Impact of U.S. Investment and Export Controls on the Development of Autonomous Vehicle Technology

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The recent deterioration in relations between the United States and China is likely to complicate efforts within international companies to develop and market technology to be used with autonomous vehicles. Tightening U.S. export controls will make it more difficult for companies to share developments both internally and with peer firms. For those companies that do not closely heed the new restrictions – and that includes many of the smaller and most innovative players – there now exists the risk of substantial penalties being imposed on export control violations arising from ignorance, carelessness or disregard.

This unhappy situation was not inevitable. From the time of Deng Xiaoping's initial blessing of capitalist style initiative in 1978 through and after China's accession to the World Trade Organization in 2001, U.S. policymakers entertained the belief that as China became richer and more modern, it would become more like the U.S. and that China would become a strong supporter of the rules-based international economic order known informally as the Washington Consensus. Over time, however, disillusionment set in. China restricted access to its own market, often requiring western companies to share their technology with Chinese partners in exchange for authorization to operate in China. In the meantime, Chinese companies invested at an increasing rate in the United States, often making investments in start-ups with new and emerging technologies. China did not hesitate to continue supporting state-owned enterprises and other economic champions, often with what seemed to be a goal of global domination of critical industries. Moreover, some U.S. companies alleged that Chinese competitors were engaged in outright theft of know-how and technology.

By the middle of the last decade, U.S. economic and political leaders were becoming increasingly alarmed that their vision of harmony between the United States and China may have been overly optimistic, if not short-sighted or outright naïve. Simultaneously, tensions between the United States and China grew over Chinese expansion and militarization of islands in the South China Sea, increasing Chinese military expenditures and threats to Taiwan, suppression of democracy in Hong Kong and stifling of Uyghur culture in Xinxiang, the later ultimately being labeled by some as tantamount to genocide.

In August 2018 Congress took action and, in one of the few recent areas of broad bilateral cooperation, passed the Foreign Investment Risk Review Modernization Act ("FIRRMA") along with the accompanying Export Control Reform Act ("ECRA"). The principal effect of FIRRMA and of subsequent implementing regulations from the Committee on Foreign Investment in the United States ("CFIUS") has been to restrict Chinese investment in U.S. technology companies. FIRRMA broadened the authority of CFIUS to review, modify or bar foreign investments, even non-controlling foreign investments, in U.S. companies with critical technology, infrastructure or access to sensitive personal data of U.S. persons. Restrictions on foreign investment in some types of sensitive U.S. real estate were also broadened. Critical technology was at first limited to technology in 27 specific industrial sectors, but that was soon expanded to include any technology for which certain categories of U.S. export license would be required. Moreover, for many such types of

investment, notification to CFIUS became mandatory, rather than voluntary as it had previously been.

On the export control side as well, under ECRA the Department of Commerce Bureau of Industry and Security was charged with proposing regulations to define and then restrict exports of new and emerging technologies and of foundational technologies. The first such rules were focused on specified types of artificial intelligence for use in analysis of geospatial images and navigation, presumably because this covers the economically important automotive industry but also because it has military applications.

Not surprisingly since the passage of FIRRMA and ECRA, Chinese investment into the United States has fallen off dramatically, as demonstrated both by aggregate economic data and by the decreasing number of filings with CFIUS for Chinese investments. According to the U.S. Bureau of Economic Analysis, net U.S. direct investments from China into the United States in 2019 were $4.3 billion, down from the $18.0 billion level registered in 2016. There were 60 filings with CFIUS concerning Chinese investments in 2017 and only 25 such filings in 2019.

U.S. exports to many countries, most notably China, of certain autonomous vehicle technology, including elements of artificial intelligence, are also now subject to government review and licensing. On top of this the United States has forbidden sales of advanced U.S.-made semiconductors, including semi-conductors produced in third countries using equipment that contains U.S. technology, to certain Chinese companies, particularly Huawei and its affiliates. The U.S. has also severely tightened the export to China of a wide range of products and technology that might have military end use, or to military end users. These products and technology and forbidden end users are encompassed by a widened definition that includes items that merely support or contribute to use, development or production of certain military items. Moreover, an export is now considered to be for “use” of a military item if it contributes to any one of: operation, installation, maintenance, repair, overhaul or refurbishing of a military item. Recently the Department of Commerce published a list of approximately 50 Chinese companies that are considered military end users, and that list includes many major Chinese companies, such as the big semiconductor fab Semiconductor Manufacturing International Corporation or the petroleum giant China National Offshore Oil Corporation.

All of this presents a series of difficult questions for the automotive industry in general and for the development of autonomous vehicles in particular. With China now the world’s largest automotive market and companies endeavoring to develop autonomous vehicle technology in both the United States and China, how is technological cooperation and coordination going to be possible? This predicament is further complicated by the fact that merely presenting or discussing restricted technology to a foreign national within the United States is considered a “deemed export” subject to the same controls as if the technology were sent abroad. Many companies in this new and burgeoning field have not as yet taken care to segregate potentially controlled technology nor do they distinguish among employees based on nationality.

Even for companies that are aware of the tightening rules and that endeavor to comply, there are no simple solutions. Given the obvious military implications of autonomous vehicle technology, including, but not limited to, the types of geospatial imagery analysis already included in U.S. export and investment controls, will all cooperation have to cease? Will that lead to different systems and standards?

The upshot of this situation is that the autonomous vehicle industry may find itself forced to take a leadership role in pushing back against the decoupling of the U.S. and Chinese economies. If the

trend cannot be slowed, individual companies may be forced to choose which side of the technological divide to join. An increasingly isolated and thus decreasingly influential United States is sadly not out of the question.