



COMMENTARY

Illusions of techno-nationalism

Yadong Luo

Miami Herbert Business School, University of Miami, Coral Gables, FL 33124-9145, USA; Sun Yat-Sen University Business School, Guangzhou, China

Correspondence:

Y Luo, Miami Herbert Business School, University of Miami, Coral Gables, FL 33124-9145, USA
e-mail: yadong@miami.edu

Abstract

Current techno-nationalism presents new risks in international business, amplifying volatility, uncertainty, and complexity for multinational enterprises (MNEs). This study explains how today's techno-nationalism differs from its traditional form, the underlying theoretic logic, the damage it may cause to MNEs, and what MNEs can do to contain the potential harm. We elaborate on several points: (1) new techno-nationalism combines geopolitical, economic, national security, and ideological considerations, and is thus more complex and disruptive to international business than the traditional standpoint; (2) new techno-nationalism is underpinned by the realism doctrine, which portrays the world as zero-sum competition in which states leverage their power of economic coercion, and does not recognize the importance of technological interconnectivity, resource complementarity, open innovation, and positive-sum co-opetition; (3) techno-nationalism obstructs MNEs, especially those dependent on the global technology supply chain and on target country market contribution; and (4) MNEs can respond to techno-nationalism, defensively or offensively, contingent upon their exposure and ability to manage the risks associated with related policies.

Journal of International Business Studies (2022) **53**, 550–567.
<https://doi.org/10.1057/s41267-021-00468-5>

Keywords: techno-nationalism; de-globalization; geopolitics; MNE responses

INTRODUCTION

Techno-nationalism has recently resurged, with new reasons and new forms. The sentiment intensifies de-globalization and decoupling in a complex way by combining political and economic considerations, linking technological capabilities directly to a country's national security, economic prosperity, and social stability (Graham & Marchik, 2006; Montresor, 2001; Reich, 1987). Yet, in such an interconnected and innovation-driven world, can protectionist stances on technological innovation and diffusion around the globe work? How does current techno-nationalism differ from previous techno-nationalism? What is the implication for international business? And how should multinational enterprises (MNEs) properly respond? This article addresses these open questions.

Conventional techno-nationalism focused on the use of technology as a means to advance nationalist agendas, with the goal of promoting connectedness and a stronger national identity (Howitt, 2008; Romer, 1990). This idea established the beliefs that the success of a nation can be determined by how well that nation innovates, diffuses, and harnesses technology, and that national

We are thankful to Professor Liena Kano and the three anonymous reviewers for their insightful comments and helpful suggestions.

Received: 8 October 2020

Revised: 12 April 2021

Accepted: 20 July 2021

Online publication date: 7 September 2021



R&D efforts and FDI inflows in technologies are key national drivers for growth, sustainability, and prosperity (Edgerton, 2007; Evenett, 2019). But the current or *new* techno-nationalism, defined in this study as an emerging strain of geopolitical thinking and actions that link technological capabilities directly to a country's national security and geopolitical benefits, involves legal and regulatory restrictions or sanctions against selected foreign investors or foreign companies. Western MNEs have thrived abroad since World War II partly because they have not been subject to this type of techno-nationalist interference (Evenett, 2019). New techno-nationalism mingles deeply and intricately with geopolitics, propelling a new time of worldwide de-globalization and decoupling with structural changes (Buckley, 2020; Petricevic & Teece, 2019; Witt, 2019).

The resurging mindset of techno-nationalism raises many legal, political, compliance, and operational questions for MNEs around the world. As Buckley and Lessard (2005) called for, IB research needs to improve the cross-level and cross-discipline understanding of both core and emerging issues in the field and tackle an increasingly complex macro-environment that often poses paradoxical challenges to international firms. New techno-nationalism falls perfectly within this call. Globalization has already slowed down in trade, capital, and FDI flows (IMF, 2020; WIR, 2020).¹ If the current trend towards a more nationalistic view over technology continues, globalization may possibly descend (Farrell & Newman, 2020; Garcia-Herrero, 2020). While MNE leaders are not in a policy-setting position and may well be vulnerable to and even victimized by techno-nationalism (Evenett, 2019), they do need to respond vigilantly to increasing techno-nationalistic policies because they are primary players in globalizing R&D and technologies and at the receiving end of techno-nationalist disruptions (Buckley, 2020).

This study offers a conceptual framework of techno-nationalism, explaining differences between the new and traditional forms and articulating theoretical logic and critique on the mindset of today's resurgent type. We show that political realism forms a theoretical basis for new techno-nationalist actions that could undermine international business operations. The framework also explains market and technology dependence as firm-specific contingencies that determine the MNE's exposure to new techno-nationalist disruptions. We elaborate on the implications and

consequences of the new outlook for MNEs and suggest what the firms can do to countervail this rising type of disruption. We address techno-nationalism in the general context of international business, yet some discussion focuses heavily on the United States–China decoupling, as the situation offers an effective illustration for some of these issues.² Figure 1 summarizes our conceptual framework, which guides our explanation of the major issues, and their connections, that we address.

TRADITIONAL AND NEW TECHNO-NATIONALISM

Traditional Techno-nationalism

Techno-nationalism provides a way of understanding how technology affects the society of a nation. The concept overlaps with, yet differs from, nationalism in general. Nationalism is an idea and movement that promotes the interests of a particular country with the aim of maintaining the nation's sovereignty. Nationalism holds that each nation should govern itself, free from outside interference. It further aims to build and maintain a single national identity, based on shared social characteristics of culture, ethnicity, politics, religion, or traditions in a shared, singular history, and to promote national unity or solidarity (Smith, 2013). Techno-nationalism can be seen as a special subset of nationalism as both notions share the overriding concern of national interest. The concepts differ in that the former focuses the power of a state or government with mercantilist thinking that links technological innovation and capabilities directly to a nation's national security, economic prosperity, and social stability, while the latter does not share this focus and instead centers on the identification of the state or nation with the people, or at least with the desirability of determining the extent of the state according to ethnographic principles (Smith, 2013; Wright, 1991).

The term "techno-nationalism" was originally coined to depict an attempt by the US government to "protect future American technological breakthroughs from exploitation at the hands of foreigners, especially the Japanese" (Reich, 1987). Since then, scholars have used the term to characterize technology policy in a variety of national contexts and view techno-nationalism more as a developmental creed. For example, writing about Japan, Samuels (1994) defined techno-nationalism as the belief that technology signifies a

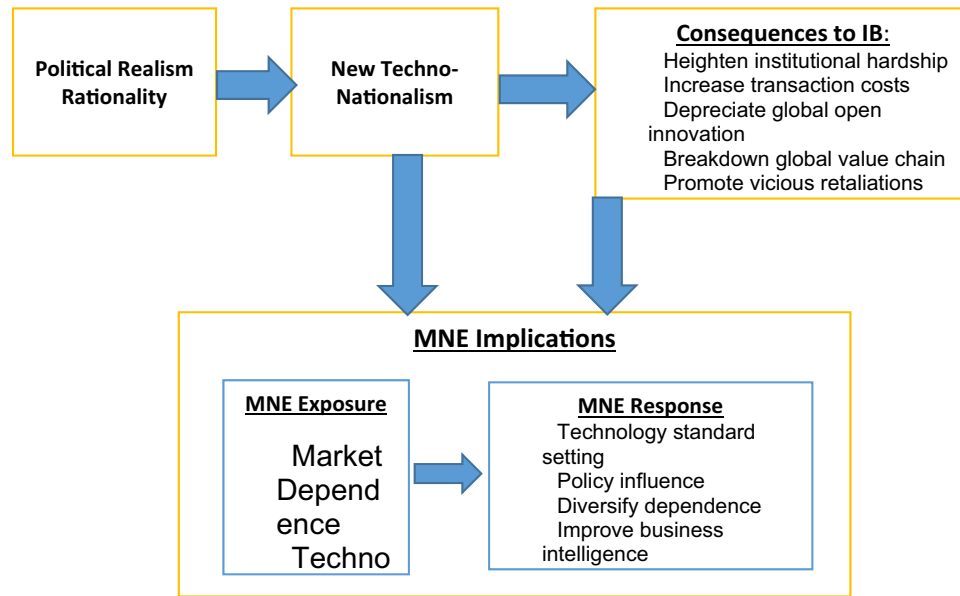


Figure 1 A conceptual framework of new techno-nationalism: implications for MNEs.

fundamental element in national security; that it must be indigenized, diffused, and nurtured in order to make a nation rich and strong. In general, techno-nationalist policies are designed to strengthen the competitiveness of domestic industries against foreign rivals.³ The traditional form emphasizes the role that the authorities of the nation-states play as policymakers in the field of science and technology, and, implicitly, of the national geographical spaces in which the relative measures turn out to be effective (Nelson & Rosenberg, 1993). The use of technology as the key subject in a nationalist project, with the goal of promoting connectedness and a stronger national identity, represents a common scenario. This idea establishes the belief that the success of a nation can be determined by how well that nation innovates and diffuses technology across its people. Traditional techno-nationalists believe that the presence and effectiveness of national R&D efforts are key drivers to the overall growth, sustainability, and prosperity of a nation (Edgerton, 2007).

In the mid and late 1990s, governments of many developing and emerging economies began to welcome FDI and realize the importance of native innovation and local technological advancement (Meyer, 2004). Even now, these governments often pragmatically adopt a mix of nationalistic and liberal policies in pursuit of national technological goals (Yamada, 2000) through a combination of greater state activism and more openness toward

foreign investors. They deliberately invite high-technology FDI projects as a means of technological learning and catchup in order to achieve explicit national goals (Turkina & Assche, 2018). This activity characterizes “techno-nationalism under open door policy” (Luo, 2002), offering institutionally supportive policies toward FDI that can foster the growth of technologically advanced industries. Indeed, continuous economic reforms and structural transformations prompt shifts of governmental policies from an emphasis on entry restrictions to a focus on technological requirements and component localization (Meyer, 2004).

IB literature has richly examined the investment activities of developed country MNEs in developing countries, addressing both opportunities and threats behind these investments (see Luo et al., 2019 for review). Numerous governments of the developing economies have relaxed restrictions on foreign ownership and on the establishment of wholly owned subsidiaries in most sectors (Yip & McKern, 2016). MNEs have been allowed to access and operate in more industries. However, when domestic market competition intensifies and domestic industries mature, governments heighten new constraints on post-entry operational activities and technological requirement from foreign investors. For example, China officials pursue technological development that supports national economic and security interests by leveraging the opportunities presented through *openness and*



globalization to gain national advantages (Capri, 2020). Other emerging economy governing bodies, such as in East Asia, South Asia, and Southeast Asia, have similarly adopted “market-stimulating technology policies,” which encourage FDI inflow and thus open local market access to FDI, yet require content localization and foreign technology transfer mainly for state developmental purposes (Lall & Teubal, 1998; Luo, 2002; Meyer, 2004). Even in advanced economies, national use of technologies obtained from foreign sources has contributed to economic competitiveness and national innovation (Edgerton, 2007). According to a study by Meier and Rauch (2000), numerous rich countries, such as Italy, Britain, and France, have acquired more new technologies from abroad than they innovate domestically. With more technologies becoming industrially and geographically cross-boundary, countries do not have to invent technologies afresh (Porter, 1990).

New Techno-nationalism

New techno-nationalism is a strain of systematic competition thinking that links cross-border technological exchanges directly to a nation’s national security, advocating for strong interventions by the state against opportunistic or hostile state and non-state actors from other countries (Moore, 2019; Sacks, 2020). Under new techno-nationalism, country leaders seek to attain geopolitical gains, building on the premise that the world has entered a new era of systemic rivalry between competing geopolitical powerhouses that differ markedly in ideological values, political systems, and economic models (e.g., *laissez faire* capitalism vs. state-centric capitalism) (Farrell & Newman, 2020; Garcia-Herrero, 2020). This doctrine rests on the assumption that the competing powerhouses seek to implement technology-enabled mechanisms that enforce and empower vastly different standards around data privacy, surveillance, censorship, transparency, digital money, and intellectual property (Capri, 2020; Legrain, 2020).

Legitimate concerns

The convergence of globalization and technology has opened incredible opportunities to connect and exchange ideas in new ways, but has also led to divides that we must concertedly overcome (IMF, 2020). Recent IB research begins to delve into both the bright and dark sides of this convergence (e.g., Kono et al., 2020; Nambisan, et al., 2019; Verbeke, et al., 2018; Witt, 2019). As a consensus, digital

connectivity promotes globalization, but digital technologies do produce downsides, which in turn propel a techno-nationalist sentiment (Archibugi & Michie, 1995; DeNardis, 2014; van Tulder et al., 2019).

The use of technology as a tool for economic growth establishes one driver of this outlook. Since economic security forms a part of national security, many people see some legitimacy underlying the new view of techno-nationalism (see DeNardis, 2014; Evenett, 2019; Yamada, 2000). Great power competition has coincided with the fourth industrial revolution (Capri, 2020), as major state governments focus on promoting economic growth and enhancing competitiveness through the use of advanced technologies. In fact, technological rivalry, including control of technological standards, becomes a key part of “great power competition” (Moore, 2019). Countries seek advanced technologies, such as AI, quantum computing, big data, robotics, 5G networking, IoT, and synthetic biology, among others, to build the next generation of military, industrial, and information power (DeNardis, 2014; Rajan, 2018).

While IB literature has long enlightened the business community on the political aspect of MNE strategies (e.g., Boddewyn, 2016; Boddewyn & Brewer, 1994; Delios & Henisz, 2003), the political realism theory, which is the doctrine underpinning new techno-nationalism, has received little attention. This doctrine, as we detail below, holds that, in an ultimately anarchic world, states focus on maximizing their power relative to others to increase their own chances of survival (Waltz, 1979). In this world of relative gains, state leaders have an incentive to curtail or eliminate economic ties with rivals if they believe that these ties benefit their rivals relatively more (Beitz, 1997; Ostry & Nelson, 1995). For instance, many in America’s security establishment see China’s aggressive actions as part of broader efforts to erode America’s great power status (Allison, 2017). The view holds that technology transfer to and cooperation with China goes beyond commercial merits to a potential national security risk, thus receiving some wide support by the US public (White House, 2018).⁴ Leaders in the European Union have also turned to techno-nationalism and called for the creation of a US-EU Trans-Atlantic economic model that can compete directly with China and block China’s attempt to influence global standards in 5G and other next-generation technologies (Capri, 2020).

Differences in ideological values may also prompt the resurgence of competitive techno-nationalist policies. As previously noted, and as a recent study suggests, policymakers in different ideological systems seek to implement technology-enabled mechanisms that enforce and empower vastly different standards around data privacy, surveillance, censorship, transparency, digital money, and intellectual property (see Farrell & Newman, 2020). The competing ideologies of new techno-nationalism can further fracture the international system in ways not seen since the rivalry between the US and Russia during the Cold War (Keohane & Nye, 2012). When competing beliefs concurrently emerge as geopolitical and economic powerhouses with incompatible or even conflictual global visions, ideological frictions become even stronger in escalating new techno-nationalism, a tendency reflective of the logic under Thucydides' Trap (Allison, 2017).

Misperceptions

While legitimate concerns may support some aspects of new techno-nationalism, misassumptions and misperceptions exist. First, the view builds on the bargaining logic, in which the game is truly zero-sum (Boddewyn, 2016), but in an interconnected world, in which technological components (or supply chains) are interdependent, technological complementarity widely occurs between countries and between cross-border companies (Doz & Wilson, 2012), allowing for the co-competition logic to prevail. Here, global open resources foster innovation and speed, creating positive-sum completion through complementary collaboration (Cantwell, 1995). Yet a nationalistic view of technology limits competitive co-competition in favor of a zero-sum mentality.

Second, new techno-nationalists perceive emerging markets as laggards in technology, not as contributors. Global intellectual property (IP) filing activity continues to grow at a rapid pace since the 1990s. These intellectual property rights not only include patents but also utility models, trademarks, and industrial designs. However, according to the World Intellectual Property Organization (WIPO), China leads in all four categories of intellectual property rights filed to and granted by WIPO in recent years, exceeding the US, Germany, Japan, and others (see Table 1). Similarly, research shows an increase in reverse innovation, in which an innovation is first adopted in emerging economies and later copied in the rest of the world, including

developed countries (Govindarajan & Ramamurti, 2011). Today, some MNEs generate successful innovations in emerging markets and then export that knowledge and those advancements to other countries, a point well-documented in Yip and McKern (2016). Key subsidiaries in emerging markets increasingly play a role as global innovators, serving as a fountainhead of knowledge not just for the focal host country, but also for the MNE's global reach (Meyer, 2004).

Third, new techno-nationalism rests on the premise that the world has entered a new era of systemic competition with state-centric capitalism of new power (China in particular). State-owned firms certainly enjoy political and institutional privileges, including governmental supports (Jackson & Deeg, 2008). Yet, the main source of competitiveness of such emerging powers comes from the private sector, and techno-nationalism may more strongly harm these privately owned firms than state counterparts. These unintended consequences can be profound when considering, for instance, that privately owned companies in China contribute about 60% of China's GDP, 70% of innovation, 80% of urban employment, and 90% of new jobs (Zitelmann, 2019).

Fourth, proponents of new techno-nationalism presume that home-country MNE technologies, when transferred offshore, are not compensated by the target country. This assumption could well be true when a target country has a poor IPR protection system. However, a correction to this line of thinking lies in foreign technology transfer via FDI. In cases of wholly foreign-owned subsidiaries, MNEs have full control and ownership of their technologies deployed to these subsidiaries, but in cases of international joint ventures or alliances, foreign investors' technologies are valued and accounted for as a major source of their investment (Contractor & Narayanan, 1990). In fact, in the early stages of FDI in China and East Asia, some Western MNEs chose technologies as a popular form of investment (Luo, 2002). This form of investment gained in popularity because joint venture parties, not local authorities, negotiated and determined the pricing or valuation of such technologies. Also, because of stronger bargaining power of Western MNEs vis-à-vis local partners, the companies actually held a dominant position in determining the price of their technologies (Brouthers & Bamossy, 1997).

**Table 1** Leading countries in contributing intellectual property. Source: WIPO Statistics Database, August 2019.

Intellectual property	2017	2018	Growth rate (%)	Share of world total (%)
<i>Patents</i>				
Applications worldwide	3,162,300	3,326,300	5.2	100.0
China	1,381,594	1,542,002	11.6	46.4
US	606,956	597,141	- 1.6	18.0
Japan	318,481	313,567	- 1.5	9.4
<i>Utility models</i>				
Applications worldwide	1,761,440	2,145,960	21.8	100.0
China	1,687,593	2,072,311	22.8	96.6
Germany	13,301	12,307	- 7.5	0.6
Russian Federation	10,643	9747	- 8.4	0.5
<i>Trademarks</i>				
Applications worldwide	12,395,700	14,321,800	15.5	100.0
China	5,739,669	7,365,522	28.3	51.4
US	613,895	640,181	4.3	4.5
Japan	560,265	512,156	- 8.6	3.6
<i>Industrial designs</i>				
Applications worldwide	1,242,100	1,312,600	5.7	100.0
China	628,658	708,799	12.7	54.0
EU	111,234	108,174	- 2.8	8.2
Republic of Korea	67,482	68,054	0.8	5.2
<i>Plant varieties</i>				
Applications worldwide	18,550	20,210	8.9	100.0
China	4465	5760	29.0	28.6
EU	3422	3554	3.9	17.6
US	1557	1609	3.3	8.0

Finally, new techno-nationalists underestimate collateral damages on the nation's own businesses and trade revenges from target countries. For instance, Trumpian techno-nationalism has wrought collateral damage on US firms such as Qualcomm, Broadcom, Intel, and others, which do billions of dollars of business with Huawei alone (Capri, 2020). Today, global interconnectivity in the technological supply chain becomes vastly more difficult to disentangle than even a decade ago (BCG, 2019). For example, many MNEs sign and use over a thousand cross-licensing arrangements with other MNEs for technological component sharing or co-development (Gnanakumar, 2016).

Areas of New Techno-nationalism

Surely, governments play important roles in national security and technological development, from funding basic R&D to pursuing education policies that facilitate STEM (science, technology, engineering, and mathematics). Governments must also forge conducive trade and financial policies, as well as incentivize innovation (Porter, 1990). Evidence shows that open innovation and open competition, with massive investments in

public and private partnerships around R&D, education, and human capital development, as well as physical and institutional infrastructures, strengthen country competitiveness (Howitt, 2008; Porter, 1990). This policy direction allows policymakers to build upon the advantages of leading companies and institutions without hampering their ability to participate in global value chains (Meier & Rauch, 2000).

But new techno-nationalism deviates from the above trajectory. For instance, attracting top-notch foreign students and scholars and encouraging them to stay and work within the US's leading-edge fields in science, engineering, and others has significantly contributed to the country's competitiveness for a century (Ostry & Nelson, 1995; Taylor, 2016). This course, however, becomes politically charged under Trumpian techno-nationalism (Moore, 2019). Also, in the current geopolitical environment, the new form ensues in not only pivotal industries but also ICT (information and communication technologies) and digitization.⁵ As ICT becomes a foundational infrastructure in the digital age, many MNEs' global value chain activities are obstructed by techno-nationalism in ICT spheres (Sacks, 2020). Amid the growing trade

tensions, governmental scrutiny of takeovers by foreign companies has increased, with a sharper focus on the implications for national security associated with digital technologies (McKinsey, 2019).

Development economists suggest that every country should legitimately and imperatively boost economic growth and competitiveness with technological development and capability upgrading, and accordingly logical, too, prepare national plans and take measures to achieve these goals (Kim & Nelson, 2000; Meier & Rauch, 2000). However, as established in the core principles of a global economic order like those created by the World Trade Organization, a nation state should not pursue this achievement by suppressing another nation's technological innovation. Unilateral sanctions due to one country's techno-nationalism can easily become bilateral and cause recursive attacks in an economically interdependent world (Manning, 2019). Ultimately, this approach disrupts technological interdependence and collaborative innovation for businesses on both sides (Sacks, 2020). Even large MNEs savvy in political ties or corporate political strategies at home and abroad can be immensely vulnerable to such disruptions (Capri, 2020).

COMPARING TRADITIONAL AND NEW TECHNO-NATIONALISM

Traditional techno-nationalism embraced globalization, notably global technologies, as a means to upgrade local economies and industrial development (Archibugi & Michie, 1995), whereas today's version denounces globalization, imposing regulatory restrictions against both technology inflows from and outflows to other countries in certain sectors or technological domains (Moore, 2019). The traditional form was principally adopted (preferred also by developing countries) for developmental objectives (Kim & Nelson, 2000; Ostry & Nelson, 1995), while new techno-nationalism is employed mainly by advanced economies primarily in the name of national security (Moore, 2019). For instance, the Committee on Foreign Investment in the United States (CFIUS), an interagency executive body responsible for screening foreign investments made in the US for national security risks, becomes powerful to serve the new objectives under techno-nationalism (WIR, 2020).

As a second difference, traditional techno-nationalism for developmental purposes often formed

a part of the holistic and long-term-oriented national economic policy (Yamada, 2000). Under the traditional view, technology stands as one of the keys for total factor productivity. That is, a developing economy relies on greater total factor productivity generated through industrial upgrading to maintain growth (Kim & Nelson, 2000). The Schumpeterian perspective considers such upgrading as endogenous to long-term economic growth, emphasizing that technological upgradation requires not only efficient markets but also state efforts to remedy the problem of underinvestment, particularly through R&D spending but also by leveraging globalization (Howitt, 2008; Romer, 1990). In contrast, new techno-nationalism, whose proponents assume that transferring technologies to foreign countries would "burden domestic commerce" (White House, 2018), can hardly be explained by any macroeconomic growth theory, as noted by Graham and Marchik (2006).

This variation induces another noticeable difference in strategic intent: pursuing national competitiveness of domestic industries under traditional techno-nationalism, and on the contrary aiming at weakening or disrupting national competitiveness of foreign industries of a rival country under the new manifestation. Recently, Capri (2020) reports that the focus of US techno-nationalism against China rests on what is called "negative reciprocity," which pertains to funding initiatives designed to counter protectionism, subsidies, and other kinds of state-backed activities that have produced a competitive edge for Chinese companies. Negative reciprocity policies include funding for the reshoring and ring-fencing of strategic manufacturing capabilities and the weaponization of supply chains through the use of export controls, blacklists, blocked acquisitions, and sanctions (Graham & Marchik, 2006; Legrain, 2020).

Furthermore, traditional techno-nationalism had a space limit or border constraint, meaning that the state could enact its national economic policy over its sovereign territory. Indeed, the conception of the nation state and territorial exclusivity as resultant corollaries of sovereignty has been at the forefront of the evolution of both international law and international relations (Wight, 1991). Yet, new techno-nationalism is sometimes extraterritorial. For example, the Trump administration imposed extraterritorial sanctions on Huawei, blocking the company from obtaining even non-US-made chips and semiconductors built by Japanese, European, Korean, and Taiwanese companies

that use American technology (Garcia-Herrero, 2020). Such extraterritorial sanctions run counter to international law, including the United Nations Charter and the rules of the World Trade Organization (Moore, 2019). The US has also long been able to use its dominant position in the global economy to impose extraterritorial measures as a tool of economic coercion in pursuit of its foreign policy objectives (Allison, 2017; Keohane & Nye, 2012).

Finally, the traditional view held globalization as interdependent exchanges, acknowledging respective yet important roles played by both the states and businesses, both the public and private sectors, and both local and foreign firms (Montresor, 2001). This view does carry some contradictory goals between foreign investors and local states, including technology transfer mandates by host governments, but it does not assume that such global exchanges must be zero-sum games, as expressed by several IB scholars, such as Boddewyn (2016), Hillman and Wan (2005), and Meyer (2004). Relative to traditional, new techno-nationalism is more short-term opportunistic (Legrain, 2020) and sometimes becomes difficult to justify both rationally and ethically (Farrell & Newman, 2020).⁶ Table 2 highlights the comparison in multiple dimensions between traditional and new techno-nationalism.⁷

REALISM DOCTRINE AND TECHNO-NATIONALISM

Under IB scholarship, researchers have examined the effect of policy uncertainty in a target country or political conflict between nations on FDI strategies (e.g., Boddewyn, 2016; Delios & Henisz, 2003), but few have revisited the theoretical logic that causes such conflict. Two competing theories in governing international relations exist. Realism, also known as political realism, is a view of international politics that stresses its competitive and conflictual side. The perspective is usually contrasted with idealism or liberalism, which tends to emphasize cooperation. Realists consider the principal actors in the international arena to be states, which are concerned with their own security, act in pursuit of their own national interests, and struggle for power (Mansfield, 1994; Wight, 1991). The negative side of the realists' emphasis on power and self-interest often lies in their skepticism regarding the relevance of ethical norms to relations among states. National politics is the realm of authority and law, whereas international politics, they sometimes claim, is a sphere without justice, characterized by active or potential conflict among states (Beitz, 1997; Henisz et al., 2010).

New techno-nationalism occurs keenly in tandem with the political realism theory in international relations, portraying the world as competing and conflictual and holding that, in response to such zero-sum competition, states should leverage

Table 2 Comparing traditional and new techno-nationalism.

	Traditional techno-nationalism	New techno-nationalism
View toward globalization	Embracing globalization as a critical means to upgrade local economies	Denouncing globalization, imposing restrictions against technology inflows and outflows, especially involving rival nations
Dominant logic	For developmental purpose	For national security logic
Strategic intent	Strengthen national competitiveness of domestic industries	Weaken national competitiveness of foreign industries of a rival country
Economic assumption	Schumpeterian perspective, assuming that a nation's success can be determined by how well that nation innovates and diffuses technology	Zero-sum competition, assuming systematic competition with target countries and ignoring potential co-opetition synergies associated with economic interdependence
State role in R&D	The presence of national R&D efforts, and the effectiveness of these efforts, are key drivers to the overall growth, sustainability, prosperity and competitiveness of the nation itself	A focus is not to promote the nation's own R&D efforts and competitiveness but to weaken the target country's innovation and competitiveness
Territorial exclusivity	In-territorial—Policies were limited within the nation state	Extraterritorial—Some sanctions restrict third country firms from doing business in the targeted countries
Policy areas	Key manufacturing industries	An expansive list of industries as well as ICT, digitization, services, finance, and flows of people

their bargaining power even if not ethical (Beitz, 1997). To some realists, the main pathway to globalization involves coercion and, hence, economic coercion against other nations is deemed legitimate (Wight, 1991), offering a notably reductionist, rather than realistic, picture of international politics (Reich, 1987). Globalization rises when an overwhelmingly powerful country, a “hegemon,” creates and maintains, for its own benefit, sets of international institutions (“regimes”) that govern aspects such as trade and investments (Keohane, 1980). The hegemon will keep this system in place as long as it remains strong enough to do so and the benefits from keeping the system exceed the costs. Other states may or may not benefit from the system (Witt, 2019).

Realism carries the assumption that ultimately no rules constrain state behavior as no overarching authority exists that could enforce compliance. In the anarchic world of realism, securing survival occurs ultimately as a function of hard power (military, economic, and political) under a zero-sum game (Witt, 2019). It is one thing for the US government to invoke national security or other grounds as a rationale to impose punitive trade sanctions on a target country, including prohibiting American companies from engaging in transactions with the designated state. It is quite another for the government to use extraterritorial sanctions to block trade and financial activities by non-US companies against that target country—in other words, to coercively turn national actions into global measures, in breach of the sovereignty of other states (Mann & Daly, 2020).

Political liberalism, on the other hand, holds that international institutions play a key role in cooperation among states. With these international institutions, and increasing interdependence (including economic and cultural exchanges), states have the opportunity to reduce conflict. Interdependence has three main components. One, states interact in various ways, through economic, financial, and cultural means. Two, international diplomacy represents a strongly effective way to get states to interact with each other and support nonviolent solutions to problems. Three, with the proper institutions and diplomacy, liberals believe that states can work together to maximize prosperity and minimize conflict, and that international trade and investment is a facilitator for this goal (Beitz, 1997).

Figure 2 summarizes the major points of the realism logic which underpins new techno-nationalism.

HOW TECHNO-NATIONALISM CONSTRAINS INTERNATIONAL BUSINESS

Both political realism and liberalism focus on the nation state as the level of analysis and shy away from explaining the role of international businesses in shaping international relations. For realists, states are the only strategic actors in international relations. For liberalists, international law, norms, and institutions also shape how states interact. Neither, however, recognizes the role of strategic actions by business sectors, including MNEs, in affecting political and social dynamics. Political realism, in particular, rejects the potential influence of market and business forces on state-dictated policies, such as techno-nationalistic ones, and disregards the potential damages of these policies (Mansfield, 1994).

Scholars of IB theories, especially in the political view of MNEs, have long considered the influence of national and supranational environments on MNE behaviors and strategies (Boddewyn & Brewer, 1994; Delios & Henisz, 2003; Jackson & Deeg, 2008). While competition or bargaining still holds to fulfill the respective goals of multinational firms and foreign governments, the two parties are interdependent and, in the last three decades, cooperate along competitiveness improvement (Meyer, 2004). In this co-opetition view, enterprise political responses do not remain at a standstill, nor do different MNEs act the same way (Boddewyn & Brewer, 1994). Leaders of international firms adjust their political behavior to align with changes in environmental or organizational conditions that affect cooperation or competition with governments. When a multinational’s resource complementarity and goal congruence with governments strengthen, MNE-host country government relationships become more cooperative and less competitive. We see this effort as important because sharing interdependent resources or taking collective actions can create payoffs for both MNEs and governments (Boddewyn, 2016).

However, new techno-nationalism places target countries as adversaries, a stance that can cause serious consequences for multinational enterprises from home, host, and even third countries.⁸ When a target country represents a critical foreign market for MNEs, local governments are supposed to be an

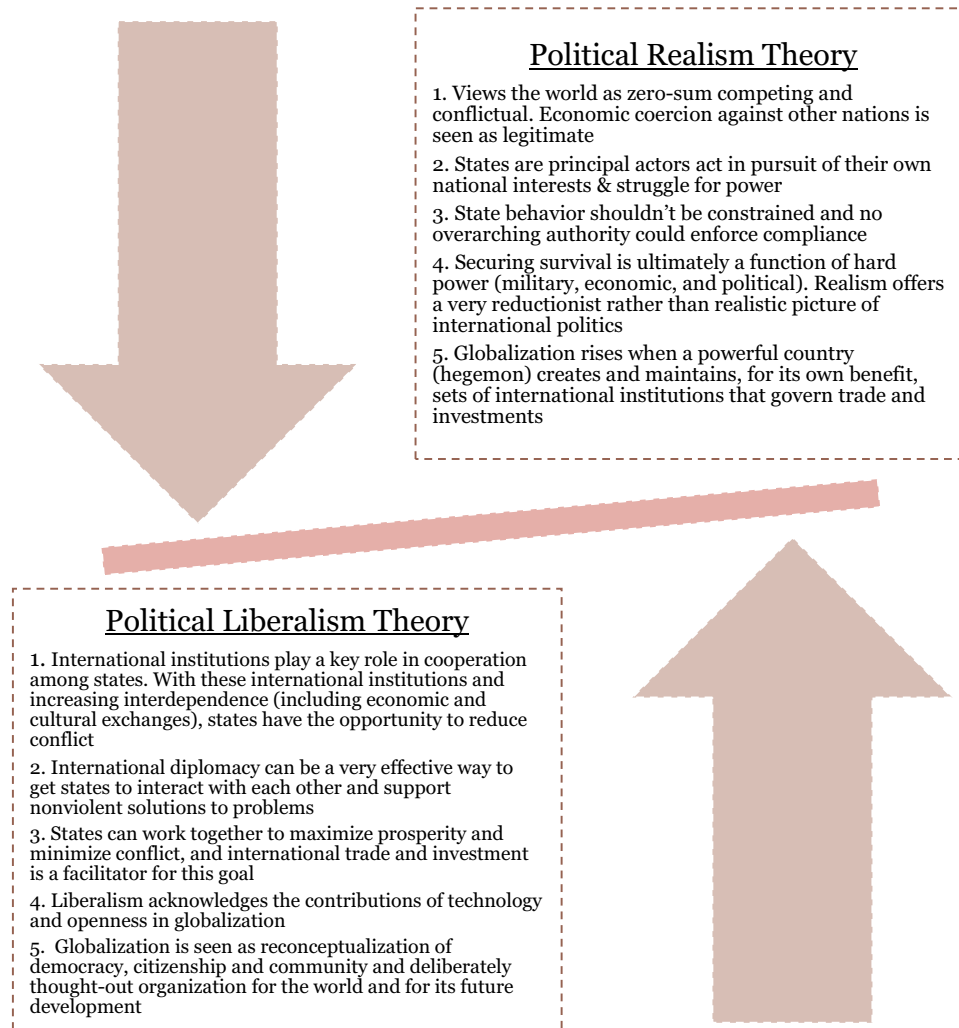


Figure 2 Realism versus liberalism theories in geopolitics.

important stakeholder, maintaining a co-competition (simultaneously collaborating and competing) relationship (Luo, 2002), but when such a relationship becomes adversarial, the firms will inevitably face higher institutional, regulatory, and legal uncertainties and restrictions in these host countries, giving rise to greater transaction costs and institutional disadvantages relative to other country MNEs (Evenett, 2019). Bertrand et al. (2016) show that when home countries lack political affinity in international affairs with a host country, MNEs experience more interventions and barriers from the host government when entering that market.

New techno-nationalism depreciates global open innovation, which may lead to competitive disadvantages for affected MNEs. Collaborative global innovation networks, a globally organized web of complex interactions between firms and other

organizations engaged in knowledge and innovation development (Cantwell, 1995), have formed a hallmark of international business. Technological development in the contemporary socio-technological systems comprise an array of nested systems, each performing independent functions that are integrated into a complex, interdependent, technological ecosystem (Sacks, 2020). In the 20th century, innovation and knowledge were largely transferred from developed countries to developing countries. However, in the 21st century, these flows are mutual and bilateral, involving flows of knowledge and innovation between advanced and emerging economies in both directions (Govindarajan & Ramamurti, 2011). Consequently, global partnerships for joint innovation play an essential role in fostering international business. As cross-border connectivity, physically and virtually, reduces

inter-firm coordination and transaction costs, multinationals take advantage of a global pool of expertise and resources (Farrell & Newman, 2020), but techno-nationalistic policies may impede access to this pool.

Technological co-development with global partners enables an area of MNE growth (Doz & Wilson, 2012). As highlighted by Lessard et al. (2013), cross-border collaborative activities enhance the interoperability between networked products and services, accelerate access to new foreign markets, and lower production and development costs. Yet, modern techno-nationalism may present obstacles to this co-development and cause a breakdown of the global value chain. Research reveals that MNEs can build competitive advantages through collaboration with global competitors (horizontal cooperation) or with suppliers and distributors (vertical cooperation) (Kano et al., 2020). Digital technologies further bolster these possible advantages by reducing costs associated with communication, coordination, and sharing. Unfortunately, new techno-nationalism is often difficult to hedge and brings severe impact on maintaining global value chain operations.

Finally, a nationalistic view of technology may result in a vicious cycle of obstruction to international business. Research suggests that the resurgence of techno-nationalism in areas such as 5G, AI, and the internet of things impedes cooperative R&D and could trigger both market fragmentation and incompatible standards and norms (BCG, 2019). The practice may also create a battle that cuts both ways. For instance, in the aftermath of Trump techno-nationalism against Chinese tech firms, China's government ordered public institutions and government agencies to stop using foreign-made computers and software, a move obviously aimed at American companies. The country's leaders also heightened China's "inward circular economy" for its technology sectors, which subsequently lessens its demand for foreign technologies. Worth noting, economic interdependence is not only mutual but also involves many layers, making techno-nationalistic attacks and counterattacks easily vicious and endless (Rajan, 2018).

MNE EXPOSURE AND RESPONSES

Technological and Market Dependences

As our conceptual framework (Figure 1) illustrates, MNEs differ in their exposure and responses to risks arising from techno-nationalism. The framework suggests that international business may fade if new techno-nationalism and other geopolitical disruptions continue. IB risk management research indicates that political, financial, and transactional risks are determined by a focal MNE's exposure to or dependence on specific environments that cause the threats (Miller, 1998). Figure 3 illustrates the differences along levels of *market dependence* (the extent to which the MNE depends on the target foreign country that is now restricted for technology flows) and *technology dependence* (the extent to which the MNE relies on technological components or support offered by businesses from the target country). IB research has long tackled the issue of resource dependence for cross-border activities, suggesting that international companies are embedded in a web of exchange and competitive relationships through which they depend on other organizations to secure resources and accomplish tasks (e.g., Meyer & Sinani, 2009). Such dependencies impose constraints, in turn driving MNEs to take dependence-managing strategies (Hillman & Wan, 2005). Additionally, multinational firms' ability to effectively adopt those dependence-managing strategies varies substantially due to the intrinsic complexities and barriers of international operations (Ambos & Schlegelmilch, 2007).

Market-coupled MNEs refer to those heavily dependent on the foreign market but with a low level of technological coupling with the country (e.g., Qualcomm or Micron in China, or China's Xiaomi in India). These firms experience moderate exposure to risks induced by techno-nationalism, yet potential losses can be enormous, conditional upon the revenue contribution of this market to the firm's total revenue. Market substitutability comes into play, too. If abundant market similarity exists between the target country and alternative countries that the firm wants to switch or relocate to, then market substitutability will be high, hence lowering market exit and switch costs.

Tightly coupled MNEs, characterized by high levels of both market dependence and technology dependence (e.g., US's Caterpillar and GM in China or China's Huawei in Europe), are highly exposed to threats posed by techno-nationalism.

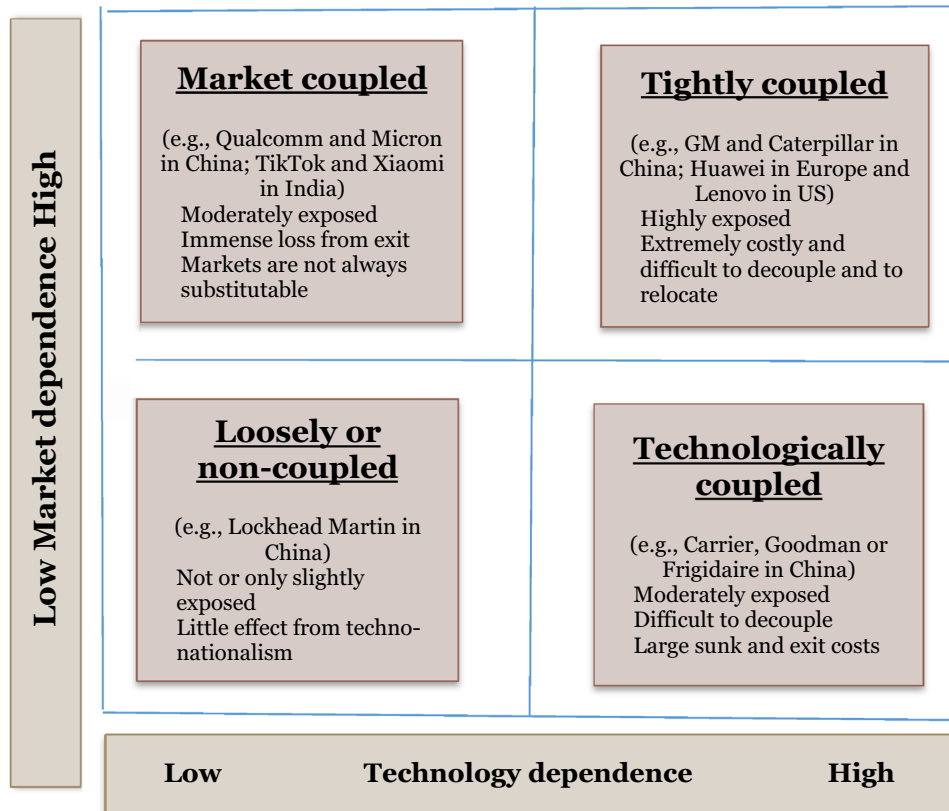


Figure 3 Market dependence, technology dependence, and implications for MNEs.

Technology can include manufacturing technology (e.g., robots and automation for mass production), integration capabilities that combine and configure different technologies, and engineering and applications—often viewed as strengths held by some successful emerging market firms with which Western MNEs have partnered (Higgins, 2015; Yip & McKern, 2016). Western automakers and electronics companies operating in China, examples of tightly coupled MNEs, have become “strategic insiders” who view their large-scale China operations and technological co-development as key to their overall corporate success (Yip & McKern, 2016). For these MNEs, decoupling becomes rather costly.

Technologically coupled MNEs stand less exposed to new techno-nationalism than tightly coupled ones, but are still moderately susceptible to its risks. Western firms’ global sales in consumer electronics and household appliances, for example, may not depend on the Chinese market, but they rely on the well-established technology or key components supply chain and manufacturing network in China (Luo, 2002). Relocating one product

or one value chain activity between countries may be reasonably doable, but relocating many activities between countries becomes a daunting challenge. The actual relocation cost for technologically coupled MNEs will hinge on how many local technologies or components they depend on, whether these technologies are procurable and financially viable from alternative countries, and how tightly coupled these technologies are with other value chain activities that the firm conducts in the same host country.

Finally, loosely or non-coupled MNEs enjoy the least exposure to risk by techno-nationalism due to low levels of both market dependence and technology dependence. This non-coupling tends to be achievable when the home government erects techno-nationalism against only one or very few countries. But with the protective practice expanding or becoming more extraterritorial and reciprocal, even loosely coupled MNEs can be adversely affected due to global interdependence of various technologies and components (Garcia-Herrero, 2020). In short, technological and digital decoupling may benefit some firms in the short term, but

it is difficult to justify its long-term positivity for most international businesses and global stakeholders.

The above discussion illustrates variance in vulnerability to new techno-nationalism across MNEs, along both technological and geographic dependencies. This firm-specific vulnerability has implications for MNEs' governance of global value chain, relocation strategies, and beyond. According to Gereffi et al. (2005), global value chain governance is largely determined by the complexity of transactions, the ability to codify and process transactions, and the capabilities of managing supply bases. Techno-nationalism escalates this complexity and uncertainty as well as the difficulty to manage globally integrated supply chains. Tightly coupled MNEs, for instance, face amplified contradictions between local laws and global corporate policies under new techno-nationalism, provoking them to split global value chains into different streams, each requiring unique governance and risk management.

Strategic Reponses and Actions

Despite the variations along the dimensions of market dependence and technology dependence, MNEs can, and should, take individual and collective actions to contain and circumvent the risks that arise from techno-nationalism. Yet choices of actions may be limited because new techno-nationalism occurs chiefly as geopolitical and ideological stances. Still, IB research has identified various political actions and strategies adopted by MNEs to manage their dependencies in international business conducts (e.g., Hillman & Wan, 2005). Ring et al. (1990) present two such essential political strategies: the forestalling strategy that proactively constructs desirable political imperatives, and the absorption strategy that strives to minimize the adverse impacts of undesirable political imperatives. Defensively, MNEs can focus on compliance with new governmental or regulatory rules. Offensively, they may consider the following actions.

First, international or regional diversification (including reorganizing global value chain and relocating FDI sites) forms a viable option to mitigate dependence-related risks. Some MNEs, especially those with well-established global networks and geographic footprints, can fortify their resilience and flexibility for global operations to minimize risk exposure to new techno-nationalism (Verbeke, et al., 2018). Companies that chiefly do

business in the US and China may become unwilling to remain strategically dependent on technology from the other country after seeing that dependence imperiled. For defensive or offensive reasons, many MNEs take actions to diversify their global manufacturing networks, shifting toward more flexible, regional approaches to global supply chains (Kano, et al., 2020). Global value chains become more knowledge-intensive and more regionally concentrated as companies increasingly establish production in proximity to demand and quickly respond to geopolitical risks (McKinsey, 2020). However, making large-scale changes for physical relocations is not always easy. Global value chains often span thousands of companies and their configurations reflect specialization, access to consumer markets around the world, long-standing relationships, and economies of scale (Farrell & Newman, 2020). As cautioned by Rugman and Verbeke (2004), a more nuanced understanding of regional strategy and its organizing must go beyond MNEs' geographic footprint and should explore the entire spectrum of regional elements in the firm's global value chain.

Second, MNEs should prioritize risk analytics and intelligence to cope with technology- protective stances. Maintaining end-to-end transparency and integrity of the supply chain, such as through the internet of things or blockchain, which enables goods and digital products to be traced in real time, will likely become increasingly critical for compliance with heightened scrutiny and could potentially serve as a competitive differentiator in a world with high cybersecurity concerns. Global manufacturing has only begun to adopt such new technologies like analytics, artificial intelligence, advanced robotics, and digital platforms (Nambisan, et al., 2019). Companies now have access to new solutions for running scenarios, assessing tradeoffs, improving transparency, accelerating responses, and even changing the economics of production (McKinsey, 2020). Where they cannot directly prevent shocks, MNE executives can position the firm to reduce the cost of disruption and the time it takes to recover through digitally enabled global connectivity (Turkina & Assche, 2018).

Third, MNEs can profoundly contribute to global standards and the setting of best practices for technologies. As an example, a multilateral treaty that governs digital connectivity and security (see DeNardis, 2014) may provide governing and overhauling principles and measures in ensuring digital



trade and data governance, as well as diffuse best practices and standards for technology security and cyber security. MNEs can be active players in advocating and participating in the launching of such agreements (McKinsey, 2020). Some of these leaders may even be more knowledgeable than regulatory authorities in building compatible standards and norms and advocating new measures that foster multilateral or bilateral cooperation in scaling up critical technologies (Garcia-Herero, 2020). If the US government were to fortify relations with its allies, for instance, its leaders might find more willing partners to collaborate with in developing international standards and investing in 5G and other emerging technologies. In fact, through their industrial associations or coalitions, a large number of MNEs voiced and contributed to the 2020 G20 Summit to promote innovation, digital technologies, and trade. The Summit called for adopting strong privacy protections and global interoperability, improving transparent, non-discriminatory legal mechanisms for cross-border transfer of personal data that are interoperable across jurisdictions. We note, too, that MNEs vary in both the level of leadership's desire and the organizational capability to engage in global standard setting. Such involvement seems more likely to occur by executives who anticipate long-term economic benefits from the act.

Fourth, MNEs can work collectively, as some already have, to influence governmental policies that would otherwise harm the firms at home and abroad. Yet determining which policies to advocate for requires due diligence. Firm leaders should assess whether it is most effective to work in tandem through industry associations or to independently voice concerns specific to the company. Leaders of Japanese MNEs, for instance, use numerous channels to influence policymaking, including domestic industry associations, such as the Japan Information Technology Services Industry Association (JISA), and their business councils overseas, like the Japan Business Council in Europe (JBCE). Of note, these collective actions require, on the one hand, coordination among participating firms and, on the other hand, incentives to do so, as firms are idiosyncratic in their contributing power.

Finally, many MNEs, large and small, from the assumed rival countries are likewise adversely affected by new techno-nationalist restrictions. The protective policies make it more difficult for springboard MNEs to acquire critical strategic assets through radical FDI, thus restraining feasible

opportunities for capability acquisition. One response lies in combining deep localization and stealth in the host country so as to not trigger defense mechanisms intended to keep them out. Another approach is to limit springboard efforts to friendly territory, minimizing the usage of technologies from the advanced economies imposing techno-nationalist policies. A third option can be more entrepreneurial, involving resilient restructuring or business reconfiguration that falls in a middle ground to satisfy host country regulatory demands without exiting. For example, ByteDance sought to address US concerns by creating a new entity in the country jointly owned by its existing US investors, Oracle and Walmart, and letting Oracle handle TikTok's US user data and content moderation. As the example shows, the emerging environment calls for new diligence among executives in analyzing the arising global risks and for strengthened resilience in response.

CONCLUSION

Technological competition forms part of a larger strategic competition between states and firms. But this competition does not have to be zero-sum. In today's interconnected and interdependent business world, open innovation will continue regardless of intricate and sometimes despicable geopolitics. The dark sides of technologies and certain digressed behaviors of economic powerhouses form a legitimate concern, but countering this concern does not have to cost economic openness, knowledge sharing, and technological connectivity (Verbeke et al., 2018). Global open innovation and cross-border knowledge flows should remain as a cornerstone of international business while at the same time respecting security concerns. Sound economic and political policies by any government should foster country competitiveness in the interdependent world economy. Country openness, technological collaboration, science and education, and institutional support are among the key determinants of this competitiveness (Porter, 1990).

We do not suggest that governments should not regulate multinational companies, but we do submit that excessive and abrupt techno-nationalistic measures deter international business and the global economy that could otherwise generate greater benefits for society. It is imprudent and impulsive for politicians to draw businesses into a crude form of zero-sum competition within global

business ecosystems. The political realism philosophy may provide one root cause or a deeper reason behind this line of thought. The theory depicts nation states as the primary agents that maximize, or ought to maximize, their power. It holds, too, that a nation state can only advance its interests against the interests of other nations. This doctrine does not accord with many IB theories that assume cross-border interconnectivity and collaboration. But it becomes a dictating mindset for new techno-nationalists who use their power to fundamentally change the geopolitical parameters for many MNEs. IB scholarship needs to draw heightened attention to political realism, assessing its serious consequences to the global economy and prosperity in general, and to nascent and established MNEs in particular.

These dynamics open several important yet vexing questions within IB scholarship. First, we need to embrace the bigger picture and broader prospects for international business. A particularly warranting issue lies in the area of an international economic order or governance: supranational institutions, multilateral treaties, reforming existing institutions, international law and ethics, and the like. IB researchers can look into the business side of this governance, specifying how such control reshapes the IB environment and MNE operations and, more importantly, what new governance should entail, how we get there, and what MNEs can contribute to this critical mission. Second, new techno-nationalism tends to underestimate unintended consequences in a variety of international businesses from and in a multitude of countries. IB research can be more discerning in predicting and delineating such consequences as well as actionable solutions. Third, techno-nationalism reminds us of the heightened importance of MNE collective actions in addressing security concerns, global sustainability, digitization risks, and technological breakdowns. This collective capacity goes far beyond a definitional scope of corporate social responsibility or compliance for international business. The approach warrants new studies that offer a nuanced understanding of these joint initiatives and processes. Fourth, we shine light on only a few of the most demanding actions for MNEs. IB research needs to push this frontier further by enlightening us on additional strategic actions as proactive responses to growing techno-nationalism (e.g., supply chain regionalization, corporate diplomacy, geo-strategies, geo-risk intelligence). Finally, we are not yet prepared to address *what if*—that is,

what the IB community will face and what we should do to cope *if* techno-nationalism, digital decoupling, trade war, ideological tensions, and de-globalization continue to ensue and become even more profound and enduring. This prospect could be the biggest question ever in the IB field and we must draw due attention to it.

NOTES

¹Globalization, however, has not slowed down with respect to digital and data flow. The cross-border flow of data is as strong as ever (McKinsey, 2020). Digital global connectivity in fact helps international businesses to better cope with this pandemic and other extreme disruptions. Moreover, recent studies present evidence of the decrease in merchandise, capital, and investment, as well as, to a lesser extent, people-to-people flows before the COVID-19 pandemic (Garcia-Herrero, 2020; WIR, 2020).

²This study focuses specifically on techno-nationalism without much engagement with other related issues such as overall de-globalization, trade protectionism, and technology transfer across borders. There is a wealth of knowledge, both in IB and other fields, that elucidates such related issues.

³contrast, techno-globalism tends to place more emphasis on opportunities from and for international collaboration and resource sharing (see Edgerton, 2007). One should note, however, techno-nationalism and techno-globalism are not necessarily mutually exclusive as each may place a policymaking focus in different areas or industries. Techno-globalism emphasizes globalization using the spread of science and technology through which different nations and societies come together to form a more open and knowledge-based group. Techno-globalism can be expressed in macro and micro scales ranging from the interconnections of national economies to individual behavioral culture (see Ostry & Nelson, 1995).

⁴The Trump administration was guided by the belief that “economic security is national security” (Moore, 2019). This may not hold true when techno-nationalism backfires on the country’s competitiveness. This administration seemed to assume that sanctions are the cure for most of the country’s economic problems, or what Richard Haas, president of the U.S. Council on Foreign Relations, calls “sanctions madness” (Haas, 1998). Sanctions and



export controls of this type could potentially threaten US national security because they could cut the US off from the collaboration and innovative potential that have sustained its dynamism and made possible its leadership in technology frontiers (Rajan, 2018).

⁵Military remains a vital area for techno-nationalism as well. According to the annual report by the Stockholm International Peace Research Institute, global defense spending hit nearly \$2 trillion in 2019, the largest increase in one year since 2010, with the US representing 38% of global military spending to stand as the world's largest defense spender. Techno-nationalism unfolds in two directions: domestically investing in military technologies and blocking non-ally countries from accessing such technologies.

⁶In the case of Huawei, the U.S. Department of Commerce added 38 affiliates of the Chinese company to a list of firms restricted from working with American companies. While it is true that the line between economic and security concerns is harder to distinguish today than two decades ago, national security concerns have been overly used by new techno-nationalists in today's geopolitical climate (Farrell & Newman, 2020; Sacks, 2020).

⁷ Concrete measures of new techno-nationalism may vary between countries in terms of (1) industry focus to be protected or access denial against

foreign firms; (2) aggressiveness of decoupling or scope of access denial; and (3) coordination with other countries, especially in the same region. For example, while the US and EU focus more on blocking the adoption of China's 5G wireless technology, Japan banned Chinese-made aerial drones due to national security concerns. The US implements a larger scope of technological decoupling against China than the EU and Japan vis-à-vis China. The EU also involves greater region-wide techno-nationalism policy coordination than the US and Japan in this regard.

⁸New techno-nationalism underscores the need to protect a country's own scientific knowledge and to hinder other states' innovation capabilities. This concept raises questions on how sustainable the adoption of techno-nationalism is and what consequences it leads to. Keeping the lead in technological innovation—which also sustains military dominance—has become one of the major fields of global competition. However, the capacity to innovate and produce advanced technologies relies on international scientific cooperation, the movement of people and ideas, and international supply chains. This inherent contradiction remains a critical task for IB research.

REFERENCES

- Allison, G. T. 2017. *Destined for war: Can America and China Escape Thucydides's trap?* Houghton Mifflin Harcourt.
- Ambos, B., & Schlegelmilch, B. B. 2007. Innovation and control in the multinational firm: A comparison of political and contingency approaches. *Strategic Management Journal*, 28(5): 473–486.
- Archibugi, D., & Michie, J. 1995. The globalization of technology: A new taxonomy. *Cambridge Journal of Economics*, 19: 121–140.
- Beitz, C. 1997. *Political theory and international relations*. Princeton University Press.
- BCG Report. 2019. Unpacking the US–China tech trade war. <https://www.bcg.com/publications/2019/us-china-tech-trade-war>.
- Bertrand, O., Betschinger, M. A., & Settles, A. 2016. The relevance of political affinity for the initial acquisition premium in cross-border acquisitions. *Strategic Management Journal*, 37(10): 2071–2091.
- Boddewyn, J. J. 2016. International business–government relations research 1945–2015: Concepts, typologies, theories and methodologies. *Journal of World Business*, 51(1): 10–22.
- Boddewyn, J. J., & Brewer, T. L. 1994. International-business political behavior: New theoretical directions. *Academy of Management Review*, 19(1): 119–143.
- Brothers, K. D., & Bamossy, G. J. 1997. The role of key stakeholders in the international joint venture negotiations: Case studies from Eastern Europe. *Journal of International Business Studies*, 28(2): 285–308.
- Buckley, P. J. 2020. The theory and empirics of the structural reshaping of globalization. *Journal of International Business Studies*, 51: 1580–1592.
- Buckley, P. J., & Lessard, D. R. 2005. Regaining the edge for international business research. *Journal of International Business Studies*, 36(5): 595–599.
- Cantwell, J. 1995. The globalization of technology: what remains of the product cycle model? *Cambridge Journal of Economics*, 19: 155–174.
- Capri, A. 2020. *Techno-nationalism: The US–China tech innovation race*. Hinrich Foundation. <https://www.hinrichfoundation.com/research/wp/us-china-tech-innovation-race>.
- Contractor, F. J., & Narayanan, V. K. 1990. Technology development in the multinational firm: A framework for planning and strategy. *R&D Management*, 20(4): 305–322.
- Delios, A., & Henisz, W. J. 2003. Policy uncertainty and the sequence of entry by Japanese firms, 1980–1998. *Journal of International Business Studies*, 34(2): 227–241.
- DeNardis, L. 2014. *The Global War for Internet Governance*. Yale University Press.
- Doz, Y. L., & Wilson, K. 2012. *Managing Global Innovation: Frameworks for Integrating Capabilities around the world*. Harvard Business Review Press.

- Edgerton, D. E. 2007. The contradictions of techno-nationalism and techno-globalism: A historical perspective. *New Global Studies*, 1(1): 1–32.
- Evenett, S. J. 2019. Protectionism, state discrimination, and international business since the onset of the global financial crisis. *Journal of International Business Policy*, 2(1): 9–36.
- Farrell, H., & Newman, A. L. 2020. Chained to globalization: Why it's too late to decouple. *Foreign Affairs*, 99(1): 70–80.
- García-Herrero, A. 2020. From globalization to deglobalization: Zooming into trade. Bruegel Report, February 3, 2020. <https://www.bruegel.org/2020/02/from-globalization-to-deglobalization-zooming-into-trade>.
- Gereffi, G., Humphrey, J., & Sturgeon, T. 2005. The governance of global value chains. *Review of International Political Economy*, 12(1): 78–104.
- Gnanakumar, B. 2016. Vicious cross-licensing strategy for technology spread: Case study of Samsung Electronics. *International Business Strategy*, 301–315.
- Govindarajan, V., & Ramamurti, R. 2011. Reverse innovation, emerging markets and global strategy. *Global Strategy Journal*, 1: 191–205.
- Graham, E., & Marchik, D. 2006. *US national security and foreign direct investment*. Columbia University Press.
- Haass, R. N. 1998. *Economic sanctions and American diplomacy*. A Council on Foreign Relations Press.
- Heine, J., & Thakur, R. 2011. *The Dark Side of Globalization*. The United Nations University Press.
- Henisz, W. J., Mansfield, E. D., & Von Glinow, M. A. 2010. Conflict, security and political risk: International business in challenging times. *Journal of International Business Studies*, 41(3): 759–764.
- Hidalgo, A., & Molero, J. 2009. Technology and growth in Spain (1950–1960): An evidence of Schumpeterian pattern of innovation based on patents. *World Patent Information*, 31(3): 199–206.
- Higgins, V. 2015. *Alliance capitalism, innovation and the Chinese state: The global wireless sector*. Palgrave MacMillan.
- Hillman, A. J., & Wan, W. P. 2005. The determinants of MNE subsidiaries' political strategies: Evidence of institutional duality. *Journal of International Business Studies*, 36(3): 322–340.
- Howitt, P. 2008. Endogenous growth. In S. Durlauf, & L. Blume (Eds.), *The new Palgrave dictionary of economics*: 16–23, (2nd ed.). Palgrave Macmillan.
- IMF, 2020. IMF annual report 2020: a crisis like no other. Washington DC, USA.
- Jackson, G., & Deeg, R. 2008. Comparing capitalisms: Understanding institutional diversity and its implications for international business. *Journal of International Business Studies*, 39: 540–561.
- Kano, L., Tsang, E. W. K., & Yeung, H. W. 2020. Global value chains: A review of the multi-disciplinary literature. *Journal of International Business Studies*, 51: 577–622.
- Keohane, R., & Nye, J. 2012. *Power and interdependence: World politics in transition*. Little Brown.
- Kennedy, S., Suttmeier, R. & Su, J. 2008. Standards, Stakeholders, and Innovation: China's Evolving Role in the Global Knowledge Economy. National Bureau of Asian Research, Special Report, No.15.
- Kim, L., & Nelson, R. 2000. *Technology, Learning, and Innovation: Experiences of Newly Industrializing Economies*. Cambridge University Press.
- Lall, S., & Teubal, M. 1998. Market-stimulating technology policies in developing countries: A framework with examples from East Asia. *World Development*, 26(8): 1369–1385.
- Legrain, P. 2020. Will the Coronavirus kill globalization? The pandemic is legitimizing nationalists and turning their xenophobia into policy. *Foreign Policy*, Spring Issue: 23–25.
- Lessard, D., Lucea, R., & Vives, L. 2013. Building your company's capabilities through global expansion. *Sloan Management Review*, 54(2): 60–67.
- Luo, Y. 2002. *Multinational enterprises in emerging markets*. Copenhagen Business School Press.
- Luo, Y., Zhang, H., & Bu, J. 2019. Developed country MNEs investing in developing economies: Progress and prospect. *Journal of International Business Studies*, 50(4): 633–667.
- Manning, R. A. 2019. Techno-nationalism vs. the fourth industrial revolution. *Global Asia*, 14(1): 14–21.
- Meier, G., & Rauch, J. 2000. *Leading issues in economic development* (7th ed.). Oxford University Press.
- Meyer, K. E. 2004. Perspectives on multinational enterprises in emerging economies. *Journal of International Business Studies*, 35: 259–276.
- Meyer, K. E., & Sinani, E. 2009. When and where does foreign direct investment generate positive spillovers? A meta-analysis. *Journal of International Business Studies*, 40(7): 1075–1094.
- Mann, M., & Daly, A. 2020. Geopolitics, jurisdiction and surveillance. *Internet Policy Review*, 9(3): 1501–1511.
- Mansfield, E. D. 1994. *Power, trade, and war*. Princeton University Press.
- McKinsey Global Institute. 2020. Risk, resilience, and rebalancing in global value chains. <https://www.mckinsey.com/business-functions/operations/our-insights/risk-resilience-and-rebalancing-in-global-value-chains>.
- McKinsey Global Institute, 2019. Navigating a world of disruption. <https://www.mckinsey.com/featured-insights/innovation-and-growth/navigating-a-world-of-disruption>.
- Miller, K. D. 1998. Economic exposure and integrated risk management. *Strategic Management Journal*, 19: 497–514.
- Montresor, S. 2001. Techno-globalism, techno-nationalism and technological systems: Organizing the evidence. *Technovation*, 21(7): 399–412.
- Moore, S. 2019. Trump's techno-nationalism. *Lawfare* (<https://www.lawfareblog.com/trumps-techno-nationalism>), August 15, 2019.
- Nambisan, S., Zahra, S., & Luo, Y. 2019. Global platforms and ecosystems: Implications for international business theories. *Journal of International Business Studies*, 50(9): 1464–1486.
- Nelson, R., & Winter, S. 1982. *An evolutionary theory of economic change*. Harvard University Press.
- Ohmae, K. 1990. *The borderless world: Management lessons in the new logic of the global market place*. Collins.
- Ostry, S., & Nelson, R. 1995. *Techno-nationalism and techno-globalism: Conflict and cooperation*. The Brookings Institution.
- Petricevic, O., & Teece, D. J. 2019. The structural reshaping of globalization: Implications for strategic sectors, profiting from innovation, and the multinational enterprise. *Journal of International Business Studies*, 50: 1487–1512.
- Pfeffer, J., & Salancik, G. R. 2003. *The external control of organizations: A resource dependence perspective*. Stanford University Press.
- Porter, M. 1990. *The competitive advantage of nations*. Macmillan.
- Rajan, A. 2018. Techno-nationalism could determine the 21st Century. BBC News, September 8, 2018. <https://www.bbc.com/news/technology-45370052>.
- Reich, R. 1987. The rise of technonationalism, *The Atlantic*, May, 1987, p.62.
- Ring, P. S., Lenway, S. A., & Govekar, M. 1990. Management of the political imperative in international business. *Strategic Management Journal*, 11(2): 141–151.
- Romer, P. M. 1990. Endogenous technological change. *Journal of Political Economy*, 98(5): S71–S102.
- Rugman, A. M., & Verbeke, A. 2004. A perspective on regional and global strategies of multinational enterprises. *Journal of International Business Studies*, 35(1): 3–18.
- Sacks, J. 2020. *The ages of globalization: Geography, technology, and institutions*. Columbia University Press.
- Samuels, R. J. 1994. *Rich nation, strong army: National security and the technological transformation of Japan*. Cornell University Press.



- Smith, A. D. 2013. *Nationalism: Theory, Ideology and History* (2nd ed.). Wiley.
- Taylor, M. Z. 2016. *The politics of innovation: Why some countries are better than others at science and technology*. Oxford University Press.
- Turkina, E., & Assche, A. V. 2018. Global connectedness and local innovation in industrial clusters. *Journal of International Business Studies*, 49: 706–728.
- van Tulder, R., Verbeke, A. & Piscitello, L. 2019. *International business in the information and digital age*. Emerald.
- Verbeke, A., Coeurderoy, R., & Matt, T. 2018. The future of international business research on corporate globalization that never was. *Journal of International Business Studies*, 49: 1101–1112.
- Wight, M. 1991. *International theory: Three traditions*. University of Leicester Press.
- White House 2018: How China's economic aggression threatens the technologies and intellectual property of the United States and the World. <https://www.whitehouse.gov/wp-content/uploads/2018/06/FINAL-China-Technology-Report-6.18.18-PDF.pdf>.
- Witt, M. A. 2019. De-globalization: Theories, predictions, and implications for international business research. *Journal of International Business Studies*, 50(7): 1053–1077.
- WIR (World Investment Report), 2020. *International Production beyond the Pandemic*. UNCTAD, Geneva, Switzerland.
- Yamada, A. 2000. Neo-Techno-Nationalism: How and Why It Grows. *Columbia International Affairs Online* (March 2000), <http://www.ciaonet.org/isa/yaa01>.
- Yip, G., & McKern, B. 2016. *China's Next Strategic Advantage: From Imitation to Innovation*. MIT Press.
- Zitelmann, R. 2019. State capitalism? No, the private sector was and is the main driver of China's economic growth. *Forbes*, September 30, 2019.

ABOUT THE AUTHOR

Yadong Luo (PhD, Temple University) is the Emery M. Findley Distinguished Chair and Professor of Management at the University of Miami Herbert Business School. His research deals with global strategy, international management, and emerging market business. He is a Fellow of AIB and AOM.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Accepted by Liena Kano, Editorial Review Board member, 21 July 2021. This article has been with the authors for two revisions.