Risk Management in MNEs during Global Crises: Subsidiary Control or Autonomy?

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ORIGINAL ARTICLE

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Abstract

Tensions between control and autonomy in multinational enterprises (MNEs) have attracted considerable academic interest, which has been additionally fuelled by multiple crises following the 2008 global recession. These have intensified the exploration of interentity relationships within MNEs and their implications for risk and crisis management and resilience. Our study examines how the autonomy of subsidiaries in a risky Central and Eastern European market (Slovenia) influences risk and crisis management strategies as well as resilience of subsidiaries in the midst of global crises such as the Covid-19 pandemic and war in Ukraine. We analyse the performance of foreign subsidiaries during these two crises (2019–2022) with a particular focus on the impact of centralisation tendencies in the home country of the MNE's headquarters on subsidiaries' growth as well as their risk and crisis management responses. The results demonstrate above-average performance of foreign-owned subsidiaries, highlight the role of subsidiary autonomy in risk and crisis management, and show how multinationals prioritise the value creation of subsidiaries in emerging markets by granting them greater autonomy in times of crises.

Keywords: Headquarters–subsidiary relations, Subsidiary autonomy, Risk management, Resilience, Global crises

JEL classification: D22, D81, F23

Introduction

Multinational enterprises (MNEs) can be described as networks of geographically dispersed subsidiary units that control differentiated stocks of resources (Ambos et al., 2010; Bartlett & Ghoshal, 1989; Nohria & Ghoshal, 1994). As MNEs' size and distance between units grow and as the environments in which MNEs operate become more diverse and unstable, it becomes increasingly difficult for the headquarters (HQ) to control or standardise the decisions across the MNE (Ambos et al., 2010; Baaij & Slangen, 2013; Hensmans & Liu, 2018; Jensen & Meckling, 1992). This challenge is even more pronounced during global crises that endanger the MNE's survival. Primarily concerned with sustaining the MNE as a whole and not its individual entities, HQ employ different strategies to overcome these crises. They can amplify the monitoring and control of their entities (Ambos et al., 2010), employ resource (re)allocation (see, e.g., Dellestrand & Kappen, 2012), opt for attention and autonomy granting (see, e.g., Ambos et al., 2010; Ambos & Birkinshaw, 2010), or choose to divest and close some of their operations (Wu et al., 2021). The strategy they select depends on multiple factors, including characteristics of the local and international business environments (see, e.g., Narula & Santangelo, 2012; Subramaniam et al., 2011), the MNE's overall resource availability (see, e.g., Wu et al., 2021), as well as the individual entities' strategic importance, role in the MNE (implementer, expansionary, or creative), alignment with the overall priorities and interests of the parent company, past performance, experience and the related capabilities, and their power within the MNE network (Ambos et al., 2010; Asmussen et al., 2008; Bartlett & Ghoshal, 1989; Benito et al., 2003; Delany, 2000). While some entities in the MNE are prioritised in the HQ's

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pursuit of survival and are as such often additionally supported in their risk and crisis management activities, others can be left to their own devices in overcoming a crisis. The two groups can alter composition and roles in different crises as these necessitate adapted approaches. Intra-MNE relations can thus be described as an ongoing negotiation between entities (Coff, 1999; Mudambi & Navarra, 2004) with diverse objectives (Ghoshal & Nohria, 1989) heavily influenced by context (see also Narula & Santangelo, 2012).

Intra-MNE relations have received notable attention in academic research (Ambos & Birkinshaw, 2010; Baaij & Slangen, 2013; Kostova et al., 2016; Koveshnikov et al., 2017). Global crises have intensified the intra-MNE tensions and resulted in more decentralised, responsive, and fluid organisational designs in which subsidiaries play a more pronounced role (see also Andrews et al., 2023; Chung et al., 2008; Garnier, 1982; Quester & Conduit, 1996). This is aimed at achieving more efficient and effective risk and crisis management as well as organisational resilience. To advance the understanding of the HQ–subsidiary relationship (especially in terms of its impact on risk and crisis management and in turn business performance during global crises in risky markets), this paper focuses on subsidiaries' different levels of autonomy depending on their ownership structures and explores how subsidiary autonomy (or lack thereof) in an emerging Central and Eastern European (CEE) host market (i.e., Slovenia) influences subsidiary risk and crisis management strategies, performance, and overall resilience.

The focus on foreign-owned firms with experience in the CEE region is rooted in their crisis response expertise. Many companies operating in the CEE region have experience with increased political risks, changes in national borders, and thus also residency (even without relocating), which necessitate constant and prompt (often "overnight") adaptations of business strategies, reshaping of product and export market portfolios, and realignment of direct investments. They are skilled in operating in turbulent conditions and addressing multiple uncertainties in the business environment at the same time (Ipsmiller & Dikova, 2021; Jaklič et al., 2020; Jaklič & Svetličič, 2003; Svetličič and Rojec, 2003). This has proven beneficial during the new wave of transition in CEE and in the new realities of high global uncertainty (Jaklič & Burger, 2020; Jaklič et al., 2023). The selection of the sample is also based on these firms' greater exposure to developments in international markets and their traditionally overall better business performance indicators compared to domestic firms (even) before the crisis, which makes them

more able (and empowered) to adopt multiple and diverse strategies to cope with rising economic uncertainty (see also Burger et al., 2023; Jaklič & Koleša, 2023). We thereby focus on foreign affiliates located in Slovenia as an EU member state. The reasoning for this is that the EU is highly open to trade, which makes European companies particularly vulnerable to global or regional trade and FDI disruptions. As Slovenia has experience with the transition and is a relatively young state, doing business in Slovenia also offers a certain amount of experience in dealing with volatility and risk. In addition, the ownership structure of foreign affiliates in Slovenia allows for analysis of emerging market and advanced economy MNEs' differences in MNE governance and management styles.

We analysed the population data on foreign affiliates in Slovenia for the period from 2019 to 2022, comparing subsidiaries' responses to two different global crises: the one sparked by the Covid-19 pandemic (a health crisis) and the one caused by the war in Ukraine. Based on firm population data in Slovenia for the 2019–2022 period, we (i) investigated how the performance of foreign affiliates differed from that of domestic firms for the period of the Covid-19 shock (2019–2020) compared to the period of the initial war-in-Ukraine shock (2021–2022), (ii) tested whether HQ's tendency toward centralisation (measured as Hofstede's power distance index [PDI] of MNEs' home countries) influenced the relation between an MNE's home country GDP growth and its affiliates' growth (in terms of employment, sales, and investment), and (iii) examined the risk and crisis management responses of foreign affiliates in relation to the shocks under study.

Building on institutional and resource dependence theories, and the existing knowledge on HQ–subsidiary relations and subsidiary autonomy, we assumed greater autonomy of a subsidiary to act as an incentive for more intensive risk and crisis management, which in turn results in greater resilience and better performance—domestically and/or internationally. We present the theoretical framework for our study in the next section. This is followed by a detailed description of the methods used. The results of the study are then outlined. These demonstrate above-average performance of foreign-owned subsidiaries during crises and highlight the potential of subsidiary autonomy in risky markets in particular for not only entity preservation but also growth and expansion either domestically or internationally. The paper ends with a discussion of the findings and a conclusion, where practical implications for policy makers and MNE managers are also outlined.

1 Literature review

Subsidiaries can take an active part in shaping the overall strategy of an MNE, but their autonomy and initiatives are not always encouraged since they might not be aligned with the overall priorities and interests of the parent company (Ambos et al., 2010). In this section, we review the key theoretical approaches to explaining HQ–subsidiary relations, outline the factors influencing HQ's likelihood to support subsidiary initiatives and autonomy (also in terms of risk management), and describe how subsidiary autonomy relates to performance.

1.1 Theoretical approaches to HQ–subsidiary relations

Researchers have often described the HQ–subsidiary relationship as a mixed-motive dyad. This suggests that the two parties in the relationship have somewhat different objectives (Ambos & Schlegelmilch, 2007; Ambos et al., 2010; Birkinshaw et al., 1998; Ghoshal & Nohria, 1989). These can also be conflicting at the level of a single party. The HQ, for instance, wish to ensure control and at the same time encourage the subsidiary to fulfil its potential, which necessitates a certain level of autonomy. The subsidiary, on the other hand, wishes to enhance its autonomy within the MNE network while also being "a good corporate citizen" following its MNE's internal rules and procedures. In other words, the two parties are both profit-seeking (contributing to the MNE's overall performance) and rent-seeking (wishing to achieve benefits aligned with their own partial interests) at the same time (see also Andersson et al., 2007; Mudambi & Navarra, 2004). This results in an ongoing HQ–subsidiary negotiation (Coff, 1999; Mudambi & Navarra, 2004) regarding the level of autonomy experienced by individual entities in the MNE network, where subsidiary autonomy may be desired and encouraged by both parties, a single party, or neither party (e.g., in the absence of subsidiary resources and capabilities to successfully capitalise on autonomy, its initiatives' mismatch with the overall MNE strategy, or when the subsidiary initiatives present a threat to the HQ and MNE as a whole; see also Ambos et al., 2010; Delany, 2000; Dörrenbächer & Gammelgaard, 2006; Holm and Pedersen, 2000).

We define subsidiary initiatives as entrepreneurial undertakings by subsidiaries in host countries (e.g., new product or service development, process innovation, attraction of investments, etc.; see also Ambos et al., 2010; Birkinshaw, 1997; Rugman & Verbeke, 2001). Subsidiary autonomy, on the other hand, refers to the extent to which an entity can make strategic decisions in its operating environment without interference by the HQ (Ambos et al., 2010; Birkinshaw & Morrison, 1995; Young & Tavares, 2004). Both concepts are fundamental aspects of the HQ–subsidiary relationship, where subsidiary initiatives can either increase or decrease subsidiary autonomy (Ambos et al., 2010). This is because initiatives and their outcomes for the subsidiary and the MNE affect HQ's attention to a particular subsidiary. HQ's attention to a subsidiary refers to "the extent to which the parent company recognizes and gives credit to the subsidiary for its contribution to the MNC as a whole" (Bouquet & Birkinshaw, 2008, p. 579). HQ's attention can be supportive, relative, or visible (see Ambos & Birkinshaw, 2010, for definitions). As it interacts with high levels of strategic choice, it also positively influences performance (Ambos & Birkinshaw, 2010).

Research on HQ–subsidiary relations is fragmented and draws on a wide range of often disconnected theories. Institutional and resource-based perspectives prevail (Meyer et al., 2000). While the former focus on home and host country characteristics and differences as determinants of intra-MNE relations and governance (see, e.g., DiMaggio & Powell, 1983; Scott, 1995), the latter highlight differentiated stocks of resources and their (re)allocation across MNE networks (see, e.g., Bartlett & Ghoshal, 1989; Nohria & Ghoshal, 1994). Both aspects are crucial for understanding the HQ–subsidiary relations and their dynamics during crises. While the resource dependency theory explains the structural factors influencing subsidiary autonomy (i.e., the degree, intensity, and diversity of resource dependence between entities in the MNE), the institutional theory highlights the role of (also internationally clashing) rules, norms, and routines in shaping subsidiary behaviour into more or less autonomous. This interplay between institutional and resource-related factors can influence the extent to which subsidiaries are able to initiate and implement strategic initiatives aimed at risk and crisis management. The combination of institutional and resource dependency theories thus provides a more comprehensive and contextualised understanding of subsidiary autonomy and initiatives.

As explained by the institutional theory, rather than being solely defined by their embeddedness in the MNE, subsidiaries are also determined by their own (home and host) and their HQ's country environments. They thus seek efficiency and legitimacy in both these environments (Hewett et al., 2003). In this respect, institutions present "rules of the game" (North, 1990) that determine social relationships, actors' roles in them, and standards and expectations for legitimate action by actors in a certain context (Ahlstrom & Bruton, 2006; Ando & Paik, 2013),

thereby reducing uncertainty (Friel, 2011; Meyer et al., 2009). Both familiarity with and the quality of institutions determine the HQ–subsidiary relations. Poor institutional quality (typical of emerging rather than advanced markets) implies a need for greater control by the HQ, whereas lack of familiarity with local institutions (often related to greater institutional distance between the HQ's and subsidiaries' home environments) indicates a need for relying on subsidiaries' location-specific knowledge and greater autonomy. This may change with a hierarchical culture in the MNE HQ's home country that hinders autonomy granting to subsidiaries even during crises (see, e.g., Hensmans & Liu, 2018) and as a result enhances the effect of developments in HQ's home market on the subsidiary performance during crises.

We thus propose the following hypothesis:

H1. *Subsidiaries with greater autonomy are less affected by crises in their HQs' markets of origin.*

Resource dependence theory (Pfeffer & Salancik, 1978), on the other hand, highlights the multiple resource-based dependence relationships (Ambos et al., 2010; Mudambi & Pedersen, 2007) at the firm level (i.e., within the MNE)—without being restricted to dyadic or hierarchical relationships. This perspective recognises the limited ability of corporate HQ to control all MNE subsidiaries they legally own. This especially applies to large and geographically highly dispersed MNEs (Ambos et al., 2010). The resource-dependence theory thus additionally points out the potential advantages of flexibility and ("regulated") subsidiary autonomy associated with intra- and inter-firm organisational linkages within the MNE, which may increase subsidiary initiatives and performance (Chung et al., 2008). Acknowledging subsidiaries as semiautonomous entities with a certain level of discretion over their actions, this view suggests that HQ act as an orchestrator of resources and knowledge (Ambos et al., 2010; Foss & Pedersen, 2002), allocating resources efficiently across the network of subsidiaries to exploit local opportunities while maintaining a global focus (Ambos et al., 2010; Bartlett & Ghoshal, 1989; Nohria & Ghoshal, 1994). HQ thereby rely both on formal authority (e.g., procedures such as budgets and capital investment reviews) and informal means of influence (e.g., staffing key positions, regional boards, incentive systems; Ambos et al., 2010).

This view also implies that the MNE differentiates its entities not solely based on the environments they operate in or service but rather also based on the resources they possess and contribute to the overall MNE network. We thus propose the following hypothesis:

H2. *Subsidiaries with more (relevant) resources are granted greater autonomy during crises.*

The abundance and value of entities' resources thereby depend on multiple factors, such as firm size and experience. Johnston and Menguc (2007) propose that an increasing subsidiary size correlates with increasing resources in the subsidiary and thus increases its autonomy (see also Dellestrand & Kappen, 2012; Mudambi & Navarra, 2004). However, they also suggest that this positive linear relationship persists until an inflection point, when subsidiary autonomy begins to decline. This is because subsidiary size is related with greater coordination complexity, a need for greater inputs of managerial experience and expertise, and a growing interdependence between the subsidiary and the rest of the MNE. Larger subsidiaries can, for example, engage in reverse knowledge transfers, even when the relevance of the knowledge is low (Dellestrand & Kappen, 2012; Yang et al., 2008), which implies a need or desire for HQ's control. A similar argument can be applied to subsidiary experience because the evolution of subsidiaries leads to their resource accumulation and achievement of an advanced role and function in an MNE (see, e.g., Dellestrand & Kappen, 2012; Mudambi, 2011). When this role becomes too pronounced or threatening to the HQ (or MNE as a whole due to conflicting interests), the HQ get more involved again (e.g., through formalisation that prevents potential agency problems).

Wang and Bansal (2005) show that this can change with a crisis, however. They find that younger, less experienced subsidiaries are more likely to survive a radical environmental shift than older, experienced subsidiaries. Following the crisis, on the other hand, subsidiary experience in the host country hinders performance, suggesting that subsidiary autonomy is most valuable during change as the subsidiary builds (updated) local knowledge, but that the MNE can offer valuable resources after an environmental shift. In a shifted environment, neither HQ nor subsidiary knowledge contributes to subsidiary performance, and not being constrained by extant knowledge from stable times and environments is an advantage (see also Hannan & Freeman, 1984; Narula, 2002; Rangan, 1998). We argue that experienced subsidiaries can also bring added value to the MNE during crises when they have experience with similar crises that helps them tackle turbulence more effectively and efficiently.

Other factors determining the power relations between HQ and their subsidiaries at both firm and country levels (thus connecting the two presented theoretic perspectives—institutional and resource dependency theories) include:

- the strategic aim of the subsidiary in the local market (entities in CEE countries are typically driven by cost reduction rather than market seeking, which usually implies HQ's tight control over these subsidiaries; Pisoni et al., 2013);
- the primary function and role of the subsidiary as well as its reliance on local knowledge and resources for its performance (the implementer roles imply greater control, whereas expansionary and creative roles necessitating location-specific resources suggest greater subsidiary autonomy; Ambos et al., 2010; Asmussen et al., 2008; Bartlett & Ghoshal, 1989; Benito et al., 2003; Delany, 2000; Li et al., 2013; Luo, 2001);[1]
- environmental turbulence (as this requires constant adaptations, subsidiaries in turbulent markets may find it beneficial to rely on their own systems, practices and policies rather than those mandated by HQ located in a different market [Hewett et al., 2003]; HQ can also recognise the value of the MNE learning from such developments and thus grant these subsidiaries greater autonomy; see also Frost et al., 2002);
- technological turbulence (this is likely to necessitate the MNE's intervention, as subsidiaries tend to rely on industry and category experiences at HQ to reduce their own risk related to this type of turbulence; Hewett et al., 2003);
- the level of competitiveness in local markets (this places pressure on subsidiaries to adapt to the local industry context; Hewett et al., 2003);
- the subsidiary's past successful initiatives and the related growth of its resource base and bargaining power relative to the HQ, which become more reliant on the subsidiary (Ambos et al., 2010);
- possession of strategic resources that other MNE entities depend on (i.e., subsidiary relevance to the MNE, where the survival of the MNE may depend on specific subsidiaries, which could result in either greater control over them during crises or greater autonomy granting—again depending on subsidiary past performance, capabilities, and other factors) as well as the subsidiary's strong power base due to relationships with other subsidiaries and actors in the local market that enable it access location-bound indigenous technologies and local knowledge, and thus capability building (Ambos et al., 2010; Andersson & Forsgren, 1996; Andersson et al., 2007; Li et al., 2013; March & Simon, 1958; Young & Tavares, 2004);
- home and host country interventionism (this can enhance the importance of familiarity with specific institutions as well as favour local entities, which has implications for subsidiary autonomy; see also Luo, 2024; Sally, 1994); and
- individuals' motives (especially those of managers; Ambos et al., 2010) and their networks.

Understanding the major drivers and outcomes of subsidiary autonomy at both country and firm levels helps MNC managers better comprehend their subsidiaries' desire for more autonomy and its potential value for the MNE, thereby supporting better management of intra-MNE relations and maintaining the smooth functioning of the MNE—also during crises. The following section addresses the role subsidiaries can take in risk and crisis management.

1.2 Subsidiary initiatives during crises and their effect on performance

When subsidiaries fear closure, they may take several measures to protect their interests and ensure their survival. They can focus on improving their financial performance to prove their value to the MNE, secure their own resources for survival, and reduce the likelihood of closure. This is their response to a greater likelihood of divestment or closure due to poor financial performance in their parent firm during a crisis (Wu et al., 2021). Subsidiaries can also diversify their operations (in imports or/and exports) to reduce dependence on a single product or market, which can help them maintain their relevance within the organisation, increase their resilience, and minimise the risk of closure (see also Chung et al., 2010; Delios et al., 2008; Essuman et al., 2023; Pisoni et al., 2013). Beside market diversification, they may explore new business opportunities within their existing industry or even in other industries to diversify their portfolio and avoid closure.

Increasing their internal and external embeddedness (usually in the subsidiary's domestic or regional

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[1] See also Birkinshaw and Morrison (1995) for a threefold typology of subsidiary roles, where the authors uncover that local implementers (i.e., ethnocentric subsidiaries that are closely integrated with the parent company) enjoy the lowest levels of strategic autonomy in an MNE. Subsidiaries with a world mandate (i.e., subsidiaries with worldwide or regional responsibility for a product line or entire business), on the other hand, enjoy the highest level of strategic autonomy. They also show that specialised contributors (i.e., subsidiaries with considerable expertise in certain specific functions or activities that employ a global strategy, which record a significantly lower performance than the other two groups) and local implementers both experience higher levels of internal product flows (and are thus more integrated in the MNE) compared to subsidiaries with a world mandate.

markets; see also Jaklič & Koleša, 2023) can also be a strategy that increases the subsidiary's relevance for the MNE (Andersson et al., 2007; Li et al., 2013; Nell & Ambos, 2013). As experienced during the Covid-19 pandemic and the war in Ukraine, subsidiaries can localise (or regionalise) their supply and value chains, thereby increasing the local content of their products or services. This can help them become more competitive in the local market and reduce their reliance on imports (Jaklič & Koleša, 2020, 2022). Subsidiaries may also seek to establish or strengthen local partnerships, such as those with suppliers or distributors, to improve their local knowledge and reduce their dependence on the parent company. During crises subsidiaries may focus on improving their efficiency and reducing costs (e.g., through process innovations or by reducing the number of employees) to become more competitive in the global market (Jaklič & Koleša, 2023). Finally, subsidiaries may try to leverage the resources and expertise of their parent company to improve their performance and reduce the likelihood of closure.

The different crisis management strategies at the subsidiary level imply diverse levels of subsidiary autonomy and have implications for both subsidiary and MNE performance (as well as their choice of a joint approach or a "divide and conquer" approach to crisis management). The relationship between subsidiary autonomy, crisis management initiatives, and subsidiary performance is complex and influenced by various factors. Empirical evidence yields inconsistent results (Chen & Zheng, 2018; Pisoni et al., 2013). Subsidiary decision-making autonomy may improve subsidiary performance in some contexts (e.g., when location-specific knowledge is key to managing the crisis and the subsidiary can access the crucial resources that allow it to address the crisis independently of the MNE as a whole; e.g., in an R&D-oriented subsidiary that has access to local resources), but it can also have the opposite effect elsewhere (e.g., when a crisis requires a collective response and collaboration, autonomy limits knowledge flows within the MNE and thus the potential for joint problem solving and innovation, or when an export-oriented subsidiary underestimates the geopolitical tensions and the relations between the HQ's home country and the selected market when establishing new partnerships or entering new markets). Wang and Bansal (2005) uncover that the effect of autonomy on performance can even vary depending on the stage of a crisis as well as the firm's maturity.

Geleilate et al. (2020) reviewed the conditions under which autonomy is beneficial to subsidiary performance. They provided a meta-analysis of 94 studies encompassing 23,337 foreign subsidiaries and identified moderators of the performance outcomes of autonomy related to institutional and industry contexts and to the HQ–subsidiary relationship. Their results were inconclusive. Findings so far suggest that autonomy (a key enabler of responsiveness) and knowledge exchange with the HQ (a dimension of MNE integration) are complementary (Geleilate et al., 2020; Murtha et al., 1998; Zaheer et al., 2013).

The conditions under which autonomy is beneficial to subsidiary performance depend on several factors. Subsidiaries need to align their behaviours with the overall strategy of the business group to achieve favourable performance outcomes. The relationship between autonomy and performance varies based on the type of autonomy granted, highlighting the importance of distinguishing between different forms of autonomy (strategic or operational autonomy) in assessing its impact. The extent of decision-making authority granted to subsidiaries should consider the operational environment in which they operate, including factors such as institutions, laws, customs, and culture that may affect the autonomy–performance relationship. Interorganisational networks also matter; autonomy can enhance subsidiary performance by facilitating beneficial interorganisational network relationships. Increased autonomy allows subsidiaries to engage more effectively in network linkages, contributing to improved performance outcomes. It may enable subsidiaries to develop, deploy, and adjust capabilities and strategies independently, fostering the creation of competitive advantages. This ability to innovate and adapt autonomously can lead to enhanced performance outcomes for subsidiaries. Next, subsidiaries' ability to deal with uncertainty in their operational environment can also influence the autonomy–performance linkage.

In summary, intra-firm and external factors influence the relation between subsidiary autonomy and its performance. The extent of autonomy granted to subsidiaries should be tailored to their competences, corporate embeddedness, and specific operational contexts to optimise performance outcomes within HQ–subsidiary relationships (Geleilate et al., 2020). To make matters even more complex, all these factors and their impact can change during (geopolitical) crises. The relationship between subsidiary autonomy and performance can thus be affected by contextual factors unique to each subsidiary, such as home country and host country differences, which can significantly influence the autonomy–performance dynamic.

However, based on a combination of arguments from institutional theory and resource-dependence

theory, we argue that increased autonomy in riskier regions and markets in particular allows subsidiaries to adapt to the changes in local environments more effectively and efficiently (due to their past experience, extant networks, and other local advantages), and at the same time enables them to reduce the impact of the crisis in their parent firm's home market on their own operations. Often not prioritised by the HQ, these subsidiaries are forced to take action themselves to survive a crisis. We thus propose our third hypothesis:

H3. *Subsidiary autonomy in risky markets leads to improved subsidiary performance during crises.*

We present the methodology employed for hypotheses testing below. Results, a discussion, and conclusion follow.

2 Data and methods

In this section, we first explain the data sources and variables used to conduct the study, followed by the description of the empirical method. We used the data on the financial statements of companies obtained from the Statistical Office of the Republic of Slovenia (SURS). The data cover all Slovenian companies and include the individual company's unique identification number, the standard balance sheet, and profit and loss accounts. We also obtained data from the Agency of the Republic of Slovenia for Public Legal Records and Related Services (AJPES), which contains the business register with data on the region and municipality where a company is located, the date of establishment of the company, and the economic sector of the company according to the Statistical Classification of Economic Activities in the European Community (NACE). Another firm-level dataset was provided by the Bank of Slovenia and contains data on inward foreign direct investment (iFDI) in Slovenia. The iFDI data contain the country code of each foreign owner of a Slovenian subsidiary as well as the value and share of equity in the Slovenian subsidiary. We combined the firm-level data with two sources of the country-level data to obtain information on GDP growth and cultural characteristics of the countries of origin of subsidiaries' foreign owners. GDP growth rate data was collected from the World Bank (2024) World Development Indicators website. We also obtained the data on six Hofstede cultural dimensions for countries from Geert Hofstede's website and used

the PDI as a proxy for HQ control (typical for HQ home countries with a high PDI) versus subsidiary autonomy (typical for HQ home countries with a low PDI). The index ranges between 0 and 100 and is defined as "the extent to which the less powerful members of organizations and institutions (like the family) accept and expect that power is distributed unequally" (Hofstede, 2024).

We defined the following performance measures, from which we calculated the dependent variables: number of employees, total revenue, exports to EU countries, exports to non-EU countries, tangible fixed assets, and total assets. In order to obtain data in constant prices, we deflated total assets and tangible fixed assets using the Index of Investment Products (IIP), while exports and revenue were deflated using the Producer Price Index (PPI) at the 2-digit NACE industry level. In the second step, we used the following equation to calculate the growth rate of the number of employees, total revenue, exports to EU countries, exports to non-EU countries, company's total assets, and tangible fixed assets:

$$g_{it} = \frac{2(y_{it'} - y_{it})}{(y_{it'} + y_{it})} \tag{1}$$

where g_{it} stands for firm i's growth rate of one of the above variables from year t to year t', while y_{it} ($y_{it'}$) stands for the outcome variable under consideration in year t (t'). We analysed growth for the entire 2019–2022 period first ($t = 2019$, $t' = 2022$), and then separately for the Covid-19 crisis during 2019–2021 ($t = 2019$, $t' = 2021$) and energy crisis sparked by the war in Ukraine during 2021–2022 ($t = 2021$, $t' = 2022$).[2] We used Eq. (1) instead of the standard formula for growth rate because the above formula handles extreme growth rates in case of very low or zero initial values or a decrease to very low or zero values in the final period better. This way of calculating growth rates therefore avoids excessive values associated with zero or small initial values. It is limited to an interval between −2 and +2. Despite this, this calculation provides a very similar result for small (normal) growth rates, but restricts the values for very large growth rates and avoids the problem of outliers. From the linked firm-level datasets, we also constructed the following control variables: value added per employee, fixed tangible assets per employee, and firm age.

Using the World Bank GDP data, we calculated GDP growth rates for all countries for the three different time periods used in our empirical analysis.

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[2] While the war is still ongoing, this is the latest available data. By limiting the effects to a two-year period, the same duration of shock to that caused by the Covid-19 pandemic is considered, and thus the results allow for greater intercrisis comparability.

More specifically, we calculated GDP growth rate for the following periods: 2019–2021 (the Covid-19 pandemic period), 2021–2022 (the period of the war in Ukraine, which is still ongoing) and 2019–2022 (the period including both shocks). From the Hofstede cultural dimensions data, we used the PDI dimension, which is characterised by the extent to which less powerful members within organisations and institutions tolerate and anticipate an unequal distribution of power (Hofstede et al., 2010). This is the closest proxy for subsidiary autonomy available at country level with a close-to-global coverage. We used the GDP growth rate and PDI data to construct the corresponding GDP growth rate and PDI levels in the country of a subsidiary's owners for each Slovenian subsidiary. Where foreign owners originated from more than one country, we used the equity shares as weights to calculate the weighted average of the variables. For subsidiaries with equity shares with Slovenian owners, we used the corresponding GDP and PDI data for Slovenia. The final step was to use the weighted shares of the owners of the Slovenian subsidiaries and the Slovenian share to calculate the weighted GDP growth rate and the weighted Hofstede PDI of the owners of a Slovenian subsidiary. The data on Hofstede dimensions are incomplete. For missing values of PDI and GDP, we omitted the countries of origin with no available data and recalculated the weights without the missing countries.

The goal of the empirical analysis was to test the hypothesis that greater autonomy of subsidiaries gives rise to more independent and proactive adjustment strategies during economic downturns such as the Covid-19 pandemic and energy shock due to the war in Ukraine. Therefore, we study the evolution of various performance measures in subsidiaries during the 2019–2022 crisis period, how they are related to the economic conditions in the HQs' countries of Slovenian subsidiaries, and to what extent the differences between the effects on subsidiaries' performance is moderated by the degree of power distribution and hierarchy in the countries of origin of the owners of these subsidiaries. We estimated the following regression model:

$$g_{it} = \beta_0 + \beta_1 FOR_{it} + \beta_2(FOR_{it} \times HQGDP_{it})$$
$$+ \beta_3(FOR_{it} \times PDI_{it}) + \beta_4(FOR_{it} \times HQGDP_{it}$$
$$\times PDI_{it}) + \beta_5 X_{it} + ind + \varepsilon_{it} \qquad (2)$$

where the dependent variable g_{it} denotes firm i's growth rate of a performance indicator defined in Eq. (1). The dummy variable FOR_{it} distinguishes subsidiaries from domestic firms, whereas the next three interaction terms identify the correlation between the growth rate of GDP in subsidiary i owners'

country(ies) ($HQGDP_{it}$) and i's growth of a chosen outcome variable. The last interaction term ($FOR_{it} \times HQGDP_{it} \times PDI_{it}$) allows for the moderating effect of the power distance in subsidiary i owners' country(ies) (PDI_{it}). This specification enabled us to estimate the marginal effects of the change in $HQGDP_{it}$ on g_{it} at different levels of PDI_{it}, which we report in the Results section in Fig. 1. We also controlled for industry-specific common effects (ind) by including a series of 2-digit NACE code industry dummy variables and several firm-level control variables (X_{it}). These include the age of the firm, log of the number of employees, log of labour productivity (value added per employee), and log of capital–labour ratio (tangible fixed assets per employee). We estimated specification (2) on a cross-section of all firms in Slovenia in 2019 and took g_{it} to represent the growth of a given performance indicator from 2019 to 2022. Additionally, we split the period into two subperiods (2019–2021 and 2021–2022) and separately studied the Covid-19 crisis and energy shock induced by the war in Ukraine. In this case, g_{it} is the growth rate of the variable from 2019 to 2021 (Covid-19) and growth rate from 2021 to 2022 (war in Ukraine). We report these results in the Appendix (see Fig. A1). All regressions estimate the heteroscedasticity-robust standard errors (see Tables A1 to A3 for regression results for both Fig. 1 and Fig. A1).

3 Results

Table 1 shows summary statistics for the main firm characteristics in 2019 and growth rates of performance measures in the 2019–2022 period. Columns 2 and 3 compare domestic firms with foreign-owned firms. Foreign-owned subsidiaries in Slovenia are significantly larger in terms of the number of employees, total revenue, export revenue, and assets compared to domestic firms. A higher percentage engage in export, and they exhibit three times higher labour productivity. During the crisis period of 2019–2022, foreign-owned subsidiaries also generated significantly higher growth of total assets and exports to non-EU countries. However, unlike domestic firms they shed 1.4% of workforce on average. Domestic firms, on the other hand, hired additional 1.8% staff during the same 3-year period.

Next, we split the group of subsidiaries into two halves according to the value of the PDI of their owners' home countries. In subsidiaries with lower established hierarchy in parent firms' home countries (column 4), where we expected the autonomy of Slovenian subsidiaries to be higher, firms shed 4.3% of the workforce, whereas the more hierarchical subgroup (column 5) increased the number of employees

Table 1. Summary statistics, 2019.

	All firms (1)	Domestic (2)	Foreign-owned (3)	Low power dist. index (4)	High power dist. index (5)	Low export intensity (6)	High export intensity (7)	Manufacturing (8)	Services (9)
Employment [FTE]	7.7	6.0	***98.1	115.5	84.6	78.9	**131.7	218.4	***60.2
Revenue [M EUR]	1.49	1.05	***24.5	27.8	22.6	18.2	***34.5	44.0	***18.4
Share of exporters	35.5%	34.9%	***68.3%	70.0%	68.5%	46.8%	***100.0%	94.8%	***59.7%
Exports to EU [M EUR]	0.501	0.319	***9.89	10.7	9.65	0.321	***20.9	29.3	***3.71
Exports outside EU [M EUR]	0.140	0.086	***2.93	3.35	2.61	0.095	***6.19	7.70	***1.43
Value added/employee [EUR]	28,944	27,809	***84,668	84,532	83,110	98,287	86,068	60,967	***93,625
Tangible fixed assets [M EUR]	0.578	0.445	***7.47	8.65	6.60	7.21	8.70	13.5	***5.54
Total assets [M EUR]	1.60	1.20	***22.3	25.6	19.9	20.5	24.9	35.3	***18.2
Age [years]	12.7	12.6	***17.1	17.8	16.9	16.0	***19.5	22.5	***15.3
g(Employment)	1.7%	1.8%	*−1.4%	−4.3%	*1.8%	−5.1%	*0.5%	−1.2%	−1.2%
g(Revenue)	2.2%	2.2%	3.8%	6.0%	1.4%	−2.4%	1.9%	2.7%	4.3%
g(Exports EU)	3.1%	3.1%	−0.6%	−6.4%	**5.0%	4.0%	**−6.7%	0.7%	−0.9%
g(Exports non-EU)	1.9%	1.8%	*6.6%	8.1%	8.1%	3.6%	9.0%	8.5%	5.9%
g(Tang fix assets)	4.9%	4.9%	5.2%	8.7%	1.7%	9.0%	**−0.6%	4.2%	5.8%
g(Total assets)	16.5%	16.7%	***8.9%	6.9%	10.6%	2.2%	***15.2%	16.7%	***6.4%
N	67,190	65,912	1278	606	606	594	595	307	963

Notes. Columns 3–9 show values for the Slovenian subsidiaries of foreign MNCs. Low (high) power distance index refers to the half of the subsidiaries with the values of their corresponding owners' countries' power distance index below (above) the median value. Similarly, the low (high) export intensity subsample refers to the half of the subsidiaries with lower (higher) than median values of the export/revenue ratio. Variables $g(\ldots)$ denote the growth rate of the outcome variable from 2019 to 2022. *** (**, *) denote significance at 1 percent (5 percent; 10 percent) in the two-sample t-test.
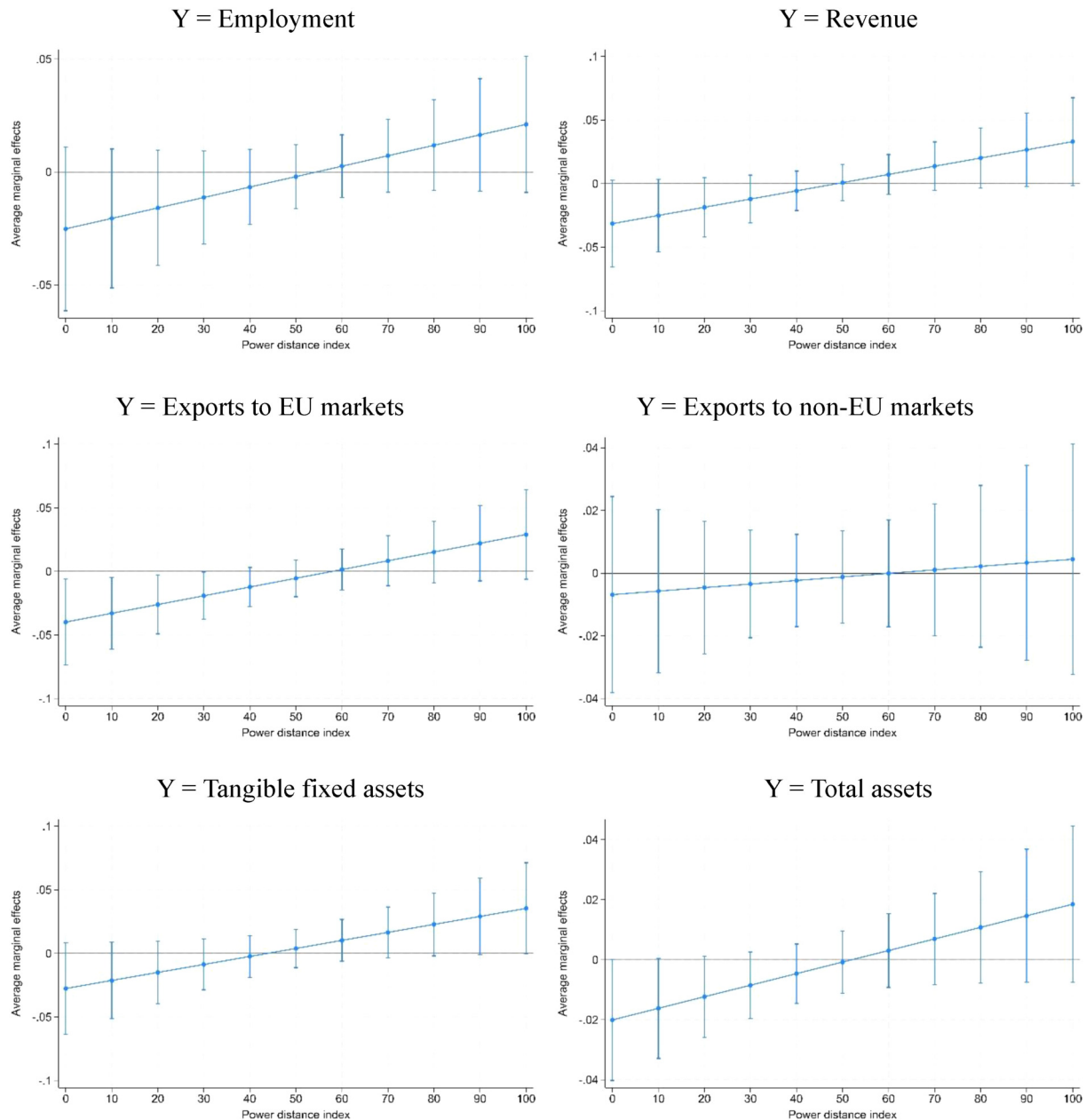Source: Own calculations.

Fig. 1. Average marginal effects of HQ-country GDP growth rate on Slovenian subsidiaries' performance (Y) at different levels of HQ-country power distance index (2019–2022). Source: Own calculations.

by 1.8%. A similar pattern can be observed in the growth of export revenue to EU countries, where low-hierarchy subsidiaries exhibited a 6.6-percent decline, while the more hierarchical subgroup increased exports by 5%. This refutes our third hypothesis, that subsidiaries with greater autonomy record better performance during crises—at least in terms of their international business performance. Instead, it indicates that more autonomous subsidiaries introduce more initiatives in terms of cost optimisation and increasing productivity.

Splitting the group of subsidiaries into less export-intensive (column 6) and more export-intensive (column 7) reveals that the more export-oriented subsidiaries suffered a larger drop of export revenues to the EU market, but managed to slightly increase employment, total revenue, and especially total assets. This indicates that export-oriented (usually also resource-richer) subsidiaries further increase their resources during crises but shift their export focus to non-EU and domestic markets to capitalise on faster growth in these business environments. As

this pattern is different from that in their parent firms (i.e., it implies deregionalisation rather than regionalisation), we infer that these firms are also granted greater autonomy, which supports our second hypothesis. The differences in growth rates of the selected performance outcomes are not statistically significant between the subgroup of manufacturing and the subgroup of service subsidiaries, except for the significantly higher increase of total assets in the manufacturing group during the 2019–2022 period.

Now we turn to our main regression results (see Fig. 1). The plots show the average marginal effect of GDP growth rate in the home countries of subsidiaries' parent firms on the growth rate of the subsidiaries' performance measure at different levels of the power distance index in home countries of subsidiaries' parent firms. We estimated the marginal effects at the 10-index point intervals from 0 to 100 and depict the corresponding 95-percent confidence intervals for each estimate. Fig. 1 shows the estimates for the entire 2019–2022 period, while Fig. A1 in the Appendix also reports the results for 2019–2021 and 2021–2022 subperiods separately to identify possible differences between the Covid-19 shock and the shock from the war in Ukraine.

All performance measures exhibit positive association between higher hierarchy in subsidiaries' parent countries (higher PDI) and the marginal effects. This means that the marginal effect of a change in GDP growth rate in parent firms' home countries on subsidiaries' performance is higher for subsidiaries in Slovenia that are owned by entities from more hierarchical societies. Contrary, being owned by investors from countries with more distributed power preferences is associated with a lower effect of macroeconomic shocks in owners' countries on performance of subsidiaries in Slovenia. However, a statistically significant effect can only be observed in case of revenue growth and the growth rate of tangible fixed assets. We interpret the positive and significant marginal effect at high levels of PDI and low and insignificant marginal effect at more moderate levels of PDI as evidence in favour of our first hypothesis, that is, that subsidiaries with more autonomy (with owners from countries with lower PDI) are more independent in adapting to adverse shocks, and hence the parent company's domestic macroeconomic environment does not play a large role in a subsidiary's crisis management. In contrast, for subsidiaries with more hierarchically distributed power, we observe that macroeconomic shocks in their parents' countries translate to a larger degree into the performance measures, most notably for capital investment and revenue generation.

4 Discussion

In the paper we have focused on HQ–subsidiary relations during crises and how subsidiary autonomy (determined by HQ's home country and subsidiary host country environments) impacts subsidiary risk and crisis management initiatives as well as performance during crises. We have thereby also taken firm-level factors of autonomy into consideration (including firm size and age, industry, labour intensity, export orientation, and capital–labour ratio). We found that foreign-owned firms display better performance compared to domestic firms also during crises. This is in line with previous findings that firms in Slovenia that participate in a global value chain have, on average, larger fixed assets, higher gross investment rates, and generate higher value added per employee compared to non-participating firms (Ponikvar et al., 2023). FDI prior to crises can thus act as a generator of a resource base in subsidiaries relevant when a crisis emerges, and the HQ may no longer be able to support the subsidiary's operation. This is because these resources can be enacted for risk and crisis management and facilitate successful subsidiary initiatives. However, unlike domestic firms, which have increased the number of their employees during the studied period, foreign affiliates shed 1.4% of the workforce on average. This could be due to domestic firms taking better advantage of home country incentives aimed at employment maintenance during crises. On the other hand, it could also indicate that foreign affiliates are more cost-optimisation-prone during crises, taking more initiatives in this respect.

The results support our first hypothesis. Macroeconomic shocks in the parent firm's home country are more likely to translate into subsidiary performance if the owners come from countries with a high PDI. If the owners come from countries with lower PDI, the subsidiaries (with more autonomy) adapt to crises differently. The more autonomous subsidiaries with lower established hierarchy in parent firms' home countries shed employees during crises (pursue the goals of increasing productivity, cost cutting, and increasing efficiency), whereas the more hierarchical subgroup increased the number of employees. We argue that this stems from subsidiary autonomy necessitating subsidiaries in risky regions to cope with a crisis more independently (i.e., without being able to rely on the HQ's resources—which could be due to operating in a non-prioritised area or due to the HQ relying on the subsidiary's capabilities and competencies). Similarly, the growth of export revenue to EU countries among low-hierarchy subsidiaries decreased, while the more hierarchical subgroup increased exports to EU countries. This may

imply that autonomy in emerging markets is given to more domestic-market-oriented subsidiaries, non-EU-oriented subsidiaries, or subsidiaries with a less substantial role for the MNE, whose failure would not hurt the entire corporation as much. Higher growth of subsidiaries' domestic market revenues in the more autonomous subsidiaries is in line with this premise. Non-EU-oriented subsidiaries (exporting to geopolitically nonaligned countries) may also gain more autonomy due to the lack of competences and restrictions in the HQ's home economy. This contradicts the literature stating that local implementers are more likely to experience greater control compared to subsidiaries with an expansionary role (Ambos et al., 2010; Asmussen et al., 2008; Bartlett & Ghoshal, 1989; Benito et al., 2003; Birkinshaw & Morrison, 1995; Delany, 2000; Li et al., 2013; Luo, 2001), which could be explained by the highly entrepreneurial culture in Slovenia, which suggests a higher value added of these subsidiaries for the MNE if they are enabled to capitalise on their innovativeness (see also Hensmans & Liu, 2018). Moreover, our results indicate that local implementers—when given autonomy—can assume an expansionary role during a crisis by seeking new market opportunities through deregionalisation.

We also explored the average marginal effect of GDP growth rate in home countries of subsidiaries' parent firms on the growth rate of subsidiaries' performance depending on the different levels of PDI in home countries of subsidiaries' parent firms. All performance measures exhibited positive association between higher hierarchy in home countries of subsidiaries' parent firms (higher PDI) and the marginal effects. This shows that the effect of macroeconomic shocks in owners' countries on the performance of subsidiaries is greater for more hierarchical MNEs. This confirms our hypothesis that subsidiaries with more autonomy (owners from countries with lower PDI) are more independent (but not necessarily more successful) in adapting to adverse shocks, and hence the parent company's domestic macroeconomic environment does not play a large role in a subsidiary's crisis management. In contrast, for subsidiaries with more hierarchically distributed power, we observe that macroeconomic shocks in their parents' countries translate to a larger degree into the performance measures, most notably for capital investment and total revenue growth, which are traditionally the more controlled operations. This is consistent with previous research on the impact of country-level institutions on MNE governance and performance.

Our study is not without limitations. The first is the operationalisation of autonomy based on country-level factors rather than also firm-level factors. We argue that this is acceptable because the role of coun-

tries and their intervention in determining MNE governance increases during crises. We also control for several firm-level factors in our study. We nonetheless encourage future research on the topic to include firm-level factors in studying the phenomenon of subsidiary autonomy and its impact on crisis management initiatives and outcomes in the MNE. Survey-based data on entities' business functions, areas of autonomous or controlled decision making and competences as well as intra-MNE network interdependencies combined with datasets on business performance and institutional environments would further enrich the insights into the role of subsidiary autonomy. We also focus our research on performance at the level of individual subsidiaries. Spillover effects of subsidiary autonomy on the MNE as a whole should be considered in future research designs (this suggests studying not only HQ–subsidiary relations but also intersubsidiary relations—possibly also by operational processes—and multiple dependencies in the MNE). Moreover, our study is focused on a single CEE host country. Literature would benefit from a comparative study that would not solely include developed and emerging markets with different levels of power distance at the level of HQs' home countries (a strength of our research) but rather also subsidiary host locations. Finally, considering both direct contextual effects and distance effects on the HQ–subsidiary relations (see also Hoenen & Kostova, 2015) could be conducive to theory development as well.

5 Conclusion

This paper presents the performance of foreign subsidiaries in Slovenia (a small open economy in CEE) during two crises and their responses to them: the crisis caused by the Covid-19 pandemic and the crisis triggered by the war in Ukraine. The findings show the current dilemmas, responses, and ways in which foreign subsidiaries in high-risk regions try to survive, maintain their position within their networks, and increase the value and resilience of multinationals by increasing their autonomy and improving their access to external resources and capabilities—especially in their host markets. They also highlight the importance of balancing autonomy and central control within multinational enterprises to encourage subsidiary-driven innovation, strategic decision making, and risk management during crises. The empirically analysed period encompasses an unfinished, still evolving crisis that could escalate into a more widespread war and the issue of autonomy or control over (capital, technology, management capabilities, and market access of) subsidiaries, which recurs in

the daily decision making of MNCs. Policy makers are also taking greater account of the resilience and impact of FDI in their decision making. Better performance (and higher resilience) of foreign affiliates during crises and current geopolitical tensions are forcing governments to address issues around trade and investment restrictions, investment screening, government intervention in value chains, and access to resources. Managers (at head office and subsidiary levels alike), on the other hand, have optimised the value chains on the purchasing and sales sides in view of the growing geopolitical risks. With their initiatives and autonomy, the subsidiaries play an active role in this process of geopolitical shifts, particularly in high-risk regions such as CEE. A mixed-motive dyads relationship between the head office and the subsidiaries has therefore become even more complex in the context of geopolitical tensions.

In our study, we have identified links between (different types of) risk and crisis management initiatives of foreign subsidiaries and their autonomy expressed through power distance, a cultural dimension that is particularly important in times of crisis. The results confirm that the autonomy of foreign subsidiaries plays an important role in the resilience of subsidiaries—even if their resilience strategy is predominantly focused on their domestic market during crises. This can provide relevant resources for the firm for an interim period before future (possibly also international) growth as well as for its domestic economy. Subsidiary autonomy does not only result in risk and crisis management initiatives focused solely on the subsidiary's domestic market, however. Our findings indicate that it can also foster subsidiary initiatives aimed at the search for new markets outside their region.

A comparison of the performance of domestic and foreign companies also showed the importance of (attracting) FDI for national economies during crises. Countries with a high degree of openness to trade are particularly vulnerable to crisis disruptions, and FDI has been a factor of structural change and productivity growth in CEE in past crises (Damijan et al., 2018). Above-average performance indicators of foreign subsidiaries during two different crises signal policy implications for national and EU decision makers designing FDI policies in the host country. Foreign subsidiaries have shown a proactive role in risk management, geographic distribution, and trade diversification. Cost cutting, employment reduction, trade optimisation, and realignment were more pronounced in subsidiaries of countries that favour less hierarchy. The growth in EU exports and employment is higher for subsidiaries with HQ in countries that favour a more hierarchical structure. The study

thus not only documents the vital role of foreign subsidiaries in the resilience of the national (and European) corporate sector, but also warns of the risks associated with emerging tensions and restrictions in international trade and investment.

In developing resilience strategies, both regional and head office managers address the issue of subsidiary autonomy and the role of subsidiaries in risk management. The managers of the subsidiaries take into account the growing role of governments, their geoeconomic policies, and the specific characteristics of individual countries, such as power distance, when taking initiatives. Our results indicate that subsidiary autonomy can protect a subsidiary from the effects of a crisis in the home country of its HQ to some extent and is thus advisable especially when the latter is heavily hit. The HQ, on the other hand, may choose to employ the strategy to protect the MNE as a whole and grant autonomy to subsidiaries relying predominantly on their domestic markets as they are more fit to address the local challenges due to possessing location-specific knowledge. However, our results also show that subsidiary autonomy in itself does not guarantee successful risk and crisis management but rather needs to be complemented by other measures (e.g., those aimed at cost optimisation, competence development, product, service, and process innovation, networking, etc.).

The study can stimulate further research by addressing the limitations of existing studies (i.e., by drawing on firm-level data on subsidiary autonomy or adding new empirical evidence from different regions), as well as by extending research on how subsidiary autonomy and crisis management affect the performance of individual entities and MNEs as a whole, how subsidiary autonomy affects regionalisation and localisation of production, and how subsidiary autonomy affects their initiatives for new roles and tasks in building resilience and sustainability (especially when host countries provide incentives and subsidies, e.g., for green and digital transitions).

Funding statement

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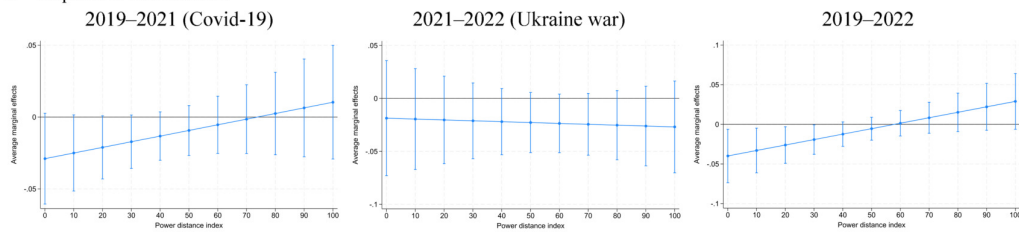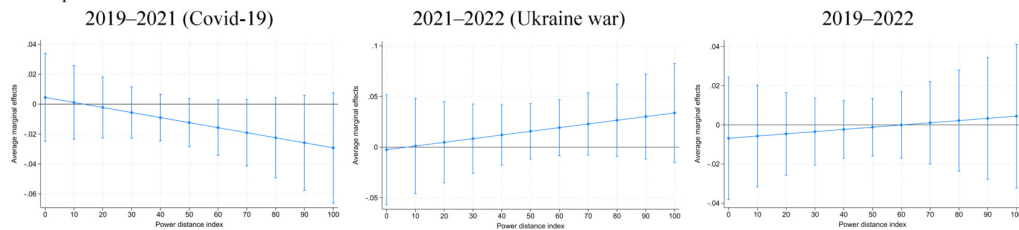
Appendix

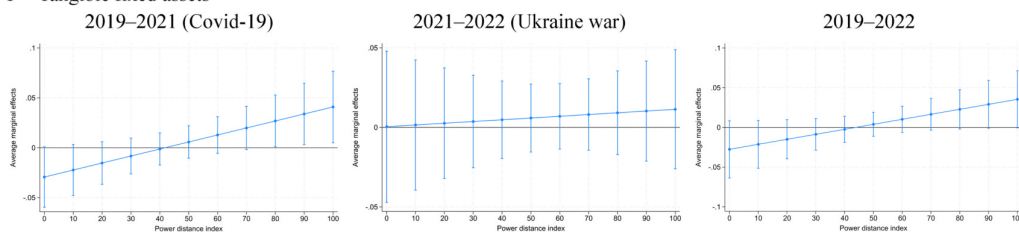Y = Employment
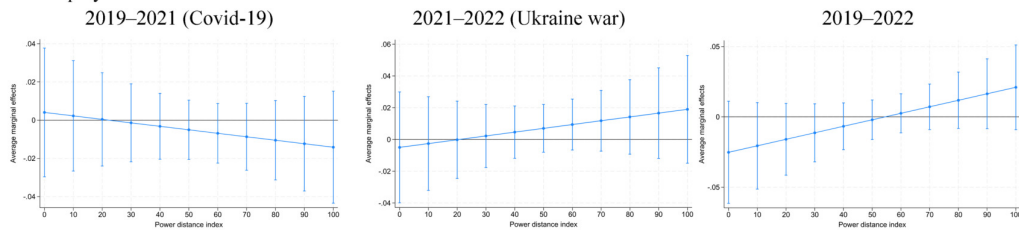
Y = Revenue
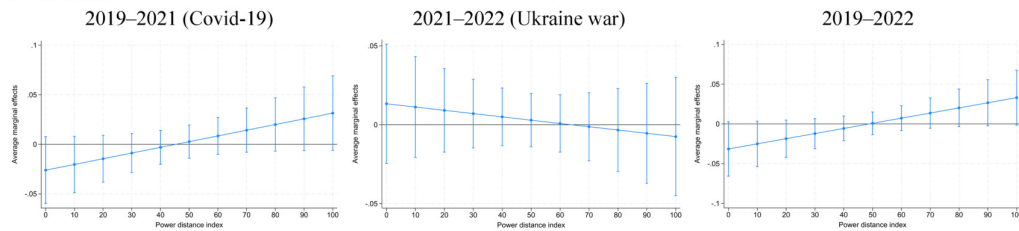
Y = Exports to EU markets

Y = Exports to non-EU markets

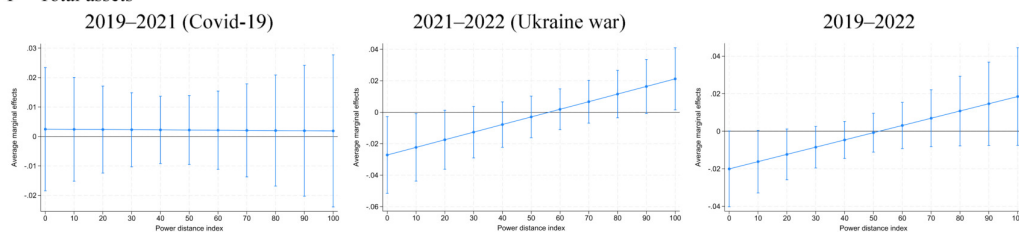Y = Tangible fixed assets

Y = Total assets

Fig. A1. Average marginal effects of HQ-country GDP growth rate on Slovene subsidiaries' performance (Y) at different levels of HQ-country power distance index (2019–2022). Source: Own calculations.

Table A1. Regression results for Fig. 1 and Fig. A1 average marginal effects, 2019–2022.

Y = growth of:	Revenue	Employment	ExportEU	ExportnonEU	TotAssets	FixAssets
Age	−.0116***	−.00851***	−.00510***	−.00224***	−.0128***	−.00826***
	(.000370)	(.000331)	(.000393)	(.000306)	(.000284)	(.000421)
log(Employment)	.0310***	.00572*	−.00255	.00821**	.0311***	.0566***
	(.00302)	(.00303)	(.00414)	(.00361)	(.00241)	(.00386)
log(K/L)	.000359	.0116***	−.00341***	5.79e−05	−.0109***	−.0931***
	(.00105)	(.000922)	(.000904)	(.000644)	(.000785)	(.000986)
log(VA/L)	−.0178***	−.0414***	−.00406***	−.00255***	.00686***	.0251***
	(.00102)	(.000897)	(.000900)	(.000675)	(.000746)	(.00108)
FOR	.207***	.0795	.114*	.0761	−.0207	.229***
	(.0759)	(.0691)	(.0664)	(.0729)	(.0474)	(.0799)
FOR × HQGDP	−.0315*	−.0252	−.0398**	−.00685	−.0201*	−.0276
	(.0174)	(.0185)	(.0172)	(.0160)	(.0103)	(.0183)
FOR × PDI	−.00390**	−.000542	−.00202	−.000521	−.00142	−.00431**
	(.00167)	(.00145)	(.00138)	(.00160)	(.00112)	(.00174)
FOR × HQGDP × PDI	.000645**	.000462	.000688**	.000113	.000386*	.000630*
	(.000318)	(.000309)	(.000320)	(.000314)	(.000213)	(.000333)
Constant	.133**	.336***	.0456	.0405	.208***	.674***
	(.0574)	(.0471)	(.0499)	(.0383)	(.0399)	(.0521)
N	59,484	59,484	59,484	59,484	59,484	59,484
R^2 (adj.)	.034	.068	.007	.003	.046	.142

Notes. Results of estimation of Eq. (2). Industry dummies included, but not reported. Heteroskedasticity robust standard errors in parentheses. *** $p < .01$, ** $p < .05$, * $p < .1$.
Source: Own calculations.

Table A2. Regression results for Fig. A1 average marginal effects, 2019–2021 (Covid-19).

Y = growth of:	Revenue	Employment	ExportEU	ExportnonEU	TotAssets	FixAssets
Age	−.0102***	−.00718***	−.00404***	−.00202***	−.00910***	−.00668***
	(.000343)	(.000294)	(.000367)	(.000283)	(.000243)	(.000373)
log(Employment)	.0286***	−.00354	−.00692*	.00341	.0235***	.0500***
	(.00274)	(.00266)	(.00387)	(.00334)	(.00204)	(.00338)
log(K/L)	.000818	.00927***	−.00505***	−.000167	−.00735***	−.0722***
	(.000966)	(.000825)	(.000832)	(.000592)	(.000675)	(.000894)
log(VA/L)	−.0190***	−.0323***	−.00456***	−.00274***	.00473***	.0213***
	(.000946)	(.000802)	(.000840)	(.000621)	(.000640)	(.000967)
FOR	.102*	−.00371	−.0177	.0160	−.0594*	.0982*
	(.0546)	(.0435)	(.0521)	(.0516)	(.0339)	(.0529)
FOR × HQGDP	−.0260	.00407	−.0289*	.00452	.0248	−.0294*
	(.0172)	(.0172)	(.0161)	(.0149)	(.0107)	(.0155)
FOR × PDI	−.00241**	.00114	.000971	.000809	−.000234	−.00204*
	(.00119)	(.000911)	(.00114)	(.00109)	(.000751)	(.00116)
FOR × HQGDP × PDI	.000575*	−.000182	.000393	−.000337	−5.79e−06	.000703**
	(.000322)	(.000281)	(.000319)	(.000298)	(.000208)	(.000296)
Constant	.182***	.196***	.0518	.110***	.174***	.566***
	(.0503)	(.0392)	(.0488)	(.0364)	(.0345)	(.0456)
N	61,779	61,779	61,779	61,779	61,779	61,779
R^2 (adj.)	.041	.055	.008	.004	.032	.110

Notes. Results of estimation of Eq. (2). Industry dummies included, but not reported. Heteroskedasticity robust standard errors in parentheses. *** $p < .01$, ** $p < .05$, * $p < .1$.
Source: Own calculations.

Table A3. Regression results for Fig. A1 average marginal effects, 2021–2022 (Ukraine war).

Y = growth of:	Revenue	Employment	ExportEU	ExportnonEU	TotAssets	FixAssets
Age	−.00727***	−.00634***	−.00346***	−.00124***	−.00685***	−.00532***
	(.000272)	(.000226)	(.000303)	(.000234)	(.000186)	(.000282)
log(Employment)	.0118***	.0105***	−.000323	.00402	.0124***	.0381***
	(.00215)	(.00203)	(.00334)	(.00289)	(.00157)	(.00267)
log(K/L)	.00139*	.00745***	.00151**	.000534	−.00497***	−.0454***
	(.000814)	(.000668)	(.000716)	(.000514)	(.000543)	(.000728)
log(VA/L)	−.00834***	−.0193***	−.000697	−.000649	.00362***	.0133***
	(.000779)	(.000645)	(.000722)	(.000540)	(.000501)	(.000784)
FOR	−.0755	.0210	.0885	.0240	.0659	.0169
	(.0792)	(.0809)	(.120)	(.118)	(.0526)	(.104)
FOR × HQGDP	.0133	−.00495	−.0186	−.00254	−.0272**	.000408
	(.0193)	(.0178)	(.0277)	(.0277)	(.0124)	(.0242)
FOR × PDI	.00161	−.000282	−.000679	−.000290	−.00149*	−.000125
	(.00143)	(.00145)	(.00175)	(.00180)	(.000772)	(.00168)
FOR × HQGDP × PDI	−.000208	.000240	−8.24e−05	.000363	.000484***	.000110
	(.000343)	(.000316)	(.000410)	(.000446)	(.000182)	(.000378)
Constant	.0924**	.216***	.0171	−.0358	.0685***	.278***
	(.0431)	(.0316)	(.0427)	(.0308)	(.0239)	(.0373)
N	65,740	65,740	65,740	65,740	65,740	65,740
R^2 (adj.)	.031	.034	.004	.003	.028	.070

Notes. Results of estimation of Eq. (2). Industry dummies included, but not reported. Heteroskedasticity robust standard errors in parentheses. *** $p < .01$, ** $p < .05$, * $p < .1$.
Source: Own calculations.