July 2020

HKEX
香港交易所

RESEARCH REPORT

THE OPPORTUNITIES OFFERED BY GREATER CONNECTIVITY BETWEEN THE LME AND THE MAINLAND COMMODITIES MARKET

CONTENTS

Page

Chief China Economist's Office, Hong Kong Exchanges and Clearing Limited and
The London Metal Exchange

8 July 2020

SUMMARY

This paper looks at the opportunities for building greater connections between Mainland China commodities markets and the London Metal Exchange, working with its parent company, Hong Kong Exchanges and Clearing Limited (HKEX), and its sister company, the Qianhai Mercantile Exchange (QME).

1. BACKGROUND

HKEX Group acquired the London Metal Exchange (LME) in 2012. Since then, LME and other companies within the corporate group have worked closely together to look at ways to offer greater two-way access to commodity markets for participants both inside and outside Mainland China. In October 2015, the Hong Kong Futures Exchange (HKFE), HKFE Clearing Corporation Limited (HKCC), the LME and LME Clear signed a memorandum of understanding (MOU) for the proposed development of a trading link between HKFE and the LME and a clearing link between HKCC and LME Clear, called "Hong Kong-London Connect" and work has continued since then to build this vision.

2. CHINA'S POSITION IN GLOBAL METAL MARKETS

As the Chinese economy continues to expand, greater foreign involvement is contributing to China's increasing overseas influence. The Mainland's capital markets are progressively becoming more accessible with increasing direct international participation permitted in the Mainland markets. Its commodity exchanges are gradually allowing more foreign participation to increase China's overseas footprint, gain commodity pricing power, and to facilitate global trade driven in part by the increasing significance of the Renminbi (RMB) as an international currency.

The RMB has become more internationally significant in recent years, facilitating global trade and gaining recognition as one of the International Monetary Fund's "main world currencies". From an LME Clear perspective, since July 2015 clearing members have been able to use offshore RMB as eligible cash collateral to cover their margin requirements. This service is an important part of the LME Clear collateral offering, particularly as increasing numbers of Chinese companies trade on the LME. BOCI Global Commodities — the first Chinese company to become an LME Clear member — was the first to submit RMB as collateral.

It is widely acknowledged that China's production and consumption of base metals is around 50% of the global total[1], and that this share of the global total continues to grow. China's growth is heavily resource intensive, requiring increasing quantities of raw materials, particularly industrial metals.

Metals demand has been powered by intensive industrialisation and widespread urbanisation projects, with construction, transport infrastructure and communications networks driving the consumption of a wide variety of base metals.

China has also seen sizeable growth in demand for battery materials, particularly for the production of electric vehicles (EVs). An increasing proportion of Chinese consumers prefer the state-of-the-art and cleaner technology of EVs. This, combined with government policy to reduce pollution and improvements in technology making EVs more affordable, mean that it is likely that China will account for 48% of global ownership of passenger EVs by 2025[2]. Driving increased demand for battery materials such as cobalt, nickel and lithium alongside other metals such as aluminium and copper, this sector is set to grow exponentially.

[1] Sources: Bloomberg L.P., World Bureau of Metal Statistics and International Monetary Fund; based on the aggregate global production and consumption figures of major types of base metal, including aluminium, copper, lead, nickel, tin and zinc, as of 2018.

[2] Source: *Electric Vehicle Outlook 2019*, BloombergNEF.

3. CHINA'S CONNECTION WITH THE GLOBAL MARKET

3.1 Overseas market access

Mainland China has facilitated more access to overseas markets in recent years via a number of key programmes which have implications for the commodities market. These include:

- A number of **Central Government-Owned Enterprises (CGOEs) and other state-owned enterprises (SOEs)** have been granted permission to trade overseas derivatives markets for hedging purposes without the need to obtain further regulatory approval. Given the large quantity of physical commodities they trade, these Chinese SOEs are likely to have significant demand for additional hedging routes
- The planned introduction of the **Qualified Domestic Individual Investor 2 (QDII2) programme**[3], to build on the Qualified Domestic Institutional Investor (QDII) programme introduced earlier which allows Mainland qualified institutional investors to invest in foreign securities markets approved by the China Securities Regulatory Commission (CSRC). QDII2 plans to offer direct access for Mainland individuals to some specific areas of foreign capital markets including derivatives. QDII2 therefore will introduce another route for Mainland investment into overseas markets within set thresholds, providing greater access to overseas securities and derivatives.
- The launch of **the "Belt and Road"** initiative (BRI), which seeks to create an economic belt of railways, highways, oil and gas pipelines, power grids and other links across Central, West and South Asia to Europe and North Africa. The infrastructure projects under the BRI would inevitably drive up the demand for construction materials, and in particular base metals. In addition, Mainland enterprises are actively involved in these BRI projects, with the resulting increase in exposure to price changes driven by fluctuations in the supply and demand of commodities. In support of the BRI, the LME signed an MOU with seven Chinese and UK financial institutions in October 2015, with the intention of working together to increase market access, offer risk management services and widen China's access to global commodities markets.

3.2 Foreign participation in the Mainland market

Currently, there is relatively limited international access to Mainland China's financial markets, including for its commodity exchanges.

At present, Mainland commodity futures trading centres on three exchanges — the Shanghai Futures Exchange (SHFE), the Dalian Commodity Exchange (DCD) and the Zhengzhou Commodity Exchange (ZCE). These exchanges offer a range of commodity futures for domestic participants. However, access for foreign participants is still restricted to certain special RMB-denominated government-approved futures including pure terephthalic acid (PTA), rubber, oil and iron ore offered by these exchanges. In addition, trading by foreign participants can only take place via specific trading entities which are either members of, or are approved by, the domestic exchange.

Given China's leading role as a large-scale producer and consumer of commodities, it has huge potential for developing and opening up its futures markets to wider international participation. With increasing volatility in global commodity markets, there is certainly a growing need for greater access to commodity exchanges which offer the means to manage the risk of fluctuating prices.

[3] See, for example, the *State Council Notification About Certain Measures for Supporting the Deepening Reform and Innovations in the Pilot Free Trade Zones* (《國務院關於支持自由貿易試驗區深化改革創新若干措施的通知》), released on 23 November 2018. No specific rules for the implementation of the QDII2 programme have been released.

A key obstacle for increased foreign participation at present is that China's currency is not fully convertible, although it is clear that there is an aspiration for this to be achieved in the future. Full convertibility and free trading of the RMB on the international market would attract more external liquidity and investment flows, helping to facilitate the internationalisation of the Mainland financial markets and allowing its commodity exchanges to become more closely integrated with international exchanges. However, while China seeks to ease capital controls in a controlled manner to increase foreign participation, it is likely that this will take some time to implement.

In the meantime, one potential route could be to open up a "bridge" for both inward foreign and outward domestic investment in commodities. This would echo the Stock Connect collaboration between stock exchanges in Hong Kong, Shanghai and Shenzhen for the trading of securities using local brokers and clearing houses; and Bond Connect, a joint venture established by China Foreign Exchange Trade System and HKEX, which facilitates greater interaction between the bond markets of Hong Kong and the Mainland. In a commodities connectivity model, HKEX and the LME would seek to enable trading links for commodity futures with Mainland exchanges.

Building more connections between the Hong Kong and London markets could offer Mainland participants greater access to open and transparent markets with international regulatory and trading standards in place. At the same time, for attracting greater foreign participation, the Mainland market should address the needs of overseas participants, who will expect greater transparency of regulation and market policies. The drivers for granting more open access to the Mainland market exist, with global enterprises and investors keen to participate.

The following sections of this chapter will examine the LME's offering for global market participants in more detail, together with an overview of how the LME and HKEX are working together to provide solutions for greater connectivity between the Mainland and international commodities markets.

4. WHAT DOES THE LME OFFER GLOBAL PARTICIPANTS?

The LME is the key global derivatives market for the trading of industrial metals. Producers, consumers and traders of metal across the globe already value the LME for a number of reasons. These include:

- **Hedging** — producers and consumers can use the LME to hedge their exposure to volatile prices.
- **Price discovery** — the LME provides the world with transparently generated, daily reference prices for metals.
- **Reference pricing** — the prices discovered on LME trading platforms are global reference prices used for valuing and settling physical contracts.
- **Price convergence** — LME contracts can be physically settled via the global LME warehouse network which ensures pricing is anchored to the physical metal.
- **Physical settlement** — only brands of metal that are actually used by the physical market are accepted for good delivery.
- **Prompt-date structure** — no other market offers such a range of forward dates (daily, weekly, 3-month and monthly) offering market users unparalleled flexibility in managing their positions.

These attributes and features of the LME's markets are detailed extensively in Chapter 6 of this book.

4.1 Current Mainland China participation on the LME

Thanks to the attributes detailed above, the LME already has numerous Chinese clients who interact in many different ways with the Exchange. Strong working relationships also exist with a number of large Chinese base metals companies who are active on the LME, particularly since the early 2000s when the Chinese government began to grant an increasing number of trading licences to SOEs to hedge on overseas markets. Many Chinese companies have also set up trading arms in cities such as Hong Kong, Singapore and London where their metals trading desks can access international markets.

As of May 2020, there were six Chinese companies authorised as LME clearing members. In addition, almost 80 Chinese metals brands were listed as good for LME delivery, meeting the LME's specifications for quality, shape and weight.

Chinese and London metals markets might be thousands of miles apart, but they are connected by trade flows as the difference in prices on both markets can incentivise imports and exports of metal. This leads to arbitrage activity between the two markets, which itself is evolving beyond physical participants to include more financial investment activity. This is illustrated by London volumes before 7 a.m. London time (before 3 p.m. Shanghai time), or "Asian hours", which have seen increased engagement across LME metals contracts — over the past ten years, average daily volumes have generally been around 10% higher when Asian markets are not on holiday[4]. This increase in Asian hours volumes led the LME to launch the LME Asian Reference Price for 3-month LME Aluminium, LME Copper and LME Zinc in 2011. These prices are calculated using a volume-weighted average price, and are discovered and published to coincide with the end of the Asian trading day. This gives users in the region a useful early-day guide to trading in one of the most significant and liquid periods of the day, reflecting market activity in the Asian time zone. A network of on-screen traders has developed to connect and react to the price moves in both markets.

4.2 The demand for greater connectivity

There are a number of key drivers which contribute to the demand for greater links between Mainland China and the LME.

Base metals are currently actively traded in over-the-counter ("OTC") markets in the Mainland, but the demand for exchange-traded contracts is growing, driven in part by the rapid increase in the consumption of metals in the region. In particular, institutional investors and individual professional investors in Asian markets, including Mainland China, have expressed a desire for increased opportunities to access the wider global commodities markets via smaller, financially settled metals contracts.

5. ACCESSING A GLOBAL INDUSTRY NETWORK VIA THE LME

5.1 A global warehouse network

To facilitate physical delivery and to meet the needs of its international users the LME has an approved network of registered warehouses. These are predominantly in metal-consuming regions which are politically stable and have effective legal, tax and commercial frameworks in place. LME-approved warehouses are located throughout the UK, Continental Europe, the Middle East, Asia and the USA. Each year, around five million tonnes of metal is physically delivered in and out of over 550 LME-approved warehouses around the world. Table 1 shows LME's warehouse presence in Asia.

---

4 Source: LME Research.

Table 1. The LME's warehouse presence in Asia (as at April 2020)		
City/Country	No. of locations	No. of listed warehouses
Japan	2	6
Malaysia	2	117
Singapore	1	17
South Korea	3	111
Taiwan, China	1	22
Total	**9**	**273**

Source: LME.

There are a number of LME-approved warehouses across Asia, but as yet, none are located in Mainland China. Bringing LME warehousing to China is a long-term strategic aim of HKEX Group, and the LME and HKEX are working closely with Chinese policy makers to advance this aspiration.

Metal is stored in LME-approved warehouses "on warrant". Warrants are documents of possession, issued by the warehouse company, for each lot of LME-approved metal held within an LME-approved facility. They are used as the means of delivering physical metal under LME contracts. The LME's network of warehouses is also used extensively in facilitating commodity trade financing.

LMEsword is the secure electronic transfer system for LME warrants, facilitating the transfer of ownership of LME warrants and stock reporting. This system also facilitates efficient warrant swap trading for material in different global locations.

5.2 The global use of LME reference pricing and LME contracts

Base metal prices discovered on the LME's market represent the global price. These prices are used in the majority of bilaterally negotiated physical supply contracts between producers and consumers of metal. The parties to these contracts then agree premiums based on variables (such as location and purity of metal) referencing this global price. This allows producers in one continent to agree physical contracts with smelters, fabricators and consumers in other countries or regions.

5.3 London's gold market and LMEprecious

China is the biggest global consumer and producer of gold, and over the past two decades has become the largest gold market in the world. The People's Bank of China is one of the most active central banks in the world, and has steadily increased its gold reserves over the past fifteen years[5].

Liquidity on domestic gold trading venues in the Mainland coalesces at relatively short tenors: less than a year on both the Shanghai Gold Exchange (SGE) and Shanghai Futures Exchange (SHFE). This makes it difficult for domestic producers to hedge cash flow to support debt financing or equity capital investment in the domestic market. The absence of liquidity over longer tenors means banks must turn to Western markets to hedge risk, such as London's OTC market, or on-exchange (via LMEprecious, the LME's precious metals trading and hedging solution, for example). The World Gold Council commissioned analysis which

[5] Source: World Gold Council (WGC) (https://www.gold.org/goldhub/data/monthly-central-bank-statistics).

estimates that all-in cost savings from on-exchange trading could range from ~50% to ~90%, due primarily to lower capital charges[6].

The increasing globalisation of the gold market also provides trading opportunities for market participants looking to manage basis risk or take a view on regional supply and demand dynamics. To this end, LMEprecious provides a transparent on-exchange solution to trade in combination with other exchanges across the globe. Since August 2017, LMEprecious has provided intra-day LME Gold and LME Silver spot reference prices aligned with periods of peak liquidity, to support the precious metals market in managing their price risk throughout the trading day.

5.4 LME steel contracts with strong Asian links

The LME's cash-settled ferrous suite, which saw its first two contracts for steel scrap and rebar launched in November 2015, has seen significant involvement from Asian participants from inception. LME Steel Scrap in particular saw early engagement and support from Asian markets.

The LME's steel contract offering has expanded to include hot-rolled coil futures, with LME Steel HRC FOB China (Argus) catering for the epicentre of the East Asian market. This contract is designed to provide an effective risk management tool for both Chinese exporters and steel importers and consumers in key export markets. This has been demonstrated with the early adoption by companies located in importing countries in South-East Asia including Vietnam, Thailand and Singapore.

6. RECENT DEVELOPMENTS AT THE LME AND HKEX FACILITATING GREATER CONNECTIVITY

The LME and HKEX have been working to leverage their respective strengths and expertise to develop effective routes for greater connectivity between Hong Kong, Mainland China and international markets.

6.1 The launch of HKEX London Metal Mini Futures

HKEX London Metal Mini Futures are contracts designed to meet the needs of Asian participants who want to mitigate or take on metal price risk using offshore RMB (CNH) or US dollar-denominated futures. The minis contracts offer market participants the opportunity to trade straightforward monthly contracts out to 12 months, settling against the Official Price of the corresponding LME "parent" contract. The additional benefits for participants in the region are that the minis are available to trade during Asian hours; they provide arbitrage opportunities with other markets; and are small-lot sized contracts with a competitive fee structure.

Traded on the HKEX derivatives platform, these small-lot contracts are available for six base metals: aluminium, zinc, copper, nickel, tin and lead; and in two currencies.

6 Source: WGC, LME and Oliver Wyman analysis.

Table 2. HKEX London Metal Minis — Key highlights	
Feature	**Characteristics**
Underlying assets	Aluminium, zinc, copper, nickel, tin and lead
Currency	Traded and priced in CNH or US dollars
Contract size and type	Small lot size, monthly contracts
Settlement	Cash settled against LME "parent" contract Official Settlement Price
Trading venue	HKEX derivatives platform

Source: HKEX.

HKEX CNH London Metal Mini contracts are designed to match Chinese physical market stakeholders' exposure to commodities contracts priced in RMB, establishing RMB pricing of metals during Asian trading hours and offering arbitrage opportunities between HKFE, the LME and SHFE. Mini contracts for aluminium, copper and zinc were launched in 2014, with lead, nickel and tin joining the suite in 2017. The more standardised monthly contract structure offered by the minis contracts, is more attractive to Asian investors, while HKFE's extensive network of exchange participants and brokers would offer institutional and private investors a more accessible route to trade these contracts.

To complement the existing CNH suite, on 5 August 2019 HKEX introduced six US dollar-denominated HKEX London Metal Minis. These contracts provide additional options for investors with exposure to base metals denominated in US dollars in the Asian time zone and complement HKEX's existing futures products in CNH.

Table 3. Comparison of LME base metals contracts and HKEX London Metal Minis		
	LME base metal contracts	**HKEX London Metal Minis**
Type of settlement	Physically settled	Cash settled against the Official Price of the LME "parent" contract
Contract size — in metric tonnes (mt)	Large lot sizes: • Aluminium – 25mt • Copper – 25mt • Lead – 25mt • Nickel – 6mt • Tin – 5mt • Zinc – 25mt	Small lot sizes: • Aluminium – 5mt • Copper – 5mt • Lead – 5mt • Nickel – 1mt • Tin – 1mt • Zinc – 5mt
Contract type	• Daily • Weekly • Monthly (out to 63 or 123 months)	• Monthly (out to 12 months)
Trading hours	(London time) • Ring: 11:40 – 17:00 • LMEselect: 01:00 – 19:00 • Inter-office: 24 hours	(Hong Kong time, other than Last Trading Day) • T session: 09:00 – 16:30 • T+1 session: 17:15 – 03:00
Access to the market	Via LME members	Via HKFE participants
Key participants	• The physical community — producers and consumers • LME members and their clients • Financial community — hedge funds, proprietary firms, investment firms • OTC market participants	• Financial community, familiar with futures contracts • Private investors • Corporate clients • Arbitragers • Asian speculators

Source: LME.

6.2 LME and HKFE reciprocal membership

To broaden the opportunities for greater collaboration between London and Hong Kong, the LME and HKFE offer reciprocal membership (the "RMA") for applicants who already hold a membership or participantship at either one of the exchanges. Reciprocal membership of LME and HKFE allows broader access to products on each exchange, and provides additional liquidity for new products. Under the RMA, the LME and HKFE waive their respective first year's annual subscription and application processing fees for new applicants who already hold a membership or participantship at the other exchange[7].

6.3 Collaboration with Qianhai Mercantile Exchange (QME)

In October 2018, HKEX launched the QME, a spot-trading commodities platform based in Qianhai, Shenzhen in China's Guangdong Province, as part of wider plans to develop HKEX Group's commodities offering for Mainland China. QME currently offers spot trading in a number of metals, including alumina, aluminium and copper rods, with plans for further expansion.

The LME continues to work in partnership with QME to develop the vision to provide increased connectivity between the Mainland and overseas commodities markets, building on the strengths of both exchanges in three key areas: warehousing, trading and finance.

The LME and QME are exploring the creation of links between the LME's longstanding and robust global warehousing system and QME's local warehouse network, with the initial aim of offering tradeable warrant swaps between the two networks. At the same time, the LME continues to discuss the possibility of establishing LME-approved onshore warehouses with Mainland regulators. Together, these measures would help to alleviate the additional costs including increased delivery time, transport and customs clearance which are a consequence of metal being delivered from LME warehouses outside the Mainland to onshore customers. The expansion of the warehouse network into Mainland China would help to truly globalise commodity trading, aiding in the internationalisation of the Mainland financial market and facilitating the financing of onshore Chinese metal inventories on the LME.

Another goal is to extend LME trading into the Asian time zone, alongside the expansion of commodity spot price discovery capabilities at QME, enabling greater access for international investors. The spot "benchmark" price forms the basis of commodity futures trading, as contracts are priced based on the cost of a commodity for immediate delivery. QME and the LME are working together to build out this capability, leveraging both the existing LMEbullion and QME spot trading platforms and partnerships with other Mainland exchanges. Building on QME's work to date to deliver robust spot prices for a range of metals would support the development of internationally accepted Mainland commodity price benchmarks, which the LME will seek to use as the basis for launching new products in the future[8].

---

7 See more details in HKEX research report, "The connectivity platform offered by HKEX commodities market for the Mainland and the world", published on HKEX's website, 24 March 2020.

8 For more detail on QME, and the LME's relationship with QME, please see HKEX research report, "Qianhai Mercantile Exchange's unique role in the commodities market in Mainland China", published on HKEX's website, 15 April 2020.

7. THE WAY FORWARD

The LME has the determination to more effectively serve Mainland market participants with an enhanced product and service offering, in collaboration with HKEX.

The LME's technology roadmap will deliver a comprehensive refresh and upgrade to the exchange's trading infrastructure. As part of this programme, a new LME trading platform is currently being built, leveraging HKEX technology. One of the key advantages of this new platform is that the new web-based electronic system for traders (the "Graphical User Interface" or "GUI") will offer direct trading access for Asian clients. This will deliver a more efficient and cost-effective route to connect Asian participants, including Mainland participants, with the LME's global metals market.

7.1 Connecting the Mainland and international commodities markets

As the mechanisms of commodities pricing advance, the LME aims to be at the forefront of this evolution. Working closely together with HKEX, the two exchanges will leverage their relative experience in Mainland markets and commodities to offer new solutions — both for Mainland investors wishing to gain international metals price exposure via the LME, and for foreign investors wishing to access Mainland Chinese markets.

The coming years will see the LME's efforts to accelerate the connection between the Mainland and international commodities markets (see related recent progress of developments in Section 6 above).

7.2 Eliminating barriers to greater links between the LME and Mainland China

There are several market-based barriers to entry which need to be overcome in creating further links between the LME and Mainland China. These include:

- **The cost of LME membership:** the annual membership fee, and requirement to purchase LME B-shares for some categories of membership[9], can be seen as an obstacle to encouraging more direct Chinese membership of the LME. HKFE and the LME's RMA provides an alternative cost-effective route for members of either exchange to trade on the other.
- **The cost of indirect access:** At present, there are still a lot of restrictions and limitations for Asian clients to have direct trading access to the LME's markets. This can significantly increase brokerage and access costs. Providing a more direct link to the LME's market could reduce these costs.
- **Network latency, cost and stability:** Asian market participants have a preference to access the LME's electronic market, but intercontinental network links provided by brokers or vendors can result in higher latency, higher costs and a less reliable service. A more direct trading link with the LME would increase the speed and stability of access to its markets.

7.3 What does the future hold?

The development and introduction of the London Metal Mini Futures has provided valuable price connectivity between the London and Hong Kong markets, allowing LME prices to be used for settlement on HKFE, leveraging its broad distribution network in Asia. This first step

9 Category 1 and 2 member firms of the LME are required to hold a minimum of 25,000 LME B-shares. Each Category 3 member is required to hold a minimum of 5,000 LME B-shares and each Category 4 member is required to hold a minimum of 2,500 LME B-shares.

in HKEX and LME's "Hong Kong-London Connect" initiative provides HKFE participants with direct access to US dollar-denominated LME prices.

Further phases of the Connect initiative are being identified, and could see the LME implement a "pass the book" model that will allow transfer of open interest across the LME and HKFE clearing houses to maximise clearing and cost efficiencies. The final step would include the development of a full connect scheme, where both HKEX and LME's order books are connected. This improved connectivity between both exchanges would pool liquidity across both venues while benefiting from the distribution and reach of both respective markets.

8. CONCLUSION

As China's economy continues to grow and internationalise, enabling greater inward and outward investment and capital flows would assist with this growth, including the further internationalisation of the RMB. At the same time, offering greater access to the global commodities markets will give China a larger influence in global commodities pricing, more accurately reflecting its position as the world's largest producer and consumer of a number of commodities, including metals.

The LME is committed to supporting this ambition, creating more opportunities for Mainland enterprises and investors to trade on-exchange, and providing additional routes for Mainland metal producers and consumers to manage their exposure to metals price risk.

HKEX, QME and the LME will continue to collaborate and deliver solutions which meet the need for fair, open, transparent and well-regulated commodity markets. Together with global reach and extensive capital markets expertise, HKEX brings deep experience in working with Mainland authorities, regulators and market participants. The LME, with its rich heritage as the global leader in industrial metals trading, is home to the global reference price for non-ferrous metals and a global warehouse network facilitating the storage and physical delivery of metals and trade financing opportunities. In parallel, QME provides a Mainland spot-trading commodities venue which supplements the futures market, in combination with domestic warehousing expertise. Working together, the three exchanges will look at more ways to bring Mainland and global markets together to create even more opportunities, with the added possibility of establishing benchmark metal prices for China, further expanding LME trading in Asian time zones, exploring cross-border and international trading and the cross-listing of metal derivatives as part of the wider Connect programme.

Note: All LME products and services mentioned in this paper that are planned or being developed are subject to regulatory approval.