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RESEARCH ARTICLE

Remaking the Multinational Corporation: Geographically Dispersed Unbundling and Intangible Assets

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Abstract
Over the past decades, we have observed the emergence of multinational corporations (MNCs) that are increasingly characterized by their high levels of unbundling and geographic dispersion of their activities and by their greater reliance on intangible (vs. tangible) assets. We develop a novel typology of MNCs on the basis of these two characteristics and explore how different types of MNCs have been exposed and are likely to respond to the slowdown in the global economic integration since the 2008 global financial crisis. We argue that the degree to which MNCs have unbundled and geographically dispersed their activities and their reliance on intangible (vs. tangible) assets will affect the risks associated with cross-border transfers of goods and services and with holding overseas assets. We advance the international business (IB) literature and contribute to the global strategy literature by using our novel typology to examine MNCs' exposure and their likely response to deglobalization pressures.

Keywords Multinational corporation · Geographically dispersed unbundling · Intangible assets · Deglobalisation · Typology

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1 Introduction

Multinational corporations (MNCs) that rely strongly on both geographically dispersed unbundling of their activities and intangible assets in their value generation process (Baldwin, 2013; Buckley et al., 2022; Verbeke & Hutzschenreuter, 2021), have become more prominent over the past three decades. We argue that because of the variation in these characteristics, today's MNCs vary in their exposure and response to two particular risks that are associated with the current slowdown of international economic integration: (a) the risk associated with transferring goods and services across borders (Bode & Wagner, 2015), which can be illustrated by, for example, the COVID-19 pandemic or the UK's exit from the European Union, as these events have interrupted international supply chains; and (b) the risk of holding assets overseas (Deligonul, 2020; Feinberg & Gupta, 2009; Oh & Oetzel, 2011), which is visible in, for example, the 2022 Russian invasion of Ukraine, where the risk of holding assets in both Ukraine and Russia increased.

While there has been growing interest in the relevance and intensity of deglobalization pressures (Moyo, 2019; Peng et al., 2021), relatively less effort has been made to understand how MNCs' exposure and response to the risks associated with deglobalization pressures vary across MNCs. Recent discussions of deglobalization have focused predominantly on debating whether deglobalization is in fact happening (Cuervo-Cazurra et al., 2020; Grosse et al., 2022) or describing various facets of a deglobalizing environment. For example, scholars have examined the bifurcation of the world economy (Buckley & Hashai, 2020; Teece, 2022; Witt, 2019), the increasingly protectionist and populist tendencies of national governments (Devinney & Hartwell, 2020; Luo, 2022a; Petricevic & Teece, 2019; Rodrik, 2018), the reemergence of techno-nationalism (Luo, 2022a; Luo & van Asche, 2023), growing security concerns (Buckley & Hashai, 2020), and societal pressure from, for example, supranational organizations and global nongovernmental organizations (NGOs) (Hartmann et al., 2022; Van Tulder et al., 2021). Although this research implies that the respective facet of deglobalization will affect the ease and risk associated with both the cross-border movement of goods and services and holding of assets overseas, there has been very little effort to explicitly explore the implications of such macro-level developments for MNCs and how MNCs may differ in their response to such developments. This was also echoed by Witt (2022), who saw a clear void in understanding the interdependencies of MNCs and deglobalization.

Recent noteworthy exceptions that are more explicitly interested in the response of MNCs to deglobalization pressures are, for instance, Luo and Witt (2022), who investigated the specific challenges that deglobalization creates for emerging market multinational corporations (EMNCs), suggesting, for instance, changes to EMNCs' global strategic posture. Ambos, Cesinger, Eggers and Kraus (2020) investigated how managers' perceptions of risks and returns may vary between a period of deglobalization and a period of globalization. These authors, however, did not theorize about variations in specific firm-level characteristics and how such variations might shape the impact of deglobalization pressures on MNCs' international strategies. Accounting for a particular firm-level characteristic of MNCs, Peretz and Morley (2021) explored how organizational innovation interacts with (home) country-level deglobalization in shaping MNCs' revenues on the basis of the argument that innovativeness allows firms to handle external uncertainty. While Peretz and Morley (2021) found that this organizational innovation moderates the negative effect of (home) country-level deglobalization on MNC revenue, we suggest that MNCs are likely to be affected by deglobalization outside their home country and that variations in MNC revenue provide only limited insights into the international strategy of MNCs.

A related stream that uses a more macro perspective has examined global value chains (GVCs) and has begun to link this GVC perspective with the global strategy literature and its focus on MNCs (see, for example, Pananond et al., 2020). This research has begun to explore the effects that various facets of deglobalization may have on specific dimensions of such GVCs. For example, several studies have explored the relationship between the fine slicing of GVCs and the innovativeness of various actors in a GVC (Ambos et al., 2021; Buciuni & Pisano, 2021). This research has also started to investigate how events, such as the COVID-19 pandemic, affect GVCs (Pananond et al., 2020). Although MNCs are part of such GVCs, for example, as lead firms or as suppliers, the level of analysis in these studies usually remains at the level of the GVC and thus does not fully account for the firm-level specificities that may drive MNCs' exposure and reactions to deglobalization pressures.

Overall, we suggest that more research is warranted to enhance our understanding of the variation in the effects of deglobalization pressures on different types of MNCs. We contribute to closing this gap by highlighting two central characteristics of MNCs that shape their exposure and, thus, their response to the risks associated with deglobalization. First, an increasing number of MNCs have unbundled and geographically dispersed their activities, such as distribution, production, and research and development (R&D) (Mudambi & Puck, 2016). The advances in information and communication technology (ICT) and transport technology and the associated lower costs of doing business across borders since the 1990s (Dicken, 2014) have been key drivers of this unbundling and geographic dispersion of activities (Autio et al., 2021) through offshoring and international outsourcing (Schmeisser, 2013). The risks associated with transferring goods and services across borders and holding assets overseas are thus particularly pronounced for firms with high levels of value chain unbundling.

Second, today's MNCs are much more knowledge intensive and reliant on the production and exploitation of intangible assets as opposed to tangible assets compared with MNCs in the past (Orhangazi, 2019). Intangible assets can be defined as computerized information, technically innovative intellectual property and competencies (Corrado et al., 2005). In 2018, intangible assets accounted for almost 84% of the value of all S&P 500 firms, whereas in 1975, intangible assets accounted for only 17% of their value (Aon/Ponemon Institute, 2019). Moreover, the ratio of tangible to intangible assets of the five largest companies on the S&P 500 in 1975 was 4.91 (IBM, Exxon Mobil, P&G, GE, 3 M); in 2018, this ratio was 0.19 (Apple, Alphabet, Microsoft, Amazon, Facebook) (Aon/Ponemon Institute, 2019). At the product level, intangible assets (e.g., technology, design, branding, specialized know-how) account for twice the value that tangible assets add to products and one third of the overall product value (WIPO, 2017). This structural shift toward intangible assets has also been captured in the 'smile curve' concept (Baldwin & Evenett, 2015; Mudambi, 2008), which suggests that, compared with previous periods, production in the 21st century is characterized by relatively greater value added in intangible-intensive pre- and postproduction stages relative to the more tangible-intensive manufacturing stages (Van Assche, 2020). We suggest that a greater reliance on intangible assets as opposed to tangible assets will result in relatively lower levels of exposure to the risks associated with the international transfer of goods and services and with the holding of assets overseas.

In this paper, we provide a typology that allows us to elucidate how both the level to which MNCs have unbundled and geographically dispersed their activities and the extent to which they rely on intangible vs. tangible assets shape MNCs' exposure and response to the increasing risks associated with transferring goods and services across borders and holding assets overseas.

Our contribution to the prior literature is two-fold. First, we add to our understanding of deglobalization and its effects on MNCs (e.g., Buckley & Hashai, 2020; Luo, 2022a; Witt, 2022). In contrast to existing research, we do so by exploring two firm-level characteristics that explain the variation in MNCs' exposure and likely response to deglobalization pressures. Second, our integration of value chain dispersion and intangible asset reliance as a basis for a novel typology of MNCs contributes to both the global strategy literature (e.g., Buckley & Hashai, 2020; Kano et al., 2020; Mudambi & Puck, 2016) and the ongoing debate on the role of intangible assets in international business (e.g., Baldwin & Evenett, 2015; Corrado et al., 2005; Mudambi, 2008).

The remainder of this paper is structured as follows. In Sect. Today's MNCs: Geographically Dispersed Unbundling of Activities and Reliance on Intangible Assets, we discuss MNCs' unbundling and geographic dispersion of activities as well as their reliance on intangible assets as the basic building blocks of our novel typology of MNCs. In Sect. MNCS and Deglobalization Pressures, we outline the deglobalization pressures faced by MNCs in the early 21st century and then employ the MNC typology to explain and illustrate the variation in MNCs' exposure and response to these deglobalization pressures. The final section provides a discussion and concluding remarks, highlighting avenues for future research on international business.

2 Today's MNCs: Geographically Dispersed Unbundling of Activities and Reliance on Intangible Assets

Over the past few decades, we have seen significant changes in the characteristics of the world's MNCs. To better capture and create value (Benito et al., 2022), MNCs have both increasingly unbundled and geographically dispersed their activities (BCG, 2019) and shifted their focus to the creation and exploitation of intangible assets. We suggest that the increasing unbundling and geographic dispersion of MNCs and their growing reliance on intangible assets were the most prominent characteristics leading MNCs at the beginning of the 21st century.

2.1 Geographically Dispersed Unbundling of MNCs' Activities

One of the central developments in the global economy since the 1990s has been the geographically dispersed unbundling of activities (Mudambi, 2008; Mudambi & Puck, 2016). This development was driven by advances in ICT and the corresponding fall in communication costs that increased the ability of MNCs to coordinate globally dispersed activities (Autio et al., 2021; Baldwin, 2016). Driven by efficiency considerations and the desire to exploit opportunities for arbitrage, such as wage differences (Baldwin & Evenett, 2015), many MNCs have created long and complex chains of activities carried out across international borders. This increasing unbundling and geographic dispersion of activities of many MNCs has led to the emergence of "global factories" (Buckley, 2011) and underscored the importance of MNCs' ability to coordinate these activities (Buckley et al., 2017).

From a theoretical point of view, the idea that MNC boundaries are determined by the relative costs of running within-firm hierarchies versus the transaction costs of contracting with third parties lies at the heart of internalization theory (Buckley & Casson, 1976; Rugman, 1981). An important implication of this idea is that the vertical integration of MNCs is bound to be limited. The costs of running integrated but dispersed activities increase the more organizationally distant these activities are from the focal MNC because of the difficulties of control and enhanced coordination complexity arising from the divergence of information and incentives (Mookherjee, 2006). Specifically, it has been shown that control and communication costs negatively affect the performance of centralized but organizationally distant activities (Belenzon et al., 2019).

Accordingly, MNCs increasingly limit the number of vertical activities they choose to integrate within their organizational boundaries and unbundle more organizationally distant activities to third parties. Gereffi et al. (2005) argued that when transactions cannot be completed within arm's length markets, i.e., when it is difficult to codify transactions and/or when supplier capabilities are low, fully integrated firms emerge. As a consequence, many MNCs integrate a limited number of vertical activities that are relatively 'close' to their operations but outsource more 'distant' activities (Narula, 2019). This unbundling reduces the burden of communication and information processing for the focal MNC, as it deals with only the immediately proximate suppliers. Limiting the monitoring of suppliers' immediate contributions to the joint production and organizing intermediate production stages in a sequence of contracting allows MNCs to resolve potential incentive problems of delegation (Melumad et al., 1995). This has resulted in increasingly geographically dispersed unbundling of activities in MNCs (Baldwin & Venables, 2013; Buckley & Strange, 2015; Costinot et al., 2012).

While the geographically dispersed unbundling of activities has been one of the key developments over the past decades (Baldwin, 2016), not all MNCs have implemented unbundling strategies to the same extent. Some MNCs may have unbundled their activities across but not within geographic regions of the world. Owing to 'linkage economies' (Mudambi, 2008), MNCs may thus keep their activities "bundled" and may replicate bundled activities across countries or geographic regions. Overall, such bundled MNCs are likely to have a lower requirement for and fewer options to exploit arbitrage differences across regions, whereas unbundled MNCs are more flexible, as activities are unbundled and might be relocated more flexibly. Overall, however, there is empirical evidence for the increasing unbundling and geographic dispersion of MNCs' activities (Mudambi & Puck, 2016; Baldwin & Venables, 2013; Buckley & Strange, 2015) that intermediate inputs produced at lower cost offshore locations already constituted more than 60% of global trade flows in goods and services in 2012 (UNCTAD, 2013).

2.2 The Role of Intangible and Tangible Assets

Today's dominant MNCs differ from their predecessors in terms of the role that intangible assets play in their business models (Orhangazi, 2019). In the last few decades, there has been a shift from the mass production of mostly tangible assets toward the creation and exploitation of customized knowledge-based intangible assets (Buckley, 2022; Mudambi, 2008). In the past, MNCs' intangible asset knowledge was also concentrated in their home country, and the flow of knowledge and innovation has largely been one-way from the home country to foreign markets (Bartlett & Ghoshal, 1989). Currently, MNCs leverage subsidiaries in other markets, including emerging ones, as global innovators (Meyer, 2004), and the formerly one-way flows of knowledge have transformed into a two-way system of value creation and capture (Govindarajan & Ramamurti, 2011) and geographically dispersed innovation activities that are no longer tied to tangible activities in the firm's value chain (Ambos et al., 2021). An increasing number of MNCs leverage digital platforms and ecosystems to create and capture value when they enter new markets (Nambisan et al., 2019). These ecosystem-specific advantages obtained through multidirectional flows of knowledge complement firm-specific advantages and are, in addition, often not bound to physical locations but are based on intangible assets (Nambisan et al., 2019) (Ambos et al., 2021). In many cases, intangible assets no longer need to be bundled with physical objects, resulting in some MNCs specializing exclusively in developing and exploiting intangible assets (Van Assche, 2020).

From a theoretical point of view, intangible assets have several conceptual properties that clearly differentiate them from tangible assets. Building on Buckley et al. (2022), we argue that the most relevant characteristics of intangible assets are that they are (1) highly appropriable, (2) scalable due to low marginal costs, and (3) not location bound. First, intangible assets are in most cases difficult to imitate, making them highly appropriable for firms owning these assets (Buckley et al., 2022) and difficult for third parties to value (Teece, 1998). However, pure ownership does not suffice; some form of protection (e.g., intellectual property or trade secrecy laws, data sovereignty, technical and managerial know-how and capabilities) needs to be in place to control the replicability and potential knowledge transfer to competitors (WIPO, 2017). While this view marks the origins of internalization theory (Buckley & Casson, 1976, 1998), effectively retaining know-how and firm-specific capabilities has become increasingly important.

Second, the nonrival nature of intangible assets implies that using intangible assets in one activity does not prevent their simultaneous use in another activity (Haskel & Westlake, 2018). The fact that intangible assets such as technology or brand equity are generally characterized by high fixed cost investments and low marginal costs allows for the existence of higher scale economies (Van Assche, 2020). Hence, intangible assets can be leveraged and extended to additional markets at relatively low costs because their value does not depreciate with greater use in other markets.

Third, the international activity of MNCs with a strong value added on the basis of tangible assets is guided by the objective of efficiently exploiting these tangible assets to succeed in and across international markets. The major challenges for such firms include, for example, dealing with the risk of high sunk costs, as tangible asset investments are very vulnerable to ex post opportunism by host governments (Müllner & Puck, 2018), and the logistical and organizational challenges associated with the transfer of location-bound tangible assets across countries. In contrast, the non-location-bound nature of intangible assets has facilitated the cross-border exploitation of firms' assets given their lower or absent sunk costs and logistical challenges.

MNCs can leverage their intangible assets throughout the whole organization, from R&D to after-sales services (Verbeke & Hutzschenreuter, 2021). However, although we observe structural development toward greater reliance on intangible assets (Rungi & Del Prete, 2018), not all industries and MNCs are equally affected (Van Assche, 2020). The total investment share of intangible assets in the U.S. and ten European countries increased from 1995 to 2019 by 29%, whereas the share of tangible assets declined by 13% (McKinsey, 2021). By investigating MNCs that produce manufactured goods using country-level data, Buckley et al. (2022) found that the returns captured from intangible assets outweigh those of tangible assets by a factor of 1.7. At the firm level, firms with top quartile growth rates invest 2.6 times more in intangible assets than their low-growth peers do, and depending on the sector in which the firms operate, this gap increases up to seven times (McKinsey, 2021).

Overall, we thus view the increasing unbundling and the greater reliance on intangible vs. tangible assets as the two central aspects of MNC development over the past decades. We thus use these two characteristics as the two dimensions of a typology of MNCs that allows for comparing the more 'novel' types of MNCs to more 'traditional' ones. Our typology is based on high vs. low values of the two dimensions, resulting in a 2×2 matrix (see Fig. 1) encompassing four types of MNCs.

- **Type 1 MNCs** are MNCs with comparatively little geographically dispersed unbundling of their activities that rely more on tangible assets than intangible assets. Type 1 MNCs include firms such as Exxon Mobil, Gap Inc., Halliburton or ENI.
- **Type 2 MNCs** are MNCs with comparatively little geographically dispersed unbundling of their activities but for which intangible assets play a significant role. This category includes many pharmaceutical MNCs, such as BMS, Gilead Sciences, GSK plc, Johnson & Johnson, Merck, and Pfizer. It also includes large digital MNCs such as Microsoft, Alphabet or Amazon.
- **Type 3 MNCs** are MNCs with extensively unbundled and geographically dispersed activities but still rely predominantly on tangible assets. These MNCs typically operate in automotive and electronics manufacturing and include firms such as Harley-Davidson, Nissan, Cummins, Boeing, GM, Ford, Toyota, or Caterpillar.
- **Type 4 MNCs** are MNCs with high geographically dispersed unbundling of their

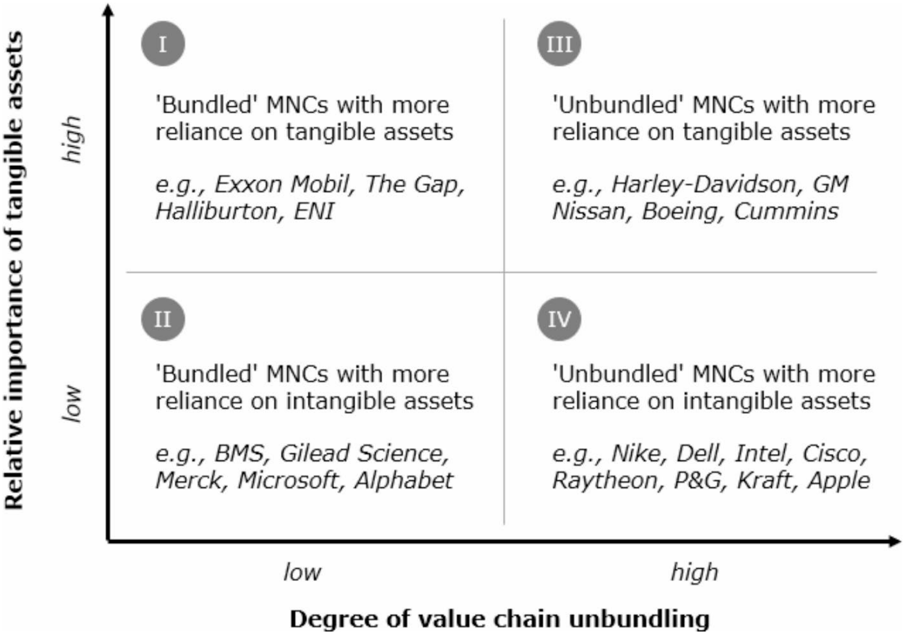

Fig. 1 MNC typology

activities and for whom intangible assets play a significant role. This category includes firms such as Nike, Dell, Intel, Raytheon, Cisco, Procter & Gamble, Kraft, or Apple.

Although there may be some interaction effects between the two dimensions, we suggest that they are largely independent. Among the MNCs with high reliance on intangible assets, for example, those MNCs that have decoupled their intangible assets from their tangible assets (Apple, Nike, etc.), there is an increase in unbundling activities, whereas for other MNCs, this decoupling may not be beneficial (Alphabet, Amazon, etc.). The same applies to MNCs with low reliance on intangible assets, which may engage in different levels of unbundling of activities owing to variations in production technology, business models, or scope and linking economies. In addition, research has provided opposite arguments for the relationship between the geographical dispersion of activities, on the one hand, and innovation, and thus intangible assets, on the other hand, in MNCs and global value chains (Buciuni & Pisano, 2021). While some authors suggest that by geographically dispersing production activities, MNCs may release capacities for innovation activities (e.g., Vivek et al., 2009), others maintain that such geographic dispersion might reduce innovativeness (Pisano & Shi, 2013). Furthermore, research has discussed how MNCs' innovation activities themselves may or may not be geographically dispersed, but again, there are arguments for both positive and negative effects of such geographical dispersion of innovation activities on firm innovativeness (Ambos et al., 2021; Buciuni & Pisano, 2021). However, there is thus no evidence for a link between the geographical dispersion of activities and MNCs' innovation, as the "production of intangibles" (Ambos et al., 2021, p. 7) is only one of the likely drivers for MNCs' reliance on intangible assets.

We use this MNC typology to systematically explore how the exposure and response to deglobalization pressures are likely to vary across 'novel' MNC types, which are characterized by high levels of geographically dispersed unbundling of activities or high reliance on intangible assets, and more 'traditional' MNCs, with low levels of geographically dispersed unbundling of activities and low reliance on intangible assets. Specifically, we suggest that the two dimensions of geographically dispersed unbundling and reliance on intangible assets relate to the cross-border transfer of goods and services and foreign asset risks, respectively, which drive MNCs' exposure and response to deglobalization pressures in the early 21st century.

3 MNCs and Deglobalization Pressures

As argued in the previous section, we have witnessed the emergence of MNCs with unbundled and geographically dispersed activities and a strong reliance on intangible assets. We suggest that the deglobalization pressures since the 2008 global financial crisis have resulted in changes in both the spread of MNCs' foreign operations and their commitments to specific foreign markets (Hashai, 2011), both directly and indirectly (e.g., through national policies).

Along with the development of new structures and strategies for MNCs, we also observe changes in the global environment in which MNCs operate. Over time, tight networks of international relationships (Johanson & Vahlne, 2009) emerged and global connectivity (Luo, 2022b) increased. However, the 2008 global financial crisis again sparked anti-globalization sentiment and deglobalization pressures (UNCTAD, 2020; Verbeke et al., 2018; Witt, 2019; Van Tulder et al., 2022). The existence of such deglobalization pressures is not new, and prior periods were also characterized by strong deglobalization pressure, most notably before, during and between the two World Wars and after the oil crisis in the 1970s. Between the two world wars, deglobalization pressures grew as countries faced economic instability and political turmoil. The Great Depression of the 1930s led to widespread protectionism, with nations imposing high tariffs and trade barriers to protect domestic industries. This era can be described as a collapse of international trade and investment, exacerbated by nationalist policies and economic self-sufficiency drives. Many countries abandoned the gold standard, further disrupting global economic cooperation. Similarly, following the oil crisis of the 1970s, deglobalization pressures intensified as nations prioritized energy security and economic stability. Countries implemented protectionist policies to reduce dependency on foreign oil and other imports. The crisis specifically highlighted vulnerabilities in the global supply chain, prompting a shift toward domestic production and self-sufficiency. Trade barriers and tariffs were increased to protect local industries from global market fluctuations. These measures have led to a slowdown or even reversal in MNCs' international expansion (Bartlett & Ghoshal, 2002; Dicken, 2014; Wilkins, 2005). We argue that deglobalization pressures affect, first, the risks associated with cross-country transfers of goods and services and, second, the risks associated with holding overseas assets.

First, deglobalization pressures have affected the transfer of goods and services across borders. This transfer has become easier with advances in ICT and transport technology, eventually changing the international division of labor and the spatial distribution of economic activities. This phase of 'hard' globalization (The Economist, 2017) was characterized by a shift in economic weight from the developed world to the developing world, especially of 'blue collar' labor-intensive activities (Mudambi, 2008). These shifts resulted in growing anti-globalization sentiment in the developed world (Baldwin, 2016), which became most pronounced after the global financial crisis of 2008. Protectionist tendencies of national governments—such as the U.S. ban for domestic firms to conduct business with Chinese giants such as Huawei and ZTE—play a significant role and reflect reemerging techno-nationalism (Petricevic & Teece, 2019; Luo, 2022a) and security concerns (Buckley & Hashai, 2020) that harm MNCs' ability to move goods and services across borders. Moreover, the COVID-19 pandemic drastically demonstrated that environmental forces can severely impact cross-country transfers.

Second, deglobalization has affected firms that hold foreign assets. In recent decades, the growth of holding foreign assets has slowed amid the changing spatial distribution of economic activities and increased global connectivity (Luo, 2022b). Additionally, the increasing bifurcation of the world economy and the associated competition between the U.S. and China in terms of technology and economic dominance put pressure on holding assets abroad (Buckley & Hashai, 2020; Petricevic & Teece, 2019; Witt, 2019). The implications of this bifurcation can take the form of, for example, the U.S. administration's restrictions on foreign MNCs' operations in the U.S., its intervention in U.S. MNCs' decisions to offshore production, or the new restrictions of foreign acquisitions introduced in the United Kingdom (Fitch, O'Keeffe & Davis, 2020; The Economist, 2020).

The effects of the bifurcation on the level of foreign assets were further compounded by the 2022 Russian invasion of Ukraine (Teece, 2022). Foreign assets in Russia have declined as a result of various economic sanctions, and many foreign firms, such as BP, Shell, IKEA, Intel, Apple and Dell, have announced their withdrawal from the Russian market (Maurer, 2022) to reduce their risk exposure. As of July 2022, Russia is estimated to have lost firms representing approximately 40% of the country's GDP, reversing close to three decades' worth of FDI (Sonnenfeld et al., 2022). Moreover, increasing populist sentiment in a growing number of countries (Devinney & Hartwell, 2020; Rodrik, 2018) may hinder MNCs from exploiting their overseas assets to the degree desired. Populism can drive deglobalization by promoting protectionist policies that prioritize national interests over international cooperation. Populist leaders often rally against global trade agreements and multinational organizations, arguing that they harm domestic industries and workers. This inward-looking approach can lead to increased trade barriers and a shift toward economic nationalism, all of which may put foreign MNCs at a disadvantage (see, for instance, Gereffi et al., 2021; Petricevic & Teece, 2019).

In addition, we suggest that MNCs face pressures originating from stakeholders with increasingly global agendas. While national governments formally govern cross-border exchanges, the pressure to restrict trade, shorten value chains or eliminate tax arbitrage increasingly originates with civil society, global nongovernmental organizations or intergovernmental organizations (Van Tulder et al., 2021). These include supranational initiatives or agreements, such as, for instance, the 2015 Paris Accord or UNCTAD's Action Plan for Investment in the SDGs, which aim to ensure MNCs' contribution to sustainable development (Hartmann et al., 2022).

Finally, the recent COVID-19 pandemic and the resulting supply chain interruptions have dramatically highlighted the negative effects on MNCs in industries that depend on the exploitation of international variation in factor conditions through the coordination of geographically dispersed operations. Nachum (2021), for example, discussed the specific effects that the COVID-19 pandemic has had on the supply chain in different segments of the medical device industry. Similarly, Baldwin and Weder di Mauro (2020) reported how the Korean firm Hyundai was forced to shut down its plants in Korea because of interruptions to its supplies from China. However, the COVID-19 pandemic may only have exacerbated the effect of ongoing deglobalization pressures since the 2008 global financial crisis. These changes have been paralleled by calls from governments and other stakeholders for reshoring or repatriating MNCs' activities (Evenett, 2019, 2020), which has the potential to change the way in which certain MNCs configure their activities.

Research has suggested that in response to deglobalization pressures, MNCs have begun to move away from a global factory model to regional or even national factories and national firm value chains (Buckley & Hashai, 2004; Kano et al., 2020). Recent evidence shows that MNCs have started shortening their supply chains with a greater reliance on local suppliers, often as a result of deglobalization pressures created by political actors and locally implemented reshoring policies (Barbieri et al., 2020; Pegoraro et al., 2022). We also find some anecdotal evidence of the deinternationalization of MNCs with firms bringing unbundled activities closer to their headquarters (EIU, 2020; Panwar, 2020). For example, in an effort to create a more resilient supply chain and to have more control over their operations, Ford and Caterpillar have begun to reshore manufacturing activities to the U.S. (Howard, 2023; Szal, 2015). Similarly, the U.S. retailer Walmart has created a reshoring initiative to encourage domestic manufacturing and stimulate sourcing from domestic suppliers (Walmart, 2024). Recent advancements in technology can also facilitate some of these reshoring activities; for example, new labor-substituting technologies can enable firms to restructure their GVCs by swapping overseas labor-intensive operations for capital-intensive operations at home (Pegoraro et al., 2022).

However, we argue that MNCs differ in their exposure and response to deglobalization pressures. To investigate the effects of deglobalization pressures on the types of MNCs identified, we now employ the MNC typology presented earlier (Fig. 1), starting with the most 'traditional' type of MNCs in our typology, Type 1. We specifically argue that MNCs with different degrees of unbundling vary in the need to manage geographically dispersed activities. Deglobalization forces that limit the transfer of goods and services across borders are more important for MNCs with unbundled activities than for MNCs with bundled (and often internationally replicated) activities. Moreover, the degree of tangibility of relevant resources in the business model of an MNC influences the extent to which it is exposed to national-level risk stemming from deglobalization pressures, and to the sunk costs and resulting risks for tangible assets located in host countries. For example, deglobalization pressures leading to increasing national-level risks (e.g., nationalism or populism) are more important for MNCs with more tangible assets, as these assets are exposed to higher asset holding risks in a host country than are intangible assets, which are more easily transferable and scalable (Doukas & Padmanabhan, 2002).

3.1 Type 1 MNCs

Type 1 MNCs represent the most 'traditional' type of MNCs in our typology. Given their low level of unbundling and greater geographical concentration of activities, Type 1 MNCs rely comparatively less on the cross-border movement of goods, capital, ideas, or people and thus are less affected by potential restrictions on this movement than MNCs with greater dependence on unbundled and geographically dispersed activities. Moreover, Type 1 MNCs face potentially severe consequences stemming from deglobalization pressures at the national level, as tangible assets are likely to be locked into national environments. They are, therefore, heavily exposed to political and regulatory risks arising from deglobalization pressures in a specific country (e.g., nationalist tendencies leading to expropriation, sunk costs resulting from violent conflict in a country, etc.).

Importantly, greater reliance on global sourcing does not mean that the unbundling and global dispersion of activities of such MNCs will decline. In contrast, the inability to unbundle activities may lead many of these MNCs to pursue a multidomestic strategy (Bartlett & Ghoshal, 1989; Prahalad & Doz, 1987). These MNCs replicate their activities in specific countries or regions in response to pressures to reduce the transfer of products, capital, ideas, and people across borders (Buckley & Hashai, 2020). Importantly, such a strategy may increase (rather than decrease) the international footprint of Type 1 MNCs across countries when faced with deglobalization pressures.

MNCs' geographic replication of their activities mitigates the frailties related to concentration and interdependence. It also increases Type 1 MNCs' flexibility, allowing the switching of production across sites, and likely enhances their market knowledge through proximity (UNCTAD, 2021). However, their strong reliance on tangible assets exposes these MNCs' assets, which are often difficult to transfer, to potential sunk costs when an MNC wants to leave a country or a region. Type 1 MNC operations are thus less exposed to deglobalization forces that affect the transferability of goods and services across borders. At the same time, the deglobalization pressures leading to an increase in asset holding risks within countries and, subsequently, potentially high sunk costs pose a significant threat to such MNCs. Such deglobalization pressures may lead to organizational fragmentation of the activities of Type 1 MNCs and, in turn, to a reduction in their international footprint.

Prior research suggests potential mechanisms for Type 1 firms to respond to such pressures. For example, wholly owned foreign operations are less useful in providing the requisite level of local responsiveness than are (equity or nonequity) entry modes that include a local partner (Oehmichen & Puck, 2016). Through collaborative ventures with a local partner, Type 1 MNCs can gain not only greater knowledge of local market conditions but—and potentially, more importantly—legitimacy gains from being affiliated with a local firm. Given the growing nationalist/populist sentiment in many countries, obtaining legitimacy through collaboration with local firms becomes more important for Type 1 MNCs. Moreover, the growing importance of national control over domestic firms and host countries' suspicions of the intentions of foreign-controlled enterprises are likely to increase resistance to full acquisitions of domestically owned firms by foreign MNCs. Various countries have tightened their rules for and scrutiny of acquisitions of domestic firms, either by foreign firms in general or by certain types of foreign ownership (e.g., state-owned enterprises) or firms from specific countries, such as the increased restrictions on the acquisition of U.S. firms by Chinese firms in certain sectors (Cuervo-Cazurra, 2018; Luo & Van Assche, 2023; UNCTAD, 2023). The growing importance of national control is also likely to lead to a greater preference by regulators and politicians for partial acquisitions/divestments and alliances and thus for their growing importance in as far as these alliances "enable [domestically owned] businesses to collaborate without entering the touchy terrain of changing who controls them" (The Economist, 2019b).

3.2 Type 2 MNCs

In contrast to Type 1 MNCs, Type 2 MNCs combine comparatively low geographically dispersed unbundling of their activities with comparatively high levels of intangible assets. They represent a hybrid form between the most traditional and the most novel types of MNCs. We suggest that owing to the greater importance of intangible assets to the business models of Type 2 MNCs, they are less affected by the deglobalization pressures related to the cross-border transfer of goods and services. This is because such MNCs, similar to Type 1 MNCs, have largely unbundled their activities. While some assets may need to be transferred between subsidiaries, these assets are largely intangible assets rather than tangible assets, which are subject to fewer restrictions (Adler & Hashai, 2007; Buckley & Hashai, 2004, 2020). Hence, compared with Type 1 MNCs, Type 2 MNCs face less pressure to replicate all of their activities across countries, as they are able to continue and coordinate the activities that they have located in different countries and interact predominantly via knowledge flows (e.g., R&D, marketing and sales) (see Buckley & Hashai, 2004, 2020; Hashai, 2009). If deglobalization pressures lead to the replication of MNCs' activities, the cost of this replication for Type 2 MNCs is thus lower than that for Type 1 MNCs because of the easier scalability of intangible assets, i.e., they can be replicated at lower marginal costs.

Furthermore, Type 2 MNCs are less affected by national-level deglobalization pressures than Type 1 MNCs are. This is again a consequence of the relevance of intangible (vs. tangible) assets and their transferability, although it is based on a different mechanism. As the transfer of intangible assets is less likely to be subject to restrictions and the efficiency of restrictions on this transfer is questionable, MNCs with strong reliance on intangible assets are less likely to fall into an 'investment trap' because they are less exposed to country-level asset holding risk and can more easily exit a market and/or enter a new market. Overall, this means that Type 2 MNCs are likely to view their international operations less affected by deglobalization pressures than Type 1 MNCs are.

Type 2 MNCs include large digital giants, such as Microsoft and Alphabet. Such digital service providers rely heavily on the internet, which is increasingly fractured along national lines—sometimes referred to as the 'splinternet' (Moyo, 2019)—with national governments "recreating national borders in the digital space by asserting their authority over areas such as data protection, taxation, censorship, and national security" (Stallkamp, 2021: 1). For example, the emergence of increasing national control may require Type 2 MNCs to localize their activities overseas by establishing local data storage facilities (Ghemawat & Altman, 2019; Stallkamp, 2021). To the extent that deglobalization pressures lead to further restrictions on the cross-border flow of information and knowledge, the response of Type 2 MNCs may start to resemble that of Type 1 MNCs.

3.3 Type 3 MNCs

Type 3 MNCs are characterized by a combination of high levels of geographically dispersed unbundling of their activities with a high reliance on tangible assets. Like Type 2 MNCs, Type 3 MNCs are thus hybrids that show characteristics of more 'novel' and more 'traditional' MNCs. They are highly dependent on the flow of goods, services, and information/knowledge across borders, and any constraint on these movements will result in a direct effect. Because of their 'global reach' and tangible assets, Type 3 MNCs are thus more exposed to deglobalization pressures than Type 1 or Type 2 MNCs are. Type 3 MNCs rely on tangible assets that are relatively more difficult to transfer and on the exploitation of arbitrage in their inputs. Therefore, these MNCs face substantial asset holding risks (sunk costs) and depend to a greater extent on combining their firm-specific advantages with local resources in host countries. Type 3 MNCs are therefore exposed not only to global deglobalization pressures but also specifically to national deglobalization pressures.

Type 3 MNCs may be affected by deglobalization pressures, as shown, for example, by the commitments of various MNCs to increase the local sourcing of tangible assets. The U.S. retailer Walmart, for example, has promised to source an increasing percentage of its supplies locally. A 2020 survey by DHL's subsidiary Resilience360 and the Business Continuity Institute revealed that 57% of 350 questioned firms intend to restructure their GVCs in response to the COVID-19 pandemic (BCI, 2020). Two-thirds of the firms intend to increase their use of domestic suppliers. The study concluded that "local sourcing will become more mainstream" (BCI, 2020: 6).

Owing to their greater reliance on tangible assets, Type 3 MNCs are exposed to greater pressures from global and national stakeholders to shorten, repatriate and reshore their activities (Evenett, 2019, 2020). National governments have become more concerned about national self-sufficiency, whereas global stakeholders have become more concerned about the social and environmental impacts of the geographic dispersion of MNCs' activities, particularly the environmental impact of transporting intermediate and final physical products along the value chain. Type 3 MNCs are thus more likely to be exposed to pressures to reduce the geographical dispersion of their activities by moving some of them to, or closer to, their home country (Enderwick & Buckley, 2020; UNCTAD, 2021).

In a similar vein, Type 3 MNCs are directly affected by increasing constraints on the free movement of tangible assets such as goods, services, people and capital. The consequences of constraints on the cross-border movement of goods, services and capital have become particularly obvious through the COVID-19 pandemic. In essence, such constraints associated with deglobalization pressures are likely to require Type 3 MNCs to "rebundle" and geographically concentrate their previously unbundled and geographically dispersed activities.

Various sources have highlighted greater reshoring and nearshoring because of antiglobalization sentiment and—more recently—the COVID-19 pandemic (UNCTAD, 2021). Physically confining the manufacturing footprint and the supplier base domestically or regionally allows Type 3 MNCs to minimize exposure to risks and any interruptions of highly integrated production networks. Less geographically dispersed unbundling is more manageable from an operations perspective (Srai & Ané, 2016; UNCTAD, 2021). At the same time, however, MNCs with highly unbundled and geographically dispersed activities might not be able to adjust their operations to these potential constraints. A restructuring of highly specialized production networks might not be possible because specific inputs sourced from overseas may not be substitutable or might be substituted only at the cost of a significant loss of cost efficiency, especially when complexity is high.

This restructuring in response to deglobalization pressures will have several effects on the international strategy of Type 3 MNCs. This will likely result in divestment and lower future overseas investments, especially investments outside the home region (Enderwick & Buckley, 2020). We further expect to see a decrease in the relative share of full foreign acquisitions relative to domestic acquisitions, as Type 3 MNCs reduce their exposure to overseas markets. At the same time, however, reshoring or nearshoring lead to greater concentration of the geographic location of an MNC's activities. Such concentration might be achieved via Industry 4.0 technologies such as additive manufacturing (Laplume et al., 2016; Srai & Ané, 2016; UNCTAD, 2020).

3.4 Type 4 MNCs

Type 4 MNCs represent the most 'novel' type of MNCs in our typology. In contrast to Type 3 MNCs, which are also highly unbundled but depend more on tangible assets, we suggest that Type 4 MNCs, which depend to a greater extent on intangible assets, are (a) less affected by deglobalization pressures, and (b) have more options to respond to these pressures. The greater relevance of intangible (vs. tangible) assets for Type 4 MNCs implies efficiency gains from focusing on activities related to intangible assets (e.g., R&D, marketing). These activities may remain bundled and geographically concentrated in the firm's home country. In contrast, focusing on activities that are more related to tangible assets (e.g., manufacturing, assembly, logistics) creates opportunity costs for Type 4 MNCs. These activities thus tend to be unbundled and geographically dispersed. For example, Apple concentrates activities that are based on intangible assets (marketing, design and R&D) and has mainly outsourced activities that relate to tangible assets. The exposure of Type 4 MNCs to possible constraints on the movement of goods, capital and individuals associated with deglobalization pressures is lower than the exposure of unbundled but tangible asset-driven Type 3 MNCs. For Type 4 MNCs, the movement of intangible assets, such as knowledge, information or brand recognition, remains—for now at least—less affected by deglobalization pressure.

Taken together, Type 4 MNCs will thus be less affected by possible constraints on the movement of tangible assets and will be comparatively more affected by novel constraints on the transfer of information and knowledge, for example, through intellectual property restrictions. Since the restrictions on the global movement of knowledge flows, upon which Type 4 MNCs often rely (Adler & Hashai, 2007; Buckley & Hashai, 2004, 2020), are likely to be more moderate than the restrictions on the global movement of tangible assets are, the pressures to shorten their GVCs and bundle value chain activities are low for Type 4 MNCs.

The greater knowledge intensity of MNCs has been associated with geographic clustering and firms' reliance on "tapping into multiple centers of excellence and coordinating knowledge across geographic space" (Cantwell, 1995; Lorenzen, 2005; Mudambi, 2008: 700). Greater reliance on intangible assets therefore requires more integration and control over an MNC's activities, as the intangible nature of their assets typically requires the intensive transfer of tacit knowledge (Kogut & Zander, 1993; Martin & Salomon, 2003) but also greater internalization as a means of maintaining control over proprietary knowledge and property rights and transferring less knowledge to suppliers (Almor et al., 2006; Adler & Hashai, 2007; Buckley & Hashai, 2004, 2020).

Compared with their more tangible Type 3 MNC counterparts, Type 4 MNCs also have more options available to respond to deglobalization pressures. Because they are driven by the exploitation of intangible assets rather than tangible assets, Type 4 MNCs are more flexible and can diversify more easily to business areas that are less subject to deglobalization pressures. Similarly, instead of insourcing and reshoring activities or bringing these activities closer to their home market, Type 4 MNCs may exploit the possibilities of digitalization to create more robust GVCs (Autio et al., 2021; Verbeke, 2020) that are based on intangible assets located in different locations.

Furthermore, as new digital technologies support visibility and transparency by enhancing traceability and authentication (Coatanroch et al., 2022), unbundled Type 4 MNCs that can use digitalization are likely also able to maintain stable investments in their tangible assets. This is because digitalization allows, for example, better planning of inventory requirements and increasing productive capacity to meet buffer requirements through not only just-in-time but also just-in-case management (Brakman et al., 2020). New technologies allow Type 4 MNCs a much higher level of mitigation against deglobalization pressures compared with Type 3 MNCs.

3.5 Summarizing MNCs' Exposure and Response to Deglobalization Pressures

Overall, we summarize the exposure and response to deglobalization pressures for each of the four types of MNCs in Fig. 2. Type 1 MNCs—the most 'traditional' type of MNC in our typology—are less affected by deglobalization pressures related to the transferability of goods and services across borders given that their activities remain largely bundled. Moreover, Type 1 MNCs are more exposed to asset holding

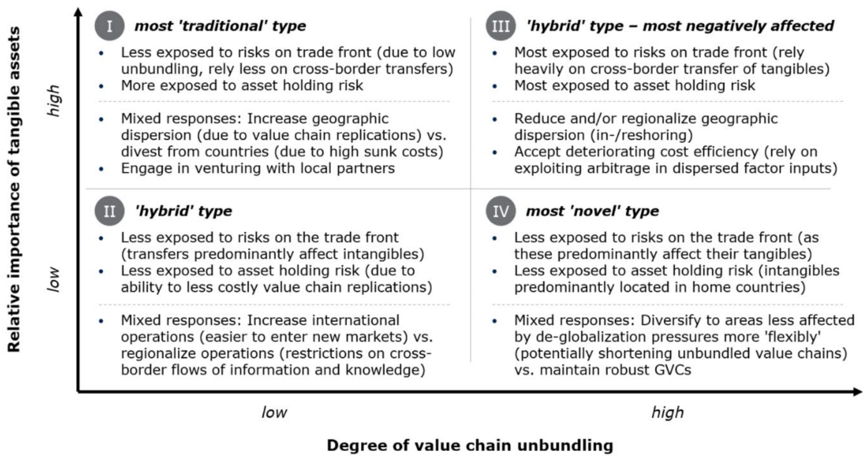

Fig. 2 MNC types and their exposure and response to deglobalization pressures

risks because of their greater reliance on tangible assets. These MNCs are thus likely to respond to deglobalization pressures by engaging in collaborative ventures with local partners to acquire greater knowledge of local market conditions and to achieve legitimacy gains. By replicating their activities overseas, these MNCs might actually increase their geographic footprint.

Like Type 1 MNCs, Type 2 MNCs are less affected by deglobalization pressures related to the transferability of goods and services across borders (given their bundled value chains), while simultaneously being better at mitigating the adverse effects of deglobalization pressures affecting asset holding risks because of their greater reliance on intangible assets. Type 2 MNCs also respond by replicating their activities overseas. However, the international footprint of Type 2 MNCs will increase less, as they are less likely to face an 'investment trap'.

Type 3 MNCs are most affected by the adverse effects of deglobalization pressure, with the fewest opportunities to respond. Type 3 MNCs are affected by deglobalization pressures related to both the cross-border transfer of goods and services (given their high levels of unbundling) and holding assets overseas (given their reliance on tangible assets and 'global reach'). Type 3 MNCs are likely to reduce or regionalize their activities by moving these activities to or closer to their home country and rebundling their activities. Such a response may also involve deteriorating cost efficiency, as exploiting arbitrage in their factor inputs is more difficult when the geographic location of an MNC's activities is restricted.

Type 4 MNCs—the most 'novel' type of MNC in our typology—are characterized by high levels of unbundling but also rely to a greater extent on intangible assets. Therefore, they are less affected by deglobalization pressures related to the transfer of goods and services across borders and asset holding risks. In these MNCs, higher value-added activities related to intangible assets remain bundled and geographically concentrated in the MNC's home country, whereas activities related to tangible assets are generally unbundled and geographically dispersed. Type 4 MNCs can more 'flexibly' respond to deglobalization pressures by tapping into areas less affected by deglobalization pressures and by better leveraging digitalization (e.g., additive manufacturing).

4 Discussion

We have witnessed the emergence of new trends in the structure and strategy of MNCs. MNCs have developed and adapted to pressures stemming from a changing global (technological) environment, rising techno-nationalism, and increasing global institutional influence. To date, however, research has been predominantly concerned with explaining various facets of the deglobalization phenomenon (Buckley & Hashai, 2020; Devinney & Hartwell, 2020; Hartmann et al., 2022; Luo, 2022a; Petricevic & Teece, 2019; Rodrik, 2018; Teece, 2022; Van Tulder et al., 2021; Witt, 2019). In contrast, there has been relatively little analysis of MNCs' exposure and response to deglobalization pressures. While research has begun to explore this issue (Ambos et al., 2018; Luo & Witt, 2022; Peretz & Morley, 2021), our understanding of the variation in MNCs' exposure and likely response to deglobalization remains limited (Witt, 2022). Despite this growing research, few studies have attempted to explain the heterogeneity in the level and nature of MNCs' responses to deglobalization pressures on the basis of firm-level characteristics. Therefore, the objective of this paper was to develop a new typology of MNCs on the basis of two central firm-level characteristics that would allow for a more systematic analysis and an enhanced understanding of the heterogeneity in MNCs' likely responses to deglobalization pressure.

Our typology builds on two characteristics of many MNCs that have emerged over the last decade: (1) an extensive unbundling of MNCs' activities and (2) an increasing reliance on intangible assets. We use this typology to explore how the four different types of MNCs are affected differently and have different options for responding to deglobalization pressure, thereby contributing to the literature on the value chain, intangible assets and (de)globalization. Rather than a "collapse of globalization", we agree with Ghemawat and Altman (2019) that the deglobalization pressures in the early 21st century has led to a "shifting playing field" for MNCs, in which the underlying risks of holding assets overseas and transferring goods and services across borders remain unchanged. However, operating internationally has become easier for some MNCs but more difficult for other MNCs. What unites all MNCs is the need for a greater focus on risk management in a more volatile global environment (Grosse et al., 2022).

Although one key development in many MNCs has been the increasing unbundling and geographical dispersion of their activities, we suggest that some MNCs continue to bundle most of their activities. Rather than unbundling and dispersing different activities, these MNCs internationalize through replication of their activities. We suggest that this applies predominantly to Type 1 MNCs, which maintain or even increase their international operations through replication, especially when deglobalization pressures affect the risk of transferring goods and services across borders more than the risk of holding assets overseas. The responses of Type 1 MNCs to deglobalization pressures provide an interesting context for studying the internationalization of firms, particularly through the cross-border replication of value chains.

The need to replicate their activities overseas will be lower for Type 2 MNCs, given their combination of bundling and high reliance on intangible assets. Type 2 MNCs are able to keep at least some of their activities bundled while relying on international knowledge flows to connect such activities (Adler & Hashai, 2007; Buckley & Hashai, 2004, 2020).

Internalization theory has already been used to explain MNCs' responses to recent changes in the environment (Buckley, 2020; Buckley & Hashai, 2020; Verbeke, 2020) and has focused predominantly on Type 3 MNCs, often referred to as "global factories." We predict that Type 3 MNCs will face pressures to rebundle geographically concentrated activities and that these MNCs are likely to witness reduction and/or regionalization in their international footprint because of deglobalization pressure.

There has been comparatively little research that accounts for the important role that intangible assets play in Type 4 MNCs. As we expect deglobalization pressures to predominantly affect the flows of goods, capital and services, rather than the cross-border flows of knowledge and information, Type 4 MNCs will be less constrained to connect their unbundled activities and should thus be able to maintain the unbundling and geographical dispersion of their activities compared with Type 3 MNCs. However, Type 4 MNCs may shorten and rebundle unbundled activities when diversifying to areas less affected by deglobalization pressure.

We argue that different types of MNCs are affected differently by the current wave of deglobalization pressure, contributing to the literature on MNC unbundling, intangible assets and deglobalization. While Buckley and Hashai (2020) expected a greater concentration of activities in fewer locations and a related change in the roles of MNCs' national subsidiaries, we suggest that these changes will occur mainly for particular types of MNCs—those with unbundled and geographically dispersed activities and tangible assets (Type 3 MNCs). Other types of MNCs, i.e., those that rely to a greater extent on intangible resources and, in particular, MNCs that continue bundling their activities, are likely to evolve differently—in some cases, they will increase their international footprint (bundled MNCs) and, in other cases, they will maintain or decrease this footprint only moderately (unbundled MNCs relying on intangible assets). While Buckley and Hashai (2020) referred to the rationalization of vehicle manufacturers in Europe as a potential signal for the "decline of MNCs as a leading phenomenon in the modern economy" (The Economist, 2017), we suggest that while there may indeed be greater rationalization of certain types of MNCs, other types of MNCs have and will continue to expand globally. Thus, rather than a decline in MNCs, we suggest that MNCs have evolved, will continue to evolve and will remain a dominant economic phenomenon in the future. We thus suggest that Buckley and Hashai's prediction (2020) that domestic firms becoming more dominant may hold for only specific types of MNCs. Hence, by using our typology as a means of systematic analysis, we enhance our understanding of the interplay between firm-level characteristics (i.e., dispersion of activities and intangible asset reliance) and internationalization. In doing so, we also attempt to bridge the knowledge gap in the interactions between the unbundling and geographical dispersion of MNC activities on the one hand and the current sociopolitical environment on the other hand (Kano, 2020).

We make at least two important contributions to theory. First, our typology provides a better explanation of MNCs' response to deglobalization pressures by drawing on insights from multiple distinct theoretical frameworks. In addition, the development of our typology contributes to individual theories in IB by highlighting the potential boundary conditions of these theories.

First, we contribute to theories that explain MNC behavior in response to changing environments by highlighting two central firm characteristics that are likely to shape MNCs' responses to such changes. For example, MNCs' reactions to (changes in) market imperfections have been studied using transaction cost and internalization theory (Buckley, 2020; Buckley & Hashai, 2020; Verbeke, 2020). While these theories highlight the important role of intangible assets in responding to (changes in) market imperfections, our typology combines these insights with the role of the global dispersion of MNC activities as a driver (rather than an outcome) of MNCs' responses to external pressures. (Denekamp, 1995).

Second, our typology contributes to theories that have been used to explain how MNCs' reliance on specific resources drives their behavior, such as, for example, resource dependence theory (Hendriks et al., 2018; Mohr et al., 2016). We contribute to the application of this theory in the IB context by highlighting both the importance of intangible assets as a particular type of resource that MNCs rely on and the fact that the effect of this reliance will depend on the global dispersion of a firm's value chain. Our typology may thus also be useful to scholars studying MNCs' interactions and bargaining with host countries (e.g., Bucheli et al., 2023), as the different types of MNCs suggested in our typology are likely to vary in terms of their bargaining power vis-à-vis different host country governments.

5 Conclusion

We suggest that the new typology of MNCs that we have developed in this paper accounts for the significant changes in the nature of many MNCs over the past decades and, thus, the variation in MNCs' responses to changes in their environment, particularly deglobalization pressures. Specifically, we derived MNCs' intangible asset focus and the unbundling of their activities as two characteristics that differentiate today's MNCs from the MNCs in the last decades of the 20th century. Enriching the (de)globalization literature, we suggest that these two dimensions are crucial in understanding how MNCs respond to the deglobalization pressures characterizing the period since the 2008 global financial crisis in terms of MNCs' structure and international strategy. Moreover, we explore the interdependencies between firm-specific characteristics and pressures on the trade front affecting the transferability of goods and services and pressures on the ownership/investment front affecting asset holding risks.

While we suggest that the MNC typology developed in this study enhances our understanding of MNCs' responses to deglobalization pressure, the existence of the four proposed types of MNCs should be verified empirically. IB scholars could attempt to operationalize the two dimensions using appropriate measures for the global dispersion of activities and reliance on intangible assets. For example, previous work attempting to measure the length and fragmentation of value chains and the geographical distribution of value added at the industry level (UNCTAD, 2020) could provide valuable insights for operationalizing our first dimension, i.e., the global dispersion of activities. Furthermore, firms often report the breakdown of their total assets in terms of tangible vs. intangible assets, and this information could be used to operationalize our second dimension, i.e., reliance on intangible assets. Using such measures for these two dimensions, IB scholars are encouraged to empirically probe the presented typology.

In addition, there are likely to be further characteristics that are associated with the proposed MNC types and should be explored in future research. Existing typologies of MNCs have, for example, also included suggestions regarding the market/technology dependence, structure, processes and cultures of different types of MNCs (Bartlett & Ghoshal, 1989; Luo, 2022a; Prahalad & Doz, 1987; Stopford & Wells, 1972). The literature on innovation in GVCs has suggested that the type of control that lead firms in GVCs exercise over operations in the GVC will affect the generation of innovation (and thus intangible assets) in lead firms (Buciuni & Pisano, 2021). Furthermore, research on GVCs may complement our focus on MNC characteristics with the characteristics of the GVCs that our different types of MNCs are embedded in, or have control over, and the power relationships with the different actors in the MNC's GVC (Bucheli et al., 2023; Pananond et al., 2020). We suggest that IB scholars extend the MNC typology presented in this paper or develop novel MNC typologies that are suitable for accounting for the particular context in which today's MNCs operate.

Furthermore, our MNC typology enhances our understanding of MNCs and their strategies to the extent to which the characteristics on which the typology is based capture those facets of MNCs that are central in a particular spatial and temporal context (Rašković et al., 2013). While we selected two dimensions that are central to today's MNCs, there may very well be further dimensions that may have to be considered. These advantages may include, for example, the firm-specific advantages of MNCs, their strategies, their ownership, and the characteristics of their executives (Mohr & Schumacher, 2019; Petricevic & Teece, 2019; Verbeke & Yuan, 2021). Research has stressed different orientations of firm executives in shaping their firms' strategies, such as their long-term orientation (Lin et al., 2019), their political ideology (Chin et al., 2013), managers' risk perceptions (e.g., Buckley, 2020), and their home-region orientation (Banalieva & Dhanaraj, 2013). These factors are likely to affect the degree to which deglobalization pressures are perceived by decision-makers and lead to changes in MNCs' organization, strategies and international operations. Given the greater need for local responsiveness associated with deglobalization pressures, more attention needs to be given to firm-level strategies to engage in nonmarket strategies, with both political actors and other stakeholders (Puck et al., 2018; Sun et al., 2021). Given the greater demands on firm resources associated with navigating an increasingly complex and differentiated environment, future research may, for example, draw on Penrosian thinking or resource dependence theory to investigate MNCs' responses to deglobalization pressures (Mohr et al., 2016; Verbeke & Yuan, 2021).

Furthermore, we suggest that more research is needed to account for criteria that are less directly related to efficiency concerns, such as flexibility and survival, and puts comparatively more emphasis on uncertainty, including, for example, the real options perspective (Chi et al., 2019) or resource dependence theory (Gaffney et al., 2013). Hence, employing these concepts in the context of deglobalization within internalization theory and real options perspectives can help us garner new insights into the reactions of MNCs to deglobalization pressure.

There is also scope for further disentangling the various types of deglobalization pressure, as we have done with respect to the pressures affecting the transferability of goods and services and the pressures affecting the risk of holding overseas assets. Our discussion highlights that both the types of pressure and their impacts have specific geographical dimensions. Deglobalization pressures may emerge at the local, regional or global level and may also impact MNCs at the local, regional, or global level. For example, the 2022 Russian invasion of Ukraine emerged in a particular geographic region but has had a global impact, whereas the COVID-19 crisis is a global phenomenon whose impact is also global. This research complements the existing IB research on the nature and impact of deglobalization pressures (Devinney & Hartwell, 2020; Witt, 2019). Additionally, more research that explores the interaction between global deglobalization pressures and national-level policy in shaping MNCs' responses is needed. Similarly, the emerging bifurcation of the global economy into a U.S. and a Chinese 'sphere of influence' may lead to declining economic (and other types of) integration but increasing integration within these spheres (Buckley & Hashai, 2020; Petricevic & Teece, 2019; Witt, 2019). As a result, greater attention should be given to the 'institutional linkages' between countries than to the characteristics of individual countries (Verbeke & Yuan, 2021). This research might enrich institutional theory with insights from social capital theory (Fernández-Méndez et al., 2018), social identity theory (Raskovic, 2020) or resource dependence theory (Mohr & Schumacher, 2019).

Finally, there is disagreement on how the current anti-globalization sentiment that has been growing since the 2008 global financial crisis and was further exacerbated by the COVID-19 pandemic and the 2022 Russian invasion of Ukraine will develop in the future. Contractor (2022) noted only marginal changes and a return to more globalization, whereas Ciravegna and Michailova (2022) had a more pessimistic view and expected a permanent structural shift toward a less globalized world. In the past, the relationship between production and consumption dramatically changed with global industrialization, from decentralized production and decentralized consumption to the centralization of production with increasingly dispersed GVCs (Autio et al., 2021). In the future, technological advances (e.g., additive manufacturing) as well as national security and social stability concerns might again shift production to a more decentralized and local level but with globally dispersed knowledge. Hence, we suggest that analyzing MNCs' exposure and responses to and their role amid these various deglobalization pressures is central to IB research and continues to offer exciting ground for developing novel and testing existing IB theories. Cuervo-Cazurra et al. (2020) provided support to our suggestionfinding that anti-globalization rhetoric and skepticism of globalization do not seem to significantly impact cross-country economic flows, as MNCs develop strategies to counteract the adverse effects of regulations that do not support further economic integration.

Overall, we suggest that IB scholars have only recently begun to study the responses of multinationals to the wave of deglobalization that started with the financial crisis in 2007/08 (Buckley & Hashai, 2020; Teece, 2022; Witt, 2019). In this study, we contend that a full understanding of these responses can only be based on a fuller appreciation of the fact that multinationals at the beginning of the 21st century differ significantly from the multinationals of the past. We identify the much greater global dispersion of activities and the comparatively greater reliance on intangible assets as the key characteristics of a growing number of today's MNCs and suggest that these two characteristics are crucial when exploring the effects of deglobalization on MNCs. The typology of MNCs presented in this study provides a useful conceptual tool for future theoretical and empirical analyses of MNCs' international strategies in increasingly complex and challenging environments.

The presented typology is also likely to be useful for practice and policy makers. From a practical point of view, our typology informs MNC managers of the importance of their MNCs' global dispersion of activities and reliance on intangible assets. Practitioners may employ the typology and its underlying characteristics to gauge how changes in the external environment, such as current deglobalization pressures, may hinder or facilitate the cross-border transfer of goods and products and the holding of assets overseas. This exercise can inform practitioners of a specific MNC's exposure to changes in the external environment and inform them on how their international strategy might have to be adjusted, including, for instance, divesting overseas operations and/or reshoring previously offshored activities. The presented typology is also useful for policymakers because it highlights how changes in the environment, including different deglobalization pressures, may affect not only the international strategies of domestic MNCs but also the activities of foreign-owned/controlled MNCs in a particular country.

A better understanding of how MNCs differ in their geographically dispersed unbundling and their reliance on intangible vs. tangible assets allows for more targeted policymaking that mitigates (or further exacerbates) the potential effect of deglobalization pressures on the international strategy of specific MNCs. Our typology provides policymakers with insights into the types of MNC operations that are particularly susceptible to deglobalization pressures. These insights can be used to enhance a specific country's ability to attract or retain specific MNC operations that shape the country's embeddedness in global value chains. Host country governments may, for example, introduce new policies to counteract the effect of deglobalization pressures on those MNC operations in the country that are most susceptible to these pressures, thus preventing an exodus of specific foreign MNCs and the associated negative outcomes on the local economy.

We identify the greater geographically dispersed unbundling of activities and increased reliance on intangible assets as two key characteristics of MNCs at the beginning of the 21st century and we use these two characteristics to develop a novel typology of MNCs. Because these two characteristics are related to the risks associated with cross-border transfers of goods and services and the risks of holding overseas assets, we use our novel typology to explore MNCs' varying levels of exposure and response to the slowdown in global economic integration since the global financial crisis in 2008. The developed MNC typology is likely to be useful in any future, systematic and theory-driven analyses of MNCs' exposure and response to changes in the MNCs' environment.

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