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Trump, Tech and Trade

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- President Trump has been a trade hawk for decades, but the key reason why tensions have ramped up recently is “Made in China 2025,” Beijing’s aggressive blueprint for dominating the tech industries of the future.
- The U.S. reaction has been fast and furious, with a rare bipartisan consensus backing Trump’s demands for greater IP protection, a level playing field, and improved market access.
- While the 90-day cease-fire that Presidents Trump and Xi agreed upon during their December 1 meeting was helpful, and certainly preferable to the alternative, they made scant progress in addressing the underlying structural issues.
- In particular, when it comes to the Chinese economic system, mercantilism is much more of a feature than a bug. The massive subsidies behind China 2025 reaffirm the government’s central role in the economy and are unprecedented in scale.
- In a world of bits vs. atoms, it is increasingly important for successful tech businesses to blitzscale. Economies of scale are also an integral feature of “New Trade Theory” which, along with Alexander Hamilton’s “infant industry argument”, explains why China 2025 is so critically important.
- Beijing views China 2025 as the country’s best hope of escaping the middle-income trap in which so many developing countries become stuck.
- While China’s political system is for it to choose, there needs to be more of a recognition of its implications for the global trading system. Its mercantilist behavior is undermining support for free trade and globalization is in retreat.
- Globalization has turbo-charged manufacturing margins since 1990, but global supply chains have begun to buckle, suggesting the peak in margins is now well behind us.
- Rising protectionism is certain to be highly disruptive. Most at risk are the ten sectors targeted by China 2025. Among the hardest hit industries will likely be tech hardware, especially semiconductors, with tech software and services being less directly affected.
- Still, a full chasm between the two countries seems improbable, so agriculture and energy commodities could even become beneficiaries of the new trade “architecture.”

“Perhaps there has to be a trade war.”
Donald Trump, 1999

The mercurial President of the United States has been an unabashed protectionist for decades. Although his policies on some issues may appear fluid and tactical, his views on trade have been remarkably steadfast and resolute. In fact, Trump has been calling for protectionist measures since at least 1989 when he declared “I’m not afraid of a trade war,” presaging his more recent exhortation that “trade wars are good, and easy to win.” Historically, Americans have been very pro-trade. However, now a majority of citizens agree with the President’s views, especially when it comes to dealing with its new arch-rival, China.

Moreover, in an America that rarely finds consensus, one genuine bipartisan issue remains—the need to “do something” about the economic threat posed by China. While much of the current U.S.-China conflict has been focused on trade and investment, it is ultimately about much more than that. The U.S. is worried about China’s growing commercial and technological clout, with both sides vying for dominance over new technologies that will determine the economic balance of power in the 21st century.

On the trade front, the Trump administration has adopted an aggressive stance, demanding three key changes. First, that China jettisons the mercantilist web of rules that have systemically protected and lavishly subsidized companies in numerous sectors throughout the economy. Next, that China ceases its chronic practice of purloining U.S. companies’ trade secrets (via forced technology transfer, state-sponsored cyber theft, and corporate acquisitions). Finally, that Beijing fully embraces the principles of reciprocity and full market access

for U.S. businesses operating in or exporting to China. However, merely allowing U.S. firms improved access, on the condition that they produce in China, doesn’t address the concerns of U.S. workers that they aren’t benefiting from China’s rise (**Figure 1**).

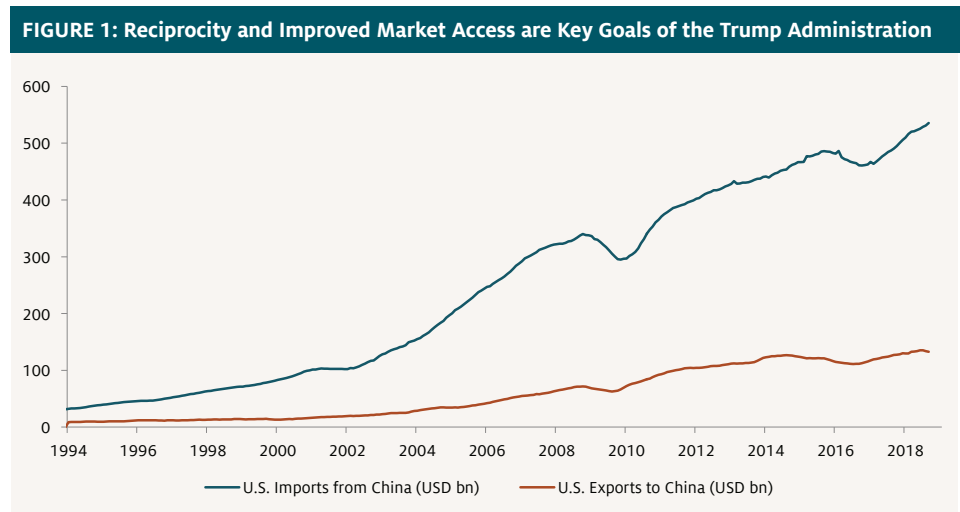
Given that the trade deficit has been widening for decades, why is it that China-bashing has only recently become so popular in D.C.? The main underlying reason is that China changed the terms of engagement, particularly since President Xi’s ascension in 2012. While his predecessors emphasized the slogan “peaceful rise,” President Xi has been far more assertive than anything seen since the days of Mao Zedong. This “new era,” as Chinese officials have taken to calling it, has celebrated and entrenched the state’s leading role in the modern economy. One consequence has been the shift in U.S. rhetoric away from a focus on American jobs toward inhibiting China’s development into a technological power that could

challenge, and ultimately supplant, U.S. hegemony.

More specifically, it was the ten-year plan released in 2015, “Made in China 2025,” that changed American perceptions. The plan proudly trumpets Beijing’s blueprint for transforming the country into a hi-tech powerhouse that will dominate advanced industries like robotics, biomedicine, renewable energy and AI. U.S. policy makers have been startled by the plan’s focus on “indigenous innovation” and the Maoist calls for “self-reliance,” aspiring to achieve self-sufficiency through technology and import substitution. Publicly proclaiming the aim of dominating critical high-tech industries has confirmed suspicions in D.C. that China is not looking for a win-win in trade relations.

As a consequence, China 2025 is shaping up to be the central culprit, perceived as a real existential threat to U.S. technological leadership. This raises the risk that the Trump administration could conclude that its best response is to decouple much of

The bilateral trade pattern over the last two decades is more reflective of China’s mercantilist policies than of any inherent comparative advantage.



Source: Bloomberg, Epoch Investment Partners

the U.S. supply chain from China. Such a move toward deglobalization would prove acutely negative for corporate margins and earnings.

**I. Made in China 2025:
The Central Culprit?**

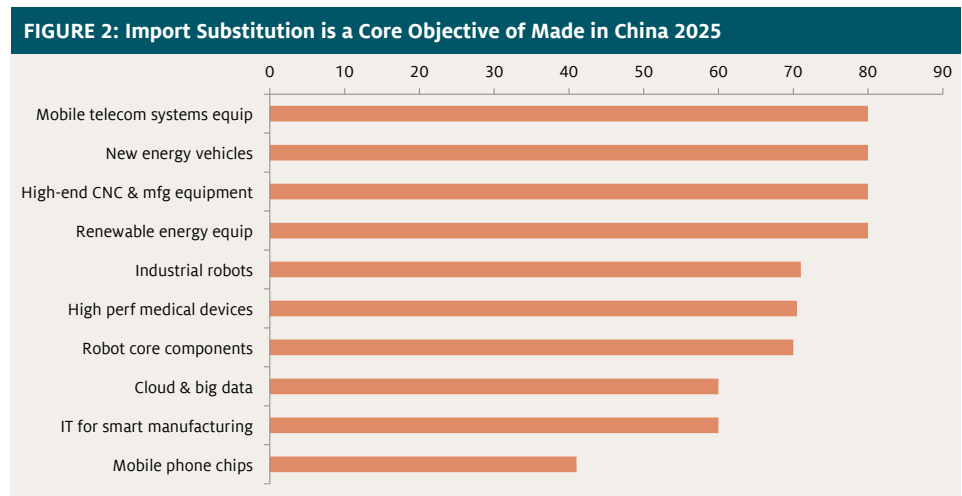
“China’s government is aggressively working to undermine America’s high-tech industries and our economic leadership through unfair trade practices and industrial policies like Made in China 2025.”

*U.S. Trade Representative (USTR)
Robert Lighthizer, June 2018*

“Made in China 2025” is an ambitious scheme that directs massive state subsidies at key new tech sectors that China wishes to dominate by 2025–2030. The plan was issued in 2015 by China’s State Council, after having been drafted by the Ministry of Industry and Information Technology and the Chinese Academy of Engineering. Since then, it has been enthusiastically promoted by President Xi. However, from America’s perspective, two aspects of the blueprint are particularly worrisome: first, its reaffirmation of the government’s central role in economic planning; and second, its focus on import substitution.

Announcements made at the highest political level demonstrate that China endeavors to substitute products manufactured by foreign enterprises with domestic technology that is “secure and controllable.” In fact, “Made in China 2025” and ancillary documents expressly call for China to achieve 70–80% “self-sufficiency” by 2025 in a wide range of critical industries, including telecommunications equipment, new energy vehicles and robotics (Figure 2). It is difficult to understand why Beijing didn’t foresee how hostilely such a

Targets for domestic market share in China (%)



Source: Expert Commission for the Construction of a Manufacturing Superpower, 2016
CNC: Computerized numerical control

massive and pivotal state-led program would be received in America.

Hands on the scales

Achieving such brazen market share targets clearly requires enormous central and local government support, much of which occurs through a web of opaque subsidies. In its 2017 report, “China Manufacturing 2025: Putting Industrial Policy Ahead of Market Forces,” the European Union Chamber of Commerce highlighted ten key policy tools including a host of subsidies and government-backed investment funds. Additionally, there is preferential access to credit from state banks, advantageous tax policies, favorable export licenses and credits, rent subsidies, rebates on research expenses, the streamlining of government permits, and building supportive infrastructure (e.g., for autonomous vehicles). Further, governments are often major purchasers of startups’ products (e.g., cloud services, facial recognition technology) and impose local content requirements to exclude foreign firms (especially in industries such as

biopharmaceuticals, medical devices and wind power).

Firms associated with “Made in China 2025” are provided with extensive financial assistance through a multitude of state-directed investment funds (Figure 3). Although it is challenging to find a comprehensive listing of all sources, it is possible that total support could exceed an eye-popping \$1 trillion. To illustrate, in its 2017 report, “Made in China 2025: Global Ambitions Built on Local Protections,” the U.S. Chamber of Commerce in China estimated that the Chinese government plans to use various national and local funds to spend \$161 billion by 2025 to develop the semiconductor sector (including via M&A). That is a huge sum of money, and it only refers to one industry.

China’s state-owned companies are run for-party, not for profit

When industrial development is driven by political masters rather than markets, numerous distortions and imbalances inevitably follow. For example, the EU Chamber of Commerce worries that

A non-exhaustive list of China 2025 related funds

FIGURE 3: Public Funding for Made in China 2025

Sources of Funding for China 2025	US\$ bn (est)
Special Constructive Fund	270
National Integrated Circuit Investment Fund	150
Shaanxi China 2025 Fund	117
MIIT & China Development Bank	45
Gansu China 2025 Fund	37
Advanced Manufacturing Investment Fund	6
National Emerging Industries Investment Fund	6
Anhui Manufacturing Development Fund	4
Beijing Technology Innovation Fund	3
Nanjing Eco & Technology Development Zone	1
Sichuan China 2025 Project Fund	unclear
Technology Equip Insurance System	unclear
Industrial Transformation & Upgrading Fund	unclear

Source: Centre for International Governance Innovation, 2018 and U.S. Chamber of Commerce, 2017. MIIT: Ministry of Industry and Information Technology

industrial policies like Made in China 2025 are likely to cause overcapacity in targeted sectors (particularly certain segments of robotics and semiconductors). Politicians and bureaucrats in any country are ill-equipped to pick winners, and China’s record over recent decades (with solar, autos and several heavy industries) strongly suggests it is no exception. We at Epoch are also concerned about the mismatch between political priorities and industry needs, the fixation on quantitative targets, the inefficient allocation of funding, and campaign-style overspending by local governments.

The imbalance posed by aggressive top-down dictates versus a lack of bottom-up initiative is a pronounced weakness of Made in China 2025. Moreover, the recent focus on “indigenous innovation,” backed by increased state involvement in the economy, has meant that Beijing is moving further and further away from the principles of reciprocity and market

access. Such mercantilist policies have the potential to be “lose-lose” and have historically done much to undermine global support for free trade.

II. Mercantilism: It’s not a Bug, It’s a Feature

“Unilateralism and trade protectionism have risen, forcing us to travel the road of self-reliance.”

President Xi, 2018

Over the past two years, President Xi has demonstrated shrewdness by trying to deflect blame. However, China’s mercantilist policies preceded the Trump administration by years, if not decades. This section presents four types of evidence, which taken together, strongly suggest that mercantilism is a core feature of the Chinese economic system.

For a start, China’s low level of manufactured imports is particularly

incongruous. Net of “processing” (imports of components for re-export), China’s imports of manufactures are currently less than 5% of GDP, down markedly from over 9% in 2007 (Figure 4). Imports of manufactured goods from the U.S. have fared even worse, and now represent less than 1% of GDP. Made in China 2025 will almost certainly reduce manufactured imports even further, given its mix of production subsidies and “buy domestic” preferences.

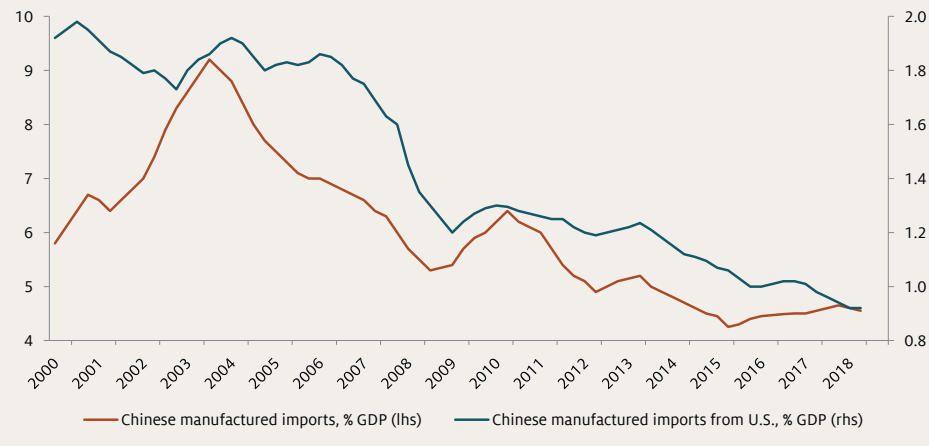
Aviation and aerospace is one of the ten sectors targeted by Made in China 2025. Boeing, by far the single biggest U.S. exporter of manufactures, is already feeling a significant amount of pressure as a result. China-based SOE Comac’s C919 will enter commercial service in 2021, competing directly with the Boeing 737 (as well as the Airbus A320). China 2025 also targets high-end agricultural equipment, medical equipment and semiconductors, three additional areas of U.S. export strength.

What could China do if it sincerely wanted to reduce trade tensions? Brad Setser of the Council on Foreign Relations suggests it could raise imports, particularly in high-end manufacturing sectors. For example, China could commit to return its imports of manufactures back to 7% of GDP. This would signal that Beijing doesn’t aspire to replace all manufactured imports, which many Americans suspect is the underlying aim of China 2025.

Second, mercantilist countries inevitably impose a host of policies to discourage imports, with a common one being severe restrictions on foreign direct investment. According to the Organisation for Economic Co-operation and Development (OECD), China maintains one of the most

Manufactured imports (as a % of GDP) have already declined by half since 2007

FIGURE 4: Is “Made in China 2025” Just Another Import Substitution Policy?



Source: Brad Setser, CFR, "China should import more", Nov 7, 2018
 Note: Excludes "processing" or intermediate imports for re-export.

restrictive investment regimes with only a few countries, such as Saudi Arabia, ranking worse. In addition, many sectors (e.g., autos, aviation, telecoms) have rigid foreign equity restrictions or joint venture requirements. These restrictions either block opportunities, or, in some cases, create a *de facto* technology transfer requirement to the Chinese partner as a pre-condition for market access.

Next, data compiled by Global Trade Alert (an independent think-tank based in the U.K.) demonstrates that China has implemented a distressingly large number of mercantilist measures over the last decade (Figure 5). While the U.S. and other countries have also exhibited a proclivity toward protectionism, China is in a league of its own among large economies, a situation which is surely to get even worse with the continued rollout of China 2025.

Finally, the U.S. has unquestionably been the world leader in the commercialization of the internet

(and in all likelihood has a large trade surplus when it comes to bits, rather than atoms). However, no U.S. website ranks in the top 25 most visited in China. This is a direct result of China having banned, blocked or placed high restrictions on sites such as Google

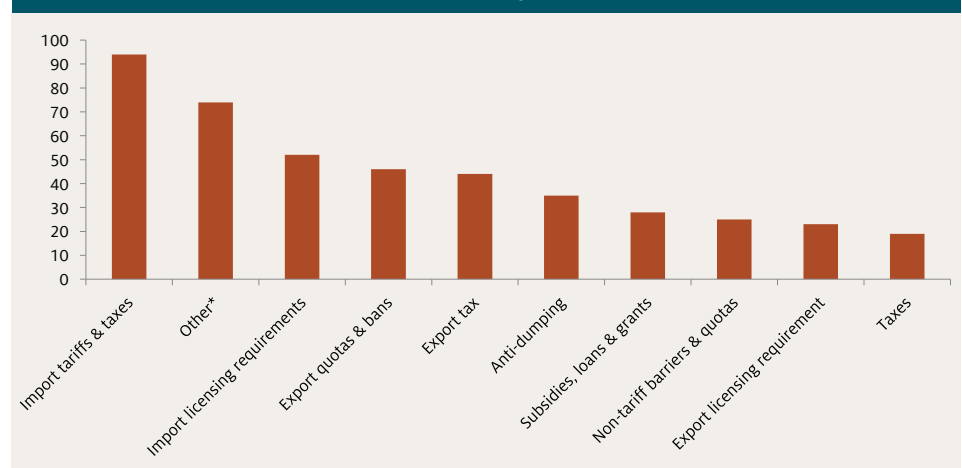
(including search, Gmail and Google Maps), YouTube, Facebook, Instagram, WhatsApp, Snapchat, Twitter, Pinterest, Flickr, Tumblr, Dropbox, the New York Times, Bloomberg and the Wall Street Journal. In many cases these bans are thinly disguised elements of discriminatory industrial policy to favor domestic providers.

A more quantitative approach has been taken by Freedom House (a D.C.-based NGO, largely funded by grants from the U.S. government), which produces a comprehensive study of internet freedom in 65 countries.

In 2018, China was the worst abuser, ranking dead last in the “Freedom on the Net” study for the fourth consecutive year among all G20 countries (Figure 6). The level of internet freedom declined further when a new cybersecurity law took effect in June 2017, which strengthened restrictions on online activities by technology companies, independent media, and bloggers. The government’s internet censorship apparatus, known

Number of Chinese trade interventions affecting the U.S., since January 2009

FIGURE 5: Chinese Protectionism: A Battle on Multiple Fronts



Source: Global Trade Alert, Epoch Investment Partners
 *Other includes 24 different types of policies including export tax incentives, preferences in public procurement, trade finance subsidies, and so on.

informally as the Great Firewall, is already the world’s most sophisticated, and is likely to become even more intrusive and discriminatory once China 2025 is fully implemented.

Regardless of the Great Firewall and its repressive approach to the internet, China has quickly become a tech superpower. To illustrate, Tsinghua University produced more of the top-decile cited academic papers in STEM subjects than any other university during the 2013-16 period. Further, China already spends over \$400 billion annually on R&D, well ahead of the European Union and second only to the U.S. (which, on current trends, it should overtake in 2019). More concretely, China bought 36% of all factory robots in the world last year (more than three-times that purchased by second-place Japan) and intends to ramp up its own production, given that industrial robots is a sector targeted by China 2025. As another harbinger of the future, China’s DJI is the world’s leader in the commercial and civilian drone industry, accounting for over 70% of the market. While these are all signs of China’s determination to become the pre-eminent technological superpower, it is China’s ambitions in artificial intelligence (AI) that have garnered the most attention. In particular, China’s high degree of civil-military fusion has raised concerns about the defense applications of AI.

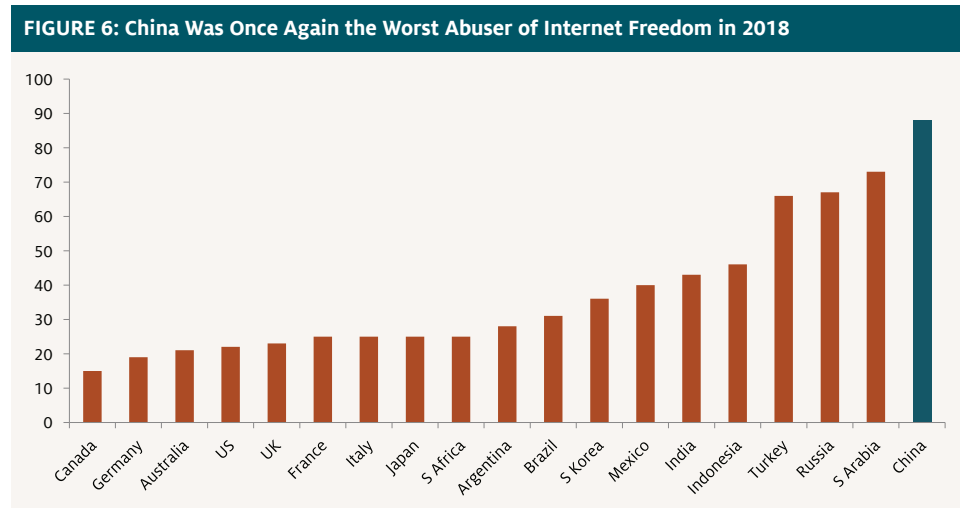
III. China’s Plan to Become the World’s AI Superpower by 2030

“By 2020, the Chinese will have caught up to the U.S. By 2025, they will be better than us. And by 2030, they will dominate the industries of AI.”

Eric Schmidt (former Google CEO), 2017

In 2017, China’s State Council issued “A New Generation Artificial Intelligence

“Freedom on the Net 2018” scores (0 is best, 100 worst) for the G20 countries



Source: Freedom House

Development Plan,” which outlines an ambitious three-stage road map. First, by 2020, China’s AI industry will catch up to the U.S. Next, by 2025, China aims to become one of the world-leaders in some AI fields. Then finally, by 2030, China seeks to achieve primacy in AI innovation. In addition to setting high level goals, the government also actively picks winners in the AI space. For example, it has designated four companies—Baidu, Alibaba, Tencent, and iFlyTek—to lead the development of national AI innovation platforms in self-driving cars, smart cities, computer vision for medical diagnosis and voice intelligence, respectively.

“If data is the new oil, China is the new Saudi Arabia.”

Kai-Fu Lee, 2018

The government’s aspiration is fully supported by one of the world’s top AI authorities, Kai-Fu Lee (formerly president of Google China and author of “AI Super-Powers”), who believes China possesses three major advantages over the U.S. in the race for AI supremacy. First, an abundance of

data with few privacy concerns. In fact, China has already vaulted far ahead of the U.S. as the world’s largest producer of digital data. Second, a large number of competent (not necessarily brilliant) software engineers. And finally, a supportive government that is “doing everything it can to tip the scales.”

All ten of the sectors targeted by China 2025 are viewed as key to future economic growth by both China and the U.S. However, the truly breathtaking innovations are occurring in fields directly affected by AI. To illustrate, earlier this year both PwC and McKinsey estimated that, by 2030, world GDP could increase by around \$15 trillion (or 14%) purely because of AI, with China being the primary beneficiary (receiving about 45% of the total gain). The biggest gains are likely to take place in sectors such as retail, healthcare, transportation, e-Commerce, finance, manufacturing and agriculture. This undoubtedly makes AI the biggest commercial opportunity in today’s dynamic economy and means the stakes are unprecedentedly high.

IV. Why Does Everyone Hate Made in China 2025?

“China’s illicit trade practices—ignored for years by Washington—have destroyed thousands of American factories and millions of American jobs.”

President Trump, April 2018

In April of this year, President Trump accused China of stealing intellectual property (IP), coercing American firms into technology transfers, and other unfair trade practices. While he has held strong views for many years, China 2025 is the major catalyst behind this perspective becoming the consensus in America and the world’s two superpowers suddenly becoming arch rivals. In fact, not since the 1950s has the mood among politicians, businesspeople, the armed forces and the populace in general swung so rapidly behind the idea that the U.S. faces a new ideological and strategic rival.

During the last couple decades, America’s approach to China has been founded on a belief in political and economic integration and convergence. However, by celebrating and entrenching the state’s leading role in the industries of the future, President Xi and his “new era” have demonstrated to Americans that convergence was never their goal. Obviously China’s political system is for it to choose, but political and business leaders are only now beginning to think through the implications of this new form of rivalry.

Gradually and reluctantly, the China-watching community in America has turned

China has had few better friends in America than Hank Paulson (former Treasury Secretary and CEO of Goldman Sachs, and long-time China

hand), who refers to the U.S.-China strategic interaction as by far the most consequential in the world. However, in a November 2018 speech he warned that the underlying tensions will persist, as China’s failure to open up is largely responsible for the more confrontational view in the U.S. He emphasized that during the last five years the Chinese Communist Party’s role in the business sphere has become dominant, with private businesses increasingly pressured to support the strategic goals of the State (with market or commercial goals often of secondary importance). Further, foreign firms have been exploited to bolster China’s indigenization of technology and business processes. The former is particularly important as technology is a critical factor behind the rising tensions, especially where it blurs the lines between economic competitiveness and national security.

Paulson’s views are widely shared in the Trump administration, which features the most hawkish trade team since Smoot-Hawley. The China-bashing team is led by Robert Lighthizer (U.S. Trade Representative), Peter Navarro (National Trade Advisor), Wilbur Ross (Commerce Secretary), John Bolton (National Security Advisor), and several others with equally brazen views. Vice-President Mike Pence has been a longtime advocate of trade deals, but he recently joined his White House colleagues by delivering a blistering anti-China speech.

“China has used an arsenal of policies inconsistent with free and fair trade, including tariffs, quotas, currency manipulation, forced technology transfer, intellectual property theft, and industrial subsidies that are handed out like candy.”

Vice-President Pence, Oct 2018

In October, Vice President Pence delivered a remarkable, 40-minute broadside against China that justifiably received an enormous amount of attention. The *Wall Street Journal’s* headline was “Mike Pence Announces Cold War II,” while the *New York Times’s* was “Pence’s China Speech Seen as Portent of ‘New Cold War’” and the *Financial Times* argued that this speech was the most important event of 2018 so far. In surprisingly blunt and strident terms, Mr. Pence accused China of bullying American companies and stealing their technology and IP, which he highlighted as “the foundation of our economic leadership.” Consistent with this, the three sectors that he emphasized were robotics, biotechnology and AI. He concluded that it is now up to China to avoid a Cold War, demanding concessions on several issues, including its rampant IP theft, forced technology transfer, and restricted access to Chinese markets. Only by yielding in these areas would it be possible “to reset America’s economic and strategic relationship with China.”

While Pence’s speech received significant attention, the true craftsman behind U.S. trade policy, and chief China critic, is Robert Lighthizer, Trump’s USTR. He was deputy USTR under Reagan, has represented numerous large U.S. corporations in trade disputes, and has been a consistently harsh critic of China and the WTO. Lighthizer makes a compelling case that China’s economic and political system is fundamentally incompatible with our conception of free trade rules, and has been particularly critical of the systemic non-compliance practiced by China for decades. Moreover, he is extremely factual and detail-oriented; with a penchant for writing weighty tomes that document in mind-numbing detail all of China’s offenses and transgressions. Although he shuns the

limelight, Lighthizer has done more than anyone else, with the possible exception of his boss, to shift the tide against China.

In August of last year, President Trump instructed the USTR to investigate China, with a particular focus on IP rights and technological innovation. Seven months later, in March of 2018, the USTR released a report that presents a searing indictment of China’s disregard for IP, discrimination against foreign firms, and use of preferential industrial policies to unfairly bolster domestic companies. The underlying theme is that rather than abiding by the free market and rule-based trade, China is intent on subsuming the entire global hi-tech supply chain. To Lighthizer, the central culprit is once again “Made in China 2025.”

A tech cold war is not yet under way, but things are a lot chillier

A key objective of China 2025 is to generate large-scale technology transfer in the ten industries Beijing has deemed crucial to future growth. Given that aspiration, it is difficult to be too surprised by Lighthizer’s four key conclusions:

- (1) Forced technology transfer: China uses foreign ownership restrictions, such as JV requirements, to require or pressure technology transfer from U.S. companies.
- (2) Unfair licensing requirements: Chinese regulations force U.S. companies seeking to license technologies to do so on non-market terms that greatly favor Chinese recipients.
- (3) Corporate acquisitions: The Chinese government unfairly directs and facilitates the systematic investment in, and acquisition of,

U.S. companies to obtain cutting-edge technologies and IP.

- (4) Government-backed cyber-theft: The Chinese government has conducted and supported theft from the computer networks of U.S. companies to access sensitive commercial information and their trade secrets.

These four points are worth putting to memory as they are the primary sticking points in the ongoing negotiations between Presidents Xi and

While the lion’s share of Americans support free trade in principle, a large majority agree with the Trump administration’s actions against China (Figure 7). However, a Harvard-Harris poll conducted this June also showed that Americans do not support all trade sanctions. To illustrate, only 34% of respondents thought the steel and aluminum tariffs would protect American jobs in those industries (while 47% thought they would result in job losses and 19% expected no effect).

China bashing is bipartisan and will continue regardless of who wins in 2020

FIGURE 7: U.S. Public Opinion Supports Trump's Aggressive Negotiating Stance with China		
	Yes	No
Should Trump be tough when negotiating with China?	68%	32%
Should the U.S. target Chinese tech companies?	66%	34%
Should the U.S. place tariffs on imports from China?	59%	41%

Source: Harvard-Harris poll, June 2018
 Note: The wording of the poll questions has been edited for brevity.

Trump. Also, one doesn’t have to be a trade lawyer to realize how difficult it will be to obtain a verifiable agreement that both can bring home and declare victory. To illustrate, a follow up report released by the USTR last month concluded that, despite repeated U.S. efforts to reach a negotiated settlement, China has failed to take any substantive actions to address these concerns.

Moreover, the USTR’s conclusions resulted in the imposition of tariffs on \$200 billion of Chinese imports, effective September 24, 2018. Ongoing negotiations, with a soft deadline of March 1, will determine if the tariff rate is raised from 10% to 25%, and if tariffs will be applied to additional imports from China.

This illustrates a key misfortune, that China’s mercantilist behavior is undermining political support in the U.S. for free trade and openness. During recent years there has been a ramping up of anti-trade rhetoric, the WTO appears increasingly irrelevant, and the U.S. has withdrawn from the Trans-Pacific Partnership process. American’s do believe free trade is good, however, only a minority believe trade creates jobs, increases wages, and reduces prices. This suggests that, on current trends, we could easily end up with a segmented world trading system instead of a global one, an outcome that would unquestionably be lose-lose.

The commentators who are most bearish on the outlook for the global trade system argue that China has

consistently displayed disdain for free trade and the principle of comparative advantage. They emphasize that China's existing endowments suggest a pattern of trade in which it exports light manufactured goods, while importing commodities and advanced tech products and services. However, this is almost the exact opposite of what Beijing is aspiring to, with policies like China 2025 that are focused on ten high-tech sectors. Won't this contradiction, with China repudiating its natural sources of comparative advantage, ultimately undermine innovation and productivity growth, and be lose-lose for both China and the global economy? This is a complex question, suggesting we need to take a step back to think about the sources and origins of comparative advantage.

V. Where Does Comparative Advantage Come From?

“Comparative advantage is the only proposition in all of the social sciences which is both true and non-trivial.”

Paul Samuelson (Nobel laureate), 1969

Comparative advantage, first articulated by David Ricardo in 1817, is one of the most profound and powerful concepts in economics. Trade theory traditionally focuses on factor endowments such as land, labor and capital, with perhaps the most obvious examples of comparative advantage arising out of differences in natural resources. Saudi Arabia produces oil very cheaply, while Australia is endowed with abundant sources of iron ore and coal, and Chile has some of the world's richest copper mines. Climate is another classic determinant of comparative advantage, helping to explain why the world's number one exporters of coffee and bananas are Brazil and Ecuador, rather than Finland and Russia.

Government policy can alter comparative advantage. For example, countries that have invested heavily in education and occupational training possess higher levels of human capital per worker (such as the U.S. and other G7 nations), resulting in comparative advantage in more complex industries (e.g., medical devices, robotics, semiconductors, aircraft and pharmaceuticals). Conversely, countries with lower levels of human capital (such as China and other EMs) typically specialize in less complex industries (e.g., textiles, apparel, footwear, rubber products and furniture). For example, Bangladesh is the second biggest producer of garments globally (after China), with the sector accounting for 83% of the country's total export revenue.

China's dominant role in the export of many labor-intensive manufactured goods reflects its combination of relatively abundant labor and manufacturing competence. Balancing this, China naturally imports commodities (such as oil, iron ore and soybeans), given its population and limited natural resources and arable land. However, why does Beijing believe the country possesses the resources and capabilities to become the predominant power in new economy sectors such as next generation IT? To answer this question we need to veer sideways for a second and introduce a more recent theory of trade.

Economies of Scale and the New Trade Theory

The U.S. undeniably has comparative advantage in tech, but how did this develop? Many explanations begin with Bill Hewlett and David Packard, who graduated with degrees in electrical engineering from Stanford University in 1935. Their company originated in a (now venerated) garage in nearby Palo

Alto, producing electronics products and circuits. Two decades later, Gordon Moore, Robert Noyce and six others formed Fairchild Semiconductor. Their success attracted more tech firms to the area and Silicon Valley was born. Being near two of the best universities in the world certainly helped, as did significant support from DARPA, but the key factor was the network benefits from being surrounded by other tech firms, startups and venture capital providers.

As the tech economy flourished and intangible capital became increasingly important, it became clear that economies of scale help to encourage specialization, resulting in higher productivity and a significant cost advantage. This inspired what is now called “New Trade Theory,” which was developed in the 1980s by Paul Krugman and others. This theory emphasizes the crucial role played by economies of scale and network effects in forging comparative advantage and determining patterns of trade. It also demonstrates that these effects can be so powerful that they outweigh the factors emphasized by the traditional theory of comparative advantage.

Several implications of the new trade theory are useful in understanding Made in China 2025. First, at one point in time a particular country might not possess any discernible comparative advantage in an industry. However, if it begins to specialize in that industry, then it may gain economies of scale and other network benefits from its specialization. Second, there is clear advantage to being an early entrant into a new industry, as such firms can blitzscale and achieve sufficient dominance so that it is difficult for later entrants to compete. This means that many of the most lucrative new industries will be dominated by a small number of companies (or countries) who moved early and aggressively.

A key consequence of the new trade theory is that developing economies may struggle to be successful in many advanced industries because they lag too far behind the economies of scale already established in the developed world. This is not because of any intrinsic comparative advantage, but due to “history and happenstance,” which allowed firms in the developed world to first gain the requisite economies of scale. For example, Boeing was incorporated 102 years ago, giving it a huge head start and making it difficult for aircraft manufacturers in the developing world to become as efficient.

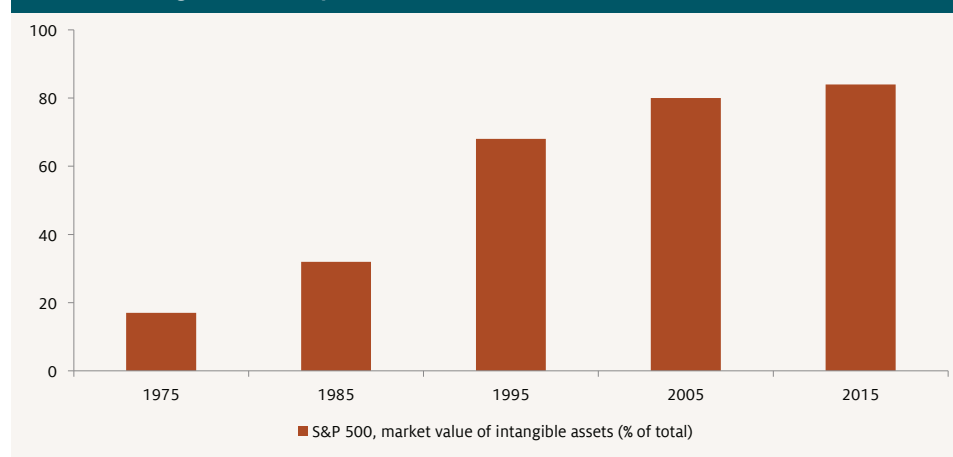
Alexander Hamilton and the “Infant Industry” argument

New trade theory suggests that governments might have a role to play in promoting and supporting the growth of new key industries. This argument goes at least as far back as Alexander Hamilton’s 1791 Report on Manufactures in which he urged Congress to promote manufacturing by imposing protective duties, prohibiting rival imports, and encouraging “new inventions . . . particularly those, which relate to machinery.” Congress was not as enthusiastic, so Hamilton’s “Made in U.S. 1791” plan was never even put to a vote.

Some proponents of the infant industry argument point to the Japanese car industry in the 1950s, which received substantial government support. However, the empirical evidence regarding the success of such bureaucratic support is decidedly mixed. Regardless, new trade theory does recognize that economies of scale are a key factor, providing a theoretical basis for the notion that a developing economy may require tariff protection and domestic subsidies to allow the targeted sectors to catch up and become competitive.

S&P 500, market value of intangible assets (% of total)

FIGURE 8: Intangible Assets Represent the Lion’s Share of Market Value



Source: Ocean Tomo

New trade theory recognizes that the “vagaries of history” can be even more important than Ricardian factor endowments in determining what a country produces and exports. This is important because, if history is crucial in determining the location of an industry on the world map, then there may exist a role for state policy to forge or fabricate comparative advantage. This is the conceptual argument behind China 2025, although its scale and scope is absolutely without precedent.

Bits vs. atoms: The rise of intangible capital

If the aim is to catch up with the U.S., a defensible argument can be made that Chinese policy needs to be more aggressive than anything witnessed in history, particularly because of today’s winner-takes-most tech economy. This reflects the unprecedented importance of intangible capital, with its associated network effects and economies of scale. To illustrate, in 1975, only 17% of the market value of the S&P 500 was represented by intangible capital, but this increased to 84% by 2015 (Figure 8). The corresponding figures are slightly lower in the rest of the world:

71% for Europe, 69% for Japan and 65% for China’s CSI 300 index.

VI. Playing the Movie Backward: The Global Supply Chain Unravels

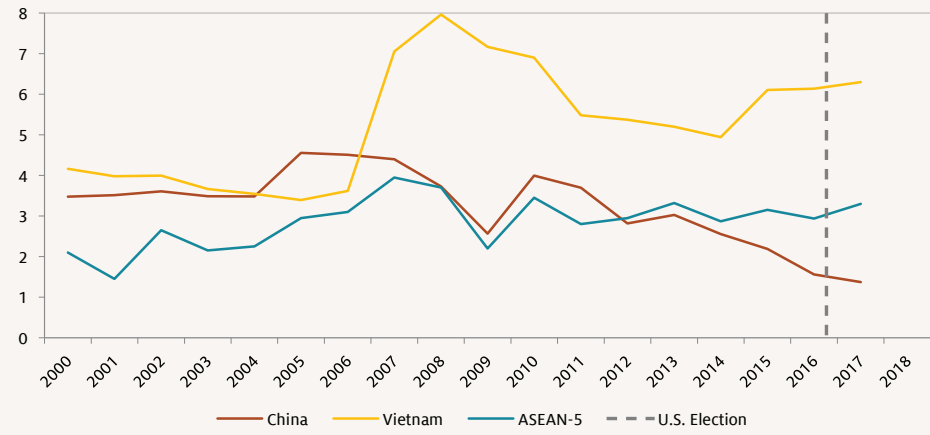
“I now see the prospect of an Economic Iron Curtain—one that throws up new walls on each side and unmakes the global economy, as we have known it.”

Hank Paulson, November 2018

It has been just over a decade since Thomas Friedman’s “The World Is Flat” painted globalization as a seemingly unstoppable trend. However, during the last few years global supply chains have begun to buckle, with the world’s two giant economies clearly “de-coupling.” The primary catalyst for this is Beijing’s intention to fundamentally alter its competitive dynamics. In particular, Beijing’s signature policies, especially China 2025, are focused on “indigenous innovation” and displacing foreign technology, especially from the U.S. The response has been predictable: if China proceeds with import substitution, the U.S. must do likewise and bring the supply-chain back home.

Net foreign direct investment (% GDP)

FIGURE 9: FDI into China Began Slowing Well Before the Recent Escalation in Trade Tensions



Source: World Bank, Bloomberg, Epoch Investment Partners
 ASEAN-5: Malaysia, Thailand, Singapore, Indonesia, Philippines

There is much the U.S. and China can do to calm tensions

What can China realistically do to keep its economic relationship with the U.S. from spinning out of control? The ongoing talks are focused on reciprocation in market access, curtailing industrial subsidies, and credible assurances to cease practices such as forced technology transfer and government-sponsored cyber-theft. While some of these are difficult for China to deliver on without forfeiting its most critical economic policy, a number are quite straightforward (e.g., improving access by increasing purchases of U.S. energy and agricultural commodities). With the March 1, 2019 deadline rapidly approaching, China is fully aware that if it doesn't move quickly and provide some easy concessions, the calls for divorce will only intensify.

There are also a number of things the U.S. can do. For example, it would be helpful if it dialed down the rhetoric and worked in tandem with other G20 countries that share their frustrations. The U.S. could also negotiate more

constructively with China, by presenting clear, attainable objectives. America would also have more credibility if it rescinded its steel and aluminum tariffs, and became less obsessed with bilateral imbalances. International trade is win-win, but sometimes the Trump administration's rhetoric suggests they view it as a zero-sum game.

Which sectors are most vulnerable?

Still, if the global supply-chain does bifurcate, with one part centered around the U.S. and the other around China, which sectors would be most affected? Ground zero is likely to be all ten sectors that are targeted by China 2025, especially where sensitive technologies are involved. Among the hardest hit industries would be tech hardware, especially semiconductors, with tech software and services being less directly affected. Other exposed industries include capital goods, and possibly autos, as well as certain consumer durables and chemical/commodity sectors. Still, a full chasm between the two countries seems improbable, with the possibility that energy and agricultural commodities

could even become beneficiaries of the new trade "architecture."

Lose-lose for the U.S. and China, but would any countries gain?

Further, as trade tensions mount, what countries are most likely to benefit by stepping into the void left by China? Answering this question is difficult as existing, highly integrated supply chains mean China cannot be easily and quickly replaced. This is especially true given that China offers many advantages, including its dense clusters of companies and deep pool of labor, supported by excellent infrastructure. Moreover, China itself promises a big domestic market, suggesting there is no simple "plug-and-play" alternative to producing there. Additionally, for many of America's allies (like Japan, Taiwan, South Korea, and Singapore) choosing between the U.S. and China is the last thing they want to do. Given China's increasing economic ascendancy, countries and companies in many sectors may feel they have no choice but to choose China.

Regardless, some production is likely to move out of China due to its increasingly high cost base and burgeoning (and likely-to-be-long-lasting) trade, investment and security tensions with the U.S. Moreover, a potentially permanent 25% tariff would probably drive quite a few companies to look at some additional countries. While relatively little would return to the U.S., it is feasible that some high-end manufacturers could move to Korea, Taiwan, Japan and Singapore, while the low-end manufacturing could shift to ASEAN countries, and possibly Mexico.

Even if a relatively small percentage of existing production were relocated from China, say to ASEAN countries, or if capacity expansions began to favor these destinations, the local impact could be highly significant. In fact, FDI

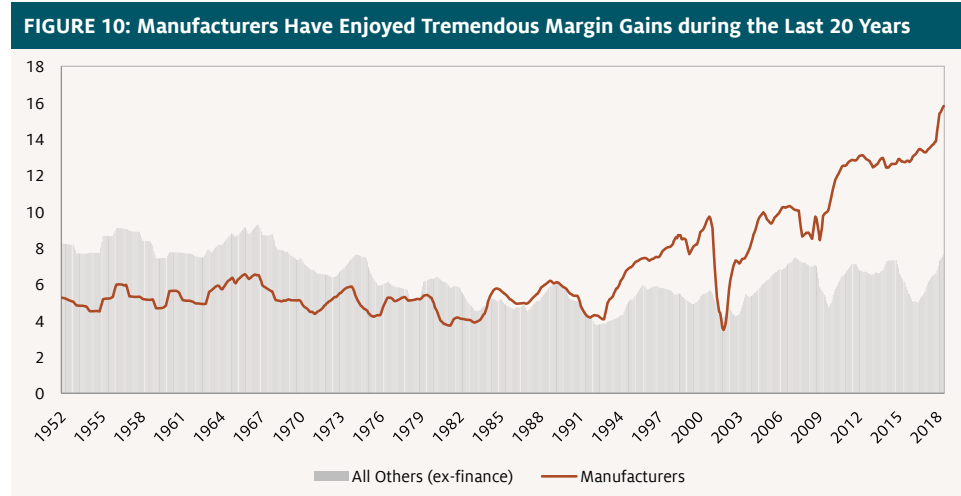
has been flowing solidly into the ASEAN region over the last decade, even as that into China has started to moderate (Figure 9). This suggests that the marginal relocation process has already been well underway for a number of years, with Vietnam, Malaysia and Thailand appearing best positioned to attract significant FDI inflows.

If global supply chains do in fact bifurcate, what is the likely impact on corporate margins and earnings? One channel that hasn't received sufficient attention concerns the impact of overcapacity in China 2025 sectors. Whenever countries undertake overly ambitious central planning exercises, excess capacity inevitability results. This occurred earlier in China's development when it built-out its heavy industry capabilities (steel, cement, petrochemicals) as well as with solar panels, and this time around is likely to prove even more wasteful. Such excess capacity will probably drive down margins and profitability in most China 2025 industries, and not just in China, but globally.

Manufacturing margins likely to come under pressure in 2019

An even more worrisome channel concerns unwinding the decades of progress that has been made with globalization. International trade accelerated from 1990, following the fall of the Berlin Wall, and was then turbo-charged at the turn of the century when China entered the WTO. A key part of this acceleration was, over a period of many years, putting in place the complex global supply chains that exist today, a process that helped drive a dramatic increase in manufacturing margins (Figure 10). This suggests the recent turn toward protectionism is likely to be particularly negative for sectors such as tech hardware,

S&P 500, net profit margins (%)



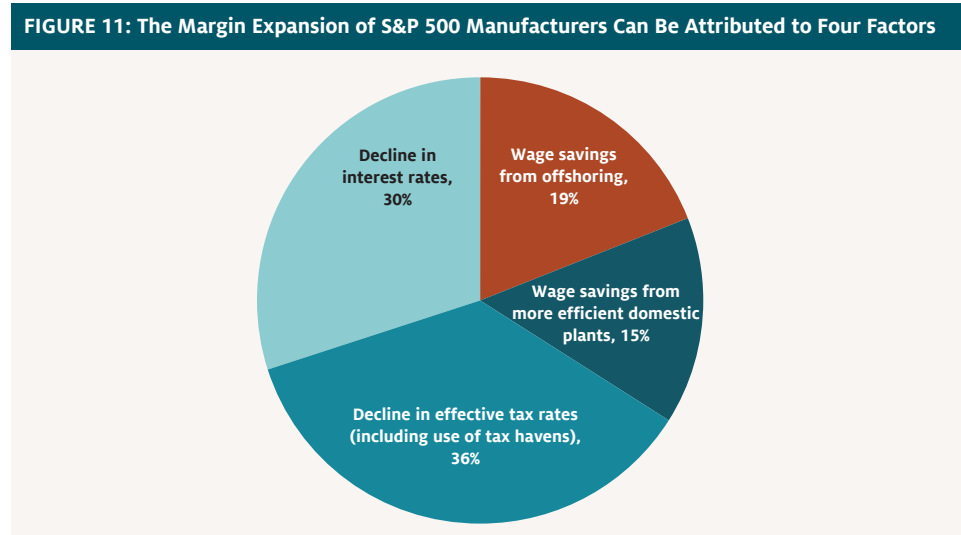
Source: Empirical Research Partners

semiconductors, industrial capital goods and some consumer cyclicals.

Moreover, the labor cost savings from locating production abroad (largely in China) are estimated to have accounted for about one-fifth of the increase in manufacturing margins since 2000 (Figure 11). However, this factor is likely fully played out and will probably

be at least partially reversed during the next couple years. Further, a bifurcation that results in a much less efficient global supply chain would cause additional damage to margins. This is why we believe the peak in manufacturing margins is now well behind us.

S&P 500 Manufacturers: Margin expansion factors, Q1 2018 vs 2000



Source: Empirical Research Partners

VII. Investment Implications: Cold War 2.0 and the Reversal of Globalization

This note has examined the implications of “Made in China 2025,” including the reaction it has provoked in the U.S. China’s massive subsidies are unprecedented in scale and have reaffirmed the government’s central role in the economy. In a world of bits vs. atoms, it is increasingly important for successful tech businesses to blitzscale. Economies of scale are also an integral feature of “new trade theory” which, along with Alexander Hamilton’s “infant industry argument,” explains why China 2025 is so critically important. Beijing views this plan as the country’s best hope of escaping the middle-income trap in which so many developing countries have become stuck.

While China’s political system is for it to choose, there needs to be a recognition

of its implications for the global trading system. In particular, its mercantilist behavior is undermining the support for free trade and globalization is in retreat. This is unfortunate, as globalization has turbo-charged manufacturing margins since 1990. Despite this, global supply chains have begun to buckle, suggesting the peak in margins is now well behind us.

There are no quick fixes to U.S.–China tensions and rising protectionism is certain to be highly disruptive. Most at risk are the ten sectors targeted by China 2025. Among the hardest hit industries will likely be tech hardware, especially semiconductors, with tech software and services being less directly affected. Still, a full chasm between the two countries seems improbable, raising the possibility that energy and agricultural commodities could even become beneficiaries of the new trade “architecture.”

Given this rather challenging outlook, we believe investors should focus on companies that: (a) have demonstrated an ability to produce free cash flow on a sustainable basis; and (b) possess superior managements with a proven track record of allocating that cash flow wisely between return of capital options and reinvestment/acquisition opportunities. Epoch has always favored companies that consistently generate free cash flow and possess competent capital allocation policies, believing they are the most probable winners and the ones most likely to provide investors with the best returns. In today’s difficult investment environment we believe these principles are ever more important.

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