Revisiting economic distance and its role in foreign subsidiary survival

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Abstract: In this study, we argue the coexistence of arbitrage and costs associated with economic distance engender a non-linear relationship between foreign subsidiary survival and economic distance. Specifically, we suggest that low to medium economically distant countries offer scope of economic arbitrage, whereas the cost of operating in medium to high economically distant countries is substantially high. We construct an index of economic distance using arguments from the eclectic paradigm of international production and organisational learning theory and base our measurement on the Mahalanobis method of distance calculation. Empirical analysis is conducted by applying the Cox's proportional hazard model to a sample of 1771 Finnish foreign direct investments. Results suggest that subsidiary survival has an inverted U-shaped relationship with economic distance. Firms with host country experience and wholly owned subsidiaries are able to mitigate the costs of operating in economically distant countries, while joint ventures are better suited for economically similar countries.

Keywords: economic distance; establishment mode; ownership advantages; ownership mode; subsidiary survival.

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1 Introduction

Cross-national distance between countries plays a pivotal role in the survival of Foreign Direct Investment (FDI). Existing literature has propounded several dimensions of cross-national distance, including institutional, economic, cultural, geographic and psychic distance (Ghemawat, 2001; Dow and Karunaratna, 2006; Ghemawat, 2001). Over the years, many studies have focused on improving the measurement of these distances. For example, institutional distance (Bailey and Li, 2015; Henisz, 2000), geographic distance (Berry et al., 2010) and cultural distance (Kogut and Singh, 1988) have found wide application in FDI literature. The findings for these measures in relation to subsidiary survival have been largely consistent. Scholars agree that institutional (Kogut and Singh, 1988), cultural (Hennart et al., 2002; Kandogan, 2016; Sousa and Tan, 2015) and geographic distances (Berry et al., 2010; Kang et al., 2017; Pattnaik and Lee, 2014) have a negative impact on subsidiary survival.

In comparison to these distance measures, the role of economic distance, measured as the differences in the economic environments of the home and host countries, in subsidiary survival is relatively ambiguous. For instance, Demirbag et al. (2011) and Tsang and Yip (2007) argued that subsidiary survival is higher in economically distant countries than in economically similar countries due to the scope of exploring and exploiting resources. In contrast, Kang et al. (2017) and Pattnaik and Lee (2014) argued that high-economic distance is associated with a low probability of subsidiary survival due to intense competition and differences in demand conditions. These opposing arguments arise partly because of measurement inconsistencies. While Demirbag et al. (2011) and Tsang and Yip (2007) used a unidimensional measure of economic distance, measured as differences in Gross Domestic Product (GDP) per capita, Kang et al. (2017) and Pattnaik and Lee (2014) used a multi-dimensional measure propounded by Berry et al. (2010). The multi-dimensional measure propounded by Berry and colleagues comprises nine dimensions of cross-national distance[1] derived from institutional theory. Other measures of economic distance include the economic freedom index (Demirbag et al., 2011) and currency exchange rate (Belderbos and Zou, 2009; Bénassy-Quéré et al., 2001; Park and Park, 2000). A key limitation of these measures is that they underestimate the rich diversity in which economic environments of the home and host countries differ from each other. Tsang and Yip (2007) argued that the difference in GDP per capita is a relatively crude measure. Similarly, exchange rates, inflation and trade intensity[2] only

partially explain the implications of economic distance for subsidiary survival. More importantly, none of the earlier measures of economic distance account for factor costs, an important determinant of FDI (Bellak et al., 2008; Bevan and Estrin, 2004). These limitations and inconsistent findings reiterate the need to revisit the measurement of economic distance and call for a more rigorous testing of the relationship.

In addressing these shortcomings, our first aim is to revisit the relationship between economic distance and subsidiary survival; our second aim is to improve the measurement of economic distance. To achieve our first goal, we draw upon the eclectic paradigm (Dunning, 2000, 2001) and organisational learning theory (Johanson and Vahlne, 1977, 2009; Kostova, 1999) and propose that the relationship between economic distance and subsidiary survival is an inverted U-shaped. We argue that subsidiary survival increases between low to medium levels of economic distance because of arbitrage opportunities; and decreases between medium to high levels of economic distance because of high learning and coordination costs. We investigate the moderating roles of ownership advantages and entry strategies on the economic distance–subsidiary survival relationship. To achieve our second goal, we construct an index of economic distance by revising earlier measures. Our measurement is based on the argument that income levels, demand conditions, economic growth, factor costs and level of infrastructure are key determinants of economic distance and FDI performance (Berry et al., 2010; Biswas, 2002; Demirhan and Masca, 2008; Saini and Singhania, 2018).

Following recent studies (e.g., Wang and Larimo, 2020), our empirical analysis is based on a sample of 1771 Finnish FDIs. We employ data from sources such as Bureau van Dijk Orbis, Kauppalehti and Talouselämä.[3] Finnish FDIs provide an ideal setting for testing our propositions for the following crucial reasons. First, owing to Finland's small domestic market, Finnish firms rely heavily on internationalisation for growth (Larimo, 1998; 2003; Wang and Larimo, 2020). Second, because Finland is a small and open economy, Finnish firms face the unique challenge of balancing aggressive internationalisation with relatively fewer resources at their disposal than those of their counterparts from larger economies (Laanti et al., 2009). Third, Finland's outward FDI decreased by over 10% in the last decade, partly due to divestments, reduced equity-based investments and trade sanctions imposed by Russia (OECD, 2017; Statistics Finland, 2020). Thus, an analysis of Finnish FDI is a compelling prospect.

Our study makes the following contributions to the literature. First, we challenge conventional wisdom by proposing that the relationship between economic distance and subsidiary survival is an inverted U-shaped. Earlier studies have theorised that economic distance offers arbitrage (Tsang and Yip, 2007) or that economic distance increases costs and complexities of operating in a foreign country (Kang et al., 2017; Pattnaik and Lee, 2014). Our approach is more balanced as we consider both the costs and benefits associated with economic distance in our empirical model. We provide evidence that the effect of economic distance on subsidiary survival is not linear as suggested by earlier studies (Demirbag et al., 2011; Tsang and Yip, 2007). This has important theoretical implications as it extends and alters our understanding of economic differences and their impact on FDI strategy.

Second, we argue that earlier measures underestimate the importance of economic distance for foreign subsidiary survival (Tsang and Yip, 2007). An underestimation of the differences between the economic environments of the home and host countries is detrimental for assessing the growth and performance of firms (Pedersen and Petersen, 2004). Our measurement of economic distance captures the rich diversity in which

economies differ from each other. We build upon the GDP per capita differences, which is a commonly used measure, by adding other parameters, such as economic growth, labour cost and level of infrastructural development. This corresponds to Tsang and Yip (2007), who call for a sophisticated measure of economic distance.

The remainder of this paper is structured as follows. In the following section we gradually develop our hypotheses by scrutinising the role of economic distance as a key locational advantage. Next, we discuss the methodology by introducing our measurement of economic distance, data sources, and empirical model. Later, we discuss our results by drawing linkages to our hypotheses and our research objectives. We conclude by stating theory, managerial, practical implications, limitations of our study and future research direction.

2 Theory and hypotheses

2.1 Economic distance as a locational advantage

The concept of cross-national distance is a multi-dimensional construct, which has been operationalised as psychic distance, economic distance, financial distance, political distance, institutional distance, cultural distance, knowledge distance, global connectedness distance and geographic distance (Berry et al., 2010; Dow and Karunaratna, 2006; Ghemawat, 2001). Cross-national distance has played a central role in the evolution of widely applied international business theories. For instance, differences in factor costs were instrumental in shaping Vernon's (1966; 1979) theory of international production and product life cycle. According to Vernon's theory, firms with high degree of innovation prefer locations in advanced economies due to the availability of skilled labour. Similarly, firms that prefer standardisation are likely to prefer both advanced and emerging economies to establish a network for assembling the final products. In the process of developing the eclectic paradigm, Dunning (1958; 1973) observed that micro- and macro-economic differences such as differences in factor endowments, currency, interest rates or natural resources determined the level of success of overseas production. The initial developments of Uppsala model of internationalisation hinged on the concept of psychic distance, where Johanson and Vahlne (1977) argued that firms acquire knowledge about the new markets, overcome the psychic distance, and gradually venture into more distant markets. Hofstede's (1980) pioneering work on national culture has been vital to the development of cultural distance (Kogut and Singh, 1988), a concept that has been widely used in explaining market selection, location of FDI, entry strategies, and performance of FDI. In this section, we discuss the role of economic distance as a locational advantage and its implications for international production.

Among the dimensions of cross-national distance, economic distance is a key factor that determines the boundaries of international business. According to Dunning (1998), the differences between the economic conditions between the home and host countries determine the geography of FDI. That is, FDI is country or location specific because of its sensitivity to the economic factors. Dunning (1988) argued that the choice of location, while not being independent of the ownership advantages, is motivated by the market failure arising from trade barriers, trading blocs and customs unions. Further, firms are likely to direct FDI towards countries that offer transactional gains in the form of

economic arbitrage arising from transfer pricing and currency exchange. Thus, the locational advantage is materialised through the economic distance between two countries.

The eclectic paradigm (Dunning, 2000, 2001) asserts that firms initiate international production when they possess unique ownership advantages that are transferable to foreign locations. However, the capability of firms to compete with the indigenous firms arises not from the absolute level of ownership advantages, but *vis-à-vis* those possessed by other firms in the host country (Dunning, 1973, 1988). Moreover, the ease with which firms can transfer their ownership advantage is determined by the level of economic development of the foreign country (Dunning, 1998). Thus, economic development of a country plays a crucial role in determining the form of FDI.

Tsang and Yip (2007) argued that firms with high ownership advantages initiate international production to seek markets or access to inexpensive resources. On the contrary, firms with low ownership advantages locate FDI in countries with higher levels of innovativeness to seek strategic assets and absorb technological knowledge (Porter, 1990). Further, the internalisation advantage determines if it is more profitable to indulge in FDI over other modes of internationalisation (Buckley and Casson, 1976, 2009). The internalisation advantage is materialised through access to knowledge and efficiency of external capital markets (Rugman and Verbeke, 2003). As these factors are dependent on the economic development of the country, firms are likely to invest in countries that offer a comparative advantage over the home country. Thus, in addition to being a key locational advantage, economic distance is also important in determining the extent to which firms may internalise and exploit their ownership advantages.

2.2 Economic distance and foreign subsidiary survival

Economic distance between two countries aids the following two key tenacities: (1) it attracts/discourages inward FDI and (2) it sustains the received FDI. This study focuses on the latter, where we align our theoretical framework to examine the impact of economic distance on the survival of foreign subsidiaries. Theoretically, economic distance is favourable for FDI because it offers scope of arbitrage (Gaur and Lu, 2007), access to new markets and resources (Demirbag, et al., 2011) and possibilities to exploit the ownership advantages (Tsang and Yip, 2007). Therefore, the benefits of operating in foreign markets will increase with an increase in economic distance.

At low levels of economic distance, similarities between the economic environments of the home and host countries present unique challenges. Dunning (1993, 2001) argued that ownership advantages alone are not sufficient for setting up foreign subsidiaries. Rather, the success of FDI is determined by the strength of these advantages compared with those of the host country firms. Therefore, the scope of exploiting ownership advantages is relatively low when the economic environments of the home and host countries are similar. According to Gaur and Lu (2007), firms are familiar with their domestic institutional environment; however, this does not mean that the domestic institutional environment is the most favourable for conducting business. Similarly, while firms may be familiar with economic environments that are similar to the home country, it does not necessarily mean that they provide the best environment for conducting business. Supporting evidence suggests that costs of doing business increase with physical distance (Chakrabarti and Mitchell, 2013). For example, economic distance, measured as differences in GDP per capita (Demirbag et al., 2011; Tsang and Yip, 2007),

between Finland and Australia is very low. However, the vast geographic distance between the two countries would make it very difficult for a firm headquartered in Finland to manage its Australian subsidiary due to the high co-ordination and logistics costs. Thus, although survival should be higher in countries with similar economic conditions (Kang et al., 2017; Pattnaik and Lee, 2014), other factors adversely affect subsidiary survival. Further, setting up foreign subsidiaries incurs start-up costs. Such costs may arise because of institutional imperfections (Bustamante et al., 2021), cultural differences (Brouthers and Brouthers, 2000; Zheng et al., 2020), liability of foreignness (Kostova and Zaheer, 1999; Ma and Ratcliff, 2020; Zaheer, 1995), or lack of prior experience (Eriksson et al., 1997). Thus, in economically similar countries, the costs of setting up and conducting business are likely to outweigh the scope of arbitrage leading to a lower probability of survival in comparison to countries with dissimilar economic conditions.

Medium economic distance between the home and host countries offers firms sufficient opportunities to exploit their ownership advantages. Such opportunities arise from favourable operating costs and institutional environments (Bustamante et al., 2021; Gaur and Lu, 2007). The benefits of operating in economically distant countries may also include attractive investment packages such as tax waivers and other subsidies offered by the host government with the intention to boost national income (Görg and Greenaway, 2004), to absorb the ownership advantages of foreign firms for the benefit of domestic firms (De La Potterie and Lichtenberg, 2001; Fu et al., 2011; Haskel et al., 2007) and to mobilise national labour (Meyer, 2004). These locational benefits are likely to outweigh the operational and learning costs, help foreign firms acclimatise to the local conditions faster and increase the probability of subsidiary survival.

As the economic distance between the home and host countries increases further, the costs of operating in the foreign country increase substantially (Lu and Beamish, 2004). Costs of operating in an economically distant country may arise from different sources, including cost of labour cost, cost of sourcing raw materials, costs of communication, cost of knowledge acquisition and cost of coordination (Eden and Miller, 2004; Ghemawat, 2001; Tsang and Yip, 2007). The costliness of operating in an economically distance country are likely to outweigh the scope of arbitrage that such countries may offer (Chao and Kumar, 2010). Further, operating at a distance accentuates the asymmetry between the parent and its subsidiary concerning operational and performance goals. Giacobbe et al. (2016) argued that such asymmetry increases self-interested and opportunistic behaviour from the subsidiary employees, which would weaken the parent-subsidiary bond and increase the probability that the subsidiary will be divested.

Eriksson et al. (1997) and Pattnaik and Lee (2014) suggested that operating in economically distant countries necessitates learning about the new environment. The greater the economic distance between the countries is, the higher will be the time and cost of acquiring new knowledge. Unfamiliarity with the new environment is hazardous because it increases the pressure of obtaining legitimacy (Kostova and Zaheer, 1999), which is likely to increase the resource commitment of the parent firm. Therefore, the commitment of resources and costs incurred in acquiring new learning is likely to outweigh the potential cost advantages and scope of arbitrage offered by economically distant markets. Hence, subsidiary survival will be lower in economically distant countries because the costs of organising activities in the host country will be higher than the benefits of doing so. These arguments lead us to the following hypothesis:

Hypothesis 1: An inverted U-shaped relationship exists between economic distance and foreign subsidiary survival, such that survival increases between low to medium levels of economic distance and decreases between medium to high levels of economic distance.

2.3 Moderating role of host country experience

Ownership advantages of the eclectic paradigm emphasise the importance of intangible assets in improving firm performance (Dunning, 1988; 2000). Among ownership advantages, experience is commonly associated with higher firm performance. Although international experience is crucial for a firm's overall growth and performance, Johanson and Vahlne (1977, 2009) suggested that country-specific experience is more effective and relevant for a subsidiary operating in a host country.

According to Luo (1997), country-specific experience deepens a firm's knowledge of the host country's institutions, culture, economy, competitive environment, and business cycles. Therefore, the capacity to gain expertise in their operations within the host country increases as the firm accumulates host country experience. In line with this argument, Arslan and Dikova (2015) suggested that post-entry integration into the host country is smoother for firms with prior experience in the country. Additionally, international business scholars argue that host country experience improves subsidiary performance and facilitates efficient transfer of knowledge and tangible resources (Kostova, 1999). This is beneficial for firms operating in unstable environments, where quick and effective knowledge transfer is essential to overcome external changes (Lee et al., 2008). Thus, subsidiary survival in economically distant countries will be higher for firms with high host country experience than for firms with low experience. Additionally, lack of host country experience is commonly associated with the hazards of uncertainty (Henisz and Delios, 2001), legitimacy (Kostova, 1999), newness (Singh et al., 1986), and foreignness (Johanson and Vahlne, 1977). The combined effect of these hazards places firms in a position of competitive disadvantage in the host country.

In addition to its role in organisational learning, host country experience influences the long-term orientation of firms. For instance, Davidson (1980) argued that the probability of firms making subsequent long-term investments is positively linked to their experience in the host country. Since host country experience facilitates efficient transfer of knowledge and intangible assets (Kostova, 1999) and induces efficiency through cost savings (Luo and Peng, 1999), firms with prior subsidiaries in a host country are likely to establish new subsidiaries in the same country rather than in new locations. Therefore, it can be argued that host country experience influences the parent firm's long-term orientation. Thus, the probability of subsidiary survival will be higher for firms with host country experience. These arguments lead us to the following hypothesis:

Hypothesis 2: Host country experience will moderate the relationship between economic distance and subsidiary survival such that the upward slope of the inverted U-curve will be steeper and downward slope will be gentler.

2.4 Moderating role of establishment mode

The decision between greenfields and acquisitions determines the speed of entry, integration costs and degree of freedom over transferability of firm resources.

Greenfields are tailor-made subsidiaries to fit a firm's strategic focus and allow for efficient transfer of unique capabilities to the host country over a longer period. By entering an economically distant country through greenfields, a parent firm can reduce its integration costs by carefully selecting the labour which would allow a smooth integration of the subsidiary into its new environment (Hennart et al., 1998). This also allows the parent firm sufficient time to absorb essential knowledge about the new environment that would aid in achieving operational efficiency. The establishment mode decision is also subject to a firm's exploration–exploitation strategies. Slangen and Hennart (2007) suggested that firms exploiting their ownership advantages prefer greenfields as it is the most efficient way of transferring such knowledge. Furthermore, greenfield entries are likely to provide leverage in overcoming the operational costs in economically distant countries because they prevent the dissemination of firm-specific knowledge (Hennart and Park, 1993).

However, greenfield entries would not be suitable for entering economically similar countries. As we have discussed above, subsidiary survival is expected to be lower in economically similar countries due to lower scope of economic arbitrage and institutional imperfections. While greenfield entries offer the benefit of transferring firm specific advantages to the host country efficiently, the transferability of such advantages can be restricted by institutional constraints in the host country (Eden and Miller, 2004). Moreover, the similarities between the home and host countries would reduce the applicability of firm-specific advantages (Anand and Delios, 1997). As prior research has also shown that greenfields are suitable for exploiting firm specific advantages (Dikova and Brouthers, 2009), entering an economically similar country would restrict the scope of competitive advantage as the strength of the firm specific advantages would be comparable to those of the local firms (Dunning, 1993, 2001). This renders greenfield entries less suitable for economically similar countries.

Acquisitions provide an easy access to local knowledge but are likely to have a low-survival rate in economically distant countries because the parent firm is likely to face high training and integration costs (Hennart and Park, 1993; Slangen, 2006). Integrating a newly acquired labour into the firm structure involves imparting training on the corporate values and culture. The acquired labour would also necessitate training on understanding the production cycle, supply chain and customer base of the firm. Since, a country's economic development level is reflected by the level of skilled labour, the acquiring firm must incur high costs for integrating and training the new labour, which may decrease the survival of acquired subsidiaries. Prior research has also argued that high differences between the home and host countries exacerbates the problems in managing a foreign subsidiary (Arslan, et al., 2015; Pattnaik and Lee, 2014; Tsang and Yip, 2007), which would decrease the possibility that the subsidiary being held for too long. In economically similar countries, acquisitions are likely to have a high-survival rate because they are suitable for overcoming barriers in foreign countries (Dikova and Brouthers, 2009). The key barriers while entering a similar country are institutional constraints and lack of prior experience (Bustamante et al., 2021; Eriksson et al., 1997). By acquiring a local unit, the parent firm can overcome these barriers because the unit is already embedded in the host country environment. These arguments lead us to the following hypotheses:

Hypothesis 3a: Greenfield entries, in comparison to acquisitions, will have a higher survival rate in economically distant countries.

Hypothesis 3b: Acquisitions, in comparison to greenfield entries, will have a higher survival rate in economically similar countries.

2.5 Moderating role of ownership mode

Empirical research on ownership mode suggests that Joint Ventures (JV) are preferred when firms are keen to overcome the liability of foreignness (Luo et al., 2002). Entering into a JV agreement facilitates linkages to resources that would otherwise be expensive and difficult to procure (Inkpen and Beamish, 1997; Luo et al., 2002). Furthermore, JVs allow firms to exchange tacit knowledge, which is expensive to acquire from external consulting (Hennart, 1988). This makes JV an ideal ownership mode in economically similar countries where the key challenge is the lack of prior experience and the scope of obtaining a position of competitive advantage is restricted by the weak firm specific advantage as compared to those of the local firms.

Despite their advantages, JVs have limitations in economically distant countries. First, JVs are unstable operation modes because the internal transaction costs arising from shared ownership and incomplete contracting are high (Pearce, 1997). Second, the structural arrangement and shared ownership are potential causes for inter-partner conflict (Morris and Cadogan, 2001), especially when the partners are from economically distant countries (Demirbag et al., 2003). As the economic distance between countries increases, finding a trustworthy partner becomes difficult and requires an increased degree of coordination effort (Gomes-Casseres, 1990). Finally, the shared nature of JVs makes it easier to sell the stakes to the partner, thereby increasing the ease at which JVs can be dissolved (Hennart et al., 1998; Park and Park, 2000).

In the case of Wholly Owned Subsidiaries (WOS), however, no partner conflict exists, and the foreign firm can transfer its ownership advantages efficiently to enhance subsidiary performance. This gives the parent firm strategic flexibility to tackle external problems associated with changes of operating in a distance country (Gaur and Lu, 2007). A WOS is an efficient way to overcome the liability of foreignness because it allows free transfer of power from the headquarters to the subsidiary and facilitates alliances with local partners through 'face-to-face contact' (Chen, 2006). Firms' choice of ownership mode is also linked to the transaction involved. Typically, high equity ownership modes are preferred when uncertainty in the host country is high and the assets involved in the subsidiary become highly specific to the transaction (Yiu and Makino, 2002). Further, WOS offers the parent firm adequate control over the operations to tackle issues that may arise from differences in economic environments. This feature is particularly useful when the capability of the parent firm to provide direction to its foreign unit is restricted by distance (Williamson, 2005). These arguments lead to the following hypothesis:

Hypothesis 4a: WOSs, in comparison to joint ventures, will have a higher survival rate in economically distant countries.

Hypothesis 4b: JVs, in comparison to WOSs, will have a higher survival rate in economically similar countries.

3 Methods

3.1 Variables

3.1.1 Dependent variable

Consistent with earlier studies (Gaur and Lu, 2007; Tsang and Yip, 2007), the dependent variable in this study is *hazard ratio of FDI*. Accordingly, we used a censoring dummy such that exits prior to the end of observation period (year 2018) were coded 1 and surviving subsidiaries were coded 0. The length of subsidiary survival was computed as the total number of years since inception until the year 2018.

3.1.2 Independent variables

Our first independent variable is the economic distance between Finland and other host countries. In its most basic form, economic distance is measured as a simple arithmetic difference between the macroeconomic environments of two countries, especially the difference in the per capita GDP (Demirbag et al., 2011; Halaszovich and Kinra, 2020; Tsang and Yip, 2007). This measure, as highlighted by Tsang and Yip (2007), is relatively crude and does not consider general economic growth, factor costs and level of infrastructure. Another measure used in the literature is currency exchange rate (Belderbos and Zou, 2009; Park and Park, 2000). This measure, however, underestimates the potential effects of factor costs and demand conditions. Berry et al. (2010) measured economic distance using four indicators, namely GDP per capita, inflation, export intensity and import intensity. This measure provides a wider coverage of economic indicators that are key to international business; however, it underestimates the importance of economic factors such as cost of production or level of infrastructure. While several studies have shown a causal link between trade openness and inward FDI (Jayachandran and Seilan, 2010; Liargovas and Skandalis, 2012; Liu et al., 2002), the direct effect of trade on subsidiary survival remains unclear.

To address the limitations of earlier measures, a multi-dimensional measure of economic distance is necessary to account for factor costs, income levels, economic growth and level of infrastructural development. According to eclectic paradigm of international production (Dunning, 1998), factor costs are a key determinant of FDI. Firms are likely to undertake production activities in countries that offer a cost advantage over the home country environment. Income levels, as highlighted by Berry et al. (2010), are correlated with demand conditions and consumer purchasing 0 power. Accordingly, countries with high-income levels are more suitable for business. Similarly, economic growth is essential for foreign investment because it corresponds to technological growth and infrastructural development (Tiwari and Mutascu, 2011). A lack of infrastructural facilities can contribute to an increase in operating costs (Kaur et al., 2016). Moreover, infrastructural facilities provide an environment conducive to foreign firms (Dunning, 1979).

We calculated economic distance by factor analysing 18 indicators selected after reviewing the literature on economic determinants of FDI (Assunção et al., 2011; Bellak et al., 2008; Chan et al., 2014; Onyeiwu and Shrestha, 2004; Paul and Jadhav, 2019; Saini and Singhania, 2018). As shown in Table 1, the factor loadings (Cronbach's alpha) were above the acceptable cut-off point of 0.7 (Ferré, 1995) for *Labour cost*, *GDP per capita*, *Education level*, *Infrastructure level* and *GDP growth*. These five indicators are

in line with our argument for the need of a multi-dimensional measure of economic distance. *Labour cost* is a principal component of factor cost and determines the location choice and success of FDI (Axarloglou, 2004; Braconier et al., 2005). Consistent with Tsang and Yip (2007) and Demirbag et al. (2011), *GDP per capita* measures income levels and demand conditions. *Education level* and *Infrastructure level* capture the level of human and technological development. According to Lucas (1988), skilled labour contributes to the individual's productivity as well as to the productivity of all other production factors. Therefore, skilled labour may help reduce production costs by readily absorbing new technology and lowering the cost of training and integrating new labour. High levels of infrastructural development play a crucial role in attracting FDI because it reduces the costs of distance and enables firms to access resources and customers. A meta-analytical review by Iamsiraroj and Doucouliagos (2015) showed a significant positive correlation between economic growth and FDI. Since the economic growth of a country is a key locational determinant of attracting FDI, it is likely to play a significant role in subsidiary survival. The indicator *GDP growth* in our factor analysis measures economic growth. A summary of the five indicators is provided in Table 2.

Table 1 Description and factor analysis of economic indicators

	Indicator	*Measure*	*Study*	*Source*	*Loading*
1	Labour cost	Mean hourly wage rate	Alam and Shah (2013)	ILOStat	**0.895**
2	GDP Per Capita	Per capita US$ (2015)	Berry et al. (2010); Halaszovich and Kinra (2020); Tsang and Yip (2007)	UNCTADStat	**0.863**
3	Education level	Enrolment in secondary school (% population)	Aziz and Mishra (2016); Checchi et al. (2017); Jiménez (2011)	UIS	**0.845**
4	Infrastructure level	Government expenditure on ICT (% GDP)	Nachum and Zaheer (2005); Onyeiwu and Shrestha (2004)	UIS, OECD, Government reports	**0.757**
5	GDP Growth	Annual GDP growth (%)	Saini and Singhania (2018); Shamsuddin (1994)	UNCTADStat	**0.712**
6	External debt	Total external debt (% GDP)	Kok and Ersoy (2009); Onyeiwu and Shrestha (2004)	IMF	0.445
7	Outward FDI intensity	Annual outward FDI flow (% GDP)	Shamsuddin (1994)	UNCTADStat	0.385
8	Exchange rate	Real exchange rate	Alam and Shah (2013); Dua and Garg (2015)	UNCTADStat	0.293
9	Inward FDI intensity	Annual inward FDI flow (% GDP)	Dua and Garg (2015); Goswami and Saikia (2012)	UNCTADStat	0.278
10	Import intensity	Total imports (% GDP)	Berry et al. (2010)	UNCTADStat	0.235

Table 1 Description and factor analysis of economic indicators (continued)

	Indicator	*Measure*	*Study*	*Source*	*Loading*
11	Export intensity	Total exports (% GDP)	Berry et al. (2010)	UNCTADStat	0.200
12	Innovation intensity	Patents granted per capita	Narula and Wakelin (1998); Sun et al. (2002)		0.169
13	GDP	Total GDP US$ (2015)	Jiménez et al. (2020); Sun et al. (2002); Yang et al. (2000); Yeaple (2003)	UNCTADStat	–0.092
14	Tax Rate	Corporate income tax rate	Alam and Shah (2013); Onyeiwu and Shrestha (2004)	Tax Foundation, WCY	–0.142
15	Trade openness	Sum of imports and exports as a ratio of GDP	Alam and Shah (2013); Dua and Garg (2015); Yang et al. (2000)	UNCTADStat	–0.369
16	Inflation	GDP deflator (% GDP)	Berry et al. (2010); Dua and Garg (2015)	UNCTADStat	–0.387
17	Telecom expenses	Government expenditure on telecom (% GDP)	Chan et al. (2014)	WCY	–0.459
18	Interest rate	Real short-term interest rate	Dua and Garg (2015); Onyeiwu and Shrestha (2004); Saini and Singhania (2018)	IMF, WDI	–0.548

Table 2 Summary of economic indicators

Indicator	*Rationale*	*Relevant literature*
GDP growth	Economic growth and FDI share an endogenous relationship. While FDI promotes economic growth, a high-growth rate indicates increase in income levels, thereby increasing the purchasing power of the population. As the purchasing power of the population increases, demand conditions become more favourable, thus increasing FDI survival.	Chowdhury and Mavrotas (2006); Li and Liu (2005); Liu et al. (2002); Sylwester (2005)
GDP per capita	High GDP per capita indicates high purchasing power of the population; therefore, probability of survival will be higher in countries with high GDP per capita.	Demirbag et al. (2011); Jadhav (2012); Tsang and Yip (2007)
Labour cost	Labour cost has a profound effect on production costs. Low-labour cost countries offer the opportunity to reduce production costs and are preferred destinations for FDI from countries with high-labour costs.	Axarloglou (2004); Bellak, et al. (2008); Dellis et al. (2017); Janicki and Wunnava (2004)

Table 2 Summary of economic indicators (continued)

Indicator	*Rationale*	*Relevant literature*
Education level	An educated workforce is an indication of higher productivity because of the ability of the workers to adapt, absorb and implement new technology. Moreover, higher levels of education reduce training and integration costs.	Filippaios et al. (2003); Jiménez (2011); Midelfart-Knarvik et al. (2001); Naudé and Krugell (2007)
Infrastructure level	Countries with developed technological infrastructure attract and sustain inward FDI because technology reduces the costs of distance, enables firms to access resources and customers without having a local presence, opens up new opportunities of interaction and provides opportunities to absorb spillover effects.	Driffield and Love (2007); Gholami et al. (2006); Lall and Narula (2004); Mortimore and Vergara (2004); Nachum and Zaheer (2005)

Consistent with Berry et al. (2010) and Kang et al. (2017), we computed the index using the Mahalanobis method. The Mahalanobis method calculates distance between point *P* and distribution *D* (Mahalanobis, 1936). It is a measure that incorporates both the correlation between indicators and difference in variance. Mahalanobis distance is a special case of Euclidean distance where the covariance matrix is not an identity (Kandogan, 2012). It is expressed as follows: $ED = \sqrt{\sum_{i=1}^{n} \frac{\left(I_{Fin} - I_{HC}\right)^2}{Var_I}}$, where *ED* stands for economic distance, I_{Fin} is the economic indicator for Finland, I_{HC} is the economic indicator for host country and Var_I is the variance of the indicator. By following the Mahalanobis method, we overcame the issue of scale inconsistency, which characterises several country-level variables.

Next, we measured host-country experience *(HC Experience)* as subsidiary years in the host country (Park et al., 2011). Consistent with previous studies (Gaur and Lu, 2007; Hennart and Park, 1993), we used dummy variables to measure establishment and ownership modes. Establishment mode *(Acquisition)* was coded 0 for greenfield entries, and 1 for acquisitions. Ownership mode *(WOS)* was coded 0 for wholly owned subsidiaries, and 1 for joint ventures.

3.1.3 Control variables

Several control variables that are likely to influence FDI were included in the empirical analysis. At the parent level, we measured research and development *(R&D)* as the ratio of the total R&D expenses to total sales (Park et al., 2011). *International experience* was measured as the total number of subsidiary years in foreign countries (Mariotti and Piscitello, 1999). *Geographic diversity* was measured as the total number of foreign subsidiaries to the number of foreign countries that the firm has operations in Lu and Beamish (2004). At the subsidiary level, we included *Subsidiary age* as the number of years from establishment to the year of divestment or the end of the observation period (Hennart et al., 1998). *Exit mode* was measured as a binary variable where 0 equalled exit by closure or liquidation and 1 equalled exit by sell-off (Mata and Portugal, 2000).

At the country level, we measured economic size of the host country (*HC GDP*) as the log of total GDP (Park and Park, 2000); and *Income equality* using the Gini index

(Khan and Nawaz, 2019). We included *Inflation* rate, measured as the consumer price index, to control for price stability (Akram and Eitrheim, 2008; Borio, 2005). Political stability is a key determinant of FDI (Arbatli, 2011; Busse and Hefeker, 2007; Büthe and Milner, 2008); therefore, we controlled for *Political risk*. This is a survey-based measure sourced from the WCY. We included *Financial stability* as a measure for the institutional support for monetary stability (Allen and Wood, 2006). Further, to measure the openness of the economy, we included *Freedom of trade*, measured as tariff and non-tariff restrictions that limit cross-border trade; and *Govt. regulation*, measured as the level of regulatory restrains that limit economic freedom (Gwartney and Lawson, 2003). Finally, we included *Employment* to measure the proportion of the population in formal employment (Liu and Lu, 2011). Table 3 summarises the measurement of variables.

Table 3 Measurement of variables

Variables	*Measure*	*Source*
Dependent		
Subsidiary survival	0 = Survival, 1 = Exit	Databank[a]
Independent		
ED	Difference between labour cost, GDP growth, GDP per capita, education level, and infrastructure level	ILOStat, UNCTADStat UIS, OECD, Government reports
HC experience	Total number of subsidiary years in host country	Databank
Acquisition	0 = Greenfield, 1 = Acquisition	Databank
JV	0 = WOS, 1 = JV	Databank
Controls		
Parent-level		
R&D intensity	R&D expenses to total sales	Thomson Worldscope
International experience	Total number of subsidiary years in foreign countries	Databank
Geographic diversity	Number of foreign subsidiaries to number of foreign countries`	Databank
Subsidiary-level		
Subsidiary age	Number of years of operation since inception	Databank
Exit mode	0 = Closure/Liquidation, 1 = Sell-off	Databank
Country-level		
HC GDP	Log of total GDP	UNCTADStat
Income inequality	Gini index	UNCTADStat
Inflation	Consumer price index	UNCTADStat
Political risk	Survey-based measure	WCY
Financial stability	Institutional support for monetary stability	Fraser Institute

Table 3 Measurement of variables (continued)

Variables	*Measure*	*Source*
Freedom of trade	Level of tariff and non-tariff restrictions that limit freedom of cross-border trade	Fraser Institute
Govt. regulation	Level of regulatory restraints that limit freedom of economic exchange	Fraser Institute
Employment	% of population with formal employment	ILOStat

Note: [a.] The databank was compiled using sources such as Bureau van Dijk, company annual reports, newspapers, business magazines, and stock market information.

3.2 Sample and data

We tested our hypotheses using a sample of Finnish manufacturing firms listed on the Helsinki Stock Exchange that were actively involved in FDI during the period 1990–2018. Manufacturing sector was selected because it played a key role in Finland's economic growth (Wang and Larimo, 2020). The observation period of approximately three decades captured an interesting phase in the Finnish economy as it witnessed rapid international expansion between 1990 and 2012 and a sharp subsequent decline between 2013 and 2018. Further, a lengthy period of over 10 years is ideal to capture the survival of long-term foreign investments (Benito, 1997). The sample was restricted to investments made between 1990 and 2016 and divestments made between 1992 and 2018. Introducing these restrictions had two advantages. First, it ensured that all investments included in the sample survived for a minimum of two years, and thus, restricted sample bias arising from the honeymoon effect (Gaur and Lu, 2007; Wang and Larimo, 2020). Second, it considered both left and right censoring issues. Overall, the sample consisted of 1771 foreign subsidiaries, of which 507 were divested with an exit rate of 28.63%.

Country-level data were assembled using the United Nations Conference on Trade and Development Statistics (UNCTADstat), International Labour Organisation Statistics Database (ILOStat), UNESCO Institute for Statistics (UIS) and World Competitiveness Yearbook (WCY). The UNCTADstat provides access to over 150 indicators and statistical time series. It comprises a strong data browsing system and follows common rules and clear methodology to compile several basic and derived indicators. The statistical series are regularly updated with a unique coverage for several products and countries. Special focus is placed on developing and transition economies (UNCTAD, 2017). The ILOStat is a leading source of labour statistics data compiled, processed and disseminated by the International Labour Organisation (ILO, 2019). The WCY is an annual report published by the International Institute for Management Development that reports the economic and institutional performance of 63 countries based on over 340 criteria. The report is compiled of country rankings, country profiles and statistical tables (World Competitiveness Yearbook, 2016).

Information related to firm-level financial data and expenditure on intangible assets was collected from the Thomson Reuters Worldscope database. The Worldscope database contains financial information of active, extinct or inactive firms from over

75 countries. Its extensive content includes financial statement items, analytics ratios, acclaimed standardisation and method, per-share information, 12-moth statement summary, segmented data and operating metrics (Thomson Reuters, 2016).

3.3 Model estimation

Consistent with earlier studies (Delios and Beamish, 2001; Demirbag et al., 2011), we employed Cox's Proportional Hazard Model (CPHM) to estimate the results. The CPHM is a commonly used statistical model in divestment studies and has the following two advantages over other event-history models: (1) it does not specify the parameters for an event's time of occurrence, which in this case, is the exit of a foreign subsidiary and (2) it allows the use of time-varying independent variables (Cox and Oakes, 1984). The CPHM maximises the partial likelihood that a firm should exit conditional to other firms at risk at the time of exit (Allison, 2010). Further, it resolves the problems of data censoring by incorporating time distribution directly into the estimation (Gaur and Lu, 2007). Given these properties, Allison (2014) argued that CPHM is the most versatile model for event-history analysis.

4 Results

Descriptive statistics and correlations between the variables are provided in Table 4. The correlations between the independent variables were low and below the cut-off point of ± 0.7; therefore, multicollinearity did not pose a serious concern to the coefficient estimates. However, some correlations between the control variables were above the cut-off point of ± 0.7, which indicates a potential multicollinearity problem. Following Allison (2012), we conducted additional multicollinearity diagnostics to calculate the variance-inflated factor. The results suggest that the variance-inflated factor for all variables was low and below the recommended value of 10 (Neter et al., 1990), confirming that multicollinearity was not a major concern.

The results of CPHM are provided in Table 5. The explanatory variables were added sequentially into the regression model. Model 1 serves as the baseline model and includes the control variables. We added the independent variables –host country experience (*HC Experience*), establishment mode (*Acquisition*), ownership mode (*JV*) and economic distance (*ED*) in Model 2. In Model 3, we added the square term *ED Sq*. In Model 4, we added the moderation effect of host country experience, and in Models 5 and 6, we added the moderation effects of establishment and ownership modes, respectively. As indicated by the chi-squares, all models were significant and improved by stepwise inclusion of additional terms. In Table 5, the negative sign associated with the hazard ratio indicates an increase in the likelihood of survival, whereas the positive sign indicates an increase in the likelihood of exit.

Table 4 Descriptive statistics and correlations

	Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Divestment	1																	
2	Subsidiary age	–0.573**	1																
3	Exit mode	0.896**	–0.547**	1															
4	R&D intensity	–0.011	–0.062**	–0.021	1														
5	Int. experience	–0.017	0.029	–0.013	0.190**	1													
6	Geog. diversity	0.003	–0.070**	0.004	0.025	0.127**	1												
7	HC GDP	0.123**	–0.143**	0.092**	0.146**	0.069**	0.013	1											
8	Income inequality	0.097**	–0.055*	0.113**	–0.015	0.100**	0.280**	–0.009	1										
9	Inflation	–0.047*	–0.093**	–0.042	0.074**	0.006	0.150**	–0.117**	0.027	1									
10	Political risk	0.088**	0.028	0.118**	–0.016	0.075**	0.032	0.577**	–0.148**	–0.045	1								
11	Financial stability	0.023	–0.159**	0.049*	0.019	0.057*	0.003	0.472**	–0.020	0.608**	0.017	1							
12	Freedom of trade	0.075**	–0.035	0.106**	0.005	0.074**	0.101**	0.514**	–0.040	0.694**	0.730**	–0.042	1						
13	Govt. regulation	0.005	–0.184**	0.032	0.006	0.056*	0.038	0.493**	0.398**	0.551**	0.608**	0.510**	–0.001	1					
14	Employment	–0.072**	–0.006**	–0.094**	0.058*	0.001	–0.056*	–0.469**	0.174**	–0.756**	–0.479**	–0.535*	–0.467**	0.054*	1				

Table 4 Descriptive statistics and correlations (continued)

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
15 HC experience	0.070**	0.148**	0.087**	0.331**	0.106**	0.080**	0.124**	0.011	0.139**	0.001	0.023	0.028	–0.082**	0.157**	1			
16 Acquisition	0.002	–0.066**	0.020	0.007	0.026	0.089**	0.289**	–0.019	0.357**	0.293**	0.297**	0.275**	–0.343**	0.042	–0.025	1		
17 JV	0.098**	0.034	0.050*	–0.061**	–0.014	–0.088**	–0.192**	–0.066**	–0.195**	–0.202**	–0.216**	–0.198**	–0.197**	0.006	–0.017	–0.122**	1	
18 ED	–0.021	–0.028	–0.034	0.063**	0.010	0.266**	–0.068**	0.134**	–0.429**	–0.156**	–0.240**	–0.280**	0.570**	–0.015	0.060*	–0.153**	0.061*	1
Mean	0.286	13.328	0.323	19.653	1.558	11.391	47.941	5.377	7.259	8.532	7.876	6.933	50.357	11.375	2.853	0.632	0.377	2.365
S.D.	0.452	6.878	0.569	3.110	14.359	0.365	7.969	21.91	1.504	1.377	1.67	1.479	1.396	22.214	7.663	0.482	0.485	0.892
VIF	5.611	2.000	5.270	1.081	1.191	1.330	1.080	2.209	1.965	3.895	3.021	2.915	3.534	3.032	1.288	1.202	1.111	1.876

Note: ** $p < 0.01$; * $p < 0.05$ (2-tailed).

Table 5 Results of survival analysis (N = 1771, Exits = 507)

	Variables	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
1	Subsidiary age	–0.053***	–0.056***	–0.057***	–0.057***	–0.056***	–0.056***
		(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
2	Exit mode	1.535***	1.516***	1.514***	1.517***	1.516***	1.521***
		(0.069)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)
3	R&D intensity	–0.061***	–0.061***	–0.061***	–0.060***	–0.060***	–0.060***
		(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
4	International experience	–0.003	–0.003	–0.003	–0.003	–0.003	–0.003
		(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
5	Geographic diversity	0.006*	0.007*	0.008**	0.006*	0.019**	0.019**
		(0.002)	(0.003)	(0.003)	(0.003)	(0.151)	(0.153)
6	HC GDP	0.031***	0.029***	0.029***	0.029***	0.031***	0.031***
		(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
7	Income inequality	0.006*	0.010**	0.012***	0.011**	0.011***	0.011***
		(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
8	Inflation	0.059**	0.061**	0.067**	0.060**	0.065**	0.067**
		(0.046)	(0.047)	(0.047)	(0.048)	(0.042)	(0.041)
9	Political risk	0.321***	0.272***	0.293***	0.310***	0.357***	0.355***
		(0.062)	(0.064)	(0.065)	(0.065)	(0.065)	(0.065)
10	Financial stability	–0.198***	–0.153**	–0.145**	–0.118*	–0.146**	–0.145**
		(0.049)	(0.050)	(0.050)	(0.052)	(0.050)	(0.050)

Table 5 Results of survival analysis (N = 1771, Exits = 507) (continued)

	Variables	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
11	Freedom of trade	0.052	0.031	0.030	0.049	0.021	0.032
		(0.063)	(0.060)	(0.059)	(0.061)	(0.061)	(0.060)
12	Govt. regulation	–0.049	0.044	0.023	0.221	–0.086	–0.109
		(0.190)	(0.194)	(0.191)	(0.210)	(0.186)	(0.186)
13	Employment	–0.025†	–0.037*	–0.038**	–0.061***	–0.033*	–0.031*
		(0.015)	(0.015)	(0.015)	(0.017)	(0.015)	(0.015)
14	HC experience		–0.017**	–0.018**	–0.015*	–0.020**	–0.020**
			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
15	Acquisition		–0.062	–0.038	–0.051	–0.160	–0.018
			(0.099)	(0.099)	(0.099)	(0.099)	(0.101)
16	JV		–0.145***	–0.135***	–0.103***	–0.132***	–0.182***
			(0.094)	(0.095)	(0.095)	(0.095)	(0.096)
17	ED		–0.581**	–0.634***	–0.621***	–0.544**	–0.549*
			(0.087)	(0.257)	(0.246)	(0.329)	(0.358)
18	ED Sq.			0.403**	0.360***	0.238**	0.242*
				(0.054)	(0.050)	(0.074)	(0.080)
19	ED × HC Experience				–0.711**		
					(0.003)		

Table 5 Results of survival analysis (N = 1771, Exits = 507) (continued)

	Variables	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
20	ED Sq. × HC Experience				0.006*		
21	ED × Acquisition					–0.003	
						(0.430)	
22	ED Sq. × Acquisition					0.022	
						(0.096)	
23	ED × JV						–0.295**
							(0.130)
24	ED Sq. × JV						0.118*
							(0.095)
	Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
	Year effects	Yes	Yes	Yes	Yes	Yes	Yes
	2 Log likelihood	6045.085	5994.943	5991.660	5979.258	5988.885	5988.565
	Chi-square	1618.635***	1651.421***	1656.768***	1669.037***	1655.734***	1655.362***
	df	12	17	18	20	20	20

Notes: A negative sign indicates a higher survival rate. Robust standard errors in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$ (2-tailed).

The coefficients for control variables were consistent across all models. The negative coefficients associated with *Subsidiary age* suggest that probability of survival increases with the amount of time spent in the host country. At the country level, host factors that enhance foreign subsidiary survival are *Financial Stability*, measured as institutional support for monetary stability, and the level of *Employment*. The positive coefficients associated with *Exit mode* suggest that firms prefer sell-offs over closures while exiting economically distant markets. At the parent firm level, high *Geographic diversity* is detrimental to subsidiary survival. Moreover, subsidiary survival is lower in larger economies (*HC GDP*) and in countries characterised by *Income inequality*, high *Inflation* and high *Political risk*.

Hypothesis 1 predicted that the probability of foreign subsidiary survival increases between low to medium levels of economic distance and decreases between medium to high levels of economic distance. As indicated in Models 3–5, the linear terms for ED were negative and the quadratic terms were positive, suggesting an inverted U-shaped relationship between economic distance and foreign subsidiary survival. Specifically, the probability of subsidiary survival increases when the economic distance between the home and host countries is low to medium; however, the probability of subsidiary survival diminishes at high levels of economic distance. Thus, Hypothesis 1 was supported.

Hypothesis 2 predicted that host country experience of the parent firm would moderate the relationship between economic distance and subsidiary survival so that the upward slope of the inverted U-curve would be steeper, and the downward slope would be gentler for firms with high-host country experience. In Model 4, the coefficient for *ED* × *HC Experience* was stronger than the coefficient for *ED*, and the coefficient for *ED Sq.* × *HC Experience* was weaker than the coefficient for *ED Sq.* The findings indicate a significant shift in the inverted U-curve such that the upward slope becomes steeper, and the downward slope becomes gentler after entering the interaction term between economic distance and host country experience. Thus, Hypothesis 2 was supported.

In addition to parent firm's ownership advantages, we tested the moderation effects of establishment and ownership modes. The interactions between *ED* and *ED Sq.* with *Acquisition* in Model 6 were non-significant. However, the interactions between *ED* and *ED Sq.* with *JV* in Model 7 were significant, where the coefficient for *ED* × *JV* was negative and the coefficient for *ED Sq.* × *JV* was positive. To confirm our findings, we conducted additional sub-sample analyses for establishment and ownership mode. We present additional results of sub-sample analysis for establishment mode in Table 6, where Models 'a' represent the greenfield sub-sample and Models 'b' represent the acquisition sub-sample. As shown in Table 6, the coefficients for *ED* and *ED Sq.* were similar for both the greenfield and acquisition sub-samples. Thus, Hypotheses 3a and 3b were not supported.

In Table 7, we present the sub-sample analysis results for ownership mode, where Models 'a' represent the results for the WOS sub-sample and Models 'b' represent the results for the JV sub-sample. The coefficient for *ED* was stronger in Model 2a than in Model 2b. Similarly, the coefficient for *ED* was stronger in Model 3a than in Model 3b. Moreover, the coefficient for *ED Sq.* was weaker in Model 3a than in Model 3b. These results clearly reveal that the upwards slope of the U-shaped relationship between economic distance and subsidiary is more positive for WOS and the downward slope is more negative in JVs. Thus, Hypotheses 4a and 4b were supported.

Table 6 Results of survival analysis for establishment mode

	Variables	*Model 1a*	*Model 1b*	*Model 2a*	*Model 2b*	*Model 3a*	*Model 3b*
		Greenfield	*Acquisition*	*Greenfield*	*Acquisition*	*Greenfield*	*Acquisition*
1	Subsidiary age	–0.040*	–0.066***	–0.043*	–0.072***	–0.046*	–0.072***
		(0.019)	(0.014)	(0.019)	(0.014)	(0.019)	(0.014)
2	Exit mode	1.529***	1.570***	1.490***	1.568***	1.480***	1.565***
		(0.127)	(0.085)	(0.131)	(0.088)	(0.131)	(0.088)
3	R&D intensity	–0.040	–0.069**	–0.043	–0.073***	–0.049	–0.073***
		(0.035)	(0.012)	(0.031)	(0.022)	(0.032)	(0.023)
4	Int. experience	–0.002	–0.002	–0.004	–0.002	–0.004	–0.002
		(0.006)	(0.004)	(0.006)	(0.005)	(0.006)	(0.005)
5	Geog. Diversity	0.270	–1.012***	0.367	–1.055***	0.420†	–1.072***
		(0.252)	(0.179)	(0.249)	(0.188)	(0.252)	(0.189)
6	HC GDP	0.034***	0.030***	0.029**	0.031***	0.032**	0.031***
		(0.010)	(0.007)	(0.010)	(0.008)	(0.010)	(0.008)
7	Income inequality	0.007	0.009*	0.009†	0.011**	0.011*	0.010*
		(0.005)	(0.004)	(0.005)	(0.004)	(0.005)	(0.004)
8	Inflation	–0.042	0.095†	–0.018	0.078	–0.006	0.076
		(0.072)	(0.049)	(0.071)	(0.052)	(0.071)	(0.053)
9	Political risk	0.277**	0.400***	0.190†	0.366***	0.213†	0.358***
		(0.108)	(0.079)	(0.113)	(0.081)	(0.114)	(0.083)
10	Financial stability	–0.043	–0.297***	0.002	–0.243***	–0.002	–0.256***
		(0.074)	(0.065)	(0.076)	(0.066)	(0.076)	(0.069)

Table 6 Results of survival analysis for establishment mode (continued)

	Variables	*Model 1a*	*Model 1b*	*Model 2a*	*Model 2b*	*Model 3a*	*Model 3b*
		Greenfield	*Acquisition*	*Greenfield*	*Acquisition*	*Greenfield*	*Acquisition*
11	Freedom of trade	–0.087	0.169*	–0.105	0.135†	–0.105	0.137†
		(0.100)	(0.079)	(0.102)	(0.079)	(0.100)	(0.079)
12	Govt. regulation	–0.368	0.010	–0.302	0.129	–0.313	0.158
		(0.246)	(0.284)	(0.251)	(0.287)	(0.250)	(0.293)
13	Employment	0.006	–0.042†	–0.004	–0.053*	–0.006	–0.053*
		(0.021)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
14	HC experience			0.032*	0.016*	0.036*	0.016*
				(0.015)	(0.008)	(0.015)	(0.008)
15	JV			0.425**	0.591***	0.406*	0.593***
				(0.159)	(0.121)	(0.159)	(0.121)
16	ED			–0.695†	–0.631†	–0.719*	–0.684*
				(0.112)	(0.094)	(0.138)	(0.090)
17	ED Sq.					0.219†	0.254†
						(0.071)	(0.189)
	Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
	Year effects	Yes	Yes	Yes	Yes	Yes	Yes
	2 Log likelihood	1858.682	3478.174	1843.795	3440.166	1841.366	3439.788
	Chi-square	561.565***	1084.422***	570.792***	1102.707	574.201***	1103.065***
	Df	12	12	16	16	17	17
	N	652	1119	652	1119	652	1119
	Exits	186	321	186	321	186	321

Notes: A negative sign indicates a higher survival rate. Robust standard errors in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$ (2-tailed).

Table 7 Results of survival analysis for ownership mode

	Variables	*Model 1a*	*Model 1b*	*Model 2a*	*Model 2b*	*Model 3a*	*Model 3b*
		WOS	*JV*	*WOS*	*JV*	*WOS*	*JV*
1	Subsidiary age	–0.055***	–0.053***	–0.056***	–0.068***	–0.060***	–0.068***
		(0.016)	(0.015)	(0.016)	(0.016)	(0.016)	(0.016)
2	Exit mode	1.586***	1.539***	1.581***	1.500***	1.583***	1.514***
		(0.092)	(0.111)	(0.094)	(0.115)	(0.094)	(0.116)
3	R&D intensity	–0.029	–0.078**	–0.031	–0.080**	–0.031	–0.081**
		(0.028)	(0.027)	(0.024)	(0.027)	(0.024)	(0.027)
4	Int. experience	0.002	–0.001	0.002	–0.005	0.001	–0.005
		(0.004)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)
5	Geog. diversity	–0.513*	–0.454*	–0.521*	–0.414	–0.532*	–0.353†
		(0.214)	(0.199)	(0.223)	(0.206)	(0.224)	(0.215)
6	HC GDP	0.027***	0.039***	0.030***	0.037***	0.029***	0.038***
		(0.008)	(0.009)	(0.008)	(0.010)	(0.008)	(0.101)
7	Income inequality	0.003	0.015***	0.003	0.018***	0.002	0.019***
		(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
8	Inflation	0.087	0.026	0.053	0.055	0.050	0.059
		(0.055)	(0.060)	(0.058)	(0.060)	(0.058)	(0.060)
9	Political risk	0.377***	0.300***	0.393***	0.200*	0.377***	0.211*
		(0.098)	(0.086)	(0.101)	(0.090)	(0.105)	(0.090)
10	Financial stability	–0.410***	–0.053	–0.396***	0.003	–0.401***	0.018
		(0.079)	(0.059)	(0.081)	(0.064)	(0.082)	(0.066)

Table 7 Results of survival analysis for ownership mode (continued)

	Variables	Model 1a	Model 1b	Model 2a	Model 2b	Model 3a	Model 3b
		WOS	*JV*	*WOS*	*JV*	*WOS*	*JV*
11	Freedom of trade	0.485***	–0.144*	0.512***	–0.145*	0.524***	–0.141*
		(0.108)	(0.068)	(0.111)	(0.068)	(0.114)	(0.067)
12	Govt. regulation	–0.253	–0.001	–0.043	–0.089	–0.044	–0.110
		(0.473)	(0.210)	(0.530)	(0.213)	(0.532)	(0.211)
13	Employment	–0.014	–0.035†	–0.028	–0.037*	–0.026	–0.039*
		(0.035)	(0.018)	(0.038)	(0.018)	(0.039)	(0.018)
14	HC experience			0.005	0.034***	0.005	0.035***
				(0.009)	(0.010)	(0.009)	(0.010)
15	Acquisition			–0.272*	0.175	–0.282*	0.192
				(0.138)	(0.152)	(0.139)	(0.153)
16	ED			–0.664†	–0.027*	–0.717*	–0.013*
				(0.101)	(0.104)	(0.104)	(0.361)
17	ED Sq.					0.050†	0.328†
						(0.092)	(0.078)
	Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
	Year effects	Yes	Yes	Yes	Yes	Yes	Yes
	2 Log likelihood	2976.057	2306.333	2967.557	2281.742	2967.248	2280.555
	Chi-square	1073.983***	572.490***	1078.498***	586.272***	1078.504***	587.823***
	df	12	12	16	16	17	17
	N	1104	667	1104	667	1104	667
	Exits	278	229	278	229	278	229

Notes: A negative sign indicates a higher survival rate. Robust standard errors in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; † $p < 0.1$ (2-tailed).

4.1 Robustness tests

We conducted several robustness tests to test the reliability of our findings. To test the robustness of the measure of economic distance, we replicated the regression models to test the independent effects of the five indicators. The results were similar and consistent with the main result. We also split the sample around the mean to give us two sub-samples for low- and high-economic distance. The sample size was comparable in both sub-samples; however, the exit rate in the sub-sample for low-economic distance (24.3%) was lower than that for the sub-sample for high-economic distance (32.1%). As a test of Hypothesis 1, we conducted survival analysis for both the sub-samples. The coefficient for *ED* in the low-economic distance sub-sample was stronger than that in the high-economic distance sub-sample. Moreover, the coefficient for *ED* in the low-economic distance sub-sample was weaker than that in the high-economic distance sub-sample. We replicated this procedure to test Hypothesis 2, where we split the sample around the mean for host country experience. The results were similar in the sub-sample analyses.

We followed the Lind and Mehlum (2010) procedure to test the robustness of the curvilinear relationship. First, the term *ED Sq.* is significant with the expected positive sign. Second, the slope at both the lower (–1.054, $p < 0.01$) and higher ends (1.574, $p < 0.05$) is sufficiently steep and significant. Third, the turning point of the curve (0.786) is located within the data range. This confirms the inverted U-shaped relationship.

Consistent with Gaur and Lu (2007), we removed the two-year restriction in our sample, effectively neutralising the honeymoon effect. Fichman and Levinthal (1991) argued that the honeymoon effect differs according to the initial investment and commitment from the parent firm. However, variation in initial investments depends upon the variation in the external environment. Thus, the honeymoon period is likely to differ according to the level of economic distance between the home and host countries and the initial commitment of the parent firm. The results of the unrestricted sample analysis were the same, which indicates that the original results were not affected by the two-year restriction. Finally, we checked if potential outliers distorted the results. Following Walfish (2006), we trimmed the 5% top and bottom extremes of the sample. Since there were no significant changes in the results, the presence of outliers was eliminated.

5 Discussion

In this study, we revisited the relationship between economic distance and foreign subsidiary survival. We proposed that foreign subsidiary survival has an inverted U-shaped relationship with economic distance between the home and host countries. Moreover, we proposed a revised measure of economic distance. Instead of using existing measures, such as per capita GDP differences (Demirbag, et al., 2011; Halaszovich and Kinra, 2020; Tsang and Yip, 2007), exchange rate (Belderbos and Zou, 2009) or trade differences (Berry et al., 2010), we relied on international production theories to construct an index that accounts for differences in demand conditions, economic growth, factor costs and infrastructural development. Following Berry et al. (2010), we used the Mahalanobis method to calculate the index of economic distance.

In examining the relationship between economic distance and subsidiary survival, we argued that there are both costs and benefits of operating in economically distant

countries. Overall, the results indicate that subsidiary survival increases between low to medium levels of economic distance and decreases between medium to high levels of economic distance. The scope of arbitrage in economically similar countries is low; however, the operational costs are high. This reduces the probability of survival in economically similar countries. As the economic distance increases, scope of arbitrage increases to the point where it outweighs the operational costs. Thus, subsidiary survival gradually increases with an increase in the economic distance between the home and host countries. As the economic distance increases further, the costs associated with acquiring new knowledge about the country increase. These costs, coupled with the existing operational costs outweigh the benefits of operating in such countries, thereby reducing the probability of subsidiary survival. We found strong support for our proposition that subsidiary survival in economically distant countries increases when firms have high ownership advantages in the form of host country experience. Moreover, we argued that survival would be higher for greenfields and wholly owned subsidiaries, than acquisitions and joint ventures. While we did not find enough support for our results concerning establishment mode, our results indicate that JVs have a higher survival rate in economical similar countries and WOSs have a higher survival rate in economically distant countries.

This study has important theoretical, methodological, managerial and policy implications. Drawing upon the eclectic paradigm our study shows that economic distance is a key locational factor and has important implications for foreign subsidiary survival. The locational advantage of economic distance is materialised through high-market growth, cost-effective production and access to better infrastructure. However, the challenges associated with operating in foreign markets cannot be discounted (see Brouthers and Brouthers, 2000; Dunning, 1998; Hennart, 1988; Johanson and Vahlne, 2009; Zaheer, 1995). Our theoretical premise is that operating in economically similar countries presents unique challenges. Doing business in economically similar countries might be easier, but the scope of arbitrage and comparative advantage offered by them over the home country is low. On the contrary, costs of doing business in economically distant countries are higher than the scope of arbitrage. This emphasises the importance of net arbitrage over cost disadvantage as a key determinant of subsidiary survival in foreign countries, regardless of whether the foreign country is economically similar or dissimilar to the home country. From an organisational learning perspective, we show that firms with host country experience are better positioned to weather the adverse effect of economic distance corroborates the findings of previous studies (e.g., Pattnaik and Lee, 2014). Finally, we show that the choice of ownership mode determines the success of subsidiaries in foreign markets. Specifically, we show that JVs are better suited for economically similar countries where foreign firms have weak firm specific advantage as compared to those of the local firms and the scope of obtaining a position of competitive advantage is restricted. Likewise, WOSs are better suited for economically distant countries as they provide adequate control to direct the subsidiary in unfamiliar environments.

Methodologically, the index proposed in this study has three advantages over the earlier measures of economic distance. First, it accounts for four key economic parameters, namely, economic growth, demand conditions, factor costs and level of infrastructure. Further, the *Technology-level* indicator accounts for industry R&D, which provides additional advantage over other measures as it captures the macro-level innovative intensity of countries. Second, because we used the Mahalanobis distance

measure, the index eliminates potential multicollinearity issues if the economic indicators are examined as separate variables.[4] Finally, our index is statistically reliable as proven by factor analysis and robustness tests. Specifically, our empirical results show a clear inverted U-shaped relationship between economic distance and foreign subsidiary survival. Moreover, the robustness test after splitting the sample into two parts, one for high-economic distance and the other for low-economic distance, confirms the different effects of economic distance. Overall, our index provides a holistic comparison of the economic environments of two countries. We hope that the approach adopted in this study gives researchers an advantage to capture the multitude of ways in which economies differ in one single measure, which can perhaps help resolve some of the inconsistencies reported in the foreign divestment literature. The index can also be useful in other fields of international business research such as location choice, entry mode decision, performance measurement and partner selection among others where economic distance is an important explanatory variable.

The managerial implications of our study are emphasised by the influence of economic distance on FDI survival. While economic distance is an important determinant of location and entry mode choice (Jain et al., 2016; Moalla and Mayrhofer, 2020). it is an equally important determinant of performance and survival in the host country (Demirbag et al., 2011; Tsang and Yip, 2007). The multi-dimensional measure of economic distance proposed in this study is a useful tool for managers to determine the economic attractiveness of a host country. Thus, managers, who either knowingly or unknowingly, overlook the rich diversity of economic factors, are equipped with a better analytical tool. Our study gives managers a platform for identifying a suitable location and aligning their goals for foreign production. Our finding that subsidiary survival has an inverted U-shaped relationship with economic distance provides an impetus to managers for delineating the more attractive countries from the less attractive ones. Further, the results of ownership mode have clear implications for managers that JVs are more suitable for economically similar countries, and WOSs are more suitable for economically distant countries. As for policy makers, our study highlights that operating costs should be kept lower than the locational advantage of the country to attract and retain FDI. We included adequate controls for institutional variables which show that high inflation, income inequality and political risk are deterrents to FDI. Policy makers can overcome these challenges by maintaining financial stability and directing the labour force towards formal employment.

Our study is subject to certain limitations. Theoretically, our study focused on examining the role of economic distance in subsidiary survival. While the importance of economic distance cannot be emphasised any further, our framework was not inclusive of other key dimensions of cross-national distance. Specifically, the institutional distance (measured as regulative and normative distances) was found to be a significant determinant of subsidiary survival by Gaur and Lu (2007). Similarly, other dimensions of cross-national distance, such as geographic, knowledge and financial distances, were found to be key determinants of subsidiary survival by Pattnaik and Lee (2014) and Kang et al. (2017). Thus, future studies are encouraged to control for other cross-national distance measures to provide more insightful findings.

The dependent variable in our study is the hazard ratio of FDI where we used a binary variable to categorise our sample into surviving and non-surviving subsidiaries. The binary nature of our dependent variable restricts our scope of capturing the phenomenon of 'foreign reorganisation', where firms may reduce the scope of their

foreign operations by merging two or more subsidiaries in the host country, yet the actual investment would remain the same.[5] This limitation arises mainly because of the nature of secondary data available from annual reports of stock listed firms. Firms announce the sale or closure of their foreign subsidiaries, but seldom reveal information on reorganisation of foreign operations.[6]

Our analysis was based on a single country sample. This limited our scope of testing the validity of our index of economic distance. As argued earlier, Finnish firms present a unique empirical setting because of their small domestic market and internationally driven growth. However, Finland's outward FDI intensity has shown a decline in the recent past, highlighting a reduced commitment to foreign markets. This paradoxical situation is unprecedented to the extent that domestic conditions exert a push force on firms to internationalise. Simultaneously, value changes caused by changes in the home country are contributing factors for reduced FDI commitment. This unique setting is further exaggerated by sectoral changes where Finnish FDI in manufacturing has decreased significantly compared with that in the financial and insurance sectors (Statistics Finland, 2021). Thus, Finnish firms exhibit unique FDI patterns compared with their European, American or Japanese counterparts. Future studies are encouraged to test the generalisability of our findings on FDIs from other countries.

6 Conclusions

Economic distance remains an integral construct in international business literature as it theoretically helps to explain the success and failure of FDI. Earlier studies have argued that economic distance is the source of both arbitrage (Ghemawat, 2001; Tsang and Yip, 2007) and costs (Kang et al., 2017; Pattnaik and Lee, 2014). The differences in theoretical assumptions have led to an ongoing debate: does economic distance facilitate or hinder subsidiary survival? Our study addresses this debate by showing that it is important to integrate both the costs and benefits of economic distance to explain subsidiary survival. Drawing inspiration from the eclectic paradigm of international production (Dunning, 1998), we constructed an index of economic distance to cover differences in economic growth, factor costs and level of infrastructural development. The revised measurement provides a holistic view of economic differences between countries. Our findings lend significant support to the argument derived from organisational learning theory that knowledge and experience are crucial for subsidiary survival in distant countries. We also identified that WOSs have a higher survival rate in economically distant countries, and JVs have a higher survival rate in economically similar countries. Our index of economic distance is a value addition over earlier measures, but remains to be tested in different empirical settings and contexts. However, in quoting Tsang and Yip (2007, p.1166), 'Despite using a rather crude measure of economic distance, we found a strong effect on subsidiary survival. Nevertheless, future research using more sophisticated measures may reveal other interesting results', we believe our effort is a step in the right direction.

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Notes

1 The nine dimensions include economic, financial, political, administrative, cultural, demographic, knowledge, global connectedness and geographic distance.

2 Evidence exists of complementarity between FDI and imports such that an increase in FDI inflow increases imports of the home and host countries (Alguacil and Orts, 2003; Chaisrisawatsuk and Chaisrisawatsuk, 2007). However, the implications of imports (or exports) for FDI survival are subject to scrutiny. One might argue that firms with specific manufacturing needs may want to import their unique assets and resources; however, the contribution of such imports to the total national imports is only fractional and thus, provides insufficient justification about overall FDI survival in the host country. It can also be argued that high export intensity of a host country signifies that FDI has scope for exporting their goods. Again, the share of such exports to the total national exports remains fractional and does not explain the survival patterns of FDI that are established to serve the domestic host country market.

3 Kauppalehti and Talouselämä are central outlets in the Finnish business press.

4 This argument corroborates Berry et al. (2010), who in favour of Mahalanobis distance, argue that it helps overcome high collinearity between the indicators.

5 We thank an anonymous reviewer for bringing this crucial yet overlooked issue to our notice.

6 Our judgement is based solely on the sample of Finnish firms.