believes that a core element of its role is to support the global metals market, and will hence maintain its commitment to its contact suite, even if these demonstrate lower levels of liquidity. However, the LME will also work closely with stakeholders to assess the ongoing validity of such contracts, and to determine whether it would be appropriate to make changes to such contracts, or even to delist, in the event that they cease to be of use to the market (subject to making appropriate provisions to deal with any outstanding open interest, where relevant). In this context, the LME would note the following product groupings:

- Given the relative success of the LME's new cash-settled steel scrap and steel rebar contracts, the decision was taken in April 2017 to suspend the physically-settled steel billet contract. This decision was made in close consultation with the LME's Steel Committee, and reflected a market preference to concentrate marketing efforts on the more successful cash-settled products
- The LME's molybdenum contract continues to demonstrate low levels of liquidity, driven primarily by the difficulty of physical settlement, given the powder form of the concentrate and consequent need for specific sampling and handling procedures. The LME is discussing with the Molybdenum Committee the options of (i) simple delisting, or (ii) replacement with a cash-settled contract, priced to an external index provider. Broader market views on this topic are welcomed
- While the LME's North American Special Aluminium Alloy ("NASAAC") contract remains active, the European and Asian aluminium alloy ("AA") contract has experienced a significant decline in volumes. The LME believes this arises from the broad geographic delivery region (Europe and Asia), together with the preference in Asia for a cash-settled contract. Accordingly, the LME is proposing to further regionalise delivery of the AA contract to Europe, and introduce a cash-settled aluminium alloy contract to service the specific requirements of Asian users. Again, market views on this topic are welcomed

- **Other metals opportunities:** opportunities considered by the LME include (i) an alumina contract to facilitate price risk management given the alumina market's divergence from primary aluminium-related pricing, (ii) introduction of additional contracts for the stainless steel market, including a ferrochrome contract, and (iii) introduction of a secondary lead contract addressing the pricing dynamics of the batteries market. At present, the LME has not identified a clear use case for such contracts, but continues to assess the opportunities thus presented

LME ANALYSIS

- **LME volumes, while impacted by a number of factors, have undoubtedly been affected by higher fees**
- **Arguably more important than the absolute level of fees are their relative distribution (in particular, between outrights and carries, exchange and client contracts, and the LME's various trading venues)**
- **The LME believes that a combined trading and clearing fee reflects the in-house nature of the LME clearing house, and will enable members and clients to calculate and reconcile LME fees more easily**
- **The LME remains committed to ensuring that its product suite works for the market – adjusting and enhancing products to maintain their relevance**
- **New products are put through a rigorous process to ensure they reflect a market need, including extensive market engagement, and the LME is currently reviewing a number of options for new products**

DISCUSSION QUESTIONS

- **7.A Do you agree with the LME's analysis of the drivers of its volume performance?**

- **7.B Do you agree that the relative balance of carry and outright fees should be adjusted?**
- **7.C Do you agree that the relative balance of house and client trades should be adjusted, in order to remove the significant financial incentive which currently exists to book client business on an OTC basis?**
- **7.D Do you agree that Ring trades should continue to attract a discount?**
- **7.E Should proprietary trading category 4 members receive a fee discount to reflect their commitment to LME membership?**
- **7.F Do you agree with the concept of an affiliate discount?**
- **7.G Do you agree that LME should simplify its tariff structure and implement a combined trading and clearing fee?**
- **7.H Do you agree that, subject to relevant regulation, the LME should not permit the use of its market infrastructure for the settlement of trades executed on competitor platforms?**
- **7.I Do you have views on the LME's potential new contracts, and proposed changes to existing contracts?**

8. OTHER MATTERS

The LME would again like to thank all of its stakeholders for their engagement in this Discussion Paper process. The LME's ecosystem is characterised by a close relationship with its market, and the LME strongly believes that open market engagement represents the best approach to build consensus and move forward with a market structure which will best service the needs of its industry.

DISCUSSION QUESTIONS

8.A Are there any other matters you wish to raise in the context of this Discussion Paper?

9. NOTES ON DATA

Figure 3: LME market activity by stakeholder group

Data is from the LME Commitments of Traders ("COTR") report and LMEsmart. Volume data reflects all client market contracts traded in 2016 split by COTR classification of the client. The open interest data reflects average gross client long and short open positions through 2016, split by COTR classification of the client. COTR classifications are as per the table below, which follow the CFTC categorisation definitions.

Stakeholder group	COTR classification
Physical	Producer / Merchant / Processor / User
Fundamental Financial	Money Manager
Broker Dealer	Broker Dealer / Index Trader
Systematic Financial	Other Reportables

The definitions of the classifications are stated below and can also be found in the LME Guidance Notes on the Commitments of Traders Report:

(a) Producer / Merchant / Processor / User
Entities that are predominantly engaged in production, processing, packaging or handling of metal and that use the LME to manage or hedge risks associated with those activities.

(b) Broker Dealer / Index Trader
Entities that are engaged in transactions for a metal, and that use the LME to manage or hedge the risk associated with those transactions. The Dealer's counterparties may be speculative traders or traditional commercial clients that are managing risk arising from their dealings in the physical market. This categorisation is referred to as Swap Dealer in the U.S market.

(c) Money Manager
Entities that are engaged in managing and conducting LME contracts on behalf of underlying clients such as investment fund firms.

(d) Other Reportables
Every other reportable entity that is not placed into one of the three categories above is placed into the "other reportables" category.

Figure 9: Stocks over time at queued vs. non-queued warehouses (Jan-13 – Mar-17)

Data between January 13 and March 17. Queued warehouses defined as warehouses with queues of 50+ days lasting until at least 1 January 2016.

W

THE LONDON METAL EXCHANGE
10 Finsbury Square, London EC2A 1AJ | Tel +44 (0)20 7113 8888

LME
An HKEX Company