GOSPODARKA NARODOWA

3(311)2022, 46–66
DOI: 10.33119/GN/151793
gnpje.sgh.waw.pl
SGH

The Polish Journal of Economics
Istnieje od / Published since 1931

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Innovation Performance of Foreign Subsidiaries in Post-Transition Economy: Evidence from Poland*

Sprawność innowacyjna zagranicznych spółek zależnych w gospodarce po transformacji systemowej: wyniki dla Polski

Abstract

The host country environment is an important source of knowledge for multinational enterprises (MNEs). The resources and competencies of MNEs' foreign subsidiaries (FS) as well as internal and external relationships are perceived to be critically important for their performance. This study intends to fill a cognitive gap in the understanding of factors influencing the innovation performance of FS established in Poland. FS innovation performance is explained by their resource-based specific advantages, internal embeddedness in the corporate network, external embeddedness, and by interactions between their systemic power and autonomy. The analysis is based on a 2018 survey of 436 manufacturing FS in Poland. The ordinary least squares (OLS) regression model was applied, along with three quantile regression equations to provide additional layers of detail. We observed a positive influence of FS' own assets on innovation performance, especially if coupled with their deep internal embeddedness. The study also found a positive influence of internal embeddedness on innovation performance enhanced for high/medium-high-tech firms if coinciding with strong resource-based specific advantages. Another finding was that the external embeddedness of FS had a positive effect on their innovation performance. Besides, the positive influence of systemic power on innovation performance was only revealed for high/medium-high-tech FS, while the subsidiaries' autonomy showed no significant influence on their innovation performance.

Keywords:
power, autonomy, foreign subsidiary, embeddedness, innovation performance

JEL classification codes:
L25, L60, O32

Article history:
submitted: October 22, 2021
revised: February 9, 2022
accepted: July 1, 2022

Streszczenie

Środowisko kraju goszczącego jest ważnym źródłem wiedzy dla przedsiębiorstw międzynarodowych. Zasoby i kompetencje filii zagranicznych (FZ) przedsiębiorstw międzynarodowych, a także ich relacje wewnętrzne i zewnętrzne są postrzegane jako krytyczne dla ich wyników ekonomicznych. Niniejsze opracowanie ma na celu wypełnienie luki poznawczej dotyczącej czynników wpływających na sprawność

Słowa kluczowe:
siła, autonomia, spółka zależna, zakorzenienie, sprawność innowacyjna

Kody klasyfikacji JEL:
L25, L60, O32

Historia artykułu:
nadesłany: 22 października 2021 r.
poprawiony: 9 lutego 2022 r.
zaakceptowany: 1 lipca 2022 r.

* This paper was prepared as part of the research project "Innovation performance of a foreign subsidiary and its position in the network of a multinational enterprise – the perspective of foreign subsidiaries established in Poland", No 2016/21/B/HS4/03030, supervised and sponsored by the National Science Center in Poland.

innowacyjną FZ utworzonych w Polsce. Sprawność innowacyjną FZ tłumaczy się ich przewagami opartymi na własnych zasobach: zakorzenieniem w wewnętrznej sieci korporacyjnej, zakorzenieniem zewnętrznym (w relacjach z niezależnymi partnerami) oraz poprzez interakcje między siłą systemową i autonomią FZ. Analiza opiera się na wynikach badania przeprowadzonego w 2018 r. w 436 FZ zlokalizowanych w Polsce. Zastosowano model OLS (metoda najmniejszych kwadratów) oraz trzy równania regresji kwantylowej, dostarczające bardziej szczegółowych wyników. Zaobserwowano: pozytywny wpływ zasobów własnych filii na ich sprawność innowacyjną, zwłaszcza w połączeniu z ich silnym wewnętrznym zakorzenieniem; pozytywny wpływ wewnętrznego zakorzenienia na innowacyjność, silniejszy wśród FZ w branżach wysokiej/średniowysokiej techniki, w połączeniu z przewagami opartymi na zasobach; pozytywny wpływ zewnętrznego zakorzenienia FZ na sprawność innowacyjną. Poza tym udowodniono: pozytywny wpływ siły systemowej na sprawność innowacyjną, ale tylko w przypadku FZ z branż wysokiej/średniowysokiej techniki. Nie zaobserwowano znaczącego wpływu autonomii FZ na ich wyniki innowacyjne.

Introduction

A major challenge for multinational enterprises nowadays is to promote innovation in their foreign subsidiaries, which act as extensions of the parent company's strategic domain in target location regions. This necessitates a shift in the understanding of subsidiaries from "isolated outposts" to "international peninsulas" and at the same time an improvement in communication channels within the multinational enterprise network [Birkinshaw, Hood, 2001].

Empirical studies on the innovation performance of foreign-owned subsidiaries based in Central and Eastern European post-transition economies have been underdeveloped, and have only been undertaken more extensively in the last decade (e.g. **Damijan et al. [2010]**, **Filippov, Duysters [2011]**, **de Jong et al. [2014]**, **Gołębiowski, Lewandowska [2015]**, **Bresciani, Ferraris [2016]**, **Demeter et al. [2016]**, **Gołębiowski et al. [2019]**, **Gołębiowski et al. [2021]**). Existing studies on transition economies hardly consider their heterogeneity. Therefore, our study intends to reduce the cognitive gap concerning factors that affect foreign-owned subsidiaries' innovation performance from the perspective of subsidiaries established in Poland. There are several factors that describe Poland's specific features as a host country that may affect the innovation performance of foreign subsidiaries. The Polish economy is characterised by relative stable growth since the country's accession to the EU in 2004 compared with many other new EU member states in Central and Eastern Europe. Poland proved to be resilient to the 2008+ global financial crisis. As developed institutions reduce the risk of inward foreign direct investment, Poland is the largest recipient country of such projects among new EU member states in Central and Eastern Europe. However, in the last few years, the number of foreign subsidiaries has been decreasing due to factors including an unstable legal environment [**Cieślik, 2019**; ***Rule of Law's Index*, 2021**]. Poland's national innovation capacity is still ranked low, which has an impact on the innovation strategies of multinational enterprises and foreign subsidiaries.

In this context, we concentrate on factors that affect the innovation performance of foreign subsidiaries from the perspective of subsidiaries established in Poland. In our study, we refer to the resource-based specific advantages of foreign subsidiaries, their internal and external relationships, and their systemic power and autonomy, which, according to previous studies presented below, may determine the subsidiaries' innovation performance.

We test our hypotheses with a dataset based on a survey of 436 foreign manufacturing subsidiaries in Poland that started operating no later than in 2012. The paper is structured as follows: below we provide a brief overview of the theoretical background and the underlying hypotheses, then we introduce the methods applied and the estimation results. The last part covers the conclusions.

Theoretical background and hypothesis development

The foreign subsidiary (FS) is increasingly important in enhancing the power of the multinational enterprise (MNE) because much of the technical, business and management knowledge and creative solutions can be achieved at the subsidiary level [**Rugman, Verbeke, 2001**; **Gnyawali et al., 2009**].

Subsidiary resource-based specific advantages are subsidiary-specific factors, unique capabilities (related to assets including knowledge and transactional and relational capabilities) proprietary to the subsidiary that determine its competitive advantage [**Rugman, Verbeke, 2001**; **Narula, 2014**]. The development of a FS's competencies resulting in its innovativeness depends on factors including its abilities to generate them in house. A key factor is the entrepreneurial orientation of the subsidiary based on five interrelated dimensions: proactive nature, innovative nature, high risk tactics, competitiveness, and autonomy [**Gerschewski et al., 2016**; **Wach et al., 2018**]. In accordance with its capacity and initiatives for innovation, the FS's position in the multinational enterprises' innovation system could range from that of "local implementer" (who adapts innovative solutions proposed by headquarters to the needs of the host market) to a "centre of excellence" and a "strategic leader" with a global mandate [**Andersson, Forsgren, 2000**; **Frost et al., 2002**]. The new competencies developed within the subsidiary (referred to as competence-creating subsidiaries) may include technological competencies in product and process development, as well as new business competencies (in marketing, sales, logistics and other business activities), contributing to the diversification of the multinational enterprise's market and product domains, and thus playing an important role in the multinational enterprise's strategic development [**Blomkvist et al., 2010**; **Ha, Giroud, 2015**; **van der Straaten et al., 2020**]. These foreign subsidiaries are characterised by a high degree of exploratory research and development and ongoing introduction of new and overlapping knowledge, which is of firm-wide importance [**Blomkvist et al., 2019**; **Lundan, Cantwell, 2020**].

As the result, an FS that has demonstrated such a proactive approach and shows an ability to introduce valuable innovations may be granted special rights and control resources on which other multinational enterprise units depend for their operations [Holm, Pedersen, 2000] Hence, we put forward the following hypothesis regarding foreign subsidiaries established in Poland.

H.1: Foreign subsidiary's resource-based specific advantages are positively associated with its innovation performance.

The term "embeddedness" is one of the most frequently applied to characterise inter-organisational relationships. Primarily, it has been used to describe the social structure of modern markets [**Polanyi, 1944**] and later thanks to **Granovetter** [**1995**] – the bilateral relations and networks and the way they affect all social actions and outcomes. The intensity, scope and quality of these relationships affect their outcomes. Embedded relationships are characterised by a high frequency of interactions, duration and scope of the relationship, resource commitment of partners, ability to adapt to each other, as well as by high trust between partners, sharing of more proprietary, tacit, and holistic information, and joint problem-solving arrangements [**Uzzi, 1997**].

Depending on the characteristics of partners' activities in mutual/network relationships, three dimensions of the firm's engagement, and the resulting dimensions of its embeddedness may be considered: operational embeddedness reflecting linkages in day-to-day operations, capability embeddedness – relationships involving the development of valuable capabilities, and strategic embeddedness – the ability of a given actor to influence other partners' strategy [**Garcia-Pont et al., 2009**].

Foreign subsidiaries are simultaneously involved both in the multinational enterprise's internal network composed of corporate headquarters and sister subsidiaries, and in the network of external (independent) host market partners [**Meyer et al., 2010**; **Cenamor et al., 2019**].

The network of relationships coordinated by the parent company/headquarters supports the allocation of different types of resources to the subsidiary and reduces its dependence on host country resources. It also enables subsidiaries to form valuable linkages that reduce transaction costs and intensify knowledge creation and exchange within the MNE network. However, excessive bureaucratic involvement of the headquarters

in the operation of the subsidiaries, imposing solutions (despite the limited competence of the headquarters in a given area) negatively affects their performance, including innovation efficiency [**Ciabuschi et al., 2011**; **Ciabuschi, Forsgren, Martín Martín, 2012**; **Gupta, Govindarajan, 1991**].

Linkages with the parent company are crucial if an FS is obliged to rely on headquarters resource support and knowledge transfer and cannot take advantage of its specific benefits to strengthen its position within the multinational enterprise network [**Gnyawali et al., 2009**]. A close relationship with the parent company and alignment with the headquarters strategy can therefore lead to increased survival and growth of the subsidiary [**Reilly et al., 2012**]. Embedded relationships with sister subsidiaries enable the subsidiary to gain additional access to the knowledge developed within the multinational enterprise network and enhance its innovation performance [**Buckley, Carter, 1999**; **Gnyawali et al., 2009**; **Michailova, Mustaffa, 2012**].

Numerous studies have shown a positive link of internal embeddedness to foreign subsidiaries' innovation and overall performance. Internal embeddedness facilitates organisational learning, knowledge transfer, and fosters subsidiaries' entrepreneurship and innovation performance [**Tsai, 2001**; **Ciabuschi et al., 2011**; **Yamin, Andersson, 2011**; **Gammelgaard et al., 2012**; **Achcaoucaou et al., 2014**; **Ciabuschi et al., 2014**; **Asakawa et al., 2018**; **Figueiredo et al., 2020**]. All of this is especially important when strategic resources based on knowledge are scarce in a host country [**Ambos, Ambos, 2009**], which is still the case in post-transition economies. Therefore, we posit the next hypothesis about the innovation performance of foreign subsidiaries located in Poland:

H.2: The internal embeddedness of the foreign subsidiary is positively associated with its innovation performance.

Numerous studies show that external sources of innovative solutions and innovation cooperation have a positive effect on the innovation performance of firms (e.g. **Veugelers** [**1997**], **Chesbrough** [**2003**], **Lavie** [**2006**], **Nieto, Santamaría** [**2007**], **Frenz, Ietto-Gillies** [**2009**], **van Beers, Zand** [**2014**]). Innovation performance can be improved by increasing access to knowledge and technology developed elsewhere, improving the choice of renovating the capacity to solve problems and adapting innovation returns [**Laursen, Salter, 2006**; **Leiponen, Helfat, 2010**; **Berchicci, 2013**].

As said earlier, foreign subsidiaries are increasingly important in knowledge augmenting and competence-building processes in multinational enterprises, since much of the technological, market and managerial knowledge, and the resulting innovation are available on host markets, and can be accessed, developed, and transferred through relationships with independent local partners. These practices are called "reverse knowledge transfers" (e.g. **Birkinshaw et al.** [**1998**], **Ambos et al.** [**2006**], **Phene, Almeida** [**2008**], **Dunning, Lundan** [**2008**]).

The scope and nature of foreign subsidiaries' relationships with host-country actors are influenced by two major inter-related factors: MNE resource base and strategy in international business, and the attractiveness of the foreign subsidiaries' host country for a multinational enterprise.

The high level of subsidiary internal expertise positively affects its ability to absorb external knowledge gained from independent collaboration partners, which, when properly used, has a positive effect on its creative potential as well as business performance [**Wang et al., 2009**; **Gammelgaard et al., 2012**]. Studies on FSs located in mature economies reveal that external embeddedness may help to develop the subsidiary's resource base, and its contribution and influence within the multinational enterprise [**Cavanagh, Freeman, 2012**; **Mudambi, Piscitello, Rabbiosi, 2014**; **Achcaoucaou et al., 2014**]. The literature also suggests that FS external embeddedness has a positive influence on knowledge transfers that facilitate product and process innovations (e.g. **Andersson et al.** [**2001**], **Boehe** [**2007**], **Schmid, Hartmann** [**2011**]). Besides, the deep embedding of the subsidiary in the host country facilitates adapting innovation to local market requirements [**Dunning, Lundan, 2008**]. Additionally, membership in MNE network strengthens the bargaining power of subsidiaries in contact with partners [**Lowe, Wrigley, 2010**].

In general, research indicates that external embedding leads to increased subsidiary competence development and improved innovation performance (e.g. **Andersson et al.** [**2005**], **Achcaoucaou et al.** [**2014**], **Cia-**

buschi et al. [2014], Ferraris et al. [2017]), resulting in the subsidiary/multinational enterprise being sustainably competitive [Ha, Giroud, 2015].

A subsidiary's external relationships and knowledge transfer are more extensive between actors that are able to share valuable knowledge [Phene, Almeida, 2008]. Knowledge flows from mature economies are traditionally perceived as more valuable than knowledge accessible in emerging or transition economies, including Poland. This may discourage subsidiaries based in those countries to deepen local embedding, at least in some dimensions. Poland's low national innovative capacity may discourage foreign subsidiaries to engage in deep external technological embedding with up-stream knowledge-creating partners (e.g. research and development centres, innovative suppliers or competitors) that potentially offer access to technological knowledge suitable for advanced research and development processes, and radical product and process innovation significant for multinational enterprises [Narula, Guimon, 2010].

Despite limitations to building extensive relationships with partners in a less developed host country, we argue that they are conducive to improving FS innovation performance. We consequently predict the following regarding the innovation performance of foreign subsidiaries located in Poland:

H.3: The external embeddedness of a foreign subsidiary is positively associated with its innovation performance.

Power is typically seen as the ability to achieve goals even against the resistance of others [Weber, 1978: 152] or as the ability to make the other party do something that it would not do otherwise [Dahl, 1957]. Power is typically associated with influence over people's behaviour and decision outcomes: relative (any actor has a unique power position); situational or domain-specific (depending on the situation the power of some actors may be limited while others may become more powerful); and socially constructed or enacted (it may be subject to different interpretation) [Birkinshaw, Ridderstråle, 1999].

In the MNE, the power of headquarters-subsidiary relationships results mainly from the structural settings (structural power) or is based on valuable resources (resource-based power) and is usually manifested in the ability to control integration mechanisms such as standardisation of work processes, output or norms, and belief systems; planning and mutual adjustment [Thompson, 1967]. Resource-based power refers to asymmetric control over valuable resources [Pfeffer, Salancik, 1978] of both positive or negative value (rewards or punishments). The dominant actor is able to provide or refuse to provide resources required by the dependent party [Emerson, 1962; Magee, Galinsky, 2008].

Usually, the MNE headquarters is the party enjoying power over the subsidiaries, and even powerful subsidiaries may face the threat of sanctions [Gammelgaard, Kumar, 2016]. However, subsidiaries may also be able to exercise power over the headquarters [Dörrenbächer, Gammelgaard, 2011; Mudambi, Pedersen, Andersson, 2014]. The main sources of FS power in the relationship with the headquarters include control of critical resources; subsidiaries' strong position in the MNE value chain (due to the significance of subsidiaries' value creation activities for the whole multinational enterprise network); subsidiaries' initiative, issue selling, strategic information politics and manipulation; institutional solutions on the host market granting access to subsidies or protection of foreign subsidiaries by local institutions against unfavourable solutions forced through the headquarters [Dörrenbächer, Gammelgaard, 2011; Ambos et al., 2010].

Innovation capability gives foreign subsidiaries control of knowledge (as a strategic asset), which enhances its bargaining power in the multinational enterprise [Gupta, Govindarajan, 2000; Mudambi, Piscitello, Rabbiosi, 2014; Palmié et al., 2014] and helps it to strengthen its systemic power resulting from the subsidiary's specialisation within the MNE value chain [Dörrenbächer, Gammelgaard, 2011]. Knowledge control is a much more stable source of power than control over other resources, which can be easily taken over by the headquarters [Mudambi, Navarra, 2004]. Subsidiaries may also gain power when they continuously transfer knowledge to the headquarters [Foss, Pedersen, 2002; Ciabuschi, Dellestrand, Kappen, 2012; Najafi-Tavani et al., 2015] and are able to cut this flow [Mudambi, Piscitello, Rabbiosi, 2014]. Moreover, the extent of reverse knowledge transfers mediates the relationship between internal and external embeddedness, the development of

new knowledge and the subsidiary's influence [**Najafi-Tavani et al., 2014**]. Finally, the relationship between the reverse knowledge transfer and influence is moderated by internal and external embeddedness, with the latter one weakening the relationship [**Wang et al., 2019**].

We argue that systemic power expressing the importance of the subsidiary in the MNE value chain, and the headquarters' recognition of its innovation performance may, in turn, result in the acceptance of further innovation projects and better access to critical resources needed to implement them. Hence:

H.4: The systemic power of the foreign subsidiary is positively associated with its innovative performance.

Foreign subsidiaries are semi-autonomous units as the multinational enterprise headquarters are not able to fully control their activities [**Najafi-Tavani et al., 2015**]. Autonomy is relative to MNE headquarters and other subsidiaries [**Ciabuschi, Martín Martín, 2011**]. The level of subsidiary autonomy, defined as the extent to which a subsidiary makes strategic decisions in its operating environment without interference by headquarters [**Birkinshaw, Morrison, 1995**; **Young, Tavares, 2004**; **Galli Geleilate et al., 2020**] or other multinational enterprise units, is one of the core characteristics of the subsidiary-headquarters relationships, and one of the reasons for tensions between headquarters and FS. MNE headquarters needs to centrally coordinate the subsidiaries' activities to achieve synergy effects and realise the overall corporate strategy, therefore they usually struggle for more integration, whereas the subsidiaries' managers tend to perceive their local responsiveness to be more critical [**Doz, Prahalad, 1984**; **Asakawa, 2001**].

The foreign subsidiaries' autonomy may concern the strategic or operational dimension of their activities [**O'Donnell, 2000**]. Strategic autonomy refers to the freedom to take decisions on issues such as hiring senior officials, outsourcing product/services, market development, product development, annual budget setting, changes in the organisation of activities, financing, choice of technology, while operational autonomy concerns standard operating procedures, product/service design or day-to-day management [**Raziq et al., 2019**].

Factors justifying a higher level of subsidiaries' autonomy include the uniqueness of a subsidiary's capabilities and resources that may build up its resource-based independence; the subsidiary's entrepreneurial orientation helping it to organise the network around its core business [**Roolaht, 2004**]; the personal traits and approach to the integration of both local and headquarters managers [**Ghoshal, Bartlett, 1990**]; low perceived conflict of interest between the headquarters and the subsidiary [**Ambos et al., 2019**]; high level of trust in headquarters – subsidiary relationships [**Alharbi et al., 2016**]. The level of subsidiary autonomy is also determined by the tasks entrusted to it. Subsidiaries focused on the penetration of the host market usually have higher autonomy than those pursuing a cost-cutting strategy [**Pisoni et al., 2013**]. Another factor affecting the subsidiary's autonomy is its size, although this relationship is still not clear. Some authors link the larger size of the subsidiary with an increased risk and predict higher levels of control in the case of large subsidiaries [**Alharbi et al., 2016**], while the others underline the presence of specialised units in large subsidiaries, to which decisions may be delegated, which supports their greater autonomy [**Engle et al., 2020**]. **Johnston and Menguc** [**2007**] offered the most comprehensive explanation of this issue and have shown that the relationship between a subsidiary's size and autonomy has an inverted U-shape.

Numerous studies indicate the positive influence of FS autonomy on its innovation performance. Increased autonomy of the subsidiary stimulates the creativity and motivation of its employees to create new knowledge and competencies [**Ambos, Schlegelmilch, 2007**] as it helps to be more responsive to external opportunities, and better learn from the host country innovation system [**Keupp et al., 2011**], create and manage links with sister subsidiaries [**Dymitrowski, Ratajczak-Mrozek, 2019**] and external partners, and further build a subsidiary's technological and business competencies needed in the innovation process [**Beugelsdijk, Jindra, 2018**; **Ciabuschi, Martín Martín, 2011**]. As a higher level of autonomy is related to subsidiaries performing more advanced roles [**Birkinshaw, Morrison, 1995**]. It allows them to engage in more advanced innovation projects. An FS that has demonstrated its ability to introduce valuable innovations may be granted special rights and become a centre of excellence controlling resources on which other multinational enterprise units depend

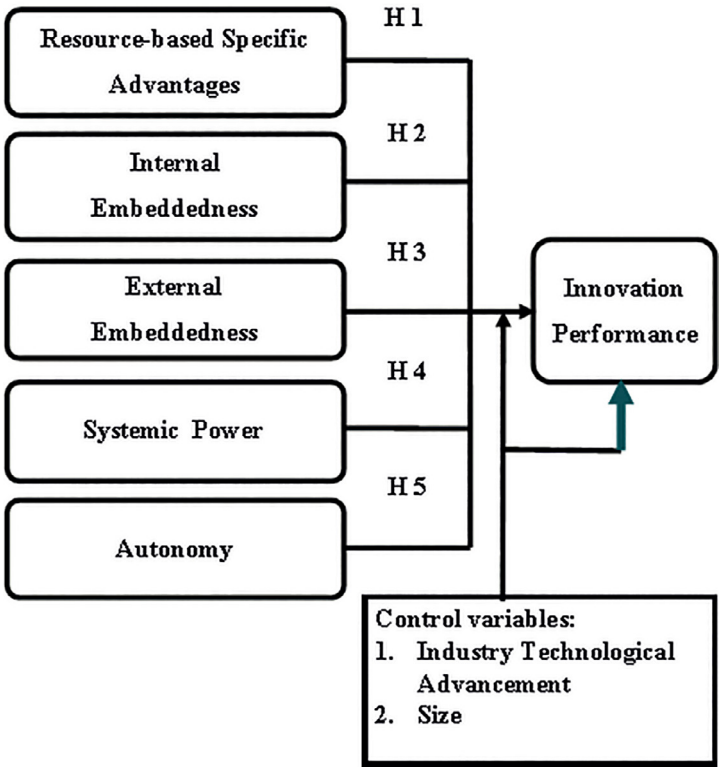
for their operations [**Holm, Pedersen, 2000**]. And the other way round: subsidiaries with low levels of autonomy tend not to generate or disseminate innovations but are rather effective adopters of products and processes developed by the parent company since they have no authority or capability to resist [**Ghoshal, Bartlett, 1988**]. Lack of autonomy not only impedes their collaboration with local partners [**Søberg, Wæhrens, 2020**] and makes them less responsive to local market needs but also lowers the local managers' intrinsic motivation to show initiative and motivation [**Beugelsdijk, Jindra, 2018**].

As shown in the study by **Pereira et al. [2020]**, innovation autonomy supports innovativeness even if the FS is located in an emerging country, and the local conditions do not justify the subsidiary's autonomy directly. Such market conditions provide for greater competitive dynamism, which in turn supports both local and global innovations when mediated by the FS's autonomy. Therefore:

H.5: The autonomy of the foreign subsidiary is positively associated with its innovation performance.

All the above-mentioned relationships between factors included in the analysis leading to the formulation of hypotheses are summarised in Figure 1.

Figure 1. Conceptual model



Source: Own elaboration.

Method applied

Data were collected through a 2018 computer-assisted telephone interviewing (CATI) survey of 436 foreign manufacturing subsidiaries – included in Section C in the statistical classification of economic activities in the European Community (NACE Rev. 2) operating in Poland – which started their activities no later than in 2012. The quantitative research was preceded by a pilot study involving qualitative in-depth interviews during which the questionnaire developed based on literature sources was tested for comprehensibility and completeness.

The respondents to the survey were top managers of foreign subsidiaries. They were asked to take the perspective of the FS they were working for and describe its situation in the 2013–2017 period. The data was

collected by the independent market research company Indicator. The basic characteristics of the studied subsidiaries were outlined in Table 1.

Table 1. Characteristics of the subsidiaries in the sample (n = 436)

Subsidiary size (measured by number of employees)	
– Medium-sized firms (50–250 employees)	59%
Large firms (>250 employees)	41%
Technological intensity of the subsidiary's industry	
Low-tech	27%
Medium-tech	33%
High-tech	40%
Years operating in Poland	
< 10 years	36%
11–20 years	36%
> 20 years	28%
Headquarters' country (40 countries in total)	
Germany	24%
Italy	8%
France	7%
USA	7%
Others	54%
Poland entry mode	
Greenfield investments	73%
Takeovers and acquisitions	25%
Joint ventures	2%
Percentage of export sales in subsidiary's total revenues	
0–20%	11%
21–40%	11%
41–60%	19%
61–80%	18%
81–100%	41%

Source: Own elaboration.

The relationships proposed by the hypotheses were explored on the backdrop of control variables, including industry groups (distinguished by the level of their technological intensity/advancement) and subsidiary size (measured by employment). For the sake of gaining a more nuanced and complete understanding of the research topic, the hypothesised associations were tested for the existence of meaningful moderation effects among predictor variables.

The variables in the research hypotheses are first-level formative constructs in the form of standardised means of individual attributes measured on an interval scale of 1 to 5, representing different levels of intensity of each attribute. Respondents in the survey were instructed to provide answers reflecting the situation in their company at the end of the year 2017. Below we describe the content and measurement method for respective composite variables, but due to a large number of individual metrics (118), it was not feasible to include the relevant questions and scales in full in this paper.

Composite variables in the study included:

1. **Innovation performance** – a set of 16 items representing the outcomes of the subsidiary's innovation activities showing the scope, diversity, intensity, and originality (newness) of product, process, marketing, and organisational innovation, as well as sales value of new products, and licencing fees on the backdrop of competitors' performance.

2. **Resource-based specific advantages** – five variables showing how unique and valuable assets and competencies are under the control of the subsidiary, such as: (1) market knowledge, (2) research and development resources and competencies, (3) skills and knowledge of manufacturing processes and service rendering, (4) marketing and logistics competencies, and (5) organisational practices and solutions.
3. **Internal embeddedness** – 31 metrics denoting the intensity and sustainability of links and knowledge exchange of the subsidiary with other organisational units within the corporate group.
   Interview questions pertaining to internal embeddedness prompted managers to:
   1) Assess the importance of cooperating in developing four types of innovations (product, manufacturing process, logistics and marketing, and organisational solutions) with internal stakeholders, separately for the headquarters, sister subsidiaries located in Poland, and sister subsidiaries from abroad.
   2) Evaluate the intensity of cooperation with each type of stakeholder for each kind of innovation regarding the degree and intensity of organisational links, the intensity of inflow and outflow of knowledge, and the number of joint projects.
4. **External embeddedness** – 45 metrics representing relational links and knowledge flows of the FS with external (independent) partners including supply chain actors (suppliers and clients), competitors, research institutions, and governmental bodies. The set of questions about external embeddedness followed a similar pattern to those for internal embeddedness.
5. **Systemic power** – four items regarding the subsidiary's specialisation described by the volume, scope and importance of value-creating activities (including innovative activities) within a value chain, and the subsidiary's share in the multinational enterprise's total sales. Systemic power reflects the strength of the FS versus other members of its corporate group with regard to: (1) the number of tasks/activities performed by the FS in the value chain of the whole group, (2) the subsidiary's input to the revenues of the group, the impact of its innovative activities on (3) the cost-based advantage of the multinational enterprise, and (4) its competitive advantage due to differentiation.
6. **Autonomy** – 17 items encapsulating the amount of decision-making power granted to the subsidiary by the parent company regarding strategic issues (target markets, product range, research and development strategy, production strategy, financial control, human resource management), and functional/operational activities (marketing activities, research and development activities, product and technology development, production activities, financial practices, and human resources management practices).

Our measurement approach was inspired and guided by the following literatures sources:

1. Innovation performance: [**Ciabuschi et al., 2014**; **Nell, Ambos, 2013**]
2. Resource-based specific advantages: [**Narula, 2014**]
3. Internal embeddedness: [**Nell, Ambos, 2013**]
4. External embeddedness: [**Ciabuschi et al., 2014**; **Nell, Ambos, 2013**]
5. Systemic power: [**Dörrenbächer, Gammelgaard, 2011**]
6. Autonomy: [**Beugelsdijk, Jindra, 2018**; **Gammelgaard et al., 2012**; **O'Donnell, 2000**].

The statistical analysis workflow encompassed four steps:

1) Obtaining composite scores for innovation performance, resource-based specific advantages, internal embeddedness, external embeddedness, systemic power and autonomy.
2) Creating binary dummy variables encoding two employment levels (0 for medium-sized and 1 for large firms), and three industry groups depending on their technological advancement (Industry 1 – high- and medium-high-tech firms, Industry 2 – mid-tech firms, Industry 3 – low-tech firms). Then, multiplying all predictor variables to obtain a total of 52 two-way interaction terms.
3) Running a hierarchical ordinary least squares (OLS) regression with the main effects of all the composite and dummy variables entered in stage 1, and only significant interactions entered through a stepwise method in stage 2.

4) Estimating a series of quantile regression functions to cross-validate the OLS model and to study differences between models for the first and third quartiles of the dependent variable, reflecting regression equations for the worst and best subsidiaries in terms of innovation performance.

SPSS 25 was used for data transformation tasks and building the OLS model, while the R package Quantreg version 5.55 was employed for quantile regression. R packages lmtest and normtest provided normality and heteroscedasticity tests.

Findings

An estimated OLS regression model explains 32.5% of the variability in innovation performance relying on 11 significant predictors. Diagnostics tests for normality and heteroscedasticity returned negative results at the 5% level (see the footnote in Table 2), implying an acceptable distribution of error terms and reliability of the model. Collinearity statistics indicate a lack of issues with overly correlated predictors, with most predictors having more than 50% of the unique (non-shared) variance and no variable falling below the tolerance of 20%, which is a conventional threshold for excessive multicollinearity [**Sarstedt, Mooi, 2019**: 216]. Such mild collinearity implies that standard errors are not overly inflated, making regression weights reliable.

Table 2. OLS regression model of innovation performance

Predictors	Unstandardised Coefficients		t	p-values	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	**–.193***	.088	–2.205	.028		
Resource-based advantage	**.303***	.045	6.781	.000	.759	1.317
Internal embeddedness	**.250***	.058	4.283	.000	.449	2.228
External embeddedness	**.224***	.059	3.824	.000	.453	2.208
Systemic power	**.082***	.042	1.977	.049	.893	1.120
Autonomy	.042	.043	.990	.323	.858	1.165
Subsidiary's size	–.037	.081	–.465	.642	.971	1.030
Industry 1 (high/med-high tech)	**.365***	.109	3.362	.001	.539	1.854
Industry 2 (medium-tech)	**.274***	.106	2.593	.010	.611	1.636
Internal embeddedness * Subsidiary's resource independence	**.122***	.040	3.040	.003	.634	1.579
Internal embeddedness * External embeddedness	**–.074***	.036	–2.039	.042	.556	1.799
Internal embeddedness * Autonomy	**–.078***	.033	–2.364	.019	.770	1.299
Internal embeddedness * Industry 1	**–.244***	.085	–2.871	.004	.443	2.260
External embeddedness * Subsidiary' size	**–.242***	.085	–2.858	.004	.598	1.671

Note: Residual standard error: 0.8151 on 422 degrees of freedom; Multiple R-squared: 0.3253, Adjusted R-squared: 0.3045; F-statistic: 15.65 on 13 and 422 DF, p-value: < 2.2e-16; Breusch-Pagan test for heteroscedasticity: BP=13.987, df=13, p-value=0,3747; Geary test for normality: d=0.81352, p-value=0.0755.

Source: Own elaboration with SPSS 25 and R.

The model encompasses eight main effects and five interactions. To demonstrate why other possible two-way interactions were not included, we enclose Table 3, which lists all the rejected interactions with corresponding regression weights and p-values should they be added to the model.

The significance levels (p-values) in Table 2 show that all excluded interaction terms were well beyond the admission threshold of 0.05. The tolerance statistics indicate that no interaction term was excessively correlated with the other variables in the model displayed in Table 2. This implies that the main reason for the statistical non-significance of the regression coefficients in Table 3 is not multicollinearity but rather the lack of effects on innovation performance.

Table 3. Insignificant two-way interactions excluded from the regression model of innovation performance

Two-way interactions	B	t	p-values	Collinearity Statistics: Tolerance
External embeddedness * Resource independence	–.029	–.528	.598	.541
External embeddedness * Systemic power	–.047	–1.035	.301	.771
External embeddedness * Autonomy	.007	.112	.911	.431
External embeddedness * Industry 1	.019	.325	.745	.447
External embeddedness * Industry 2	–.008	–.157	.875	.555
Internal embeddedness * Systemic power	.007	.133	.895	.655
Internal embeddedness * Industry 2	.009	.149	.882	.427
Internal embeddedness * Subsidiary's size	.032	.519	.604	.410
Resource independence * Systemic power	.010	.231	.818	.812
Resource independence * Autonomy	–.038	–.822	.411	.742
Resource independence * Industry 1	.048	.780	.436	.426
Resource independence * Industry 2	–.018	–.369	.712	.645
Resource independence * Subsidiary's size	–.012	–.214	.831	.504
Systemic power * Autonomy	–.008	–.189	.850	.821
Systemic power * Industry 1	–.001	–.024	.981	.520
Systemic power * Industry 2	–.009	–.183	.855	.644
Systemic power * Subsidiary's size	–.007	–.132	.895	.621
Autonomy * Industry 1	.000	–.007	.994	.522
Autonomy * Industry 2	.010	.191	.849	.541
Autonomy * Subsidiary's size	.007	.142	.887	.659
Industry 1 * Subsidiary's size	–.025	–.390	.697	.379
Industry 2 * Subsidiary's size	.029	.500	.618	.462

Source: Own elaboration with SPSS 25 and R.

The total effect of each attribute in Table 2 can be found by combining its main effect and interactions with other variables to obtain a formula for a simple slope of the attribute, as outlined in Jose [2013: 166–169]. The presence of significant interactions is evidence for a non-constant association between the attribute and the outcome variable, which depends on the level of the other predictors in the regression.

The simple slope representing the association of internal embeddedness with innovation performance together with the moderation from other variables can be described in equation form as:

Innovation Performance (IP) = (0.250–0.074 * External Embeddedness (EE) +0.122 * Resource-based specific advantages (RSA) – 0.078 * Autonomy (AUT) – 0.244 * Industry (IND1) * Internal Embeddedness (IE)

Accordingly, the total effect of internal embeddedness is due to the sum of its main effect (0.250) and significant moderating effects with external embeddedness (–0.074), resource-based advantage (0.122), autonomy (–0.078) and Industry 1 (–0.78). With all other predictors held constant, a one standard deviation increase in internal embeddedness will result in an average increase in innovation performance of 0.250 standard deviations, but only if external embeddedness, resource-based advantage, autonomy and Industry 1 are all equal to 0, which corresponds to firms with the mean levels of external embeddedness, resource-based advantage and autonomy (as the mean for a standardised variable is 0), as well as not belonging to the technologically most advanced Industry Group 1 (high/med-high tech firms). With external embeddedness and autonomy each at one standard deviation above average, the impact of one unit change in internal embeddedness on innovation performance is dampened by –0.074 and –0,078 respectively. If a firm is one standard deviation below average in terms of resource-based advantage (i.e. its resource-based advantage value is –1), the effect of one unit change in internal embeddedness is further lowered by –0.122. For firms classified in Industry Group 1, this effect is weaker still by a factor of –0.244.

The conditional effects of other variables included in the research hypotheses could be expressed as follows:

- Resource-based advantage: Innovation Performance (IP) = (0.303 + 0.122 * Internal Embeddedness (IE) * Resource-based specific advantages (RSA)
- External embeddedness: Innovation Performance (IP) = (0.224 – 0.074 * Internal Embeddedness (IE) – 0.242 * Size * External Embeddedness (EE)
- Systemic power: the total effect involves only the main effect of the variable (0.082)
- Autonomy: the only significant link with innovation performance is through the significant interaction with internal embeddedness (–0.078).

In addition, the regression demonstrates significant differences between industry groups when all other predictors are controlled for. Dummy variables for Industry Groups 1 (high and med-high tech firms) and 2 (mid-tech firms) denote differences in mean innovation performance levels between these groupings and Industry Group 3, which serves as the reference category and consists of firms from the parts of the economy considered to be the most traditional and least technologically advanced. The model shows that, with all other predictors accounted for, Industry Groups 1 and 2 are systematically better than Industry Group 3 by 0.365 and 0.274 standard deviations of innovation performance respectively (see Table 2).

To afford more nuanced insights into factors driving innovation performance, quartile regression was performed on the same data and the set of predictors. Quartile regression is considered to be more robust than OLS analysis to the presence of outliers and distributional issues. It does not make any assumptions about the probability distributions of error terms or the dependent variable [**Koenker, Hallock, 2001**]. Since it estimates not the conditional mean of the dependent variable from the linear combination of predictors, but a conditional quantile value, it offers new interpretational possibilities. In this work, we estimated regression weights and 95% confidence intervals for three quartiles of innovation performance (Table 4). The first quartile represents a regression predicting innovation performance for the 25% firms with the worst innovation performance, the second one or the median corresponds to average businesses, and the third quartile is about the firms that display best innovation performance. Differences in the statistical significance and strength of regression weights across these three models can offer a deeper understanding of the dynamics shaping innovation performance in better and worse performing firms.

Table 4. Quantile regression models for the first, second and third quartiles with innovation performance as the dependent variable

Point estimators of regression weights with 95% confidence intervals	Quartiles		
	0.25	**0.50**	**0.75**
Upper bound	–0.617	–0.135	0.439
Intercept	**–0.793***	**–0.285***	**0.248***
Lower bound	–0.934	–0.471	0.092
Upper bound	0.371	0.378	0.396
Resource-based advantage	**0.258***	**0.264***	**0.316***
Lower bound	0.142	0.163	0.215
Upper bound	0.339	0.369	0.311
Internal embeddedness	**0.189***	**0.192***	**0.243***
Lower bound	0.022	0.116	0.131
Upper bound	0.399	0.399	0.464
External embeddedness	**0.219***	**0.316***	**0.217***
Lower bound	0.081	0.136	0.131
Upper bound	0.104	0.187	0.198
Systemic power	0.038	0.110	**0.114***
Lower bound	–0.048	–0.012	0.015
Upper bound	0.114	0.131	0.128
Autonomy	–0.013	–0.024	0.057
Lower bound	–0.082	–0.095	–0.030

Point estimators of regression weights with 95% confidence intervals	Quartiles		
	0.25	**0.50**	**0.75**
Upper bound	0.290	0.131	−0.070
Subsidiary's size	0.095	−0.058	**−0.253***
Lower bound	−0.035	−0.187	−0.443
Upper bound	0.478	0.710	0.859
Industry 1	**0.243***	**0.428***	**0.732***
Lower bound	0.091	0.195	0.488
Upper bound	0.377	0.500	0.708
Industry 2	**0.224***	**0.293***	**0.464***
Lower bound	0.057	0.114	0.158
Upper bound	0.220	0.266	0.226
Internal embeddedness * Resource-based advantage	0.070	**0.177***	**0.152***
Lower bound	−0.090	0.040	0.067
Upper bound	−0.007	0.033	0.037
Internal embeddedness * External embeddedness	**−0.135***	−0.089	−0.053
Lower bound	−0.194	−0.153	−0.117
Upper bound	0.024	−0.059	−0.029
Internal embeddedness * Autonomy	−0.130	**−0.105***	**−0.104***
Lower bound	−0.201	−0.154	−0.152
Upper bound	0.062	−0.023	−0.057
Internal embeddedness * Industry 1	−0.171	**−0.213***	**−0.199***
Lower bound	−0.442	−0.474	−0.333
Upper bound	0.025	−0.133	−0.100
External embeddedness * Subsidiary's size	−0.161	**−0.406***	**−0.296***
Lower bound	−0.453	−0.494	−0.568

Source: Own elaboration with R.

A comparison of the OLS model (Table 2) and the three quantile regression models (Q models – Table 4) reveals that the direction and strength of the association between innovation performance and the first three predictors (resource-based advantage, internal and external embeddedness) is about the same, which is indicated by the overlapping confidence intervals. There is also no difference among the four models in terms of the lack of significance of autonomy. The reference industry group is always the weakest of the three regarding innovation performance, as reflected in significant and positive regression weights for both Industry Groups 1 and 2. However, for the third quartile model, these differences are larger than for Q1 and Q2, with a particularly wide gap between Industry Group 1 (high-tech and mid-tech firms) and the reference group. This means that for firms classified as Industry Group 1, it is probably the easiest to achieve high innovation performance levels, especially among the best-performing firms. Interestingly, subsidiary size has a significant and negative relationship with innovation performance in the third quartile model (– 0.253), suggesting that in the high-performance group, large firms have markedly lower innovation performance than medium-sized ones. The negative impact of a large size is compounded by its negative interaction with external embeddedness, which is significant for Q2 and Q3 models and can cancel out the benefits from external embeddedness for large companies. This observation is particularly valid for the Q2 model, where the absolute value of this point estimator is the greatest.

The performed quantile regression shows that the Q1 model for predicting the lowest levels of innovation performance does not hold the same moderation dynamics as the Q2, Q3 and the OLS model. The only significant interaction there – between external and internal embeddedness – is also insignificant in Q2 and Q3. This leads to the conclusion that the dampening impact of one form of embeddedness on the other occurs only when predicting low levels of innovation performance rather than average or high levels of the dependent variable.

Table 5 shows the summarised outcomes of hypothesis testing using OLS and quantile regression models.

Table 5. Verification of the hypotheses

H	Comments and qualifications	Outcome
H1	Positive influence of foreign subsidiary's resource-based advantage on innovation performance especially if coupled with deep internal embeddedness, but this effect is not observable in firms with the lowest innovation performance.	Supported
H2	Positive influence of foreign subsidiary's internal embeddedness on innovation performance enhanced for high and mid-tech firms if coinciding with strong resource-based advantage, and weakened for high levels of autonomy. For low-tech firms involvement in external embeddedness lowers the positive impact of internal embeddedness on innovation performance. Subsidiaries from high-tech industries might have no significant links between internal embeddedness and innovation performance.	Supported
H3	Positive influence of foreign subsidiary's external embeddedness on innovation performance; it is weaker for large subsidiaries and for low-tech ones relying strongly on internal embeddedness.	Supported
H4	Positive influence of systemic power on innovation performance only for high-tech foreign subsidiaries	Partially supported
H5	No significant influence of foreign subsidiary's autonomy on its innovation performance. It interacts negatively with internal embeddedness only for at least mid-tech subsidiaries.	Falsified

Source: Own elaboration.

Discussion and conclusions

In recent decades, increasing globalisation and the innovation capabilities of local subsidiaries have created opportunities and challenges for multinational enterprises. Understanding factors influencing the FS's innovation performance is crucial to the success of the whole MNE network. Existing studies focusing on the subsidiary's innovativeness concentrated mainly on the influence of the subsidiary's innovation capabilities on its position and relationships within the multinational enterprise network. In our study, we verified the relational determinants of the innovative performance of foreign subsidiaries located in Poland. An important contribution of our analysis is showing the moderating industry effects on the relationship between the subsidiary's innovation performance and its determinants.

The results show that the resource-based specific advantages of foreign subsidiaries support their innovation performance. An important factor strengthening this relationship is their internal embeddedness, which promotes knowledge transfers within the multinational enterprise network resulting in synergies from knowledge integration and recombination [**Ciabuschi et al., 2011**; **Yamin, Andersson, 2011**; **Asakawa et al., 2018**]. It also allows them to gain headquarters' attention [**Bouquet, Birkinshaw, 2008a**, **2008b**] and support from other multinational enterprise network members in taking an innovative advantage of those competitive resources. For firms in mid-tech industry, resource-based advantages support a positive relationship between internal embeddedness and innovation performance, while subsidiary autonomy weakens it. We also observed the effects of industry technological advancement on the relationship between internal embeddedness and innovation performance.

We revealed, somewhat surprisingly, that high-tech subsidiaries in our sample did not display deep internal embeddedness to build innovation performance. One explanation could be that the best performers in those industries are able to achieve high-level innovativeness relying predominantly on their own strong competitive resource base. The other explanation could be that the parent company restricts access to the newest technologies available in the multinational enterprise, keeping the subsidiary dependant. In mid-tech industries, the positive influence of a subsidiary's internal embeddedness on innovation performance was observed also if it is supported by a strong own resource base. However, this relationship is weakened by the high level of subsidiary autonomy. In the case of low-tech industries, strong ties with local partners mitigated the positive influence of internal embeddedness on the subsidiary's innovation performance. We suppose that for the local partners of low-tech subsidiaries innovations are less important than factors such as low costs, therefore responding to their needs could distract foreign subsidiaries from introducing innovations.

External embeddedness has a generally positive impact on innovation performance, enabling subsidiaries to take advantage of external links in knowledge sourcing. But again, in the case of low-tech firms, strong links with external partners did not support innovation performance as much as in the case of more technologically advanced industries. Interestingly, the positive effect of external embeddedness was also weaker in the case of large foreign subsidiaries. Such firms were probably less dependent on their local partners in their innovative activities. A possible explanation for this is that many of the large manufacturing subsidiaries located in Poland are included in the multinational enterprises' global value chains as suppliers of intermediate or final goods, and innovation activities are mainly coordinated within multinational enterprise internal networks.

The results of the study indicate that foreign subsidiaries located in Poland find it difficult to exploit potential benefits from interactions between internal and external relationships to increase their innovation performance. Dual embeddedness is recognised as an important mechanism by which the FS, being the link between the host country partners and the internal multinational enterprise network, is able to bind and recombine complementary knowledge extracted from both types of relationships. The resulting new competencies and innovative solutions and their application in the network increase innovation performance and competitiveness (e.g. **Ciabuschi et al. [2014]**, **Meyer et al. [2020]**). Deep dual embeddedness may positively affect the subsidiary's influence/power within the multinational enterprise **[Søberg, Wæhrens, 2020]**. Limited knowledge acquisition opportunities in low innovative host countries force subsidiaries to orient themselves toward internal relationships within the MNE network. Thus, they limit the potential benefits of dual embedding. Moreover, the negative interaction between the two types of relationships revealed in the study suggests a substitution of one form of embeddedness by another.

Systemic power positively influenced innovation performance only in subsidiaries operating in high-tech industries. Again, as technological innovations seem to have the greatest importance in these industries, a subsidiary's strong position in the value chain is clearly related to its innovativeness, while in less technologically advanced industries value-creating activities may not necessarily require extensive commitment to innovation.

Finally, subsidiary autonomy had no positive influence on its innovativeness. This can be in part explained by the idiosyncrasies of the Polish market. As the innovation capacity of Polish firms is low, local subsidiaries should rather not be given greater autonomy as their managers may tend to pursuit market penetration strategies that place little emphasis on innovations.

The results presented above not only contribute to the theory but also provide important managerial implications: if the FS's role comprises innovativeness, headquarters should attach great importance to establishing strong internal links within the multinational enterprise. However, as shown above, both the industry and the country context should be taken into consideration when assessing the innovative potential of the subsidiary and making decisions about how much autonomy should be granted to it.

Placing our study in the context of a developed, low-innovation business environment allowed us to offer new insights into FS innovation performance in a host country. However, our results are limited to subsidiaries active in Poland. Therefore, we suggest conducting similar analyses in subsidiaries operating in both less developed or more innovative countries.

The survey-based research design employed in this study provided a wealth of information about the investigated firms. However, its cross-sectional nature failed to capture the temporal aspects of the focal concepts. Follow-up longitudinal research could provide more robust evidence on the causal dynamics of innovative performance and thus cross-validate and extend our findings.

In addition, we introduce some general comments on selected strategic aspects of the innovation performance of foreign subsidiaries operating in Poland and their relations with host country partners.

The growing export orientation of foreign subsidiaries in Poland reflects their participation (based on traditional competitive advantages) in the international fragmentation of MNE global and regional value chains **[Cieślik, 2017**; **2019]**. However, without improved technological innovation performance, maintaining the subsidiaries' share of the MNE supply chain is at risk in view of growing pressure by competitors from emerging markets.

The high innovation performance of a subsidiary determines the possibility of its inclusion in the MNE global/regional innovation network, which includes cooperating research and development units.

The increasing share of foreign subsidiaries in the total research and development expenditures of enterprises indicates the growing role of foreign investors in shaping Poland's innovation potential [**Weresa, 2020**]. However, limited opportunities to acquire attractive knowledge in the host country facilitate stronger internal embeddedness of subsidiaries. The weakness of external relations in technological innovation may be a factor behind the marginalisation of such subsidiaries in the innovative MNE network. Weak subsidiary relations in a host country may cause a change in the subsidiaries' profiles and promote the risk of their relocation to countries with higher innovation capacity, especially in the case of FSs in high-tech industries. This would be detrimental to the interests of the subsidiary's existing partners and the host economy.

The latest literature highlights an increase in the volatility, uncertainty, complexity and ambiguity of international business conditions [**van Tulder et al., 2020**]. The intensification of these factors is associated with an increase in competition, the acceleration of innovation processes, especially in strategic industries, and the emergence of new aggressive innovative leaders in emerging economies. These factors cause disruptions in international relations and in inter-organisational and network relationships, which requires the development of new strategies for multinational enterprises [**Petricevic, Teece, 2019**]. It is particularly important to build dynamic capabilities that streamline MNE external relationships (including those of individual subsidiaries) due to the diversity of local conditions and external partners in individual markets. Forming strong relational capabilities in managing global value chains and innovation networks is key. It requires extensive cross-border research and development cooperation. In particular, the ability to quickly identify and assess opportunities and threats and to take coordinated responses in order to exploit host-country and firm-specific advantages. In doing so, it is necessary to ensure the protection of intellectual property rights. Also increasingly important from the perspective of MNEs is their ability to flexibly influence institutional/political processes at national and supranational levels. An effective policy response requires bilateral as well as multilateral cooperation between MNEs, home governments and other stakeholders. It is necessary to increase the ability of state authorities to stimulate and support innovation with the help of coordinated industrial policies and scientific policy measures aimed at achieving synergy effects in innovation processes carried out by enterprises and other actors. This is particularly important for improving the national innovative capacity.

In light of these remarks, made from the perspective of MNEs with high innovation performance, it is difficult to count on the development of intensive cooperation in innovation by MNE subsidiaries without an improvement in the innovation performance of their actual or potential partners in the host country and a significant improvement in the innovation capacity of that country.

From the perspective of host-country (Polish) firms, it is also important to increase their dynamic capabilities enabling the development of efficient relations with foreign subsidiaries. In this case, the entrepreneurship of domestic firms (generally appreciated by foreign partners), the initiative in innovative projects, and orientation on possible bilateral benefits and synergies from relations with MNE subsidiaries, can be used to shorten the response time of enterprises to dynamic changes in operating conditions. Increasing the innovation performance of domestic firms and improving Poland's national innovation capacity also requires coordinated activities in the area of industrial and scientific policy, on both the domestic market and at the international level, including the EU level. These activities should be aimed at increasing the resource potential of Polish actors and promoting and facilitating the development of relations between domestic firms/research institutions and their potential foreign partners.

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