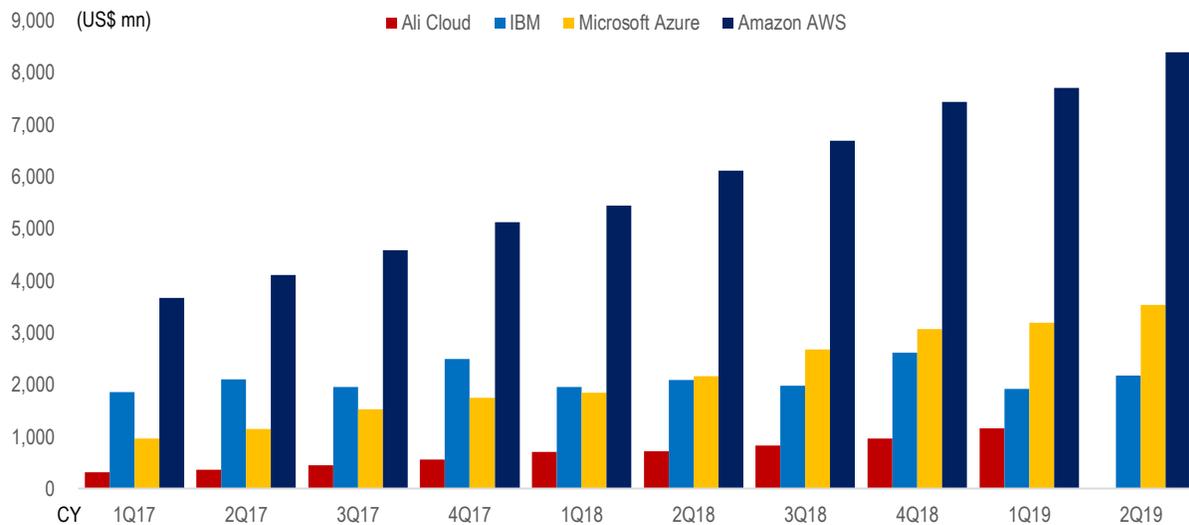


Global Tech Biweekly



Cloud Computing

Figure 1: Major cloud computing providers revenue



Source: Company data, AMTD Research estimates

AMTD comments: Major cloud computing providers have announced their latest quarter results. Amazon is still leading the cloud computing market in terms of revenue. In 2Q19, AWS reported revenue of US\$8.38bn, up 37% YoY. The growth is solid given its scale, in our view. Its annual revenue run rate came to US\$33bn, increased by US\$9bn from last quarter, the second largest increase to 4Q18 in its history. Its major competitor Microsoft Azure revenue grew strongly by 64% YoY in 2QCY19 and by our estimate its annual run rate was more than US\$13bn. Google with relatively small cloud business scale shared its GCP financial data in earnings call. Its cloud business unit now has an US\$8bn annual revenue run rate. That's up significantly from the US\$4bn the company reported in early 2018.

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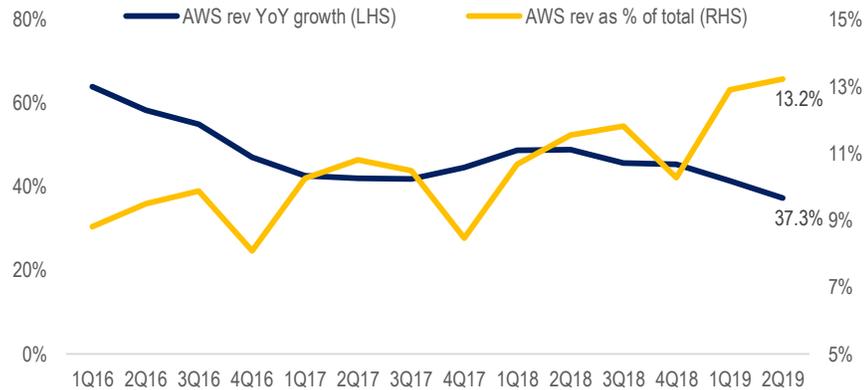
Cloud

Amazon/AWS

AWS – the key driver of Amazon and the most comprehensive provider in cloud market

AWS has benefited from a first-mover advantage in the cloud computing market. Although the growth decelerated to 37.3% this quarter, it achieved the solid growth in absolute dollar terms. The proportion of total revenue continues to increase. In 2Q19, AWS reported revenue of US\$8.38bn, accounting for 13% of Amazon’s total revenue.

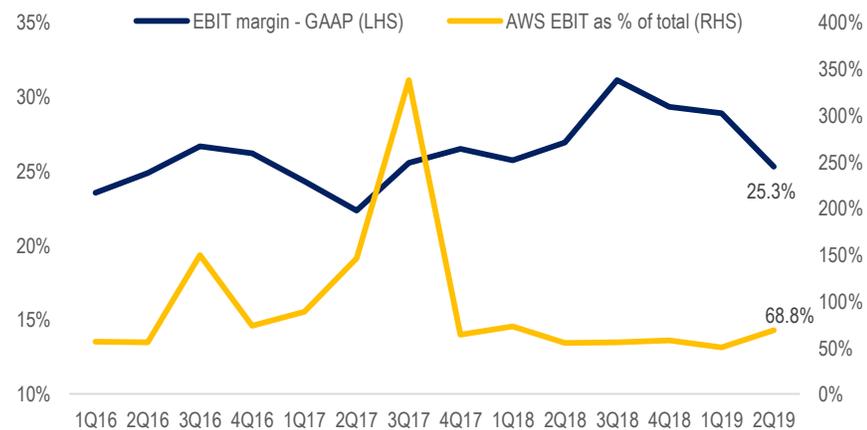
Figure 2: AWS revenue YoY growth (LHS) and AWS revenue as % of total revenue (RHS)



Source: Company data, AMTD Research

On the other hand, AWS has maintained a quite stable EBIT margin over the past few years. Due to the addition of sales and marketing personnel and infrastructure investment stepping up in 2019, AWS margin came down a bit to 25.3% in 2Q19, down 159bps/358bps YoY/QoQ, respectively. However, it still generated US\$2.12bn in operating income, representing 52% of Amazon’s total operating income. AWS continues to play an essential role in driving profit for Amazon. As the most comprehensive provider in the cloud market, AWS offers the widest range of products and services for everyone, in the meanwhile, thanks for economy of scale, AWS gains more market share through continues price cuts. Given many sectors remain in the very early stages of cloud migration, we believe there’s still a large room for AWS to grow.

Figure 3: AWS operating margin (GAAP) trend (LHS) and AWS EBIT as % of total EBIT (RHS)



Source: Company data, AMTD Research

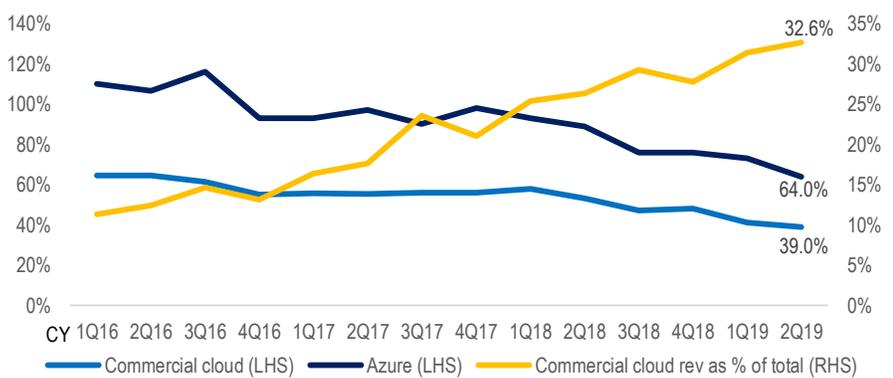
Cloud

Microsoft

Microsoft – cloud transition proved successful and the leader in Hybrid Cloud

Microsoft ranked 2nd in cloud market in terms of revenue. Different from AWS, which focuses on IaaS/PaaS, Microsoft is deeply involved at all three layers of the cloud (IaaS, PaaS and SaaS). Azure is the cloud for IaaS and PaaS for businesses; Office 365 is a SaaS-based office solution; and Dynamics 365 is a cloud-hosted SaaS combining ERP and CRM enterprise system. Since the transition from traditional software to the cloud in 2015, Commercial Cloud* has become the major driver of Microsoft. Commercial Cloud* post strong growth of 39% YoY last quarter with revenue reaching US\$11bn, pushing its proportion of total revenue to a record 32.6%.

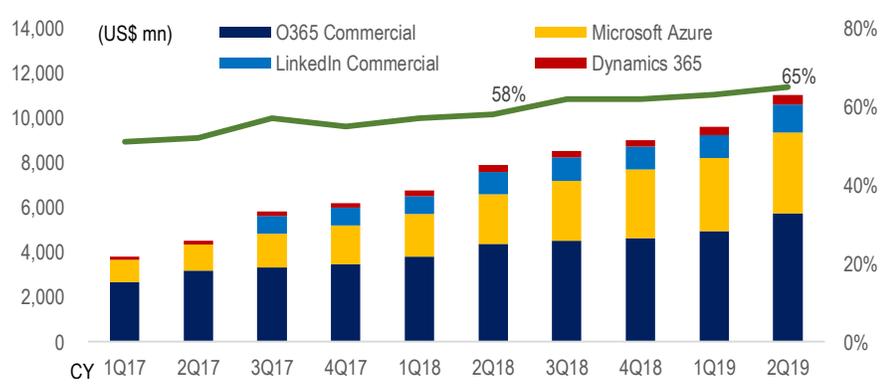
Figure 4: Microsoft commercial cloud/Azure revenue YoY growth (LHS) and commercial cloud* revenue as % of total revenue (RHS)



Source: Company data, AMTD Research
 *Note: Commercial cloud includes Office 365 Commercial, Azure, the commercial portion of LinkedIn, Dynamics 365, and other cloud properties

In the meanwhile, expanding scale and material improvement in Azure gross margin drove Commercial Cloud gross margin up 600bps YoY to 65% in 2QCY19. For the Commercial Cloud, Azure has been the main growth driver while Office 365 Commercial still accounted for a meaningful proportion of Commercial Cloud*. Apart from public cloud, Microsoft has competitive advantage over other cloud providers in Hybrid Cloud, thanks for its existing customer relationships and experience within on-premises data center. In the long run, we think expanding TAM and differentiated advantages in Hybrid Cloud will continue to driver Microsoft's growth.

Figure 5: Microsoft commercial cloud* revenue (LHS) breakdown and gross margin (RHS)



Source: Company data, AMTD Research estimates
 *Note: Commercial cloud includes Office 365 Commercial, Azure, the commercial portion of LinkedIn, Dynamics 365, and other cloud properties

News updates

1 Aug 2019

Semiconductor

AMD

AMD 2Q results in line but 3Q guidance below expectation

AMD reported 2Q19 total revenue of US\$1.53bn, up 20.4% QoQ/down 12.8% YoY, slightly ahead of consensus. Computing and Graphics revenue was US\$940mn, up 13.1% QoQ/down 13.4% YoY. The sequential increase primarily driven by higher GPU sales. Enterprise, Embedded and Semi-Custom revenue was US\$591mn, up 34.0% QoQ/down 11.8% YoY. Higher semi-custom and EPYC processor drove the quarterly increase. Gross margin was 41%, flat QoQ/up 4ppts YoY and Non-GAAP EPS was US\$0.08, in line with the expectation. AMD guided 3Q revenue to the midpoint of US\$1.8bn, 8% below of the expectation, and expected non-GAAP gross margin expand to 43% in 3Q and 42% for the full year. (Source: [AMD](#))

AMTD comments: The weak outlook for 3Q was mainly due to the company's trimming estimates for game console business. AMD offers semi-custom chips for the PS4 and Xbox One consoles, however, both consoles are at the end of their lifecycle and winding down faster than expected. On the other hand, AMD and Samsung announced a multi-year strategic partnership in June. This strategic cooperation will help AMD promote graphic cards to the mobile market. In addition, according to the management, the revenue from Samsung would have slightly better gross margin.

1 Aug 2019

Semiconductor

Qualcomm

Qualcomm post weak F4Q guidance

Qualcomm reported F3Q19 total revenue of US\$9.6bn. Excluding US\$4.7bn of settlement with Apple, Non-GAAP revenue came to US\$4.9bn, flat QoQ/down 13% YoY. QCT F3Q revenue was US\$3.6bn back on 156mn MSM shipments, down 4.2% QoQ/12.7% YoY. EBT margin was 14%. QTL F3Q revenue was US\$1.3bn, including US\$150mn interim payment from Huawei. EBT margin was 70%. Non-GAAP EPS was US\$0.80, up 4% QoQ, helped by faster than expected reductions in litigation expenses. In the same time, Qualcomm post weak F4Q revenue/Non-GAAP EPS guidance of US\$4.3bn-US\$5.1bn/US\$0.65-US\$0.75, respectively. (Source: [Qualcomm](#))

AMTD comments: Management expected headwinds to continue for next one or two quarters, which included in our view: 1) the sluggish near-term handset demand; 2) Huawei ban pushes it to refocus domestic market to gain market share constantly from rivals who are key Qualcomm customers; 3) Samsung and Huawei will use their in-house solutions for 5G. On the other hand, the positive sides are: 1) licenses continue to be valid and enforceable under FTC case; 2) DOJ pauses antitrust ruling against Qualcomm; 3) 5G design wins have doubled since last quarter to over 155 now, which are launched or under development, and using Qualcomm's RF solution for 5G sub-6GHz and millimeter wave; 4) strategic corporation with Tencent to develop 5G gaming. In general, although some hurdles dampen near term demand, we still see Qualcomm's upside in upcoming 5G.

1 Aug 2019

Murata 1Q OP beat

Component

Murata

Murata 1QF19 OP reached JP¥62.6bn, up 29% YoY, beating IFIS consensus. Solid performance was driven by stable MLCC price, firm MLCC demand from automotive, and improvement in MetroCirc productivity. MLCC reported sales of JP¥137.7mn, up 8.9% YoY. Modules reported sales of JP¥95.2mn, up 10.1% YoY. Murata maintained the full year OP guidance of JP¥220.0bn unchanged. (Source: [Murata](#))

AMTD comments: Looking into 2Q, growing sales of high-end US smartphone is supposed to driver the profit, however, the uncertainties of smartphone sales outlook could bring challenges to the company, in our view.

31 Jul 2019

Apple F3Q19 earnings beat with Great China recovery

Smartphone

Apple

Apple reported F3Q19 total revenue of US\$53.8bn, up 1% YoY, with iPhone of US\$26.0bn (-12% YoY), iPad of US\$5.0bn (+8% YoY), Mac of US\$5.8bn (+11% YoY), Wearables, Home and Accessories of US\$5.5bn (+48% YoY), and Services of US\$11.5bn (+13% YoY). Gross margin was 37.6%, in line with market expectation. Product gross margin declined to 30.4% from 32.8% in F3Q18 while services gross margin expanded significantly to 64.1% from 51.0% in F3Q18. EPS came to US\$2.18, beating market expectation. F4Q19 total revenue was guided to US\$61-64bn with gross margin of 37.5% to 38.5%. (Source: [Apple](#))

AMTD comments: Great China market recovers and the decline in revenue has narrowed to 4.1% YoY in F3Q from 27% in F1Q, mainly due to the VAT rate adjustment and Apple's positive pricing strategy. Accounting for 10% of total revenue, Wearables, Home and Accessories revenue saw a strong growth of 48% YoY, becoming a new growth driver of Apple. Service revenue growth slowed down to 13%, however, with more services such as Apple Card, TV+, Apple Arcade for gaming, coming soon, Services revenue growth is expected to pick up. During this quarter Apple announced iOS13, and another batch of software updates, which are expected to be available in the fall of 2019. In addition, Apple returned more than US\$21bn to shareholders this quarter, including open market repurchases of US\$17bn and dividends of US\$3.6bn.

31 Jul 2019

MediaTek 2Q19 results beat with gross margin improved

Semiconductor

MediaTek

MeidaTek reported 2Q19 total revenue of NT\$61.6bn, up 16.8% QoQ/1.8% YoY. Gross margin was 41.9%, 90bps higher than the consensus and primarily helped by TV SoC and higher margin Helio P90. Net profit came to NT\$6.5bn, beating consensus. The company guided 3Q revenue in range of NT\$65.3bn to NT\$70.2bn (10%-15% QoQ) and expected gross margin to improve to 40%-43%. (Source: [MediaTek](#))

AMTD comments: We believe the strength for smartphone chipset will continue for the second half as Helio P90 sales ramp up and newly launched Helio P65 & G90 will help to boost ASP. However, there's still concerns: 1) Huawei is gaining market share in China market from rivals who are key MediaTek customers; 2) the company's first 5G SoC will start sampling in 3Q and mass production in 1Q20, which may make the company miss the first wave of 5G demand later this year.

25 Jul 2019

Semiconductor

Intel

Intel revised up full year guidance as 2Q19 results beat

Intel reported 2Q19 total revenue of US\$16.5bn, up 2.8% QoQ/down 2.7% YoY, beating consensus. Client Computing Group revenue was US\$8.8bn, up 3.0% QoQ/1.3% YoY. Data Center Group revenue was US\$5.0bn, up 1.7%QoQ/down 10.2% YoY. IoT revenue was US\$1.2bn, up 8.4% QoQ/12% YoY. Non-Volatile Memory Solution revenue was US\$940mn, up 2.7% QoQ/down 12.9% YoY. Programmable Solutions Group revenue was US\$489mn, up 0.6% QoQ/down 5.4% YoY. Non-GAAP gross margin was 61.6%, 210bps above the consensus and Non-GAAP EPS came in US\$0.17, beating consensus. Strong than expected 2Q results came from customer demand for higher performance products in both its PC-centric and data-centric businesses. Based on that, Intel revised up full year revenue outlook by US\$500mn to US\$69.5bn and Non-GAAP EPS to US\$4.40, respectively. (Source: [Intel](#))

AMTD comments: Although revised up full year guidance, the management was still cautious about second half and prudently acknowledged that 2Q's beat came from 2H pull-ins. AMD remains a concern for Intel, as AMD's 7nm will compete against Intel's 10nm in the same market. Intel has started to ship its first 10nm "Ice Lake" PC processors in June, followed by servers in 1H20. At the same time, AMD has started shipping its 7nm processors for desktop and is expected to ship for servers earlier than Intel does. In the meanwhile, gross margin will come down a bit as Intel will start 10nm production in 4Q. However, decision to exit 5G smartphone business by selling it to Apple will help generate the cost & expense benefits for the company, in our view.

31 Jul 2019

Semiconductor

ASE

ASE reported 2Q19 net profit of NT\$2.69bn, up 32% QoQ

ASE Technology Holding announced that the 2Q19 revenue was NT\$90.74bn, up 7% YoY; after-tax net profit was NT\$2.69bn, up 32% QoQ, but down 77% YoY. The company expects that in 2H19, the peak seasons of consumer electronics products, from Electronic Manufacturing Services (EMS) and Package Testing & Materials business revenues will increase by 40-50% and 15-18% QoQ, respectively. Besides, with the development of the semiconductor industry, System-in-Package (SiP) annual revenue will probably beat the target of US\$100mn. (Source: [Sina](#))

30 Jul 2019

Smartphone

Sharp/JDI

Sharp partnered with JDI to develop foldable phones

Sharp partnered with panel maker JDI to develop the in-folding technology of folding the screen inwards for foldable smartphones. The product is now in the test phase. The foldable phone targets at the Great China market in addition to Japan, and is expected to be launched next year. (Source: [Sohu](#))

29 Jul 2019

5G/Infrastructure

China Tower

China Tower has delivered 7,292 5G base stations in Beijing

According to the Information Office of Beijing Municipality, China Tower has delivered 7,292 5G base stations to the three carriers in Beijing. These base stations mainly cover the central urban areas, the 2022 Winter Olympic venues, the park of Expo 2019 Beijing, Beijing Daxing International Airport and other hot spots. China Mobile and China Telecom said that by the end of this year, 5G base stations in Beijing will exceed 8,000, and there will be full outdoor coverage of 5G signals within the 5th ring road and in the sub-urban areas. The companies will keep working on 5G network to cover the key functional areas outside the 5th ring road next year. (Source: [Sina](#))

26 Jul 2019

U.S. to deny tariff relief for Apple Mac Pro parts from China

Components

Apple

U.S. President Trump said the government would not grant Apple any relief for tariffs on Mac Pro parts made in China, and later added that he thought the firm would build a plant in Texas. Apple announced to move its Mac Pro production line to China in June, and on July 18, the company applied to the U.S. Trade Representative's office for exempting the 25% tariffs on 15 parts, including ones for its Mac Pro computers. The public comment period for those requests closed on August 1. (Source: [Reuters](#))

26 Jul 2019

Tencent to enter Japan's cloud market, targeting game business

Cloud

Tencent

Tencent is extending its reach into Japan's cloud computing market as part of its strategy to expand in overseas markets to maintain high growth. Cloud market in Japan is expected to grow from JPY668.8bn in 2018 to JPY1.69tn in 2023, according to IDC. Tencent will focus on hosting data for game and video-sharing providers in Japan, which is its strength back in China - over 80% of the top 100 Chinese video-sharing companies are clients of its cloud services. Tencent has partnered with U.K. company Colt Data Centre Services to set up a center in Japan to improve security of end users' personal information. (Source: [NikkeiAsianReview](#))

25 Jul 2019

Samsung Galaxy Fold ready for launch in September after problems fixed

Smartphone

Samsung

Samsung announced that it has fixed the screen problems for its first foldable phone, Galaxy Fold, and plans to officially launch the phone in September. The phone should have been launched in April, but the event was delayed as many reviewers reported the device to be broken easily due to misunderstanding or external debris coming into the hinge mechanism. Samsung has extended the top protective layer of the Infinity Flex Display beyond the bezel, and featured additional reinforcements to better protect the device from external particles. Galaxy Fold will retail for US\$1,980. (Source: [Samsung](#))

22 Jul 2019

The VCSEL revenue of cell phone 3D sensing will reach US\$1.139bn in 2019

Module

Apple

Samsung

Sony

According to the latest Infrared Sensing Application Market Trend Report by TrendForce' LEDinside, the smartphone 3D sensing market has entered growth stage, and the market size of VCSELs used by smartphones to utilize 3D sensing is expected to reach US\$1.139bn this year. In 2019, in addition to Apple's iPhone embedded with 3D face recognition, Samsung, Huawei and Sony have also scheduled implementations of world-facing 3D sensing in flagship devices in 2H19. About 10 high-end phones may be embedded with 3D sensing solutions in 2020, with some devices equipped with the solution on both the front- and world-facing cameras, further pushing up VCSEL revenue. (Source: [Trendforce](#))

22 Jul 2019

Apple filed for patent for MR headset

MR

Apple

Apple has filed a patent application for a Mixed Reality (MR) system including a head-mounted display and a controller that combine AR and VR. The application was published in July after being filed in this March. The headset would come with multiple sensors and provide “3D virtual views of a user’s environment augmented with virtual content”. It is said that the headset would be equipped with an 8K display for each eye and the project, codenamed T288, may be released in 2020. (Source: [CNet](#))

22 Jul 2019

Huawei set a goal of shipping 270mn phones in 2019

Smartphone

Huawei

Apple

Huawei plans to ship 270mn phones in 2019, said CEO Ren Zhengfei. The gap in 2018’s full-year smartphone shipments between Huawei and Apple was about 2.8mn units, the lowest point ever according to IDC. The projected shipment is significantly higher than Huawei’s initial growth goal of 20% and would likely make Huawei the world’s second largest phone maker if achieved, going ahead of Apple. Huawei shipped about 206mn phones in 2018. (Source: [Yahoo](#))

22 Jul 2019

Microsoft to invest US\$1bn in Elon Musk’s OpenAI

AI/Cloud

Microsoft

OpenAI

Microsoft and OpenAI, an AI research firm cofounded by Elon Musk, announced a new partnership to build artificial general intelligence (AGI) - AI with the ability to handle more complex tasks. As part of the project, Microsoft will invest US\$1bn in OpenAI. The companies will together develop new Azure AI supercomputing technologies. Microsoft will become OpenAI’s exclusive cloud provider and help the company to monetize the technologies. (Source: [CNBC](#))

18 Jul 2019

Largan to end automotive lens business

Component

Largan

Largan Precision, one of the world’s major players in plastic aspherical lens, has decided to end development and production of automotive lens that it has undertaken for over five years, according to reports. Reasons may include: 1) automotive lenses have a wide variety but each kind of lenses only takes a low yield, so the production cost would be high; 2) the industry has a low entry barrier due to its low technological requirements, compared to mobile lens; 3) Largan lacks pricing power. The company will focus on mobile lens and plan to launch the industry’s first 108MP high-end lens next year. (Source: [Digitimes](#))

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We, Brian Li and Michelle Li, hereby certify that (i) all of the views expressed in this research report reflect accurately our personal views about the subject companies and their securities; and (ii) no part of our compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed by us in this research report, nor is it tied to any specific investment banking transactions performed by AMTD Global Markets Limited.

As of the date the report is published, Brian Li holds financial interest in the securities of Amazon mentioned in the report.

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