

China PCB Sector

Weak market in 2023: growth in EV & AI server offset by soft consumer electronics demand

Global PCB market: The global PCB market showed minimal growth in 2022, with a modest 1.0% YoY increase, but it is expected to face a substantial decline of 4.1% in 2023. In terms of quarterly performance, both 1Q23 and 2Q23 have recorded steep declines of more than 20% YoY, signaling a rather bleak outlook for the global PCB market. Moving forward, we expect the global PCB market will persistently encounter macroeconomic challenges due to weakened consumer demand and the ongoing destocking cycle among downstream industries in 2H23. We may see some gradual recovery in 2024.

- **Industry demand outlook remains weak.** Over half of the PCB sales are from consumer electronic markets (21% from mobile, 17% from PC and 15% from other). The outlook for these markets is dim in 2023: 1) smartphone shipment to remain below pre-pandemic level, 2) PC shipment to fall 5.6% and 3) wearables shipment (such as TWS) largely affected by mobile market. The sluggish demand and excess inventory will weigh on the sector in the near term.

Starting from 2022, the pace of global economic recovery began to decelerate significantly, primarily due to a turbulent global macroeconomic environment and the tightening monetary policy under a hawkish US Fed. The global electronics industry was not immune to these macroeconomic challenges, experiencing a noticeable impact as consumer demand struggled to gain momentum. The global economic landscape retained its complexity, with limited indications of a robust recovery in sight. China's PMI remained in contraction territory, reflecting persistently subdued consumer demand across most industries. Per Prismark's data, China's PCB market is expected to experience yet another decline in market size in 2023 with a YoY decline of 3.8%.

- **Shennan Circuit (002916 CH): Hold rating with TP of RMB72, based on 25x rollover 2024E P/E.** We believe the business will continue to be affected by industry downcycle, and a turnaround may come later than previously expected.

Shengyi Tech (600183 CH): Hold rating with TP of RMB 16.1. We expect modest sequential growth in 2H23 as the Company's mgmt. mentioned the recent operation of CCL products was running on full capacity. However, we still think investors should remain cautious as macro headwinds still persist and can further affect downstream demand.

MARKET PERFORM (Maintain)

China Technology Sector

Lily Yang, Ph.D.

(852) 3916 3716

lilyyang@cmbi.com.hk

Kevin Zhang

(852) 3761 8727

kevinzhang@cmbi.com.hk

Contents

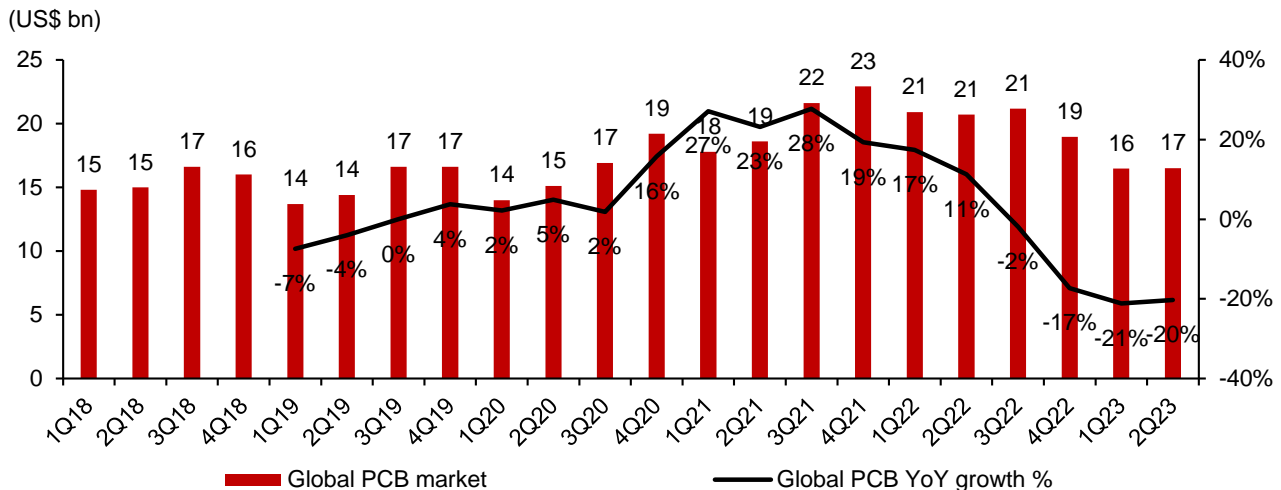
Global PCB market: review and outlook.....	3
Global PCB Market continued to fall short of expectations in 2Q23 following a streak of declines in 2022.....	3
Ongoing pressure in 2H23; Gradual recovery may come in 2024.....	5
Copper price is likely to remain stable for the rest of 2023	6
China PCB Supply Chain Outlook: Continued weakness in 1H23 and pending recovery in 2H23	7

Global PCB market: review and outlook

Global PCB Market continued to fall short of expectations in 2Q23 following a streak of declines in 2022

The global PCB market was down significantly by 20.3% YoY in 2Q23, following 17.3% and 21.2% YoY decline in 4Q22/1Q23. The decrease was a reflection of broad weakness across all PCB segments, mainly due to 1) falling demand for electronics products under global macroeconomic pressures and 2) ongoing inventory digestion in downstream and 3) ASP erosion.

Figure 1: Global PCB market experienced significant decline since 4Q22

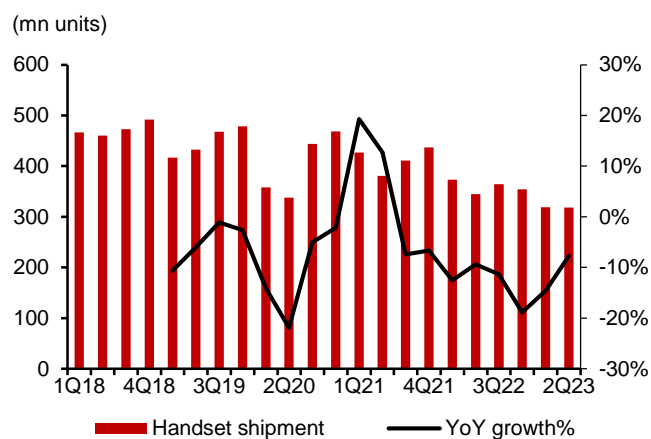


Source: Prismark, CMBIGM estimates

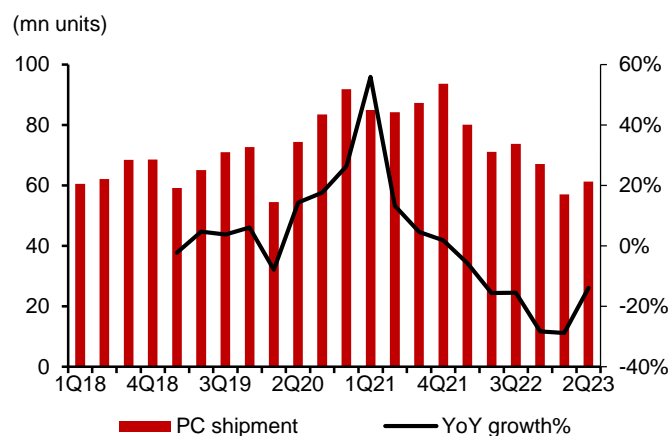
Global economic pressure has led to falling demand for electronics, especially in the consumer electronics market, which accounts for over 50% of the PCB industry. In 1H23, global mobile and PC shipments saw substantial declines of 11% and 22% YoY, respectively, according to IDC. However, EV and AI server markets are among the few sectors still showing growth. Our outlook for 2H23 is cautious, with expected declines in handset and PC shipments. The second largest segment is telecom market, and as we expected earlier: “Global telecom spending is likely to decrease in 2023, considering unsatisfactory revenue growth and macro challenges” ([link](#)).

The continual destocking momentum in the downstream sector persists. Although some downstream customers currently maintain relatively low inventory levels, their inclination to restock remains modest. Several manufacturers are still in a phase of careful observation. We believe that the pressure in this regard will endure, yet there exists the potential that the Apple super cycle and the return of Huawei may yield results that prove to be better-than-feared.

ASP erosion exists across all product segments, with especially significant price declines observed in HDI, FPC, and package substrates, per Prismark, who projects a 15% YoY decline in PCB sales, but only a 4.8% YoY decrease in terms of volume. This discrepancy suggests a roughly 10% YoY reduction in ASP.

Figure 2: Handset shipment declined by 7.8% YoY in 2Q23


Source: IDC, Bloomberg, CMBIGM estimates

Figure 3: PC shipment declined by 13.9% YoY in 2Q23


Source: IDC, Bloomberg, CMBIGM estimates

Ongoing pressure in 2H23; Gradual recovery may come in 2024

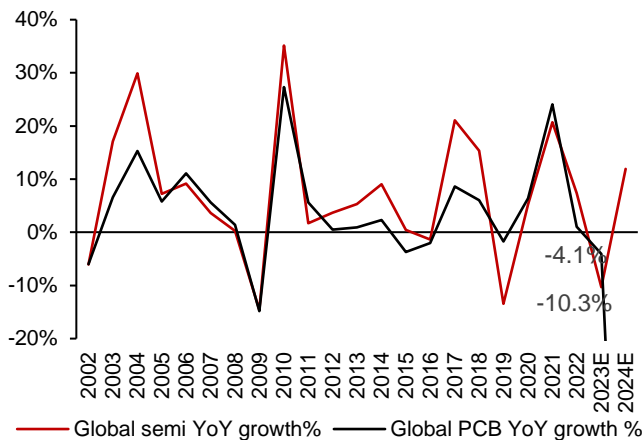
The worldwide consumer electronics sector has persistently experienced a state of fragility, although there have been glimpses of recovery in 2H23. However, the sustainability of this resurgence remains contingent upon further confirmation, as there are no discernible indications of a sustained rebound in consumer demand in the near term.

Regarding shipments within each electronics category, wearables have endured the most severe setbacks, with a decline of 52.0% YoY in 1Q23 and an additional 46.5% YoY decline in 2Q23. Similarly, PC and mobile shipments have also been hit but with more moderate magnitude.

For 2023, Prismark revised down its global PCB sales growth forecast to 15.0% YoY decline from previous 9.3% YoY decline. We do not expect a meaningful turnaround for PCB industry in the near term and believe the PCB manufacturers will continue to face challenges in 2H23.

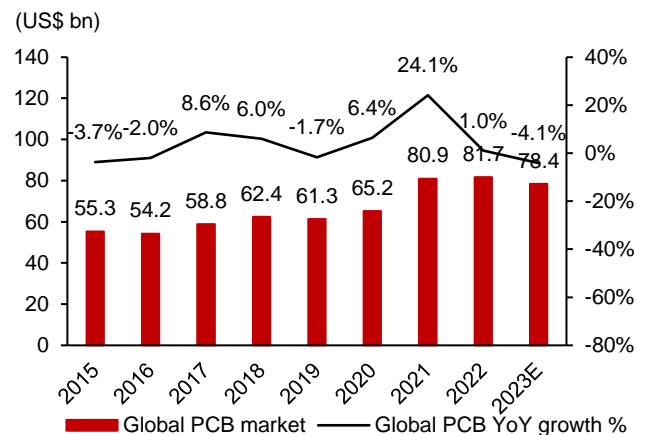
Looking into 2024, we think global semi market growth could be a good reference for PCB market, given the positive correlation between these two data. WSTS updated its latest semi market forecasts in June 2023: ***"The global semi market is predicted to experience a downturn of 10.3% in 2023, however this is anticipated to be followed by a robust recovery, with estimated growth of 11.9% in 2024."*** We may see some gradual recovery in 2024.

Figure 4: Global semi growth is expected to rebound in 2024 due to steady global GDP growth



Source: WSTS, Prismark, CMBIGM estimates

Figure 5: Global PCB market growth is expected to turn negative in 2023 to -4.1%

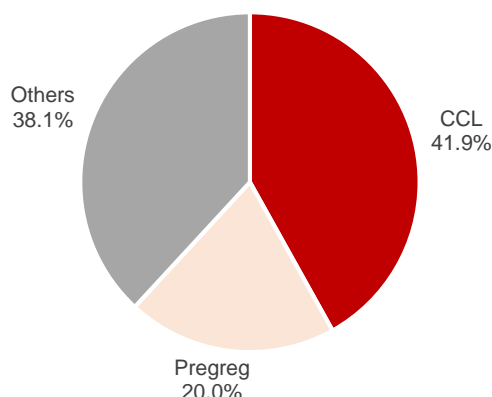


Source: Prismark, CMBIGM estimates

Copper price is likely to remain stable for the rest of 2023

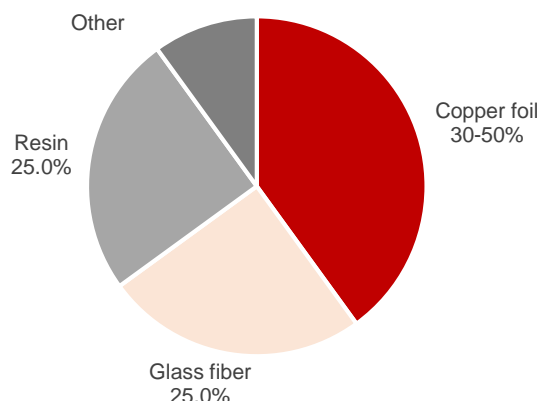
PCB's largest cost is CCL (c.30-70% depending on the type of PCB), of which copper foil (30-50%), glass fiber (~25%) and resin (~25%) are the top contributors. Therefore, **copper is a key material for PCB**.

Figure 6: CCL is key material of PCB (2019)



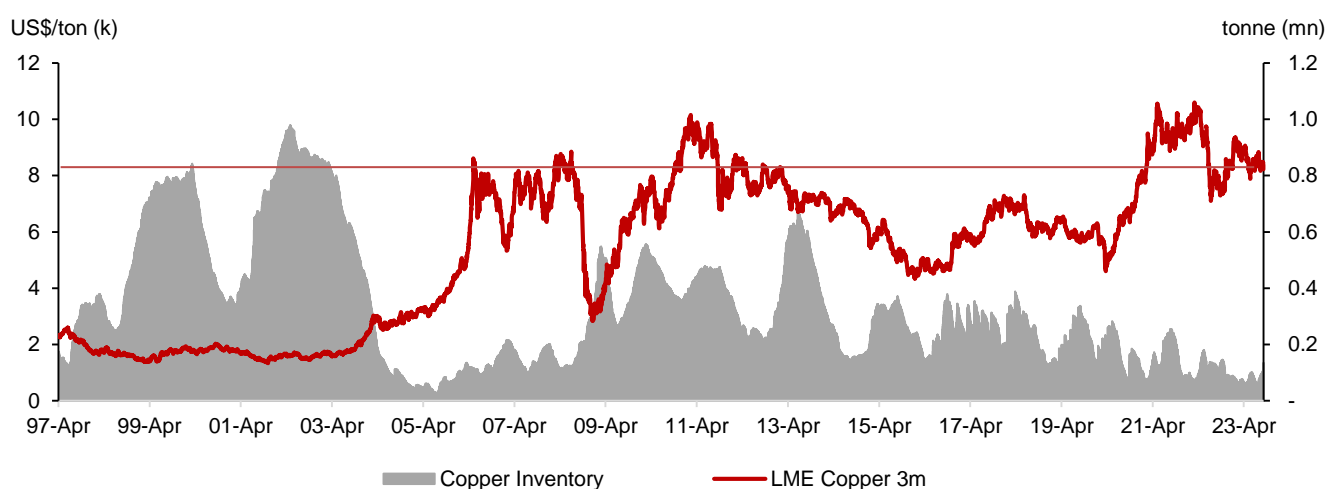
Source: Shengyi Electronics, CMBIGM estimates

Figure 7: CCL material cost breakdown (2020)



Source: Shengyi Electronics, CMBIGM estimates

Figure 8: Copper price has fluctuated little in 9M23



Source: Wind, CMBIGM estimates

In 2021, copper price was up dramatically, reaching US\$10k/ton in May, driven by strong demand and tight supply. In 2022, copper price remained at its high but began to fall on growing global recession fears since 2Q. There is a brief surge after China's reopening. 1H23, copper price has held steady, which was in line with our previous prediction ([link](#)).

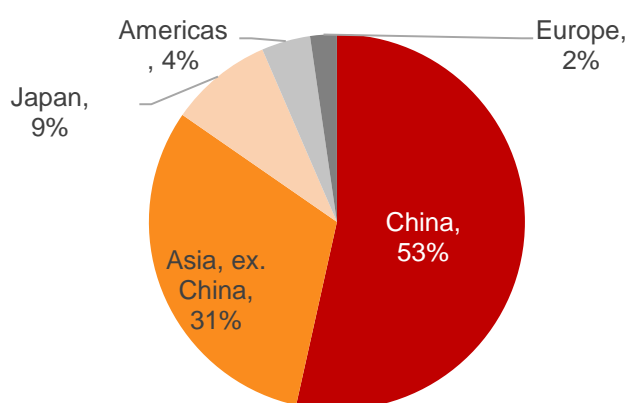
Since 2H22, copper inventory has been on a declining trend with a slight recent uptick. Through our channel check, we saw the inventory level of some downstream PCB clients is relatively low. However, they were still reluctant to purchase more materials. Meanwhile, the PCB industry is consolidating as small participants are struggling to survive. This has suppressed the willingness to restocking and the demand recover has been delayed.

China PCB Supply Chain Outlook: Continued weakness in 1H23 and pending recovery in 2H23

China is expected to maintain its dominant position as the leading PCB manufacturing hub in 2023E, commanding over 50% of the market share. However, it is worth noting that the China PCB industry faced some significant setbacks in 2022. These challenges were primarily driven by industry headwinds and a growing emphasis on supply chain diversification in the global electronics sector. The diversification efforts prompted many companies to explore alternative manufacturing locations to reduce dependency on a single region.

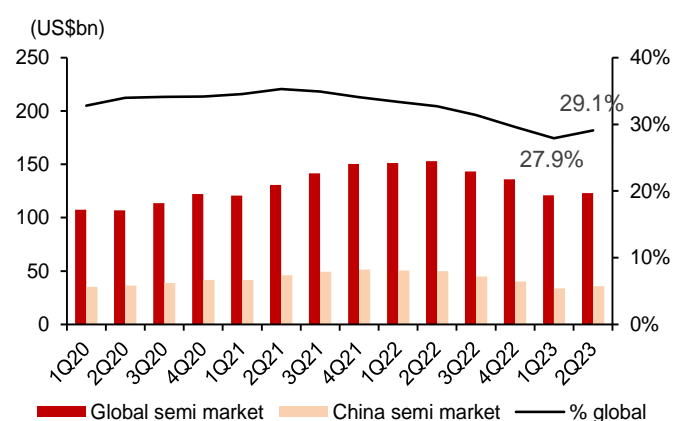
While the year 2022 was challenging, there have been signs of a slight rebound in domestic sales since China's reopening in 1H23. Nevertheless, it is important to approach this rebound cautiously, as macroeconomic headwinds continue to cast uncertainties over the industry's near-term prospects. The PCB market in China is navigating a complex landscape characterized by evolving global supply chain dynamics that may impact the sustainability of this rebound.

Figure 9: China: the predominant PCB manufacturing site with over 50% share (2023E)



Source: Company filings, Prismark, CMBIGM estimates

Figure 10: Both global and China semi market sales rebounded in 2Q23



Source: IMF, WSTS, Prismark, CMBIGM estimates

Disclosures & Disclaimers

Analyst Certification

The research analyst who is primary responsible for the content of this research report, in whole or in part, certifies that with respect to the securities or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about the subject securities or issuer; and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific views expressed by that analyst in this report.

Besides, the analyst confirms that neither the analyst nor his/her associates (as defined in the code of conduct issued by The Hong Kong Securities and Futures Commission) (1) have dealt in or traded in the stock(s) covered in this research report within 30 calendar days prior to the date of issue of this report; (2) will deal in or trade in the stock(s) covered in this research report 3 business days after the date of issue of this report; (3) serve as an officer of any of the Hong Kong listed companies covered in this report; and (4) have any financial interests in the Hong Kong listed companies covered in this report.

CMBIGM Ratings

BUY	: Stock with potential return of over 15% over next 12 months
HOLD	: Stock with potential return of +15% to -10% over next 12 months
SELL	: Stock with potential loss of over 10% over next 12 months
NOT RATED	: Stock is not rated by CMBIGM

OUTPERFORM	: Industry expected to outperform the relevant broad market benchmark over next 12 months
MARKET-PERFORM	: Industry expected to perform in-line with the relevant broad market benchmark over next 12 months
UNDERPERFORM	: Industry expected to underperform the relevant broad market benchmark over next 12 months

CMB International Global Markets Limited

Address: 45/F, Champion Tower, 3 Garden Road, Hong Kong, Tel: (852) 3900 0888 Fax: (852) 3900 0800

CMB International Global Markets Limited ("CMBIGM") is a wholly owned subsidiary of CMB International Capital Corporation Limited (a wholly owned subsidiary of China Merchants Bank)

Important Disclosures

There are risks involved in transacting in any securities. The information contained in this report may not be suitable for the purposes of all investors. CMBIGM does not provide individually tailored investment advice. This report has been prepared without regard to the individual investment objectives, financial position or special requirements. Past performance has no indication of future performance, and actual events may differ materially from that which is contained in the report. The value of, and returns from, any investments are uncertain and are not guaranteed and may fluctuate as a result of their dependence on the performance of underlying assets or other variable market factors. CMBIGM recommends that investors should independently evaluate particular investments and strategies, and encourages investors to consult with a professional financial advisor in order to make their own investment decisions.

This report or any information contained herein, have been prepared by the CMBIGM, solely for the purpose of supplying information to the clients of CMBIGM or its affiliate(s) to whom it is distributed. This report is not and should not be construed as an offer or solicitation to buy or sell any security or any interest in securities or enter into any transaction. Neither CMBIGM nor any of its affiliates, shareholders, agents, consultants, directors, officers or employees shall be liable for any loss, damage or expense whatsoever, whether direct or consequential, incurred in relying on the information contained in this report. Anyone making use of the information contained in this report does so entirely at their own risk.

The information and contents contained in this report are based on the analyses and interpretations of information believed to be publicly available and reliable. CMBIGM has exerted every effort in its capacity to ensure, but not to guarantee, their accuracy, completeness, timeliness or correctness. CMBIGM provides the information, advices and forecasts on an "AS IS" basis. The information and contents are subject to change without notice. CMBIGM may issue other publications having information and/or conclusions different from this report. These publications reflect different assumption, point-of-view and analytical methods when compiling. CMBIGM may make investment decisions or take proprietary positions that are inconsistent with the recommendations or views in this report.

CMBIGM may have a position, make markets or act as principal or engage in transactions in securities of companies referred to in this report for itself and/or on behalf of its clients from time to time. Investors should assume that CMBIGM does or seeks to have investment banking or other business relationships with the companies in this report. As a result, recipients should be aware that CMBIGM may have a conflict of interest that could affect the objectivity of this report and CMBIGM will not assume any responsibility in respect thereof. This report is for the use of intended recipients only and this publication, may not be reproduced, reprinted, sold, redistributed or published in whole or in part for any purpose without prior written consent of CMBIGM.

Additional information on recommended securities is available upon request.

For recipients of this document in the United Kingdom

This report has been provided only to persons (I) falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (as amended from time to time) ("The Order") or (II) are persons falling within Article 49(2) (a) to (d) ("High Net Worth Companies, Unincorporated Associations, etc.") of the Order, and may not be provided to any other person without the prior written consent of CMBIGM.

For recipients of this document in the United States

CMBIGM is not a registered broker-dealer in the United States. As a result, CMBIGM is not subject to U.S. rules regarding the preparation of research reports and the independence of research analysts. The research analyst who is primary responsible for the content of this research report is not registered or qualified as a research analyst with the Financial Industry Regulatory Authority ("FINRA"). The analyst is not subject to applicable restrictions under FINRA Rules intended to ensure that the analyst is not affected by potential conflicts of interest that could bear upon the reliability of the research report. This report is intended for distribution in the United States solely to "major US institutional investors", as defined in Rule 15a-6 under the US, Securities Exchange Act of 1934, as amended, and may not be furnished to any other person in the United States. Each major US institutional investor that receives a copy of this report by its acceptance hereof represents and agrees that it shall not distribute or provide this report to any other person. Any U.S. recipient of this report wishing to effect any transaction to buy or sell securities based on the information provided in this report should do so only through a U.S.-registered broker-dealer.

For recipients of this document in Singapore

This report is distributed in Singapore by CMBI (Singapore) Pte. Limited (CMBISG) (Company Regn. No. 201731928D), an Exempt Financial Adviser as defined in the Financial Advisers Act (Cap. 110) of Singapore and regulated by the Monetary Authority of Singapore. CMBISG may distribute reports produced by its respective foreign entities, affiliates or other foreign research houses pursuant to an arrangement under Regulation 32C of the Financial Advisers Regulations. Where the report is distributed in Singapore to a person who is not an Accredited Investor, Expert Investor or an Institutional Investor, as defined in the Securities and Futures Act (Cap. 289) of Singapore, CMBISG accepts legal responsibility for the contents of the report to such persons only to the extent required by law. Singapore recipients should contact CMBISG at +65 6350 4400 for matters arising from, or in connection with the report.