



COMMENTARY

The political economy and dynamics of bifurcated world governance and the decoupling of value chains: An alternative perspective

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Abstract

Employing insights from political economics, international relations, and China studies, we identify the key variables that shape the dynamics of the U.S.–China rivalry and investigate their impacts on the bifurcation and value-chain decoupling processes. We show that the ongoing conflict and disengagement processes are more likely to evolve in the long run in significantly different ways to the one envisioned by current Washington decision-makers and echoed by Petricevic and Teece (2019). The latter predicted an escalation of the disengagement processes and inevitable convergence to a ‘bifurcated world’. Our main findings are: (1) The potential costs of bifurcation and consequent value-chain decoupling are prohibitive to both China and the U.S. Resistance is likely to grow by U.S.’ own MNEs and allies; (2) Washington decision-makers overstate the threats that ‘China’s rise’ poses to the survival of the liberal world order; and (3) China’s techno-nationalistic threats are likely to dissipate after a period of escalation, as a result of its own resource constraints, increasing costs of key programs, and inability to sustain in the long run its rapid innovation processes due to growing central controls. We conclude the paper by outlining an approach to maintain an open global economy and secure innovation systems.

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INTRODUCTION

As the economic and technological competition intensifies between the United States (U.S.) and China, the political forces driving the fracturing of the liberal international order are on the rise both in Washington and Beijing. Since the Obama administration’s 2012 ‘Pivot to East Asia’ strategy, the White House’s attitude toward China has gradually evolved from a long-held over-exuberant expectation of a fully liberalized and democratic China following an open, inclusive, and cooperative bilateral relationship, to one that views the country as a threat to America’s

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leadership and thus needs to be contained. The broadly held sense of unmet expectations in the U.S. about China's political and economic reforms reached its pinnacle in the outbreak of the U.S.–China trade war in 2018 when former President Trump adopted and quickly expanded his 'America First' diplomatic philosophy into almost every domain of Sino–American relations (Freeman, 2019). President Biden and his administration continue with an aggressive, full spectrum decoupling from Beijing, calling China the 'most serious long-term threat' to the world order (Blinken, 2022). Similarly, in the Chinese Communist Party-state, the country consistently viewed the U.S. as hostile to its ideological interests, presenting a continuing challenge to securing and sustaining political power. Washington's evolving posture towards 'China's rise' has aggravated Beijing's insecurity regarding the global political environment, leading up to its strategy under Xi Jinping of indigenous innovation and self-reliance to reduce dependence on foreign markets. Chinese Communist Party (CCP) leaders have also attempted – mostly evidenced in the Belt and Road Initiative – to expand China's own influence and international ties to ensure its access to alternative international exports and imports markets, and thus reduce the U.S.' ability to use its power to isolate China and restrain its power and economic growth.

Academics, practitioners, and the public at large have called for more attention to the outcome of the rivalry between these two superpowers and the possible reinvention of the global economic and political system in the process. International political economy (IPE) scholars, for example, de Graaff (2020), Weinhardt and ten Brink (2020), and McNally (2020), argued for more empirically fine-grained and theoretically informed research to understand China's interplay with the liberal world. In the international business (IB) discipline, scholars have begun to develop new perspectives that integrate geopolitical and corporate strategy theories, seeking to better guide multinational enterprises (MNEs) navigating the world order in a complex and uncertain transition (e.g., Buckley, 2022; Li, Shapiro, Peng, & Ufimsteva, 2022; Teece, 2020). Arguably, Petricevic and Teece (2019) is among the most influential works. They offered a rich theoretical analysis that focuses on what they consider to be the impact of China's (neo) technological nationalism on the global economic order. The authors claimed that the state-led approach "to capturing foreign innovations for future

hegemonic goals of technological leadership" of China – and emulated by other states – represented a significant advancement of strategic interventions of MNEs in 'rule-of-rulers' states, coupled with a decline in the 'rule-of-law' world (Petricevic & Teece, 2019: 1496). This is likely to lead to a bifurcated world "arising with an increase in conscious decoupling of firms' and nations' objectives as well as economic and innovation trajectories" (Petricevic & Teece, 2019: 1490). To deal with these potential shifts – both a 'bifurcated governance' at the macro-level and a 'value-chain decoupling' at the micro-level – and to cope with China's perceived threat to the 'rule-of-law'-based order, they suggested a 'bifurcated world approach' with plans for multi-stakeholder coordinated actions among 'rule-of-law' countries that would "require comprehensive efforts and both unilateral and multilateral cooperation between and among MNEs, their home governments, and other stakeholders" (Petricevic & Teece, 2019: 1502). Their proposal resonates well with the mainstream narrative in Washington among Biden officials who favor an ambitious, multilateral approach of rallying allies to stop China's rise and protect America's technological primacy.

While we recognize the general value of the theoretical developments in Petricevic and Teece (2019) regarding the application of dynamic capability in volatile, uncertain, complex, and ambiguous (VUCA) conditions, we have found the empirical bases on which they developed their analysis of the U.S.–China conflict (particularly their assessment of China's resources, capabilities, and intentions as well as their analytic framework) flawed. We've also found that similar flaws are shared by Washington decision-makers who have adopted a similar narrative about the future of the conflict (e.g., overstated view of the risk of 'China's rise', lack of attention to dynamic aspects of the rivalry such as action and reaction structure of the conflict, and lack of nuanced understanding of China's objectives, strategies, and capabilities). This paper aims to provide an analysis that incorporates more fully and accurately the factors that shape the conflict and its dynamic structure. By focusing on the action–reaction dynamics in the U.S.–China relationship, we present a dynamic scenario that embodies alternative paths likely to evolve from the ongoing conflicts and disengagement processes. We contend that some of these are more likely to occur than Petricevic & Teece's envisioned 'bifurcated world' which they claimed to be



inevitable. We also evaluate the practicability of their proposal of a 'bifurcated world approach' to reconfigure innovation networks among 'rule-of-law' countries.

The rest of the article consists of three sections. Our analysis starts in section two with a focus on the anticipated economic costs of disengagement between the U.S. and China and their impacts on the current disengagement process. Following the political economy perspective, especially the Open Economy Politics (OEP) approach (Lake, 2009), we first present evidence of the high costs of economic disengagement from China to the U.S. and its companies, followed by an analysis of the (negative) responses of American MNEs and their non-market strategies employed in response to the White House's actions against China amid the escalating trade and technology competition between the two nations. Then, we shift the focus to other 'rule-of-law' countries and present data on economic losses – both realized and potential – resulting from shifts in supply chains and markets following the decoupling strategies. These accounts support our argument that important differences of interests exist within 'rule-of-law' countries, implying that the country composition of various international alliances emerging across industry-specific issues may be different. U.S. intentions to develop a united front of 'rule-of-law' countries supporting a complete disengagement from China is thus unlikely to be implemented. We then complete our assessment of the costs of disengagement with a discussion of the anticipated economic costs to China and their serious political and policy implications. Economic performance in China is closely associated with the legitimacy of the Chinese Communist Party (CCP) rule, its political power, and the reputation of the Party-state as the economic manager. Therefore, the prospect of a decrease in its GDP following the decoupling from the U.S. also has a significant role in deciding Beijing's strategies in the conflict. The finding of the cost and impact of bifurcation suggests that Petricevic & Teece's 'bifurcated world approach' for multi-stakeholder coordinated actions among 'rule-of-law' countries and their MNEs is both more costly to achieve and less effective in the short term. The divergence of interests among American MNEs and the divergent economic interests of U.S. allies in bifurcation will also have enduring institutional effects.

We acknowledge that the increased sense of threats and thus mutual hostility felt both in

Washington and Beijing, given their long-lasting differences in values and the expected benefits that they perceive from partial disengagement, could escalate further in the future turning the U.S.–China rivalry into a total confrontation and bifurcation. However, several factors will make this unlikely. We emphasize that the long-term development of the U.S.–China conflict is characterized by VUCA conditions and requires a more nuanced understanding of the objectives, strategies and capabilities of each country and its assessment of its rivals. In section three, our analysis focuses on the assessment of the action–reaction dynamics of their interactions. For example, we have found that China's intentions with respect to its seeking of 'self-reliance' were largely defensive, while being interpreted in Petricevic and Teece (2019) and Washington's narratives as solely aggressive. China's experience in its efforts to achieve superiority in science and technology has also suggested that its highly centralized top-down control – now further being centralized in the third term of Xi Jinping's presidency – is unlikely in the long run to foster innovation. Additionally, we've noted that some exogenous trends and events can alter behaviors of rivals in the conflict and the path of the disengagement processes. For instance, China faces a growing demographic challenge in maintaining its supply of young workers and has difficulties in maintaining productivity, which significantly constrains its ability in the long run to maintain the level of funding of its techno-nationalistic policies as well as fund its military modernization plans. Our analysis of the dynamics of the disengagement processes, therefore, challenges some of the underlying assumptions and interpretations of China's behavior in Petricevic and Teece (2019). Their assumptions that China's rapid pace in technology innovation progress is bound to continue to accelerate in the long run and that without appropriate intervention China may establish its own technological hegemony, are overstated. Also, the story they tell ignores China's motives, behaviors, and its response to actions taken by the U.S. We contend that a correct assessment of China's future economic growth and resources availabilities and a more nuanced assessment of China's objectives and strategies, would reduce Washington's fear of 'China's rise'. Once the fear of 'China's rise' declines, we expect the accelerating action–reaction pattern of disengagement to slow down or even dissipate. In the final part of the section, we discuss the impacts of some exogenous factors outside the



economic and business domains that influence the technology conflict and the processes of bifurcation and decoupling. We briefly discuss, for example, the role played by security priorities. Russia's invasion of Ukraine and China's growing friendship with Russia, for example, have resulted in the realignment of the priorities of many European countries placing a higher priority on their relationship with the U.S. compared to China. We have also devoted attention to both existential and emerging global problems – climate change as an outstanding example – and discussed China's propensity to collaborate internationally and its capabilities and willingness to provide global public goods. The rivalry between the U.S. and China, due to these factors, is a dynamic process that may land in different tentative equilibria of partial disengagement ranging somewhere in the 'coopetition' world (Chen, 1996; Cui, Yang, & Vertinsky, 2018) but also may end up, albeit with a low probability, in an almost complete bifurcation and disengagement (or even an accidental war).

We conclude in section four with some recommendations on the choice of strategies U.S. decision-makers can take in the future. First, we argue that in crafting a strategy, a more nuanced understanding of the rival's objectives, perceptions, capabilities, response patterns, and overarching strategies, as well as one's own may reduce the occurrence of a perpetual cycle of conflict acceleration. Second, we describe our approach to China's techno-nationalism and possible violations of the norms of the global rule of law. The approach we outline seeks to retain global open competitive market systems, create advanced technology security infrastructure at the country or regional level to prevent cybercrimes and attacks, as well as develop proactive monitoring and enforcement systems to protect intellectual proprietary assets. The approach also suggests a variety of measures to support the capacity and incentives of firms to protect their intellectual properties and innovate.

ECONOMIC COST AND POLITICAL CONSEQUENCE OF DISENGAGEMENT

We deploy analytical insights from political economics studies, especially the OEP approach, to understand both the economic cost and political consequence of the current state of bifurcation and decoupling in the liberal world. Political economics theories focus on the interrelationship between political and economic systems. On one hand,

political forces – together with history, culture, and customs – affect an economic system, creating ebbs and flows of economic activities and shaping global economic interactions (Frieden, 2020). Economic conditions, on the other hand, also have powerful impacts on politics (e.g., Fair, 2018). Emerged as a nascent paradigm of IPE in the 1990s, OEP adopts the assumptions of neoclassical economic and international trade theory and investigates the economic origin among individuals, sectors, firms, or factors of production of their interests and policy preferences, as well as their bargaining power among competing societal groups.

OEP scholars focus on the association between economic actors' exposure to international trade – and their position within the international economy – and their interests and preferences over economic policy (e.g., Lake, 2009). Liberalization benefits owners of factors that are abundant in the given society relative to the rest of the world (Rogowski, 1987), which often leads exporting industries and firms to favor free trade and economic exchange (Hiscox, 2002; Scheve & Slaughter, 2001). Individuals and regions with a manufacturing mix concentrated in comparative-disadvantaged industries, however, tend to support trade barriers (Mayda & Rodrik, 2005). MNEs who usually tend to be larger, more productive, relatively more capital- and skilled labor-intensive and thus participate actively in the international market are particularly more likely to lobby for free trade policies (Kim, 2017; Melitz, 2003). OEP scholars also conceive of domestic political institutions as mechanisms that aggregate interests and structure the bargaining of competing societal groups (Lake, 2009). As a result, these interests get access to the making of policies which affect their home countries' commitment to the global economic regime (e.g., Alt & Gilligan, 1994; Davis, 2004; Mansfield, Milner, & Rosendorff, 2000). With this approach, we first present data on the interconnectedness between American and Chinese markets and China's integration with the world economy, in order to estimate the losses incurred by the decoupling strategies. Then we examine how the economic cost of the U.S. policy effort to sever or limit economic relations with China has been resisted by some of its closest security allies and its MNEs. We also examine the cost to China and its impacts on Beijing's strategies.



The Cost of Disengagement to the U.S.

In the two decades since China joined the World Trade Organization (WTO), bilateral trade between the world's two biggest economies has increased significantly. Figure 1 displays China's share of U.S. exports from 2010 to 2020. China's average share of U.S. exports reached around 7.75% over the 5 years between 2015 and 2020 (OECD, 2021). Although the number fell to 6.48% in 2019 following the escalation of the rivalry between the two (amplified by the new global pandemic), U.S. goods exports to China quickly recovered to a 5-year high in 2020 (8.72%) with an estimated \$164.9 billion in total (OECD, 2021). China is currently the third-largest export market for the U.S.

The openness of the Chinese market generates significant amounts of revenue that support U.S. jobs and economic growth. For example, U.S. exports to China "enabled Washington to save a failing General Motors and a huge number of jobs during the 2007–2008 financial crisis (Overholt, 2021: 37)". It also supported more than 1.1 million jobs annually in the U.S. from 2009 to 2018 (The U.S.–China Business Council, 2020). Even with the dramatic decline in bilateral trade in 2019, American exports of goods and services to China that year still contributed to an estimated 758,000 jobs at home (USTR, 2020). As Overholt (2021) points out, China is much more open to U.S. trade and investment than America's traditional allies in Asia such as Japan and South Korea. As the center of the world consumer market is now gravitating toward Asia, mainly China, it, therefore, becomes imperative for American car companies, the movie industry, all major luxury goods manufacturers, and much of the rest of the American economy to access Chinese demand for their survival and revitalization.

The American economy has also become highly dependent on Chinese imports. Figure 2 shows the Chinese share of U.S. imports from 2010 to 2020. China became the country's largest supplier of foreign inputs in 2020, contributing an 19.01% share of the U.S.' overall imports (OECD, 2021). Most of these inputs from China were concentrated in the manufacturing sectors. For instance, in 2019, a predominant 62% and 51% of U.S. imports in broadcasting equipment and computers came from China; Chinese companies also supplied 33% and 23% of American imports in batteries and cotton (United Nations Comtrade, 2022). Figure 3 displays the Chinese share of U.S. imports by industry in

2019. As the world transitions to new sources of energy, the U.S. is also increasing its dependence on China for the provision of lithium and rare earth metals, the critical commodities involved in electric vehicle production, battery making, renewable energy systems and technology manufacturing. A report published by industry analysts of Hering (2022) noted that China accounted for 80% of U.S. lithium-ion battery imports during Q4 of 2021. This surge was up more than 30% from the same period in 2020 despite President Biden's call for the nation to strengthen its domestic battery and critical mineral supply chains (Hering, 2022). While China is much more dependent on America's contribution to services than the U.S. is on China's, U.S. imports of services from China also totaled an estimated \$15.6 billion in 2020, which was roughly 36% greater than 2010 levels (USTR, 2020).

In addition, starting in 2010, China accelerated its outward investment overseas. Figure 4 shows the Chinese foreign direct investment (FDI) outflows and inflows with the U.S. from 2015 to 2020. China's annual investment in the U.S. reached nearly \$5 billion in 2010 and quickly climbed up to \$14 billion in 2013, peaking at \$45 billion in 2016 mainly due to several multi-billion-dollar acquisitions that were fueled by rampant liquidity in the Chinese market and loose outbound investment controls. On average, the U.S. received more than 15% of China's overseas investment (Hanemann, Rosen, Witzke, Bennion, & Smith, 2021). By the end of 2019, the total stock of Chinese FDI in the U.S. reached \$145 billion (Hanemann et al., 2021), making these investments a critical source of funding for both the U.S. government and inexpensive capital for the industry.

Another area of interdependence between these two nations takes place in research and higher education, largely in the form of the inflow of Chinese students and scientists. Chinese students constitute a dominant proportion of the U.S. international student body. Between the academic years of 2014/15 and 2019/20, approximately 373,532 Chinese students were studying in America, accounting for anywhere between 31.2% and 35.5% of all international students in the country (Open Doors, 2021). Figure 5 displays the nationality of origin of international students in the U.S. in the 2019/20 academic year. Chinese students and their families also contribute immensely to the U.S. economy. The U.S. Department of Commerce estimated that in 2019 Chinese students

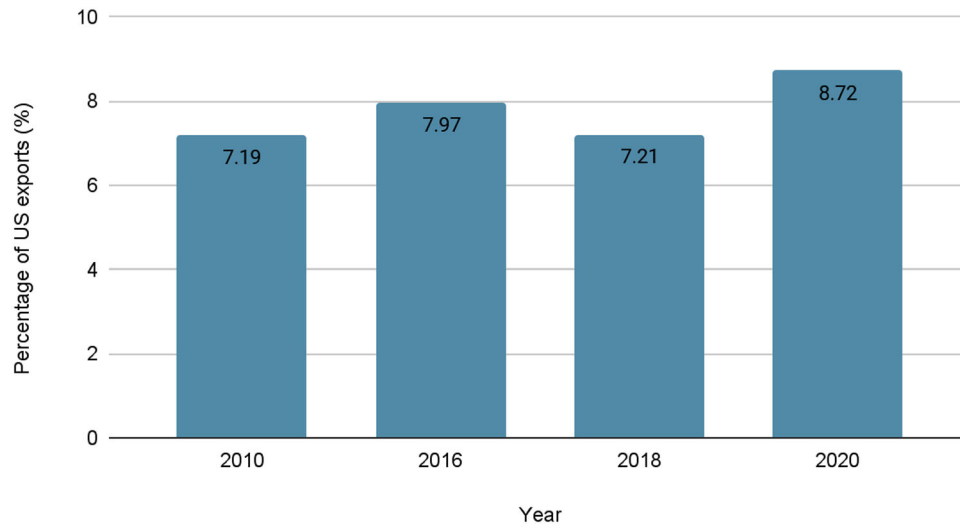


Figure 1 China's share of U.S. exports from 2010 to 2020. *Source:* (OECD, 2021).

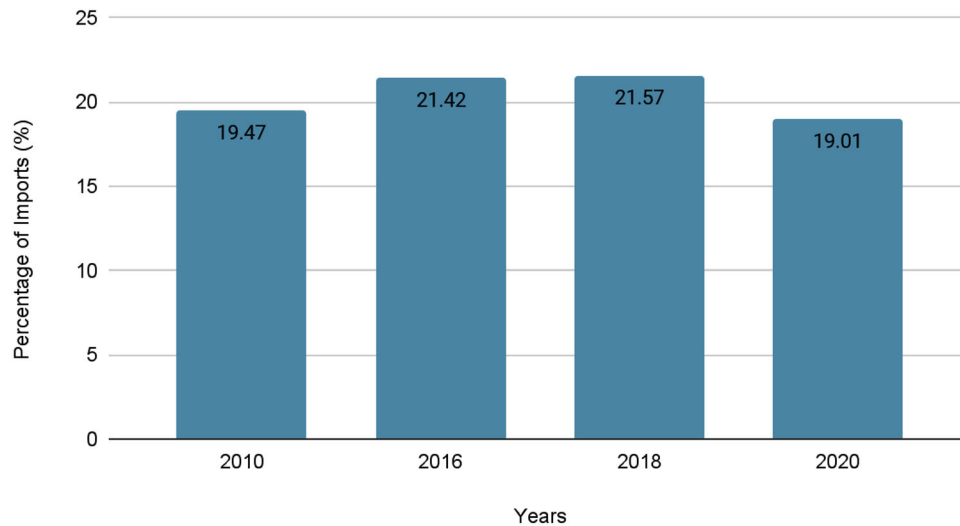


Figure 2 China's share of U.S. imports from 2010 to 2020. *Source:* (OECD, 2021).

contributed \$15.9 billion in living fees and tuition expenses – a figure nearly equivalent to the amount of money the U.S. government spent on Operation Warp Speed in 2020 to help develop COVID-19 vaccines (McGregor, 2021). Chinese scientists are also an integral part of the global scientific community, contributing to improvements in research culture and praxis.

More broadly, the U.S.' economic relationship with China is generally thought to benefit American consumers. Lau and Tang (2018) estimated that Chinese imports had cut the U.S. Consumer Price Index by about 27% in recent years. U.S. trade with China alone, according to the report by Oxford Economics (2017), helps to save an average of \$850

in living expenses annually for each American family.

Because of these important variables at play, the costs of pursuing bifurcation and decoupling policies will be uncomfortably high for the American economy at the macro level. First, there will be a significant loss of global market shares of U.S. firms. The annual sales of American companies in China exceeded \$700 billion in 2019, with profits of over \$50 billion (CGTN, 2019). If the U.S. is decoupled from China, Chinese firms will buy from America's rivals, amounting to the potential loss of the annual \$50 billion net profits generated from U.S. exports to the Chinese market. Second, this decoupling strategy will force China to direct

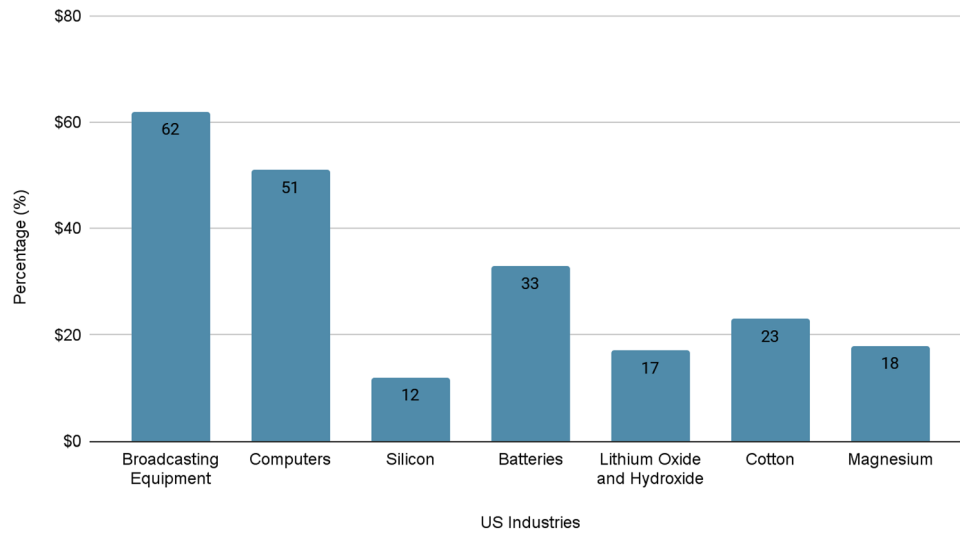


Figure 3 China's share of U.S. imports by industry in 2019. Source: (OECD, 2021).

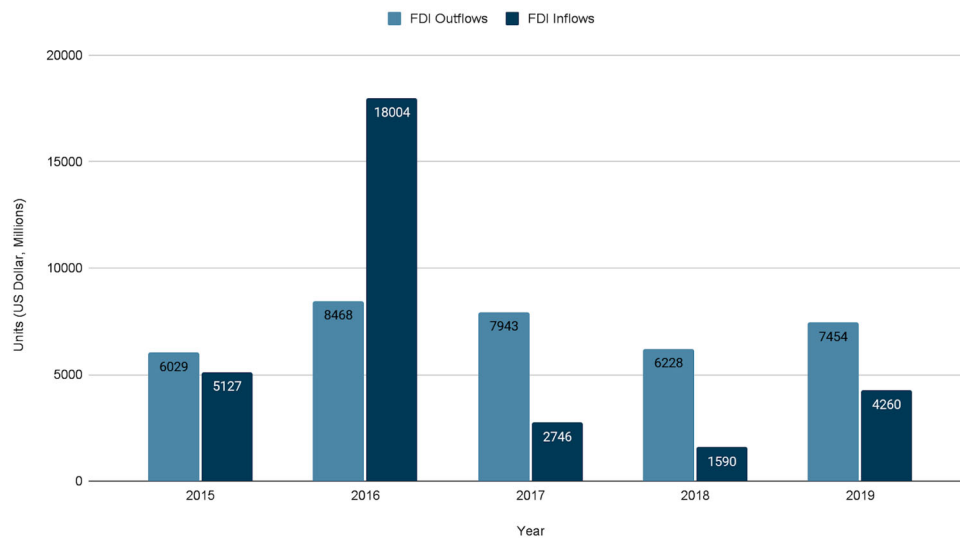


Figure 4 Chinese FDI outflows and inflows with the U.S. from 2015 to 2020. Source: (OECD, 2021).

investments to other countries. With the growing strains in the U.S.–China relationship and the global pandemic, Chinese overseas investment in the U.S. plummeted from \$29 billion in 2017 to \$6.3 billion in 2019 (Hanemann, Wang, & Paton, 2021); but over the same period, Europe's share of global Chinese investment rose to over 30% (Freeman, 2019). This significant decline will lead to a potential loss of American jobs. Even worse, with nearly \$1.5 trillion in Chinese listings on U.S. stock exchanges and \$1.1 trillion in Chinese official holdings of U.S. government bonds and notes (Rudd, 2019), the Sino–American split will no doubt create great turmoil for both the U.S. and

China's financial markets, as well as have a far-reaching impact on global financial markets. Third, a report published by the National Association of Foreign Student Advisers (NAFSA) estimated that the decline in international student enrollment since the fall of 2016 had cost the U.S. economy \$11.8 billion and more than 65,000 jobs (NAFSA, 2019). As Chinese students make up a dominant share of the international student population in the country, a reduction of Chinese student enrollment in U.S. universities will lead to significant losses to education-related service industries and will result in lower levels of science and technology advancement and innovation by all. As Zandi et al. (2019)

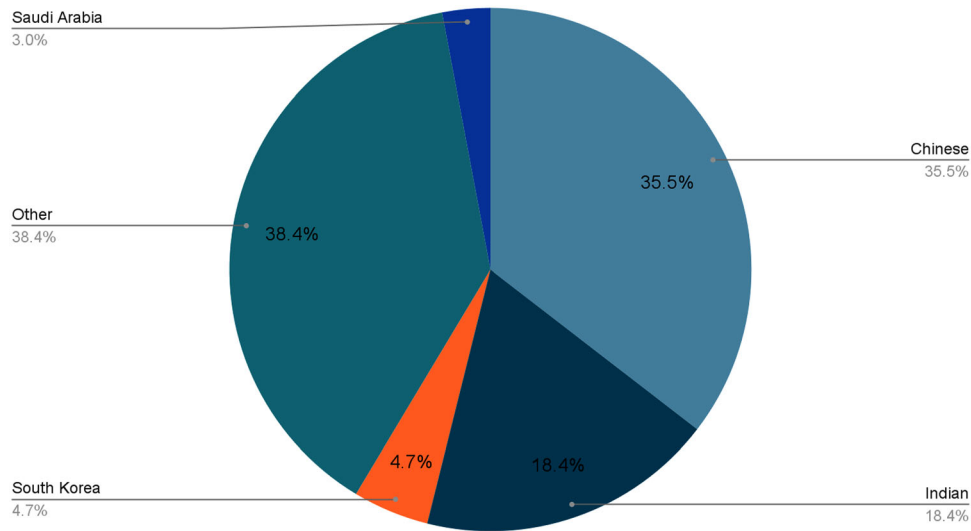


Figure 5 The nationality of origin of international students in the U.S. in 2019/20 academic year. *Source:* (Open Doors, 2021).

estimates, just 1 year of the trade war shaved an estimated 0.3% point in U.S. real gross domestic product (GDP) and almost 300,000 jobs off the U.S. economy. Each American household was also directly impacted in the process; the average cost of living for each American household in 2019 was expected to increase by more than \$460 (Bui & Russel, 2019), due largely to Trump’s imposition of tariffs on the majority of imported goods from China in response to the trade war.

The economic cost of disengagement – both realized at the current state and potential – also generates great challenges for American MNEs at the micro level. China has become the key node in many supply chains for American companies. Research by the McKinsey Global Institute suggested that in 2017 the average penetration of the top 30 global brands – many of whom are based in the U.S. – had reached 40% in China across the ten large consumer categories, compared with just 26% in the U.S. market. In categories such as beauty and personal care, multinational corporation penetration is as high as 73% (McKinsey, 2019). Figure 6 compares MNEs’ penetration in the U.S. and China. China’s irreplaceable role in global value chains is further pronounced within the context of the COVID-19 outbreak. Whereas the West has experienced all kinds of supply chain problems, such as shipping constraints, surging maritime transport costs, shortages of raw materials, and high inflation (Global Times, 2022), China has managed to ‘return to work’ and resume its role in global

supply chains shortly after a temporary halt by COVID-19 measures.

If bifurcation continues between Washington and Beijing, it may also lead to permanent tariffs with broadened market access restrictions on each other. Tariffs on Chinese products will increase the cost of production for American firms since roughly half of the value of Chinese exports to the U.S. is produced by U.S.-invested firms in China, and 77% of such exports are intermediate products or capital goods. For instance, Micron, one of the leading American chip producers, initially applauded Trump’s aggressive trade approach to China; but it later found with a shock that a 25% of tariff on Chinese chip imports – if the status quo persists – would increase its cost of production significantly (Ma, 2019). Also, 13% of Micron’s revenue was from sales to Huawei and thus was in jeopardy when the Trump administration decided to put Huawei on the national security entity list (Ma, 2019). Perhaps a more important factor, in the long run, is maintaining American firms’ R&D capabilities. Under the scenario of complete disengagement, this will become challenging. American companies now rely heavily on foreign-born talent, with roughly 60% of the Ph.D.-qualified computer scientists and engineers in the U.S. workforce being born overseas, mostly in India and China (Flagg & Harris, 2020). If restrictions are imposed as part of the decoupling strategy, American companies may experience a loss of Chinese talent, investment, and markets, and may fall behind in technological advancement compared to European, Japanese, or



especially Chinese firms. Moreover, the loss of qualified scientists and engineers combined with the imposition of export controls may compel many high technology firms to move their research facilities from the U.S. to countries without export controls and with more flexible immigration policies. Clearly, the disengagement actions work against Washington’s intention to use restrictions for the protection of national security and innovation. Moreover, many companies just cannot find an economical alternative when asked to relocate their supply chains. American MNEs have recently learnt that any disruptions that take place within China might lead to forbidding costs. Beijing’s zero-tolerance approach to COVID and lockdowns in Shanghai and other cities to contain small outbreaks, in particular, has already idled factories and warehouses, slowed truck deliveries and worsened container logjams (Bala, 2022). American giants ranging from Microsoft Corp. and Texas Instruments Inc. to Apple and Tesla are facing crimp sales, curtailed supplies, and an ‘unprecedented’ rise in costs for logistics and raw materials, forcing them to suspend production and forecast a dramatic decline in operating profits (Bala, 2022). With full decoupling, American MNEs will lose access to possibly one of the most comprehensive and large-scale manufacturing chains in the world that no single country or region is currently able to offer a substitute for.

These economic costs, we argue, have also generated significant implications in the shaping of American MNEs’ interests and policy preferences. Some American firms have expressed concerns about the escalating rivalry between China and the U.S. and have taken steps in response to government pressure to pick a side. Apple, for instance, has reportedly asked its biggest suppliers to see how much it would cost to shift 15–30% of its supply base out of China to Southeast Asia or India (The Economist, 2019). Firms in the American toy industry had planned to shorten their supply chains by shifting a significant portion of their manufacturing from China to other Asian countries by 2020 (Popper, 2019). Most companies, however, according to the survey by the American Chamber of Commerce (2021), have displayed hesitance to disengage with China any time soon. It could also take years for them to make the kind of massive industrial transfer that Washington has demanded. The survey of American businesses operating in China found that the sentiment of these firms toward the local business environment is generally positive. For example, 82% of respondents expected their revenue to grow in 2021, with 60% stating that they would increase investments in China in 2021 compared to 2020, a 20% increase from the same survey conducted last year (The American Chamber of Commerce, 2021). Seventy percent of the survey respondents expected the

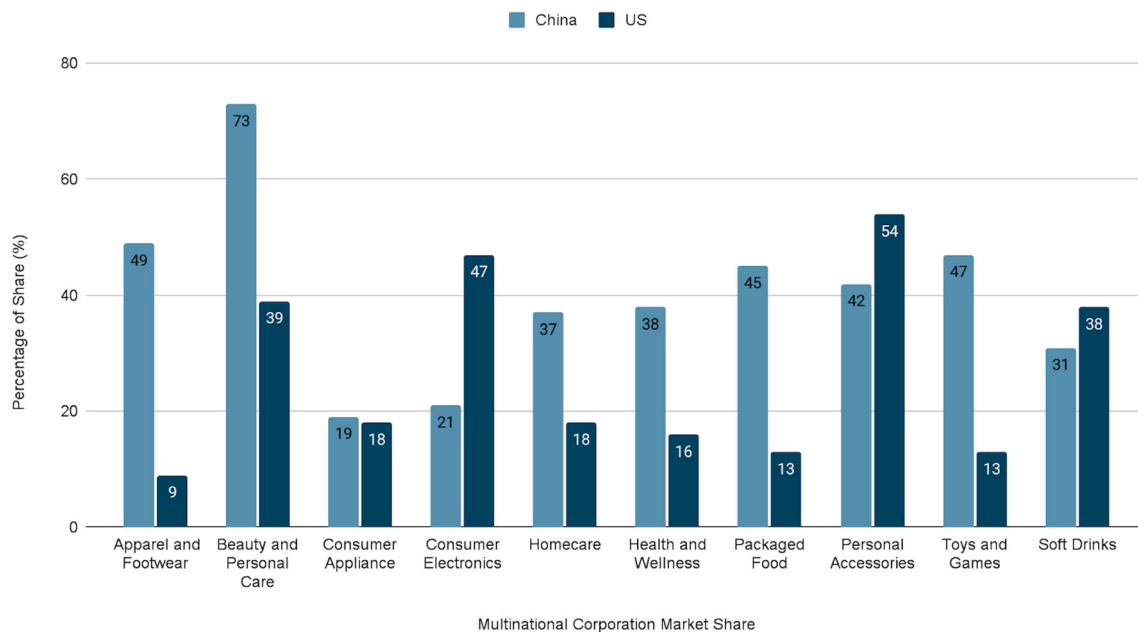


Figure 6 MNEs’ penetration in China and the U.S. Source: (McKinsey, 2019).



revenue gains from operations in China to exceed their company's worldwide growth over the next three to five years (Flannery, 2021).

Many American businesses have joined technoglobalists and some progressives from the Democratic Party to lead 'cooperationist' proposals in American policy and regulation (Bateman, 2022). These proposals posit that the U.S. would be well positioned to lead and benefit from a 21st-century system of open technology collaboration. Shortly after the former Trump administration increased the use of technology restrictions to contain the rise of China, many leaders of the largest American companies expressed concerns that such moves would "disrupt trade and commerce in a way that would cause huge damage – not just to the Chinese economy, but to the global economy and the U.S. economy" (Popper, 2019). For example, the Consumer Technology Association, which represents the largest electronics companies, warned that tariffs were already costing the American tech sector \$1.3 billion a month (Popper, 2019). Washington's broad restrictions on U.S. exports of commercial chip technologies to China, as argued by the Semiconductor Industry Association (2022), also put America's longstanding leadership in semiconductors at risk. In response to President Biden's aggressive, combative political agendas on China, some American MNEs, together with more than 40 progressive organizations, urged the current administration to drop such an 'antagonistic posture' (Tepperman, 2021). This powerful, 'cooperationist' voice of American MNEs is often at odds with those in Washington who define the U.S.–China technology ties as zero-sum. These MNEs' influence in policymaking, as a consequence, makes Washington's plan for bifurcation and confrontation harder and costlier to achieve.

The Cost of Disengagement to Other 'Rule-of-Law' Countries

The U.S. is not the only country with a deeply entangled and interdependent economic relationship with China. China has built strong ties with the rest of the world. A powerful source of its leverage lies in its position as a growing market for other economies, as a global efficient manufacturing platform and as a major global supplier of many industrial intermediate goods, some essential raw materials (e.g., rare earth elements and cotton), and consumer products. It also serves as an important destination for FDI. In terms of imports, the overall Chinese imports of goods totaled an estimated

\$2.07 trillion in 2021, which indicated an about 30% increase in import value compared to the previous year (Statista, 2022a). It also imported \$468 billion in services in 2017, making it the second-largest services importer in the world (Statista, 2022a). In 2017, China has become the largest importer of 41 countries and regions in the world (Xinhua, 2017). Especially in the sector of technology, the country's imports grew from \$1.8 billion to a remarkable \$48 billion from 2000 to 2017, driven by its demand for core technologies and intellectual property from abroad. In the areas of investment, inbound FDI flows to China increased from \$41 billion in 2000 to \$136 billion in 2017 (McKinsey, 2019). In 2020, the country surpassed the U.S. and became the world's largest FDI recipient with a total of \$163 billion in inflows (UNCTAD, 2021).

China is also enlarging its role as the world's factory for manufacturing. The country has been the largest exporter of goods in the world since 2009 (McKinsey, 2019). During the last five years, reports have shown China's overall exports grew dramatically from \$2.35 trillion in 2015 to \$2.65 trillion in 2020 (OECD, 2022). There are several sectors in which the world is highly dependent on Chinese exports. In 2019, as shown in Figure 7, China produced 59% of the global supplies of lithium, 58% of magnesium, 50% of broadcasting equipment, and 50% of computers (OECD, 2022). The country also supplied 34% of semiconductor devices, 28% of batteries, and 22% of cotton in the global market (United Nations Comtrade, 2022).

The position of China in global supply chains is also very different from what it was at the turn of the 21st century. In recent years, China has increasingly turned its attention towards technology and innovation, resulting in its high-technology exports having grown rapidly, which amounted to a total of \$733.4 billion in 2020 (Miller & Wunsch-Vincent, 2021). Consequently, Chinese technology producers have made great strides in establishing themselves as essential component suppliers in many supply chains for technology. A report published by McKinsey estimated that in 2019, Chinese tech companies constituted significant proportions of the worldwide technology market share such as in solar panels (50%), digital payments (10%), cargo ships (45%), agricultural machinery (19%), smartphones (25%), and robotics (15%) (McKinsey, 2019). By leveraging its superior technological innovations, low-cost skilled labor and modern infrastructure, China has also



begun to surpass the competitiveness of the European Union’s (EU) regional supply chains. Many MNEs from Italy, the Netherlands, and Germany, according to Rapoza (2020), have reportedly increased their preference for, and reliance on, Chinese manufacturers in industries such as automotive, semiconductors, and electronics. While it is true that the country is lagging in key semiconductor technology and critical equipment production, President Xi Jinping’s commitment to ‘building a scientific research and innovation hub’ in China with state-backed massive mobilization of R&D investment and complementary resources, helped the Chinese semiconductor industry to increase its annual device sales more than double from \$13 billion to \$39.8 billion in 2020 (Semiconductor Industry Association, 2022). This unprecedented annual growth rate of 30.6% also helped China capture 9% of the global semiconductor market, surpassing Taiwan for two consecutive years in 2019 and 2020, and closing in on the semiconductor makers of Europe and Japan (Semiconductor Industry Association, 2022). By 2022, China is expected to make up 24% of the share of global wafer manufacturing capital expenditure (McKinsey, 2019).

One very significant factor in China’s growing economic clout is that several ‘rule-of-law’ countries, with whom the U.S. has traditionally allied, have become noticeably dependent on China.

Australia, for example, while the escalating political tensions have strained Canberra’s relationship with Beijing over the past few years, their economic ties have nonetheless grown rapidly in the same period, fostering significant increases in Chinese shares of Australian exports and imports over the past 10 years. The Chinese share of the country’s exports almost doubled from 25.31% in 2010 to 40.84% in 2020; it also constituted 28.8% of the country’s imports in 2020, compared to 18.69% in 2010 (OECD, 2022). Comparatively, U.S. shares have remained mostly constant, accounting for 5.30% and 11.86% of the country’s exports and imports in 2020, respectively (OECD, 2022). Figure 8 shows Australia’s shares of Chinese imports and exports from 2010 to 2020 and Figure 9 shows Australia’s shares of the U.S. imports and exports over the same period. This pattern of increased Chinese shares also appears in Japan and South Korea. These two Asian economies depend on their regional proximity to China for greater integration in global value chains and investment. While China and the U.S. have increased their interdependence with Korea over the past 5 years, China constituted 25.85% and 23.29% of Korean exports and imports respectively in 2020, which was nearly double the U.S.’ shares (OECD, 2021). Similarly, Chinese shares accounted for over a quarter (25.79%) of Japanese imports in 2020, which eclipsed that of the U.S. share by just over 10% (OECD, 2021).

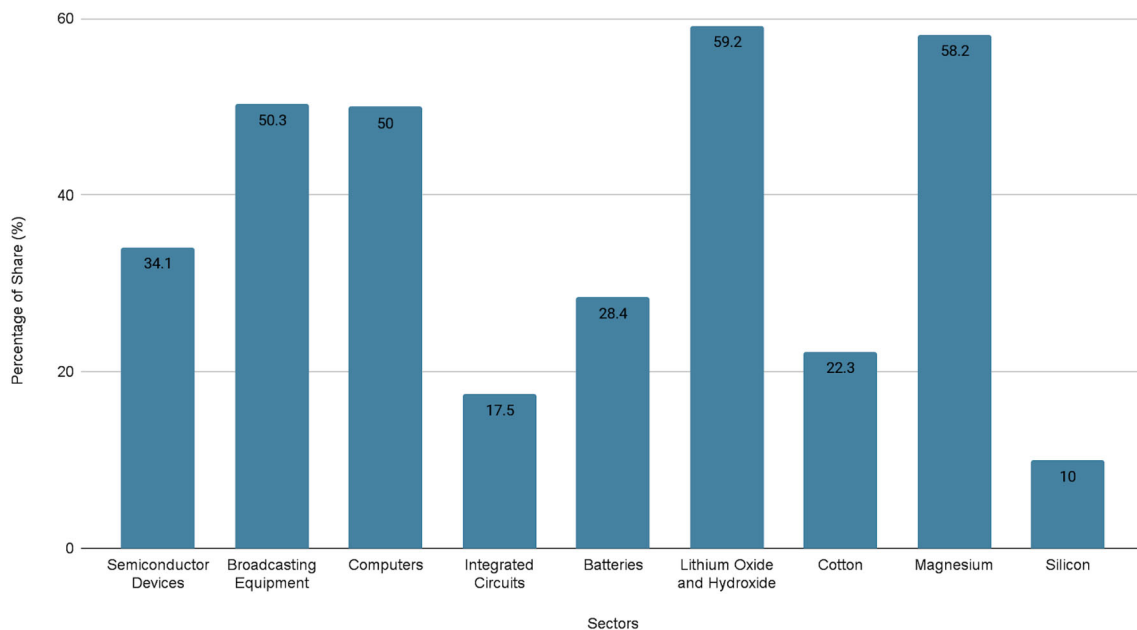


Figure 7 Chinese exports share to the world by industry in 2019. Source: (OECD, 2022).



Moreover, the proliferation of bilateral investment treaties (BITs) and free trade agreements (FTA) between China and key 'rule-of-law' countries is a powerful indicator of fortifying its economic ties with them. Notably, China has participated in several BITs with Australia, Canada, Denmark, Finland, Norway, France, Germany, Israel, Italy, Japan, South Korea, Netherlands, Spain, Sweden, and the United Kingdom. Its FTAs with Australia and South Korea are already in force; future additional FTAs with Japan and Korea (jointly), Israel, Norway, and Canada are also under negotiation/consideration (MOFCOM, 2020).

We argue that such economic ties and growing interdependence reduce the incentives of many 'rule-of-law' countries to adopt entirely hostile policies against China to pursue full disengagement as Petricevic and Teece (2019) suggest. It is therefore no coincidence that as a 'new Cold War' develops between the U.S. and China, many American allies choose to strengthen their efforts to cooperate with both Washington and Beijing. The EU response is a telling illustration of this trend. On one hand, the EU has made efforts to deepen transatlantic cooperation for the preservation of the existing global liberal order, even before the recent invasion of Russia into Ukraine. Many European countries have responded to America's requests by increasing their defense expenditure to 2% of GDP (Sheahan & Marsh, 2022). The region has also joined the U.S. to pressure China to stop many of its discriminatory economic practices and has taken cooperative steps with Washington imposing export control over high technologies and products to combat unfair Chinese trade and industrial practices (Chimits, 2021). Russia's recent invasion of Ukraine has also become vital in pushing Europe and the U.S. to synchronize purposes and identities, lauding 'Western unity' and rejuvenating 'the free world' (Mishra, 2022). Two Nordic countries – Finland and Norway – have confirmed the application for NATO membership after decades of non-alignment. At the same time, Beijing's 'pro-Russian neutrality' in the war has been found to vastly amplify suspicions and fears of China in Europe, leading Brussels to align more with its U.S. partner and explicitly weigh normative-ideological considerations over narrowly economic and trade-centric interests (Wong & Wang, 2022).

On the other hand, the EU still has interests to engage with China. Unlike America's view of China as the 'most serious long-term threat to world

order', the EU portrays China as both a systematic rival and a partner (Cooban, 2022). Economic considerations are of course the major driving force behind the European strategy: China is now the EU's second biggest trading partner behind the U.S., and the EU is China's top trading partner, main technology cooperation partner, and largest technology supplier (Brauner, 2011). After the creation of the China–EU Comprehensive Strategic Partnership in 2003, both parties signed a new China–EU 2020 Strategic Agenda for Cooperation aiming to strengthen their cooperation in promoting peace, prosperity, sustainable development, and cultural exchanges, amongst various other fields. The EU has also cooperated more closely with China on reforming and preserving key multilateral institutions for managing global issues such as trade, technology standards, and climate change. European policies, as a result, are increasingly based on their interests rather than values.

Furthermore, these interest-based rationales to remain committed to engagement and cooperation undermine European unity, making collective action both within the region and between Europe and the U.S. much harder to achieve. For example, despite the EU's hesitation about the Belt and Road Initiative (BRI), a grand global infrastructure development strategy created by the Chinese government in 2013, Italy, a G7 nation and an EU founding member, signed a Memorandum of Understanding with China to formally join the BRI in March 2019. Similarly, Both France's Emmanuel Macron and Germany's Angela Merkel voiced their support for a new EU–China investment deal that the U.S. did not endorse (Birmingham, 2021). Through BRI, China has also established the 17+1 initiative made up primarily of eastern and southern EU member states. It has allowed China to exert a greater voice in Brussels, which effectively stopped the EU from criticizing China about its South China Sea policy (Emmott, 2016). Despite the U.S. having led a 3-year campaign against Huawei, accusing it of threatening the country's critical infrastructure through 5G networks, only a dozen or so of the 170 countries that use Huawei products, have banned the company. European countries have displayed a divided response over Huawei technologies and the extent of the security risks linked to its inclusion in the development of 5G infrastructure (e.g., Clarke, 2018; Wintour, 2020). Even U.S. Secretary of State Antony Blinken seemed to acknowledge, when on a visit to Brussels, that it would be difficult for Americans to force

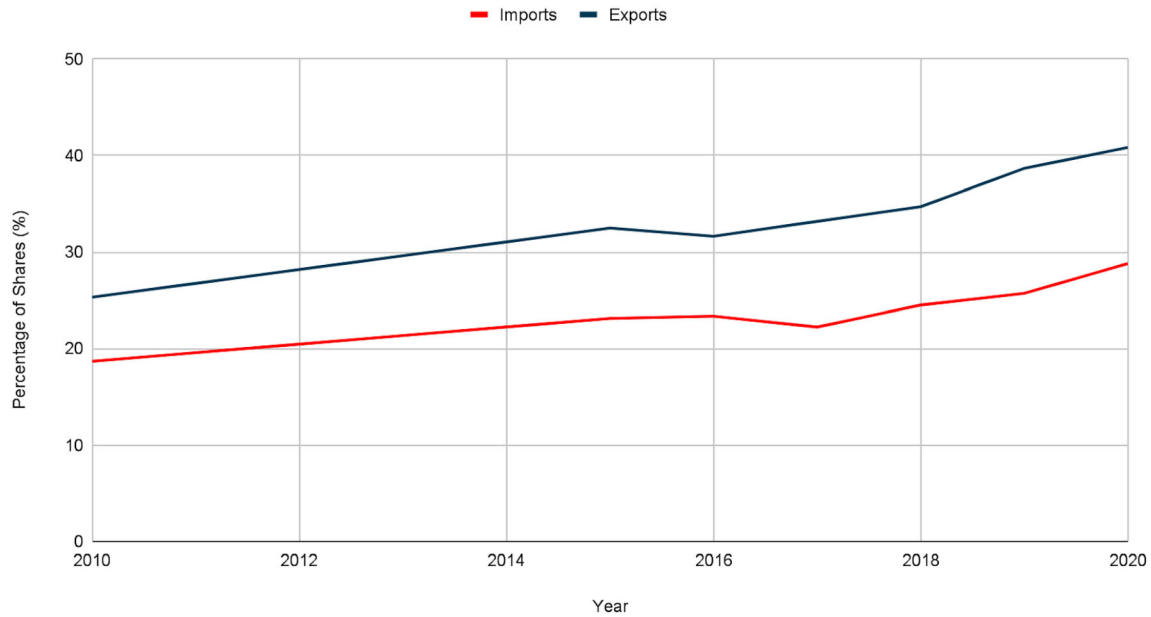


Figure 8 Australia's share of Chinese imports and exports from 2010 to 2020. Source: (OECD, 2022).

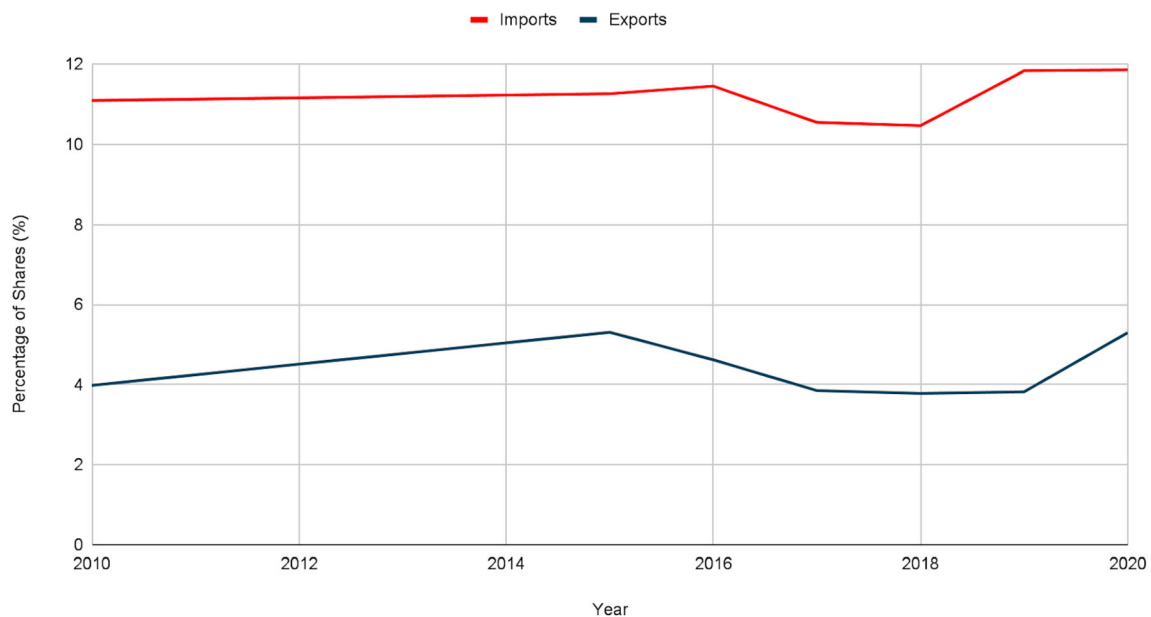


Figure 9 Australia's share of U.S. imports and exports from 2010 to 2020. Source: (OECD, 2022).

Europeans to make an 'us for them choice' amid the U.S.–China strategic rivalry (Wadhams, 2021).

We also found that America's political strategy of full disengagement is being constantly questioned by MNEs from 'rule-of-law' countries. As Huawei's biggest competitor in the global 5G market, Ericsson reportedly lobbied a Swedish minister to reverse a ban on Huawei and ZTE from Sweden's rollout of 5G, warning of potential retaliation from

Beijing against European vendors in the Chinese market (Alleven, 2021). In some cases, pursuing a value chain decoupling, as these MNEs admit, does not eliminate their exposure to Chinese goods and services. Nowhere is this more evident than in the apparel industry. After the Biden administration formally charged China with committing genocide in Xinjiang and imposed bans on imports from the place, global brands like H&M, Burberry, and Nike



reportedly started the process to shift production from Chinese factories to plants in countries like Vietnam, Cambodia, and Bangladesh (Goodman et al., 2021). However, as the source of nearly half of all cotton fabric exported around the world, China exports unprocessed cotton to 14 countries, including Vietnam, Thailand, India, Pakistan and Bangladesh, and yarn to 190 countries. Even if a brand has no direct relationship with Chinese factories, according to analysts, “they can’t completely rule out any links to Xinjiang’s cotton (Goodman et al., 2021)”.

Perhaps one testament to the prospect of the ‘rule-of-law’ coalitions that Petricevic and Teece (2019) make a case for, is President Biden’s new proposal for the Indo-Pacific Economic Framework. His goal is to bring together the U.S. and 12 other countries in the region including Australia, Brunei, Indonesia, Malaysia, New Zealand, the Philippines, Singapore, Thailand, and Vietnam. Representing 40% of the world economy, this new alliance hopes to establish new rules of commerce in the fastest-growing part of the world and offer an alternative to Beijing’s growing leadership (Baker & Kanno-Youngs, 2022). However, in order for the strategy of bifurcation to make any sense, it must be the case that these participating nations are willing to leave their previous trade and investment agreements with China and join this new bloc with the U.S., which is unlikely.

The actions of the Trump administration have also undermined the willingness of partner nations to cooperate with the U.S., in the case of bifurcation. Trump’s unilateral ‘American first’ actions have isolated America from countries in the Asia-Pacific Region. In particular, Trump’s abandonment of the previous U.S.-led Trans-Pacific Partnership on his first full weekday in office has left the remaining partners to proceed without their largest member. It has also naturally driven these ‘rule-of-law’ countries to cooperate more closely with China. Five months before Biden’s proposal, the China-led Regional Comprehensive Economic Partnership (RCEP) officially went into force, forming the world’s largest trade bloc. Many of the ‘rule-of-law’ nations that the U.S. enlisted in its own framework have become members of RCEP and have joined the bloc with China as well. Analysts predict that without offering more access to its own markets, the U.S. does not have a lot of carrots to encourage them to abandon their membership in the RCEP (Baker & Kanno-Youngs, 2022). While many of the ‘rule-of-law’ countries may have closer

ties to the U.S., they may not necessarily be prepared to disengage with China any time soon, as we suggested in our main argument.

The Cost of Disengagement to China

While the preceding sections of the paper focus on the considerable cost that will accrue to both the U.S. and other ‘rule-of-law’ countries in the case of disengagement, we do not mean to suggest that China will successfully navigate the complexities of bifurcation with its politics and economy unaffected. The Chinese economy has been deeply integrated with the world market. Economic data show that in 2021, almost two-thirds (65.8%) of Chinese exports were delivered to its top 15 trading partners; 12 of them – except for Hong Kong (10.3%) and Russia (2%) – belong to the ‘bloc’ with the U.S. (Workman, 2022). If bifurcation takes place, over 50% of Chinese exports will be affected. Also, in 2020, the G7 countries of Canada, France, Germany, Italy, Japan, United Kingdom and the U.S. held a share of 31.09% of the global GDP, while the other G20 countries, excluding the G7 countries, accounted for around 42.23% (Statista, 2022b). This means that though Beijing has been expanding its trade and investment relationship with various nations across Asia and Africa, the benefits provided by these states to China pale in comparison to what the country will lose from its previous ties with the G20’s ‘rule-of-law’ countries.

When it comes to technology transfer, the cost of disengagement from the U.S. becomes even more concerning to China. China benefits heavily from imports of core technologies and intellectual properties from abroad, especially from the U.S. and Europe (Brander, Cui, & Vertinsky, 2017). The government has been practicing the strategic ‘technology for market’ policy, which stipulates that foreign companies are only granted access for their products to the Chinese market under stringent conditions such as setting up R&D centers in China (Liu et al., 2017). Bifurcation will deny China its access to these foreign technologies and to the foreign training of its professionals and scientists. Especially in the semiconductor industry, the foundation of the digital economy, companies from the U.S. and their Korean and Taiwanese allies dominate the most advanced areas of the industry. China relies largely on imports of high-end computer chips from these countries (Ernst, 2020). While China has established technology and innovation cooperation with BRI countries, there is little chance that China can gain from them the



kind of cutting-edge and valuable technology they gain from these advanced economies. Therefore, if bifurcation is pursued, the denial of access to the technologies of the U.S. and its allies will slow down China's technological innovation.

Compared to the U.S., China's tolerance to such economic cost of disengagement is likely to be much higher at least in the short and medium term. China will benefit greatly from its ever-growing domestic market. Under Xi Jinping's leadership, the country is on an accelerated path toward self-sufficiency in many critical sectors. The government is repackaging its long-term plan that seeks to construct a consumption-driven economy at home. A more robust domestic market, as Beijing posits, will allow China to regear its export-driven industries to serve the domestic market, thus reducing the economy's reliance on global demand. It also helps to increase the world's dependence on a growing Chinese 'mega-market' (Layton, 2021). Additionally, with a handful of established BITs and FTAs, China has been diversifying its economic, technological, and political partners which serve as a critical counterbalance against the U.S. and its bloc of alliances. The Belt and Road Initiative, in particular, is believed to be a major platform for Beijing to broaden its own inter-regional economic connectivity and build multi-bilateral networks positioning the Chinese economy as the central hub (Macaes, 2019). Chinese technology companies participating in the program are also able to secure markets for their products, thus providing additional support to their R&D.

We stress, however, that these costs still play a significant role in today's Chinese politics influencing the policymaking related to bifurcation and decoupling. As an authoritarian regime, the policy formation in Beijing could be much less sensitive to the bargaining pressure from societal groups than that in advanced democracies lobbying for liberalization and economic interdependence. However, in the history of Communist China, economic performance has been strongly linked to the political survival of the Party-state itself (Zhao, 2009). As the decade of the Cultural Revolution ended in chaos, Chinese citizens started to doubt not only the meaning of class struggle but also the capability of the Party leadership itself. These frustrations forced Deng Xiaoping in the early 1980s to abandon discredited revolutionary paradigms and, instead, move towards performance-based governance that emphasized the Party's role as a successful manager of economic development

(Weatherley & Magee, 2018). For Xi Jinping and his officials, the need to reflate and rebalance the economy has become especially pressing. Since 2012, China has been facing a continuous slowdown in GDP growth; there have also been growing social problems such as insufficient supervision of market actors, environmental and food safety scandals, violations of labor laws and intellectual property rights (IPRs), as well as widespread corruption and rent-seeking activities (Drinhausen & Brussee, 2022). In this case, Beijing's pursuit of bifurcation and decoupling – with strategies of self-reliance and localization of global supply chains – may risk a further GDP decline in the already stagnating Chinese economy testing the legitimacy and capacity of the state to maintain economic growth and political stability. In fact, evidence shows that over the past year, as the U.S. tightened export controls on key semiconductor technology and critical equipment, China unexpectedly showed signs of shifting towards a friendlier approach regarding multinational corporations (Bateman, 2022). Especially after America's issuance of new export controls on chips in Oct. 2022 that significantly expands U.S. restrictions on exports to China of semiconductors and supercomputer manufacturing and testing equipment, components, and technologies, China in the shadow of the lasting zero-COVID policy, signaled that it could ease its rigid pandemic border restrictions for some foreign business executives and called for technological collaboration with multinationals (Kubota, 2022). Moreover, China does not have the parallel flexibility, capability, and creativity in its own alliance management as compared to the U.S. Consequently, the country still shows its commitment to existing international institutions for the advancement of its own agenda. In the 3rd Generation Partnership Project (3GPP), the focal international standards body for 5G technologies, Huawei alone has 3007 declared 5G patent families, the highest out of any company in the world (Kuang, 2022). The company has reportedly begun charging smartphone makers a royalty to use its patented 5G technology (Kharpal, 2021). It ensures that while its sales fall amid U.S. sanctions, its profits hit a historical record. The company will continue to receive revenue despite America's efforts to erase it from the supply chain.

In summary, China has become more tightly coupled with the West than the Soviet Union ever was. At the current state, both the U.S. and China and other 'rule-of-law' countries stand to lose



considerably in the case of bifurcation and value chain decoupling. The existence and potential of high economic costs have significant but different policy implications in these countries, thus increasing uncertainties and influencing the evolution of the bifurcation and decoupling processes. In the next section, we will discuss the dynamic structure of the conflict and the likely alternative scenarios of the long-term developments of the disengagement processes.

U.S.–CHINA BIFURCATION: A DYNAMIC PROCESS

Our vision of the future of the U.S.–China bifurcation processes recognizes the complexity and uncertainty of a dynamic process that is affected by a variety of volatile factors leading to alternative outcomes in contrast to an inevitable ‘bifurcated world order’ envisioned by Petricevic and Teece (2019). We present a more realistic possibility of a world economic order in transition, described best by a dynamic path in which the scope and geopolitical scale of bifurcation are likely to shift over time. The U.S.–China relationship over the past several decades presented changing bilateral relationships featuring a mix of connecting and colliding events on a great many political, and economic issues and the current conflict and the bifurcation processes they have triggered are no different. The elements that did not change in these relationships are the significant differences in values, cultures, and ideologies, as well as China’s belief that the U.S. wants to destroy the CCP rule. We start our discussion by identifying a series of endogenous and exogenous factors that influence where the two superpowers’ vital interests would intersect in the international system of increasing polarity, and then analyze the future outcomes of the newly intensifying rivalry on strategic innovative technologies.

Washington’s policy towards China – and China’s reactions to it and its techno-nationalistic policies – are arguably the primary drivers of the present mutual hostility between these two countries, initiating the bifurcating and decoupling processes. Since the Obama administration, China’s astonishing advancement in technology and innovation, and its more assertive international behavior, aspiring for participation as an equal partner in global leadership, have triggered America’s fear of the rise of China and the threat to its own hegemony. With its increased use of technology

restrictions to contain Chinese firms, a new narrative was developed during the Trump administration, touting American techno-nationalism. These policies have been adopted by Biden officials and enjoy bipartisan support (Bader, 2022). In addition, American political leadership has also emphasized the long-lasting difference in values between these two nations, rendering incompatible objectives, expectations, and strategies in the process of economic engagement. Compared to the general *laissez-faire* policies preferred by the liberal democratic U.S., China’s rulers have pursued a statist, Mercantilist-Leninist approach (Boustany & Friedberg, 2019). Many Washington analysts, therefore, assume that China’s rapid technological progress is bound to continue to accelerate in the long run (for example, Babb, 2022; Ellis, 2022; Kim, 2022). They predict that China’s deployment of aggressive new techno-nationalism strategies with illegal means will intensify; the knowledge generated in the West will continue to leak or be stolen and be destructive for MNEs from ‘rule-of-law’ countries. They don’t believe that both the U.S. and China can agree to resolve key political, economic, and especially cultural differences between them. They thus see a bifurcated world, at least where strategic sectors are concerned, as inevitable, requiring a united front among ‘rule-of-law’ countries and their MNEs to counter China.

We argue that this narrative represents an oversimplified, Euro-American liberal perspective of China that largely overlooks its complex, ambiguous, and non-transparent aspirations, and objectives in the conflict. Understanding Chinese statecraft requires special expertise. In contrast to the views of many Western analysts, studies on China in global politics have noted the strong defensive rather than offensive objectives and motives in its foreign relations policies (Jalil, 2019; Tang, 2015). This is mainly due to the conscious and clear understanding among CCP leaders of the fragility of its own system and thus the need to maintain the legitimacy of their regime, especially when facing severe economic and social challenges at home (Fravel, 2008). The stunning collapse of socialism in Eastern Europe and the dissolution of the Soviet Union in 1991, in particular, became a painful historical lesson for CCP leaders fearing that China would be the next target of the global revolution against socialism. Deng Xiaoping in the 1980s summed up the logic of keeping a low profile, ‘hide your strength and bide your time’, in guiding Chinese foreign policy,



which had quickly become the long-held doctrine in the subsequent three decades. During this period, Beijing adopted the ‘no strings attached’ principles in its global trade and investment decisions; it also demonstrated a trend of pragmatic learning and accommodation with existing global rules ranging from trade and investment to intellectual property and technology standards (for example, Kennedy, 2017; Reynolds & Sell, 2017; Suttmeier, Kennedy, & Su, 2008).

The strong sense of external (in)security has also helped to formulate the nation’s belief in a ‘peaceful rise’. As part of CCP’s founding narratives, Party leaders have long aspired to resume its ‘well-deserved’ position in the international system both as a preeminent power in Asia and a central actor on the world stage (Hass, 2021). This ambition for pursuing its own recognition in international society also tends to be mostly defensive. In Xi Jinping’s proposal of a global ‘community of shared future’ at the United Nations in 2021, for example, he envisioned China as a future benevolent leader, especially in technology and innovation. Today despite the processes of bifurcation and decoupling, China still shows commitment and support for international institutions and agreement with specific actions when aligned with its goals and norms in economic and technological advancement. When it disagrees with actions taken by these institutions and when the decision taken does not reflect its stature both as the second largest economy and the one with the largest population, China endeavors to modify them, however, showing limited interest in undermining the world order. Instead, it continues in its effort to develop support within these institutions to ensure that these institutions represent more fully different perspectives and values (especially those of the emerging economy), not only the ones of the U.S. and the liberal advanced economies that developed much of the global governance institutions in place. The practice of BRI becomes a case in point. From the Chinese perspective, BRI represents Beijing’s own way of contributing to strengthening rather than destroying global governance. As a grand project to bring benefits to people all around the world, it also offers a new model for inter-regional economic connectivity that will develop new trade routes and production chains with the Chinese economy as a hub and builds multi-bilateral networks of new inter-regional partnerships and economic interdependencies (Morris, 2019).

The misinterpretation of China’s intentions influenced over the past decade Washington’s evolving negative posture toward China and undoubtedly aggravated Beijing’s greatest concerns about the external security of the regime in the increasingly hostile international environment. Washington’s continuing technology and economic restrictions have been the primary trigger of Beijing’s current strategy of pursuing self-sufficiency in order to reduce dependence on foreign markets and buttress the country’s economy against U.S. hostility. Although cutting China off from the U.S. market weakens the country’s economy and may reduce and curb its illegal appropriation of intellectual property resources of MNEs from the U.S. and other ‘rule-of-law’ countries, it also negatively impacts their innovation processes by denying them access to Chinese markets and revenues that help finance their R&D investments and their ability to benefit from knowledge spillovers from Chinese exporters. China’s typical responses to decoupling threats are to double its efforts to increase its self-reliance. Rudd (2022) identified the ignorance of action–reaction dynamics as one of the key shortcomings of decision-makers in Washington. Apart from forcing China to close gaps in its innovation capabilities (albeit paying a high price for doing it), it further lowers Beijing’s already limited willingness to collaborate on key global issues, making armed conflict harder to avoid especially when the U.S. and its allies represent their moves of defense of the liberal world order. Pepinsky and Weiss (2021) warned that framing the U.S.–China relations as an ideological conflict between democracies and autocratic systems will increase the risk of Beijing opting out of the Western-led international system. Beijing will “freelance and unilaterally create its own new structures and systems, trying to weaken the other side – including through Russia-style election interference, something it has largely refrained from thus far” (Zakaria, 2020).

Apart from the failure of Washington to interpret more accurately the actions and reactions of China to its own moves, and to develop a more nuanced understanding of Chinese leaders’ ways of thinking, as well as its ignorance of the action and reaction dynamic structure of the conflict, American leaders also fail to assess China’s mid- and long-term resources and capabilities accurately. Hass (2021) defined the current problem as a replication of the ‘ten-foot-tall syndrome’, wherein the U.S. always convinced itself that its competitors – the



Soviet Union during the Cold War, Japan in the 1970s, and today's China – were towering figures of immense strength and overwhelming intellect. China's astonishing breakthroughs in technology and innovation certainly display the strengths of its state-centric approach guided by the Communist Party that helps to maximize the mobilization of massive R&D investments and other supportive resources. Since the 1980s, the central government in Beijing has dominated the making of nearly all technology development plans, overseeing approaches and decisions on everything ranging from industrial investments and government-led R&D to top-down mega-projects and human talent. The role of the state has experienced a noticeable expansion in the period of indigenous innovation where officials in Beijing have begun to directly shape specific industrial policies and deploy various direct political tools (Chen & Naughton, 2013). The Made in China 2025 plan, for example, targeted ten key sectors for government support. Domestic companies would enjoy access to local subsidy schemes, the size and scope of which go far beyond the classical conceptualizations of industry subsidies or protection (Zenglein & Holzmann, 2019).

However, innovation does not increase linearly with higher levels of centralization, top-down intervention and coordination, and control by governments to ensure efficient use of resources. On the contrary, theories of dynamic capability and innovation emphasize the importance of freedom to experiment, diversity of knowledge sources, maintenance of slack, and entrepreneurial initiatives, in addition to the ability to mobilize resources to take opportunities when they arise, for sustained innovation (e.g., Teece, 2014; Adams et al., 2006). While the political economy literature on East Asia documented that interventionist policies could help build massive manufacturing infrastructure in the countries so that they can achieve economies of scale in export-led industries and catch up to more developed economies in global market share, such policies' effectiveness could often only be realized when these technologies were already mature and innovated by some other pioneering countries (Amsden, 1989; Johnson, 1982). Such innovation is also heavily dependent upon the willingness of advanced economies to "grant the emerging economies access to their market and their technologies, even when their trade balances with the same emerging economies are deteriorating (Breznitz, 2007:15)". When they are at the technological frontier, these policies

generate more problems than benefits. We, therefore, stress that it is the fragmented nature of its authoritarian system in China that allows for the diversity of opinions and ideas amongst the different levels of government and between geographical locations. Also, the voids in China's regulatory system that were left open to entrepreneurs, and campaigns that encouraged a very large number of entrepreneurs to identify and exploit opportunities that were opened, helped to unleash the enormous entrepreneurial resources of the country. Proven successful, entrepreneurial ventures then received significant resources to grow their companies (Heilmann, 2008). Rapidly increasing centralization and control of government programs as well as state-owned and privately owned enterprises are eliminating the conditions that supported the exceptional technological innovation progress that China enjoyed. China's advantage in its ability to mobilize and target resources effectively is not sufficient to counterbalance the negative impacts in the long run of lack of freedom and the increases of centralized top-down controls of the innovation processes introduced by President Xi seeking to reduce waste, increase efficiency, and target the process more tightly to meet CCP's social and political goals. Also, the increasing demand for financial resources to fund the military modernization plans of China is expected to compete with the funding needs of China's techno-nationalistic and innovation programs. All these are happening while economic trends indicate a decline in available financial resources. In addition to the risk of failing to maintain productivity and innovate technologically in its industries, China is also facing a declining supply of new labor, largely as an outcome of its past control of population growth under the stringent 'one child' policy. This demographic challenge cannot be addressed adequately in the short and mid-term. There have also been poor and further decreasing returns to capital investments in the country, especially in infrastructure and attendant overcapacity (Lewin & Witt, 2022).

Arguably the technological progress of China will slow down considerably in the mid-term and thus reduce the incentives for Washington to impose further restrictions on trading with China. Under growing pressures from its own companies, the U.S. government may ease its existing restrictions on China, barring increases in tensions related to security issues. However, given the deep gaps in values and ideologies between these two states, the



amplified sense of threat of 'China's rise' in today's American politics, and the continued suspicion in China of America's intentions to destroy the CCP power, there is the possibility of conflict flaring up from time to time where the pressure to partially bifurcate by one side or the other will emerge. However, growing awareness of its costs will tend to constrain both sides.

The China–U.S. conflict of technology primacy is embedded, however, in changing economic and geopolitical environments. We have discussed so far, the impacts of the declining economic growth of China on the bifurcation processes and the political changes in China and their potential impact on the technology innovation process. We conclude that fundamental value differences and the hostility they generate are unlikely to change in the U.S., except as a response to geopolitical changes. The U.S.–China conflict for technological primacy is embedded in a complex net of international relations, stakeholders and issues. Radical shocks in one set of issues and countries may present overwhelming disruptions that eventually lead to a dramatic translocation of existing national and international institutions onto new paths and thus drastically change the system of relations among them and their actions (Ashforth & Saks, 1996). Events related to national security are prone to such game-changing radical shocks. The invasion of Russia into Ukraine and the threat it presented to both the U.S. and its European security allies elevated military security issues to a new top priority at present. Superiority in the domain of high technologies is increasingly becoming synonymous with the degree of national security and power that the U.S. can exercise on the global stage and may play a role in its further moves to prevent China from accessing its dual civilian–military use technologies. Beijing's 'pro-Russian neutrality' in the war has vastly amplified suspicions and fears of China in Europe, leading Brussels to strengthen its commitment to its alliance with the U.S. (Cheng, 2022). Thus, from Washington's viewpoint, bifurcation may become more attractive. The effects of these impacts may be temporary or lasting depending on the outcomes of the war and China's future relationships with Russia. Perhaps more relevant to China–U.S. relations are the present and future American policies and actions concerning Taiwan. Rudd (2022) cautioned about the possibility of unintended hostile actions by either side leading to a catastrophic war.

In contrast to the above examples of international events that increase the propensity of the U.S. to bifurcate, other international developments may result in collaboration and improved relationships between these two countries. For example, full collaboration with China in solving the existential problems of climate change, and control and recovery of present and future pandemics is essential. Full collaboration is unlikely to evolve in the hostile climate of a bifurcating world, and international pressures on China and the U.S. to improve relationships are likely to emerge. Successful collaboration may help build trust and reduce fear. For example, China has indicated its commitment to climate change goals and its willingness to cooperate and ability to contribute to the global effort. In 2017, China became a world leader in global renewables investment with a total of \$127 billion in investments, compared to the U.S. and all of Europe, whose investment (41\$ billion each) was nearly a third of that spent by China (McKinsey, 2019). Over the last decade, China worked closely with the then-Obama administration to make the Paris Climate Accord possible in 2015. The country promised and followed through on the commitment of a 40–45% reduction in carbon intensity by 2020 and a 60–65% reduction by 2030. The amount of CO₂ emitted per unit of GDP witnessed an impressive decrease from 0.80 kg in 2005 to 0.47 kg in 2017 (McKinsey, 2019). Even in the context of an escalating strategic rivalry with the U.S., President Xi has chosen to commit his country to carbon neutrality by 2060 in a speech in the UN General Assembly (UN, 2021). The uncertain issue is whether China's efforts will lead to a reduction of hostility and build trust in its relations with the U.S. The evidence so far suggests that trust relations between China and U.S. are not likely to dramatically improve.

DISCUSSION AND CONCLUSION

Our paper presents data demonstrating potentially prohibitive costs that bifurcation and value-chain decoupling may accrue. The high costs of bifurcation have not prevented China and the U.S. from taking steps to disengage from each other in the past decade. However, as the degrees of interdependence and the high difficulties and costs of disentangling from the existing economic relationships were revealed, the decoupling processes have slowed down, and sometimes been reversed. The momentum to bifurcate was thus reinforced in the



past decade by the fears of each other. The U.S., disappointed that its efforts to co-opt China into the liberal world failed, saw 'China's rise', especially its exceptionally quick progress in catching up and even surpassing the U.S.' strategic high technology capabilities, as a threat to the survival of the liberal world order and to its hegemony. Its hostility was also fed by the Chinese style of aggressive techno-nationalism. The Chinese distrust of the U.S., and more generally the Western world, has historical roots originating from the 'Century of Humiliation' of China in the 19th and early 20th centuries by the imperial powers of the day, when China lost territory and prestige (Kaufman, 2011). China's distrust of the West was rejuvenated soon after the establishment of the People's Republic of China with a growing suspicion that the U.S. and its allies aimed to destroy its power and the CCP rule. China's consistent response to anticipated hostile moves against it was to increase its ability to cope with them without having to rely on others. Seeking 'self-reliance' is intended in China as a measure with strong defensive elements but is regarded by the U.S. and its allies as purely a discriminatory move in support of China's techno-nationalist strategy. Moreover, we have found that China's geo-political objectives tend to have a more limited scope than the ones suggested by many Western analysts, i.e., that China is not seeking world hegemony or radical disruption of the existing liberal world order. Perhaps more tangible and immediate reasons to discount the fears of 'China's rise' by the U.S. are: (1) the projected decline of China's ability to continue increasing or even maintaining future R&D commitments already made, given the projected decline of its economic growth and the growing commitments to fund the expansion and modernization of its military; and (2) the anticipated decline of the productivity of its innovation programs as a result of rapid centralization and increased top-down controls by the government.

There is also evidence that what is regarded by many Western analysts as key programs in support of China's techno-nationalistic policies – *Made in China 2025* and the *Belt and Road Initiative* – are encountering significant difficulties. For example, the national initiative 'Made in China 2025' which was intended to upgrade and transform China's manufacturing industries to world-class levels (tier 1 in global manufacturing) failed, leaving China, according to the statement of China's Vice Chairman of the CPPCC National Committee, in the

third of the four-tiers of global manufacturing, with an estimated 30 years needed to meet its target (China Briefing, 2021). Analysis by Lewin and Witt (2022: 6) also reveals that the program has a "low absorptive capacity for investment in, and adoption of, the necessary technological capabilities crucial for achieving the status of tier-1 manufacturer in global rankings." The story of BRI is somewhat different. As we indicated earlier in this paper, the geopolitical objectives of the program are to create alternative markets and alternative trade routes for China, increasing its reputation and goodwill in participating countries, and thus generating soft power. Among its domestic anticipated contributions are the use of its surplus production capacities and its contribution to national economic growth (Lewin & Witt, 2022). We should note that the forecasted contributions of the program to economic growth are not significant. Moreover, there is no evidence that the BRI initiative facilitates legal or illegal appropriation of foreign intellectual properties. It also does not directly provide subsidies to R&D. We have also found evidence that China, under pressures from other WTO members, has been gradually reforming its IPR protection laws and increasing their enforcement, suggesting that it is likely to restrain from continuing its past egregious behaviors in order to maintain the benefits of membership in global institutions such as WTO (Prud'homme, 2019). The evidence of the failing management of key techno-nationalistic initiatives and the move by the government to restrain illegal IPR appropriation suggests that the techno-nationalistic programs considered by Petricevic and Teece (2019) as the prime mechanism of the destruction of the liberal economic order may well have a louder bark than bite.

Apart from an overstated fear of China in Washington, Rudd (2022) has identified another flaw in the management of the conflict with China in Washington – their lack of understanding of the 'action–reaction' dynamic structure of the conflict (or the lack of consideration given to this structure). This has resulted in an unnecessary escalation of the conflict. The cycle of action–reaction typically involves an action by the U.S. in response to increases in China's technological capacity. The response often involves increasing restrictions on China's ability to obtain required inputs such as knowledge and know-how, parts, and other essential ingredients. China reacts defensively by investing in its domestic capacity to substitute for the



inputs denied by the U.S. and defend itself from future moves to restrict it by the U.S. Following this, the U.S. reacts with more restrictions, and the cycle continues. Thus, for example, America's attempt to bar China's access to advanced computer chips led Beijing to develop its own capacity to produce them, leaving Washington to search out stronger restrictions. The cycle can be broken once the fear of one of the rivals of the other's actions declines to a level where actions by its rival do not necessarily trigger hostile responses. Our analysis suggests that such will be the case at present, after a relatively short period of escalation of disengagement activities, though in some technology areas involving dual civilian and military uses, disengagement for security reasons will continue.

Considering the depth of the gap in values, ideologies, and the distrust and hostility between China and the U.S., we expect that conflicts and periodic flare-ups of partial actions to bifurcate and decouple will occur. We have also indicated that the VUCA geopolitical environment may present radical, unpredictable events that may have significant impacts on countries and MNEs. We thus agree with Petricevic and Teece (2019) that a new approach is needed to manage the future environment that may unfold. However, we consider their approach flawed because it is based on unrealistic assumptions and is likely to negatively impact international trade, domestic competition, and innovation. It will accrue high transaction costs and is unlikely to be implemented because it is politically infeasible.

Petricevic and Teece's proposal for dealing with potential shifts in the VUCA geopolitical environment requires strong multilateral and multi-stakeholder collaboration between and among MNEs, their home governments, and other stakeholders in order to "achieve evolutionary fitness with the new IB environment, and (potentially) to help shape the new IB landscape" (Petricevic & Teece, 2019: 1489). Coordinated actions and collaboration between firms are often essential and beneficial for innovation as they allow combinations of knowledge, skills, and resources that are necessary to develop and commercialize new complex products. However, when such collaborations involve a societal size and scope and high levels of intensity imagined in the 'bifurcated world approach', they are likely to create significant economic distortions and societal risks. The collaboration and coordination of firms are likely to suppress competition and incentives to innovate. Also, the strong

collaboration required by their approach between governments and companies may end up in regulatory captures where the firms try to transform their environments. Alternatively, strong collaboration with governments may lead to their disruptive intervention in firms' affairs. Increases in control and coordination by governments are likely to suppress experimentation, promote homogeneity and discipline, rather than diversity among the collaborating firms. Theories and empirical evidence of community resilience in biology suggest that diverse communities are more resilient and can cope better with major disruptions. (Allison, 2004; McCann, 2000; Steiner et al., 2006). Similarly, dynamic capability theories emphasize that the higher the diversity of capabilities possessed by a firm, the higher its readiness to cope with unpredictable events. Other attributes of resilient firms include maintaining flexibility to allow for change, the ability to mobilize resources, and the ability to sense and make sense of imminent changes in the environment, as well as being ready to exploit opportunities and cope with threats that the changes present. The large, entangled system of national and cross-national collaboration networks proposed by Petricevic and Teece (2019) is not likely to lead to the flexibility, agility, and most of the attributes mentioned above that enhance resilience and dynamic capability. It should be noted that increases in individual firms' or groups of firms' dynamic capabilities do not necessarily translate into increases in the resilience and dynamic capabilities of their countries. Diverse and decentralized economies, a significant number of firms with various entrepreneurial skills and high risk-taking propensity, and a system of free competitive markets are all important conditions that facilitate the development of diversified capabilities, flexibility in shifting and mobilizing resources, and a large base of participants who monitor activities and are becoming ready to cope with a broad domain of uncertain future. The process of evolutionary fitness development of a system requires a selection process. Free, efficient, and competitive markets provide such a process of selection for economies. Unfortunately, the 'bifurcated world approach' is likely to reduce the freedom and competitiveness of domestic markets and impose severe constraints on international trade and investment activities. The implementation of the 'approach' is likely to involve high political costs to the U.S. in negotiating the necessary treaties with allies. It also will be certain to face



domestic and international resistance once anticipated increases in transaction costs to all private sector firms involved as well as administration costs of the programs are revealed. There are significant and shifting differences concerning the economic interests among the 'rule-of-law' countries, so finding agreements that last, may be difficult. In particular, the likely impacts of the 'approach', including reduced domestic competition and a more significant role of the government in coordinating and regulating firms, can make it politically infeasible in the U.S. The siloed structure of the U.S. bureaucracy may also present significant barriers to the implementation of the 'bifurcated approach'.

It is possible that Petricevic and Teece (2019) designed their approach for the special circumstances of an existential threat to MNEs from 'rule-of-law' countries that they predict would inevitably occur as a result of China's aggressive techno-nationalistic programs. We presented evidence that these Chinese techno-nationalistic programs faced significant management problems and failed to achieve their objectives and are thus likely to see a decline in the resources available to them in the future. We also showed that the fear of 'China's rise' is exaggerated. We contend, however, that even if the crisis conditions predicted by Peracetic & Teece (2019) were to occur, the approach they propose is unlikely to offer a solution. Politically it would be unacceptable to the U.S. and its allies, as its costs and socio-political consequences may threaten the liberal democratic order. The approach we outline below for the U.S. and its allies is one that maintains free and open domestic markets, and opens international trade and investment systems, but offers more secure national and international protection of proprietary intellectual assets, enhances support for innovation and a more resilient national innovation system. The principles that guide our proposed approach are the following: (1) The diversity of industries, firms, and thus perspectives, knowledge and skills is an important condition for the resilience of a system (a country's economy in our case); (2) Evolutionary fitness requires appropriate selection process, a free system of competitive and diversified markets provides an effective process of selecting firms with characteristics that are essential for survival. These selection processes facilitate shifts of resources as environments change. They are also forward-looking and can facilitate shifts of resources in response to anticipated changes in the environments; (3) Innovation is a combinative process and thus open

access to diverse flows of knowledge and ideas is crucial to innovation. Collaboration involving a small number of firms should be facilitated; (4) While attributes of dynamic capabilities may increase the resilience of firms in VUCA environments, they may also involve costs and trade-offs that can endanger firms' survival and skills that are difficult to acquire; (5) Protection of intellectual proprietary assets is an essential skill that is largely developed from the experiences of a firm and learning from the experiences of other firms; strategies must be constantly refined, customized, and frequently changed to prevent improvement in access strategies of rivals, especially those with whom the firm collaborates; (6) To manage a conflict, decision-makers must understand how their rivals think and make decisions in order to accurately assess their capabilities and understand the dynamic structure of the action-reaction of the conflict.

The above principles lead to the following approach we suggest the U.S. could follow to support its innovation systems and protect the proprietary intellectual assets of its and its allies' MNEs: (1) Since the U.S. decision-makers failed to comply with the 6th principle, there is a need to invest in their training, so they acquire more knowledge of China and can better understand the pattern of responses of China to the U.S.' actions. The success of the proposed system requires nuanced understanding and sensitive responses to Chinese actions by its key decision-makers; (2) Many of the features that have led and are leading to the economic success of the U.S. should be preserved and enhanced irrespective of the geopolitical uncertainties it is facing or likely to face in the future. In particular, the freedom and competitiveness of its domestic markets should be protected, and its economy should remain open to international trade and investment, thus gradually reversing the past actions of intended bifurcation. However, security measures should be taken with respect to the management of dual military- and civilian-use technologies. Inward foreign investment should be encouraged, but firms with records of multilateral treaty violations should be screened and prevented from entry into the U.S. market; (3) Apart from the screening duties and its existing duties to ensure strong domestic intellectual property protection laws and an effective enforcement system, the U.S. government should take the following actions: (a) Create a security infrastructure using the most advanced technologies to



protect the country from cyber-attacks, espionage, or other disruptions of the country's institutions, economy, firms, and citizens; (b) Create an agency that will monitor internationally and domestically activities of foreign MNEs, especially MNEs in strategic sectors and those from countries with techno-nationalistic policies with direct investments in the U.S. or its allies. The agency will be able to identify companies that have a record of violations of international norms or special relationships with a foreign military organization and recommend to the government severing commercial relations with them when appropriate. The agency will also monitor the performance of the foreign techno-national program and recommend appropriate sanctions if the programs violate international norms or U.S.' vital interests, especially in security. Other 'rule-of-law' countries should be encouraged to establish similar agencies and should all collaborate and share their information; (c) Given the possibility of unexpected violation of intellectual property rights, actions that threaten vital economic activities in the U.S., and events that require immediate actions, a crisis response unit (as a subunit of the monitoring agency) with access to resources and with legal authority to enforce laws should be established; d) attempt to develop a multilateral organization that may serve as an 'international court' that will deal with cross-national complaints by firms, countries, and other public and private organizations of IPR violations by other countries, firms, and other types of legal

entities. Such a court should be provided with effective means to enforce its decisions.

We have outlined above a proposal for a national approach to extend further the role of the government in strengthening the security of intellectual proprietary assets in a more proactive way to complement the IPR protection laws and their enforcement (Brander et al., 2017). We have also emphasized the significant roles that individual firms play in developing their own means of coping with knowledge leakage, especially when collaborating with rivals in R&D activities. Governments can eliminate legal hurdles to such collaborations by suspending competition laws when promised innovation outputs justify such suspension. More generally, governments should play a role in correcting market failures. Inventions, especially 'enabling ones', create public goods for which inventors are not compensated. This suggests that innovation levels in market economies are below their socially optimal levels. There is rich economic and entrepreneurship research that provides insights into how governments can support innovation, but these are beyond the scope of the paper. What is clear is that greater government support for scientific and engineering research in universities and public institutions, as well as greater support for the training of scientists, engineers, and technicians, are necessary to sustain a competitive and innovative economy.

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