CAPSTONE

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Multilateral Controls on Chip Exports to China Unlikely, a Negative for US Chipmakers; Seagate a Bellwether for Future BIS Enforcement

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EXECUTIVE SUMMARY

- **Capstone believes the US is unlikely to be able to establish a multilateral agreement that would put controls on chip exports to China, akin to those from the Department of Commerce's October 7th interim final rule. Without wider adoption, foreign semiconductor-related firms will continue to avoid the harshest unilateral US export controls.**
- **The challenges to reaching an expansive multilateral agreement are even more acute than the traditional avenues in which the US pursues changes to export controls with key partners, such as the Wassenaar Arrangement. That forum is a nonbinding group intended for setting standards of an export control regime, regulating technology that can be used for both commercial and military purposes. The US goal of its own multilateral agreement with key suppliers will be even more challenging.**
- **Ensuring key allies, such as Japan, the Netherlands, and South Korea, adopt similar controls would be critical to maintain the effectiveness of controls while limiting the potential outsized damage for US firms. However, we believe this is an uphill battle. Without uniform restrictions across jurisdictions, firms in the US risk foreign firms removing US inputs from their supply chains over time.**
- **We also view the fate of Seagate Technology Holdings PLC (STX) and potential fines from an investigation related to accusations of selling hard drives to China's Huawei Technologies as a bellwether for the US enforcement posture of existing export controls. We expect Seagate to face limited fines of around $10 million, given the Bureau of Industry and Security's (BIS) long-standing guidance on penalty assessment. However, a higher fine, up to $176 million in a worst-case scenario, would suggest a harsher tone to future enforcement.**

Capstone's Call at a Glance	
Our Prediction	Capstone assigns a 35% probability that the US will reach a multilateral agreement with key allies on semiconductor-related export controls.
Companies Impacted	Semiconductor-related firms
Potential Impact	Multilateral export controls established through the Wassenaar Arrangement or a new regime will extend US restrictions to foreign-based companies
Market Dynamics	Shipments by US-based firms were immediately subject to the provisions of the recent interim final rule, while foreign-based competitors only had to heed limited restrictions on the involvement of US persons. A multilateral regime will impact other sales activities.

*Capstone's predictions are informed by rigorously examining historical occurrences and current conditions while rooting out cognitive biases systematically. We update our probabilities often to reflect the latest information. Read more here.

A DEEPER LOOK

Background

On October 7th, the Commerce Department's BIS issued an interim final rule that aims to broadly restrict the People's Republic of China's (PRC) and People's Liberation Army (PLA) from obtaining advanced chips. The new license requirements control leading-edge semiconductor-related goods, extend to US persons who are in positions authorizing these shipments, and expand the foreign direct product rule (FDPR) for items bound for Chinese firms placed on the Entity List.

The administration took unilateral action in adopting these restrictions, leaving open the possibility that US firms find workarounds and for foreign firms to remain outside of US jurisdiction. As the semiconductor industry continues to assess the implications and determine how to interpret key terms, BIS officials have signaled ongoing negotiations with key US allies and conviction regarding adopting similar export controls in those respective jurisdictions.

On Thursday, November 3rd, Commerce Secretary Gina Raimondo previewed the timeline for a multilateral agreement, but her comments disappointed and worried US chipmakers. In private comments to US-based semiconductor equipment firms that were later disclosed by the media, Raimondo suggested the process would take at least six to nine months but did not provide details on how these rules would be adopted. The views mirrored an earlier statement by Under Secretary of Commerce for Industry and Security Alan Estevez that the agency he oversees would establish a formal multilateral agreement on semiconductor-related export controls.

The US currently has four multilateral agreements administered by BIS. However, they are primarily structured to regulate traditional weapons and are not well-suited for the new approach the Biden administration is attempting to take. Chief among these multilateral regimes is the Wassenaar Arrangement established during the Cold War era. The group consists of 42 participating members and determines controls for dual-use goods and technologies, as well as conventional arms. The lists of items are then implemented by those countries, which include Russia, though they are not legally binding. To date, BIS has identified the Wassenaar Arrangement as a potential area for multilateral work and where it would first propose similar controls as those now part of the Commerce Control List for 2023. A plenary meeting occurs every six months with the next scheduled in December 2022. Secretary Raimondo's outlook is in line with the standard period of time the Commerce Department needs to promulgate rules in line with items agreed upon by the Wassenaar Arrangement group.

Rather, the US appears to be trying to recreate the Coordinating Committee for Multilateral Export Controls (CoCOM), a defunct group comprised of Western European nations and US allies launched after World War II. Other countries including Japan and Turkey later joined. CoCOM maintained three lists of controlled items with a much stronger compliance policy than what is required of Wassenaar Arrangement members. While the US is moving in this direction, as well as continuing to focus on end-use/end-users (rather than lists), plurilateral arrangements that are initiated by the US and specific countries, more limited in reach and relevant solely to the semiconductor space, is more likely before an eventual multilateral venue is created. Reaching these one-off agreements will still take considerable time and effort by the Biden administration.

For now, as firms digest and develop a better understanding of the interim final rule, the exact impacts appear more limited than originally anticipated. While the measure was broadly written and firms are continuing to pause shipments as they await additional guidance, Capstone viewed the initial responses of various semiconductor firms as overreactions. For example, media reports said several companies immediately asked all US persons in their China-based facilities to stop work. The new FAQs document from BIS suggests a more targeted application, such as dealing specifically with individuals in decision-making roles. Furthermore, companies like Nvidia Corp. (NVDA) are beginning to offer re-packaged chips with capabilities scaled back to work around the new export controls. Shares of ASML Holding are up 22.83% since the October 7th announcement, outperforming the Philadelphia Semiconductor Index's (PHLX) 9.14% gain in the same period. The company signaled it has limited exposure to the new rules and subsequently beat Q3 revenue expectations, reporting sales of $5.58 billion. Last week, ASML further raised its outlook for full-year 2025 sales to between €30 billion–€40 billion from the previous forecast of €24 billion-€30 billion.

Unpacking our Probability and Timing

We start with a base rate of 25% that the US will establish a multilateral agreement with allies like Japan and the Netherlands to adopt equivalent export controls measures outside of the Wassenaar Arrangement. Although data on these efforts historically are hard to establish, the US government has only successfully and prominently convinced partners to adopt similar export controls once since the Trump administration when the Dutch government did not renew an export license for ASML Holding NV (ASML), specifically for shipments of a particular manufacturing equipment machine (i.e., extreme ultraviolet EUV lithography) to Huawei, after intense lobbying by President Trump's advisors. However, the administration's similar efforts targeting Huawei more broadly were not as fruitful. Creating an entirely new system to manage semiconductor-related exports is likely even more challenging.

We adjust our probability upward by 15% to 40% given that federal agencies under the current administration have placed a greater emphasis on multilateralism and collaboration with allies than the previous administration, a key part of President Biden's platform during his 2020 presidential campaign. First, the Biden administration was able to successfully implement multilateral export controls targeting Russia following its invasion of Ukraine. Still, national security experts recognize that the urgency there was far greater and US allies likely have a lower appetite to impose a similar degree of restrictions on China for now.

Separately, the US and EU are engaged in continuous dialogue through the US-EU Trade and Technology Council (TTC). That group is tasked with wide-ranging technology discussions that are not limited to just semiconductors, but stakeholders have identified that forum as a potential avenue to bring these changes up for discussion. In a similar fashion, the Biden administration is working to establish an alliance in the Pacific through the Chip-4 deal. Although the framework was announced over a year ago, the countries involved in the effort have yet to officially meet. On November 8th, BIS and South Korea's Ministry of Trade, Industry, and Energy (MOTIE) formed the US-Korea Supply Chain and Commercial Dialogue Dual-use Export Controls working group, in part to "promote convergent control approaches."

We then reduce our probability by 5% to a final 35% because of the limited examples where the US and its allies have created a multilateral arrangement successfully regulating the exports of technologies beyond conventional arms and munitions, as well as the concentration of the past agreements with only the Netherlands. On November 13th, public reporting indicated that the US was "close to a tentative deal" with the Netherlands and Japan that would have restricted exports for semiconductor manufacturing equipment capable of producing 10nm chips and below. However, the US faced pushback when it wanted to broaden its scope to capture chips up to 14nm, as reflected in the recent interim final rule.

Entity List Enforcement

Despite the aggressive expansion of export controls, BIS enforcement has been slow. However, in an October 26th regulatory filing, Seagate Technology Holdings PLC (STX) disclosed a proposed charging letter (PLC) issued by BIS against the company on August 29th pertaining to hard disk drives (HDDs). Public reporting and an analysis of prior comments made by the company's top executives suggest that Huawei Technologies Co. Ltd. is likely the entity in question. The BIS action is likely a result of public criticism and acknowledgement by the company throughout 2021 regarding Seagate's continued shipments to Huawei, even as other competitors such as Toshiba Corporation (6502 on the Tokyo stock exchange) and Western Digital Corp. (WDC) ceased theirs.

Most prominently, the Senate Committee on Commerce, Science & Transportation published in October 2021 a detailed investigation report specifically about "Huawei's Access to Hard Disk Drives in America: An Investigation into Seagate Technology." Senate Republicans, the minority staff at the time, alleged that the company continued to ship prohibited products without a valid license after the placement of Huawei onto the Entity List in May 2019 in violation of the foreign direct product rule. Seagate's headquarters are in California, but the company is incorporated in Ireland. Still, many of its products are either directly subject to the US Export Administration Regulations (EAR) or are covered under the Entity List's expansive Foreign Direct Product Rule (FDPR). That provision extends US jurisdiction over items that are made with a certain amount of US-made inputs. The company is the largest manufacturer of HDDs.

Prior to Seagate, violations of China-related export controls and subsequent enforcement action involving monetary penalties were relatively limited. As a general matter, BIS discloses these proceedings once resolved, but has moved to publish charging letters once issued in the future. On November 8, 2021, BIS disclosed an administrative settlement with SP Industries Inc. that included an $80,000 civil penalty. In that case, the agency accused the company of exporting items to Huawei and its affiliates, such as HiSilicon Technologies Co. Ltd. through four unauthorized shipments valued at just over $180,000. That case marked the first such action for the new Entity List restrictions placed on Huawei.

According to BIS, EAR violations are subject to both civil and criminal penalties. The former can reach the greater of $330,947 per violation, or twice the value of the transaction. While its official guidance allows for adjustments in either direction based on both aggravating and mitigating factors, the agency published a memo in June 2022 warning that its Office of Export Enforcement would seek to impose "significantly higher penalties." However, these fines have

been limited in practice. Experts with whom Capstone spoke with were skeptical that BIS would levy a material fine against a US firm.

Using the enforcement against SP Industries Inc. as a base rate (44% of the transaction value) and assuming a shifting posture towards tougher sanctions for violations of US export controls in today's environment, Capstone believes that a fine against Seagate would realistically total around $10 million, especially if part of the settlement includes a suspension of some portion of the total fine to be used for additional compliance spending. It is unlikely for the final determination to exceed $176 million on the high-end from more aggressive BIS action, even as a $500 to $800 million fine is theoretically possible under the statute.

BIS found four total violations by SP Industries Inc., two of which were subject only to one-half of the transaction value (capped at $125,000 per violation) because they were self-disclosed. Based on those same guidelines, we use a base penalty of $250,000 per violation as described by the guidance for non-egregious violations that are not self-disclosed (see Exhibit 1). Like SP Industries, Seagate also appears to be cooperating with BIS and engaging in conversations regarding the shipments in question, while also likely having had a compliance program in place despite its chief executive's posture. Seagate's likely history of compliance and the limited implications for national security militate for a lower figure.

Other enforcement actions relating to violations of a variety of export restrictions have focused on foreign companies dealing covered under US export controls. Combined enforcement by BIS and the US Treasury Department's Office of Foreign Assets Control against ZTE Corp. (000063 on the Hong Kong and Shenzhen stock exchanges) in 2017 set the record at $1.9 billion for both civil and criminal penalties, by far the most significant China-related enforcement action to date. $661 million was allocated to BIS, covering six years of violations and 283 shipments of controlled items to North Korea and Iran. That fine was likely worsened both by the intentional concealment, conspiracy of company executives, and the entity in question, allowing BIS to exercise the full extent of its statutory authority. We multiply that same rate of shipments (three shipments a month for a total of 36) with the base penalty $250,000 to find $9 million.

Exhibit 1: BIS Base Penalty Matrix

		Egregious Case?	
		YES	NO
Voluntary Self-Disclosure?	YES	**One-Half of the Transaction Value, capped at $125k/violation** Example: SP Industries Inc.	**Up to One-Half of the Applicable Statutory Maximum**
	NO	**Applicable Schedule Amount, capped at $250k/violation** Example: Seagate Tech. (likely)	**Up to the Applicable Statutory Maximum** Example: ZTE Corporation.

Source: BIS Administrative Enforcement Proceedings Supplement No. 1 to Part 766 (page 11), Capstone analysis

We estimate that for the alleged one-year period, which Seagate disclosed as August 2020 and September 2021, the company likely generated about $400 million to $800 million in revenue from Huawei. We arrive at that conclusion based on a few key assumptions:

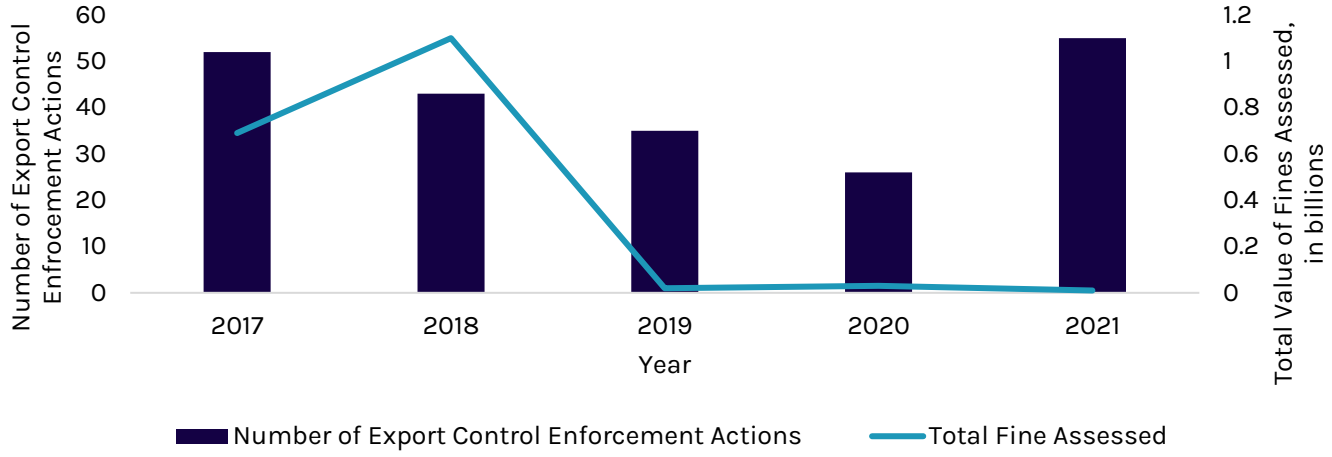
- **Total revenue**—In fiscal year 2022, which ended July 1st, Seagate reported $11.7 billion in revenue, with close to half of that amount ($5.9 billion) attributed to Asia.

- **Revenue from Huawei**—While the company does not provide customer concentration, others have speculated its sole customer constituting 11% of revenue could be Huawei. However, the company's chief financial officer, Gianluca Romano, disclosed that revenue from Huawei is under 10%, but did not provide additional color. Huawei is estimated to spend around $800 million each year on HDDs, and its market share in China likely increased as rivals left. Not all exports may be in violation.

- **Market share**—Seagate has held about 40% of worldwide market share, but we increase that to 50% in China during 2021 as the company likely benefited from key rivals leaving the Chinese market. Seagate could have constituted nearly 100% of Huawei's spend on HDDs if it became the sole supplier for Huawei following US export controls and the compliance posture of its peers.

Based on Bloomberg and Reuters data released in December 2018, Seagate derived 4% of revenue from Huawei, or about $468 million, in line with 50% of Huawei's HDD spending. In its FY2021 budget justification, BIS noted 2,284 export control investigations since the beginning of 2017. The overwhelming majority of actions, which may have been initiated outside of an investigation, resulted in preventive enforcement (i.e., recommendations and warning letters about potential violations). Administrative enforcement actions related to export control matters totaled 168. In its FY2021 annual report, BIS disclosed 57 administrative enforcement actions with 55 of them relating to export controls. Civil penalties for that subset totaled over $9.7 million, the highest aggregate amount since 2013 and implying an average penalty of about $177,000 (see Exhibit 2).

Exhibit 2: BIS Administrative Enforcement Actions for Export Control Matters and Total Civil Penalty Amounts Since 2017



Source: Capstone analysis

BIS states that when a proposed charging letter is prepared in a scenario "which could result in a case being settled before issuance of an actual charging letter." Under new BIS rules, the agency will make the charging letter public once filed with the administrative law judge if a settlement cannot be reached.

Risks to Our Thesis

- **European countries broadly align with US perspectives on China:** So far, European nations have taken a more measured approach in its relationship with China for semiconductors and otherwise. However, if France, Germany, and other members of the European Union take a more hostile approach or clearer links are demonstrated on the Communist Party's civil-military fusion development strategy, a multilateral agreement may be easier to establish.

- **FDPR captures a sufficient range of foreign-made products with US inputs:** Asian or European nations may choose to implement their own restrictions to remove extraterritorial application of US regulations. BIS exempted countries from the FDPR in return for their adoption of similar Russian-targeted export controls.

- **US firms find a way to circumvent US export controls:** If US firms can successfully navigate around recent restrictions by establishing facilities in friendly countries that have not adopted the same rules, they will be able to reduce the impact. However, given the breadth of interim final rule and the additional safeguards likely from the Department of Commerce's incentive programs, we do not believe US firms can easily do so.

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