Averaging solutions

A guide to trading and hedging average prices on the London Metal Exchange

LME
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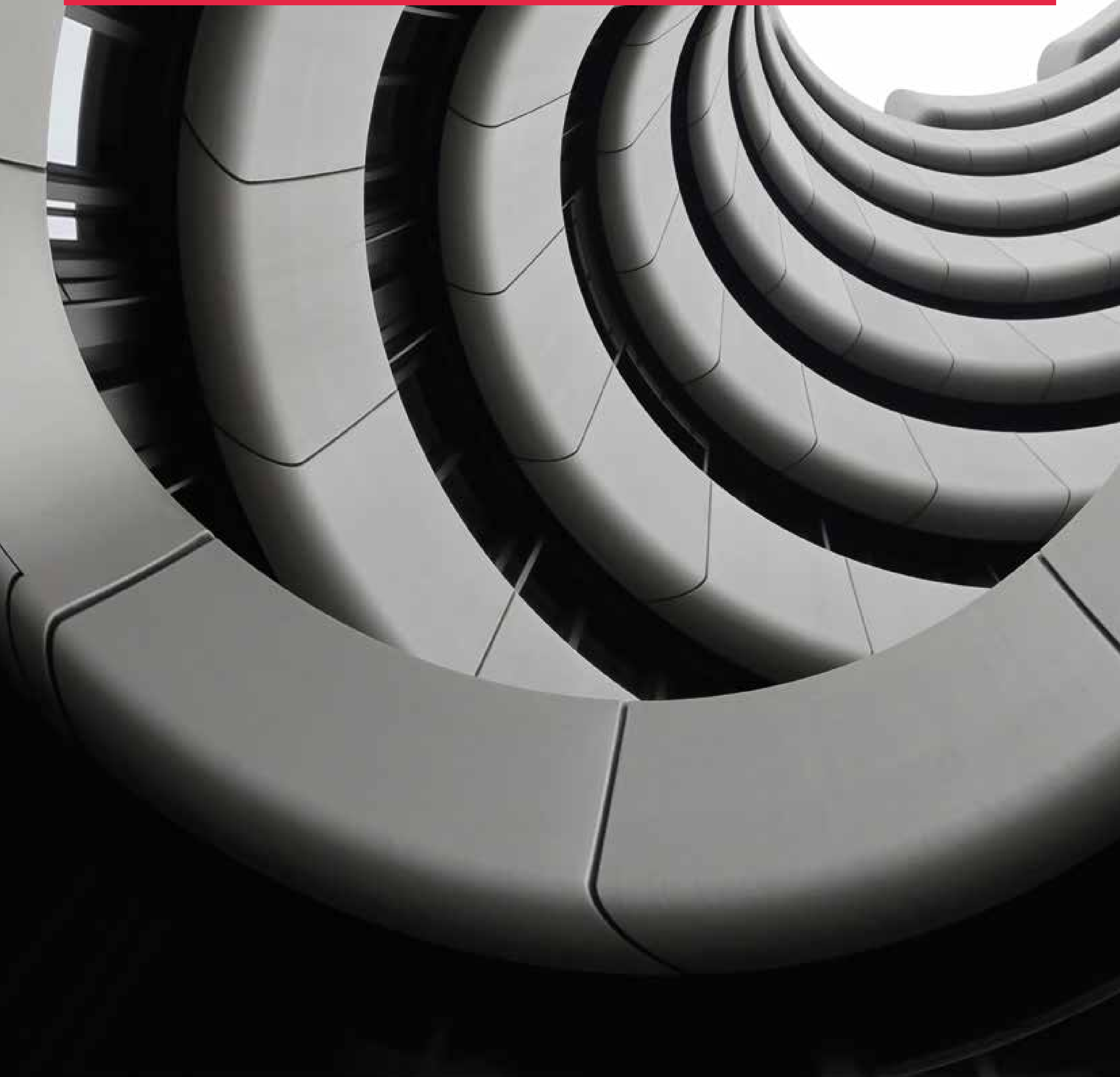
SETTING THE GLOBAL STANDARD



Averaging solutions

The world's metal community often negotiate physical deals for metal basis the Monthly Average Settlement Price (MASP) – this unknown (or 'floating') price is the average of any given month's daily (up to 23) LME Official Settlement Prices.

Whilst creating a more representative price (without intra-day spikes) this practice poses a unique challenge for metal producers and consumers who want to protect against adverse movements in the MASP.

The London Metal Exchange (LME) offers a number of solutions and strategies to enable accurate average price hedging and risk offsetting for members and clients:

1) The contracts: Monthly Average Futures and Traded Average Price Options
2) The enhanced averaging strategies: 'Fixed for floating' and 'float trades'
3) The benefits: OTC v on exchange.

Hedge –
against adverse movements in the monthly average price

Financially settled –
no risk of delivery

Transparent –
traded and cleared on exchange

Monthly Average Futures (MAFs) and Traded Average Price Options (TAPOs)

There are two types of average price contracts on the London Metal Exchange. They are Monthly Average Futures (MAFs) and Traded Average Price Options (TAPOs) and are available across the whole non-ferrous suite.

MAFs

MAFs are futures contracts financially settled for difference between the 'floating' Monthly Average Settlement Price (MASP) and an agreed-now 'fixed' price.

TAPOs

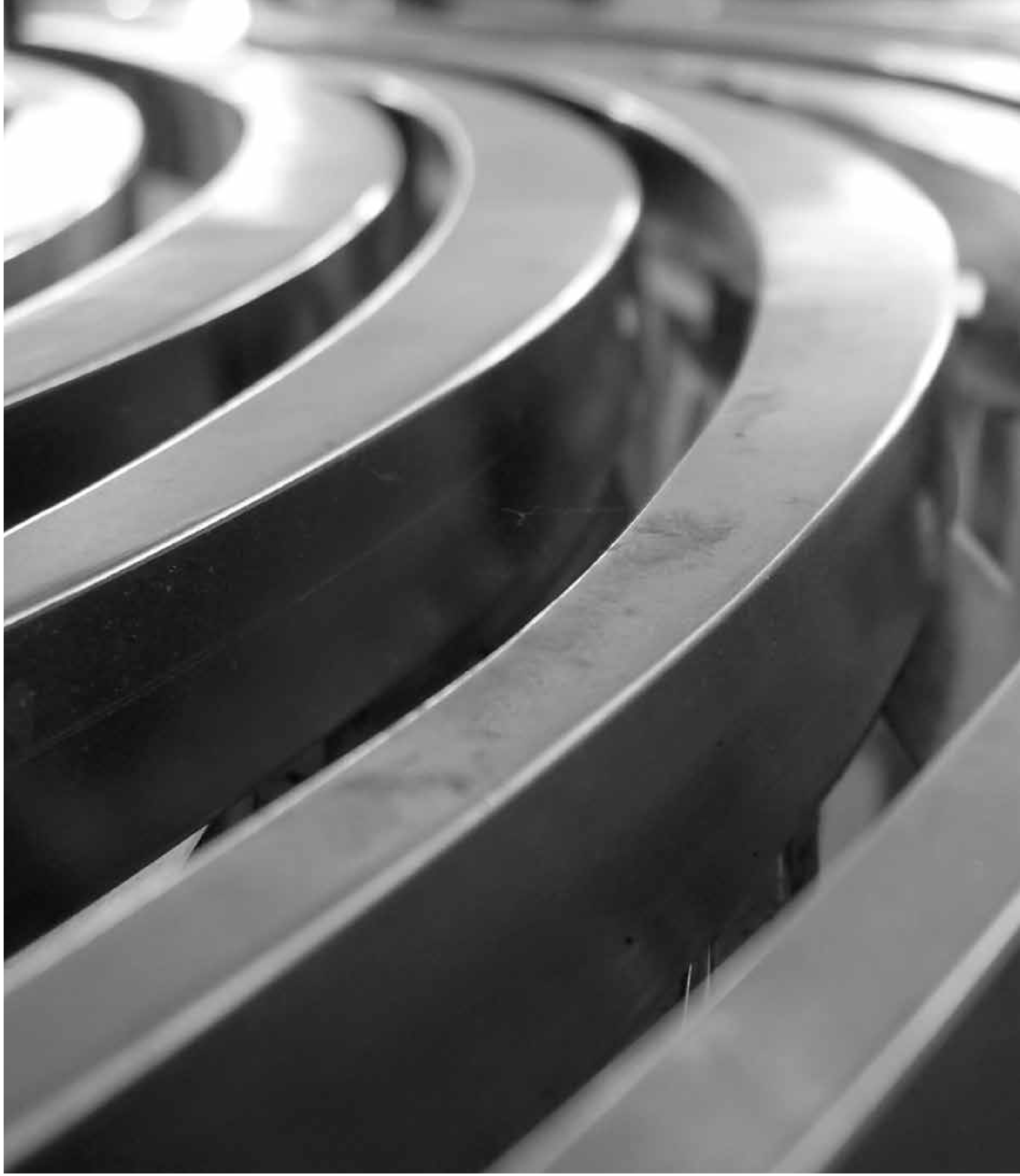
TAPOs are average price (Asian-style) options which, when exercised, result in two futures contracts – one at the 'fixed' strike price and the other at the 'floating' MASP. If exercised, the economic effect is to create a cash settlement between the difference of the fixed and floating/average prices.

Like all options, TAPOs provide the buyer with the right, but not the obligation, to buy or sell at a price agreed today. Like all futures, MAF traders are obligated to buy or sell at the price agreed today.

Producers and consumers of metal often price their material basis the monthly average of up to 23 LME Official Settlement Prices (one for each trading day).

Rather than hedging against each one of the daily LME Official Settlement Prices for the given month, MAFs and TAPOs enable a simpler, on-exchange solution for managing average price risk.

Contract specifications are available at the back of this brochure.



Enhanced averaging strategies – ‘Fixed for floating’ and ‘float trade’

MAFs are used by the market in a number of different ways, two of which are outlined here:

1) ‘Fixed for floating’

Physical participants who price their real-world contracts using the Monthly Average Settlement Price often want to protect against adverse movements in this unknown (or ‘floating’) average price.

They can do this by buying a MAF at a fixed price to offset the ‘floating’ physical MASP deal.

Here’s an example:

It is May 2017 and Client A wants to hedge against adverse price movements on a physical buy order of 100 tonnes of copper for delivery in September 2017 which is priced basis the currently unknown September 2017 Monthly Average Settlement Price (MASP).

1. May 2017: **Member B quotes the below**

Copper Monthly Average Future – September 2017	
Bid	Offer
$5800	$5810

2. May 2017: **Client A buys the ‘fixed’ leg of the Monthly Average Future at the offer price of $5810**

Client A pays Initial Margin

Monthly Average Future is margined using Notional Average Price (NAP) throughout term of contract

5 months pass

30 September 2017: **MASP is now $6000**

3. 30 September 2017: **The contract is cash settled against the September 2017 MASP of $6000**

4. 01 October 2017: **The difference between the ‘fixed’ leg of $5810 (agreed in May 2017) and the ‘floating leg’ of $6000 (discovered on 30 September 2017) is paid in cash on the second business day after the last day of the averaging month**

Client A receives $190 (the difference) x 25 tonnes (single lot size) x 4 (number of lots) = $19,000.

This profit offsets the loss Client A would have made on the physical buy order

2) ‘Float trade’

MAFs can be traded in conjunction with LME futures to give the economic effect of buying an LME future at the average price of the month.

Here’s an example:

It is February 2017 and Client A wants to buy 100 tonnes (four lots) of LME copper in October 2017 at the average price of September 2017. The following steps outline the mechanics of his trade:

1. **Client A calls Member B and asks for four lots of LME copper at the September 2017 average. Member B agrees the trade with Client A and quotes him the following prices for the requested averaging strategy trade.**

Copper float – September 2017

Copper Monthly Average Future – September 2017		LME future – 3 October 2017	
Bid	Offer	Bid	**Offer**
$5800	$5810	$5812	**$5815**

2. **Client A agrees to sell four lots of September 2017 Monthly Average Futures (MAFs) at the bid price of $5800 per tonne. This contract will cash settle on the 2nd business day of the following month, i.e. 3 October 2017, paying Client A the difference between the bid price of $5800 minus the September Monthly Average Settlement Price (MASP). Client A simultaneously buys four lots settling on the same 2nd business day (i.e. 3 Oct 2017) at $5815. His broker may quote this as a float at a ‘premium’ of $15 (i.e. $5815 - $5800).**

3. **Move forward in time to the settlement date of the float strategy (i.e. 3 Oct 2017) and the MASP for September has been determined by the LME as $6000. The payoff on the MAFs is a cash loss of $200 (i.e. $5800 - $6000) per tonne. The futures settle at the previously agreed price of $5815 per tonne and Client A receives the 100 tonnes of copper. The net result of this average strategy trade is that Client A has purchased the required copper for $5815 + $200 = $ 6015. This corresponds to the September MASP ($6000) + the premium quoted by Member B ($15).**

4. **In conclusion, the fixed leg of the MAFs and the fixed price of the futures offset each other, leaving the client with long LME futures position at the Monthly Average Settlement Price (plus premium).**

RECENT UPDATE: Thanks to the introduction of additional second business day prompt dates from four to 24 months*, the LME now facilitates the float hedging strategy (as described above) out to two years.

Previously 2nd business day settlement was only available on the front three months.

*Four to 15 months for lead and tin
Four to 24 months for all other non-ferrous metals ex molybdenum and cobalt.

Benefits

MAFs and TAPOs

The features	The benefits
Pay or receive the difference between the 'fixed' leg and the 'floating' monthly average	MAFs offer simple and effective risk mitigation, all in one trade TAPOs provide same economic effect
Settled basis Monthly Average Settlement Price (MASP)	Reflects physical industry pricing convention so enabling near-perfect hedging
Margined basis Notional Average Price (NAP)	Clear mark-to-market calculation ofcurrent exposure and clear cash-flow management
Margin offsets	MAFs and TAPOs margins can be offset against each other (and other relevant LME products) enabling efficient capital use
Financially settled	MAFs are a purely financial trade – there is no risk of delivery
Traded on exchange	Transparent, protected and regulated
Cleared	Mitigation of counterparty risk and the freeing up of bilateral credit lines
Traded on LMEselect, the Ring (TAPOs only) and 24-hour telephone market	Ease of access using existing trading systems

OTC v on-exchange

Some hedgers trade their risk over-the-counter (OTC) – that is, bilaterally with their broker. Whilst this can provide a more tailored solution than standard on-exchange futures, there are a number of other factors that should be considered when deciding where and how the metals and financial communities trade their risk.

On-exchange LME contracts come in a standard form and are traded through a centralised and transparent pool of liquidity. Members of the LME connect buyers and sellers. LME Clear, the Central Counterparty (CCP) of the LME, acts as the guarantor for both sides of the member trade.

So why trade on-exchange?

Member offsets

Members have the ability to easily offset long and short positions with different dealers, via transfers. This is simpler and often cheaper than an OTC novation and does not require complex legal structures.

Dealing documentation

Base-metals only clients can register on-exchange trades under current 'Terms of Business' without having to put an ISDA in place, as you would normally when trading OTC.

On-exchange mandate

Some participants (particularly buy side clients such as hedge funds and CTAs) mandate their members to trade only listed products on their behalf. Dealer 'lookalike' contracts, which replicate LME contract specifications and are priced basis the LME, are OTC products and should not be confused with on-exchange LME contracts, particularly with the investor mandate in mind.

Credit risk

On-exchange trading provides the client the comfort of trading with a clearing member that benefits from the default protections of LME Clear, as opposed to the direct counterparty credit risk of an OTC contract.

Give-ups

Trading on-exchange enables users to transact under a 'give-up' agreement i.e. to execute with a member and give up to a clearing broker (also an LME member). This allows a client to compare prices free of credit risk charges, as dealers in the position of executing broker will face LME Clear once a deal is completed and matched.

Clearing house guarantee
Cleared contract holders are guaranteed financial settlement by LME Clear in the event of a counterparty default

Multiple Broker Execution
Ability to execute through and hold positons with multiple brokers

Wide range of competitive brokers

Deepest liquidity
All market interest comes together to form best market prices

Transparent, reliable pricing
Fully transparent electronic market

Contract specifications

Summary contract specifications	MAF	TAPO
Lot size	Same as underlying metal	
Contract months	Monthly up to 63 months	
Underlying	All LME non-ferrous metal futures	
Currency	Quoted in US$ per tonne, cleared in US$	
Averaging period	The number of trading days in the contract month	
Final settlement day	Second business day of the following month	
Settlement price	MAFs and TAPOs are settled basis the Monthly Average Settlement Price (MASP) which is the average of the daily LME Official Cash Settlement Prices of the relevant underlying metal over the averaging period	
Last trading day & time	The last business day of the month, before the start of the second Ring at 12.30	Before 18.00 on the business day preceding the declaration day of the relevant prompt month
Minimum tick size	$0.01 per tonne	
Daily settlement price	The Notional Average Price (NAP) of the relevant metal is used to daily mark to market	Daily mark to markets of option premiums, calculated from the NAP and an adjusted options volatility model for Asian options
Settlement type	Financial	Financial*
Exercise	N/A	Asian*
Strike price interval		US$01.00
Trading venues	LMEselect and inter-office telephone	Ring, inter-office telephone and LMEselect (as a hedged option only)

*TAPOs are settled through the creation of two offsetting futures at the MASP and the strike price. This creates the same economic effect of financial settlement. More detail is available on lme.com

LME

An HKEX Company

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

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