

Technology (Hardware/Semi)

Quick note on newly announced restrictions on advanced AI chips

- **Multiple media outlets on Tuesday have reported the US is tightening export controls for AI chips**, which is expected to further limit the ability of Nvidia and other manufacturers to sell high-performance semiconductors to China.
- **Nvidia's response:** Nvidia's response: **"does not expect a near-term meaningful impact on financial results** following US expansion of export controls to China...", a company spokesperson says in an email to Bloomberg. However, the Company executives have said **blanket bans on exports to China would affect the long-term growth of the US chip industry.**
- **Our thoughts:** We mentioned this geopolitical risk in our latest report ([link](#)), "If the US further tightens curbs on AI chip export to China (an update is expected in October), this may negatively impact the revenue for many companies like Nvidia, AMD, etc."
 - Breaking down by geography, Nvidia's revenue from China fell almost within the range of 20%-25% during the past three years. However, **we expect the impact will be less than 20-25%.**
 - **Current estimated A800 revenue from China is US\$5bn.** "Chinese companies Alibaba (BABA), Tencent, Baidu (BIDU), and TikTok-owner ByteDance collectively ordered around \$5 bn worth of Nvidia's A800 chips for delivery this year and next", according to Financial Times.
 - **But the impact could be more than US\$5bn, if considering a possible broader geography restriction.** In August, the US expanded the export restrictions sophisticated Nvidia and AMD AI chips beyond China to other regions including some countries in the Middle East, per Reuters.
- **Future catalysts: potential impact on Huawei in the future.** According to Bloomberg, "the US has begun a formal investigation into the Huawei phone". It is important to note that any potential restrictions on Huawei or SMIC would be a separate process from the new export control rules recently implemented.
- **List of names could be potentially impacted by the updated restrictions:** AMD (AMD US), Intel (INTC US), KLA (KLAC US), Lam Research (LRCX US), and Applied Materials (AMAT US).

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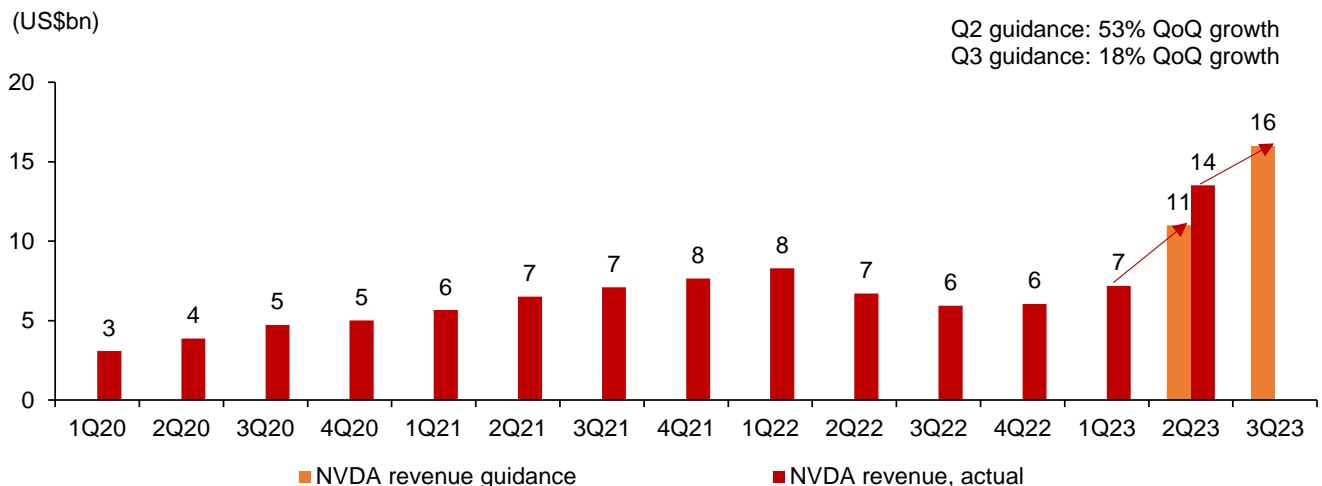
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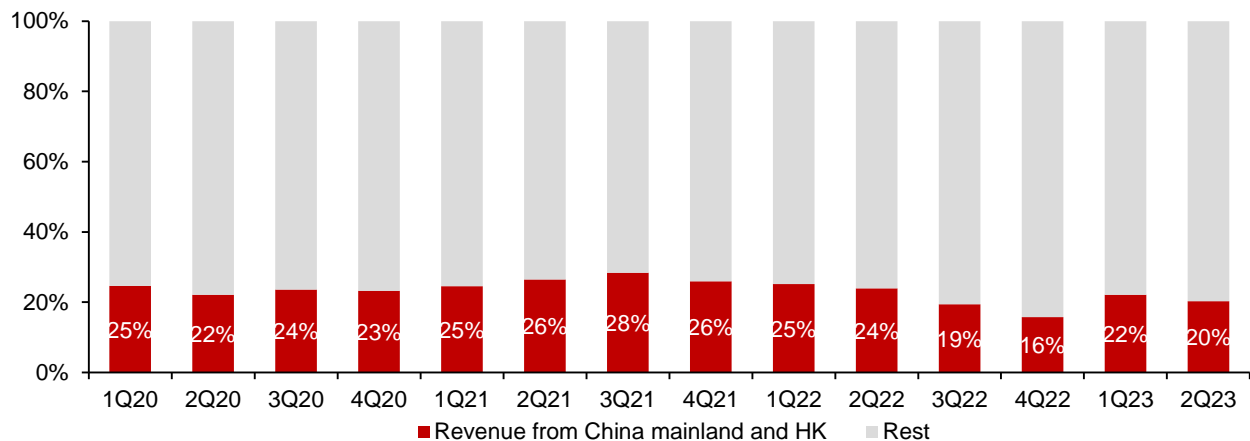
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Figure 1: NVDA's quarterly earnings

Source: Company data, CMBIGM estimates

Figure 2: Nvidia's revenue from China Mainland & HK largely fell within the range of 20%-25% (1Q20-2Q23)

Source: Company data, CMBIGM estimates

Figure 3: How are the new rules different this time**How are the new rules different this time?**

- 1 "The previous rules imposed a two-pronged test," considering both a chip's computing power and its ability to communicate with other chips, which is crucial in AI supercomputers. Companies like Nvidia and Intel tailored special chips for China that maintained strong computing capabilities while limiting communication speeds to comply with the previous rules. However, the new rules eliminate communication speed limits and focus solely on computing performance. This change will stop sales of Nvidia's A800 and H800 chips in China.
- 2 Additionally, the new measures introduce a restriction based on "performance density," which measures how much computing power can be packed into a given amount of silicon. This is aimed at "preventing companies from circumventing rules by using chiplet technology," where small pieces called chiplets are combined to create a large chip that would violate the regulations.
- 3 "The measures also expand licensing requirements for exporting advanced chips to over 40 additional countries" with diversion risks to China and subject to US arms embargoes. This builds on a previous restriction imposed on Nvidia, which limited shipments of A100 and H100 chips beyond China, including some Middle Eastern countries.
- 4 Furthermore, chips will be prohibited from being sent to subsidiaries of companies headquartered in "China, Macau, and other arms embargoed countries to prevent illegal smuggling into China or remote access by Chinese parent companies."
- 5 Last but not least, the Biden administration imposed licensing requirements for chipmaking tools on 21 countries outside of China and has expanded the list of equipment prohibited from being sent to China.

Source: Reuters, Bloomberg, Financial Times, CNBC, Company data, CMBIGM estimates

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