

Mueller, Marius; Swoboda, Bernhard

Article — Published Version

Determinants of Wholly Owned Foreign Direct Investments in E-Commerce Firms: A Hierarchical Country- and Firm-Level Analysis

Management International Review

Provided in Cooperation with:

Springer Nature

Suggested Citation: Mueller, Marius; Swoboda, Bernhard (2025) : Determinants of Wholly Owned Foreign Direct Investments in E-Commerce Firms: A Hierarchical Country- and Firm-Level Analysis, Management International Review, ISSN 1861-8901, Springer, Berlin, Heidelberg, Vol. 65, Iss. 4, pp. 699-736,
<https://doi.org/10.1007/s11575-025-00575-7>

This Version is available at:

<https://hdl.handle.net/10419/330650>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>



Determinants of Wholly Owned Foreign Direct Investments in E-Commerce Firms: A Hierarchical Country- and Firm-Level Analysis

Marius Mueller¹ · Bernhard Swoboda¹

Received: 6 August 2024 / Revised: 11 February 2025 / Accepted: 14 March 2025 /

Published online: 15 May 2025

© The Author(s) 2025

Abstract

Despite their digital nature, leading and globally expanding e-commerce firms establish a physical presence in select countries over time to implement full local operations and management. However, we know surprisingly little about the drivers of such wholly owned foreign direct investment decisions in certain countries, while other countries are served virtually. This study proposes a framework for the specific, business model-related firm- and host-country antecedents of e-commerce firms' wholly owned foreign direct investment. We employ novel data concerning 1,726 operation modes chosen by the 241 leading e-commerce firms in Europe from 2010–2020 and apply multilevel modeling. In contrast to manufacturing firms, the insights reveal how e-commerce firms leverage previously unknown online experience capabilities to inform foreign direct investment decisions, challenging the currently questioned role of experience in international business research on digital firms. Moreover, business model-related country-level antecedents, such as host country logistics performance, the internet user population, or the rule of law, also explain such decisions differently. These findings contribute to the emerging research on digital firms' internationalization and have direct implications for e-commerce managers interested in the drivers of foreign direct investment but also for manufacturers. The latter increasingly use e-commerce firms for their own international expansion, whereas policymakers aim to attract growing e-commerce firms to establish their own presence in host countries.

Keywords E-commerce firms · Foreign direct investment · Logistics performance · Internet use · Rule of law · International online experience · Multilevel modeling

The authors thank three reviewers for their very helpful and constructive comments. A preliminary version of the manuscript was awarded the best conference paper in the Internationalization Process of SMEs and International Entrepreneurship Track at the Annual Conference of the European International Business Academy, 2023 in Lisbon.

Extended author information available on the last page of the article

1 Introduction

Dynamic digitalization has sparked a debate on its impact on IB research and theory (e.g., Stallkamp et al., 2023; Yang et al., 2025). While most firms are affected, virtual expansion strategies are particularly evident among e-commerce firms (ECFs), i.e., firms selling physical goods via own online shops or market-places to consumers (reaching 23% of global retail sales in 2027; ITA, 2024). They mostly internationalize virtually, have immediate access to markets at low cost, and also offer new digital expansion opportunities for manufacturers (e.g., Gong et al., 2024). However, leading ECFs add selective physical presences over time. For example, serving 150 countries virtually, Amazon (2024), is present in 21 countries with wholly owned foreign direct investments (FDI, i.e., websites with a local domain, language, currency, and investments in own physical assets, such as warehouses and subsidiaries). Alibaba (2024) has FDI in 11 countries; Rakuten (2024) has FDI in four countries. Such selective choices offer ECFs local advantages such as penetration of markets through adapted offers and same-day-delivery services, local images, or management (e.g., Batsakis et al., 2023a; Hua & Wu, 2024). IB research assumes that digitalization reduces the importance of firms' experience or country barriers and facilitates rapid virtual internationalization (e.g., Schu et al., 2016). However, this nascent research has hardly addressed ECFs' FDI, which is also important to digital firms. This study provides a first theory-based understanding of ECFs' FDI and helps establish an empirical baseline for research on digital firms' internationalization (Stallkamp et al., 2023; Verbeke et al., 2018). ECFs' specific digital and physical business model affects ECFs' FDI differently than the production-based FDI of manufacturers does (e.g., Brouthers et al., 2022). Thus, we seek novel insights by linking ECFs' virtual and physical business model elements, i.e., yet unknown specific online learning capabilities and host country barriers in FDI. Extending refined internationalization process models, we explore why ECFs pursue FDI despite virtual options or low country barriers and whether virtual presence provides sufficient learning to make FDI decisions (e.g., Swoboda & Sinning, 2022).

Empirical studies have mainly addressed FDI among manufacturers (e.g., meta-analyses by Cuervo-Cazurra et al., 2023; Wan et al., 2023) and service or IT firms. The latter, for example, highlight traditional antecedents of FDI, such as institutional distance (Picot-Coupey et al., 2014; Sánchez Peinado & Pla Barber, 2006), host country or FDI experience (Evans et al., 2008; Pla-Barber et al., 2014), and firm size or market attractiveness (Czinkota et al., 2009; Ekeledo & Sivakumar, 2004a). For digital firms, especially ECFs, only a few studies exist on various decisions. Examples include the roles of distances or capabilities in ECFs' internationalization speed (Luo et al., 2005; Schu et al., 2016) or of distances in market selection (Schu & Morschett, 2017). For entry choice, distances have been shown to be relevant (Lee et al., 2023; Rothaermel et al., 2006), alongside reputation for geographic scope (Kotha et al., 2001). Country-level antecedents were addressed by three studies on speed (e.g., legal factors, internet use; Luo et al., 2005), market selection (e.g., rule of law (ROL), market attractiveness;

Schu & Morschett, 2017), and market entry (culture; Rothaermel et al., 2006). Virtual presence, i.e., dot-com vs. local domains, was shown to be influenced by the entrepreneurial orientation of small exporting manufacturers only (Ipsmiller et al., 2022); FDI vs. other modes were linked to the institutional distances of digital firms only (Stallkamp et al., 2023). No study on ECFs has considered virtual vs. physical presence. Conceptual papers refer to new theoretical antecedents and virtual modes (Brouthers et al., 2022), whereas other papers question the novelty of both for ECFs (Hennart, 2022).

Despite this controversy, a surprising research gap exists in the literature on digital firms' FDI. While earlier studies expected the internet to replace physical presence (e.g., Sinkovics et al., 2013), scholars have recently argued that ECFs and platforms can obviate market-seeking FDI (e.g., Stallkamp et al., 2023; Yang et al., 2025). However, practical evidence reveals that ECFs establish selected physical presences over time, which fewer scholars have noted, leading to calls for closer examination of ECFs' local asset decisions owing to their growing relevance and specific hybrid (digital and physical) business model (e.g., Batsakis et al., 2023a; Swoboda & Sinning, 2022). We address this gap by analyzing an important research question: Whether and how strongly do specific firm- and host country-level factors drive ECFs' choice of wholly owned FDI? In theorizing respective effects, we add to mode choice research of digital firms and offer two contributions to literature.

First, in light of ECFs' specific business model, we expand theoretical discussions of physical market presence in the emerging research on digital firms. Their market-seeking FDI differs from manufacturers' FDI focus on wholly owned production subsidiaries abroad or the online presence of small manufacturers often studied in IB (e.g., Ipsmiller et al., 2022; Tolstoy et al., 2023), as those lacking online knowledge or commerce skills also turn to ECFs abroad (Gong et al., 2024). Although ECFs can ship from abroad, only a physically present business can facilitate locally adapted goods, prices or services, management, or relationships with customers, authorities, or suppliers (Batsakis et al., 2023a; Mueller & Swoboda, 2025). As ECFs physically move goods, they also differ from IT firms such as Google or Oracle and i-business firms such as Netflix or eBay (Lee et al., 2023; Paul & Gupta, 2014). Such firms' offers and customer interactions are usually digital with different FDI requirements that support a scaling of platforms via data centers or cloud infrastructure (Brouthers et al., 2022). ECFs' specific hybrid business model requires an analysis of specific FDI decisions. This calls for developing theoretical rationales on the antecedents of ECFs' decisions to add a physical presence in a country or not (Meyer et al., 2023).

Second, we contribute novel insights to the literature on digital internationalization concerning the joint role of firm- and country-level antecedents of FDI (which is generally rarely done in FDI research, e.g., Wan et al., 2023). We address research calls to clarify to what extent ECFs' FDI depends on specific online capabilities and external barriers (e.g., Meyer et al., 2023; Tolstoy et al., 2021). In particular, at the *firm level*, we know that distances affect various decisions of ECFs, whereas the role of experience in digital firms' internationalization has been debated (e.g., Gabrielsson et al., 2022; Pezderka & Sinkovics, 2011). We challenge skeptics by highlighting ECFs' specific online capabilities and path-dependent virtual learning over time

(e.g., in general and in host countries; Swoboda & Sinning, 2022). We newly theorize that, unlike offline firms, ECFs gain experience digitally from successful offers, promotions, or local online interactions with consumers that allow them to exploit FDI opportunities, for example. We provide a first understanding of such unknown online learning mechanisms for a physical presence, as research on this topic has been limited, despite the growth of digital businesses (Gong et al., 2024). At the *country level*, specific antecedents of ECFs' business model abroad seem obvious: host countries' logistics, internet users, or ROL. We theorize that these match the logic of specific barriers or location advantages in digital markets for ECFs' hybrid business model (e.g., Dunning & Wymbs, 2001; in difference to those most often studied for manufacturers, Pezderka & Sinkovics, 2011). Only macroeconomic studies have discussed specific logistics or internet barriers, with contradictory findings for export vs. FDI flows. Finally, we also respond to calls for adopting hierarchical modeling when analyzing firm- and country-level drivers of digital firms' internationalization (e.g., Surana et al., 2024).

The remainder of this study proceeds as follows. Drawing on conceptualizations and theory, we derive and test hypotheses based on 1,726 mode decisions over 11 years corresponding to 241 ECFs originating in 22 home countries. After the results are presented, we provide implications and directions for further research.

2 Conceptualization, Theory, and Hypotheses

2.1 Operation Modes of ECFs

Operation modes represent governance structures that allow firms to implement their business model in host countries differently (e.g., Brouthers et al., 2022). We conceptualize ECFs' decisions regarding virtual vs. physical presence for several reasons that are specific to ECFs. The business model and internationalization of ECFs are based on a virtual presence with digital learning but require physical distribution, such as "last-mile" logistics and locally adapted offers (e.g., Meyer et al., 2023). While IB research has discussed many drivers of manufacturers' FDI, we rethink this decision for digital firms and advance theory on how ECFs' operation mode decisions are made. ECFs may simplify (mode) decisions to practical decisions (Pan & Tse, 2000). The latter, we argue, ultimately focus on whether a physical presence should be added and define whether the business model can be fully transferred abroad.

Virtual presence among international ECFs refers to country-specific websites (e.g., dot-uk domain, language, currency) where goods are shipped from abroad (whereas dot-com domains are not host country specific; Hua & Wu, 2024; Ipsmiller et al., 2022; Swoboda & Sinning, 2022). This also applies to ECFs' *cooperation with* contractual or local service providers that are partly strategically controlled (e.g., networks), which remain export-based (Hennart, 2022). Joint ventures with shared operational control are rare and atypical (e.g., Brouthers et al., 2022; Mueller & Swoboda, 2025, and in our data). *Physical presence* refers to *wholly owned FDI* that is specific to ECFs' business needs, i.e., local domains and long-term investments

in physical assets that facilitate the local replication of the business model (e.g., Stallkamp et al., 2023). Specific examples include wholly owned warehouses that focus on last-mile delivery and marketing subsidiaries that facilitate local customer relationship management and offers (e.g., assortments, prices, customer service, Tolstoy et al., 2021). However, establishing such a physical presence depends on local market knowledge and specific infrastructure (e.g., Ahi et al., 2023).

2.2 Theory and ECFs' Specific Antecedents

The only study on digital firms' FDI theoretically explains the role of distance for FDI on the basis of the transferability of complementary resources abroad (Stallkamp et al., 2023). We extend this view and refer to capability and redefined internationalization process reasoning (major theories in research on the internationalization of digital firms, e.g., Cahen & Borini, 2020; Vahlne & Johanson, 2017; Yang et al., 2025). We theorize that ECFs can scale and transfer online capabilities and leverage digital learning as a path-dependent process in FDI (Schu & Morschett, 2017). ECFs' experiences from virtual presence, which are distinct from traditional learning through the physical presence of manufacturers, for example (e.g., Coviello et al., 2017), determine their decisions to add physical presence in selected countries over time. We make both theories applicable to explaining ECFs' FDI decisions, offering novel rationales for facilitating digital capability transfer and opportunity recognition via virtual presence and focused exploitation with FDI (e.g., Swoboda & Sinning, 2022; Vahlne & Johanson, 2017). In particular, we offer rationales on the relative value and limits of different types of online experience capabilities and clarify the questionable role of experience in digital firms (Pezderka & Sinkovics, 2011). As both theories only implicitly consider country factors, we complementarily theorize business model-specific rationales on barriers and location advantages for ECFs (Dunning & Wymbs, 2001). This supports a joint view of the firm- and country-level antecedents of FDI. We argue that a lack of specific logistic and internet infrastructure or ROL in a country may be a barrier to FDI (i.e., force virtual presence, Meyer et al., 2023), whereas their presence offers specific location advantages for ECFs' business model.

In line with capability and process theories, we conceptualize virtual location- and nonlocation-bound online knowledge (e.g., Cahen & Borini, 2020; Vahlne & Johanson, 2017). *Nonlocation-bound online knowledge* pertains to ECFs' learned routines in dealing with foreign customers virtually to exploit FDI opportunities in foreign markets over time (opportunity identification is likely simplified virtually; Tang & Gudergan, 2018). Such knowledge also pertains to prior FDI online experience, which may affect subsequent FDI in other countries (Schwens et al., 2018). It can be transferred as an online capability across foreign markets virtually. *Location-bound knowledge* pertains to ECFs' insights into a specific country's needs from virtual presence over time (not transferable to other markets; He et al., 2013). However, ECFs may rely too much on online capabilities and run the risk of falling into a "virtuality trap" (Sinkovics et al., 2013). We thus identify knowledge based on or

learning via virtual presence as an important but controversial basis for FDI among digital firms.

We conceptualize ECFs' specific host country infrastructure and ROL as specific barriers to ECFs' hybrid business model and sources of specific location advantages (Dunning & Wymbs, 2001; Meyer et al., 2023). While many external antecedents affect manufacturing and service firms' FDI (e.g., Wan et al., 2023), obvious local barriers or advantages for digital firms' or ECFs' FDI remain largely unexplored (e.g., Cumming et al., 2023). Countries' logistics infrastructure, commonly referred to as "logistics performance", and internet users or infrastructure, for example, have been linked to both FDI and exports by macroeconomic studies only (Halaszovich & Kinra, 2020; Latif et al., 2018). Despite the high logistics costs of ECFs (over 25% of total costs; Reuters, 2023; Janjevic & Winkenbach, 2020) or their reliance on sufficient internet users in a country, the critical role of host country logistics performance or internet users for ECFs needs theorization. Similarly, the critical role of ROL in digital business models has been highlighted (e.g., Schu & Morschett, 2017), but its role in mode choices has not. Addressing this theoretically, we propose that ECFs may face strong local barriers and costs for FDI if specific e-commerce infrastructure is lacking, while its presence could be a specific location advantage. For example, a country's low logistics performance can be a barrier for ECFs' ability to ensure quick delivery from warehouses, whereas high performance can make delivery more efficient. A lack of internet users can be a barrier to reaching customers, while the opposite offers location advantages with a latent broad customer base (e.g., Meyer et al., 2023). ECFs may also face local legal barriers and compliance-related risks or increased coordination costs due to a lack of ROL (e.g., Luo et al., 2025).

Additionally, a systematic literature review supports our choices of antecedents (see Figure 1).[1] We study experience as an important antecedent according to offline mode research, whereas the role of (online) experience is unknown and questioned for online businesses (e.g., Sinkovics et al., 2013). At the firm level, some antecedents of ECFs' internationalization (e.g., mainly distances or market capabilities) have been explored, but no types of online experience. At the country level, ECFs' business model-specific antecedents have mostly not been considered

	Firm Level				Country Level			
	Industry	International Experience	Host Country Experience	FDI Experience (see meta-analyses)	Logistics	Internet	Rule of Law	Other (see meta-analyses)
Offline	Manufacturing	<i>Dow & Larimo, 2009; Hernández & Nieto, 2015; Tang & Guder-gan, 2018, etc.</i>	<i>He et al., 2013; Wan et al., 2023, etc.</i>	<i>Cui et al., 2013; Schwens et al., 2018; etc.</i>	–	–	<i>Bailey, 2018; Stoian & Filippaios, 2008, etc.</i>	<i>Cuervo-Cazurra et al., 2023; Kostova et al., 2010; etc.</i>
	Services/IT	<i>Cinkota et al., 2009; Ekeledo & Sivakumar, 2004a; Evans et al., 2008</i>	<i>Pla-Barber et al., 2014</i>	<i>Picot-Coupey et al., 2014; Sánchez Peinado & Pla Barber, 2006, etc.</i>	–	–	–	<i>Picot-Coupey et al., 2014; Sánchez Peinado & Pla Barber, 2006, etc.</i>
Online	Manufacturing	–	–	<i>Ipsmiller et al., 2022</i>	–	–	–	–
	Services/IT ¹	–	–	<i>Stallkamp et al., 2023</i>	–	–	–	–

Note: *Italics*=Studies on binary mode choice, e.g., FDI vs. other modes. Etc.=Further studies not listed here.¹ Including i-business and ECFs.

Fig. 1 Literature review on the antecedents of operation mode decisions

empirically. This review highlights the lack of knowledge and joint theoretical consideration of firm- and country-level antecedents of digital firms' mode decisions.

Next, we derive hypotheses for each relationship based on theoretical rationales and clarify our current empirical knowledge first. We control and test traditional antecedents in stability checks (e.g., firm size or age and market attractiveness factors, such as size, growth, population, or development).

2.3 Hypotheses Regarding Online Experience Factors

As mentioned, we argue that specific online capabilities emerge from ECFs' path-dependent virtual learning processes in foreign markets that are used to make decisions on physical presence (e.g., Swoboda & Sinning, 2022). ECFs can transfer general, country-specific, or FDI-related online experience capabilities differently based on virtual learning to enhance their ability to recognize and particularly exploit selected FDI opportunities (e.g., Vahlne & Johanson, 2017).

International online experience refers to ECFs' degree of general nonlocation-bound knowledge regarding virtual operations in foreign markets, which is acquired via local domains over time (as an empirically established proxy; e.g., Wan et al., 2023). Empirical studies have often identified international experiences as antecedents of manufacturers' FDI (e.g., inconclusively, Dow & Larimo, 2009, Hernández & Nieto, 2015, Tang & Gudergan, 2018; see Figure 1) and that of service and IT firms (e.g., Czinkota et al., 2009; Ekeledo & Sivakumar, 2004a). However, we argue that virtually gained international experience differs from the experience of manufacturing or service firms (e.g., Pezderka & Sinkovics, 2011). Online experience pertains to ECFs' digital capabilities, which enable them to provide offers and services or interact with authorities in different countries over time and can be used to exploit FDI opportunities abroad. While offline experience may be used to promote virtual expansion in other countries (as indicated for local domains of small manufacturing firms; Ipsmiller et al., 2022), it is unclear whether online experience is sufficient for deciding on the physical presence of ECFs (e.g., Coviello et al., 2017), as we argue.

We theoretically argue that *high international online experience* facilitates learning and the recognition of market opportunities for FDI. ECFs accumulate knowledge and transfer their online capabilities abroad in terms of digitally successful offers, services such as products or promotions, or relations to foreign authorities (e.g., Schu & Morschett, 2017; Vahlne & Johanson, 2017). Over time, ECFs recognize sales opportunities more easily in certain growing e-commerce markets and especially exploit them with FDI and local supply chain processes such as logistics and purchasing (e.g., Swoboda & Sinning, 2022). This may be less risky even if physical processes are not established abroad. For example, with nearly 20 years of international online experience, Amazon recognized opportunities for FDI in Australia and Singapore in 2017. This was based on the firm's digital capabilities from a long virtual presence abroad and learned potential to establish supply chain processes in these growing markets (Pash, 2017). We thus argue that ECFs with high

international online experience have a better sense of where to exploit FDI and may be less reluctant to invest in new physical and adapted virtual processes.

In the case of a *low international online experience*, few virtual capabilities to transfer or recognize opportunities abroad exist (e.g., Tolstoy et al., 2021). Firms have less knowledge of how to promote digital offers or which products are successful abroad or how to deal with authorities in different countries. Such ECFs' ability to recognize investment opportunities is limited. ECFs are especially limited in exploiting market opportunities in a foreign country (e.g., developing new supply chain processes alongside adapted market offers, Stallkamp et al., 2023). Their risks of FDI are greater and missed opportunities may hinder success (e.g., Swoboda & Sinning, 2022). ECFs may even underestimate such experience, which could cause their business models to fail abroad (e.g., Pezderka & Sinkovics, 2011). We propose the following:

Hypothesis 1 (H1) *International online experience has a positive effect on an ECF's propensity to choose wholly owned FDI.*

Host country online experience is acquired through virtual presence over time and pertains to the degree of a firm's location-bound knowledge regarding virtual operations in a particular foreign market. Empirical studies have often shown the role of host country experience for manufacturers' FDI (e.g., He et al., 2013; see Figure 1) but only once for service firms (Pla-Barber et al., 2014). These studies have argued that firms with such experience identify more local opportunities, overcome local obstacles, and increase their control in countries (e.g., Wan et al., 2023). In contrast, for digital firms, we only know that such market (but not online) knowledge affects market selection (Schu & Morschett, 2017). We argue that ECFs with host country online experience can transfer their capabilities and knowledge of local customers or business practices more easily, especially to exploit FDI opportunities in a country (e.g., Ipsmiller et al., 2022). This location-bound knowledge is likely a major online capability to exploit FDI opportunities in a specific country (e.g., Colton et al., 2010).

We argue that *high host country online experience* provides unique knowledge from ECFs' country-specific virtual interactions over time. This includes especially knowledge of local customer needs and preferences but also local business practices, competitors, or further conditions. ECFs with such knowledge develop country-specific online capabilities and can more easily recognize local market opportunities and a suitable time to exploit them with FDI in a country. For example, a country may exhibit strong local e-commerce growth but also specific payment or delivery conditions. Exploiting such local opportunities requires adapted virtual offers to customer needs and especially supportive physical investments (e.g., locally adapted delivery, returns, products, prices, or enterprise resource planning systems; Janjevic & Winkenbach, 2020). This may help establish the ECF physically as a local business. For example, Amazon entered Brazil in 2012 but chose wholly owned FDI only in 2019. The firm's main reasons included different taxation rules across regions (e.g., specific taxation in each federal geographical unit) and complicated

delivery conditions, which required extensive (online) learning (Mello, 2019). High host country online experience may also increase the confidence or commitment of ECF managers to invest in a specific market (e.g., similar to host country offline experience among manufacturers, Luo et al., 2005).

In contrast, *low host country online experience* implies lower familiarity with a specific country's online customers, competitors and other conditions and thus the absence of specific online capabilities in a country (e.g., Schu & Morschett, 2017). The potential local customers, employees, or suppliers who are needed for a physical presence are likely unaware of the ECF and may be reluctant to engage with it (e.g., Coviello et al., 2017). This may result in considerable liabilities of foreignness that may prevent the recognition and critical exploitation of local opportunities with wholly owned FDI (e.g., Swoboda & Sinning, 2022). We therefore propose the following:

Hypothesis 2 (H2) *Host country online experience has a positive effect on an ECF's propensity to choose wholly owned FDI.*

FDI online experience is defined as ECFs' degree of nonlocation-bound knowledge about virtual and physical operations abroad acquired from previous FDI in foreign online markets over time. Empirical studies have reported that FDI experience among manufacturers increases their likelihood of further FDI (e.g., Cui et al., 2013, see Figure 1); one study reported the opposite result among service firms (Pla-Barber et al., 2014). Manufacturers with FDI experience typically have established or refined routines for subsequent FDI in new foreign markets (e.g., Schwens et al., 2018). For digital firms, such an experience has not yet been considered. We theoretically argue that FDI online experience allows ECFs to learn from both virtual and physical experience, i.e., develop hybrid capabilities. They can transfer their knowledge concerning successful products, customer relations, physical services, and management as capabilities abroad, thus facilitating further FDI.

Theoretically, ECFs with *high FDI online experience* draw not only on knowledge from previous virtual interactions abroad but also on previous FDI over time (e.g., Cui et al., 2013). This knowledge represents ECFs' hybrid capability to generally set up and operate a physical presence (e.g., warehouses, subsidiaries, and management) in addition to a virtual presence abroad, thus replicating their hybrid business (e.g., Batsakis et al., 2023b). For example, Zalando (2015) first implemented FDI in Italy in 2015, followed by wholly owned FDI in France and Poland, thereby drawing on its previous experience with establishing fulfillment centers and subsidiaries. High FDI online experience may also help firms transfer knowledge of specific management skills to subsidiaries and the hybrid business model via closely linked virtual and physical processes (e.g., Batsakis et al., 2023a). Specific management skills in digital firms and ECFs include an IT-driven and entrepreneurial firm structure and culture or data-driven decision making based on specific key performance indicators (e.g., Ipsmiller et al., 2022; Tolstoy et al., 2023).

In contrast, ECFs with *no or low FDI online experience* lack knowledge from prior FDI and cannot use or transfer their capabilities to establish and operate subsidiaries abroad (e.g., Fleury et al., 2024). For such ECFs, establishing specific organizational structures and processes in foreign countries is more difficult, and their FDI-related decisions are more complex. In exploiting FDI opportunities, these firms have no or few capabilities or routines for establishing such structures or processes (e.g., Wentrup, 2016). We assume that FDI online experience increases FDI propensity and propose:

Hypothesis 3 (H3) *FDI online experience has a positive effect on an ECF's propensity to choose wholly owned FDI.*

2.4 Hypotheses Regarding Environmental Factors

Regardless of industry and firm type, a certain level of infrastructure is necessary for FDI. Studies have analyzed several country-level antecedents of mode choices, however, more seldom than firm internal antecedents (see Figure 1) and often as part of broader constructs (e.g., infrastructural quality or market attractiveness, e.g., Filatotchev et al., 2007; Morschett et al., 2010). We argue that specific infrastructural factors predominantly affect ECFs' establishment of the hybrid business model abroad next to their capability transfer and learning. Logistics infrastructure in a country is directly tied to ECFs' physical business model elements and internet use to the virtual ones, whereas ROL is critical with respect to customer data and regulatory compliance in different countries (e.g., Oxley & Yeung, 2001; Schu & Morschett, 2017).

A *host country's logistics performance* defines the quality of the infrastructure for moving physical goods within a country and across its borders (Arvis et al., 2018). Empirical studies on manufacturing or service firms have investigated, for example, cost advantages, regional characteristics, the quality of infrastructure, or economic factors as possible antecedents of mode choices (Demirbag et al., 2008; Du et al., 2008; Filatotchev et al., 2007; Nielsen et al., 2017). Respective studies of logistics infrastructure do not exist for such firms (not being a primary infrastructural barrier in contrast to others; e.g., Kwon & Konopa, 1993). Studies on digital firms are missing as well (see Figure 1; Schu & Morschett, 2017 only control countries' logistics performance). Macroeconomic studies show inconclusive insights into the relevance of logistics infrastructure for export but also FDI flows (e.g., Halaszovich & Kinra, 2020; in e-commerce, He et al., 2021). Blyde and Molina (2015) analyze such roles for manufacturers' FDI and state that most studies capture this only indirectly via distance measures. We argue that theoretically logistics performance in a host country might be either a barrier or a location advantage for ECFs' physical (vs. virtual) presence (especially with regard to supply chain processes; e.g., Arvis et al., 2018; Cumming et al., 2023).

High logistics performance in a country arguably reduces barriers and offers location advantages for ECFs' physical presence. Important logistics competencies are a basis for ECFs' competitive advantage (e.g., Janjevic & Winkenbach, 2020).

These include efficient storage and warehousing, order fulfillment, customer-centered last-mile delivery, or return management but also IT-support or automated inventory management systems, for example (e.g., Hua & Wu, 2024). Logistics costs of ECFs are over 25% of total costs (e.g., Reuters, 2023; Zalando, 2023). The addition of specific supply chain processes, such as selecting, negotiating, and interacting with suppliers and procuring goods, increases these relative costs further to 70–80%. To control this specific cost situation abroad, ECFs seek logistics infrastructure in a country to reduce the barriers to business model replication and FDI (e.g., Meyer et al., 2023). We argue that ECFs can realize their logistics- and IT-based business model and obtain competitive advantages abroad and use infrastructure as a location advantage for FDI. High logistics performance is thus a key factor in the service quality offered to customers (e.g., timely delivery, free returns, or order tracking).

In contrast, *low logistics performance in a country* directly constrains ECFs' logistics competencies and the corresponding advantages and costs (Pezderka & Sinkovics, 2011). Similarly, e.g., reliance on exports and logistics partners because of lower logistics performance likely increase ECFs' costs (e.g., Hua & Wu, 2024). We also argue that ECFs that face greater barriers due to their inability to provide quality services that they have promoted via FDI are likely to offer a poor customer experience (e.g., Schu & Morschett, 2017). We propose the following:

Hypothesis 4 (H4) *Logistics performance has a positive effect on an ECF's propensity to choose wholly owned FDI.*

A country's *internet user population* reflects the size of the population using the internet, its familiarity with digital technology, its available technological infrastructure, and the potential demand for ECFs (e.g., Meyer et al., 2023). Empirically, internet use in general has not yet been linked to manufacturing or service firms' mode choices (see Figure 1). Studies on manufacturers' mode choices focus mostly on market attractiveness elements with mixed insights in meta-analyses and without agreement on an appropriate proxy, but not on specific IT or internet infrastructure (e.g., Wan et al., 2023). However, internet use in a country does affect ECFs' decisions, such as market selection or internationalization speed (Luo et al., 2005; Schu & Morschett, 2017). Macroeconomic studies have provided inconclusive insights into the effects of internet infrastructure. Most studies show effects on export intensity (e.g., Lin, 2015; Visser, 2019) and fewer on FDI flows (e.g., Arvin et al., 2021; Latif et al., 2018). Internet use is generally relevant to ECFs' business model to address customers via virtual presence (Ekeledo & Sivakumar, 2004b), and we argue that this factor may present a specific barrier or offer location advantages for ECFs' FDI (e.g., Dunning & Wymbs, 2001). We also test traditional proxies for market attractiveness in our stability checks.

We argue that a large *internet user population* reduces ECFs' barriers for specific customer-related digital activities and offers location advantages for FDI. These activities are based on the real-time collection of customer data and a large potential online customer base. ECFs may use these to adapt their products or prices to

individual needs via their unique one-to-one marketing (Janjevic & Winkenbach, 2020). Many internet users lower the barriers for being able to control or leverage such customer-related virtual activities and respective location advantages with FDI. However, whether internet users drive FDI is questionable for ECFs. Amazon (1998), for example, first implemented FDI in countries with many internet users, such as the UK or Germany, whereas German About You (2021) implemented FDI in markets with fewer internet users but increased online spending, such as Slovakia or Poland (Scayle GmbH, 2024). Moreover, a large internet population allows ECFs to leverage increased local demand through fully controlled subsidiaries that enable high-quality offers and services (e.g., Mueller & Swoboda, 2025) and even economies of scale (e.g., lower unit costs; Luo et al., 2005).

In contrast, in countries with a *smaller internet user population*, customers may engage more with traditional media (e.g., television, Brouthers et al., 2016). Low virtual demand for offers makes establishing a physical presence less attractive, and a virtual-only presence may be preferable owing to a lack of location advantages. This situation may also indicate a country's low level of digital readiness and thus confront ECFs with greater barriers, increasing their reluctance to implement FDI (Ekeledo & Sivakumar, 2004b). Such a condition may also signal a lack of government support for digital businesses, thus posing challenges to FDI (Ahi et al., 2023). We propose the following:

Hypothesis 5 (H5) *The internet user population has a positive effect on an ECF's propensity to choose wholly owned FDI.*

ROL defines the degree to which formal rules and regulations are enforced in a country (e.g., Oxley & Yeung, 2001). Studies on manufacturing firms have shown that *ROL*, among other regulatory factors, attracts FDI (e.g., Bailey, 2018; Stoian & Filippaios, 2008). Studies on service firms do not exist (see Figure 1), while legal protection or *ROL* reduce ECFs' barriers of market selection or internationalization speed (Luo et al., 2005; Schu & Morschett, 2017). Macroeconomic research has again reported mixed effects in favor of exports or FDI alongside negative effects on FDI (e.g., Contractor et al., 2020, 2021; Yu et al., 2015). It remains unclear whether *ROL* drives digital firms' mode choices. Theoretically, *ROL* is a specific regulatory factor pertaining to ECFs' internationalization (e.g., Ahi et al., 2023). We argue that countries' high *ROL* reduces barriers to local regulatory compliance and offers location advantages such as reduced coordination costs in the replication of the firm's business model through a physical presence and thus FDI (e.g., Cumming et al., 2023).

We argue that *high or increasing ROL* can create barriers for export-based ECFs and offer location advantages to ECFs that implement FDI in a country. ECFs face specific and dynamic regulations abroad, e.g., concerning online contracts, competition, prices, ethical or transparent supply chains, or the protection of customer and property rights (Meyer et al., 2023). Export-based Chinese ECFs such as Temu or Shein face increasing pressure from EU and US regulations such as the supply chain act (Financial Times, 2024). The latter abolished the 150 euro limit up to which

items could be shipped duty-free from China to the EU, thus preventing aggressive low-price exports. Thus, governments incentivize ECFs' physical presence. However, FDI can also confront ECFs with barriers resulting from local restrictions on FDI (Ahi et al., 2023). Such barriers led Amazon to divest in China, which required local data storage by law, thus restricting the firm's own physical presence (ECDB, 2024). We argue that high ROL reduces the legal barriers faced by ECFs and offers them local advantages pertaining to FDI as a result of cooperation with local authorities, lower local coordination costs and more compliance with local laws with regard to offers and supply chains (Pezderka & Sinkovics, 2011).

In contrast, *low or decreasing ROL* in a country may confront ECFs with FDI-related barriers due to a lack of specific regulations, thus favoring online activities. This situation may result in limited protection of ECFs' contracts with local stakeholders, unfair competition, and weak sanctions of violations of customer or property rights (e.g., Meyer et al., 2023). Moreover, in this context, ECFs' relationships with local governments may be unstable, the coordination of subsidiaries may be costly, and local compliance may be challenging, thus giving rise to barriers and local disadvantages to such firms' physical presence (Luo et al., 2005). We propose the following:

Hypothesis 6 (H6) *Rule of law has a positive effect on an ECF's propensity to choose wholly owned FDI.*

Figure 2 illustrates our conceptual framework and hypothesized effects, accounting for a common one-year time lag.

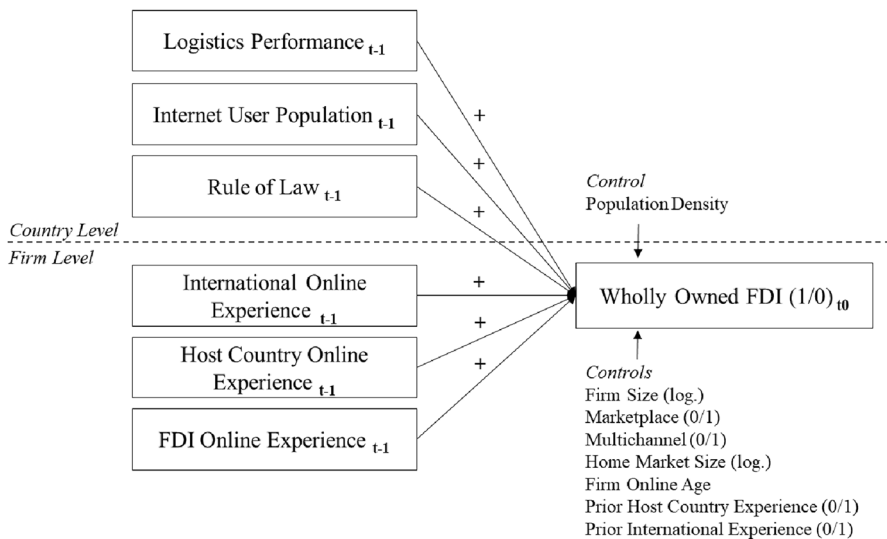


Fig. 2 Conceptual framework

3 Empirical Study

3.1 Sample

We developed a unique hierarchical database over time by referring initially to the only (to our knowledge) available and reliable secondary data concerning international ECFs (e.g., Swoboda & Sinning, 2022). Longitudinal data capture trends and changes in internationalization, facilitate the interpretation of causal relationships, and reduce possible biases more effectively than cross-sectional data (e.g., Rindfleisch et al., 2008).

Our selection of ECFs was based on the 2010–2020 Internet Retailer’s ranking of the 500 leading business-to-consumer ECFs in Europe (in terms of sales) provided by Digital Commerce 360 (2021), an agency that tracks firm-level data (e.g., website functions, traffic, and online sales) based on firms’ information or estimations verified by each firm since 2010. This data source is suitable for the systematic selection of international ECFs (e.g., Schu & Morschett, 2017), and this period is important, as e-commerce was one of the most rapidly growing industries during this time (e.g., U.S. sales increased by more than 400%, U.S. Census Bureau, 2010, 2022; similar to major EU countries such as the UK or Germany, Centre for Retail Research, 2023; HDE, 2024). We used complete data from the time when it became available until the COVID-19 pandemic in 2021 (which had various impacts, e.g., on increased online sales, Cumming et al., 2023; this period also excluded the wars in Ukraine and Palestine) and tested our framework for possible differences between early and late FDI (2010–2015 and 2016–2020) in stability checks. We identified 804 ECFs that were not necessarily founded in Europe and may be active globally; however, they had to be present in at least one country abroad. A total of 215 ECFs that operated solely in their home markets were excluded, as were 147 ECFs that offered international shipping only via “dot-com domains.” Moreover, 76 firms were not included among the leading firms in subsequent years, and 16 firms did not survive. This selection process identified 350 ECFs.

The database shows each foreign country entered by each ECF. We double-checked the presence of ECFs in each country by opening the host country website and verifying any possible presence in other countries in the following step. The chosen operation mode and market entry date were determined by the authors and trained graduate student assistants from annual reports, firm websites, press releases, public archives or articles, social media, business directories or recruitment sites. We verified 75% of these data through at least two sources. Wholly owned FDI was defined as the opening of ECFs’ wholly owned fulfillment centers, logistics units, and sales/service centers in a country, i.e., investments related to the online business, in the respective year. A period of one year between the FDI decision and its implementation is common in IB research, whereas ECFs’ decision-making is faster than that associated with offline commerce (which takes up to one year but entails decisions on urban real estate for store networks, for example; Schu et al., 2016; Swoboda et al., 2007). We observed 27 parallel wholly owned FDI by ECFs in several countries in one year and only four brownfield (vs. greenfield) FDI, where only

the home market of the acquired company was counted (not additional countries). We had to exclude 61 ECFs with investments only prior to 2010, mostly traditional brick-and-mortar food retailers, and fashion verticals entering Eastern European and Asian markets since the 1990s, and for 45 ECFs, we did not find information on the operation mode at all or could not reconstruct firm-level information over time (one year before FDI). The sample included 244 firms with 1,806 operation mode decisions in 169 host countries.

To include country-level independent variables (e.g., following Kostova et al., 2020), we had to obtain additional data from the World Bank (2022a, 2022b, 2022c, an established source in IB, e.g., Kostova et al., 2020) and the only one available providing these data over time, which we matched with the time-lagged mode decision years. We had to exclude 80 operation mode decisions in 25 very small host countries for which data on the World Governance Indicators (WGIs) and World Development Indicators or on the Logistics Performance Index were not available (19 or 61 decisions and 4 or 21 countries, respectively). Additional firm-level variables, such as international experience, firm size, or platform business, were obtained from Digital Commerce 360 with a one-year time lag.

Table 1 Sample distribution

Home countries	Number of ECFs	Number of entries
Austria	1	8
Belgium	1	1
China	7	93
Czech Republic	3	7
Denmark	6	49
Finland	1	7
France	38	225
Germany	38	203
United Kingdom	66	535
Ireland	1	2
Italy	11	270
Korea (Rep.)	1	12
Lithuania	1	1
Netherlands	9	28
Poland	5	18
Romania	1	3
Russian Federation	3	4
Spain	7	62
Sweden	6	19
Switzerland	4	11
Turkey	4	13
United States	28	155
Total	241	1,726

The final dataset included 1,726 mode decisions across 144 countries from 2010–2020; these decisions were made by 241 ECFs originating in 22 home countries (see Table 1). We used multilevel modeling to account for our hierarchically structured data and employed a maximum likelihood estimator with robust standard errors and test statistics.

3.2 Measurement

We used different sources for our measures, all of which were matched one year prior to mode implementation, as discussed, because FDI is planned prior to its implementation (e.g., Swoboda et al., 2007). This approach resulted in a time lag for the assessment of internal and external factors (e.g., Li et al. 2021).

Dependent Variable. We measured wholly owned FDI (1) vs. non (wholly owned) FDI (0) as a dichotomous variable capturing international ECFs' operation mode decisions in each host country over time (e.g., He et al., 2013; Stallkamp et al., 2023). The measurement of mode choices as binary decisions has commonly been used in IB (e.g., Kostova et al., 2020, showing often consistent effects to metric measurement). We used a successive data selection procedure involving several data sources and recorded the initial year of an ECF's country website alongside the local domain, language, and currency (as no exact day/month data were available in 80% of the cases). Wholly owned FDI includes typical forms of long-term investment in a country, such as warehouses and logistics or service/marketing subsidiaries that are wholly owned by an ECF (e.g., Cahen & Borini, 2020). We carefully assessed each case of wholly owned FDI to ensure that it was predominantly related to the ECF's online activities by verifying its location and functions as an operation mode for online selling documented by the firm (e.g., logistics, fulfillment, online customer service). In contrast, modes without wholly owned FDI (e.g., country-specific domain only, local partnerships, partial ownership) in logistics or services of the online business were classified as non (wholly owned) FDI.

Independent Variables. *International online experience* captured firms' overall knowledge about foreign market accumulated through virtual presence over time (e.g., Dow & Larimo, 2009; Wan et al., 2023). We measured the number of years for which an ECF was internationally active online with regard to each mode decision (i.e., one-year lagged), which is the most frequently used proxy for international experience over time (e.g., Tang & Gudergan, 2018; Wan et al., 2023). We referred to the entered country data provided by Digital Commerce 360 (2021) and collected the initial time of entry and subsequent operation mode decisions through the various abovementioned sources. We tested the alternative measure of the number of countries (which has been used less frequently) in our stability checks (Ipsmiller et al., 2022), while other measures, such as the diversity of experience ratios, were unavailable (e.g., Clarke et al., 2013).

Firms' *host country online experience* was captured as a time-based indicator reflecting knowledge about a particular foreign market through virtual presence over time (e.g., Clarke et al., 2013; Wan et al., 2023). This experience was measured by the number of years that an international ECF was active online in a specific country

one year before a mode was implemented based on our collection of each operation mode decision through various sources. Alternative measures, such as the number of operations or locations in a country, were not available for most ECFs (e.g., Tang & Gudergan, 2018).

ECFs' *FDI online experience* is considered a time-based measure of firms' knowledge about implementing FDI in foreign markets over time (e.g., Cui et al., 2013). We measured this variable as the number of years since an ECF first implemented FDI in a country in addition to a country-specific domain (e.g., Schwens et al., 2018). We referred to our (lagged) data on subsequent FDI over time provided by the above sources. Alternative measures, such as the number of FDI instances in a country or area over time, were not available (e.g., Barkema & Drogendijk, 2007; Hong & Lee, 2015).

We measured *logistics performance* in a country via the six-dimensional logistics performance index (Arvis et al., 2018, p. 8; Schu & Morschett, 2017). This indicator reflects the quality of trade infrastructure, ease of logistics services and customs, tracking ability, and timely shipments within a country (World Bank, 2022a). The data (one-year lagged) cover eleven years in two-year periods. We used the approximate mean values of two years to measure this variable in the interim years (e.g., 2010 and 2012 for 2011; Blomkvist & Drogendijk, 2016).

We measured *internet user population* within a country as the logarithm of the total population using the internet on the basis of data obtained from World Bank (2022c). This measure was based on a country's internet penetration and the total population over the observed period of eleven years with a one-year time lag. Internet use is most often captured by internet penetration, which we tested in our stability checks (e.g., Batsakis et al., 2023a). However, this factor uses only the proportion of internet users (rather than the actual number of users) to indicate ECFs' potential customers. For example, while a very small country characterized by high-level internet penetration may be initially appealing for FDI, the number of potential customers in this country may be very low, and FDI may not be worthwhile (e.g., Mueller & Swoboda, 2025).

We measured *differences in countries' ROL* regarding the relevant dimension of the WGIs over eleven years with a one-year time lag (World Bank, 2022b). This dimension represents the extent to which agents have confidence in and abide by the rules of society (i.e., the quality of contract enforcement, property rights, police, and courts as well as the likelihood of crime and violence) and is particularly relevant for ECFs (Oxley & Yeung, 2001; Schu & Morschett, 2017). However, regulatory institutions are broader and captured most frequently by an index of the institutional dimension of the Global Competitiveness Report (GCR; Kostova et al., 2020), followed by an index of all six WGIs. As WGIs were shown to be relevant to ECFs' internationalization speed (Swoboda & Sinning, 2022), we tested both indices in stability checks but assumed them to be less relevant to FDI decisions.

Controls. At both levels, important variables were controlled and measured one year prior to FDI.

At the firm level, we controlled for *firm size* as a traditionally important capability for FDI (Pezderka & Sinkovics, 2011). Firm size was measured by the logarithm of firms' online sales and obtained from Digital Commerce 360. Alternatives (e.g.,

number of employees) were not available to us; ECFs hire fewer employees (Luo et al., 2005).

We controlled for firms' *online age*, which was measured as the number of years since an ECF started selling online, as not all ECFs founded their businesses online (which thus likely represents a digital capability). This factor may affect wholly owned FDI, as such ECFs may have more time to acquire digital resources to support FDI (e.g., Sinkovics et al., 2013). Data were collected, e.g., from ECFs' websites.

The *home market size* of an ECF was controlled as it might affect its expansion and wholly owned FDI (Swoboda & Sinning, 2022). A small (vs. large) home market size offers limited domestic growth opportunities and may force international investment. Market size was measured by the country's logarithmized GDP per capita based on World Bank (2022c) data.

We controlled whether ECFs ran an online *marketplace* (i.e., a hybrid platform with physical delivery) in addition to their core retail business (Meyer et al., 2023). Wholly owned FDI may be required for such ECFs aiming to provide and control fulfillment services in foreign markets to attract local vendors or offer local customer service, not otherwise guaranteed (Brouthers et al., 2022). We measured dichotomously: 1=yes (marketplace) and 0=no (Digital Commerce 360, 2021).

Firms' *multichannel strategy* was controlled. Firms operating only online have a greater proportion of internet-based activities than do firms operating multichannel (e.g., offline channels, Schu et al., 2016). ECFs with additional offline channels are more flexible and can leverage existing organizational capabilities to make online related FDI and integrate offline and online supply chain activities (e.g., returning in-store purchases to warehouses; Swoboda & Sinning, 2022). We measured this dichotomously: 1=also operating offline stores and 0=not (Digital Commerce 360, 2021).

Prior *international* and *host country experience* with an offline store was included as a control because firms such as Apple may have gained experience in a country prior to online-related FDI (e.g., via offline stores), which they could use to scale and support further FDI regarding their online operations. This factor was measured dichotomously (1=prior international/host country experience and 0=no such experience). We also collected these data from various sources.

We controlled for *population density* at the country level as one possible indicator of market attractiveness (as a possible barrier or location advantage), particularly relevant for commerce firms, as it may affect their wholly owned FDI, which is often located in densely populated regions with high demand (Chan et al., 2011). We measured this variable as people per sq. km of land area according to data obtained from World Bank (2022c) as these data cover all our host countries over time and avoid potential collinearity issues with the other country-level variables. We conducted additional analyses to test alternative measures of attractiveness in stability checks. Further measures, such as online market sales or numbers of online customers, were available only for certain European countries and only over the last five years.

Table 2 shows descriptive statistics and correlations of all variables. Correlations at the firm level did not raise collinearity concerns, and all were assessed

Table 2 Descriptive statistics and correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Mean	0.140	3.210	0.210	1.170	18.320	10.120	10.530	0.150	0.670	0.050	0.540	3.463	0.846	16.167	281.998
SD	0.350	4.405	1.153	3.076	2.320	6.143	0.450	0.358	0.470	0.222	0.498	0.520	0.937	1.501	972.473
VIF (max.)	–	1.912	1.107	1.709	1.169	1.336	1.097	1.414	2.822	1.080	2.492	1.233	1.093	1.169	1.064
Wholly owned FDI (1/0) (1)	1														
International online experience (2)	0.255***	1													
Host country online experience (3)	0.407***	0.270***	1												
FDI online experience (4)	0.220***	0.625***	0.224***	1											
Firm size (log.) (5)	0.113***	0.218***	0.097***	0.230***	1										
Online age (6)	0.023ns	0.350***	0.058*	0.268***	0.269***	1									
Home market size (log.) (7)	0.077**	0.141***	0.052*	0.126***	–0.070**	0.139***	1								
Marketplace (1/0) (8)	0.008ns	0.018ns	–0.018ns	0.096***	0.130***	–0.105***	–0.105***	1							
Multichannel (1/0) (9)	–0.077**	–0.052*	–0.064***	–0.047†	–0.039ns	0.134***	0.151***	–0.502***	1						
Prior host country experience (1/0) (10)	0.165***	0.039ns	0.004ns	0.006ns	–0.060*	0.008ns	0.111***	–0.091***	0.147***	1					
Prior international experience (1/0) (11)	–0.008ns	0.076**	–0.016ns	0.008ns	–0.022ns	–0.002ns	0.173***	–0.408***	0.739***	0.204***	1				
Logistics performance (12)	0.182***	0.094***	0.104***	0.031ns	–0.022ns	0.029ns	0.063**	0.018ns	–0.186***	0.099***	–0.081**	1			

Table 2 (continued)

Internet user population (log.) (13)	0.148***	0.063**	0.061*	0.067**	− 0.011ns	0.005ns	− 0.024ns	0.073**	− 0.178***	0.087***	− 0.132***	0.319***	1
Rule of law (14)	0.156***	0.071**	0.100***	− 0.005ns	− 0.046†	0.010ns	0.085***	− 0.028ns	− 0.133***	0.079**	− 0.046†	0.857***	0.009ns
Population density (15)	0.079**	0.059*	− 0.002ns	0.048*	0.046†	0.063**	0.004ns	0.029ns	0.010ns	0.068**	0.026ns	0.172***	0.149***
													− 0.069**
													1

Ns Not significant, *FDI* Foreign direct investment, *SD* Standard deviation, *VIF* Variance inflation factor

* $p < 0.05$

** $p < 0.01$

*** $p < 0.01$

† $p < 0.10$

individually; however, we detected a high correlation of .857 between logistics performance and ROL at the country level. This may result from logistics performance relying to some degree on the ROL in a host country (e.g., as public investors rely on strong enforceable contracts, construction permits, or the timely implementation of infrastructure projects due to high ROL, e.g., Cumming et al., 2023; Janjevic & Winkenbach, 2020). To avoid collinearity issues, these two variables were used only in separate regressions. We further included theoretically relevant controls and conducted numerous robustness checks (Kalnins, 2022; Lindner et al., 2022) by reference to independent theoretical rationales concerning the important roles played by both factors among ECFs' FDIs. We observed variance inflation factors below the usual threshold in all models, and the highest score remained below three (O'Brien, 2007).

3.3 Method

Hypotheses were tested using multilevel modeling in Mplus 9 to account for nested data considering firm- and country-level effects and variance both between and within countries simultaneously (Hox et al., 2018, p. 215). Multilevel modeling accounts for variances pertaining to the dependent variable both within and between groups; for example, effects of the independent variables may differ between groups (i.e., host countries), leading to more accurate estimation across countries (which are not considered in standard regression analysis; e.g., Finch & Bolin, 2017, pp. 33–37). Multilevel modeling accounts for our hierarchically structured data (e.g., experience is tied to a specific firm, while ROL is linked with a specific country, e.g., Hernández & Nieto, 2015) and includes relevant information simultaneously in the analysis. The latter approach reduces the risk of biased results; thus, this method has been recommended in IB research (e.g., Surana et al., 2024).

We computed stepwise random intercept and slope models, and the Akaike information criterion (AIC), Bayesian information criterion (BIC), and $-2 \log$ likelihood were used to assess model fit (Hox et al., 2018, p. 123, Kaufman, 1996).

First, a baseline model with only the controls was calculated. We then added all the country-level independent variables separately, which were included as cluster means to account for variation within clusters over time. Firm-level independent variables were subsequently tested separately before all the variables were entered simultaneously into the model. All the independent variables were grand mean centered and standardized (increasing interpretability of intercepts and ensuring the comparability of coefficient estimates; Hox et al., 2018, pp. 61–63; Stallkamp et al., 2023). The following equation describes the model with only the controls and firm-level independent variables (IL_{ij}) first separately, then jointly:

$$\text{Logit}(FDI_{ij}) = \beta_{0j} + \beta_{1j}(IL_{ij}) + \beta_{controls} ILC_{ij} + r_j \quad (1)$$

$$\begin{aligned} \text{Logit}(FDI_{ij}) = & \beta_{0j} + \beta_{1j}(\text{IntOnExp}_{ij}) + \beta_{2j}(\text{HoCoOnExp}_{ij}) \\ & + \beta_{3j}(\text{FDIOnExp}_{ij}) + \beta_{controls} ILC_{ij} + \beta_{controls} CLC_j + r_{ij} \end{aligned} \quad (2)$$

with $\text{logit } FDI_{ij}$ = logarithmized odds of the probability of ECF i choosing wholly owned FDI in country j ; IntOnExp_{ij} = ECF's international online experience; HoCoOnExp_{ij} = host country online experience; FDIOnExp_{ij} = FDI online experience; β_{0j} = first-level intercept; β_{1j} , β_{2j} , β_{3j} = regression scores of firm-level independent variables; ILC_{ij} = firm-level controls; CLC_j = country-level control; r_{ij} = first-level error term. Equation (3) shows the model with a country-level independent variable (CL_j) only.

$$\text{Logit}(FDI_{ij}) = \beta_{0j} + \gamma_{03}(CL_j) + \gamma_{ILC} ILC_{ij} + \gamma_{CLC} CLC_j + \varepsilon \quad (3)$$

We then allowed the intercept β values to vary across countries as follows:

$$\beta_{0j} = \gamma_{00} + u_{0j} \quad (4)$$

$$\beta_{1j} = \gamma_{10} + u_{1j} \quad (5)$$

$$\beta_{2j} = \gamma_{20} + u_{2j} \quad (6)$$

$$\beta_{3j} = \gamma_{30} + u_{3j} \quad (7)$$

with γ_{00} = second-level intercept of the dependent variable; γ_{10} and γ_{20} = second-level intercepts of the random slopes of the firm-level predictors; u_{0j} = country-level residual variance; u_{1j} , u_{2j} , and u_{3j} = random slopes of the firm-level variables at the country level. Substitution led to the following:

$$\begin{aligned} \text{Logit}(FDI_{ij}) = & \gamma_{00} + \gamma_{10}(\text{IntOnExp}_{ij}) + \gamma_{20}(\text{HoCoOnExp}_{ij}) + \gamma_{30}(\text{FDIOnExp}_{ij}) \\ & + \gamma_{03}(LP_j) + \gamma_{04}(INT_j) + \gamma_{05}(ROL_j) + u_{0j} + u_{1j}(\text{IntOnExp}_{ij}) \\ & + u_{2j}(\text{HoCoOnExp}_{ij}) + u_{3j}(\text{FDIOnExp}_{ij}) \\ & + \gamma_{ILC} ILC_{ij} + \gamma_{CLC} CLC_j + \varepsilon \end{aligned} \quad (8)$$

where LP_j = LP of host country j ; INT_j and ROL_j = country internet user population and ROL; γ_{03} , γ_{04} , and γ_{05} = fixed effects coefficients of the country-level predictors; and ε = residual variances and errors.

3.4 Results

The results of the hypothesis tests are presented in Table 3. We standardized all the variables prior to estimation to assess the relative effect sizes and magnitudes as well as the reported odds ratios (Exp(B), Kaufman, 1996). Owing to the strong correlation observed in this context, logistics performance and ROL were assessed in separate models.

For ECFs with more international online experience, the results indicated an increasing likelihood of wholly owned FDI ($b = 0.420$, $p < 0.001$, $\text{Exp}(B) = 1.522$), supporting Hypothesis 1. A one-standard-deviation increase in this experience increased the odds of FDI by a factor of 1.522 in Models 9 and 10. The more experience ECFs obtained online internationally, the more likely they were to choose FDI.

ECFs' *host country online experience* increased their likelihood of choosing wholly owned FDI ($b_{\text{Model } 9} = 3.165$, $p < 0.001$, $\text{Exp}(B) = 23.689$; $b_{\text{Model } 10} = 3.305$, $p < 0.001$, $\text{Exp}(B) = 27.250$). A one-standard-deviation increase in host country experience increased the odds of FDI by a factor of 23.689 in Model 9 and 27.250 in Model 10. The more experience ECFs have gained in specific foreign online markets, the more likely they are to choose FDI over time. Hypothesis 2 is supported.

ECFs' *FDI online experience* increased the likelihood of these firms choosing wholly owned FDI when assessed individually ($b_{\text{Model } 4} = 0.439$, $p < 0.001$); however, no significant effect was observed when international and host country online experience were included ($b_{\text{Model } 9} = 0.125$, $p > 0.10$; $b_{\text{Model } 10} = 0.114$, $p > 0.10$). Therefore, Hypothesis 3 was rejected.

Logistics performance increased ECFs' likelihood of choosing wholly owned FDI ($b = 0.526$, $p < 0.001$, $\text{Exp}(B) = 1.692$), supporting Hypothesis 4. A one-standard-deviation increase in host country logistics performance increased the odds of ECFs choosing wholly owned FDI by a factor of 1.692. The better a host country's logistical infrastructure is, the more likely ECFs are to choose FDI, such as through local warehouses or subsidiaries.

The internet *user population* increases the likelihood of ECFs choosing wholly owned FDI ($b_{\text{Model } 9} = 0.553$, $p < 0.001$, $\text{Exp}(B) = 1.738$; $b_{\text{Model } 10} = 0.379$, $p < 0.001$, $\text{Exp}(B) = 1.461$). A one-standard-deviation increase in the internet user population increases the odds of ECFs choosing FDI by a factor of 1.738 when ROL is accounted for and by 1.461 when logistics performance is accounted for. The larger a country's internet user population is, the more likely ECFs are to use FDI for expansion. These results support Hypothesis 5.

ROL increases the likelihood of ECFs' wholly owned FDI ($b = 0.515$, $p < 0.001$, $\text{Exp}(B) = 1.674$). A one-standard-deviation increase in the host country's ROL increased the odds of ECFs choosing the FDI mode by a factor of 1.674. The more transparent and effective a country's regulations are, the more likely ECFs are to opt for FDI. Thus, Hypothesis 6 is supported.

As controls, firm size, marginal ECFs' platform business model, and prior host country experience significantly and consistently affected the likelihood of ECFs choosing FDI.

3.5 Stability Checks

To ensure stability, alternative models were tested. *First*, a random split-half test was conducted. The results of the firm- and country-level variables remained stable (see Web Appendix A).

Second, we replaced several independent variables with alternatives (see Web Appendix B).

Table 3 (continued)

Firm Online Age	→ Wholly owned FDI (1/0)	-0.098ns (0.096)	-0.435*** (0.120)	-0.105 ns (0.092)	-0.228* (0.105)	-0.317** (0.118)	-0.089ns (0.103)	-0.112ns (0.099)	-0.091ns (0.098)	-0.343** (0.126)	0.710	-0.339** (0.125)	0.712
Prior Host Country Experience (1/0)	→ Wholly owned FDI (1/0)	0.335*** (0.060)	0.344*** (0.064)	0.387 ns (0.069)	0.355*** (0.063)	0.389*** (0.074)	0.304*** (0.060)	0.300*** (0.058)	0.322*** (0.059)	0.319*** (0.069)	1.375	0.322*** (0.070)	1.380
Prior International Experience (1/0)	→ Wholly owned FDI (1/0)	0.176 ns (0.123)	0.016ns (0.274)	0.195 ns (0.264)	0.271ns (0.262)	-0.020ns (0.282)	0.155ns (0.127)	0.183ns (0.123)	0.151ns (0.125)	0.084ns (0.285)	1.088	0.067ns (0.285)	1.069
<i>Controls (Country Level)</i>													
Population Density	→ Wholly owned FDI (1/0)	0.135*** (0.022)	0.136*** (0.024)	0.158*** (0.027)	0.139*** (0.022)	0.153*** (0.029)	0.049* (0.021)	0.161*** (0.020)	0.075*** (0.021)	0.131*** (0.029)	1.140	0.111*** (0.030)	1.117
-2 Log likelihood		1,302.166	1,226.798	1,050.880	1,260.122	1,024.316	1,265.178	1,273.650	1,277.798	985.378			989.492
AIC		1,322.166	1,250.798	1,075.880	1,284.122	1,052.316	1,287.178	1,295.650	1,299.797	1,017.377			1,021.492
BIC (Adjusted)		1,344.933	1,278.118	1,103.200	1,311.442	1,084.189	1,312.222	1,320.693	1,324.840	1,053.804			1,057.919

Standard errors are shown in brackets

N: Not significant, b Coefficients of standardized variables, FDI Foreign direct investment

*p < 0.05

**p < 0.01

***p < 0.001

†p < 0.10

We tested internet penetration (i.e., the percentage of the population using the internet) as an alternative measure of the internet user population (Batsakis et al., 2023a; World Bank, 2022c). The results supported our model ($b_{\text{Model } 7} = 0.510$, $p < 0.001$), but multicollinearity issues emerged when all the factors were tested in one model ($b_{\text{Model } 9} = 0.060$, $p > 0.10$; $b_{\text{Model } 10} = -0.043$, $p > 0.10$). Our measurement was supported.

We tested the indices of GCR and WGIs (Kostova et al., 2020). The results indicated weaker effects concerning the GCR items but similar results regarding the WGIs, thus supporting our measurement choice.

We tested common measures of market attractiveness (i.e., further barriers and location advantages), e.g., GDP, GNI per capita, or GDP per capita growth. The results were stable but partly nonsignificant ($MA_{\text{GDP}}: b = 0.574$, $p < 0.001$; $MA_{\text{GNI}}: b = 0.587$, $p < 0.001$; $MA_{\text{GROWTH}}: b = -0.062$, $p > 0.10$). We tested the population, the percentage of the urban population, and country development, which produced largely similar results (e.g., Chan et al., 2011).

We tested the number of countries (i.e., geographic scope) as an alternative measure of international online experience. The effect was slightly weaker ($b_{\text{Model } 9} = 0.416$, $p < 0.001$, $\text{Exp}(B) = 1.516$; $b_{\text{Model } 10} = 0.410$, $p < 0.001$, $\text{Exp}(B) = 1.507$). FDI online experience had a significant but weak effect in this context.

Third, we tested our framework over a ten-year period, but we measured the independent variables for the same year when FDI was observed (see Web Appendix C). The results regarding the firm- and country-level variables were largely stable. We also tested independent variables at t_{-2} ; the results remained stable for all the variables, albeit with considerably fewer observations. These findings supported the stability of our observations regardless of the timing chosen.

Fourth, we tested our framework for possible differences between early and late FDI (2010–2015 and 2016–2020; see Web Appendix D). At the firm level, the dominant impact of host country online experience was unchanged, but FDI online experience became marginally significant in the later period. Notably, logistics performance and, to some degree, ROL were significantly stronger from 2016–2020, as discussed later.

Fifth, we tested whether country-level variables moderate the effects of significant firm-level variables. Theoretically, the value and transfer of international experience may depend on the local environmental context of foreign markets (He et al., 2013). The results indicated that no effect of online experience was moderated by any country-level factor, whereas the direct effects supported our model (see Web Appendix E).

4 Discussion

This study provides novel evidence on the selective use of wholly owned FDI by ECFs as an emerging research area on digital firms requiring adapted theories and fresh thinking (responding to calls for respective analyses, e.g., Stallkamp et al., 2023; Swoboda & Sinning, 2022). Considering the joint effects of firm- and country-level antecedents of physical presence, this study contributes to the limited knowledge on digital firms' operation mode decisions and the debate on the impact

of dynamic digitalization on IB research and theory. Our results provide theoretical and practical implications for ECF managers, manufacturing firms undergoing digital internationalization, and policymakers.

4.1 Theoretical Implications

Regarding our first *contribution*, we elucidated the specific business model employed by ECFs in contrast to IT, i-business, and manufacturing firms. Further characterization is valuable to promote a broader theoretical conversation on the heterogeneity of digital firms' internationalization in an emerging IB research stream (Brouthers et al., 2022; Yang et al., 2025). We clarify that ECFs' virtual presence and physical delivery of products from abroad represent a basis for internationalization (e.g., Schu & Morschett, 2017). Importantly, the general business competencies of firms such as Amazon lie primarily in IT and physical supply chain management. The IT enables a high level of integration of customer-specific data (e.g., from individual accounts, shopping baskets; Batsakis et al., 2023b) and thus the ability to promote customer-centricity and exploit trends through various touchpoints (e.g., mobile apps, social media, user-generated content), which can serve as a primary decision database also abroad. Assortment, price, and services represent the core of one-to-one offers or simplified up- or cross-selling. However, all this strongly influences supply chain processes (e.g., Batsakis et al., 2023a), which are consumer-driven, offer agility to new suppliers, products and services, and ensure efficiency and low logistics costs (e.g., quick delivery, free returns, warehousing; Janjevic & Winkenbach, 2020). We argue that a physical presence via wholly owned FDI enables such a business model to be implemented strategically and operationally in host countries. Moreover, this depends on specific online experiences and infrastructure abroad, which differ from those of manufacturers, which can even use ECFs for international expansion. Additionally, FDI allows the specific IT- and entrepreneurship-driven organizational structure and culture as well as specific key performance indicators to be implemented (e.g., Tolstoy et al., 2023).

Our *second contribution* builds on practical observations that ECFs, despite being digital, establish selective physical presences potentially driven by specific firm- and country-level antecedents (to establish an empirical baseline in research on digital firms' internationalization, Stallkamp et al., 2023; Verbeke et al., 2018). We thus advance FDI research in the digital era, which is still focused on manufacturing and service firms. We do so by providing novel systematic evidence on specific virtual and physical business model elements as a basis for FDI decisions and their antecedents. Accordingly, we contribute to empirical literature and theory concerning the role of ECFs' experiences and country factors in FDI as follows.

We contribute to the empirical literature with a first study on ECFs' FDI over time. We also empirically show for the first time that experiences are relevant for digital firms' physical presence, beyond our knowledge on the role of distances for digital firms shown in the only study on FDI (Stallkamp et al., 2023). This finding contradicts the critical assumption in the literature that experience might be

less important in digital firms (e.g., Gabrielsson et al., 2022; Pezderka & Sinkovics, 2011). Location-bound host country online experience and nonlocation-bound international online experience are highly relevant for ECFs' FDI. *Moreover*, we propose that such experiences are gained online based on successful offers, services, promotions, or local online interactions with consumers that allow ECFs to exploit FDI (e.g., Mueller & Swoboda, 2025). These online experiences for physical presence are different from those known from manufacturers' FDI, which are mostly based on physical processes in production or distribution, for example. Online experience may also be highly relevant to i-businesses' FDI decisions; however, their acquisition of such experience and competitive or demand challenges, for example, strongly differ from those of ECFs (e.g., Gong et al., 2024; Mithani, 2023). We thus contribute to the literature with a new conceptualization of online learning from experiences beyond known offline experiences. *Finally*, international and host country online experience affect ECFs' FDI positively, whereas among manufacturers, the effects of international experience remain inconclusive (e.g., non-significant by Dow & Larimo, 2009, negative by Hernández & Nieto, 2015, positive by Tang & Guderhan, 2018), and host country experience among service firms has only been studied once (Pla-Barber et al., 2014; see Figure 1). The roles of the three types of experience for FDI have also rarely been compared in the literature (e.g., Wan et al., 2023). Further implications to literature can be drawn from our stability checks (e.g., geographic scope with similar results to our common time-based measures of online experience).

We contribute to theory by arguing and showing that ECFs require distinct online experience capabilities for FDI (different from physical capabilities) that need novel thinking and adapted rationales for digital firms' online capabilities and internationalization processes (e.g., Cahen & Borini, 2020). We extend capability rationales because different online experiences represent unique capabilities that ECFs as digital firms build, scale, and transfer by learning through virtual presence in general or in specific countries over time (e.g., Schu & Morschett, 2017). *Moreover*, these capabilities are also critical elements of the refined internationalization process of modern firms (Vahlne & Johanson, 2017). We extend these process rationales because ECFs no longer require physical presence or sequential entry (i.e., internationalize rapidly without physical constraints, Yang et al., 2025), but their decisions on physical presence are still path-dependent and based on distinct online learning mechanisms. While Vahlne and Johanson (2017) viewed risk and uncertainty as the basis of modern firms' rational decision-making and increasing commitment abroad, the focus of such firms has shifted to novel online capabilities and from opportunity recognition to exploitation (Coviello et al., 2017). We enhance this logic by showing that country-specific online experience is particularly related to ECFs' exploitation of FDI opportunities in selected countries, going beyond ECFs' irregular, rapid online internationalization, which has thus far been linked only to a virtual presence (Schu et al., 2016). Furthermore, and surprisingly, hybrid FDI experience has no effect once ECFs' general and host country online experiences are accounted for, indicating a lower relevance of offline experience. *Finally*, in contrast to assumptions about digital firms, we conclude that experience and learning remain critical for establishing physical presence and foreign performance (Mueller & Swoboda,

2025). As digitalization advances, researchers may reconsider capability and process theories and how opportunity exploitation through online experience changes competitive advantages through FDI (Swoboda & Sinning, 2022). ECFs' online learning may even affect transaction cost-based rationales, as the level of risks and uncertainties may shift from reducing investment risks to exploitation of opportunities with FDI (Brouthers et al., 2016; Swoboda & Sinning, 2022). *Moreover*, we argue that theories need to be enhanced by the roles of external factors in ECFs' FDI.

This study initially contributes to the empirical literature on host country-specific factors as antecedents of ECFs' FDI. We reveal that business model-specific factors—a country's logistics performance, internet user population, and ROL—critical to ECFs' virtual internationalization decisions (e.g., speed, Luo et al., 2005; market selection or entry; Rothaermel et al., 2006; Schu & Morschett, 2017) are equally crucial for their physical presence decisions. *Moreover*, these factors are different from those relevant to manufacturing or service firms highlighted thus far in mode research (see Figure 1). Only macroeconomic studies have reported ECF-specific but contradictory insights, as all three antecedents affect both export flows and FDI flows (logistics infrastructure, Halaszovich & Kinra, 2020 vs. He et al., 2021; internet use, Arvin et al., 2021 vs. Visser, 2019; ROL with even negative effects on FDI, Contractor et al., 2020, 2021 vs. Yu et al., 2015). Our insights emphasize the need to examine these factors at the microeconomic level of firms' decision-making. *Finally*, we show that countries' logistics performance, internet use, and ROL positively affect ECFs' FDI decisions to a similar extent and tend to be stronger than international online experience. Further implications for the literature can be drawn from our alternative models (e.g., nonsignificant effects of known attractiveness factors such as market growth or population size; nonsignificant moderations of our country-level factors).

With respect to theory, we argue that country-level factors must be considered important additional rationales to fully explain digital firms' internationalization processes. Firm- and country-level antecedents are seldom theorized jointly in studies on manufacturing or service firms' FDI (with few exceptions, e.g., Wan et al., 2023). *Moreover*, while research on the role of country-level factors in ECFs' decisions strongly focuses on institution-based rationales (e.g., Cumming et al., 2023), we stress the role of novel infrastructural factors emerging in e-commerce (Agarwal & Wu, 2015; Benmamoun et al., 2019). The latter complement ECFs' ability to exploit their online experience due to the specific location advantages these factors offer for ECFs' business model and FDI (in contrast to traditional supply-side location advantages, e.g., natural resources, labor costs, production infrastructure, Yang et al., 2025). For example, ECFs prefer markets that feature low barriers to the exploitation of the business model, e.g., in terms of the supply chain, digital infrastructure, or ROL (e.g., Gong et al., 2024). *Finally*, by theorizing the impacts of e-commerce-specific barriers, we contribute to the theorization of new location advantages for digital firms (while online experience could be conceptualized as a new ownership advantage, Dunning & Wymbs, 2001). However, logistics performance and ROL use are correlated, which is surprising, as both factors are theoretically distinct barriers; logistics performance theoretically represents the physical supply side, whereas ROL represents both the supply and the virtual demand side of

ECFs' business models. Further analyses are needed, as, for example, logistics performance becomes more important in later (vs. earlier) FDI decisions (2016–2020 vs. 2010–2015).

4.2 Practical Implications

This study has practical implications for managers, manufacturing firms internationalizing digitally, and policy makers.

We explored existing FDI over time and thus focused on decisions that did not result in failure. Managers of ECFs may avoid implementing unsustainable FDI in the e-commerce sector (e.g., Wentrup, 2016) and may decompose FDI decisions into manageable choices by considering important and specific antecedents (Brouthers et al., 2022). Thus, in their efforts to transfer business models and localize their offers, managers may focus primarily on acquiring host country online experience. This factor is not easy to change, as a firm either has market-specific online experience or not. However, we can propose focusing primarily on respective countries for FDI. We also propose at least three ways of increasing host country learning or compensating for a lack of such experience: leveraging analytics in local online markets, seeking reliable local professionals, or building relationships with local stakeholders (e.g., Luo et al., 2005; Meyer et al., 2023; Mueller & Swoboda, 2025). General international online experience represents a second requirement. Host country logistics performance, which offers considerable advantages regarding the full control of efficient supply chains, is also important, as are the internet user population and ROL, which entail possible barriers or location advantages with respect to FDI.

Our insights also have implications for manufacturing firms' digital internationalization. As mentioned, small manufacturers start their virtual presence with own domains abroad and often subsequently turn to leading ECFs to benefit from their specific capabilities, for example (Gong et al., 2024). For these firms, knowledge of the antecedents that increase the likelihood of ECFs' FDI in a country is valuable. Increased physical presence among ECFs enables them to localize their business model and to tailor their offers and those of manufacturers more closely to customers, which may be beneficial to manufacturers. However, ECFs' search for local suppliers can make it more difficult for manufacturers to compete via ECFs. These manufacturers may be forced to establish their own presence in other countries (e.g., Meyer et al., 2023).

Policymakers seeking to attract growing ECFs to their country can facilitate the virtual presence of ECFs, which is the strongest driver of FDI. More importantly, politicians recognize that e-commerce-specific country-level factors are relevant drivers. Thus, implementing strong logistics infrastructure to support FDI (e.g., transportation, customs efficiency; Cumming et al., 2023), high-quality internet infrastructure (e.g., connectivity, cyber security; Eduardsen et al., 2023), and a transparent legal framework (e.g., advice on legal issues, taxation, data privacy; Ahi et al., 2023) can be used as local policy levers to promote ECFs' physical presence. However, politicians should be aware that promoting digitalization and ECFs is likely to increase competition in related industries. Offline firms may thus be under

pressure. Moreover, societies face dynamic changes in IT that require regulation to enable the population and industries to keep pace with these shifts.

5 Limitations and Future Research

This study has limitations that suggest directions for future research.

We explore longitudinal data concerning leading ECFs, but an extended database will support further conclusions, e.g., regarding ECFs worldwide, business-to-business ECFs, or regional differences in wholly owned FDI (e.g., Yang et al., 2025). Examining smaller ECFs or the growing platform business within ECFs can provide new insights into FDI (our controls for *firm size* and the *marketplace* affect FDI both positively and negatively). The control of *previous experience in a host country* (beyond online) is also positive, suggesting further research on going vs. born digitals (Batsakis et al., 2023a).

With respect to our measurements, we consider FDI but cannot identify acquisitions or cooperative modes (both and esp. ECFs' various partnerships; e.g., Brourthers et al., 2022). Measuring ECFs' degree of control, mode switches, or learning from failure over time is challenging but could reveal stepwise decisions affected by antecedents (e.g., Mueller & Swoboda, 2025). As noted, data on more ECF-specific antecedents across nations could become available for future research (e.g., ECFs' online marketing capabilities, such as social media usage or web traffic in countries). Online market potential, local e-commerce competition, or specific ROL and media barriers that affect ECFs' internationalization can be studied by reference to future data concerning e-markets (e.g., Batsakis et al., 2023a; Pezderka & Sinkovics, 2011).

In our framework, we capture the local environment with infrastructural factors and the ROL, while normative or cultural institutions may be studied (e.g., Lee et al., 2023). We often refer to opportunities or customer needs, which are critical for ECFs, yet what drives the adaptation of online offers or services is unclear but important (e.g., assortment, payment options; Ipsmiller et al., 2022). It is also unclear how adaptation/standardization decisions affect ECFs' local or general performance or growth. The same applies to competition or digital capabilities (e.g., Fleury et al., 2024).

6 Conclusions

Despite many opportunities of digital internationalization highlighted in literature, no study has investigated whether and how digital and especially ECFs choose between virtual vs. physical presence, i.e., websites with local domains and investments in own warehouses or subsidiaries abroad. Such mode choices can have significant implications. Developing theory about the underlying mechanisms of this decision, we improve our limited knowledge of digital firms' expansion.

In particular, we contribute to theory by clarifying and explaining how operation mode decisions relate to the exploitation of ECFs' online knowledge and host

country infrastructure, i.e., how business model-specific factors act as determinants of this choice. We find support for most of our hypotheses; however, the factors we analyzed explain FDI to different degrees. The relevance of elements of ECFs' virtual and physical business models to this major decision is thus, for the first time, theoretically and empirically clarified and contrasted with i-businesses' or manufacturers' digital internationalization.

Notes

1. We conducted a systematic literature review in >50 journals following Harzing's journal quality list on the basis of Gaur and Kumar (2018). We used the keywords ECFs, digital firms, i-businesses, FDI, mode or entry strategy, virtual or physical presence, international or host country experience, logistics and internet infrastructure, ROL or barriers (for studies since 2010 and cross-citations). As indicated in the introduction, empirical studies on "offline firms" (manufacturing, service/IT) have analyzed many antecedents of mode decisions, albeit mostly at the *firm level*. For example, Dow and Larimo (2009) highlighted the role of international experience, He et al. (2013) that of host country experience, and Cui et al. (2013) that of FDI experience in the binary decision "FDI vs. other modes." The insights are not always consistent (e.g., non-significant Dow & Larimo, 2009, negative Hernández & Nieto, 2015, positive Tang & Gudergan, 2018). Other antecedents are shown by meta-analyses (e.g., Wan et al., 2023 with institutional distance, R&D, advertising intensity). Significantly fewer studies have focused on mode choices among service/IT firms. Most underline the positive role of international experience on FDI (Czinkota et al., 2009; Ekeledo & Sivakumar, 2004a; Evans et al., 2008), while Pla-Barber et al. (2014) show a positive role of host country and a negative of FDI experience. Other antecedents are also addressed (e.g., distances by Picot-Coupey et al., 2014; strategic motives by Sánchez Peinado & Pla Barber, 2006). Fewer studies address *country-level antecedents* and to the best of our knowledge, mostly specific to manufacturing or service firms. Some studies have highlighted the relevance of regulatory factors, including ROL, for manufacturers' FDI (e.g., Bailey, 2018; Stoian & Filippaios, 2008). Other research, for example, a recent meta-analysis of 224 studies (Cuervo-Cazurra et al., 2023), has addressed political risks, market attractiveness, uncertainty or legal factors. In an *online context*, only two studies consider operation mode decisions. Among *manufacturing firms* with a virtual presence, Ipsmiller et al. (2022) revealed a positive effect of entrepreneurial orientation on the choice of two types of virtual presence. Among *online service/IT firms*, Stallkamp et al. (2023) revealed positive effects of distance on FDI choice. To our knowledge, no empirical studies have considered country-level antecedents or examined antecedents that pertain specifically to ECFs' business model and mode decisions.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11575-025-00575-7>.

Funding Open Access funding enabled and organized by Projekt DEAL. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declarations

Conflict of interest None.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

- About You (2021). About you expands warehouse network with location in Slovakia Retrieved 20.06.2023, from <https://corporate.aboutyou.de/en/presse/about-you-erweitert-lager-netzwerk-um-standort-in-der-slowakei>.
- Agarwal, J., & Wu, T. (2015). Factors influencing growth potential of e-commerce in emerging economies: An institution-based N-OLI framework and research propositions. *Thunderbird International Business Review*, 57(3), 197–215.
- Ahi, A. A., Sinkovics, N., & Sinkovics, R. R. (2023). E-commerce policy and the global economy: A path to more inclusive development? *Management International Review*, 63(1), 27–56.
- Alibaba (2024). Global location. Retrieved 20.12.2024, from <https://www.alibabagroup.com/en-US/global-location>.
- Amazon (1998). Amazon.com enters European book market. Retrieved 20.06.2023, from <https://press.aboutamazon.com/1998/10/amazon-com-enters-european-book-market>.
- Amazon (2024). Amazonglobal export countries and regions. Retrieved 20.12.2024, from <https://www.amazon.com/gp/help/customer/display.html?nodeId=GCBBSZMUXA6U2P8R>.
- Arvin, M. B., Pradhan, R. P., & Nair, M. (2021). Uncovering interlinks among ICT connectivity and penetration, trade openness, foreign direct investment, and economic growth: The case of the G-20 countries. *Telematics and Informatics*, 60, 101567.
- Arvis J-F, Ojala L., Wiederer C., Shepherd B., Raj A., Dairabayeva K., & Kiiski T. (2018). *Connecting to compete 2018: Trade logistics in the global economy - The logistics performance index and its indicators*, The World Bank Group.
- Bailey, N. (2018). Exploring the relationship between institutional factors and FDI attractiveness: A meta-analytic review. *International Business Review*, 27(1), 139–148.
- Barkema, H. G., & Drogendijk, R. (2007). Internationalising in small, incremental or larger steps? *Journal of International Business Studies*, 38(7), 1132–1148.
- Batsakis, G., Konara, P., & Theoharakis, V. (2023a). Digital sales channels and the relationship between product and international diversification: Evidence from going digital retail MNEs. *Global Strategy Journal*, 13(4), 830–856.
- Batsakis, G., Theoharakis, V., Li, C., & Konara, P. (2023b). Internationalization and digitalization: Their differing role on grocer and non-grocer retailer performance. *Journal of Retailing*, 99(3), 400–419.
- Benmamoun, M., Singh, N., Lehnert, K., & Lee, S. B. (2019). Internationalization of e-commerce corporations (ECCs): Advanced vs emerging markets. *Multinational Business Review*, 27(4), 317–338.
- Beugelsdijk, S., Kostova, T., Kunst, V. E., Spadafora, E., & Van Essen, M. (2018). Cultural distance and firm internationalization: A meta-analytical review and theoretical implications. *Journal of Management*, 44(1), 89–130.

- Blomkvist, K., & Drogendijk, R. (2016). Chinese outward foreign direct investments in Europe. *European Journal of International Management*, 10(3), 343–358.
- Blyde, J., & Molina, D. (2015). Logistic infrastructure and the international location of fragmented production. *Journal of International Economics*, 95(2), 319–332.
- Brouthers, K. D., Chen, L., Li, S., & Shaheer, N. (2022). Charting new courses to enter foreign markets: Conceptualization, theoretical framework, and research directions on non-traditional entry modes. *Journal of International Business Studies*, 53(9), 2088–2115.
- Brouthers, K. D., Geisser, K. D., & Rothlauf, F. (2016). Explaining the internationalization of ibusiness firms. *Journal of International Business Studies*, 47(5), 513–534.
- Cahen, F., & Borini, F. M. (2020). International digital competence. *Journal of International Management*, 26(1), 100691.
- Centre for Retail Research (2023). Value of online retail sales in the United Kingdom (UK) from 2012 to 2022. Retrieved 20.01.2025, from <https://www.statista.com/statistics/315506/online-retail-sales-in-the-united-kingdom/>.
- Chan, P., Finnegan, C., & Sternquist, B. (2011). Country and firm level factors in international retail expansion. *European Journal of Marketing*, 45(6), 1005–1022.
- Clarke, J. E., Tamaschke, R., & Liesch, P. W. (2013). International experience in international business research: A conceptualization and exploration of key themes. *International Journal of Management Reviews*, 15(3), 265–279.
- Colton, D. A., Roth, M. S., & Bearden, W. O. (2010). Drivers of international e-tail performance: The complexities of orientations and resources. *Journal of International Marketing*, 18(1), 1–22.
- Contractor, F. J., Dangol, R., Nuruzzaman, N., & Raghunath, S. (2020). How do country regulations and business environment impact foreign direct investment (FDI) inflows? *International Business Review*, 29(2), 101640.
- Contractor, F. J., Nuruzzaman, N., Dangol, R., & Raghunath, S. (2021). How FDI inflows to emerging markets are influenced by country regulatory factors: An exploratory study. *Journal of International Management*, 27(1), 100834.
- Coviello, N., Kano, L., & Liesch, P. W. (2017). Adapting the Uppsala model to a modern world: Macro-context and microfoundations. *Journal of International Business Studies*, 48(9), 1151–1164.
- Cuervo-Cazurra, A., Duran, P., Arregle, J. L., & van Essen, M. (2023). Host country politics and internationalization: A meta-analytic review. *Journal of Management Studies*, 60(1), 204–241.
- Cui, L., Li, Y., & Li, Z. (2013). Experiential drivers of foreign direct investment by late-comer Asian firms: The Chinese evidence. *Journal of Business Research*, 66(12), 2451–2459.
- Cumming, D., Johan, S., Khan, Z., & Meyer, M. (2023). E-commerce policy and International business. *Management International Review*, 63(1), 3–25.
- Czinkota, M. R., Grossman, D. A., Javalgi, R. R. G., & Nugent, N. (2009). Foreign market entry mode of service firms: The case of US MBA programs. *Journal of World Business*, 44(3), 274–286.
- Demirbag, M., Tatoglu, E., & Glaister, K. W. (2008). Factors affecting perceptions of the choice between acquisition and greenfield entry: The case of Western FDI in an emerging market. *Management International Review*, 48(1), 5–38.
- Digital Commerce 360 (2021). Digital commerce 360 research & data. Retrieved 20.06.2023, from <https://www.digitalcommerce360.com/about-our-research/>.
- Dow, D., & Larimo, J. (2009). Challenging the conceptualization and measurement of distance and international experience in entry mode choice research. *Journal of International Marketing*, 17(2), 74–98.
- Du, J., Lu, Y., & Tao, Z. (2008). FDI location choice: Agglomeration vs institutions. *International Journal of Finance & Economics*, 13(1), 92–107.
- Dunning, J. H., & Wymbs, C. (2001). The challenge of electronic markets for international business theory. *International Journal of the Economics of Business*, 8(2), 273–301.
- ECDB (2024). Why did amazon fail in China: local competition defeats the retail giant. Retrieved 10.11.2024, from <https://ecommercedb.com/insights/why-amazon-failed-in-china-market-dynamics-strong-competition/4670>.
- Eduardsen, J., Marinova, S., Leonidou, L. C., & Christodoulides, P. (2023). Organizational Influences and performance impact of cross-border E-commerce barriers: The moderating role of home country digital infrastructure and foreign market internet penetration. *Management International Review*, 63(3), 433–467.
- Ekeledo, I., & Sivakumar, K. (2004a). International market entry mode strategies of manufacturing firms and service firms: A resource-based perspective. *International Marketing Review*, 21(1), 68–101.

- Ekeledo, I., & Sivakumar, K. (2004b). The impact of e-commerce on entry-mode strategies of service firms: A conceptual framework and research propositions. *Journal of International Marketing*, 12(4), 46–70.
- Evans, J., Mavondo, F. T., & Bridson, K. (2008). Psychic distance: Antecedents, retail strategy implications, and performance outcomes. *Journal of International Marketing*, 16(2), 32–63.
- Filatotchev, I., Strange, R., Piesse, J., & Lien, Y.-C. (2007). FDI by firms from newly industrialised economies in emerging markets: Corporate governance, entry mode and location. *Journal of International Business Studies*, 38(1), 556–572.
- Financial Times (2024). Shein, temu and the parcel wars. Retrieved 10.11.2024, from <https://www.ft.com/content/67319cc8-1f0e-4155-8f5e-664fe8603d2d>.
- Finch, H., & Bolin, J. (2017). *Multilevel modeling using Mplus*. CRC Press.
- Fleury, A., Fleury, M. T. L., Oliveira, L., & Leao, P. (2024). Going digital EMNEs: The role of digital maturity capability. *International Business Review*, 33(4), 102271.
- Gabrielsson, M., Raatikainen, M., & Julkunen, S. (2022). Accelerated internationalization among inexperienced digital entrepreneurs: Toward a holistic entrepreneurial decision-making model. *Management International Review*, 62(2), 137–168.
- Gong, C., He, X., & Lengler, J. (2024). Internationalisation through digital platforms: A systematic review and future research agenda. *International Marketing Review*, 41(5), 938–980.
- Halaszovich, T. F., & Kinra, A. (2020). The impact of distance, national transportation systems and logistics performance on FDI and international trade patterns: Results from Asian global value chains. *Transport Policy*, 98, 35–47.
- HDE (2024). Online-monitor 2024. Retrieved 20.01.2025, from <https://www.statista.com/statistics/454371/e-commerce-revenue-germany/>.
- He, X., Brouthers, K. D., & Filatotchev, I. (2013). Resource-based and institutional perspectives on export channel selection and export performance. *Journal of Management*, 39(1), 27–47.
- He, Y., Wu, R., & Choi, Y.-J. (2021). International logistics and cross-border E-commerce trade: Who matters whom? *Sustainability*, 13(4), 1745–1765.
- Hennart, J.-F. (2022). How much is new in Brouthers et al.'s new foreign entry modes, and do they challenge the transaction cost theory of entry mode choice? *Journal of International Business Studies*, 53(9), 2116–2132.
- Hernández, V., & Nieto, M. J. (2015). The effect of the magnitude and direction of institutional distance on the choice of international entry modes. *Journal of World Business*, 50(1), 122–132.
- Hong, S. J., & Lee, S.-H. (2015). Reducing cultural uncertainty through experience gained in the domestic market. *Journal of World Business*, 50(3), 428–438.
- Hox, J. J., Moerbeek, M., & Van de Schoot, R. (2018). *Multilevel analysis: Techniques and applications*. Routledge.
- Hua, L., & Wu, Y. (2024). Strategic analysis of vertical integration in cross-border e-commerce logistics service supply chains. *Transportation Research Part E: Logistics and Transportation Review*, 188, 103626.
- Ipsmiller, E., Dikova, D., & Brouthers, K. D. (2022). Digital internationalization of traditional firms: Virtual presence and entrepreneurial orientation. *Journal of International Management*, 28(4), 100940.
- ITA (2024). 2024 eCommerce size & sales forecast. Retrieved 20.12.2024, from <https://www.trade.gov/ecommerce-sales-size-forecast>.
- Janjevic, M., & Winkenbach, M. (2020). Characterizing urban last-mile distribution strategies in mature and emerging e-commerce markets. *Transportation Research Part A: Policy and Practice*, 133, 164–196.
- Kalnins, A. (2022). When does multicollinearity bias coefficients and cause type 1 errors? a reconciliation of Lindner, Puck, and Verbeke (2020) with Kalnins (2018). *Journal of International Business Studies*, 53(7), 1536–1548.
- Kaufman, R. L. (1996). Comparing effects in dichotomous logistic regression: A variety of standardized coefficients. *Social Science Quarterly*, 77(1), 90–109.
- Klier, H., Schwens, C., Zapkau, F. B., & Dikova, D. (2017). Which resources matter how and where? a meta-analysis on firms' foreign establishment mode choice. *Journal of Management Studies*, 54(3), 304–339.
- Kostova, T., Beugelsdijk, S., Scott, W. R., Kunst, V. E., Chua, C. H., & van Essen, M. (2020). The construct of institutional distance through the lens of different institutional perspectives:

- Review, analysis, and recommendations. *Journal of International Business Studies*, 51(4), 467–497.
- Kotha, S., Rindova, V. P., & Rothaermel, F. T. (2001). Assets and actions: Firm-specific factors in the internationalization of US internet firms. *Journal of International Business Studies*, 32(4), 769–791.
- Kwon, Y. C., & Konopa, L. J. (1993). Impact of host country market characteristics on the choice of foreign market entry mode. *International Marketing Review*, 10(2), 60–76.
- Latif, Z., Latif, S., Ximei, L., Pathan, Z. H., Salam, S., & Jianqiu, Z. (2018). The dynamics of ICT, foreign direct investment, globalization and economic growth: Panel estimation robust to heterogeneity and cross-sectional dependence. *Telematics and Informatics*, 35(2), 318–328.
- Lee, H. S., Pattnaik, C., & Gaur, A. S. (2023). Internationalization of I-business firms: The role of distance on location choice. *Journal of Business Research*, 164, 114010.
- Li, Y., Zhang, B., Fan, D., & Li, Z. (2021). Digital media, control of corruption, and emerging multinational enterprise's FDI entry mode choice. *Journal of Business Research*, 130, 247–259.
- Lin, F. (2015). Estimating the effect of the Internet on international trade. *The Journal of International Trade & Economic Development*, 24(3), 409–428.
- Lindner, T., Puck, J., & Verbeke, A. (2022). Beyond addressing multicollinearity: Robust quantitative analysis and machine learning in international business research. *Journal of International Business Studies*, 53(7), 1307–1314.
- Luo, Y., Zhao, J. H., & Du, J. (2005). The internationalization speed of e-commerce companies: An empirical analysis. *International Marketing Review*, 22(6), 693–709.
- Mello, G. (2019). Amazon.com starts direct sales of merchandise in Brazil after delays. Retrieved 20.06.2023, from <https://www.reuters.com/article/us-amazon-com-brazil-idUSKCN1PG0AG>.
- Meyer, K. E., Li, J., Brouthers, K. D., & Jean, R.-J.B. (2023). International business in the digital age: Global strategies in a world of national institutions. *Journal of International Business Studies*, 54(4), 577–598.
- Mithani, M. A. (2023). Scaling digital and non-digital business models in foreign markets: The case of financial advice industry in the United States. *Journal of World Business*, 58(4), 101457.
- Morschett, D., Schramm-Klein, H., & Swoboda, B. (2010). Decades of research on market entry modes: What do we really know about external antecedents of entry mode choice? *Journal of International Management*, 16(1), 60–77.
- Mueller, M., & Swoboda, B. (2025). Effects of International E-commerce firms' depth versus breadth of control on foreign sales performance and the role of market size and growth as context factors. *Management International Review*. In Press.
- Nielsen, B. B., Asmussen, C. G., & Weatherall, C. D. (2017). The location choice of foreign direct investments: Empirical evidence and methodological challenges. *Journal of World Business*, 52(1), 62–82.
- O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity*, 41(5), 673–690.
- Oxley, J. E., & Yeung, B. (2001). E-commerce readiness: Institutional environment and international competitiveness. *Journal of International Business Studies*, 32(4), 705–723.
- Pan, Y., & Tse, D. K. (2000). The hierarchical model of market entry modes. *Journal of International Business Studies*, 31(4), 535–554.
- Pash, C. (2017). Amazon is coming to Australia with 'low prices, vast selection, and fast delivery. Retrieved 20.06.2023, from <https://www.smh.com.au/business/companies/amazon-is-coming-to-australia-with-low-prices-vast-selection-and-fast-delivery-20170420-gvo61b.html>.
- Paul, J., & Gupta, P. (2014). Process and intensity of internationalization of IT firms—evidence from India. *International Business Review*, 23(3), 594–603.
- Pezderka, N., & Sinkovics, R. R. (2011). A conceptualization of e-risk perceptions and implications for small firm active online internationalization. *International Business Review*, 20(4), 409–422.
- Picot-Coupey, K., Burt, S. L., & Cliquet, G. (2014). Retailers' expansion mode choice in foreign markets: Antecedents for expansion mode choice in the light of internationalization theories. *Journal of Retailing and Consumer Services*, 21(6), 976–991.
- Pla-Barber, J., Villar, C., & León-Darder, F. (2014). Augmenting versus exploiting entry modes in soft services: Reconsidering the role of experiential knowledge. *International Marketing Review*, 31(6), 621–636.
- Rakuten (2024). Our businesses. Retrieved 20.12.2024, from <https://global.rakuten.com/corp/about/company/>.

- Reuters (2023). Amazon, other retailers revamp 'free' shipping as costs soar. Retrieved 20.06.2023, from <https://www.reuters.com/business/retail-consumer/amazon-other-retailers-revamp-free-shipping-costs-soar-2023-03-24/>.
- Rindfleisch, A., Malter, A. J., Ganesan, S., & Moorman, C. (2008). Cross-sectional versus longitudinal survey research: Concepts, findings, and guidelines. *Journal of Marketing Research*, 45(3), 261–279.
- Rothaermel, F. T., Kotha, S., & Steensma, H. K. (2006). International market entry by US internet firms: An empirical analysis of country risk, national culture, and market size. *Journal of Management*, 32(1), 56–82.
- Sánchez Peinado, E., & Pla Barber, J. (2006). Mode of entry in service firms: Strategic variables and characteristics of services influencing the internationalization process. *International Marketing Research*, 17, 159–192.
- Scayle GmbH (2024). International ecommerce: how to effectively grow in eastern Europe Retrieved 15.05.2024, from <https://www.scayle.com/blog/international-ecommerce-eastern-europe/>.
- Schu, M., & Morschett, D. (2017). Foreign market selection of online retailers—A path-dependent perspective on influence factors. *International Business Review*, 26(4), 710–723.
- Schu, M., Morschett, D., & Swoboda, B. (2016). Internationalization speed of online retailers: A resource-based perspective on the influence factors. *Management International Review*, 56(5), 733–757.
- Schwens, C., Zapkau, F. B., Brouthers, K. D., & Hollender, L. (2018). Limits to international entry mode learning in SMEs. *Journal of International Business Studies*, 49(7), 809–831.
- Sinkovics, N., Sinkovics, R. R., & Jean, R.-J. (2013). The internet as an alternative path to internationalization? *International Marketing Review*, 30(2), 130–155.
- Stallkamp, M., Chen, L., & Li, S. (2023). Boots on the ground: Foreign direct investment by born digital firms. *Global Strategy Journal*, 13(4), 805–829.
- Stoian, C., & Filippaios, F. (2008). Dunning's eclectic paradigm: A holistic, yet context specific framework for analysing the determinants of outward FDI: Evidence from international Greek investments. *International Business Review*, 17(3), 349–367.
- Surana, A., Chavan, M., Kumar, V., & Chirico, F. (2024). The internationalization process: A contextual analysis of Indian ibusiness firms. *International Business Review*, 33(4), 102255.
- Swoboda, B., Schwarz, S., & Hälsig, F. (2007). Towards a conceptual model of country market selection: Selection processes of retailers and C&C wholesalers. *International Review of Retail, Distribution and Consumer Research*, 17(3), 253–282.
- Swoboda, B., & Sinning, C. (2022). Effects of Internationalization rhythm and speed on E-Commerce Firms' growth and the role of institutional distances. *Management International Review*, 62(2), 169–201.
- Tang, R. W., & Gudergan, S. P. (2018). A Meta-analysis of the international experience–ownership strategy relationship: A dynamic capabilities view. *Management International Review*, 58(4), 541–570.
- Tolstoy, D., Hånell, S. M., & Özbek, N. (2023). Effectual market creation in the cross-border e-commerce of small-and medium-sized enterprises. *International Small Business Journal*, 41(1), 35–54.
- Tolstoy, D., Nordman, E. R., Hånell, S. M., & Özbek, N. (2021). The development of international e-commerce in retail SMEs: An effectuation perspective. *Journal of World Business*, 56(3), 101165.
- U.S. Census Bureau (2010). Quarterly retail E-commerce sales. Retrieved 05.11.2024, from <https://www2.census.gov/retail/releases/historical/ecommm/10q4.pdf>.
- U.S. Census Bureau (2022). Annual retail trade survey. Retrieved 05.11.2024, from <https://www.census.gov/data/tables/2022/econ/arts/supplemental-ecommerce.html>.
- Vahlne, J.-E., & Johanson, J. (2017). From internationalization to evolution: The uppsala model at 40 years. *Journal of International Business Studies*, 48(9), 1087–1102.
- Verbeke, A., Coeurderoy, R., & Matt, T. (2018). The future of international business research on corporate globalization that never was.... *Journal of International Business Studies*, 49(9), 1101–1112.
- Visser, R. (2019). The effect of the internet on the margins of trade. *Information Economics and Policy*, 46, 41–54.
- Wan, C., Sousa, C. M., Lengler, J., & Tan, Q. (2023). Entry mode choice: A meta-analysis of antecedents and outcomes. *Management International Review*, 63(2), 193–246.
- Wentrup, R. (2016). The online–offline balance: Internationalization for Swedish online service providers. *Journal of International Entrepreneurship*, 14(4), 562–594.
- World Bank (2022a). Logistics performance index. Retrieved 20.06.2023, from <https://lpi.worldbank.org/international>.

- World Bank (2022b). Worldwide governance indicators. Retrieved 20.06.2023, from <https://databank.worldbank.org/source/worldwide-governance-indicators>.
- World Bank (2022c). World development indicators. Retrieved 20.06.2023, from <https://databank.worldbank.org/reports.aspx?source=2&series=L.P.LPI.OVRL.XQ&country>.
- Yang, B., Bai, W., Chen, Y., & Rong, K. (2025). Internationalization of digital firms: A systematic review and research agenda. *Journal of Business Research*, 189, 115124.
- Yu, S., Beugelsdijk, S., & de Haan, J. (2015). Trade, trust and the rule of law. *European Journal of Political Economy*, 37, 102–115.
- Zalando (2015). Zalando to start operations in its Italian satellite fulfillment center. Retrieved 20.02.2024, from <https://corporate.zalando.com/en/company/zalando-start-operations-its-italian-satellite-fulfillment-center>.
- Zalando (2023). Annual report 2022. Retrieved 20.06.2023, from <https://corporate.zalando.com/en/investor-relations/annual-report-2022>.

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

Authors and Affiliations

Marius Mueller¹ · Bernhard Swoboda¹

✉ Bernhard Swoboda
b.swoboda@uni-trier.de

¹ Chair of Marketing and Retailing, Trier University, Trier, Germany