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*Transnational Corporations*¹ is a longstanding policy-oriented refereed research journal on issues related to investment, multinational enterprises and development. It is an official journal of the United Nations, managed by the United Nations Conference on Trade and Development (UNCTAD). As such it has a global reach, a strong development policy imprint, and high potential for impact beyond the scholarly community.

Objectives and central terrain

The journal aims to advance academically rigorous research to inform policy dialogue among and across the business, civil society and policymaking communities. Its central research question – feeding into policymaking at subnational, national and international levels – is how to make international investment and multinational enterprises contribute to sustainable development. It invites contributions that provide state-of-the-art knowledge and understanding of the activities conducted by, and the impact of multinational enterprises and other international investors, considering economic, legal, institutional, social, environmental or cultural aspects. Only contributions that draw clear policy conclusions from the research findings will be considered.

Grand challenges and the need for multiple lenses

The scale and complexities of the “grand challenges” faced by the international community, such as climate change, poverty, inequality, food security, health crises, and migration – as embodied in the United Nations’ Sustainable Development Goals (SDGs) – are enormous. These challenges, combined with the impact of disruptive technologies on business, rapidly evolving trends in international production and global value chains, new emerging-market players and new types of investors and investment, make it imperative that policymakers tap a wide range of research fields. Therefore, the journal welcomes submissions from a variety of disciplines, including international business, innovation, development studies, international law, economics, political science, international finance, political economy and economic geography. However, submissions should be accessible across disciplines (as a non-specialized journal idiosyncratic research should be avoided); interdisciplinary work is especially welcomed. The journal embraces both quantitative and qualitative research methods, and multiple levels of analyses at macro, industry, firm or individual/group level.

Inclusive: multiple contributors, types of contributions and angles

Transnational Corporations aims to provide a bridge between academia and the policymaking community. It publishes academically rigorous, research-underpinned

¹ Previously: The CTC Reporter. In the past, the Programme on Transnational Corporations was carried out by the United Nations Centre on Transnational Corporations (1975–1992) and by the Transnational Corporations and Management Division of the United Nations Department of Economic and Social Development (1992–1993).

and impactful contributions for evidence-based policymaking, including lessons learned from experiences in different societies and economies, both in developed and developing-country contexts. It welcomes contributions from the academic community, policymakers, research institutes, international organizations, and others. Contributions to the advancement and revision of theories, frameworks and methods are welcomed as long as they are relevant for shedding new light on the investigation of investment for development, such as advancing UNCTAD's *Investment Policy Framework for Sustainable Development*.

The journal publishes original research articles, perspective papers, state-of-the art review articles, point-counterpoint essays, research notes and book reviews. All papers are double blind reviewed and, in line with the aims and mission of the journal, each paper is reviewed by academic experts and experts from the policymaking community to ensure high-quality impactful publications that are both academically rigorous and policy relevant. In addition, the journal features synopses of major UN reports on investment, and periodic reviews of upcoming investment-related issues of interest to the policy and research community.

Unique benefits for authors: direct impact on policymaking processes

Through UNCTAD's wider development community and its global network of investment stakeholders, the journal reaches a large audience of academics, business leaders and, above all, policymakers. UNCTAD's role as the focal point in the United Nations system for investment issues guarantees that its contents gain significant visibility and contribute to debates in global conferences and intergovernmental meetings, including the biennial *World Investment Forum* and the *Investment and Enterprise Commission*. The work published in *Transnational Corporations* feeds directly into UNCTAD's various programmes related to investment for development, including its flagship product, the annual *World Investment Report*, and its technical assistance work (investment policies reviews, investment promotion and facilitation and investment treaty negotiations) in over 160 countries and regional organizations. The journal thus provides a unique venue for authors' academic work to contribute to, and impact on, national and international policymaking.

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Exports, trade costs and FDI entry: evidence from Japanese firms*

Ivan Deseatnicov,^a Konstantin Kucheryavy^b
and Kyoji Fukao^c

Abstract

Why does aggregate foreign direct investment (FDI) fall with distance? We conjecture that high trade costs adversely affect FDI entry decisions in a dynamic setting, even when controlling for previous export experience in foreign markets. We test this hypothesis using Japanese firm-level data for the period of 1995–2018, and find that the probability of FDI entry decreases with distance. We conclude that trade costs limit a firm's ability to assess foreign market uncertainty. As a result, a firm may exit a foreign market before realizing the potential profitability and never establish an affiliate there. This result is highly relevant for policymakers, as it proves that trade liberalization and FDI facilitation policies may reinforce each other, resulting in a compound effect for both exports and FDI.

Keywords: export dynamics, foreign direct investment, multinational enterprises

JEL classification codes: F10, F14, F21

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1. Introduction

Aggregate foreign direct investment (FDI) falls with distance, but at a slower rate than exports. This empirical regularity has been summarized by Antràs and Yeaple (2014) as a common fact about United States multinational enterprises (MNEs). A study by Matsuura and Sato (2014) suggests that a similar regularity holds for Japanese MNEs.¹

Why does aggregate FDI fall with distance? The fact that FDI falls with distance is not obvious from the theoretical point of view. There are several competing theoretical mechanisms that relate FDI to distance. First, within the traditional proximity-concentration framework (Helpman et al., 2004), FDI and trade are substitutes. Firms establish foreign affiliates to serve distant markets in order to overcome per-unit trade costs. The least productive firms do not engage in any foreign activity. Firms that are more productive engage in trade. The most productive firms do FDI. Within this framework, aggregate FDI decreases in exports and increase in distance. Second, FDI and trade can complement each other if a parent company exports intermediate inputs to foreign affiliates (Irrazabal et al., 2013). In this case, distance negatively affects both FDIs and exports. Third, Kiyota and Urata (2008), in their study of Japanese outward FDI activity, come to the conclusion that exporting behaviour is an important factor that determines a firm's propensity to become multinational. Finally, Conconi et al. (2016) suggest that firms engage in gradual internationalization by first exporting to a market and consequently engaging in FDI activity if the level of expected profitability is high enough. Under this hypothesis, trade costs are expected to have a negative effect on both exports and FDI activity.

The aim of this paper is to test how trade costs shape the FDI activity of Japanese MNEs, subject to their previous export experience. Our contribution is twofold. First, we document some regularities about the gradual internationalization process, using micro-level data from two basic surveys of Japanese firms, for the period of 1995–2018: the Basic Survey of Japanese Business Structure and Activities and the Basic Survey on Overseas Business Activities. In particular, we examine manufacturing parents and document that 68.5 per cent of Japanese MNE affiliates are established after being engaged in exports in the same region. This finding supports the hypothesis of the learning-by-exporting mechanism for Japanese MNEs. Moreover, we confirm that distance has a negative and significant effect on the outward FDI activity of such firms, where the outward FDI activity is measured by either local affiliate sales, or FDI stock, or FDI flows.

¹ Alfaro and Chen (2018) provide an overview of the literature, discussing the effect of distance on outward FDI activity.

Second, we hypothesize that, in a dynamic partial equilibrium setting, a domestic firm may start serving a foreign market by exporting, updating its prior beliefs about the potential demand and costs (uncertainty). In the process of learning, the firm decides whether to continue serving this market. If the expected profitability is high enough in the foreign country, the firm may decide to establish a foreign affiliate there. Alternatively, we conjecture that due to prohibitive trade costs, the firm may decide to stop serving the market before realizing its potential for profitability. This hypothesis guides our empirical analysis, in which we examine the probability of FDI entry by Japanese MNEs using a semiparametric proportional hazard model and a probit model with random effects. Export experience is confirmed to have a positive and significant effect on the probability of FDI entry. Moreover, we confirm that distance negatively affects the probability of FDI entry decision even when controlling for previous export experience. This latter finding is one of the key results of our paper, which suggests that the learning-by-exporting channel emphasized by Conconi et al. (2016) is not enough to explain why the FDI falls with distance.

These findings are highly relevant for policymakers, as trade and FDI facilitation policies may reinforce each other. For instance, the establishment of trade agreements leads to a reduction of trade and non-trade barriers and thus facilitates trade and the ability of firms to reveal foreign market demand and costs. Therefore, the likelihood of FDI increases. In addition, FDI agreements create incentives for firms to experiment with exports, which leads to increased trade flows. Thus, trade liberalization and FDI promotion policies may have a compound effect on both trade and FDI between countries.

Our findings also strongly suggest that trade promotion does not fully translate into increased FDI. We still find that physical distance – our proxy for trade costs – negatively affects the likelihood of FDI, even if we are controlling for export experience. Thus, trade and FDI promotion policies should be complementing each other.

The remainder of the paper is organized as follows. Section 2 presents a literature review. In section 3 we discuss Japanese trade and FDI in the international context. Section 4 describes our data and variables. Section 5 investigates the effect of distance on affiliate sales, FDI stock and FDI flows. In section 6, we perform our empirical analysis of the effect of trade costs on FDI entry probability. An alternative estimation approach is presented in section 7. Section 8 concludes and discusses policy recommendations that can be drawn from our results.

2. Literature review

The behaviour of Japanese MNEs and exporters has been extensively studied in a number of previous works (e.g., Kimura and Kiyota, 2006; Kiyota et al., 2008; Hayakawa and Matsuura, 2011; Matsuura and Sato, 2014). To the best of our knowledge, Kiyota and Urata (2008) is the closest work to ours in which the authors use the same micro-level data for the period of 1994–2000 and analyse how the engagement of Japanese firms in international trade influences the probability of becoming an MNE. They concluded that for Japanese firms exports and FDI are complements. In contrast to these works, our study attempts to examine the dynamics of Japanese firms' FDI and export activity for the period of 1995–2018 and, in particular, to assess the separate roles of trade costs and exports in shaping FDI patterns.

Our paper belongs to a growing empirical literature that studies the joint dynamics of FDIs and exports. Using firm-level data from Belgium, Conconi et al. (2016) show that previous export experience increases the probability that a Belgian firm engages in FDI. Gazaniol (2015) finds that both import and export experience positively influence the probability of FDI by French firms. Ding et al. (2021) highlight a reverse link using Chinese firm-level data: that firms' export performance is better in destination countries where these firms previously engaged in FDI. Sleuwaegen and Smith (2021) examine what characteristics of Belgian producers of services determine their internationalization mode: FDI versus exports. They find that older, larger, and more productive and more human capital-intensive Belgian service producers are more likely to serve foreign markets through FDI rather than exports.

Chen et al. (2021) use one of the two Japanese firm-level data sets that we use in this paper (the Basic Survey on Overseas Business Activities) and show that large exports of Japanese affiliates to third markets increase the probability of the parent firms investing in these markets. Thus, like this paper, Chen et al. (2021) highlight the learning-by-exporting channel. This paper complements Chen et al. (2021) by exploiting a richer set of data and focusing on the export experience of parent firms rather than that of their affiliates.

Chen et al. (2020) use the same data sources as we do in this paper but use an aspect of these data that we ignore here: reports by firms of their forecast sales. Chen et al. (2020) show that forecast errors fall as firms gain experience, which the authors interpret as evidence of learning. They built an open economy model of firm life cycle that features endogenous entry into exporting and FDI and that is driven by uncertainty of demand. We differ from Chen et al. (2020) by being agnostic about the sources of uncertainty and focusing solely on the impact of export experience and distance on the propensity to engage in FDI.

Among the aforementioned papers, most closely related to our work is Conconi et al. (2016). They suggest that uncertainty in foreign market demand, local regulations and legal requirements induce firms to engage in a gradual internationalization process. In their framework, firms resolve market uncertainty through exporting, and then engage in FDI if the expected profitability is high enough. The important implication of this framework is that if trade costs are high, then FDI falls with distance because experimentation by exporting to foreign markets becomes costly. However, this framework does not explain why FDI may fall with distance conditional on export activity, which, as we document in this paper, is the case with the Japanese MNEs. Our work attempts to emphasize the learning-by-exporting mechanism and to explain the impact of trade costs on FDI entry decisions, showing that trade costs play a significant role in the attractiveness of countries, thus shaping Japanese MNEs' outward FDI behaviour.

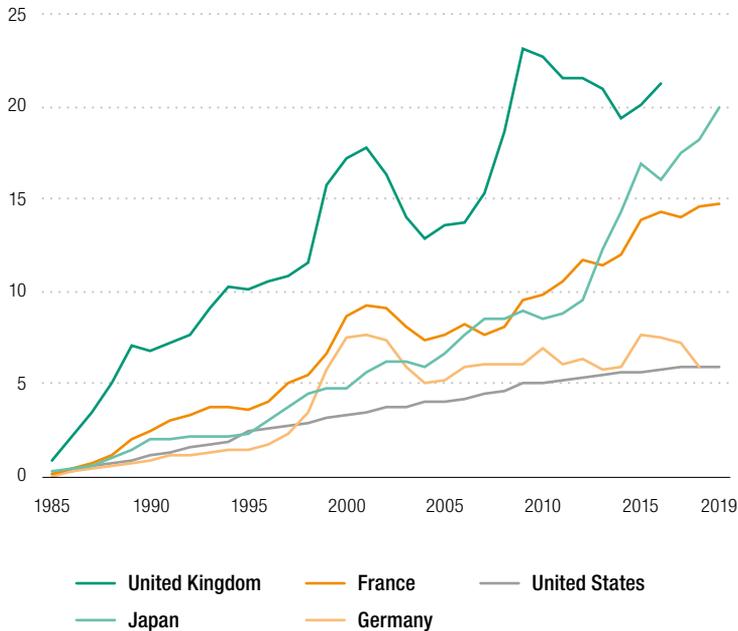
Finally, for the gradual internationalization process Gumpert et al. (2020) provide an alternative explanation to learning-by-export. They use a combination of French, Norwegian and German firm-level data sets to document a number of facts about exporters and MNEs. They then construct a dynamic version of the proximity-concentration framework that matches the observed facts. In their framework, the learning-by-exporting channel is absent, and the gradual internationalization process is driven by the assumption that each firm's productivity follows a Markov process. This assumption, incorporated into the proximity-concentration framework, naturally generates the outcome that as firms become more productive, they first export and then conduct FDI.

3. Japanese FDI and exports in the international context

The main objective of this section is to discuss the patterns of Japanese FDI and exports in the international context with a particular reference to other major outward FDI and trading developed countries. Figure 1 presents the evolution of the share of manufacturing outward FDI stock to gross domestic product (GDP) for Japan, France, the United States, Germany and the United Kingdom for the period 1985–2019.

Overall, we observe that Japanese outward FDI activity increased considerably from the mid-1980s to the mid-2010s. In comparison, the United States outward FDI activity was growing at a slower pace. As Japan's GDP is smaller than that of the United States, from the macroeconomic point of view Japan deploys a lot of outward FDI activity, and perhaps, even more than the United States. On top of that in the mid-2000s Japanese outward FDI activity surpassed that of French firms, in the mid-2010s it surpassed that of German firms and recently it shows signs of surpassing that of firms from the United Kingdom.

Figure 1. Evolution of the share of manufacturing outward FDI stock per GDP, 1985–2019 (Per cent)

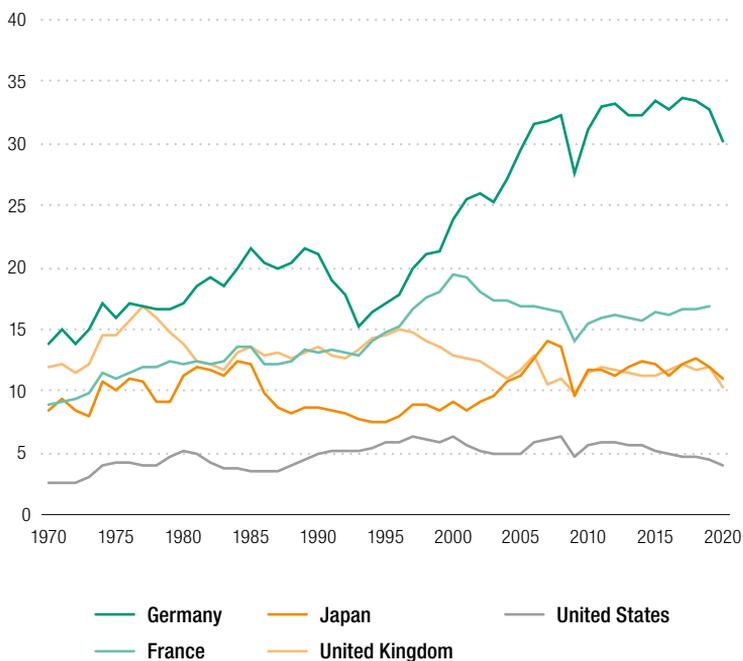


Source: Data on FDI are from the OECD International Direct Investment Statistics (<https://doi.org/10.1787/idi-data-en>) and on GDP are from the World Bank's World Development Indicators database. FDI stock is computed as cumulated flows.

Our empirical analysis that uses firm-level data covers this important period of increase in outward FDI activity by Japanese firms. Prior to the 1990s Japanese outward FDI was mainly in real estate, banking, commerce and other non-manufacturing activities. However, manufacturing activities have increased considerably since about 1990, as we see in figure 1.

There are a few key reasons for such a change in the behaviour of Japanese MNEs. First, the appreciation of the yen led to an increase in the option value of FDI sourced in Japan. Second, international production specialization has evolved, and, in particular, the cost of global value chain creation has become relatively low. Therefore, a boom occurred in the international division of labour, and Japanese MNEs actively joined in this trend. As shown in table 2, most FDI in this period went to Asian countries. The key industries of Japanese MNEs' competitive advantage were electric machinery, automobile production and computer, electronic and optical equipment.

Figure 2. Evolution of manufacturing export of goods to GDP ratio, 1970–2020
(Per cent)



Source: Data on manufacturing exports and GDP in current US dollars are from the World Bank's World Development Indicators database.

Figure 2 shows the evolution of the export-GDP ratio in the manufacturing sector for Japan, France, the United States, Germany and the United Kingdom for the period 1970–2020. In recent years, the ratio in Japan is comparable to that in the United Kingdom. Since 2000 Japan has become somewhat more open – less so than France and Germany but more so than the United States. Manufacturing exports have been stable at about 8–13 percent of GDP. Previously, after the Plaza accord of the mid-1980s, the ratio of manufacturing exports to GDP in Japan had declined substantially because of the considerable appreciation of the yen. That stagnation continued until early 2000. At the same time, as we see in figure 1, Japanese firms increased their FDI activity.

4. Description of data and variables

This section presents data sources and the variables used in the analysis.

4.1. Data

We use two confidential micro-level databases that are compiled annually by the Research and Statistics Department of the Japanese Ministry of Economy, Trade and Industry.² The first database, the Kigyō Katsudō Kihon Chōsa Houkōkusyo (the Basic Survey of Japanese Business Structure and Activities”, the “basic survey” hereafter) provides information on various business and strategic activities of Japanese firms. This survey is compulsory for firms with more than 50 employees and for firms with capital of more than ¥30 million.³ We have access to the data that cover the period of 1994–2018, from which we can identify the export activities of Japanese firms in seven regions: North America, South America, Asia, Middle East, Europe, Oceania and Africa.⁴

The second database, the Kaigai Jigyō Katsudō Kihon Chōsa Houkōkusyo (the Basic Survey on Overseas Business Activities, the “FDI survey” hereafter) provides information on foreign affiliates of Japanese parent companies. A foreign affiliate is defined as a company abroad in which a Japanese parent holds at least a 10 per cent share of the capital or as a subsidiary of a foreign affiliate abroad in which the affiliate holds at least a 50 per cent share of the capital.⁵ We have access to the data that cover the period of 1995–2018, from which we can identify FDI activities of Japanese MNEs. The FDI survey provides information on each affiliate’s year of establishment and the country where it is located.

In order to analyse the FDI and export dynamics of Japanese firms, we merge the information from the basic and FDI surveys using the converter built at the Research Institute of Economy, Trade and Industry. This converter provides a matching of the unique identifiers from both surveys for each year. The merged data set contains 7,254 parent companies and 47,604 affiliates.

² There are no conflicts of interest regarding the data use. All aggregated data and materials are available upon request. Confidential micro-level data are not available.

³ The available data sample does not contain all firms included in the survey, because some firms do not fill in questionnaires correctly. We assume that such cases occur randomly and, thus, do not induce endogenous sample selection bias.

⁴ The number of countries from all world regions is 144. The list of countries is available a request.

⁵ The Ministry of Economy, Trade and Industry targets all Japanese companies that have subsidiaries overseas as of the end of March each year except for those in the financial, insurance and real estate industries.

We hypothesize that firms reveal foreign market uncertainties (demand and costs) by exporting to these markets, and we consider only parent companies belonging to manufacturing industries. We do not restrict our analysis only to manufacturing affiliates. A non-manufacturing foreign affiliate can engage in wholesale or some other type of distribution-oriented FDI. In such cases, revealing foreign market uncertainties is equally important for production-oriented FDI and distribution-oriented FDI. Out of 7,254 parent companies in the matched data set, we keep 4,745 manufacturing parent companies with 28,663 affiliates that can be either manufacturing or non-manufacturing.

Foreign market uncertainty is likely to have an impact on the market entry decision for horizontal and platform-type FDI but, arguably, not for vertical FDI, which serves the Japanese market with goods produced abroad. As argued in Conconi et al. (2016) and reported in other recent studies (e.g. Ramondo et al., 2013), the number of vertical FDI affiliates is lower than those engaging in horizontal or platform-type FDI. Following Conconi et al. (2016), we define an affiliate as a vertical FDI “if in any of the years following FDI entry exports to the parent company exceed one third of the affiliate’s sales”. In our empirical analysis, we exclude vertical FDI affiliates and focus on the remaining ones, which are assumed to be either horizontal or platform-type (23,495 affiliates, 82 per cent of the total number of affiliates).

4.2. Variables

Affiliate sales, FDI stock, and FDI flow

Table 1 provides definitions and sources of the variables in our study. We use three measures to capture FDI activity of Japanese MNEs: local affiliate sales, $AfSales_{f,c,t}$, volume of FDI investment, $FDIStock_{f,c,t}$, and FDI flows, $FDIFlows_{f,c,t}$.

In our regression analysis, we want to use logarithmic transformations of $AfSales_{f,c,t}$, $FDIStock_{f,c,t}$, and $FDIFlows_{f,c,t}$. However, $AfSales_{f,c,t}$ can take a zero value because some firms report zero local affiliate sales in some years. Also, $FDIFlows_{f,c,t}$ can take a negative value if firms decrease their investment. For these two variables, instead of logarithmic transformations, we use the inverse hyperbolic sine transformation (Burbidge, Magee and Robb, 1988), which for any variable y_t is given by $g(y_t, \theta) \equiv \frac{1}{\theta} \sinh^{-1}(\theta y_t) = \frac{1}{\theta} \log(\theta y_t + (\theta^2 y_t^2 + 1)^{1/2})$ where θ is a parameter.⁶

⁶ The inverse hyperbolic sine transformation can be applied to data defined on \mathbb{R} . For large values of y_t , it behaves like a log transformation, regardless of the value of θ . Also, $g(y_t, \theta) \rightarrow y_t$ as $\theta \rightarrow 0$.

Table 1. Variables and sources used in the study

Abbreviation	Definition, description, measurement	Data source
$AfSales_{f,c,t}$	Inverse hyperbolic sine transformation of the sum of local sales of parent <i>f</i> affiliates in country <i>c</i> in year <i>t</i> multiplied by the parent <i>f</i> ownership share in each affiliate's capital.	FDI survey
$FDIStock_{f,c,t}$	Log of the sum of total capital of parent <i>f</i> affiliates in country <i>c</i> in year <i>t</i> multiplied by the parent <i>f</i> ownership share in the capital.	FDI survey
$FDIFlows_{f,c,t}$	Inverse hyperbolic sine transformation of the change in FDI stock for parent company <i>f</i> in country <i>c</i> between years <i>t</i> and <i>t</i> - 1.	FDI survey
$FDIEntry_{f,c,t}$	Dummy equal to 1 if and only if a firm <i>f</i> established an affiliate in country <i>c</i> in year <i>t</i> .	FDI survey
$FDIEntry_{f,r,t}$	Dummy equal to 1 if and only if a firm <i>f</i> established an affiliate in region <i>r</i> (in any country that belongs to <i>r</i>) in year <i>t</i> .	FDI survey
$ExportEntry_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports positive exports to region <i>r</i> in year <i>t</i> and zero exports in years <i>t</i> - 1 and <i>t</i> - 2.	Basic survey
$Log(CumulativeExports_{f,r,t})$	Log of sum of exports for a period of three, five, or ten years by firm <i>f</i> in region <i>r</i> prior to FDI entry in year <i>t</i> in country <i>c</i> from this region.	Basic survey
$Experience0_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports zero years of exports experience in region <i>r</i> in year <i>t</i> .	Basic survey
$Experience12_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports 1-2 years of exports experience in region <i>r</i> in year <i>t</i> .	Basic survey
$Experience3plus_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports more than 3 years of exports experience in region <i>r</i> in year <i>t</i> .	Basic survey
$Experience14_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports 1-4 years of exports experience in region <i>r</i> in year <i>t</i> .	Basic survey
$Experience5plus_{f,r,t}$	Dummy equal to 1 if firm <i>f</i> reports more than 5 years of exports experience in region <i>r</i> in year <i>t</i> .	Basic survey
$Log(Dist_c)$	Log of population-weighted distance between Japan and country <i>c</i> .	CEPII
$Log(Dist_r)$	Log of population-weighted distance between Japan and region <i>r</i> .	CEPII

/...

Table 1. Variables and sources used in the study

Abbreviation	Definition, description, measurement	Data source
Tariff _{c,t}	Weighted average applied tariff (import as weights) to imports from Japan by country c in year t.	UNCTAD TRAINS
Tariff _{r,t}	Weighted average applied tariff (import as weights) to imports from Japan by region r in year t.	UNCTAD TRAINS
Population _c	Population of country c in year 1995	World Development Indicators, World Bank
Log(RealGDP _{c,t})	Log of real GDP in constant 2010 USD of country c in year t.	World Development Indicators, World Bank
Log(RealGDP _{r,t})	Log of the sum of real GDP for all countries within region r in year t.	World Development Indicators, World Bank
log(Emp _{f,t})	Total employment of firm f in year t defined as the sum of headquarters employees, non-headquarters employees, and employees seconded to other companies.	Basic survey
log(Prod _{f,t})	Labor productivity of firm f in year t defined as the value added divided by total employment.	Basic survey
log(Import)P _{f,c,t}	Log of total imports from Japan of firm f's affiliates in country c.	FDI survey
FDIbefore1995 _{f,c}	Dummy equal to 1 if and only if a firm f established an affiliate in country c before 1995.	FDI survey

Source: Authors' definitions.

Note: CEPII stands for Centre d'Etudes Prospectives et d'Informations Internationales. We use the GeoDist database (Mayer and Zignago 2011).

FDI and export entries

One of the key variables in our analysis is the year of establishment of an overseas affiliate by a Japanese MNE (here called FDI entry), and one of the key relationships in the data that we seek to uncover is the impact of export experience on FDI entry. As we explained in section 4.1, our FDI data are at the country level, while our exports data are at the regional level (with all countries in the world grouped into seven regions). We make FDI and exports data comparable by replacing the information about the hosting country of each FDI affiliate with the (coarser) information about the hosting region to which the corresponding country belongs to.

Formally, our FDI entry variable, $FDIEntry_{f,r,t}$, is equal to 1 if and only if a firm f established an affiliate in region r in year t . The distribution of FDI entry by years and regions according to our definition is provided in table 2. This table shows that during 1995–2018, most new FDI entry by Japanese MNEs occurred in Asia, followed by Europe and North America.⁷

Table 2. Distribution of country-level FDI entries by region of destination and year

	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1995	52	24	607	3	74	9	4
1996	63	17	425	3	68	6	13
1997	46	18	311	4	65	7	7
1998	35	10	140	3	56	4	2
1999	35	9	138	1	52	4	3
2000	30	14	228	4	69	5	3
2001	36	7	300	0	70	5	3
2002	49	17	431	3	66	4	1
2003	45	6	399	0	70	4	2
2004	32	5	391	3	59	5	4
2005	39	11	337	3	73	5	3
2006	31	17	248	4	52	3	5
2007	28	17	260	2	57	3	1
2008	15	15	209	2	50	4	6
2009	10	8	139	2	50	8	0
2010	16	15	260	6	37	2	6
2011	15	23	383	5	50	2	2
2012	18	48	399	7	53	3	5
2013	20	40	244	3	41	3	4
2014	17	30	115	6	49	2	0
2015	14	27	83	2	21	1	4
2016	10	20	66	1	25	3	3
2017	7	4	47	2	20	6	2
2018	4	5	32	0	15	0	1
Total	667	407	6,192	69	1,242	98	84

Source: Based on micro data presented in section 4.

⁷ The numbers in table 2 are calculated from the matched data set. Since 2014 we observe a significant decrease in FDI entry in Asia. Several reasons can explain this pattern. First, since 2013 the yen depreciated due to the “Abenomics” economic policy. Second, Japan’s engagement in free trade agreements and economic partnership agreements accelerated, which led to a decrease in tariffs and trade barriers. Therefore, export activity has begun to replace some outward FDI activity. Finally, Japan somewhat lost its comparative advantage in electric machinery. A similar pattern is observed if we calculate these statistics from the complete data set of Japanese affiliates before matching. The results are available upon request.

Our definition of $FDIEntry_{i,r,t}$ implies that a Japanese parent firm might have entered into FDI in several countries in a particular region r . Moreover, we might observe that a parent firm continues exporting to a region after an FDI entry in that region. Such coexisting exports and FDI activity in a region can happen for several reasons. One is that a parent firm enters into FDI in one country in a region and continues exporting to a different country in the same region. Unfortunately, owing to our data limitations, we cannot distinguish this case from the case when a parent company establishes an affiliate in a foreign country and continues exporting to the same country. The latter case can happen if a parent company supplies intermediate goods to its affiliates (the mechanism explored by Irarrazabal et al., 2013).

Table 3. Distribution of export entries by region of destination and year

	North America	South America	Asia	Middle East	Europe	Oceania	Africa
Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1995	507	257	1006	231	505	290	200
1996	272	159	544	136	278	136	89
1997	236	125	446	104	237	129	61
1998	277	142	443	111	251	120	79
1999	295	145	499	128	273	197	97
2000	321	150	602	121	294	163	84
2001	279	137	505	129	260	129	96
2002	259	110	521	128	240	149	96
2003	263	118	543	111	248	138	84
2004	312	166	718	125	358	155	84
2005	267	153	537	120	246	148	91
2006	224	128	469	132	236	135	85
2007	283	170	542	144	283	149	91
2008	281	137	620	135	265	145	74
2009	348	..	648	174	310	..	..
2010	295	..	639	166	301	..	..
2011	284	..	562	135	288	..	..
2012	259	..	578	131	258	..	..
2013	271	..	478	139	256	..	..
2014	248	..	483	128	227	..	..
2015	221	..	384	124	198	..	..
2016	189	..	314	126	197	..	..
2017	178	..	317	125	196	..	..
2018	179	..	299	102	188	..	..
Total	6,548	2,097	12,697	3,205	6,393	2,183	1,311

Source: Based on micro data presented in section 4.

We identify export entry ($\text{ExportEntry}_{f,r,t}$) by firm f in region r at time t from the basic survey for which we have data for the period of 1994–2018. $\text{ExportEntry}_{f,r,t}$ is equal to 1 if firm f reports positive exports to region r in year t and zero exports in years $t-1$ and $t-2$. This definition allows us to use the maximum information from our data.⁸

The distribution of export entries by years and regions according to our definition is given in table 3. The intensity of export entry is considerably higher than that of FDI entry. Asia has been the market that attracted the most export entries by Japanese firms in this period. Europe and North America had about the same number of export entries.⁹

Our point is that FDI entry is typically preceded by exports rather than vice versa which, at least partially, help firms reveal foreign market uncertainties. Table 4 presents the total annual numbers of FDI entries with prior export experience in the corresponding region as well as the annual total numbers of export entries with prior FDI experience in the corresponding region.

Table 4 shows that, FDI entry occurred after some export experience for at least 68.5 per cent of cases, which suggests that this is an important feature of Japanese MNEs behaviour.¹⁰ Thus, we note that the mechanism of learning-by-exporting is likely to play an important role for Japanese outward FDI activity. Export entry with previous FDI is observed in only 18.7 per cent of cases in our sample. This pattern, although negligible, may arise for a number of reasons. The parent can enter one country in the region to serve the local market through affiliate sales and then start to export to another country in the region. Alternatively, the parent may start supplying intermediate goods to its affiliate after the FDI entry. The latter behaviour of MNEs was examined by Irarrazabal et al. (2013).

Export experience

We identify export experience as the number of years after the export entry. It accumulates if a firm continues to export. If it does not export for two years consecutively after export entry (in year t), we record export experience as one and two in the years after export entry ($t + 1$ and $t + 2$), and as zero after two

⁸ Several definitions have been used in the literature. For instance, Eaton et al. (2008) used one year of no exports, Conconi et al. (2016) used five years of no exports before positive exports in year t .

⁹ The question about exports to South America, Oceania and Africa was removed from the survey in 2009. Thus, we are not able to identify export entry into these regions since then. Since we have a total of 277 FDI entries reported for these regions for a period of 2009–2018, we can only expect a downward bias in our estimations of FDI entry with previous exports.

¹⁰ This number is lower than the corresponding number for Belgium – 85.9 per cent – reported by Conconi et al. (2016). At the same time it is much higher than the numbers reported in Gumpert et al. (2020) for Norway (49 per cent) and France (15 per cent at the affiliate level).

consecutive years of no export activity (in year $t + 3$). It is plausible to assume that upon export entry a firm adjusts its expectations about local market demand and costs (uncertainty), and this information is not outdated for at least the two next years. Using the data on export experience we identify three cases and define variable *Experience0* as zero years of exports experience prior to FDI entry, *Experience12* as one to two years of export experience prior to FDI entry, and *Experience3plus* as three or more years of export experience prior to FDI entry.

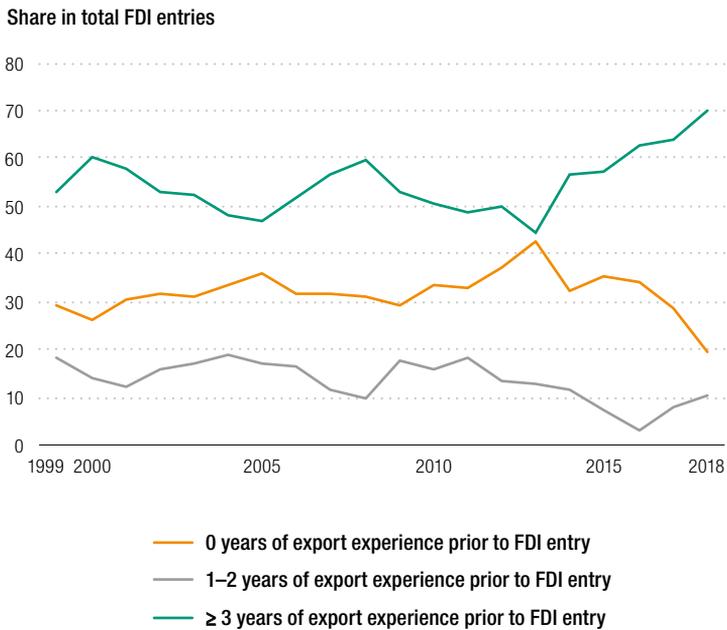
Table 4. Dynamics of FDI and export activity

Year	FDI entries	FDI entries with previous exports	Share of FDI entries with previous exports	Export entries	Export entry with previous FDI	Share of export entries with previous FDI
	(1)	(2)	(3)	(4)	(5)	(6)
1995	773	525	0.679	2,996	469	0.157
1996	595	420	0.706	1,614	226	0.140
1997	458	356	0.777	1,338	233	0.174
1998	250	199	0.796	1,423	256	0.180
1999	242	172	0.711	1,634	329	0.201
2000	353	261	0.739	1,735	295	0.170
2001	421	293	0.696	1,535	235	0.153
2002	571	391	0.685	1,503	239	0.159
2003	526	364	0.692	1,505	355	0.236
2004	499	333	0.667	1,918	477	0.249
2005	471	302	0.641	1,562	289	0.185
2006	360	246	0.683	1,409	239	0.170
2007	368	251	0.682	1,662	338	0.203
2008	301	208	0.691	1,657	441	0.266
2009	217	153	0.705	2,893	419	0.145
2010	342	228	0.667	1,740	404	0.232
2011	480	323	0.673	1,483	341	0.230
2012	533	336	0.630	1,465	393	0.268
2013	355	203	0.572	1,393	268	0.192
2014	219	149	0.680	1,313	251	0.191
2015	152	98	0.645	1,202	149	0.124
2016	128	84	0.656	1,027	159	0.155
2017	88	63	0.716	1,014	156	0.154
2018	57	46	0.807	953	141	0.148
Total	8,759	6,004	0.685	37,974	7,102	0.187

Source: Based on micro data presented in section 4.

Figure 3 presents the distribution of FDI entries given export experience at the time when foreign affiliates are established. Note that the share of FDI entries with three or more years of experience is high. A relatively small number of FDI entries with one to two years of experience suggests that that length of time may not be enough to reveal foreign market uncertainty. Japanese MNEs prefer to export for a longer period prior to entering into FDI. Given our data availability and definition of export entry, we focus on the period 1999–2018 in our empirical analysis to avoid the left-censoring problem.¹¹

Figure 3. Evolution of FDI entries with export experience (Per cent)



Source: FDI survey. For details see table 1.

In our alternative estimation in section 7 we use cumulative exports, $\text{Log}(\text{Cumulative exports})_{i,r,t}$, for 3, 5 and 10 years prior to FDI entry to measure the intensive margin effect on the decision of Japanese firms.

¹¹ As the basic survey reports export data starting from 1994, we cannot identify export experience for one to four years prior to 1999 without a downward bias.

Gravity variables

Our key gravity variable is physical distance. The main hypothesis and theoretical intuition discussed in section 6.1 imply that distance is the most appropriate proxy for trade costs. Longer distance may impede firms' ability to identify the uncertainty of foreign market demand and costs as it becomes costly to learn through exports. To this end, trade literature suggests that distance can capture various trade barriers and frictions, including not only transportation costs but also costs of communication, cultural distance, historic ties and other geographic factors (see, for example, Head and Mayer, 2013).

We use population-weighted distance from Japan to FDI host country c , $\log(\text{Dist}_c)$, in the country-level analysis. In the region-level analysis, we define the population-weighted distance between Japan and the region r as $\log(\text{Dist}_r) = (\sum_{c \in r} \text{Population}_c \times \text{Dist}_c) / \sum_{c \in r} \text{Population}_c$. In this definition we follow the traditional gravity trade literature (e.g. Head et al., 2010; Head and Mayer, 2014).¹²

We also use real GDP as a proxy for market size, $\log(\text{RealGDP}_c)$ and $\log(\text{RealGDP}_r)$. To control for the effect of trade and economic partnership agreements we use weighted average tariff, $\text{Tariff}_{c,t}$ ($\text{Tariff}_{r,t}$), applied to imports from Japan by country c (region r) in year t . First, we collect two-digit SITC1 (Standard International Trade Classification section 1) applied tariffs and imports from the UNCTAD TRAINS database. Second, we compute the average import-weighted tariff. This allows us to take into consideration Japan's effort to liberalize trade that started in the 2000s and accelerated in the 2010s.

Firm-level variables

Firm-level controls are total employment, $\log(\text{Emp}_{f,t})$, and labour productivity, $\log(\text{Prod}_{f,t})$. Labour productivity is calculated as the value added divided by total employment. Value added is defined as the difference between sales and intermediate inputs.¹³ We also include imports from Japan by firm f 's affiliates, $\log(\text{ImportJP}_{f,c,t})$, to control for a channel of intermediate inputs trade emphasized in Irarrazabal et al. (2013). Finally, to control for FDI activity prior to the start of our analysis period, we use a dummy variable, $\text{FDIbefore1995}_{f,c}$.

¹² As this measure contains population data it could reflect market potential as well. We believe that market potential in our case would be proxied by population or GDP of the region. As our analysis goes inside the region the most populated nations obtain a bigger weight in the trade costs measure.

¹³ We compute intermediate inputs as follows: (Cost of sales + Selling, general and administrative expenses) – (Advertising expenses + Information processing communications expenses + Premises rent + Packing transportation costs + Gross pay + Depreciation and amortization + Welfare expense + Taxes and dues + Interest expense discount fee + Lease payments).

5. Effect of distance on FDI activities of Japanese firms

How do trade costs affect outward FDI activities of manufacturing MNEs? To answer this question, we estimate the following model:

$$Y_{f,c,t} = \beta_0 + \beta_1 \log(\text{Dist}_c) + \theta_1 \log(\text{RealGDP}_{c,t}) + \mu \mathbf{X}_{f,t} + u_f + \eta_t + \varepsilon_{f,c,t}, \quad (1)$$

where $Y_{f,c,t}$ represents FDI activity measured by either $\text{AfSales}_{f,c,t}$, or $\text{FDIStock}_{f,c,t}$, or $\text{FDIFlows}_{f,c,t}$, while $\mathbf{X}_{f,t}$ are firm-level controls. Our main interest is to identify the sign effect of distance on FDI activities. We include firm fixed effects, u_f , to capture firm-level heterogeneity and year fixed effects, η_t , to capture the time trend. We estimate the model by a high-dimensional fixed effects method (Guimaraes and Portugal, 2010).

Table 5. Effect of distance on FDI activity for all MNEs.

	Affiliate sales	FDI stock	FDI flows	Affiliate sales	FDI stock	FDI flows
	(1)	(2)	(3)	(4)	(5)	(6)
log(Dist)	-0.151*** (0.038)	-0.241*** (0.038)	-0.682*** (0.119)	-0.074 (0.046)	-0.162*** (0.044)	-0.481*** (0.138)
log(RealGDP)	0.265*** (0.018)	0.212*** (0.020)	0.723*** (0.058)	0.194*** (0.022)	0.247*** (0.024)	0.813*** (0.070)
log(ImportJP)	0.742*** (0.014)	0.089*** (0.008)	0.240*** (0.019)	0.730*** (0.018)	0.062*** (0.009)	0.176*** (0.024)
log(Emp)	0.033 (0.110)	0.064 (0.046)	-0.059 (0.070)	0.024 (0.139)	0.081 (0.054)	0.160* (0.083)
log(Prod)	-0.032 (0.056)	-0.017 (0.022)	0.013 (0.044)	-0.050 (0.069)	-0.012 (0.028)	0.006 (0.050)
Observations	86,928	85,746	83,884	66,105	64,988	63,766
FDI entry year	>1995	>1995	>1995	>1995	>1995	>1995
FDI type	All	All	All	Horizontal/ Platform	Horizontal/ Platform	Horizontal/ Platform
R-squared	0.587	0.571	0.054	0.577	0.576	0.052
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Based on micro data presented in section 4.

Note: High-dimensional fixed-effect method. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

First, we consider the full sample that includes all MNEs. The results are presented in table 5. Columns 1, 2 and 3 report the results for all types of FDI. Columns 4, 5 and 6 report the results for horizontal and platform-type FDI.

In the results in table 5, we observe a negative and consistent effect of distance on Japanese MNEs' outward FDI activity.¹⁴ The magnitude of this effect is the strongest for FDI flows. Thus, we confirm that distance plays an important role in shaping outward FDI activities of Japanese MNEs. Previous research also emphasized this effect. For instance, Matsuura and Sato (2014) reported a negative effect of distance on total FDI sales and the number of firms at the destination using the same survey data for the period of 1995–2006.

Table 6. Effect of distance on FDI activity for MNEs with export experience

	Affiliate sales	FDI stock	FDI flows	Affiliate sales	FDI stock	FDI flows
	(1)	(2)	(3)	(4)	(5)	(6)
log(Dist)	-0.122** (0.048)	-0.296*** (0.052)	-0.815*** (0.162)	-0.009 (0.058)	-0.224*** (0.058)	-0.661*** (0.176)
log(RealGDP)	0.296*** (0.023)	0.229*** (0.027)	0.767*** (0.077)	0.204*** (0.028)	0.271*** (0.031)	0.853*** (0.087)
log(ImportJP)	0.735*** (0.017)	0.099*** (0.009)	0.280*** (0.022)	0.706*** (0.021)	0.066*** (0.011)	0.179*** (0.028)
log(Emp)	-0.017 (0.140)	0.099* (0.058)	0.005 (0.089)	-0.037 (0.174)	0.153** (0.067)	0.051 (0.093)
log(Prod)	-0.001 (0.068)	-0.007 (0.027)	0.013 (0.055)	-0.020 (0.083)	-0.011 (0.036)	0.025 (0.063)
Observations	57,980	57,379	55,993	45,739	45,168	44,136
FDI entry year	>1995	>1995	>1995	>1995	>1995	>1995
FDI type	All	All	All	Horizontal/ Platform	Horizontal/ Platform	Horizontal/ Platform
R-squared	0.595	0.553	0.061	0.582	0.568	0.056
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Source: Based on micro data presented in section 4.

Note: High-dimensional fixed-effect method. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

¹⁴ Other control variables have the expected signs. GDP and imports from Japan are positive and significant. The size and productivity of the parent are not statistically significant.

Second, we examine the sample of firms with FDI activities that were preceded by exports to the region where country c belongs. This is a focus of our attention as it estimates the effect of distance on outward FDI activities of Japanese MNEs that established an affiliate after serving the market by exports. The estimation results are presented in table 6.

As we can see, the effect of $\log(Dist_c)$ is negative in all estimations. We also control for MNE productivity, which is one of the channels for explaining MNEs' outward FDI activity, as emphasized in Helpman et al. (2004), as well as for intermediate inputs trade from parent to affiliates (Irarrazabal et al., 2013). The effect of distance remains significant. In sum, we confirm that trade costs have a negative effect on FDI activity of MNEs, subject to previous export experience. The next section examines the effect of trade costs on the decision to enter a foreign market.

6. Trade costs and probability of FDI entry by Japanese firms: empirical evidence

In this section we test our main hypothesis that trade costs negatively affect FDI entry decisions subject to previous export experience.

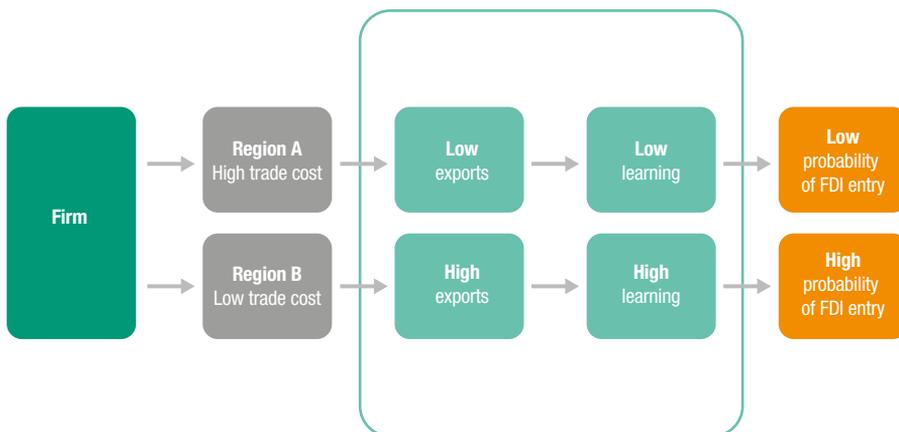
6.1. Trade costs and probability of FDI entry

We suggest the following intuition to explain the negative effect of trade costs on FDI entry. Consider a domestic firm producing one good that seeks to serve foreign markets. The decision to expand internationally has already been made. The firm starts by exporting to foreign country A, or foreign country B, or both countries. Before trading, the firm has prior beliefs about local conditions (demand and costs) in the foreign countries. After observing actual sales, the firm updates its prior beliefs about the foreign conditions. Given its beliefs, the firm can calculate the expected sales in each country. If the expected sales are high enough, the firm establishes an affiliate in the corresponding country to produce there and to serve the local market. Assume that the sales distributions in A and B are such that if the firm knows them, it establishes an affiliate in both countries.

Now, suppose that in the beginning, the firm starts trading with both countries, and for several time periods it gets the same sequence of low sales in both countries. Assume that this sequence is such that the firm decides to stop serving B (because of high iceberg costs), but it continues serving A. Suppose that after that the firm gets a sequence of high sales in country A and based on these observations it decides to establish an affiliate in A. So, we end up in a situation where the firm enters country A through FDI and never learns that FDI in country B is also profitable.

Given the discussion above, we conjecture that subject to export experience, the probability of FDI is lower when trade costs are higher. Figure 4 summarizes the core relationships in our investigation. The following empirical analysis tests this hypothesis.

Figure 4. Core relationship in the investigation



Sources: Authors' design.

6.2. Probability of FDI entry and export experience

We estimate the proportional hazard model (Cox, 1972). This is a semiparametric model that assumes a common baseline hazard for all subjects. Thus, the likelihood of FDI entry depends on our variables of interest and it is not affected by the timing of FDI entry. We estimate two models:

$$h(t) = h_0(t)\exp\{\beta_1 Experience_{12f,r,t} + \beta_2 Experience_{3plusf,r,t} + v_r\}, \tag{2}$$

and

$$h(t) = h_0(t)\exp\{\beta_1 Experience_{12f,r,t} + \beta_2 Experience_{3plusf,r,t} + \beta_3 \log(Dist_r) + \delta_1 \log(RealGDP_{r,t}) + \delta_2 tariff_{r,t} + \mu X_{f,t} + v_r\} \tag{3}$$

The model given by (2) aims to reveal regional export experience effect on the probability of FDI entry in the host country. We estimate this model for the first FDI entry in country *c* of region *r*. As explained earlier, we may have multiple FDI entries in a region.

Therefore, we allow for multiple “failures” in our survival analysis estimation. Our data set comprises all exporters that were active in the period 1998–2018. We include regional fixed effects (v_r) where possible.¹⁵

In the model given by (3), we would like to focus on the effect of distance on the probability of FDI entry by firm f in country c of region r given export experience of firm f in region r . Variables \mathbf{X}_{ft} include firm-level controls such as productivity and employment. The main results of our estimation are reported in table 7.

Columns 1 and 2 report the results of the estimation of model (2), while columns 3 and 4 report the results for model (3). Column 5 provides the results of the estimation of the model similar to (3), but with the interaction terms of distance and exports experience instead of $\log(Dist_r)$ and with region fixed effects.

The results suggest that export experience has a positive effect on the likelihood of FDI entry. Moreover, longer experimentation increases the probability of FDI entry ($\beta_2 > \beta_1$ in all columns). As expected, distance has a negative and significant effect on the probability of FDI entry. These results confirm that export experience positively affects the probability of FDI entry due to the learning-by-exporting mechanism. The uncertainties in a foreign market are likely to play an important role in Japanese MNEs’ outward FDI activity. Conconi et al. (2016) findings for Belgian firms showed the same pattern – export experience decreases uncertainty and increases the probability of FDI. In this regard our work also complements Chen et al. (2021), which emphasized the learning-by-exporting mechanism using the same data as we use. Trade costs, however, decrease the probability of FDI entry. Our hypothesis suggests that it becomes costly to experiment in foreign markets by exporting. Thus, Japanese firms may exit a market before they discover that it is profitable to establish a foreign affiliate there.¹⁶ As a robustness check, we estimated this model with an alternative definition of FDI entry and export experience (i.e., for one to four years and five or more years) as well as with an alternative survival analysis method. The results are qualitatively the same. They are reported in Appendix A in appendix tables A1–A4.

¹⁵ Ideally, we would like to estimate our model at the firm-country-year level. However, the data are not available. We can potentially deal with this situation by assigning the same export experience to all countries in the region. Assume a firm exports to one country, and it learns about all countries in the region from exports to one country. In such a case, exports to the region are identical to exports to all countries of that region. When we estimate the model at the firm-country-year level, we look whether it increases the probability of FDI in each country. For the country where the firm exports, export experience increases the probability of FDI, however for those countries of the same region where the firm does not export the effect is potentially negative. The overall effect is insignificant or negative. Therefore, we cannot disaggregate to the firm-country-year level if we do not know where the firm exported. Indeed, when we did the estimation, that is what we found.

¹⁶ Control variable coefficients are of the expected signs. Market size, tariffs, firm productivity and firm size have positive and significant effects on the probability of FDI entry.

Table 7. Cox regression model, country level FDI entry

	Model				
	(1)	(2)	(3)	(4)	(5)
Experience12	0.648*** (0.076)	0.400*** (0.075)	0.458*** (0.075)	0.329*** (0.081)	3.598*** (0.914)
Experience3plus	1.122*** (0.046)	0.735*** (0.046)	0.833*** (0.046)	0.410*** (0.048)	1.836** (0.823)
log(Dist)			-1.577*** (0.046)	-1.555*** (0.045)	
log(Dist) x Exp12					-0.377*** (0.105)
log(Dist) x Exp3plus					-0.163* (0.094)
log(Prod)				0.202*** (0.033)	0.201*** (0.033)
log(Emp)				0.509*** (0.013)	0.507*** (0.012)
log(RealGDP)				0.634*** (0.026)	
Tariff				0.078*** (0.003)	
Observations	446,355	446,355	427,562	385,588	389,811
Region fixed effects	No	Yes	No	No	Yes
FDI entries	5,811	5,811	5,811	5,349	5,362
Log likelihood	-57,313	-55,173	-55,693	-48,934	-48,815

Source: Based on micro data presented in section 4.

Note: Cox regression models. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

7. Alternative estimation strategy

The proportional hazard model estimated in the previous section has a problem: we assume that hazard functions for different firms are proportional over time. Therefore, in this section we examine our estimates of the trade costs effect on FDI entry decisions using an alternative model, a probit model with random effects, given by the specification

$$\begin{aligned} & \text{Prob}[FDIEntry_{f,c,t}] \\ & = \beta_1 \log(\text{Cumulative exports})_{f,r,t} + \beta_2 \log(\text{Dist}_c) + \delta_1 \log(\text{RealGDP}_{c,t}) \\ & + \delta_2 \text{tariff}_{c,t} + \mu \mathbf{X}_{f,t} + \varepsilon_{f,c,t}, \end{aligned} \quad (4)$$

where $FDIEntry_{f,c,t}$ is a dummy equal to 1 if firm f established a foreign affiliate in country c for the first time. To control for export experience, we use cumulative exports for 3, 5, and 10 years prior to export entry, $\log(\text{Cumulative exports})_{f,r,t}$. At the country level, we control for the real GDP of country c , $\log(\text{RealGDP}_{c,t})$, and tariffs applied to imports from Japan by country c , $\text{tariff}_{c,t}$. $\mathbf{X}_{f,t}$ is a list of controls that includes firm-level characteristics, i.e., employment of parent firm f , $\log(\text{Emp}_{f,t})$, and labour productivity of parent firm f , $\log(\text{Prod}_{f,t})$. We also control for firm f 's FDI in a country before 1995, $FDI\text{before}1995_{f,c}$. Finally, our key variable of interest is the distance between Japan and country c , $\log(\text{Dist}_c)$.

Each firm has an option to establish a foreign affiliate in 138 countries in year t .¹⁷ We include all pairs of firm-countries even if we observe zero FDI and zero exports. Thus, we interpret zero FDI and exports as information about Japanese MNEs' behaviour.¹⁸ We use a probit model with random effects to estimate specification (4).

The results are presented in table 8. Column 1 reports our benchmark regression. GDP, which is a measure of market potential, as well as firm size and firm labour productivity have positive impacts on the probability of FDI entry. Applied tariffs positively affect the probability of FDI entry. We conjecture that this effect is driven by the tariff-jumping mechanism. An increase in tariffs, *ceteris paribus*, makes exports relatively more expensive, and Japanese firms are more likely to establish FDI to serve the foreign market. As expected, FDI in a country before 1995 is negatively and significantly associated with FDI entry.

¹⁷ We also experimented with an alternative approach by observing firms at the moment of FDI entry or the final year a firm appeared in the survey. We included an observation for a firm for the first year when it engaged in FDI. If the firm never did so, we included an observation for this firm in the year when this firm appeared in the survey for the last time. The firm also has an option to establish a foreign affiliate in 138 countries. Thus, the firm decides about FDI entry in country c once in its life cycle. We estimated model 4 using logit and probit with random effects models. They are identical to the ones presented in the main text and are available upon request.

¹⁸ We end up with 27,137,315 observations. The smaller number of observations in the reported results is due to missing observations for some of the explanatory variables.

Our key variable of interest, i.e., distance, negatively affects the probability of FDI entry. Trade costs decrease the likelihood of FDI entry by Japanese MNEs. Moreover, as reported in columns 2, 3 and 4 in table 8, the coefficients of previous export experience measured by cumulative exports for 3, 5, and 10 years are positive and significant. Thus, we document that, despite controlling for export experience, distance continues to have a significant and negative impact on the probability of FDI entry. The magnitude of the coefficient decreases only slightly changes if we compare column 1 and columns 2, 3 and 4. By and large, we conclude that an increase in trade costs decreases the probability of FDI entry subject to previous export experience, which confirms our hypothesis and can be rationalized by the logic provided in section 6.1.

Table 8. Probit with random effects model, country-level FDI entry

	Model			
	(1)	(2)	(3)	(4)
log(Dist)	-0.394*** (0.005)	-0.357*** (0.005)	-0.357*** (0.005)	-0.357*** (0.005)
log(RealGDP)	0.195*** (0.003)	0.194*** (0.003)	0.194*** (0.003)	0.194*** (0.003)
Tariff	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
log(Emp)	0.214*** (0.003)	0.167*** (0.004)	0.167*** (0.004)	0.168*** (0.004)
log(Prod)	0.064*** (0.009)	0.035*** (0.009)	0.035*** (0.009)	0.035*** (0.009)
FDIbefore1995	-1.637*** (0.138)	-1.695*** (0.137)	-1.692*** (0.137)	-1.687*** (0.137)
log(CumulativeExports)		0.032*** (0.001)	0.031*** (0.001)	0.029*** (0.001)
Constant	-6.490*** (0.099)	-6.580*** (0.099)	-6.582*** (0.099)	-6.575*** (0.099)
Observations	15,921,417	15,921,417	15,921,417	15,921,417
Cumulative exports		3 years before FDI entry	5 years before FDI entry	10 years before FDI entry
Log likelihood	-40,853	-40,446	-40,455	-40,494

Source: Based on micro data presented in section 4.

Note: Probit regression models. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

8. Conclusions and policy recommendations

In this paper, we address the question of why FDI falls with distance, conditional on export activity in the foreign country. We suggest that the learning-by-exporting mechanism plays an important role in Japanese MNEs' behaviour, and we attempt to detach it from other effects. MNEs reveal uncertainty about the foreign market through exports and update their beliefs about the expected profitability. However, distance increases trade costs and may increase the cost of experimentation through exporting. This can lead to a decrease in FDI.

We uncover the dynamics of FDI and exports from Japan's micro data for the period of 1995–2018 and show that FDI entry occurs after experimentation with exports in a considerable number of cases (about 68.5 per cent). We also confirm the negative effect of distance on Japanese firms' outward FDI activity, including for a subset of firms that were engaged in exports prior to FDI entry. Finally, we show that export experience increases the probability of FDI entry. Distance negatively affects the likelihood of Japanese MNEs' FDI entry subject to previous export experience.

The results of our analysis show that trade costs play an important role in the decision to serve foreign markets. Given these findings, policymakers should consider a number of important issues when they design policies in regard to trade and FDI.

First, a policy that aims at facilitating trade through regional trade agreements or another type of partnership creates an environment in which firms can experiment in the foreign market for a longer period of time. Thus, there is a higher probability that they will realize the high potential of demand and will decide to serve the market through FDI. This is an outcome that is beneficial for both countries that participate in the trade agreement.

Second, a policy that creates a better environment for foreign firms or an FDI agreement between countries creates a higher option value of exports and indirectly induces more trade between countries. Firms may attempt to serve the market through exports and if the revealed demand potential is high, they will have less difficulty in establishing an affiliate there.

Thus, we can talk about the magnifying effect of trade or FDI agreements between countries as they will promote both trade and FDI. Nevertheless, as our results suggest, trade promotion does not fully translate to increased FDI because of remaining trade barriers – proxied by physical distance – even after we control for export experience. Therefore, trade and FDI promotion policies should complement each other.

Third, services have become an important driver of economic growth. Given our results we can conjecture that facilitating trade in services may lead to an increase in FDI in services, and consequently higher potential for economic growth.

We acknowledge that our study has some limitations. For instance, from the empirical point of view, due to data limitations, we observe exports to regions although FDI entry happens at the country level. Thus, we assume that a firm reveals market uncertainty in a country by exporting to a region. Unfortunately, given our data, we cannot make a weaker assumption. We rationalize this assumption by suggesting that a firm intending to establish an affiliate in a country prefers to experiment by exporting to this country rather than to any other country in the same region.

Despite these limitations we believe that our study provides strong support for the hypothesis of the importance of trade costs in shaping the probability of FDI entry in the presence of the learning-by-exporting mechanism. It remains on our agenda to deal with the limitations of our study in order to further our understanding of MNEs' behaviour.

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Appendix. Robustness checks

As a robustness check, we experimented with alternative survival models and definitions. One problem with the Cox regression model is that it is computationally challenging to include firm-level fixed effects. Therefore, we run a piecewise exponential survival model with mixed effects. The results are presented in appendix table 1.

In addition, we estimate the model using an alternative definition of FDI entry. We consider only the first FDI entry to a region rather than multiple FDI entries. After an FDI entry to a region happened, we stop tracking the firm in survival analysis. The results are presented in appendix tables 2 and 3. They are identical to the estimation in which we consider multiple FDI entries to a region.

Finally, we estimate equations (2) and (3) using an alternative split of export experience, i.e., export experience for one to four years (*experience14*) and experience for five and more years (*experience5plus*). The results are reported in appendix table 4, and are identical to the ones reported in the main text. In particular, distance has a negative effect on the probability of FDI entry. These results provide additional evidence that trade costs play a key role in shaping outward FDI activity even when we control for the learning-by-exporting effect.

Appendix table 1. Piecewise exponential survival model with mixed effects, country-level FDI entry

	Model				
	(1)	(2)	(3)	(4)	(5)
Experience12	0.895*** (0.078)	0.529*** (0.079)	0.606*** (0.078)	0.519*** (0.079)	2.980** (1.347)
Experience3plus	0.870*** (0.074)	0.320*** (0.078)	0.435*** (0.075)	0.309*** (0.078)	1.469 (1.268)
log(Dist)			-1.824*** (0.070)	-1.514*** (0.072)	
log(RealGDP)				0.430*** (0.037)	
Tariff				0.104*** (0.009)	
log(Dist) x Exp12					-0.284* (0.155)
log(Dist) x Exp3plus					-0.131 (0.145)
Constant	-6.029*** (0.073)	-6.779*** (0.107)	10.113*** (0.616)	-5.979*** (1.543)	-6.695*** (0.119)
Observations	191,923	191,923	191,923	191,923	191,923
Number of groups	8,090	8,090	8,090	8,090	8,090
Region fixed effects	No	Yes	No	No	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Log likelihood	-9,570	-8,941	-9,108	-9,056	-8,939

Source: Based on micro data presented in section 4.

Note: Piecewise exponential survival regression models. Robust standard errors in parenthesis. Constant omitted.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

Appendix table 2. Cox regression model, region-level FDI entry

	Model				
	(1)	(2)	(3)	(4)	(5)
Experience12	0.601*** (0.109)	0.455*** (0.108)	0.505*** (0.109)	0.420*** (0.114)	2.411* (1.243)
Experience3plus	0.640*** (0.060)	0.380*** (0.061)	0.479*** (0.061)	0.244*** (0.066)	0.446 (1.140)
log(Dist)			-1.078*** (0.056)	-0.996*** (0.057)	
log(Dist) x Exp12					-0.226 (0.140)
log(Dist) x Exp3plus					-0.023 (0.129)
log(Prod)				0.146*** (0.046)	0.155*** (0.046)
log(Emp)				0.176*** (0.017)	0.183*** (0.017)
log(RealGDP)				0.385*** (0.030)	
Tariff				0.037*** (0.007)	
Observations	405,645	405,645	386,852	349,030	353,241
Region fixed effects	No	Yes	No	No	Yes
FDI entries	1,977	1,977	1,977	1,813	1,825
Log likelihood	-19,578	-19,088	-19,232	-17,317	-17,365

Source: Based on micro data presented in section 4.

Note: Cox regression models. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

Appendix table 3. Piecewise exponential survival model with mixed effects, region-level FDI entry

	Model				
	(1)	(2)	(3)	(4)	(5)
Experience12	0.895*** (0.078)	0.529*** (0.079)	0.606*** (0.078)	0.519*** (0.079)	2.980** (1.347)
Experience3plus	0.870*** (0.074)	0.320*** (0.078)	0.435*** (0.075)	0.309*** (0.078)	1.469 (1.268)
log(Dist)			-1.824*** (0.070)	-1.514*** (0.072)	
log(RealGDP)				0.430*** (0.037)	
Tariff				0.104*** (0.009)	
log(Dist) x Exp12					-0.284* (0.155)
log(Dist) x Exp3plus					-0.131 (0.145)
Constant	-6.029*** (0.073)	-6.779*** (0.107)	10.113*** (0.616)	-5.979*** (1.543)	-6.695*** (0.119)
Observations	191,923	191,923	191,923	191,923	191,923
Number of groups	8,090	8,090	8,090	8,090	8,090
Region fixed effects	No	Yes	No	No	Yes
Log likelihood	-9,570	-8,941	-9,108	-9,056	-8,939

Source: Based on micro data presented in section 4.

Note: Piecewise exponential survival regression models. Robust standard errors in parenthesis. Constant omitted.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

Appendix table 4. Cox regression model, country-level FDI entry

	Model				
	(1)	(2)	(3)	(4)	(5)
Experience14	0.054 (0.064)	-0.049 (0.063)	-0.022 (0.063)	-0.079 (0.068)	2.303*** (0.747)
Experience5plus	0.957*** (0.041)	0.608*** (0.041)	0.699*** (0.042)	0.281*** (0.044)	0.895 (0.689)
log(Dist)			-1.605*** (0.046)	-1.564*** (0.045)	
log(Dist) x Exp14					-0.274*** (0.086)
log(Dist) x Exp5plus					-0.070 (0.080)
log(Prod)				0.201*** (0.033)	0.200*** (0.033)
log(Emp)				0.511*** (0.013)	0.509*** (0.012)
log(GDP)				0.647*** (0.026)	
Tariff				0.078*** (0.003)	
Observations	446,355	446,355	427,562	385,588	389,811
Region fixed effects	No	Yes	No	No	Yes
FDI entries	5,811	5,811	5,811	5,349	5,362
Log likelihood	-57,416	-55,209	-55,742	-48,952	-48,836

Source: Based on micro data presented in section 4.

Note: Cox regression models. Robust standard errors in parenthesis.

*, **, *** indicate significance at the 10, 5, and 1% level, respectively.

Green lemons: overcoming adverse selection in the green bond market*

Karim Henide^a

Abstract

As the green bond market continues to develop and assume a critical role as a post-pandemic vehicle for supporting a balanced economic rebuild and credible transition efforts, policymakers must reassess the current disclosure regime. This paper derives findings from Bayesian games to demonstrate that the prevailing labelling regime for green bonds is susceptible to the adverse selection problem; due to informational asymmetries, allocative inefficiencies arising from capital misallocation to inherently “non-green” bonds may ensue. To prevent the erosion of confidence in the market segment and support the potential of impact finance instruments to affect positive social and environmental change, this paper draws on established game theory frameworks to inform recommendations for policy-led solutions to uphold the market’s credibility. These recommendations concern the integration of a regulatory infrastructure, a centralized ongoing audit under an “exogenously costly” regime and the introduction of a clearer course for legal recourse against issuers that mislabel bonds.

Keywords: green bonds, Bayesian equilibria, voluntary disclosure, adverse selection

JEL classification codes: C70, G14, G18, M48, Q56

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1. Introduction

As a response to the climate free-rider problem, among other inextinguishable environmental and social issues, the impact finance market introduces a private sector-led solution that serves to internalize “externalities and adjust risk perceptions” (G20, 2016, p. 3), partially bypassing due government intervention.¹

Green bonds are unique instruments for financing sustainable development that will play a critical role in aligning economies with the Paris Agreement (UNFCCC, 2015). By virtue of issuers’ *use-of-proceeds pledges*,² investors obtain project-level positive impact exposure while maintaining issuer-level credit risk exposure. Research finds that some investors will apprehensively pay a premium for green bonds relative to their conventional curve – a phenomenon in economic and asset-pricing theory (Bakshi and Preclaw, 2015; Henide and Meyer, 2020) – incentivizing issuers with the prospect of capital arbitrage and a lower resulting cost of capital.

The incumbent labelling regime for green bonds, however, is susceptible to greenwashing. The result may be a source of inefficient capital allocation, eroding confidence in the green bond market and reducing the segment’s potential in affecting positive outcomes.

In pursuit of an allocatively efficient green bond market, optimizing the impact of each unit of investment, this paper contributes a theoretical framework anchored in Bayesian game theory for assessing market efficiency. Inferences from the games are discussed and practical recommendations for policymakers are derived from them; the inferences are also used to assess the proposed European Union Green Bond Standard (EU GBS) (European Commission, 2021).

The paper begins by discussing the contextual background and then characterizes the current regime, relating it to the Akerlof (1970) setting, the market for “lemons”, where the adverse selection problem arises as a result of asymmetric information between buyers and sellers. Once the notation and scaffolding for the Bayesian game are established, the paper identifies the inefficiencies of the “free voluntary disclosure” setting (Akerlof, 1970; Crawford and Sobel, 1982), which resembles the current regime. In pursuit of perfect allocative efficiency, the paper layers further features onto the Bayesian game, invoking “truthful disclosure” (Milgrom, 1981) and introducing “exogenously costly disclosure” (Verrecchia, 1983). It concludes by articulating the vulnerabilities of the current regime and proposing policy-led recommendations. These recommendations are further developed and related to the EU GBS, assuming that the voluntary label will operate in parallel with

¹ The impact finance segment consists of green and social finance. See ICMA (2020, p. 6).

² The hypothecation of issuance proceeds in legal documentation, where projects intended for (re)financing are outlined.

but not supersede the International Capital Markets Association (ICMA) Green Bond Principles, the most common voluntary framework and outline for best practices referenced in the issuance of green bonds globally. The paper outlines the implications of the recommendations on market dynamics and then the implications for corporate issuers of the EU GBS. Finally, the paper comments on the nature of striving for perfect allocative efficiency through policy and highlights a critical trade-off, the inclusivity of market participation. It questions the preferable balance between perfect efficiency and market inclusivity, and the impact of manipulating market participation standards on the systemic “green ambition” of issuers.

1.1. Historical development of the green bond market

In its simplest form, a green bond, as per the ICMA principles, contains four key components: (i) a pledge of proceeds – issuers commit to hypothecate raised proceeds to finance and/or refinance what ICMA terms “eligible activities” with clear environmental benefits; (ii) a process for project evaluation and selection – issuers must clearly communicate their objectives and their approach for selecting how the given project(s) fit within the scope of the eligible project categories outlined by ICMA; (iii) proceeds management – the outstanding balance of the raised proceeds, which is in theory ring-fenced for investment in eligible activities, is periodically adjusted on the basis of the to-date allocations of the proceeds; and (iv) reporting.

In this paper, “green bond” refers to standard green use-of-proceeds bonds (ICMA, 2021, p. 8). It is not interchangeable with “green project bond”, where recourse is to the project rather than the issuer, or “green revenue bond”. Standard green use-of-proceeds bonds are unique in their exposure, providing credit risk exposure to the issuer but direct and measurable positive impact exposure to the reference project(s); project impact is outlined by issuers that engage in transparent, periodical post-issuance reporting, as recommended by ICMA (table 1), which reflects information on the use of proceeds until there remains no outstanding balance to allocate.

The first sustainability-themed bond was issued by the International Finance Facility for Immunisation (IFFIm) in 2006 on behalf of Gavi, the Vaccine Alliance, and led by Goldman Sachs. The bond targeted positive social outcomes through facilitating a large-scale vaccination programme across emerging markets. Announced by Gordon Brown, the then sitting British Chancellor of the Exchequer, the \$1 billion of proceeds were pledged to support the immunization strategy for over half a billion impoverished children, across more than 60 nations, over a decade. Through the life of the issuance programme, IFFIm accessed \$6 billion in capital from 10 sovereign governments exclusively for financing Gavi's vaccination strategy.

Table 1. Comparing the key features of green and conventional bonds

Key features	Green	Conventional
Credit risk	Issuer	Issuer
Use of proceeds	Eligible projects	Unspecified
Disclosure of proportion of proceeds used for refinancing	Recommended	No
External review	Recommended	No
Publication of external review	Recommended	No
Social safeguards	Recommended	No
Impact monitoring and reporting	Recommended	No

Source: Based on ICMA (2021).

IFFIm has since been instrumental in shaping the ICMA Social Bond Principles and has adopted the voluntary framework. Together, the Green Bond Principles, the Social Bond Principles and the Sustainability Bond Guidelines published by ICMA form the three key pillars of the impact finance market. For simplicity, green bonds are referred to throughout the paper, but the inferences are applicable to the broader body of use-of-proceeds bonds in the impact finance market.

The green bond market emerged with issuances by multilateral banks, sub-sovereign agencies, and supranational institutions. Among the original adopters were the World Bank (the International Bank for Reconstruction and Development), the International Finance Corporation, the European Investment Bank, the European Bank for Reconstruction and Development, the African Development Bank, the Asian Development Bank and the Nordic Investment Bank. This context offers insight into the forthcoming discussion on the bona fide nature of the issuance market and the perceived lack of regulatory oversight. The Green Bond Principles are recommendations, but there is no central supervisory body that ensures the alignment of label adopters to the standards, penalizing violators accordingly, and the legal grounds for seeking a resolution against a label adopter that is not aligned with the standards are scant. To draw a parallel with accounting, for example, a developed ecosystem consists of standard-setters as well as regulators and auditors that operate on an ongoing basis, in which the latter evaluate mandated minimum disclosures, occurring during a periodical reporting schedule. The green bond market lacks both mandated ongoing audit and minimum disclosures, as well as a formal regulator to oversee and enforce the standards designed by the standard-setters. This is, though, a reductionist description that negates the multi-layered reality of accounting systems that include

regulators, monitoring entities and supervisors. Hence, this paper maintains that in its current form, the green bond market is subject to a perceived lack of regulatory oversight and a resulting lack of credibility in the enforcement mechanism.

1.2. Rationalizing the role of the green bond market

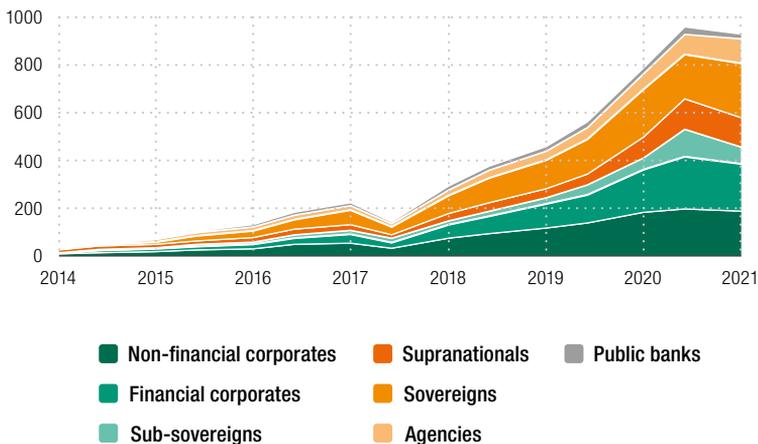
The existence and perceived success of green bonds poses a philosophical challenge to traditional economic theory on the role of organizations and the behaviour of rational investors. The green bond market offers a partial bypass to due government intervention, proposing a private sector-focused solution to the climate free-rider problem, and some investors will apprehensively pay a “greenium”, a green pricing premium, for a green bond with cash flows identical to a non-green equivalent (Bakshi and Preclaw, 2015, p. 2; Henide and Meyer, 2020, p. 7).

By paying a premium relative to an issuer’s non-green curve, holders of a green bond do not acquire any additional or superior claims, and they are not the residual claimants of the positive externalities; investors willingly pay a premium for a green bond, which produces an identical stream of cash flows – when held to maturity – to a non-green bond. Therein, investors incur an additional opportunity cost, but they do so cognizant that they are supporting the (re)financing of debt which will, *prima facie*, support the generation of some social and/or environmental benefit. This trade-off is referred to as the “cost of capital argument” (Flammer, 2021, p. 502). Investors’ opportunity cost is issuers’ potential cost of capital reduction; issuers of green bonds can look forward to the potential of reducing their cost of capital (Flammer, 2021). As such, observing or preserving the green bond pricing premium can be seen to be observing or preserving the economic incentive for issuers to engage in “debt greening”. Aside from the pricing premium of green bonds relative to their respective non-green curves, the cost of capital benefits relate additionally to the potential of a halo effect, by which issuers of green bonds observe a tightening in their non-green curves, thus lowering the potential cost of their non-green debt financing.

Furthermore, issuers can increase the saturation of sustainability-conscious investors in their stakeholder base (Flammer, 2021). The marginal sustainability-conscious investor is found to have a longer investment horizon in the aggregate (Baker et al., 2018; Flammer, 2021), providing longer-term orientation and “stickiness”. A greater degree of investor stickiness can be supportive of price stability throughout the credit cycle. Indeed, Ramel and Michaelsen (2020) find anecdotal evidence for green bond outperformance in “risk-off” periods – characteristically more volatile market environments in which investors tilt away from higher-risk and towards lower-risk investments. The anecdotal evidence noted by Ramel and Michaelsen (2020) refers to the outperformance of green bonds during the pandemic-induced sell-off.

As the market develops (figure 1), incremental penetration is dependent on – or constrained by – the credibility of the green bond label. Participation has drawn interest beyond the initial group of public institutions, multilateral development banks, agencies and supranationals, attracting the interest of profit-seeking corporations. With the broad-based growth of the market, the deficit in the surrounding regulatory infrastructure and the resulting perceived lack of credible enforcement have prompted challenges from investors that fear that some issuers of green bonds may be engaging in greenwashing and that some issuances of green bonds are merely labelling exercises, unaccompanied by appropriate capital allocation actions. Upholding and bolstering confidence in this financing segment is key to ensuring that it is used effectively to support a balanced economic transition; a laissez-faire bona fide approach may have been sufficient while the green bond label was being established as a financing concept among non-profit-seeking public institutions, but policymakers should demonstrate haste in reacting to the development of the market and safeguarding it from the potentially misaligned incentives of value-maximizing issuers. Reinforcing the market is critical to maximizing its potential as a source of critical development finance and preserving it as an instrument for accelerating credible transitions. Reforming the market in pursuit of perfect allocation efficiency requires pivoting away from standards that are built on recommended best practices and relying instead on regulations and mandated minimum requirements.

Figure 1. Impact finance market value by segment, 2014–2021 (\$ billion)



Source: Based on IHS Markit data.

Note: Capturing all rated EUR, USD, GBP and CAD-denominated issuances larger than 250 million (300 million for CAD) in local currency, with a minimum original maturity of 18 months.

As this paper explores, under a voluntary disclosure regime, in which issuers are unencumbered by any costs when disclosing falsehoods, there exists an incentive to (mis)label a bond as green, given the opportunity to send a signal to stakeholders that ultimately yields benefits in the capital markets and enhances broader social perceptions, although the latter remains out of the scope of this paper. The regime in focus is identical in nature to the current labelling regime, which is unregulated and can be virtually costless, depending on the approach of the issuer.

The issue with this regime is the conception of the adverse selection setting (Akerlof, 1970), which facilitates the misallocation of economic resources through the best responses of rational investors, given their observations. This can erode confidence in this market segment. This paper considers Bayesian equilibria in different settings, from the lens of academic frameworks concerning auction markets and firm disclosure, developed and refined by Crawford and Sobel (1982), Milgrom (1981), Jung and Kwon (1988), Myers and Majluf (1984) and Verrecchia (1983). It evaluates the problem of free disclosure, makes inferences and proposes policy-led solutions to overcome potential issues of adverse selection. The focus of the recommendations in this paper is on rational profit-seeking, value-maximizing corporate issuers in the primary market.

In particular, this paper finds grounding in Bayesian game theory to support a top-down pivot of the market regime to one that is exogenously costly for issuers that wish to label their bonds as green. In addition, it rationalizes, from game theory inferences, the integration of a regulatory infrastructure and centralized ongoing audit to serve as an oversight mechanism for the issuance of self-labelled green bonds and the management of their proceeds, as well as a clearer course for legal recourse against issuers that mislabel bonds. This paper proposes that punitive measures for issuers found to mislabel their bonds – greenwashing, by extension – should carry a sufficiently costly deterrent to form an economic disincentive, preventing the (mis)labelling of inherently non-green bonds as green.

1.3. Green bonds in a post-pandemic world

As cumulative issuance of green bonds has crossed the \$1 trillion mark, the green bond market is becoming systemically ingrained. Forecasts from Moody's suggest another record on the horizon for historical annual bond issuance record (\$650 billion) (Environmental Finance, 2021, p.14). The onset of the pandemic saw a broad contribution to the academic corpus on the pandemic as a catalyst for a sustainable transition, which was echoed by policymakers and leaders globally; "build back better" became a slogan adopted by world leaders on both sides of the Atlantic Ocean.

When executed aptly, the targeted, measurable, forward-looking and project-specific nature of green bonds renders them an ideal, directed, instrument for financing positively impactful projects, aligned with science-based targets.

The impact finance market critically provides not only a process for mitigating objectionable activity but for investing in facilitative green or greening activity. Furthermore, it is an approach that is more concerned with the future intentions of issuers rather than their sustainability profiles, which derive from historical decisions and can be inequitably tainted by the structural (dis)advantages of an issuer, given their geography or primary activity, *inter alia*. Incentivizing future impact and explicitly tethering proceeds to projects provides a greater degree of transparency and foresight for stakeholders over the trajectory of issuer activity. In a post-pandemic world focused on delivering credible transitions, the green bond market can be a powerful tool in the investment ecosystem for influencing social and economic realignment, in line with ambitious goals such as those set out in the Paris Agreement (UNFCCC, 2015).

Given the expected importance of the role of the green bond market in supporting the financing of a green transition, the findings and resulting recommendations of this paper are contextually relevant. The recent developments in the EU GBS are also referenced, compared and contrasted with the recommendations deduced from Bayesian games. Furthermore, the European Central Bank and the Bank of England recently solicited feedback regarding the greening of their corporate bond purchasing schemes; ensuring that the market infrastructure is reliable will form a constructive basis for material engagement, particularly by public institutions. This further emphasizes the relevance of the findings and the recommendations of the paper, which are motivated by a desire to uphold confidence in the market and improve allocative efficiency.

2. The current labelling regime for green bonds

Under the prevailing conditions, an issuer of a green bond following a common international standard typically does so by self-labelling a bond as green and integrating the associated language in the bond's prospectus, offering circular and/or final terms documentation. The language typically expresses an issuer's intentions and alignment through a use-of-proceeds pledge.³ Green self-labelling is also commonly accompanied by a green bond framework, which is a more comprehensive document, detailing topics such as the process for evaluating eligible projects, management of and reporting on the allocation of proceeds, alignment with international standards (which is not limited to specific green bond standards) and governance of the green financing process.

³ Although use of proceeds may be legally integrated in an issuer's marketing documentation, the principle of *caveat emptor* prevails: issuers may equivocate liability through the structuring of their legal language, commonly explicitly negating any responsibility for the allocation of proceeds outside of the pledged eligible project set. This is one indication of the perceived lack of credible legal recourse for investors in cases of greenwashing.

The language of a green bond framework is informed by and usually seeks to fulfil the guidance and principles set out by international standard-setters but is not legally bound by them.⁴ Such principles and guidelines are recommendations of best practices, hence the market foundations are *bona fide*, rather than *lex scripta* (written law), in nature. There is a perceived deficit in the oversight infrastructure, with negligible legal recourse or remedy for buyers of green-labelled but inherently non-green bonds. The use of the green label and the subsequent management of proceeds are guided by voluntary principles and are unregulated; the current *laissez-faire* labelling regime relies on the market's self-maintenance and internalization of bond "greenness".

As a partial solution to the credibility problem, some issuers undergo some voluntary form of pre-issuance and post-issuance green audit, in which they solicit external certification. Pre-issuance, issuers may opt for a second-party opinion, third-party assurance or a green bond rating. Post-issuance, they may commission an assurance report or verification, alongside their impact reporting. Both pre-issuance and post-issuance external certification paths entail fees. An external review can be publicized as a third-party attestation to the perceived quality (greenness) of a green bond issuance, or simply alignment. Third-party assurance indicates alignment – to major international standards, for example. Deschryver and De Mariz (2020) find survey evidence of investors relying on external certification, auditing or expertise in finding comfort that a green bond follows best practices, more so than through investors conducting their own due diligence and following internal guidelines. ICMA currently publishes on its website a list of 23 green bond external reviewers that have "contributed to, and confirmed that they will voluntarily align with the Guidelines consistent with any regulatory obligations".⁵ Despite its perceived importance to the market architecture and to upholding investor confidence, the external review process (in particular, by second-party opinion providers) remains decentralized and unregulated; ICMA's disclaimer about the list advises that "ICMA has not investigated or confirmed compliance by the external reviewers with the Guidelines, nor does it recommend, endorse or make any representations regarding the external reviewers listed".⁶ This is an issue in the crosshairs of the European Commission, which has advised that under the EU GBS, external verifiers of eligible bonds would be registered with and supervised by the European Securities and Markets Authority (ESMA), the operator of the external verification scheme.

⁴ Most prominently, ICMA. Other standard-setters include the People's Bank of China, the ASEAN Capital Markets Forum (co-ordinated with ICMA) and Japan's Ministry of the Environment.

⁵ International Capital Markets Association, External reviews, www.icmagroup.org/sustainable-finance/external-reviews (accessed 30 August 2021).

⁶ *Ibid.*

Reviewers then will be required to “meet the conditions for registration”, set out in Article 15(2), on an ongoing basis, as stipulated in Article 14 (European Commission, 2021).

Aside from the problems of the decentralized and unsupervised nature of external reviewers, conflicts of interest may arise. For example, a framework under review in an assessment may have been designed in partnership with the reviewer, posing challenges to objectivity and review independence, particularly under a *laissez-faire* labelling regime. Furthermore, most third-party review activity is conducted prior to or early in the life of an issuance, at a single point in time. Opinions are developed by assessing public documentation that is based on the intentions of the issuer, rather than observed realities. The current regime lacks mandatory, formal, continuous oversight. The issue of the perceived deficit in ongoing oversight is a free-rider problem that requires public sector intervention; external reviewers are not inherently incentivized to produce recurring opinions, to publicly disclose the results of ongoing assessments or to pool their experiential capital with other coordinators to improve assessment quality. It is also unclear how effective a coordinated standardized approach towards ongoing external assessment would be without developed enforcement infrastructure.

Fundamentally, the issue to address in the green bond market is one of uncertainty and asymmetric information about the quality of issuance, whereby both inherently green and inherently non-green issuers coexist in the market and whereby investors are susceptible to misallocating proceeds given the uncertainty about the inherent quality of the bonds observed in the market. Resolving this problem, by disproportionately disincentivizing participation by issuers of inherently non-green bonds, is critical to maximizing the positive impact potential of the market.

We can characterize the current market distinctly as an Akerlof (1970) setting, given the uncertainty about green bond quality, or greenness and the inherent asymmetry of information that exists among issuers and purchasers of green bonds. Recognizing the nature of the market, we can adapt the established academic corpus surrounding game theory, and in particular Bayesian games, to extrapolate policy-led solutions for the problems of the green bond market, encompassing the perceived deficit in the regulatory infrastructure. George Akerlof’s work regarding asymmetric information, which sets the foundation for our framework, contributed to his receipt of the 2001 Nobel Memorial Prize in Economic Sciences. Akerlof (1970, pp. 489–490) draws on an analogy from the automobile market to demonstrate that there is inherent uncertainty regarding the difference in quality of a car that a consumer may wish to purchase. A buyer in a showroom, as Akerlof (1970) frames it, may end up purchasing a good car, with probability q , or a “lemon”, an inherently bad car, with probability $1 - q$. Given the uncertainty of the buyer and the inaccuracy of their estimate of q at initial purchase, buyers’ most efficient strategy is to bid the conditional expectation given

what they observe – that is, the estimated probability of purchasing a good car or a lemon. When rational buyers play their most efficient strategy, they systematically overbid for lemons and underbid for good cars. This is the conception of the adverse selection problem and is the outline of a basic game, from which one can begin to model and resolve issues arising from Bayesian games.

3. Defining the adverse selection setting

This section introduces the basic “lemons problem”, the players in the game, their associated action spaces, their pay-offs and the prior probability of purchasing green debt or a lemon as observed in the market. This foundational adverse selection setting is the platform upon which our subsequent Bayesian games are built and assessed. The notation remains consistent throughout this paper.

Having established the basic adverse selection setting, the perfect Bayesian equilibrium (PBE), we then derive the most efficient bidding strategy for potential buyers and discuss the intuition. The implications of this Bayesian game concerning fixed-income instruments are compared and contrasted with those of games concerning equity instruments. The variations, arising because of differences in their respective pay-offs, are also discussed.

3.1. Notation

Within our Akerlof (1970) setting, we define issuers (denoted by M) issuing green debt and a pool of potential buyers (denoted by B). We assume that both sets of agents are rational, risk neutral and value-maximizing and that the universe of agents is sufficiently large and unconstrained by frictions to presume that the no-arbitrage condition prevails.

We denote the price paid in the primary market for the issued debt by P . The true worth of the issued debt, x , can take only one of two values, B , with probability p , or G , with probability $1 - p$, where $G > B$. True to the nature of asymmetric markets, we assume that the issuer always observes the true worth of their debt, whereas the pool of potential buyers only observe the prior distribution of the true worth of the debt, inferring the true worth (expected value) of the debt, x , which is equal to B with probability p and G with probability $1 - p$. Intuitively, prospective buyers cannot clearly distinguish between the quality of the bonds that they observe at purchase, but they know the probability and intrinsic value of purchasing debt G and B , respectively, which informs their optimal bidding strategy.

The pay-off to the issuer, π^M , can take either the form of the price obtained in the existence of a transaction or zero, in the event that a transaction does not occur. This is illustrated by:

$$\begin{cases} \pi^M = P \text{ if a transaction occurs} \\ \pi^M = 0 \text{ if a transaction does not occur} \end{cases}$$

By contrast, the pay-off to the pool of potential buyers, π^B , can take either the form of the true value of the debt minus the price paid, with the existence of a transaction, or zero, in the event that a transaction does not occur. This is illustrated by:

$$\begin{cases} \pi^B = x - P \text{ if a transaction occurs} \\ \pi^B = 0 \text{ if a transaction does not occur} \end{cases}$$

Here, we establish the pay-offs to the issuers and potential buyers. For an issuer of debt, success in issuing debt yields price P . When debt is not successfully placed, the pay-off to a debt issuer is zero, which contrasts with an issuer of equity that retains the intrinsic value of their equity ownership. For a potential buyer, the pay-off of a debt purchase is the difference between the price paid, P , and the intrinsic value of the debt, x . Naturally, in the case of no transaction occurring, the pay-off is strictly zero.

3.2. Decisions, responses and perfect Bayesian equilibria

The issuer's decision is limited to whether it should issue debt, S , or abstain from doing so, NS . Given the issuer's privately held information concerning the true worth of the debt, its response is contingent on potential buyers' bidding strategy relative to the true worth of the debt.

As potential buyers are not privy to the true worth of the debt, their collective bidding strategy, $P(X)$, is identical to and independent of the true worth of the debt.

In this scenario, only the following PBE can obtain:

$$[B : S, G : S; P(S) = E(x|S)]$$

Where $E(x|S)$ is the conditional expectation of the true worth, x , of the debt being issued, given the universe of debt for sale, S . This is effectively a weighted average of the true worth of the debt. As such, in this scenario $B < E(x|S) < G$.

Thus, issuers of both debt G and debt B are inclined to issue debt, even though the former recognizes a suboptimal bid, relative to the true value of its debt. This scenario contrasts starkly to the adverse selection setting in equity markets, where two PBE can obtain, where for firms of worth G , selling is off-equilibrium and not played in the strategy profile:

$$[B : S, G : NS; P(S) = B]$$

$$[B : NS, G : NS; P(S) = B]$$

where potential buyers of equity believe, using Bayes' rule (Bayes, 1763), that firms for sale are bad. When investors update their prior beliefs to reflect the optimal strategy of firms of worth G , their posterior beliefs indicate that only firms of worth G will be motivated to issue equity.

The fundamental difference driving the contrast in strategy profiles is the pay-off of a potential buyer of equity in a scenario where a transaction does not occur. Whereas the opportunity cost for a debt issuer of a transaction occurring is zero, an equity issuer retains the true worth of the firm, x , in the absence of a transaction. This provides equity issuers with embedded optionality not afforded to debt issuers and a strict incentive to deviate from selling their firms where $P(S) < G$. Similarly, but conversely, we then assume that a debt issuer is always inclined to issue debt (where $P(S) > 0$), given the pay-off in the event of a transaction not occurring. By extension, we assume that debt issuers are not indifferent about the source of capital raised. The difference in pay-offs can also be related to the pecking-order theory of capital structure (Myers and Majluf, 1984).

The result of the differences in the two capital issuers' pay-offs is that debt issuers are assumed to always be better off issuing debt than not, which is not the case for equity issuers, which observe a partial or total collapse in equity markets where equity issuers are not effectively forced to sell their firms and where the issuers are indifferent between abstaining from selling their firms and playing their equilibrium strategies. Throughout the following discussion, we assume that, where economic agents are indifferent between playing their equilibrium strategies and deviating, they will play their equilibrium strategy.

4. Free voluntary disclosure

Having defined a platform and notation for our game, we introduce a series of disclosure regimes and consider the resulting optimal strategies, inferring insights in pursuit of setting a design that facilitates perfect allocative efficiency. Such a conceptual setting that allows investors to distinguish between inherently green and non-green issuers, and by extension maintain confidence in the green bond market, depends on obtaining a separating equilibrium.

We begin by introducing basic free disclosure into our game. The free disclosure regime resembles the current regime for green bond labelling. We adapt the work of Crawford and Sobel (1982) to restrict the message space to green bond labelling, where the following relevant messages can be communicated by the issuer issuing debt: " G ", representative of "my debt is green" or " B ", representative of "my debt is non-green". The issuer may also elect not to disclose a message altogether (ND).

Practically, issuers can make disclosure " G " by integrating their intentions in their use-of-proceeds pledges in their prospectuses or final terms documentation.

Mirroring the current regime of voluntary processes, issuers' disclosures are not regulated; we assume no legal recourse or remedy in the case of greenwashing, where "G" is falsely claimed by issuers of debt that is inherently B. We infer from this that green labelling alone under this regime is not a credible market signal.

In this game construct only one PBE can obtain:

$$[B : "G", G : "G"; P(S) = E(x|S)]$$

Crucially, it not possible to obtain a separating equilibrium where the issuer of debt G is able to recognize the true worth of its debt. The issuer remains better off than not engaging in the transaction (pay-off zero) and hence does not have a strict incentive to deviate but recognizes a suboptimal value for the issuance. The issuer of debt B, unaffected by the factual inaccuracy of its disclosure, recognizes a value for the debt in excess of its true worth.

We reiterate here the proposition of Crawford and Sobel (1982), that voluntary disclosures cannot resolve adverse selection if they lack credibility, and herein lies a transferable inference for the green bond market. Across a broad continuum of debt, debt of true worth greater than x , where $E(x|S) < x \leq G$, is strictly disadvantaged as a result of capital misallocation. Buyers of inherently non-green bonds, under the expectation that they are green bonds, given the disclosure "G" that they observe, are incurring an unnecessary investment cost, $E(x|S) - B$, and an opportunity cost of potentially effecting greater positive impact through investing in an inherently green bond.

As with Akerlof's basic lemons problem, under this setting the market contains both green and inherently non-green debt and prospective buyers cannot effectively distinguish between the two types. As a result, the most efficient strategy constitutes bidding the conditional expectation of the market and thus over-rewarding inherently non-green issuers, by value $E(x|S) - B$, and under-rewarding inherently green issuers, by value $G - E(x|S)$. This incurs an opportunity cost of effecting marginal positive impact.

5. Truthful disclosure

Recalibrating our game to one of strictly truthful and relevant disclosures (Milgrom, 1981), we consider the best response of potential buyers of debt in resolving the adverse selection problem. Intuitively, truth resolves the problem of informational asymmetry between issuers and buyers of debt, a facilitative setting for a separating equilibrium to obtain.

In this setting we constrain issuers to sending messages that are reflective of the inherent value of their debt, such that issuers of truly green debt, G, are capable of

either disclosing “*G*” or withholding disclosure altogether (*ND*). Similarly, issuers of inherently non-green debt, *B*, are limited to disclosing “*B*” or withholding disclosure altogether (*ND*).

Given the setting, two separating PBE obtain:

$$[B : “B”, G : “G”; P(“B”) = B, P(“G”) = G]$$

$$[B : ND, G : “G”; P(ND) = B, P(“G”) = G]$$

Realistically, given Milgrom’s (1981) unravelling argument, an issuer that is strictly worse off by disclosing truthfully will refrain from disclosing altogether in a truthful disclosure regime. Cognizant of the disincentives of truthful disclosure of non-green debt issuers, potential buyers of debt will bid *B*. This reaffirms Ross (1979): agents with an incentive to obtain a separating equilibrium will be motivated to disclose voluntarily their private information.

Milgrom’s framework provides us with reassurance that a separating equilibrium can obtain and that there is a solution to the adverse selection problem in the Akerlof (1970) setting; however, the truthful regime that allows us to obtain this benign outcome is abstract: how can issuers be bound to only disclosing truthfully? Verrecchia’s (1983) developments provide us with a practical impetus and economic incentive for enforcing truthful disclosure among rational value-maximizing issuers.

6. Exogenously costly disclosure

Drawing on the truthful disclosure regime, we introduce the contributions of Verrecchia (1983) to allow issuers to disclose any relevant messages freely, but we impose a verification cost, *C*, upon the disclosure of messages. Verrecchia’s regime of costly disclosure is considered to be exogenous as the fee required to disclose is not explained by but rather produced outside of the economic model.

While the verification cost *C* is sufficiently low, such that $C \leq G - B$, issuers of inherently green debt have a strict incentive to voluntarily communicate “*G*” to the market. As long as the verification cost is greater than zero and the verification process is perfect, the best strategy of issuers issuing inherently non-green debt is to withhold disclosure altogether, *ND*. As such, a single separating PBE obtains:

$$[B : ND, G : “G”; P(ND) = B, P(“G”) = G]$$

If we were to restrict verification costs to only disclosures of “*G*” and “*B*”, one further separating equilibrium obtains:

$$[B : “B”, G : “G”; P(“B”) = B, P(“G”) = G]$$

While potential buyers cannot use Bayes' rule to form their posterior beliefs, disclosures are constrained to be truthful, and hence, it will be assumed that $P("B") = B$ and $P("G") = G$.

Given our assumptions within the game construct, we find that an exogenously costly disclosure regime can be a platform for resolving the adverse selection problem in the Akerlof (1970) setting; we demonstrate that a PBE does exist where verification costs are sufficiently low, the verification process is perfect and messages are thus credible. When considering practical applications of Bayesian equilibria to inform policy recommendations for the enforcement infrastructure that governs green bond issuance, we must consider further the limiting factors to the PBE that we have established. This model provides us with a framework that relies on economic incentives to influence the behaviours of rational value-maximizing issuers in order to improve the allocative efficiency of the market.

Exogenously costly disclosure. The green bond market should operate strictly under an exogenously costly disclosure regime.

In the case of the green bond market, there is currently no central regulator. The assumption of the European Commission as the de facto leader in developing an international gold standard would position the Commission ideally to propose the integration of its standard into the legislative and regulatory institutions of the European Union. The formal regulator would be in a position to define and levy the exogenous cost upon issuers wishing to adopt the labels aligned with the EU GBS. EU institutions such as the Committee of European Auditing Oversight Bodies have an established track record in consulting with a broad base of financial institutions as well as in issuing and overseeing directives and regulations to optimize the process of issuer reporting and statutory auditing.

As a further assessment of the model to explore the practicalities, having identified the constraints to verification costs that render a separating PBE viable ($0 < C \leq G - B$), we now consider the realistic expectation that the verification process is imperfect. Specifically, we define the accuracy of the green audit, correcting for expected failures, as quality, q , and investigate the importance of disclosure credibility.

We recall Verrecchia's costly exogenous disclosure setting, allowing issuers to send the message " B " (representative of "my debt is non-green") or withhold disclosure altogether, ND , costlessly, but impose a verification cost, C , upon messages of type " G " (representative of "my debt is green"). As a result of the verification process, issuers declaring " G " receive a public green audit report detailing either a confirmation, g , that the alleged green bond is indeed green, or b , signalling to the market that the claim " G " by the issuer is a falsehood. We assume that green audit reports of inherently green issuers always yield report g , but impose a quality restriction, q , on the audit of inherently non-green issuers claiming to be green, " G ".

This represents “slippage”, or the positive expectation that an inherently non-green issuer is able to falsely claim that its debt is green and have this disclosure be credibly reaffirmed, g , with probability $1 - q$:

$$\begin{cases} p(g|G) = 1 \\ p(b|B) = q \text{ with } 0 < q < 1 \end{cases}$$

We assume that a green auditor operates under the principle of *ei incumbit probatio, qui dicit, non qui negat*,⁷ whereby a bond disclosed as green is assumed to be so, unless a discrepancy is found. In the case of the inherently green issuer, no such discrepancy exists, but the quality constraint when auditing inherently non-green debt represents the chance of a discrepancy not being identified.

In this setting, two PBE obtain:

$$\begin{aligned} [B : ND, G : "G"; P(ND) = B, P("G", A, g) = g] \\ [B : "B", G : "G"; P(ND) = B, P("G", A, g) = g] \end{aligned}$$

Mandatory green audit. The green audit process should be standardized (universal) and integrated into the legal enforcement infrastructure. A high quality of audit must also be upheld.

The proposals of the EU GBS outline the intention to have ESMA formally oversee and verify external verification processes, which would be mandated. In addition, the EU GBS proposes standardized minimum reporting. Use-of-proceeds pledges will also be required in legal documentation, but no clear enforcement function has been identified in the proposals and the issue of liability equivocation has not been explicitly addressed. Furthermore, it is unclear how extensive the audit process will be; the reporting reconciliation process and the alignment assessment of impact measurement methods, such as carbon accounting, remain undefined. Prescribing a thorough audit regime is critical to upholding audit quality.

The PBE are constrained by conditions concerning the cost and quality of verification, which must be satisfied:

$$(1 - q)(G - B) \leq F \leq G - B$$

From this we can infer that the separating strategy profile is in equilibrium while the audit fee is sufficiently high and, simultaneously, sufficiently low such that rational

⁷ A legal maxim, expressing the presumption of innocence: “Proof lies on him [sic] who asserts, not on him who denies”.

issuers issuing inherently non-green debt are disincentivized from sending the audited message “G” (or strictly disincentivized from deviating and pooling with the managers of the inherently green debt), and rational issuers of the inherently green debt are strictly incentivized to send the audited message “G”.

Fee optimization. The cost of label verification should be sufficiently low to prevent disincentives for issuers of inherently green bonds, but sufficiently high to prevent issuers of inherently non-green bonds from green labelling (although this is simultaneously dependent on the quality level of the green audit).

Asymmetric deterrence supplementing fee optimization. A secondary class of cost should be introduced to penalize greenwashers. There should be a penalty and clearer course of legal recourse to disproportionately deter issuers of inherently non-green debt from (mis)labelling their bonds as green. This requires the public provision of a centralized supranational label oversight infrastructure and enforcement mechanism, operating to review labelled issuances throughout a continuous cycle.

Centralized enforcement supplementing asymmetric deterrence. Effective continuous oversight must be accompanied by the mandating of minimum disclosures, referencing a designated reporting template and a publication schedule.

When we consider the practical applications of these inferences, we must consider that the true worth or greenness of issuance may be subject to change, absent of any changes in the broader market. As such, the audit process must be considered as a continuous process that tracks the allocation of capital against the proposed use of proceeds to monitor possible greenwashing. Furthermore, when we consider the audit cost, C , the level of flexibility of altering costs to disincentivize inherently non-green issuers of debt from sending the message “G” is constrained by the imperfect quality of audit and the equal and opposite impact on incentivizing issuers of inherently green issuers from sending the message “G”. There is, however, an additional class of costs that can be levied on market participants which affects issuers of inherently bad debt disproportionately; penalties for greenwashing and clear paths for legal recourse, inter alia, can be considered for disincentivizing the participation of inherent non-green issuers in the green bond market. The expected financial and reputational cost for an inherently non-green issuer is substantially higher than that of an inherently green issuer when issuing the message “G”.

7. Discussion and policy implications

In this section, we reflect on the incumbent labelling regime, deriving insights from our Bayesian games, and recommend corrective policy measures for policymakers and regulators, drawing more widely upon the mechanics of reporting and enforcement mechanisms from financial market literature. The recommendations outlined are compared and contrasted with the proposed EU GBS regulation, drawing further upon our Bayesian games. Finally, the expected implications of the enactment of the proposed recommendations and, separately, the enactment of the proposed EU GBS regulation by the European Commission are discussed.

7.1. The vulnerabilities of the current labelling regime for green bonds

Borrowing the frameworks developed and refined by Jung and Kwon (1988), Milgrom (1981), Myers and Majluf (1984), Sobel (1982) and Verrecchia (1983), we illustrate that a free (voluntary) disclosure regime, mirroring the one that the green bond market currently operates under, can only obtain suboptimal capital allocation solutions in the PBE in the Akerlof (1970) setting. The economic incentives inherent in the current regime leave the market susceptible to greenwashing as issuers of inherently non-green bonds pool with issuers of inherently green bonds, sending a virtually identical signal to the market; when both inherently non-green and green bonds issuers send a similar signal, the ability to distinguish between the green quality of the issuances becomes inconsistent and unreliable. As such, investors bid the conditional expectation given what they observe across the market. This results in adverse selection, as investors invariably purchase inherently non-green bonds and contribute to the systematic over- or underpricing of inherently non-green or green bonds. This adverse selection issue persists as limitations exist on issuers of inherently green debt from credibly distinguishing themselves and obtaining a separating equilibrium; issuers of non-green debt are strictly disincentivized from deviating and, instead, pooling (albeit unfaithfully, considering their private information of the true greenness of their debt, if we assume that the issuers themselves are cognizant of whether or not their type of debt is inherently green).

7.2. Addressing the vulnerabilities of the current labelling regime for green bonds: recommendations for policymakers and regulators

Despite the current constraints on obtaining a separating equilibrium, we find that a separating equilibrium can obtain under an exogenously costly disclosure regime, given a set of conditions regarding the quality and cost of credible verifications.

Based on the inferences, we can propose the following policy recommendations developed earlier:

Exogenously costly disclosure. *The green bond market should operate strictly under an exogenously costly disclosure regime.*

In practice, this requires an external cost to be levied on all adopters of the green bond label; *mandatory green audit* provides us with an impetus for this and *fee optimization* provides a theoretical framework for defining costs.

Mandatory green audit. *The green audit process should be standardized (universal) and integrated into the legal enforcement infrastructure. A high quality of audit must also be upheld.*

The auditor, in practice, is the green bond external verifier (this language is used interchangeably with second-party opinion providers). Currently, these entities are unsupervised and no enforcement mechanism exists. The infrastructure is devoid of a regulatory or monitoring body, which are required to uphold enforcement and, by extension, label credibility. Drawing parallels from financial markets, the regulator is typically a government or supranational agency. There is currently no clear ownership of green bond regulation at the sovereign or the supranational level. Although the EU GBS is not proposed to supersede the ICMA principles and guidelines by the TEG, it hypothetically offers an alternative route for participants to engage in the market, with a greater degree of supervision. *Asymmetric deterrence* and *centralized enforcement* provide a conceptual elaboration on the enforcement process.

Fee optimization. *The cost of label verification should be sufficiently low to prevent disincentives for issuers of inherently green bonds, but sufficiently high to prevent issuers of inherently non-green bonds from green labelling (although this is simultaneously dependent on the quality level of the green audit).*

Building upon *exogenously costly disclosure*, the label verification cost can be the impetus for imposing a cost on label adopters. This should be operated under the purview of the regulating bond, which as of yet has not been established. The cost, however, must satisfy the delicate compound inequality established in section 6, such that there remains an economic incentive for issuers of inherently green debt and a strict disincentive for those of inherently non-green debt, adjusting for the slippage that arises from deficiencies in the quality of the green audit. This presents a contingency: the labelling fee should be within the bounds of the pricing premium, such that there is a net benefit for issuers. A further question arises about the isolation of the observed premium. For an issuer engaging for the first time in the market, in addition to the greenium, their non-green debt curve may also be a beneficiary of the halo effect.⁸ A challenge for a regulator in establishing

⁸ See, inter alia, Krebbers (2019).

fees will be setting them to satisfy the compound inequality, which relies on the observed pricing premium of an inherently green, green-labelled bond relative to a non-green bond, which is not a stationary concept.⁹ Furthermore, regulators would have to establish a fee model that is either flat across all issuances or variable – for example, depending on the size of the issuance (or the issuer), the complexity of assessment required or the time to maturity of the bond at issuance. These factors and the design of the fees may be a source of additional economic incentives or disincentives that could motivate a change in the structure of the market, shaping the frequency, size and duration risk exposure of issuances in the aggregate.

Asymmetric deterrence supplementing fee optimization. *A secondary class of cost should be introduced to penalize greenwashers. There should be a penalty and clearer course of legal recourse to disproportionately deter issuers of inherently non-green debt from mislabelling their bonds as green. This requires the public provision of a centralized supranational label oversight infrastructure and an enforcement mechanism, operating to review labelled issuances throughout a continuous cycle.*

Once a regulator is established, a mandate based on the principles of the standard-setters should be enacted into supranational or jurisdictional laws, through regulations or directives to empower the regulator with the legal apparatus to initiate disciplinary proceedings against issuers of inherently non-green bonds that mislabel their bonds as green, and to send a credible enforcement signal to the market.

Centralized enforcement supplementing asymmetric deterrence. *Effective continuous oversight must be accompanied by the mandating of minimum disclosures, referencing a designated reporting template and a publication schedule.*

Oversight by the regulator and the associated infrastructure would require periodical disclosures, similar to the minimum disclosure and frequency requirements and associated penalties of standard financial reporting.

7.3. Policy implications in the context of the EU GBS

The Technical Expert Group (TEG), set up by the European Commission, was presented with formal actions under the Commission's Action Plan on Financing Sustainable Growth aligned with the Commission's legislative proposals that included (Action 2) assisting in the formulation of an EU GBS, an envisioned gold standard for issuers seeking to participate in the green bond market.

⁹ Could the balance of the perceived market green bond premium, which may oscillate over time, and a stable fee regime alter the natural pattern of issuance and influence swings in greening behaviour throughout the economic cycle?

The TEG (2019) explicitly identifies several of the perceived barriers preventing the development of the green bond market. The following paragraphs relate the EU GBS proposals to the recommendations formed from the Bayesian game theory insights explored in this paper.

Exogenously costly disclosure and fee optimization

In contrast to the recommendations derived from our Bayesian games, the EU GBS proposals aim to reduce the “complexity and costliness” of reporting and external verification through the standardization and streamlining of verification processes, as outlined explicitly by the TEG (2020, p. 12). In isolation, this may seem like an antithetical precedent that enhances the economic incentive for issuers of inherently non-green debt to pool with issuers of inherently green debt in engaging in green labelling, if the fee reduction causes the cost of the fees to be exceeded by a function of the pricing premium of the inherently green bond to a non-green comparator and the audit slippage. The fee structure has yet to be finalized, but the purported reduction in complexity and costliness may not apply to low-touch issuers, which, for example, may have not commissioned an external review or verification (which under the EU GBS becomes a requirement) or invested substantially in designing a framework and proceeds-management processes. Inherently low-touch issuers will likely be dissuaded altogether from engaging in EU GBS label adoption because of the higher, broad-based obstacles introduced in the proposed regulation. As such, the reduction in “complexity and costliness” in the context of the body of the TEG’s proposals may be viewed as a disproportionate economic incentive for issuers of inherently green bonds, in line with the precedent established from our Bayesian games. We can derive the extent of the incentive or disincentive conceptually by considering the reduction cost of green labelling (F) relative to the observed premium of an inherently green bond relative to a non-green comparator and the observed quality of audit, in the compound inequality established in section 6. Policymakers should be cognizant of proposals that introduce disproportionate incentives or disincentives to different groups of issuers as these may result in a bifurcation in the inherent cost of green labelling for each group. This would require us to consider the effective cost of green labelling and the satisfaction of the underlying constraints for each group separately. Policies that motivate greater signal differentiation and support the obtainment of a separating equilibrium are desirable in the pursuit of perfect market efficiency.

Mandatory green audit

In pursuit of reassuring issuers concerned about “reputational risks and [the lack of clarity of] green definitions” (TEG, 2020, p. 12), the EU GBS “builds on the EU Taxonomy to clarify green definitions” and “foresees a robust registration scheme for external verifiers and a clarification of their role and responsibilities to verify EU

Taxonomy alignment.... Furthermore, reporting is expanded and standardised, requiring issuers to report on impact as well as clarify up front their impact reporting methodology”.

The language and intentions expressed by the EU GBS align with the spirit of a *mandatory green audit*; that is, the quality of the green audit, q , should be upheld to minimize the leakage (or slippage) of inherently non-green bonds into the market and, by extension, the inherent economic incentive for issuers of non-green bonds to mislabel their debt. The extent of the increased economic disincentive can be derived by considering the increase in q , in relation to the observed premium and the cost of issuance, from the compound inequality established in section 6.

A critical point is that the proposals ensure that the external verifier accreditation scheme will be centralized and operated by ESMA, which is presumably supportive of the consistency and the quality of verification. There will be a voluntary interim registration scheme for an estimated transition period of up to three years (TEG, 2019, p. 13).

Asymmetric deterrence and centralized enforcement

Whereas the ICMA Green Bond Principles currently only recommend that use-of-proceeds pledges be integrated in legal documentation, external reviews be conducted and that external verification be published, the EU GBS proposals mandate these features (TEG, 2019, p. 13). This mandate fundamentally introduces an exogenously costly setting and one that resembles Verrecchia’s setting, consisting of audited messages. The greater degree of transparency and accountability should reduce informational asymmetry and support in mitigating adverse selection. Despite this, however, there is no clear deterrent or penalty for greenwashing;¹⁰ clear regulations (or directives) regarding misaligned behaviour and corresponding repercussions have not been established. The proposed mandated reporting is indeed standardized, offering impact monitoring based on disclosures of estimated and/or actual impact. Issuer reporting is expected to occur at least annually until the full allocation of the reference green bond, which aligns with the recommendation for ongoing mandated minimum disclosures, referencing a designated reporting template. However, post-issuance reporting is not proposed to undergo mandatory continuous review, only initial external verification.

¹⁰ Although the integration of use of proceeds into legal documentation has been mandated, the prospectus language that often accompanies these pledges is frequently designed to limit issuer liability in the event that the deployment of (green) funds does not align with the intended use of proceeds. The potential flexibility of issuers to equivocate beyond liability brings into question the credibility of legal recourse and the robustness of green bond labelling. There is, however, anecdotal evidence that markets internalize this information, such as in the case of the “greenfault” of the Mexico City Airport Trust.

The integration of ESMA as the formal operator of the external verification accreditation scheme offers the expectation of greater centralization in the verification process, but there is no clear direct supervision. Although it is out of the scope of the Bayesian game theory framework, which is conceptual and preserves generality, policymakers should look closely at the effectiveness of oversight and the perceived deficit in the market's enforcement mechanisms. Article 47 of the European Commission (2021) identifies persons and entities under ESMA's proposed supervision, all strictly external verifiers and/or affiliates, which are directly supervised and in the event of non-compliance and/or infringements of Article 47(1) may incur fines ranging from EUR 20,000 to EUR 200,000, as set out in Article 52 (European Commission, 2021). Although this sends an enforcement signal, this structure forms a supervisory cascade, in which external verifiers form a metaphorical buffer, preventing penalties from being levied on issuers, dissolving the potency of the deterrent against inherently non-green issuers wishing to participate in the economic benefits of the market. The direct supervision and enforcement of minimum requirements should be considered for issuers in order to asymmetrically disincentivize inherently non-green issuers. The perceived sympathetic approach of the proposal to issuers implies some level of uncertainty among issuers of their private informational endowments on the inherent greenness of their bonds, shifting the liability and the onus onto external verifiers, which are tasked with determining a bond's fitness for labelling. The proposal (European Commission, 2021, p. 2) reads: "For issuers, the lack of common definitions of environmentally sustainable economic activities creates uncertainty about which economic activities can be considered to be legitimately green".

The credibility of the enforcement signal is of utmost importance. To draw parallels with financial auditing and accounting standards, academics find that among the factors influencing firms' incentives are differences in investor protection and enforcement systems (Leuz, 2010; Christensen et al., 2013). To improve audit quality and decrease the economic incentive for inherently non-green issuers wishing to opportunistically mislabel their debt as green, the label standards must be accompanied by a strong institutional setting and effective enforcement. Enforcement is critical to shaping incentives and disincentives, which owners and managers respond to by reforming their practices. Further parallels that emphasize the dangers of misaligned incentives and the criticality of a credible enforcement mechanism can be drawn from Ball et al. (2003), Burgstahler et al. (2006), Daske et al. (2008) and Leuz et al. (2003).

7.4. The implications of the recommendations on market dynamics

One would expect the recommendations, when implemented, to support confidence in and the credibility of the green bond market and to improve the allocation of capital, optimizing the efficacy of green bonds as transmission

vehicles of development capital. *Ceteris paribus*, one would expect the premium of inherently green bonds relative to non-green bonds to increase as a result of the increased confidence and improved capital allocation decisions of potential buyers.¹¹ This increase would be expected to serve as a tailwind to support further penetration of the green bond label and the efficacy of each incremental unit of investment in driving environmental and social impact, spurring a virtuous cycle of balanced economic transitioning. The TEG (2020, p. 12) similarly identifies “[a]bsence of clear economic benefits for issuers” as a barrier to market development and posits that “[s]tandardization and a proposed endorsement by the EC... lay the basis for policymakers to design policies and instruments to incentivise green bond issuance”.

These recommendations are timely, following sovereign and supranational impetus to “build back better” in a post-pandemic world and commit to large-scale green infrastructure programmes, alongside the adoption by central banks of sustainability-conscious targets within their mandates. Formal solicitations by the European Central Bank and the Bank of England regarding the greening of their corporate bond purchasing activity alongside the material growth in the impact finance market demonstrate that green bonds are likely to be a pragmatic mechanism to support the rebuilding and transitioning of post-pandemic economic activity. Reinforcing and regulating the current regime for green bond labelling will be vital to ensuring a highly credible, efficient and effective market, primed for the scale of activity that is required by private and public institutions to satisfy the needs of the ambitious transition.

7.5. The implications of the EU GBS for corporate issuers

Issuers of inherently green debt should welcome the arrival of the EU GBS. As an additional voluntary label, the EU GBS builds upon the ICMA principles and guidelines that market participants have come to understand and engage with materially, introducing additional layers of supervision and minimum requirements. These additional compulsory direct and indirect costs should disincentivize inherently non-green issuers from mislabelling their bonds more than proportionally and allow the market to better resemble Verrecchia’s exogenously costly setting with message (label) auditing. This makes it more feasible that a separating equilibrium will obtain and that inherently green issuers will be able to better distinguish themselves through their market signals from inherently non-green issuers.

¹¹ The greenium, while being an opportunity cost for an investor, represents the economic incentive for an issuer that engages in debt greening as it represents the prospect of a lower cost of capital. A higher greenium increases the economic incentive for incumbent (and prospective) issuers to (further) issue green bonds.

In principle, provided that the compound inequality established in section 6 is satisfied, the adverse selection problem should be alleviated and the market should be more efficient in allocating capital. This, in turn, implies that the bidding strategies of investors should tend towards the true worth of inherently green debt and away from their optimal strategy in the incumbent setting, bidding the conditional expectation given what they observe in the market; said differently, investors' systematic under-pricing of inherently green bonds should tend towards fair pricing and subsequently increase the pricing premium of EU GBS-aligned bonds relative to the broader green bond market, supporting lower capital costs and increasing issuer value. A higher observed pricing premium should further increase the incentive for and viability of broader participation by inherently green issuers.

Furthermore, it would not be unreasonable to expect the EU GBS, given the presence of supervision and mandated minimum requirements, to become a precedent for engagement by some institutions, for example, as a basis for the greening of central banks' corporate asset purchase programmes.¹² If such engagements occur, this could result in aligned bonds benefiting from a greater degree of price support. Issuers benchmarking their green issuances to the EU GBS create opportunities to send a credible market signal and benefit from any resultant premia as investors tighten their investment standards and seek out allocatively efficient markets for deploying sustainable development capital optimally.

Despite the improved market efficiency, however, higher barriers to entry may disincentivize issuers on the margins,¹³ scaffolding a bifurcation of capital and entrenching structurally disadvantaged issuers that are sorely in need of transition capital. There is a delicate balance of trade-offs when developing sustainable policy; to strive towards a perfectly efficient labelling regime risks creating a bottleneck in issuance. A challenge will be to balance perfect efficiency and perfect inclusivity. Policies must asymmetrically disincentivize greenwashers but should not be so onerous as to restrict structurally disadvantaged issuers that wish to make some sustainable commitment from participating. Is it more desirable to have imperfectly efficient markets

¹² The European Central Bank recognizes that "Issuing EuGBs [...] could lead to better insights into the importance of environmental objectives [...] improving the ability of all financial actors, including the ECB, to reliably identify and evaluate environmentally sustainable bonds" (European Central Bank, 2021, p. 3). Nevertheless, the ECB raises issues and proposes amendments to the EU GBS regulation as proposed (European Central Bank, 2021, p. 16–22).

¹³ These are the in-between issuers on the green/non-green continuum, which are considered to issue debt for "light green" projects. They are not greenwashers, but they are committed to projects with lower "green ambition" relative to inherently green projects.

and some sustainable commitment through “light green” activities,¹⁴ or to have perfectly efficient markets with no commitment at all from otherwise light green issuers?

8. Summary conclusions

As the green bond market becomes systemically engrained as a means for internalizing externalities, re-adjusting risk perceptions (G20, 2016, p. 3) and aligning economies with the Paris Agreement (UNFCCC, 2015), its incremental growth and potential to effect positive change are constrained by the prevailing labelling regime’s susceptibility to greenwashing. Greenwashing risks eroding confidence in the segment and reducing its potential to effect positive impact through perpetuating the inefficient allocation of capital.

On the basis of Bayesian game theory and research from the broader financial market literature, this paper explores how the incumbent green bond labelling regime should be reformed in pursuit of obtaining perfect allocative efficiency and upholding market confidence.

It recommends that the green bond market should operate strictly under an exogenously costly disclosure regime, providing a conceptual framework for defining the associated costs, where a standardized “green audit” is mandated and integrated into the legal enforcement infrastructure. This paper proposes the introduction of a designated reporting template and a periodical publication schedule, which should be subject to centralized, ongoing oversight and supplemented by a secondary class of credible enforcement costs to penalize greenwashers and asymmetrically deter their participation in the market.

¹⁴ This is a simplification. There is a discussion to be had about whether reducing standards for issuers on the margins so that they can participate to a greater degree reduces ambition across all segments. Do inherently green issuers, for example, uphold the same degree of greenness in the aggregate across all labelling regimes?

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International venturing and investment: global citizens and golden visas*

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Abstract

Countries attract foreign investors, “entrants”, to invest and venture by employing policy programmes and marketing strategies. Country attractiveness for foreign investors relates to international competitiveness. Instruments building a formal status, such as golden visas and citizenship, are used to attract individual foreign investors and their families. These are often cosmopolitan people, i.e. global citizens but also global diasporans. They contribute to the economy, ideas and transnational entrepreneurial ecosystems. These policy instruments are criticized partly due to missing legitimacy, partly due to concerns about geopolitics and international crime. However, diasporic investors manifest different motivations and commitments, making them particular. This study examines what kind of investor programmes are offered to different foreign migrant investors and whether they address diasporic ties. It presents a country comparison of investor policy pathways towards citizenship. It contributes to the literature on migrant investment and policymaking.

Keywords: immigrant investor programme, diaspora investment, golden visa, citizenship, migration policy, global citizen

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1. Introduction

In the COVID-19 pandemic, visas and multiple passports have gained additional value as instruments of mobility under strict restrictions dividing individuals into foreigners and legitimate resident entrants. So called “golden” visas also offer safe havens for investors who are departing unsafe countries. Citizenship and golden visa programmes can be strategic assets when competing in the global economy (Parker, 2017; Mau et al., 2015). Investment, entrepreneurial activity, new ideas and an international atmosphere are outcomes that are nurtured through a portfolio of policies in many smaller open economies, such as Portugal and Finland.

Investor-entrants have special pathways for migration.¹ The incoming status of any migrant is highly relevant. Foreign entrants can be divided into foreign-born individuals who have no diasporic ties or heritage to the host country and those who have such ties. The latter group includes individuals who are foreign-born but due to their ancestry or heritage have citizenship in the host country (i.e. dual or multiple citizenship) and those with heritage but without citizenship. This last category is a foreign entrant without any formalized status. This diversity makes immigrant investor-entrepreneur policies look simplistic and debates on such policies easily mislead (Elo, Täube and Servais, 2021). The purpose of this paper is to explore these incoming migrant-investor policies and formal pathways.

The debate on the effects of immigrant investor programmes that produce dual and multilevel citizenship focuses on ideal, political and social aspects (Shachar and Hirschl, 2014). Around the world, the sociopolitical discussion on foreigners who in-migrate and participate economically is heated, illustrating a variety of anti-migration attitudes (Rustenbach, 2010; Andrews, Leblang and Pandya, 2018). Andrews et al. (2018) found that ethnocentrism may reduce foreign direct investment (FDI). These popular debates question the control of the nation state of its citizens and the loyalty of its residents but are rarely fact based. Issues such as securitization and migration limitations gain public attention in many European countries but debaters fail to define the subject of their concern more specifically. In these debates, the concept of formal identity, such as dual or multilevel citizenship, is approached from a negative perspective, as representing a threat, while the investor-entrepreneurial potential and employment generation effects are ignored. These tensions are felt by international migrant investors when selecting location but are felt even more emotionally by those who have diasporic ties and feel institutionally misinterpreted upon return (e.g. Nkongolo-Bakenda and Chrysostome, 2013; Nyame-Asiamah et al., 2020).

¹ This paper focuses on investor-migrants as the target audience, not other migrant categories defined by the International Organization for Migration (IOM).

The economic view of formal identity through visas and citizenship has remained underexamined. Discourses on citizenship phenomena focus on market communitarian, legal communitarian, market cosmopolitan and legal cosmopolitan discourses with diverse ontological viewpoints (Parker, 2017). This paper is linked mainly to the debate on commercialization of the asset of citizenship, adding the migrant-diasporic angle here in line with work by the United Nations Conference on Trade and Development (UNCTAD), the United Nations Economic Commission for Europe (UNECE) and others.

For diasporans, individuals with heritage ties to the country in question, citizenship status may differ even within the family (Elo, Täube and Servais, 2021). Still, diasporans may experience their diasporanness as a special aspiration or commitment towards the home country, creating sticky investments (Brinkerhoff, 2009; Elo et al., 2021). Diasporans expect local legitimacy and perceive themselves as contributors, not security or loyalty concerns for the recipient society. Previous research on diaspora investment and development economics presents the positive roles of diaspora investors who engage with their transnational ties (Nkongolo-Bakenda and Chrysostome, 2013; Riddle and Brinkerhoff, 2011; Elo and Riddle, 2016). Global diasporas and diasporic ties influence investments, entrepreneurial aspirations and practices (Elo, 2016; Elo and Dana, 2019).

This study focuses on the policies and pathways that attract target investor-entrepreneurs from abroad. It sheds light on the diaspora-migration dimensions employed in policy (Sinkovics and Reuber, 2021) and the entrant pathways by asking who an investor is and how investor programmes are constructed in relation to citizenship and migration policies.

This paper is organized as follows: the conceptual development is reviewed, the research approach is described, the policy analysis is presented, and then discussions conclude the paper. The study contributes to understanding of the concept of foreign migrant investors with links to dual or multilevel citizenship and entrant identity status (Elo et al., 2021; Leitch and Harrison, 2016).

2. A short introduction to diaspora and migration

Policy frameworks are central to the process of selecting, entering and settling in a place (Elo, Täube and Volovelsky, 2019; Koinova, 2021). Migration policy largely creates the framework in which migrants operate; policies create or impede global mobility (Mau, et al., 2015). The right to work and live in a country is often limited over time or involves other limitations of rights (e.g. Parker, 2017), especially concerning mobility between developing and developed countries (cf. “global mobility divide”

in Mau et al., 2015, p. 1192). Such transnational State-level macrofoundations link with the microfoundations that form and shape the pathways and mechanisms that enable diaspora entrepreneurs to venture and invest (Koinova, 2021).

Prior research examines diasporas as social and political formations, as well as their migration and entrepreneurship, but pays limited attention to their multiple identities and the mobility regimes that affect them (e.g. Brinkerhoff, 2009; Riddle and Brinkerhoff, 2011; Koinova, 2021; Elo et al., 2021). This leaves mobile diasporans and transmigrants with multiple residences and formal identities, also referred to as global cosmopolitan elites, global citizens or business nomads, underexplored in relation to their host countries (e.g. Mayo, 2005). Many migrant and diaspora investors are cosmopolitan people with notions of global citizenship, creating different policy identities than investors without ties to the host country; this distinction calls for differentiated policy categories (Falk, 1993; Mayo, 2005). This cosmopolitanness of entrepreneurs requires policy attention (Nummela et al., 2020).

Legitimate entry matters. The (formalization of) citizenship may be part of the investment-entrepreneurial strategy as parallel objective. It is important to understand how legal choices for diaspora investment are supported by institutional and regulatory frameworks (Kotabe et al., 2013; Gillespie and McBride, 2013). Furthermore, the theoretical intersection of international business, political governance and migrant investor-entrepreneurship contributes a deeper insight to cosmopolitan and diasporic ties that influence the “degree of foreignness” of the foreign investor and respective investment behaviour.

Spatio-temporal stickiness and purpose relate to diaspora investments. Establishing a firm and investing in a country relate to a context in which the entrant investor-entrepreneur needs to plan and commit financially, psychologically and socially. Investment in a new venture, real estate or other business endeavours cannot be easily transferred to another location and involves high transaction costs (Alvarez and Barney, 2005). Studies on returnees illustrate the high risks, showing that investing in the country of origin is not a linear process, but a very turbulent and contextualized endeavour (e.g. Wang and Fan, 2006). Despite their positive impacts, returnee investors face various challenges of “foreignness” because of their access to sectoral policies and programmes (table 1) (OECD, 2017).

Migrant investor-entrepreneurs are more interested in long-term business investment in places where their rights are not limited or revocable (cf. “genuine link” to the host country, in Parker, 2017, p. 332). In contrast, those entrepreneurs with uncertain rights are less interested in investment with their full capacity, i.e. they tend to seek parallel alternatives or establish portfolios to reduce risks (e.g. Elo, 2016). Interestingly, transnational-cosmopolitan multi-entrepreneurial investors may overcome diverse voids with their global diasporas and networks (Elo et al., 2019; Graham, 2019).

Table 1. Return migration, sectoral policies and development

How does return migration affect countries of origin?	How do sectoral policies affect return migration?
Return migrant households are more likely to run businesses than non-migrant households.	Return migrants' lack of access to government employment agencies mean that self-employment is the only viable option.
Return migration increases investment in agricultural activities, but also in other types of activities in agricultural households, creating opportunities for diversification.	Public policies aiming to relieve households' financial constraints such as agricultural subsidies, can represent incentives for return migrants.
Return migration helps enrich the skills sets in the home country. Even though only a limited share of the highly skilled return, they help raise the stock of human capital in origin countries.	Social protection increases the likelihood of migrants returning home permanently.

Source: OECD (2017, p. 246).

3. Conceptual background and theoretical framings

Immigrant investor programmes involve several concepts and layers of analysis from the State level to investor behaviour. These elements call for closer attention to capture the multifacetedness of the phenomenon.

3.1. Immigrant investor programmes

Immigrant investor programmes are seen as golden visas, citizenship that one buys through investment (Sumption and Hooper, 2014; Gaspar and Ampudia de Haro, 2020). These programmes represent migration pathways. Studies that address immigrant investment programmes theoretically from the entrepreneurial side are scarce, as the main interest lies in the political and financial-fiscal nature of these immigration policies (Parker, 2017). As policy instruments they are overshadowed in the literature by other migration policies (MacDonald, 1999). The characteristics of these programmes are contested (i.e. tax haven concerns) while the impacts of these policies are less known, partly because of the sensitive political relations with countries of origin (i.e. for reasons such as flow of capital in distressed or crisis situations) and partly due to the particularities of the immigrant investment programmes (Parker, 2017; Shachar and Hirschl, 2014; MacDonald, 1999). Many countries, such as Portugal and Ireland, operate a set of policy programmes, both for immigrant investment and for entrepreneurial visas.

These programmes offer a plethora of potential benefits for recipients. They offer a route to naturalization and residence, mainly for a family unit, and even access to children's education. They provide tax advantages for venturing and income tax,

and options for global tax engineering. For citizens of politically unstable countries, access to global visa-free travel functions in two ways: first, as an easier instrument for business travel (i.e. travelling with the better-ranked passport for faster and broader business travel coverage), and second, as an insurance policy or escape route, i.e. “option B” for the worst-case scenario (e.g. Parker, 2017). Plan B assets are underestimated in the literature, despite notable investor diasporas in e.g. London and Lisbon.

Host countries that receive investments also benefit from the programmes. The combination of increased emerging-market wealth, greater global instability and geopolitical shifts has facilitated the trends, but it is important to recognize the potential turns within these migrations (Sumption and Hooper, 2014; Xu et al., 2015). This interconnectedness to home-country affairs forms a third-country-driven mobilization effect that complicates the planning of such pathways (Koinova, 2021). Investment size matters, as immigrant investment programmes are aiming for larger capital investments, not minor entrepreneurship.

3.2. Migrant investors and diaspora entrepreneurs as a target group

Theories explaining immigrant entrepreneurial investment and diaspora investments are emerging (e.g. Saxenian, 2002; Riddle, 2008; Nkongolo-Bakend and Chrysostome, 2013; Vaaler, 2013). They are less specific about the “investor”; i.e. whether the term refers to an individual person, aggregated diaspora or another juridical entity (Elo and Riddle, 2016). The home-host dichotomy is prevalent in explaining the investment flow. Diaspora investment research has an inherent focus on the diaspora’s home country (i.e. country of origin, COO), investigating the effects that diasporas may have for the home country’s economic inflow and development (e.g. Riddle, 2008; Koleša and Jaklič, 2016). This investment lens focuses on remittances, remittance behaviour and investment decision-making processes (e.g. altruistic motives), while another stream of research examines diasporas as investors, diaspora portfolio investments and diaspora direct investments (e.g. Riddle, 2008; Riddle, Brinkerhoff and Nielsen, 2008; Debass and Ardivino, 2009; Elo and Riddle, 2016). The transnational-cosmopolitan characteristics of the investor-entrepreneur generate important capabilities for venturing (Graham, 2019). Yet, the theoretical-conceptual understanding of mobile investors and their capital flowing towards the best host option remains underdeveloped (Simarasl and Williams, 2016; Graham, 2019; Elo et al., 2019). The object of interest is typically either the investment or the micro-level investor.

The macrofoundations offer an additional layer of analysis for shaping these pathways (Koinova, 2021). There is an underlying idea of the nation State as an “owner”, governing and possessing the resources in its domain; however, the reciprocal embeddedness built by diasporic mechanisms and dynamics remains

neglected (De Lange, 2013; Koleša and Jaklič, 2016). As the Hague Process noted, “Migration is therefore no longer an issue solely for the attention of governments: it is a topic that also directly concerns businesses” (The Hague Process on Refugees and Migration, 2015, p. 6). The reciprocal embeddedness of migrant investors, the heterolocalism of entrepreneurial investment and their multilevel citizenship ask for an extended view on understanding investor programmes, their contents and their impacts (e.g. Simarasl and Williams, 2016).

Countries compete in the supranational-global arena where cosmopolitan, post-national or transnational and economic interests of States and migrant-investors intermingle (cf. Roth, 2010; Tung, 2008; Parker, 2017). The globalization and transition of national systems towards a more connected global web of mobile capital creates opportunities and challenges for States and their citizens, including in business, investment and innovation (e.g. Roth, 2010). For migrant-investors this competition of attractive countries and their policy programmes constitutes the selection process base, which is ultimately linked to their life-course planning, i.e. where and how they wish to develop their work, family and overall life.

Regime impediments for investors’ life-course planning may create a situation in which remittances substitute for venture-related investments. Entrepreneurial migrant-investors are highly relevant for money flows and economies (e.g. Saxenian, 2002; Minto-Coy and Elo, 2017; Elo et al., 2019). Also, remittances create a financial flow larger than FDI flows (Cohen, 2008, p. 168). Remittances form a way of investing in the homeland, for example, through venturing (Vaaler, 2011; Martinez, Cummings and Vaaler, 2015). Diaspora entrepreneur-investors contribute to home-country development (Nkongolo-Bakend and Chrysostome, 2013, Vaaler, 2013). Diaspora direct investment benefits the economy and business (Terrazas, 2010). Hence, the destination for these mobile funds is a strategic question to which immigrant investor programmes offer solutions.

Typically, global diaspora wealth is mobilized in the capital markets through transnational loans that allow diaspora to purchase real estate in their countries of origin, diaspora bonds that allow governments to borrow long-term funds from diaspora, and diaspora mutual funds, which mobilize pools of individual investors for collective investment in corporate and sovereign debt and equity (Terrazas, 2010, p. 2). Diaspora investment – whether it is carried out by diaspora abroad or by diaspora returnees – is different than classic FDI (Terrazas, 2010; Debass and Adrovino, 2009; Elo and Riddle, 2016). Terrazas (2010, p. 10) notes, “From a policy perspective, the question of *how* diasporas invest in their countries of origin may be more relevant than *why* they invest”.

Immigrant investment programmes address similar policy concerns. Diaspora investment is carried out by natural persons (diasporans and their families) and by juridical persons (firms, organisations and other entities) (cf. Elo and Riddle, 2016).

When natural persons form the policy object, there is higher complexity owing to their family ties and mixed embeddedness (Kloosterman and Rath, 2001). Natural persons have a life course and family obligations, potentially in both the home- and the host-country context, strengthening the need for transnational planning.

3.3. Conceptual development: non-diasporic and diasporic formal identity and citizenship

The concept of global citizenship (Falk, 1993) has become a concept-in-use to justify migration policies targeting foreign, non-diasporic audiences for the golden visa programmes (Sumption and Hooper, 2014). Globalization and technological development have enabled the development of different levels of citizenship, and even e-citizens (Elo et al., 2021). The traditional idea of citizenship as an expression of membership and of the quality of participation in a political community with conditions specified by law is being renegotiated in real terms (cf. Falk, 1993).

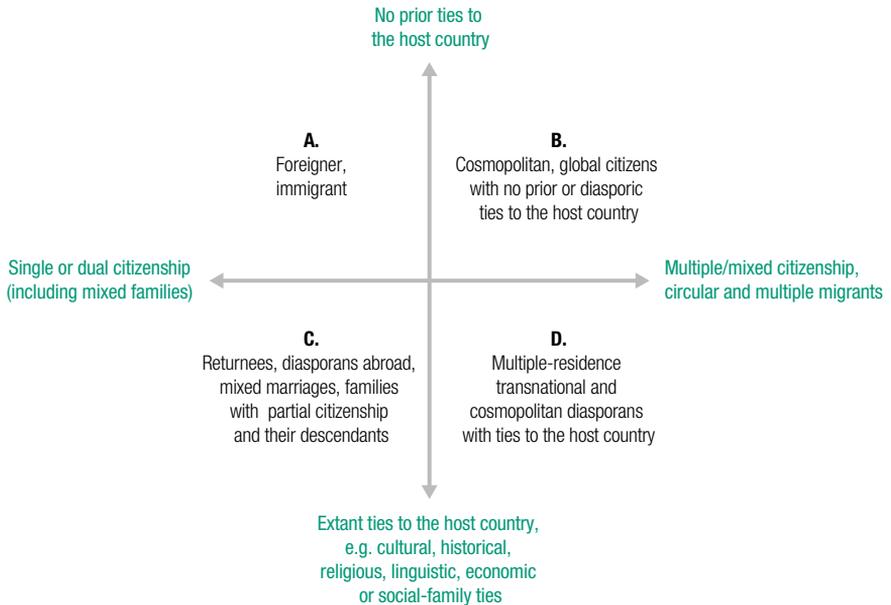
Hence, it is crucial for immigrant investment programmes to identify and address the right audiences. As a category of nascent investors, just “immigrants” is inadequate due to the divergent motivations to invest and settle (cf. Sinkovics and Reuber, 2021). In order to address the patterns of relevant cohorts it is necessary to conceptually clarify the recipients. For an updated understanding of the status diversity of immigrant investment programme recipients,² see the typology in figure 1. The figure 1 illustrates the initial framework how immigrants can be targeted.

The typology indicates different types of situations regarding extant ties and citizenship constellations that influence immigrant interest in different programme content. Interestingly, only type A is the immigrant concept that is prevalent in most conceptualizing of incoming investor migrants. Types B and D may look for other aspects than just visas. Here, cosmopolitanism links to multiple residences and citizenship that are important for the wider range of choice where to invest.³ For example, for those global citizens and global diasporans who possess a set of citizenships as an “asset portfolio”, a residence permit is less interesting than a tax scheme or family benefits, while for type A (full foreigner) visa and citizenship regulations may be crucial – even decisive, as a safety plan. Type C presents a challenge for governance as family members may have diverse citizenships; some members may reflect entrepreneurship investment, whereas others may

² Alternative typologies could be built on international laws and regulations, but this typology is conceptual, linking types to foreignness, as in international business research.

³ An individual who has one citizenship can also be cosmopolitan in terms of culture and behaviour, but here the focus is on the formal identity.

Figure 1. A typology of entrants based on citizenship and degree of foreignness



Source: Author's elaboration.

reside in another country. In sum, the multitude of sub-situations require policy and conceptual attention to the “degree of foreignness”, formal identity constellations and investor pathways (Elo et al., 2021; Koinova, 2021).

The “selling passports” debate underlines the institutional value of citizenship through naturalization. Citizenship, nationality and naturalization are concepts regulated by laws and agreements (Yang, 1994), whereas cosmopolitanism and global citizenship are socially constructed concepts from sociology and anthropology. As Kultalahti et al. (2006) point out, the effects of regime changes are significant antecedents for the dynamics of international mobility, migration and diaspora formation. Migration policy represents an instrument to govern and regulate these flows and degrees of participation (cf. Solano and Huddleston, 2020). Over the last few decades, the number of people with more than one nationality has increased rapidly (Faist, Gerdes and Rieple, 2004). Departing from the idea of clear-cut citizenship and political loyalty to a particular nation State generates complexities for individuals, families and policymaking (Faist et al., 2004).

As a result of political, economic and labour market pressures and the instrumentalization of migrants in international politics, States are rethinking the meaning of citizenship and its conceptual boundaries. Citizenship has been discussed and re-conceptualized to understand the membership status aspired to and demanded by contemporary migrants. This discussion proposes the concept of “membership” in delineating the decoupling between citizenship and nationality; immigrant demands for rights and State policies implemented in response can thereby be interpreted without considering the political meanings of citizenship (Yen-Fen and Wu, 2011, see also Faist et al., 2004). The decoupling of citizenship and national identity becomes problematic when applied to dual citizenship when the home and host countries are engaged in political tensions (Yen-Fen and Wu, 2011, p. 265). The political dimension (political rights and obligations) should be regarded as an integral part of citizenship (national membership) especially in the rival-state context influenced by pressure of inter-state rivalry and globalization (Yen-Fen and Wu, 2011; Koinova, 2021). Yen-Fen and Wu (2011, p. 280) identified two macro-level dynamisms on the concept of citizenship, one being the globalizing forces that help create conditions for “flexible citizenship” in the “zones of hypergrowth”, and the other being inter-State competition that draws governments and people back to zones of loyalty, the nationally defined memberships. States have a stake in their citizens and resources, also in diaspora (e.g. Kuznetsov, 2006). Diasporic ties can be interpreted as loyalty and make diaspora seem less foreign when negotiating citizenship. Citizenship is a central element in belonging in a place and building one’s life, but also in building a state on the macrolevel (Mylonas, 2013).

Long-term settlement abroad and its formal governance during return to the country of origin, especially in transgenerational cases, is complex. These challenges are faced by diasporans without the citizenship of the host country who need to comply with regulations as foreigners. The formal status of an investor can be a misleading indicator for the venturing, for example, of foreign-born citizenship holders who have rights but lack institutional and market-specific knowledge. The degree of foreignness of dual citizenship (i.e. “second passport”) holders may vary as they may or may not be embedded diasporans. Especially second, third and following diaspora generations pose challenges to status definitions as residents and de facto citizens of the host country, many of them have lived transnationally as boundary spanners connecting both countries (Riddle and Brinkerhoff, 2011, Yen-Fen and Wu, 2011; Elo, Täube and Servais, 2021).

3.4. Dual and multiple citizenships fostering investments and venturing

The concept of citizenship is changing from one of economic-political participation to one of non-physical and multi-locational, multilayered participation, which represents combinations of circular, transnational, global and cosmopolitan,

and virtual life and citizenship (Elo et al., 2019; Nummela et al., 2020). The technological development produced an e-dimension. For example, Estonia was the first country to offer e-residency as a novel form of dual citizenship. Conceptually, this radical innovation on residency took the next step towards transnational and virtual business and economic participation, targeting investors with e-residency, which offered anyone an Estonian government-issued digital identity, providing the opportunity to run a trusted company online.⁴ This form of citizenship or residence allows e-residents to e.g. digitally sign contracts, establish an Estonian company online, administer business from anywhere, and conduct e-banking and money transfers. However, it does not establish tax residency.

Other forms of dual citizenship stem from the family. Parents of different nationality may provide it or when the child is born in a country where a citizenship is generated by birth. An individual may have dual nationality by automatic operation of different laws, for example, a child born in a foreign country to parents who are United States nationals may be both a United States national and a national of the country of birth.⁵

Citizenship provides symbolic ties and integration beyond its instrumental role for entry or residence (cf. Faist, 2000; Karanja, 2014). Some countries have laws that do not facilitate holding a lifelong dual citizenship or that require choosing one. There are concerns about loyalty and securitization resulting from dual citizenship. In Germany, Turkish migrants form the largest diaspora but only after the reform may they hold Turkish, German and dual citizenships. In addition, dual status may require fulfilment of country-related obligations, like military service. Dual citizenship provides greater opportunities in the labour markets, access to educational facilities and assists people in connecting to others and creating transnational social spaces (e.g. Faist and Gerdes, 2008).

The underlying logic of golden visas and dual citizenships builds on a benefit-risk scheme of the host country. Developed countries assess international mobility strategies in interconnection with various trade and political agreements and institutions, such as European Union (EU) membership or Nordic cooperation.⁶ Many emerging and developing countries lack a system for regulating dual citizenship issues or are yet developing their strategies for managing it.

Yen-Fen and Wu (2011, p. 266) suggest that “it is reasonable to assume that most immigrants wish to possess as many membership rights” simultaneously

⁴ “E-residency”, <https://e-estonia.com/solutions/e-identity/e-residency> (accessed 14 December 2021).

⁵ See, for example United States, Department of State, Bureau of Consular Affairs, “Dual nationality”, <https://travel.state.gov> (accessed 13 December 2021).

⁶ European Commission, “What category do I fit into?”, EU Immigration Portal, <https://ec.europa.eu/immigration> (accessed 13 December 2021); Nordic Council of Ministers, *Nordic Work Mobility and Labour Market – for Professional Scientists*, 2019, www.ja.dk/media/3841/nordic_work_mobility.pdf.

and “evade as many obligations as possible in both sending and host countries”. They explicate two distinct concerns: for the home country, “the citizenship of a diaspora poses questions as to what constitute the fundamental conditions for nationals to keep or lose their membership”, and for the host country, “whether political loyalty to a specific nation and citizenship are separable remains contested terrain for politics around immigration issues” (Yen-Fen and Wu, 2011, p. 266). Both sides have national and economic development interests to pursue and protect (e.g. Yen-Fen and Wu, 2011; Mylonas, 2013; Kuznetsov, 2006).

Dual citizenship has positive effects on the economy (e.g. Siaplay, 2014; Karanja, 2014.) A research project in the African context examined this link (Siaplay, 2014). It found that those countries that recognize dual citizenship benefitted economically, through increases in FDI, gross capital formation and household consumption (Siaplay, 2014). According to Siaplay (2014), countries that recognize dual citizenship facilitate diasporas to transfer vital resources from the host country to the country of origin, generating sustainable economic growth and development. Hence, dual citizenship may increase economic participation and enhance integration, but research examining its diasporic elements is lacking (Karanja, 2014; Faist and Gerdes, 2008).

Countries develop strategies on their human capital to support their economy, their development and their international competitiveness (Tung, 2008; Tung et al., 2008). Interestingly, the war for global capital is orchestrated by large superpowers and by smaller countries proactively attracting investors and highly skilled migrants with residence and citizenship schemes (cf. Tung et al., 2008). Individual agency is central in responding to policy marketing. Golden visa programmes enable countries to compete with diversified offerings. Tools like the Arton Index Score present country advantages for the investment climate and for life quality.⁷ This index presents five pillars of relevant programme benefits for decision making: cost, speed, mobility, quality of life and simplicity.

The design of the programmes interconnects the investor’s foreignness, the investment itself and the respective tax and visa regulations. Over an individual’s life course, dual citizenship, tax havens and investor paradises trigger interest as tax- and residence-engineering matters. However, those non-EU country migrants seeking safety have a divergent motivation to select a programme. Pensioners and investors select host countries for factors that secure their economic, physical and other wellbeing. Economic opportunities, climate and other criteria on health and education are significant factors influencing the choice. Entrants collect a priori information, then analyse and compare alternatives to maximize their benefit and meet their requirements (Yen-Fen and Wu, 2011).

⁷ Based on the Arton Index, www.artoncapital.com/tools/arton-index (accessed 10 November 2016).

4. Research approach

Researching immigrant investor programmes and their target groups is per se an interdisciplinary issue that needs to be “un-siloed” (cf. Sinkovics and Reuber, 2021). This conceptual-theoretical development is reviewed to draw the boundaries of the phenomenon and identify potentially relevant aspects (e.g. Srivastava, 2007). Host-country policy and the recipient side are reviewed content-wise to establish the evidence necessary. This analysis is organized as a flexible pattern matching that allows cross-examination of interlinked themes (Sinkovics, 2018; Sinkovics et al., 2019). This qualitative approach can explore and capture the content interplay of policy and targeting and their link to potential “immigrants”. It is suitable for exploration to discover and reflect interlinkages in a contextual manner (Piekkari and Welch, 2011). The number of restrictive or regulatory changes in investment policies are at an all time high, underlining the importance of the topic (UNCTAD, 2021, p. 109).

Pattern matching involves the comparison of a predicted theoretical pattern with an observed empirical pattern using a systematic approach (Sinkovics, 2018). Here, the theoretical patterns are deduced from the previous theory-conceptual landscape and then compared with the findings from the empirical side, i.e. from the actual policies and programmes and related communication. This approach allows for new patterns to surface and new theory to evolve from the empirical data while remaining oriented to the initial framework and conceptual landscape (Bouncken et al., 2021; Sinkovics, 2018).

The concept-theory review process itself is built on flexible pattern matching using two combined approaches, matching the explorative research design (cf. Sinkovics, 2018). In the beginning, an inductive reading process on journal articles, books, research reports and newspaper articles provided an understanding of the phenomenon and developed the themes, the frameworks, the dimensions and the basis for expected patterns. A further review round on observational data and field notes updated and interconnected the discussions, reflecting progressive focusing and advancing emerging themes from the shifting discussions (Sinkovics and Alfoldi, 2012). The initial deductive framework created is presented in table 2.

The empirical part reviews and explores immigrant investment programmes manifested on the state level. Host countries for incoming migration and citizenship pathways are structured as multiple horizontal case studies, providing empirical evidence on the contents of the programmes and policies illustrating the targeting. The research design compares patterns of the programmes across countries and also on the assumptions related to migrants, their capital and the attractiveness match. The investment, the speed of citizenship rights and the contents of the golden visa programme especially are assessed to reflect their similarities or differences.

Table 2. The initial framework for analysis

Theme	Framework	Dimension	Expected pattern	Expected pattern
Immigrant investor programmes	Direct investment	Capital	High	High capital investment generates growth, jobs, prosperity
	Entrepreneurial investment	Knowledge	High	High knowledge and innovation generate business growth and facilitate entrepreneurial expansion/networks
		Innovation	High	
		Growth	High	
Incoming migrant investor-entrepreneurs	Immigrant/foreigner	Foreignness	High	Citizenship forms a pull factor/central target
	Cosmopolitan/global citizen	Foreignness	High	Investment/business and citizenship are pull factors
	Returnee/diasporans/mixed families	Diasporic ties	High	Receiving host country is the main pull factor representing the "locus" and formal identity
	Multiple-residence transnational/cosmopolitan diasporans	Diasporic ties	High	Investment/business and the receiving host country formal identity are pull factors
Programme contents	Visa	Legal status	High	Necessary condition and target allowing residence status and mobility
	Citizenship	Asset	High	Long-term central target with citizenship rights
	Length/speed	Safety/planning	High	Enables plan B for quick safety, faster programme pathways
	Pathway	Life management	High	Simple and cheap pathways as a competitiveness
Citizenship settings	Single/non-EU	Limited selection/mobility	High	Migrants facing the largest mobility and participation issues
	Dual	Receiving/maintaining of dual citizenship	High	The usual ideal setting of citizenship aspirations
	Multiple	Extended mobility and participation	Medium-high	The advancing of global participation
Social status	Individual	Minimum	Low	Formal status linked to person
	With spouse	Expected permit	High	Marriage or partnership is supported and spouse or partner is permitted to participate
	With larger family	Diverse definitions	High	Other family members are also beneficiaries of the programme

Source: Author's elaboration.

The diaspora notion is reflected to see if heritage forms any criteria. The approach goes back and forth across concepts and relevant policy instruments, their targeting and the countries (Sinkovics, 2018; Sinkovics et al., 2019).

4.1. Data collection and analysis

The empirical data collection builds on reports, publications, internet-based material on policies and programmes including media articles, and expert interviews on programmes, and observations and field notes from migration conferences and events (e.g. the United Nations (UN), UNCTAD, UNECE, the Organisation for Economic Co-operation and Development (OECD), IOM, European Migration Network). To confirm the validity of claims, elements, patterns and assumptions coming from the literature, discussions with migrant investor-entrepreneurs took place, reviewing e.g. their personal strategies, safety plan B options and mobility features (appendix 1). The data were collected between 2015 and 2021.

A set of 13 relevant countries were selected for analysis for their relevance and as countries that “allow individuals to obtain citizenship or residence rights through local investments or against a flat fee” (OECD, 2021). The focal comparison is on the EU context.⁸ Cyprus is the only country on the high-risk list for Common Reporting Standards integrity (OECD, 2021). The EU is a suitable context because of its theoretically interesting intra-EU-related mobility and its attractive position as the major destination of international migration, hosting 23 million non-EU citizens in 2020 (EU, 2021). In 2019, EU member states granted 706,400 citizenships, which represented an increase of 5 per cent compared to 2018 (EU, 2021).

The empirical data were analysed using qualitative content analysis, exploring criteria on a country level (receiving country) and on a thematic level (visa, residence and citizenship) that are applicable for individuals entering the country as investor-entrants and their status (i.e. incoming migration and citizenship). Text analysis followed an applied deductive coding reflecting theory (“matching”) and simultaneously allowed for more flexible explorative identification of other relevant themes that explain the targeting, i.e. observational patterns, in line with Sinkovics (2018). NVivo software and manual coding were used for digital and non-digital forms of data.

The study has its limitations, especially in terms of deeper analysis of philosophies, programme details and (intra-)regional variations. It provides a starting point for future analysis and critical approaches (cf. Sinkovics and Reuber, 2021; David et al., 2021).

⁸ See European Parliament, “EU immigration policy”, Fact Sheets on the European Union, www.europarl.europa.eu/factsheets/en/sheet/152/immigration-policy (accessed 10 October 2021).

It is delimited to the venture-investment-investor pathways excluding social, religious, linguistic and cultural dimensions (Terrazas, 2010). The examination of citizenship explores status implications for potential investors and their core dependents without individual paths of family members. Discussions on the non-economic meanings of citizenships are excluded; the focus is on its instrumental role to allow entry, mobility and economic activity (Elo, Täube and Servais, 2021). Multiple investor types remain outside of this individual-focussed policy reflection, e.g. aggregate forms of diasporic investors (Elo and Riddle, 2016).

5. Findings on incoming investor-migrant policies of 13 countries

The cases present 13 EU and non-EU countries that offer fast-track entry in migration policy, i.e. so called golden visas, granted on the basis of the economic impact of the entrants. Investors are categorized into a programme's target groups. Target groups of entrants are investors, investor-entrepreneurs, safety-seeking investors, "best-ager" investors (age 50 plus), mixed families and family members, and those with diaspora ties, such as diaspora returnees, and diaspora descendants. Diaspora-specific legal notions vary: some countries like Greece measure heritage elements (e.g. ethnonational group, genealogy) that qualify and grant a special legal position, but not all states address diasporanness, related rights or privileges.⁹ The legal status (number of citizenships) varies, but the target group does not have a priori valid citizenship. Typically the members of the main target group lack an EU national passport. Individuals with diasporic heritage may have a different entry policy than completely foreign entrants; e.g. mixed families create special cases.

The cases represent regionalized (EU, North American Free Trade Association (NAFTA)) and independent framings (New Zealand). Beyond the trade and political framings and programmes, the size and country positioning also matters. Large destination Canada recruited investment and talent that match its needs through the NAFTA Investor Work Permit. Similarly, smaller countries attract incoming capital with special programmes touting the country size as the key attractiveness concern. Attraction has several value creation elements as part of the "policy-marketing mix" of a country in comparison to other countries. For example, in Portugal, over 3,888 golden visas were granted for foreign investors by the end of September 2016, in addition to over 6,000 residence permits for their family members. From these investors 2,879 were of Chinese origin; other significant groups were Brazilian, Russian and South-African citizens.

⁹ This is not in the scope of this study due to the legal complexity and challenges.

Portugal's investor visa programme is considered the most successful of the EU programmes – a working instrument to recover from the financial crisis. It has gained prominent investor-residents such as Madonna and is proactively marketing the country as a destination.¹⁰

Fifteen EU countries had an investor programme for non-EU citizen investors and start-up entrepreneurs to obtain a golden visa. Only Hungary terminated its programme. Greece, Malta, Cyprus, Bulgaria and Hungary attracted foreign investors with targeted migration policies. Cyprus was criticized for the due diligence for its “Residence by Investment” programme. These immigrant investment programmes vary in requirements and contents; some policies require investment in domestic innovation or technology ventures while others require only investments in real estate. The investments range from a few hundred thousand euros to millions. Politically, the investor-refuge dimension is interesting. As one interviewee noted, “Golden visa acquirers are without exception millionaires. An apartment in Portugal is the plan B or the gateway to escape, if in the home country something bad happens.”¹¹

Portugal demonstrates the benefit effects: its policy has resulted in over €2.1 billion in investment in real estate and over €200 million invested in banks and start-ups. A growing group of incoming investors from Turkey enter for political rather than economic reasons due to the deteriorating conditions. As another interviewee noted, “The situation in Turkey is worse. For example, this couple criticized the government and is afraid for their son's future. But their business is doing well.”¹² Beyond safety, life-course issues matter and best-ager investors are becoming a valuable target group. Portuguese and Greek investor policies pull wealthy seniors to retire as investors due to their tax benefits. In 2021 Portugal was the fifth best country in this category (Donn, 2021) and Greece introduced a Financially Independent Person (FIP) Visa category (Article 20 of Greek law 4251/2014).

The 12 host countries are compared in table 3 on their fast-track investor visa policy elements during 2016–2021. This tabular analysis shows the pathways, key differences and requirements leading to investor visa, permanent residency and/or citizenship for migrants who enter on the basis of investment or business venturing.

¹⁰ See “Golden visa”, www.goldenvisas.com/portugal (accessed 1 December 2021).

¹¹ Interview with a local immigrant investment expert in Portugal (translated), 10 November 2016.

¹² Ibid.

Table 3. Analysis of policy features for investor residency and citizenship

Country	Requirements	Residence permit/citizenship	Other particularities
1 Belgium	Required investment starts at €350,000 (typical investment in a five-year period: €350,000–500,000)	After five years of residence the investor may apply for citizenship, a “residence by investment” approach. Residence is for the family, but there is no requirement to reside in Belgium. Schengen-area free travel.	No minimums for stay Minimum one-year visa with no limitation No restrictions on dual citizenship Citizenship application after five years of legal continuous residence starting in 2021 (three years in 2016), after seven years of residence a right for citizenship. Starting in 2021 investors must pass a language test in Dutch, German or French.
2 United Kingdom	Entrepreneurs need to invest £200,000 in a new United Kingdom business and create full time employment for at least two European Economic Area nationals. Investors (Tier 1 investor visa) start with £2.3 million invested in State bonds or British ventures. Knowledge of British culture and local language skills is required, as is a permanent address in the United Kingdom. Starting in 2021, the Tier 1 Visa requires a £2 million investment and allows temporary residence, also for the immediate family.	Depending on the investment, permits are available for two to five years. After five years, the investor may apply for citizenship. In 2021, three years and four months residency granted, extendable for two years. Indefinite stay after five years Citizenship is available after six years by a separate application.	There are restrictions on staying outside the United Kingdom. The family of spouse and children may enter. The investor may also work or study in parallel (with some restrictions for doctors and dentists). After Brexit, the investor visa is in need of reform. Benchmarks are suggested from e.g. the United States Antigua and Portugal.
3 Bulgaria	In 2016, residence required a €511,292 investment in the governmental bond portfolio. The investment was paid back after five years without interest. In 2021, residence via Investor Program for Residence and Citizenship required investing €512,000 into a choice of investment funds, money that can be withdrawn after five years.	In 2016, residence permits require six to nine months of residence, and citizenship requires five years. If the investment is dual, citizenship can be obtained in two years. There is a fast-track citizenship option for investors. In 2021, getting the residence permit takes about six months. The fast track to citizenship can take about 18 months when an additional €512,000 are invested.	Applicants do not need to live in the country but need to visit twice during the process. There are no requirements on language or giving up previous citizenship. In 2021, this is one of the fastest methods of obtaining citizenship in an EU country. Bulgaria has a full family programme, advertising visa-free access to 188 countries and territories.

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Table 3. Analysis of policy features for investor residency and citizenship (Continued)

Country	Requirements	Residence permit/citizenship	Other particularities
4 Spain	Residence permits require a €500,000 investment in real estate, Spanish ventures or banks, or €2 million in the Spanish stock exchange. In 2021, there were no changes in the sum.	Temporary two-year residence permits are provided for investors and their families.	The temporary residence permit does not require the applicant to have resided in Spain. The permanent residence permit requires five years of residence. Spanish citizenship requires 10 years of prior residence. Two pathways: main and supplementary residency.
5 The Netherlands	In 2016, self-employed applicants started with an investment of \$5,939, which could range to €1,250,000, in a venture benefiting the Dutch economy or in several innovative ventures or in venture capital firms. Several categories and exceptions exist through a point system. In 2018 a reform took place and today the applicant must invest €1,250,000 directly into a Dutch start-up company or Dutch venture capital fund.	Non-EU investors and start-up entrepreneurs may receive a three-year temporary residence permit. There is a possibility to extend the permit after three years. A start-up entrepreneur may receive a one-year residence permit if the venture is innovative, the entrepreneur can finance the stay, and the entrepreneur works with a Dutch facilitator. If the venture is successful, after one year the entrepreneur may apply for a residence permit for a self-employed person, which is valid for two years and extendable after that. In 2021, the investor visa has changed from the previous pathway to a one-off a priori investment.	In 2016, unmarried partners and children may also join if the income is sufficient. The applicant must take a tuberculosis test. After the reform, partners and dependent children may gain residence. After five years of residence a permanent residence permit can be granted – or citizenship if the applicant passes a culture and language test. The applicant must reside in the country for four months per year.
6 Ireland	In 2016, investors investing €500,000 in an Irish venture or fund, or alternatively, €2 million investment on the Irish Stock Exchange. Mixed investments and donations count towards the requirement. For entrepreneurs, the minimum investment in business is €300,000. In 2021, the investment minimum is €1 million in an approved investment fund.	In 2016, temporary residence permits became available. The permit is valid for the family and it is limited to two years, after which it can be extended by three years. The residence and naturalization programmes follow the same migration tracks as for non-investor migrants. In 2021, residency is emphasized for high net worth families, especially businessmen, entrepreneurs and those seeking top-level education for their children.	The applicant does not need to live in Ireland but must visit once a year. Entrepreneurs have additional requirements. Family reunion is not a part of the programme and is at the applicant's expense. After the reforms, the additional requirements ask for good character, a clean criminal record and a minimum net worth of €2 million. The programme targets investors with children, offering a €50,000 reduction in investment if the investor has children attending an Irish university ("full education"). Investors do not receive citizenship through this policy pathway but need to apply under naturalization rules.

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Table 3. Analysis of policy features for investor residency and citizenship (Continued)

Country	Requirements	Residence permit/citizenship	Other particularities
7 Austria	<p>Citizenship for investors requires an investment of €2–10 million. The investment must be productive; it must facilitate employment or venture growth.</p> <p>In 2021, the investment is typically a minimum of €10 million if made directly into a business or €3 million as a contribution to the government development fund. Getting the visa requires having made an economic impact.</p>	<p>In 2016, the Citizenship by Investment and Economic Citizenship programme started.</p> <p>An applicant for citizenship theoretically needs to give up the previous citizenship, but the provisions of article 10(6) of the Citizenship Act allow citizenship to be maintained, and Austria does not share such information with other countries.</p> <p>In 2021, the citizenship policy is framed directly as a second passport that offers visa-free travel to 199 destinations (the United States, the United Kingdom and full participation in the Schengen area).</p>	<p>In 2016 the programme offered citizenship for family members as well, with the claim, “the fastest way for getting a European citizenship”.</p> <p>In 2021, the programme has changed to reach certain targets: e.g. Brexit-leavers or very highly skilled workers. There are more categories and new requirements, e.g. for language knowledge.</p>
8 Greece	<p>Residence permits require an investment of at least €250,000 in real estate (or ventures); in real estate the final sum is about €300,000 due to taxes and fees. No changes were made between 2016 and 2021.</p>	<p>Residence permits are valid for five years and can be renewed if the investment remains in the country.</p> <p>An investor residence permit is considered permanent because of its renewal process.</p> <p>Greece has one of the fastest processes: only about 40 days to obtain a residence card.</p>	<p>There is no requirement for permanent address or residence in Greece. Family, including descendants and ascendants of the spouse, are included in resident permits. Greek citizenship requires residence over seven years.</p> <p>In 2021 a new tax programme for “best-ager residents” is being promoted.</p>
9 Cyprus	<p>In 2016, citizenship required an investment of €2.5 million in a Cypriot investment bond that financed real estate, ventures or infrastructure in the country.</p> <p>It was also possible to invest in State bonds or set up a new venture in Cyprus or donate.</p> <p>In 2021, there are two programmes: through real estate investment, one for permanent residence and the other for citizenship. The citizenship programme became more expensive: €2 million in real estate is required, plus a donation of €100,000 to the governmental research and development fund, complemented by a donation of €100,000 to the Land Development Corporation.</p> <p>The residence programme requires a €300,000 investment in real estate.</p>	<p>For citizenship, the applicant must visit Cyprus twice. The applicant does not have to live in Cyprus before or after the citizenship application but must own a permanent residence there with a minimum purchase price of €500,000. It may be a real estate investment that is part of the €2.5 million investment in 2016.</p> <p>In 2021, the two programmes offered two tracks. The residence programme is quick, only two months, and covers the whole family. It includes parents of both the applicant and spouse plus dependent children up to the age of 25.</p> <p>Residency is valid for life and can be passed down to dependents and spouse. This is a unique feature.</p>	<p>No requirements existed for language skills or health, but the criminal record had to be clean.</p> <p>The applicant may keep dual citizenship. This second passport option remains a key value in 2021, together with the fast (six months) and efficient process and English-speaking context.</p> <p>The freedom to operate in the EU, Germany, France and the United Kingdom are marketed as creating additional value.</p>

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Table 3. Analysis of policy features for investor residency and citizenship (Concluded)

Country	Requirements	Residence permit/citizenship	Other particularities
10 New Zealand	In 2016, the temporary residence permit programme for a "migrant investor" required an investment of \$10 million for three years (investor plus) or \$1.5 million for four years with \$1 million on hold (investor). In 2021, there are three visa pathways: investor, investor plus and New Zealand entrepreneur visa. The pathways require holding permanent residency for five years before citizenship may be applied for.	The investment may include bonds, equity, shares on the New Zealand debt securities market, managed funds and venture capital, equity in New Zealand firms, residential property development or commercial property. It may not be for personal use. In 2021, a triple pathway is being marketed: investments in residential property, commercial property and high-growth investments in government bonds.	The two categories differed in 2016: the investor plus category had no requirements other than spending 44 days per year for the two previous years in New Zealand, whereas the investor category requires an age below 65, a minimum of three years of business experience, English skills and spending 146 days of the previous three years in New Zealand. In 2021, the programmes highlight subsidized education and free health care. However, there are also requirements for language, minimum stay, age and quotas, depending on the programme.
11 Portugal	In 2016, the programme required investment in real estate of at least €500,000, transfer of capital worth a minimum of €1 million (including company stocks or shares) and creation of a minimum of 10 jobs. In 2021, a reduced version of the programme requires a €350,000 investment in real estate.	In the golden residence permit programme (temporary), applicants may gain access to permanent residence and citizenship after five years (no residence requirement).	There is a family regrouping right and regulations on real estate. The minimum permanent residency periods are 7 days in the first year and 14 days in the subsequent two years. In 2021 Portugal is an exceptional case: citizenship can be granted without the applicant having resided in the country. There is a language test and a demonstration of ties to the country. For a residence permit, the applicant and family need only visit for two weeks every two years in order to renew the golden visa. This is among the most location-unbound policy sets found.
12 Hungary	In 2016, the programme required €300,000 in special State bonds. In 2021, the residency bond investment programme had closed. Citizenship by investment is no longer possible for new applicants.	In 2016, a permanent residence permit was obtainable in two months if the applicant invested in State bonds for five years, after which the applicant could collect the investment. The application fee was about €60,000. In 2021, the programme does not exist.	The application included the immediate family, as well as grandparents. There was no obligation to live in or visit Hungary in 2016, but for citizenship there were criteria such as a language test and eight years of residence. The programme started in 2013 and was terminated in 2017.

Source: Compiled from sources available in appendix 1.

Table 3 illustrates how incoming investment-venture activity is linked to migration policy and citizenship. These programmes create institutional migration-citizenship pathways for targeted investor types. They contain multiple pathways and options. The programmes demonstrate positive influence through incoming investment in real estate and venturing. Many countries market their programme contents rigorously to compete for investors and highly skilled entrepreneurs.

5.1. Recipients' target audience strategies

The recipients are clearly defined but are limited to their economic impact; no diasporic ties or prior experience are requested. However, many programmes have tighter requirements for naturalization in 2021 than in 2016, e.g. a local language test. The recipients compare programmes, with professional organizations tailoring the right match for investors. The value propositions discussed range from cost to life quality: "If the Cypriot scheme is too expensive, then there may in future be an alternative. Malta appears to be on the verge of opening a much cheaper scheme which will 'sell' citizenship. Malta is an EU member state like Cyprus so you would, as a citizen of Malta, be free to live and work in the EU (...) Portugal, Greece, Spain and Malta all have permanent residence visa schemes for investors but the cheapest one available at the moment is probably the Latvian immigrant investor visa".¹³

The premium benchmark, New Zealand, actively recruits investor-migrants (Hoskin, 2015). Its strategic migration agenda for business growth agenda involves investment, export markets, innovation, skilled and safe workplaces, natural resources and infrastructure (Hoskin, 2015). New Zealand employed two residence permit schemes targeting investor-migrant capital growth from \$3.5 billion to \$7 billion by 2018. Their strategy on maximizing migrant investment value builds on balancing policy settings, a clear strategy with measurable targets, understanding the individual customer and focus on collaboration (New Zealand, Ministry of Business, Innovation and Employment, 2015; Hoskin, 2015).

The liberal migration policy of the Netherlands has attracted notable investments. The Dutch Minister of Economic Affairs stated that in 2012, 166 foreign companies invested almost €1 billion in the country, "the third highest number of foreign investors in the past decade," providing more than 5,000 mostly skilled jobs, "a new record".¹⁴ Interestingly, Hungary had one of the most liberal programmes in this comparison until its termination in 2017, pointing to how policies change.

The pattern-matching analysis in table 4 (Sinkovics, 2018) reflected the expected patterns (in table 2) with the observed patterns in the 13 cases. The programme

¹³ "Cyprus immigration lowers cost of 'fast track citizenship'", 20 December 2013, www.workpermit.com.

¹⁴ See United States, Law Library of Congress, "Investor Visas", August 2013, p. 34, <https://tile.loc.gov/storage-services/service/ll/llgldr/2014504244/2014504244.pdf>.

Table 4. The initial framework for analysis

Theme	Framework	Dimension	Expected pattern/ observed pattern	Expected pattern	Observed pattern
Immigrant investor programmes	Direct investment	Capital	High/high	High capital investment generates growth, jobs, prosperity.	Several countries report positive impact.
	Entrepreneurial investment	Knowledge	High/n.a.	High knowledge and innovation generate business growth and facilitate entrepreneurial expansion/networks.	The impact is largely in real estate development or in particular funds.
		Innovation	High/n.a. or indirect		The Netherlands was an exception, but its programme included entrepreneurial venturing.
		Growth	High/some evidence		
Incoming migrant investor-entrepreneurs	Immigrant/foreigner	Foreignness	High/high	Citizenship forms a pull factor/central target.	The investor visa and citizenship form the key, also the pathway to it.
	Cosmopolitan/global citizen	Foreignness	High/high	Investment/business and citizenship are pull factors.	Mainly the visa/citizenship and the mobility are the pull factors.
	Returnee/diasporans/ mixed families	Diasporic ties	High/no findings	The receiving host country is the main pull factor representing the "locus" and formal identity.	The destination is negotiable, "best option", e.g. New Zealand brands its locus.
		Diasporic ties	High/no findings	Investment/business and the receiving host country formal identity are pull factors	The attractiveness of the real estate or other investment plays a role, depending on the formal identity package.

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Table 4. The initial framework for analysis (Concluded)

Theme	Framework	Dimension	Expected pattern/ observed pattern	Expected pattern	Observed pattern
Programme contents	Investor visa	Legal status	High/very high	Necessary condition and target, allowing residence status and mobility	Crucial part of the deal for all.
	Citizenship	Asset	High/very high	Long-term central target with citizenship rights	Investment per se may play a secondary role.
	Length/speed	Safety/planning	High/very high for a particular target group	Enables plan B for quick safety, faster programme pathways	Essential for the target group from authoritarian/politically instable states.
Citizenship settings	Pathway	Life management	High/medium	Simple and cheap pathways as a competitiveness	Simple and cheap is relevant especially for emerging economy targets
	Single/non-EU	Limited selection/mobility	High/very high	Migrants facing the largest mobility and participation issues	Essential part of value creation
	Dual	Receiving/maintaining dual citizenship	High/high	The usual ideal setting of citizenship aspirations	Possibility to maintain dual citizenships, actively marketed as "second passport"
Social status	Multiple	Extended mobility and participation	Medium-high/medium to low	The advancing of the global participation	Easiness of travelling and number of "visa-free countries"
	Individual	Minimum	Low/basic requirement	Formal status linked to person	Core part as minimum level
	With spouse	Expected permit	High/high	Marriage or partnership is supported and spouse or partner is permitted to participate	Very important aspect to include partner/spouse; expected
	With larger family	Diverse definitions	High/very high	Other family member are also beneficiaries of the programme	Family and extended families, e.g. including grandparents, are important elements and form USPs

Source: Author's elaboration.

contents that were explored confirmed many expected patterns. The core value remains the formal identity, provided with special pathways to citizenship. The dual citizenship is an important value offering and targets those people whose other citizenship reduce their mobility options, delimiting their activities. Despite extensive research on diasporic ties and diasporic investors, this category was not visible in the programmes.

6. Discussion

These programmes target cosmopolitan elites and moderately wealthy investors. EU countries focus on non-EU investors. The investors are conceptualized as foreigners but not migrants, in the sense that there would be requirements for their integration as there would be for labour, marriage or other migration pathways. Despite the limitations of their investor role, they may enjoy diverse local benefits, from health care to tax benefits. Interestingly, it is mostly the investment per se that is of central importance in the programmes, not the migration and resulting economic integration.

Surprisingly, against expectations from World Bank and Migration Policy Institute studies, the categories of diaspora direct investors and diaspora returnees are not approached with special policies encouraging sticky investment and business development. They were not perceived as investors but only as (re-)migrants governed through the national citizenship scheme, not the migration policy for foreign investment.

Global organizations such as UNCTAD and IOM discuss how migrants and refugees may develop an economy through venturing.¹⁵ These programmes embed clear plan B strategies that allow investors to migrate legally and safely using their investor visa and avoiding the asylum-seeking pathway. Different cohorts of migrant-entrants are categorized according to their economic benefit or nationality linkages. Common overlapping features such as transnational diaspora venturing are not governed in such a unified and benefit-oriented manner. In addition, the policies lack instruments for diasporic inclusion and sticky diaspora investment.

Hence, the principles of the Sustainable Development Goals and sustainability of migration are underemployed. There are four key migration pathways: investor, employment-study, family-marriage, asylum. The national investment policies studied relate to clearly defined target audiences and generate special pathways in migration with different rights and obligations. The patterns illustrate an impact

¹⁵ For example, see IOM (2017) and UNCTAD, IOM and UNHCR (2018).

rigidity in the policy underpinnings, which do not assess “investor mobility” in line with the idea of economic-social mobility. Only the Netherlands had such a strategy in 2016; however, Portugal broadened its strategy significantly during the study.

7. Conclusion

There is no grand theory that explains incoming investor-entrepreneur migration. It is rarely perceived in migration literature. Partial explanations for the mechanisms of investor migration and post-entry investor mobility advance discussions of “selling passports”. Migrant financial-human capital is mobile, not limited to one entry. Non-competitive programmes may trigger remigration and reduce investment stickiness or commitment. The study identified two intertwined patterns, one on the host-country investment-receiving side and one on the investor migration side. Here, policy programme cross-reflection could foster more integrated and sustainable outcomes (cf. Solano and Huddleston, 2020).

The policy concerns start from the conceptualization of the investor. It is important to understand more holistically how sustainable and locally legitimate programmes and migration can be designed. The role of incoming investors in co-creating ideas and transnational entrepreneurial ecosystems is not assessed, unlike in the entrepreneurial visa programmes. Doing so could provide higher impact and greater legitimacy. The degree of foreignness, its implications and the stickiness of investments per investor cohort need further attention (figure 1, A–D). Each category (A–D) needs transparent criteria for its citizenship pathway that fit the type of investment and life strategy (e.g. for mixed families) in a fair, plannable and sustainable manner.

For theory development and policymaking, the following six propositions are suggested:

1. Investor visas and citizenship pathways bring targeted foreign investment, not necessarily sustainable or committed impact.
2. Investor-migrants with safety motivations assess programmes’ value elements differently, e.g. rapid processes and extended family visas.
3. Investor-migrants with diasporic ties may manifest altruistic purposes.
4. Diasporic investment is likely to be more locally legitimate and stickier.
5. Uncertainty of legal status and transit periods reduce long term-planning possibilities and restrict investment behaviour.
6. Competitive non-economic factors play a role in destination selection.

Policy programmes need to re-define communication, including specific value elements for types A–D (figure 1). Plan B investments and home-country post-conflict rebuilding as proactive dual diaspora strategies differ from other FDI (e.g. Nkongolo-Bakenda and Chrysostome, 2013; Elo, 2016). Diaspora assets provide more stable investment inflows than other sources due to the home bias (Terrazas, 2010). A missing pattern of diaspora investment represents a policy incentive gap that hinders economic development (cf. UNECE, 2021). As non-citizens, such investors are perceived as foreigners despite their ties to the home country (see figure 1). Multiple citizenships enable diasporans to re-enter and invest more easily. Policy incentives for return, circulation and multiple generations are non-existent for “foreign”, untargeted diasporans (Elo and Riddle, 2016).

Citizenship and investor programmes represent instruments shaping places and businesses, not always in sustainable, responsible or transparent ways. Still, diaspora investments, their diversity and their development may contribute to sustainable development. Country-policy-specific empirical research on challenges is recommended.

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Appendix 1. Data collection

Data topics	Data sources	Data types
Investment policies from formal and media sources	<p>Accessed 6-10 November 2016</p> <p>http://www.livinginportugal.com/en/moving-to-portugal/golden-residence-permit-programme/</p> <p>http://business-investor-immigration.com/belgium-immigrant-investor-program/</p> <p>http://www.ukimmigration.com/entrepreneur/entrepreneur.htm</p> <p>https://www.gov.uk/tier-1-investor/overview</p> <p>https://www.investbulgaria.eu/</p> <p>http://www.spain-property.com/files/pages/spain-residence-permit.asp</p> <p>https://www.loc.gov/law/help/investor-visas/netherlands.php</p> <p>http://www.inis.gov.ie/en/inis/pages/new%20programmes%20for%20investors%20and%20entrepreneurs</p> <p>http://www.inis.gov.ie/en/inis/pages/pr12000003</p> <p>http://business-investor-immigration.com/austria-immigrant-investor-program-business-immigration/</p> <p>http://www.enterprisegreece.gov.gr/en/greece-today/living-in-greece-/residence-permits</p> <p>Accessed 4 November 2021:</p> <p>https://www.goldenvisas.com/belgium</p> <p>https://www.goldenvisas.com/uk</p> <p>https://www.goldenvisas.com/bulgaria</p> <p>https://www.goldenvisas.com/spain</p> <p>https://www.goldenvisas.com/netherlands</p> <p>https://www.goldenvisas.com/ireland</p> <p>https://www.irelandinvestorvisa.com/</p> <p>https://www.migration.gv.at/en/types-of-immigration/permanent-immigration/</p> <p>https://www.goldenvisas.com/austria</p> <p>https://www.goldenvisas.com/greece</p> <p>https://www.goldenvisas.com/cyprus</p> <p>https://www.goldenvisas.com/new-zealand</p> <p>https://www.goldenvisas.com/portugal</p> <p>https://helpers.hu/hungarian-investment-immigration-program/hungarian-residency-bond-refund-and-residency-renewal/</p> <p>https://www.goldenvisas.com/hungary</p>	Textual data, online data
Programmes and research on programmes	OECD UNCTAD European Migration Network Migration Policy Institute HUMUS 7th World Investment Forum British Academy Workshops NOS SH workshops AIB and EIBA conferences	Observational data, field notes, presentations and discussions with experts
Recipient-generated information on strategies and viewpoints	Discussions with Turkish, Russian, Ukrainian, Chinese, Syrian, Pakistani and Afghan entrepreneurs (migrants)	Follow-up questions and validation of other data, verbal data, observations

Source: Author's elaboration.

Overcoming institutional voids in the home country for internationalization: an exploratory examination of institutional strategies of Indian MNEs*

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Abstract

This study draws upon the institution-based view to examine the role of market and non-market institutional strategies of multinational enterprises from emerging markets (EMNEs) in shaping their decisions on outward foreign direct investment (OFDI) (decision to engage in OFDI and volume of investment). The proposed conceptual framework is tested on the OFDI decisions of listed Indian firms during the period 2008–2018. The results of random effects logistic regression and tobit regression provide robust evidence for the positive impact of institutional substitution and institutional signaling strategy on the decision to engage in OFDI as well as the volume of investment. An institutional borrowing strategy affects only the decision to engage in OFDI, whereas an internalization strategy does not help EMNEs while internationalizing. The study contributes to the literature on institutional voids and institutional escapism by identifying the strategies that facilitate overseas expansion. It adds to the EMNE literature, which has focused lately on explaining the role of non-market strategies in internationalization. The results of the study indicate the need for policy initiatives geared towards filling information voids, strengthening legal systems and development of credit markets.

Keywords: institutional voids, EMNEs, Indian MNEs, institution-based view

JEL classification codes: F20, F23

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1. Introduction

Increasing internationalization of multinational enterprises from emerging markets (EMNEs) has attracted significant attention from researchers as well as policymakers (e.g. Buckley et al., 2016; Li and Cantwell, 2021; Mondal, Lahiri and Ray, 2021; Pradhan, 2017). The rapid pace and unique internationalization strategies of EMNEs have been attributed, among other factors, to the national and subnational institutional environments in EMNEs' home countries (Nayyar and Prashantham, 2020; Stucchi, Pedersen and Kumar, 2015). A defining characteristic of the institutional environment in emerging markets is the ubiquitous institutional voids (Hoskisson et al., 2013; Khanna and Palepu, 1997). The absence or underdevelopment of various institutions and institutional actors that could support market transactions results in higher transaction costs, likelihood of opportunism, excessive rent to few actors and market power, thereby causing inefficiencies in executing market transactions and developing competitive advantages (Khanna, Palepu and Bullock, 2010). Drawing on the institution-based view, studies have demonstrated how institutional voids manifested as protectionism, corruption, lack of transparency and the like push or prevent EMNEs from investing overseas (e.g. Luo et al., 2019; Stoain and Mohr, 2016). These studies highlight EMNEs' outward foreign direct investment (OFDI) as a strategic response to home-country constraints.

Since each potential void is an actionable construct, examining internationalization as a strategic response without conducting an in-depth assessment of institutional strategies used by firms to address resource and legitimacy constraints emanating from such voids provides an *incomplete* explanation. Extant research has illustrated some market and non-market strategies that firms operating in emerging markets use to overcome voids in multiple dimensions of institutions, *such as internalization, institutional borrowing, institutional substitution, and institutional signaling* (Doh et al., 2017; Kim and Song, 2017; Marano, Tashman and Kostova, 2017; Pinkham and Peng, 2017).

However, whether and how such strategies affect the internationalization decisions of EMNEs remain unexamined, leaving a pertinent research gap in the literature. It is important because a strategy that helps mitigate institutional voids and improve firms' value and performance in the home country might not have a similar effect in foreign markets. For instance, whereas an internalization (through business group affiliation) strategy is linked to superior performance of firms in emerging markets (Khanna et al., 2010), the evidence of its role in facilitating internationalization remains mixed (e.g. Lamin, 2013; Stucchi et al., 2015). Furthermore, the process of institutional reforms often alters the set of potential strategic alternatives for local firms by extending the available strategic options, while making some existing strategies relatively unavailing. For instance, India's financial sector reforms have created a strong equity market, granting relatively improved access to equity

capital from the external (domestic) market and alleviating the need to rely solely on the internal financial market (Nayyar and Mukherjee, 2020; Stucchi et al., 2015). Along with the liberalization of OFDI policy, this has also allowed Indian firms to cross-list overseas and raise equity capital required for OFDI through the issue of American and global depository receipts (ADRs and GDRs) in international equity markets.¹ As the institutional environment in emerging markets varies remarkably and is constantly evolving, it warrants an examination of strategies that enable MNEs from them to overcome resource and legitimacy constraints caused by the voids and engage in outward internationalization.

Therefore, the present study explores the following research question- *Whether and how market and non-market strategies adopted by EMNEs to mitigate resource and legitimacy constraints from multiple institutional voids in the home country support their outward internationalization – the decision as well as the volume.* We draw on the institution-based view and the framework on responses to institutional voids of Doh et al. (2017) to build our propositions, which are tested on the OFDI decisions of Indian firms listed on the S&P BSE 500 stock market index during the period 2008–2018.

Indian MNEs have emerged as important contributors to global OFDI flows (UNCTAD, 2019), taking bold steps towards foreign markets amid persistent institutional voids in India and without explicit policy support from the government (Bhaumik and Driffield, 2011; Nuruzzaman, Singh and Gaur, 2019; Taylor, 2017). Despite this, the evidence on the internationalization strategies of Indian MNEs is relatively sparse (Nayyar, Mukherjee and Varma, 2021; Paul and Benito, 2018).

Using the random effects logistic regression and the tobit regression models, we find that institutional substitution through shareholding by foreign investors and institutional signaling through corporate social responsibility (CSR) reporting encourages Indian MNEs' OFDI decisions – the decision to engage in OFDI as well as the volume of investment. An institutional borrowing strategy makes firms more likely to engage in OFDI, whereas internalization of institutional voids through a business group's internal markets does not help Indian MNEs expand in foreign markets (in terms of the decision to engage as well as the volume of investment).

The study contributes to the institutional voids and institutional escapism literature first by identifying the market and non-market institutional strategies that enable EMNEs to address multidimensional institutional voids in the home country and internationalize successfully. Second, by recognizing the strategic value of CSR

¹ Reserve Bank of India, "Outward Indian FDI – Recent trends and emerging issues (Address delivered by Shri. Harun R Khan, Deputy Governor, Reserve Bank of India at the Bombay Chamber of Commerce & Industry, Mumbai on March 2, 2012)", 3 March 2021, https://rbi.org.in/scripts/BS_SpeechesView.aspx%3Fid%3D674.

in mitigating legitimacy constraints in foreign markets, the study adds to the existing studies on EMNEs' internationalization, which have focused on other non-market strategies such as political capital, corporate philanthropy and corporate political actions (e.g. Luo et al., 2019; Ma, Ding and Yuan, 2016). Third, to the best of the authors' knowledge, the study pioneers the examination of institutional strategies in the context of the internationalization of Indian MNEs.

For policymakers, the findings of the study suggest the need to fill information voids by creating appropriate market intermediaries and ramping up market assistance activities to further the OFDI ambitions of local firms. Policy initiatives such as strengthening of legal systems, consolidation of the banking sector and deepening of debt markets which address other institutional voids are needed to help outward-investing firms overcome resource and legitimacy challenges involved in internationalization.

2. Theory and hypotheses development

The role of the institutional environment has assumed special relevance in explaining internationalization in and from emerging markets. Institutions are commonly defined as the "rules of the game" in a society or humanly devised formal and informal constraints that shape human interaction (North, 1990). The institutional framework of the country comprises regulatory, normative and cognitive institutions that provide stability and meaning to social behaviour (Scott, 1995). The institutional context within which the firms are embedded shapes their strategic choices and behaviour. The institution-based view suggests that the business strategies of firms are a reflection, among resources and industry context, of the formal and informal institutional constraints within which the business operates (Peng et al., 2009). Therefore, understanding the relationship between a firm's institutional environment and its strategic choices is of paramount importance (Doh et al., 2017, p. 295).

The term "institutional voids" was proposed by Khanna and Palepu (1997) to describe the weak institutional conditions in developing markets. Institutional voids describe the condition where institutions that are necessary for the efficient functioning of the markets are either missing or work ineffectively. These voids are widespread and are found in varying degrees in multiple arenas, usually originating from a variety of weaknesses: underdeveloped product and factor markets; an absence of important market intermediaries, including those responsible for disseminating timely and credible information related to business and markets; an uncertain regulatory environment; weak legal systems; ineffective contract enforcement; and the like. When these critical institutions are absent or work poorly, they make it difficult for the domestic firms to access physical,

financial and informational resources, enter into contractual relationships with specialized partners along the value chain and undertake innovative activities in the home country (Li and Ding, 2017). In essence, institutional voids cause the transaction costs relating to market activities to increase tremendously by enhancing the likelihood of opportunistic behavior and corruption, excessive rents to few actors and market power. In addition to causing economic inefficiencies in the home country and eroding the international competitiveness of firms, institutional voids create serious legitimacy challenges for EMNEs in the foreign markets (Pant and Ramachandran, 2012). They make EMNEs suffer from “adverse institutional attribution”, as foreign stakeholders (customers, government, investors, business partners) harbour serious doubts about the ability of these firms to conduct business in a legitimate manner (Ramachandran and Pant, 2010).

Faced with such conditions, firms devise various strategic responses that include adapting to institutional voids, shaping and/or altering them, and avoiding operating in such an environment altogether. Much of the extant research has focused on adaptation to institutional voids through the internal markets of business groups or firm diversification, i.e. “internalization strategy”. Business groups form the internal market for capabilities, functions and key value-adding activities that cannot be reliably accessed from external markets (e.g. Elango and Pattnaik, 2007; Khanna and Palepu, 2000; Khanna et al., 2010; Kim and Song, 2017; Makhija, 2004). Other studies have identified various market and non-market strategies devised by firms to alter or mitigate various kinds of institutional voids. Market strategies include geographical clustering in which favourable institutional conditions are created at the microcosmic level (Lundan, 2012), forming partnerships with foreign firms (Siegel, 2005). Kingsley and Graham (2017) highlighted the importance of an “institutional substitution” strategy to mitigate the informational voids foreign investors face while investing in emerging markets. This strategy emphasizes reliance on a firm’s private accumulated stock of knowledge rather than on external market intermediaries or re-creation of the missing public information. Pinkham and Peng (2017) look at the “institutional borrowing” strategy to mitigate institutional voids in contract enforcement for foreign firms that form international joint ventures in countries with poorly functioning court systems. The strategy allows for incorporating the superior-functioning institutions or court-based systems of another country in lieu of local ones into the contract. Foreign firms from countries with weak governance-related institutions also engage in superior institutional borrowing by listing their securities on developed countries’ stock exchanges (Siegel, 2005). Cross-listing in developed markets makes it easier to “borrow” superior governance and oversight qualities, resulting in reputation advantages and signaling legitimacy for emerging-market firms (Chittoor et al., 2008). Potential non-market strategies include exerting political influence to change the content of regulations (Boddewyn and Brewer, 1994), influencing government to change institutions (Boddewyn and Doh, 2011) and relying on networks and interpersonal

trust (Narayanan and Fahey, 2005). More recently, studies have recognized CSR as an important non-market strategy to signal greater legitimacy for firms operating in environments ridden with institutional voids. Ghoul, Guedhami and Kim (2017) point to the strategic value of a “signaling strategy” through CSR for enhanced access to capital and other resources when firms encounter institutional voids. The study suggested a positive association between the signaling advantages of CSR activity and institutional voids in the home country. Along the same lines, Marano, Tashman and Kostova (2017) draw attention to the effects of home-country institutional voids on MNEs’ perceived liability of origin in host countries, and to the benefits of signaling legitimacy through CSR to reduce these negative perceptions.

Under the avoidance response to institutional voids, Luo et al. (2019) noted the influence of the non-market strategy of corporate philanthropy in OFDI of privately owned Chinese enterprises. Stoain and Mohr (2016) also demonstrated OFDI as an avoidance response to regulatory voids in emerging markets, although without consideration of the firm’s institutional strategies. An increasing number of studies have noted that EMNEs internationalize to avoid market and institutional constraints of the home country, gain access to strategic assets unavailable therein and thereby compensate for their competitive disadvantages (Elia and Santangelo, 2017; Gaur et al., 2018; Luo and Tung, 2007 and 2018; Nayyar and Prashantham, 2020; Nayyar et al., 2021; Witt and Lewin, 2007; Yamakawa, Peng and Deeds, 2008). However, little is known about the firm-specific institutional strategies that support their internationalization.

Therefore, in this study, we aim to explore what kind of market and non-market strategies adopted by EMNEs to mitigate resource and legitimacy constraints from multiple home-country institutional voids support their outward internationalization? To answer this question, we draw on the framework of Doh et al. (2017) to understand whether and how institutional strategies such as internalization, substitution and signaling (through CSR and institutional borrowing) influence OFDI decisions (decision to engage in OFDI and volume of investment) of Indian MNEs.

2.1. Internalization

Institutional voids in the product, labor, and capital markets as well as regulatory weakness and ineffective judicial systems make it difficult and costly for firms to conduct business operations. Economic inefficiencies arise from nonexistent institutional infrastructure and from constrained access to resources – for instance, financial resources in underdeveloped capital markets (Khanna and Palepu, 1997). The absence of effective institutional mechanisms, such as reliable financial reporting, a dynamic community of analysts, venture capital firms, independent and rigorous oversight bodies, makes raising financial resources from external markets challenging and inefficient.

In such an institutional environment, large diversified business groups emerge to internalize the external market failures through the creation of internal markets. Affiliation with these business groups is seen as an important institutional strategy ("*internalization*") to adjust to institutional voids. Business group affiliation shields affiliated firms against institutional voids by filling them. Due to the strong position, credibility and reputation of the business group in the home country firms affiliated with them can access external product, labor and capital markets relatively more easily than unaffiliated firms (Khanna and Rivkin, 2001). Furthermore, group-level mechanisms of internal resource sharing through formal connections of interlocking directorships and informal connections such as family and ethnic ties provide affiliates with a reliable internal market for key resources (Chari, 2013). The affiliated firms also benefit by capitalizing on common brand names as well as research and development conducted by sister affiliates to enhance their own marketing and technological capabilities (Gaur et al., 2014).

While the strategic value of business group affiliation is recognized for the group's superior performance in the home country (Khanna et al., 2010), studies have also associated resource advantages from affiliation with reduced liabilities of foreignness and increased propensity of internationalization for affiliates (e.g. Chittoor et al., 2015; Ma and Lu, 2017). In addition, business groups usually have contacts and/or affiliates in the foreign market that result from their ability to benefit from their relationships with important external parties in the home country such as policymakers and market regulators (Lamin, 2013). These contacts and/or affiliates in foreign markets are an important source of first-hand information about opportunities in the foreign markets as well as knowledge about foreign business operations. As with sharing of other resources, information about opportunities and knowledge related to foreign markets and business practices gets shared between the affiliates of the group, thereby helping affiliated firms reduce uncertainty and the associated liability of foreignness (Guillen, 2003). These information advantages and resources are not commonly available to unaffiliated firms, which have to build them from scratch – an expensive and time-consuming process.

Even as institutional reforms take place in emerging markets and external markets are developed well enough to alleviate resource constraints for unaffiliated firms, it is observed that benefits derived from business group affiliation do not disappear. Lamin (2013) argued that informational advantages of business groups become even more important when institutional reforms take place. Yet, others have also demonstrated that affiliation advantages leave affiliates deeply embedded in the existing context and restrict their ability as well as their willingness to transform in response to outward-oriented institutional reforms (Kriauciunas and Kale, 2006; Stucchi et al., 2015). Based on this, we hypothesize the following:

Hypothesis 1: Internalization of external market failures through affiliation with business groups as a strategy to overcome home-country institutional voids may have a positive or negative effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.2. Institutional substitution

Information voids are commonly associated with institutional voids and entail situations where publicly available and credible information about the investment environment and opportunities is missing (Khanna and Palepu, 1997). Readily available, timely and credible sources of information include government publications and data, and market intermediaries such as third-party analysts and research and consultancy organizations. In countries where institutions function poorly, firms struggle to access relevant information in the absence of multiple information-focused market intermediaries (Khanna et al., 2010). Studies have shown that information voids increase uncertainty and pose challenges for foreign firms' decisions to invest in emerging markets (Kingsley and Graham, 2017).

We argue that in emerging markets information voids or the absence of institutional mechanisms responsible for generating, analysing and disseminating information relevant to foreign investment also constrain the outward internationalization decisions of EMNEs. These voids are more conspicuous in those emerging markets where OFDI is not actively supported, such as in the case of India.

As FDI is a fixed long-term investment decision that cannot be reversed easily or quickly without incurring significant costs, a lack of reliable information is likely to constrain a firm's international expansion (Vernon, 1971). In countries with well-developed institutions, home governments and/or appropriate institutions consistently gather, analyse and disseminate OFDI-relevant information such as general information on a foreign country or region, or sector-specific data on concrete investment opportunities (Sarmah, 2003). Furthermore, seminars, investment missions, trade fairs and conferences organized with the support of government agencies or chambers of commerce and business associations in host countries provide occasions for personal exchanges with potential host-country partners and government officials and the identification of investment opportunities (Gorynia et al., 2015, p. 244; Te Velde, 2007). The absence of such institutional mechanisms, which creates information voids, is especially concerning for EMNEs that are relatively inexperienced on the international stage (Hernandez and Guillen, 2018). When operating amid information voids, Kingsley and Graham (2017) highlighted the value of a substitution strategy, in which firms leverage their private stocks of knowledge and experience. The strategy of institutional substitution differs from internalization in the sense that it does not entail firms re-creating missing public information within their boundaries, but instead drawing upon their private accumulated experience (Doh et al., 2017).

The investment development path framework suggests that foreign investor shareholding is an important source of private information that can facilitate a firm's OFDI (Dunning, 1981 and 1988). Firms that have attracted foreign shareholders are more likely to be aware of overseas market opportunities, business environments and associated risks, either directly through interfirm linkages or indirectly through managerial input from the foreign investors (Aitken and Harrison, 1999; Bhaumik, Driffeld and Pal, 2010). Such private information, which is not available to all the firms, would arguably serve as a proxy for missing public information, reducing the level of risk and uncertainty involved in international expansion, and making EMNEs more confident in their internationalization decisions. Based on this, we propose the following hypothesis:

Hypothesis 2: Institutional substitution through foreign shareholding, as a strategy to overcome information voids in the home country, has a positive effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.3. Institutional signaling and borrowing

Firms operating under poor institutional conditions have to devise appropriate strategies that signal their legitimacy and trustworthiness to various stakeholders in the home as well as foreign markets. This is because institutional voids not only affect the ease and transaction costs of conducting market-based exchanges in the home country but also follow EMNEs in the foreign markets in the form of "liability of origin" (Ramachandran and Pant, 2010; Madhok and Keyani, 2012). Liability of origin is the challenges unique to the internationalization of emerging-market firms, which arise because of where they are from and create legitimacy-based disadvantages in the foreign country (Ramachandran and Pant, 2010). Foreign stakeholders often engage in "adverse institutional arbitration" as they harbour various suspicions regarding the ability of EMNEs to conduct business in a legitimate manner (Pant and Ramachandran, 2012). For instance, foreign firms (suppliers, distributors and so on) might be unwilling to enter into business relationships or alliances with EMNEs which they perceive to be opportunistic and engaging in unethical business practices (Cuervo-Cazurra and Ramamurti, 2017). The opportunistic behavior is directly attributable to weak contract enforcement mechanisms in emerging markets (Khanna and Palepu, 1997). EMNEs also suffer from adverse stereotyping due to the poor corporate governance standards prevailing in their home country (Khanna and Palepu, 2006). The negative stereotyping based on "country of origin" effects is likely to prevail unless firms provide information or evidence to the contrary (Ghemawat, 2007).

Extant research on mitigating the legitimacy challenges in the home country has highlighted the importance of a firm's non-market strategy such as undertaking CSR activities (Ghoul et al., 2017). It is suggested that CSR activities are an

important strategic tool for signaling a firm's goodwill and good attributes to stakeholders. It helps enhance a firm's social capital with external stakeholders, reduce risk and thereby improve resource access and efficiency of market-based exchange agreements. Extending the examination of the relationship between institutional context and CSR, Marano et al. (2017) suggested that firms with greater internationalization intensity are likely to be more actively engaged in CSR activities in order to prevent the risk of negative legitimacy spillovers in the foreign markets. CSR reporting sends out a strong signal of legitimacy and trustworthiness to foreign partners and stakeholders by reflecting EMNEs' commitment to product quality and safety, environmental and social stewardship and anti-corruption behaviors, irrespective of the government's authority. In both contexts, the strategic value of such activities to the firm increased as home institutional voids increased.

Since firms that engage in CSR reporting enjoy greater access to resources in the home country and are able to alleviate legitimacy challenges in foreign markets, the following can be hypothesized:

Hypothesis 3: Institutional signaling through CSR reporting, as a strategy to overcome legitimacy constraints from home-country institutional voids, has a positive effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.4. Institutional borrowing

Institutional borrowing refers to the use of institutions from outside the domestic institutional environment to mitigate institutional voids (Pinkham and Peng, 2017). Borrowing better-functioning institutions has been illustrated as an important strategy for foreign firms to overcome voids in contract-related institutions (e.g. court systems) in the host country.

The market strategy of institutional borrowing can also be leveraged by EMNEs to signal legitimacy and better governance standards to foreign stakeholders (Siegel, 2005). This can be accomplished through the listing of securities on developed markets' stock exchanges. When a firm cross-lists its shares in a developed market stock exchange, it is bound to adopt higher standards of corporate governance and is subject to onerous accounting disclosures (Pan and Brooker, 2014; Purkayastha, Kumar and Gupta, 2021). By borrowing better governance standards and in general attaching themselves to the institutions containing stringent oversight mechanisms, cross-listing serves as a signaling strategy that establishes EMNEs as entities that would adhere to legitimate business conduct (Siegel, 2005). Furthermore, it also creates reputation advantages, increases the visibility of the EMNEs and provides foreign stakeholders with greater and reliable information to evaluate the firms (Baker, Nogsinger and Weaver, 2002).

The availability of credible information is expected to reduce the instances of negative stereotyping generalized on the basis of “country of origin” (Kang and Jiang, 2012). Cross-listing, however, also implies significant upfront costs for administrative and legal compliance for the firms (Bell, Filatotchev and Rasheed, 2012; Peng and Su, 2014), which may affect the resources available for internationalization, at least in the short run.

Based on this, we hypothesize:

H4a: Institutional borrowing through cross-listing on developed market stock exchanges, as a strategy to overcome legitimacy challenges from home institutional voids, has a positive effect on EMNEs’ decision to engage in OFDI.

H4b: Institutional borrowing through cross-listing on developed market stock exchanges, as a strategy to overcome legitimacy challenges from home institutional voids, has a negative effect on EMNEs’ volume of investment.

3. Methodology

The proposed model is tested on a sample of publicly listed firms from India. The rationale for choosing India as a research context and the sample of publicly listed firms are discussed in this section.

3.1 Research context: India’s rising OFDI flows and persistent institutional voids

During 2001–2019, the OFDI flow in India grew at a compounded annual growth rate of 18 per cent,² amounting to more than \$219 billion. Between 2005 and 2009, OFDI as a percentage of GDP in India surpassed that of China, the largest investor from emerging markets. Events such as the global financial crisis and the eurozone crisis led to a slowdown after 2009 and 2013, respectively (Iqbal et al., 2018), but, unlike in other BRIC nations, OFDI in India rebounded quickly from 2014 onwards. The magnitude and resilience of OFDI have led UNCTAD to put India on the list of the top 20 global sources of FDI for the period 2019–2021 (UNCTAD, 2019). Furthermore, while the pandemic dampened OFDI in the country – recording a year-on-year decline of 40 per cent during April–December 2020 – the flows picked up to reach the previous year’s level (\$3.5 billion)³ in October 2020.

² First author’s own calculation based on FDI data from UNCTAD FDI Statistics, <https://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics.aspx> (accessed 16 February 2021).

³ Reserve Bank of India (RBI), Overseas Direct Investment Database, www.rbi.org.in/Scripts/Data_Overseas_Investment.aspx (accessed 16 February 2021).

The increase in India's OFDI during the last decade has occurred against the backdrop of persistent institutional voids. As reported in the Global Competitiveness Report 2018 published by the World Economic Forum (WEF), corruption is the most problematic factor that Indian private sector firms face while doing business, followed by difficulty in accessing financial resources (WEF, 2018). The implementation of various financial sector reforms has led to the deepening of the equity market but the corporate debt market remains at a nascent stage of development. Similarly, India's ratio of domestic credit to GDP is 51 per cent, much lower than the 136 per cent and 70 per cent recorded in Malaysia and Brazil respectively – countries that have a similar gross domestic savings rate as India.⁴ The underdevelopment of labour market institutions is also noteworthy. While the score on skill availability (pillar 5) has moved a notch from 4.06 in 2008 to 4.3 in 2018 (on a scale of 7), no improvement is observed in terms of labour market efficiency (4.16 out of 7; pillar 7). In this context, India at 75th position lags far behind not only advanced economies but also other emerging markets such as China (38th) and Russia (60th) (WEF, 2008 and 2019). The institutional voids pertaining to contract enforcement and security of property rights have been similarly persistent. The data (scores) from the Economic Freedom of the World Index for 2008–2018 indicate minimal changes or improvement in the legal structure and security of property rights in India, with the score ranging from 5.13 to 5.51 (on a scale of 10). While this is similar to other emerging markets, for instance Brazil (5.19–5.97), China (5.13–5.50), the voids are conspicuous when compared to the advanced economies (e.g. United Kingdom: 7.71–8.20).⁵

The rising contribution of Indian MNEs to global OFDI flows amid persistent institutional voids in the home country warrants an examination of their institutional strategies, thereby providing an appropriate empirical context for the present study.

3.2. Data and sample

Since the majority of OFDI from emerging markets is accounted for by large firms (Dau, 2012; Mondal and Gandepalli, 2020), our sample consists of Indian firms listed on the S&P BSE 500, an Indian stock market index comparable to the global S&P 500 index. The BSE 500 index represents about 93 per cent of the market capitalization of all firms listed in the BSE⁶ and has been used in studies

⁴ Malpass, David, World Bank Group President, "A stronger financial sector for a stronger India", speech delivered at NITI Transforming India Lecture, Vigyan Bhavan, New Delhi, India, 26 October 2019.

⁵ All the reported figures are obtained from the Fraser Institute website, which publishes the Economic Freedom of the World Index every year; www.fraserinstitute.org/economic-freedom/dataset (accessed 25 November 2021).

⁶ See www.bseindia.com.

to examine the internationalization of Indian firms (e.g. Chittoor, Aulakh and Ray, 2015; Mondal and Gadepalli, 2020). We obtain the list of BSE-500 firms along with data on their identity and financial information from Prowess, a database of the Center of Monitoring Indian Economy (CMIE). Prowess is the most comprehensive and reliable source of firm-level data, used in several studies undertaken in the context (e.g. Chittoor et al., 2015; Elango and Dhandapani, 2020). We excluded foreign-owned firms and central and state government enterprises as their OFDI is not comparable to domestic and privately owned firms (Kumar et al., 2020). We also excluded financial services firms as the industry is subject to different accounting principles and OFDI regulations (Mondal and Gadepalli, 2020). After all the eliminations, including the firms for which data on desired financial variables were not available, the final sample consisted of 275 firms. The final sample of firms exhibits wide diversity in terms of ownership structure (a business group affiliated vis-à-vis unaffiliated firms), industry classification (34 unique 2-digit industries as per NIC 2008 classification), firm age and size.

3.3. Variables

To test the proposed hypotheses, we developed two dependent variables and four independent variables. Various firm-, industry- and region-specific factors that may affect firms' OFDI decisions are controlled for.

3.3.1. Dependent variable

To examine the decision to engage in OFDI, we constructed a dichotomous variable that takes on value 1 if the firm made an OFDI transaction in any particular year during 2008–2018 and 0 if not. The volume of OFDI is measured as the actual amount of direct investment made by the firm in any particular year during 2008–2018. Nearly 70 per cent of firms in our final sample conducted OFDI at least once during the sample period which is guided by the data availability.⁷ The data on firm-level OFDI flows is obtained from the overseas direct investment (ODI) database of the Reserve Bank of India (RBI).⁸ To check whether and how much a firm has invested, we manually checked for its name in the annual compilations of the data obtained from the RBI.

⁷ Authors' calculation based on the RBI outward direct investment database, www.rbi.org.in/Scripts/Data_Overseas_Investment.aspx.

⁸ The RBI's overseas direct investment database provides official data (as reported by authorized foreign exchange dealers) on actual OFDI made by Indian firms in overseas joint ventures and wholly-owned subsidiaries, in the form of equity, loans and guarantees for each calendar month starting from June 2007.

3.3.2. Independent variables

Independent variables: Following the extant studies, the four independent variables to proxy for the four strategies we aim to examine in this study are operationalized as follows:

- i. Internalization is operationalized as a firm's affiliation status. It is a dichotomous variable that takes a value of 1 if the firm is affiliated with a business group in the home country and 0 if not (e.g. Gaur et al., 2014).
- ii. Institutional substitution through foreign shareholding is operationalized as the percentage of a firm's total equity that is held by foreign investors (promoters and non-promoters) (e.g. Buckley et al., 2016).
- iii. Institutional signaling is operationalized as the amount spent on CSR activities. The Indian Companies Act, 2013 mandated that companies meeting certain financial thresholds spend a prescribed amount on CSR activities and report the same in annual financial statements (Sharma and Aggarwal, 2021). The data on CSR expenditure are available from 2015 onwards; therefore we carry out the analysis on a reduced sample.
- iv. Institutional borrowing is operationalized as a dichotomous variable that takes a value of 1 if the shares of the company are listed or traded on developed markets stock exchange and 0 if not (e.g. Lopes and Rodrigues, 2007).

3.3.3. Control variables

We control for firm-specific factors such as size, profitability, financial leverage, age, traditional monopolistic resources (marketing intensity and technological intensity) and prior internationalization (export sales) experience. Large, profitable firms have more resources under their command, making them more likely to internationalize through risky and resource-intensive modes such as OFDI. In a similar vein, firms with little or no debt have slack resources that enable them to undertake OFDI projects having negative present value (Das and Kapil, 2015). The absence of established routines and practices, the proliferation of rules and the consequent organizational resistance to change make young firms more able to undertake OFDI (Elango and Pattnaik, 2007). Their role remains unclear in context of EMNEs, but traditional monopolistic resources are linked to the nature and extent of a firm's internationalization (Dunning, 1988). We also controlled for firm's prior export sales, as they facilitate OFDI through a "learning by doing" effect (Johanson and Vahlne, 1977; Thomas and Narayanan, 2017). Furthermore, to account for the distinct internationalization patterns of firms from different sectors, we added sector dummies (Grøgaard, Gioia and Benito, 2013). We also controlled for foreign participation in the industry, since EMNEs' OFDI is often interlinked with inward

FDI activity at home (Luo and Tung, 2007; Wang et al., 2012). Last, since a firm's OFDI is related to the level of economic development (Dunning, 1981), which varies significantly across the subnational regions in emerging markets (Chen, 2012), we controlled for the state's economic development. Year dummies are added to control for time effects. The details of all the control variables are presented in table A1 in the appendix.

3.4. Estimation method

Given the nature of our dependent variables, we estimate two different models.

$$\text{OFDI decision: } \text{OFDI}_{it}^* = \gamma X_{it} + \mu_{it}$$

$$\text{Volume of OFDI: } \text{VOFDI}_{it}^* = \gamma Z_{it} + \nu_{it}$$

where X and Z represent matrices of independent and control variables, and μ_{it} and ν_{it} are normally distributed residuals. The same set of variables have been used to explain both the decision to undertake OFDI and the decision of the volume of OFDI.

$$\text{VOFDI}_{it} = \text{VOFDI}_{it}^* \text{ if } \text{OFDI}_{it} = 1 \text{ and } \text{OFDI}_{it} = 1 \text{ if } \text{OFDI}_{it}^* > 0$$

$$\text{VOFDI}_{it} = 0 \text{ if } \text{OFDI}_{it} = 0 \text{ and } \text{OFDI}_{it} = 0 \text{ if } \text{OFDI}_{it}^* = 0$$

Hence, the observed value of OFDI (VOFDI) is zero when a firm decides not to invest abroad and takes a positive value when a firm decides to invest abroad.

To examine the decision of a firm to engage in OFDI, we use random effects binary logistic regression. Logistic regression is based on estimation of maximum likelihood and is a suitable method to use when the dependent variable is binary and independent variables are a combination of continuous and discrete variables. The likelihood ratio test of rho is used to check whether a random effects or ordinary logistic regression model is more appropriate. The rejection of the null hypothesis suggests that the random-effects model is preferable (Tatoğlu, 2012; Tuna and Karaca, 2016). The random effects specification is desirable also because some of the important explanatory variables – affiliation with the business group and listing on foreign exchange – are time-invariant and cannot be accommodated in a fixed-effects specification (Kennedy, 1998).

For the decision on the volume of OFDI, we use a random effects tobit regression method. It is suitable under the conditions of limited dependent variables, known as a corner solution response (Woolridge, 2012, p. 596). Under such conditions, the regression methods of ordinary least squares or traditional random and fixed effects of panel data produce biased and inconsistent coefficients estimates. When the error term satisfies the basic classical assumption, the tobit model produces coefficient estimates that are unbiased and consistent.

The estimation methods (logit and tobit) used in this study have been popular among researchers examining similar OFDI decisions (e.g. Wei, Zheng, Liu and Lu, 2014; Nuruzzaman et al., 2019). We used a lagged structure model because it is reasonable to assume a lag between the time when a firm takes OFDI-related decisions (based on external environmental conditions and its attributes) and the time when the investment is made (Elango and Pattnaik, 2007; Yoo and Reimann, 2017). The use of lagged structure models also helps address the problem of potential endogeneity and strengthens causal inferences (Greene, 2003). We also used a two-stage least square regression to check for endogeneity concerns (Bascle, 2008).

4. Results

The descriptive statistics and correlation matrix are presented in table 1. All the correlation coefficients are sufficiently low, indicating that multicollinearity is not a problem.

The results of the random effects logistic regression and the tobit regressions are presented in tables 2 and 3 respectively. Models 1a (for the logistic regression) and 1b (for the tobit regression) includes all the control variables. The variables for internalization substitution borrowing are introduced in models 2a, 3a and 4a respectively for the logistic regression, and models 2b, 3b, and 4b for the tobit regression. Models 5a and 5b are full models. To test the effect of signaling through reporting of expenditure on CSR activities, we re-run the model on a reduced sample (2015–2018). The CSR variable is added in models 6a and 6b of the logistic regression (table 2) and the tobit estimation (table 3) respectively. Models 7a and 7b are full models for the reduced sample (which includes CSR).

The variable for internalization (business group affiliation) does not reach a statistical level of significance in models 2a and 2b. This suggests that internalization as a strategy to overcome institutional voids (hypothesis 1) does not affect EMNEs' decisions to undertake OFDI or the volume of investment. The variables remain insignificant in the full models also – models 5a and 5b – and also in the full model estimation on the reduced sample (models 7a and 7b).

As predicted, the coefficient of the variable representing institutional substitution (foreign shareholding) is found to be significant across all the models (models 3a, 3b, 5a, 5b and 7b), lending strong support to hypothesis 2. Shareholding by foreign investors constitutes an EMNE's private source of the reliable and relevant information required to support OFDI decisions, helping them overcome information voids in the home country. The possession of information about foreign market opportunities, business environment, risks involved and other elements reduces uncertainty and makes EMNEs (Indian MNEs here) more confident about undertaking OFDI and investing extensively.

Table 1. Correlation matrix and descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CSR	1											
(2) BGA	0.105	1										
(3) FX listing	0.118	0.155	1									
(4) Foreign ownership	0.148	0.183	0.117	1								
(5) Firm age	0.099	0.191	0.1	0.047	1							
(6) Log Firm size	0.437	0.342	0.211	0.317	0.156	1						
(7) Tech intensity	-0.01	-0.08	0.029	-0.04	-0.04	-0.02	1					
(8) Profitability	0.111	-0.04	-0.06	0.091	0.016	-0.06	0.038	1				
(9) Export intensity	0.035	-0.07	0.037	0.065	-0.04	-0.08	0.111	0.121	1			
(10) Debt-equity ratio	-0.03	0.041	0.062	-0.01	-0.02	0.07	-0.02	-0.35	-0.02	1		
(11) Log Industry FDI	-0.02	-0.05	-0.04	0.033	0.01	-0.02	0.073	0.11	0.055	-0.013	1	
(12) Log GDP per capita	0.014	-0.01	-0.04	0.018	0.017	0.1	0.034	-0.04	-0.02	0.034	-0.01	1
Mean	112.7	0.699	0.075	16.24	37.93	4.57	0.001	10.63	13.79	0.767	4.7	11.66
Standard deviation	336.64	0.458	0.263	15.35	24.17	0.658	0.011	22.97	24.67	4.29	0.523	0.426

Source: Estimations using Stata 16.
Note: BGA = business group affiliation, CSR = corporate social responsibility, FX = foreign stock exchange, SDF = state domestic product

Table 2. Results of random-effects logistic regression (Dependent variable: Decision to engage in OFDI or not)

Variables	Model 1a	Model 2a	Model 3a	Model 4a	Model 5a	Model 6a	Model 7a
H1: Internalization (BGA)		0.401 (0.436)			0.190 (0.441)		-0.474 (0.581)
H2: Institutional substitution (foreign ownership)			0.036*** (0.010)		0.035*** (0.010)		0.029** (0.015)
H3: Institutional borrowing (FX listing)				1.192** (0.507)	0.939* (0.541)		0.222 (0.827)
H4: Institutional signaling (CSR)						0.001*** 0	0.001*** 0
Firm age	0.002 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0 (0.007)	-0.002 (0.010)	-0.001 (0.010)
Firm size	0.808*** (0.205)	0.766*** (0.214)	0.665*** (0.205)	0.764*** (0.208)	0.614*** (0.215)	1.172*** (0.325)	1.043*** (0.346)
Technological intensity	35.186*** (11.736)	35.856*** (11.586)	36.265*** (11.759)	34.568*** (11.266)	36.052*** (11.327)	64.432** (26.284)	63.561** (26.01)
Profitability	0.007 (0.006)	0.007 (0.005)	0.005 (0.005)	0.007 (0.006)	0.005 (0.005)	0.001 (0.01)	-0.001 (0.01)
Prior export experience	0.010** (0.005)	0.010** (0.005)	0.009** (0.004)	0.010** (0.005)	0.009** (0.004)	0.010 (0.007)	0.009 (0.007)
Debt-equity ratio	-0.008 (0.017)	-0.007 (0.017)	-0.008 (0.016)	-0.008 (0.018)	-0.009 (0.016)	-0.007 (0.025)	-0.009 (0.024)
Manufacturing sector	1.018*** (0.381)	1.017*** (0.381)	1.044*** (0.379)	1.008*** (0.381)	1.036*** (0.381)	1.564*** (0.565)	1.576*** (0.564)
Industry foreign participation	0.265* (0.145)	0.272* (0.146)	0.264* (0.146)	0.267* (0.145)	0.270* (0.146)	0.772** (0.377)	0.756** (0.376)
SDP per capita	0.155 (0.417)	0.176 (0.412)	0.174 (0.408)	0.203 (0.428)	0.222 (0.414)	0.546 (0.608)	0.563 (0.610)
Constant	-9.013* (4.956)	-9.342* (4.87)	-9.128* (4.892)	-9.423* (5.044)	-9.609** (4.897)	-18.284** (7.498)	-17.998** (7.498)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi-square	64.59***	68.14***	91.22***	73.69***	94.50***	39.67***	44.56***
Log likelihood	-1 171.6631	-1 171.018	-1 162.594	-1 169.847	-1 161.2198	-394.404	-392.42
Observations	2 532	2 532	2 532	2 532	2 532	794	794
Endogeneity statistics (2-SLS regression for full models)							
Durbin chi-square					6.125		12.345
Wu-Hausman					1.214		2.031

Source: Estimates using Stata 16.

Note: BGA = business group affiliation. CSR = corporate social responsibility. FX = foreign stock exchange. SDP = state domestic product.

^a Robust standard errors in parentheses.

^b *** p < 0.01. ** p < 0.05. * p < 0.10.

^c Marketing intensity was dropped due to multicollinearity.

Table 3. Results of tobit regression model (Dependent variable: Volume of OFDI)

Variables	Model 1b	Model 2b	Model 3b	Model 4b	Model 5b	Model 6b	Model 7b
H1: Internalization (BGA)		4 349.253 (3 454.396)			2 550.156 (3 424.393)		-847.096 (2 304.101)
H2: Institutional substitution (foreign ownership)			291.972*** (86.461)		274.681*** (87.304)		181.768*** (63.336)
H3: Institutional borrowing (FX listing)				10 170.235* (5 744.484)	8 023.758 (5 658.046)		2 596.913 (3 522.905)
H4: Institutional signaling (CSR)						13.327*** (2.895)	13.233*** (2.849)
Firm age	-1.068 (67.575)	-14.697 (68.506)	-13.525 (66.097)	-10.696 (67.810)	-28.269 (67.145)	-13.373 (41.829)	-16.603 (41.568)
Firm size	9 726.830** (1 805.284)	9 190.601*** (1 850.681)	8 517.693*** (1 814.998)	9 268.291*** (1 820.186)	7 895.869*** (1 863.234)	5 855.714*** (1 571.298)	4 493.686*** (1 684.342)
Technological intensity	160 708.67 (107 468.94)	167 338.94 (107 641.99)	170 575.94 (106 548.17)	155 759.36 (107 464.46)	169 945.41 (106 780.15)	88 726.802 (75 958.941)	95 013.189 (74 806.265)
Profitability	38.163 (46.662)	42.885 (46.925)	25.986 (46.485)	37.448 (46.599)	28.789 (46.689)	-44.517 (38.525)	-52.623 (38.176)
Prior export experience	43.033 (41.304)	44.477 (41.356)	34.120 (40.907)	40.769 (41.313)	33.756 (40.995)	26.797 (31.684)	17.887 (31.354)
Debt-equity ratio	-237.590 (209.386)	-229.545 (209.028)	-245.472 (208.568)	-245.706 (208.853)	-247.537 (208.066)	-133.357 (144.888)	-146.622 (142.817)
Manufacturing sector	5 433.599 (3 567.625)	5 409.590 (3 573.122)	5 608.730 (3 491.269)	5 290.430 (3 568.442)	5 468.019 (3 499.962)	6 329.810*** (2 294.959)	6 448.092*** (2 252.758)
Industry foreign participation	998.944 (1 558.026)	1 072.055 (1 559.190)	1 048.113 (1 555.188)	1 021.361 (1 557.856)	1 107.208 (1 556.299)	6 442.720*** (1 770.873)	6 517.160*** (1 755.618)
SDP per capita	3 056.924 (3 961.544)	3 346.146 (3 975.853)	3 352.689 (3 880.489)	3 558.256 (3 973.56)	3 907.920 (3 906.002)	2 178.372 (2 485.439)	2 541.940 (2 452.746)
Constant	-113 133.500** (47 316.364)	-117 039.400** (47 523.179)	-115 634.600** (46 386.573)	-117 310.200** (47 398.418)	-121 089*** (46 663.817)	-100 523.200*** (31 369.270)	-101 319*** (30 918.204)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi-square	59.17***	60.97***	72.06***	62.83***	75.23***	73.58***	83.11***
Observations	2 533	2 533	2 533	2 533	2 533	794	794

Endogeneity statistics (2-SLS regression for full models)

Durbin chi-square					3.806		10.591
Wu-Hausman					0.754		1.925*

Source: Estimates using Stata 16.

Note: BGA = business group affiliation, CSR = corporate social responsibility, FX = foreign stock exchange, SDP = state domestic product.

^a Normal standard errors in parentheses.

^b *** p < 0.01, ** p < 0.05, * p < 0.10

We also find strong support for hypothesis 3, as the variable representing institutional signaling strategy (CSR) is significant across models 6a, 6b, 7a and 7b. The strategic value of CSR reporting in overcoming legitimacy constraints from home-country institutional voids supports the likelihood as well as the volume of OFDI. Regarding hypotheses 4a and 4b, institutional borrowing as a strategy to overcome legitimacy challenges from home institutional voids, the variable for shares listing on the foreign stock exchange is found to be significant in models 4a, 5a and 4b, but loses significance in the full models (5b and 7b). This suggests that cross-listing of shares enhances the likelihood that an EMNE will undertake OFDI (hypothesis 4a) as it helps them overcome governance-related legitimacy challenges in the foreign markets, but does not explain the volume of such investment (hypothesis 4b).

Among the control variables, larger firms are more likely to engage in OFDI and more intense in their OFDI. Technological intensity and prior export experience influence the decision to engage in OFDI.

Concerning endogeneity, the results of Durbin chi-square and Wu-Hausman F test statistics from the two-stage least square regression for full models (models 5a and 7a in table 2 and models 5b and 7b in table 3) reveal no cause of concern.

5. Summary of findings

The paper examines the roles of various market and non-market strategies that EMNEs devise to overcome resource and legitimacy constraints from home-country institutional voids in supporting their OFDI decisions on whether to engage in OFDI and on the volume of investment. Testing the hypotheses on the OFDI decisions of publicly listed Indian firms reveals the encouraging effects of the institutional substitution strategy through shareholding by foreign investors and the institutional signaling strategy through CSR reporting on both decisions. Although the strategy of institutional borrowing through cross-listing of a company's shares on stock exchanges in developed markets makes EMNEs more likely to invest, strong support is not found for its effect on the volume of their investment. Surprisingly, we do not find support for the internalization strategy, i.e., affiliation with business groups. It is the strategy most commonly used by EMNEs to overcome market-supporting institutional voids in the home country (Khanna and Palepu, 1997), but it does not help EMNEs' overseas expansion. The finding can be attributed to the evolving institutional environment which requires a certain degree of agility and flexibility for firms to respond effectively. Although affiliation with business groups is documented to help emerging-market firms improve their domestic performance, its advantages with respect to their internationalization may taper off because affiliated firms are embedded in the institutional arrangements dictated by the group (Roth and Kostova, 2003).

6. Policy implications

The findings of the study present some important implications for policymakers, who need to be cognizant of the potential positive development effects of OFDI for the home country. These include creation of additional employment opportunities for skilled workers from the processes involved in long-term internationalization projects, improvement of institutions and increases in R&D activities of parent firms (Beule and Somers, 2017; Hendricks, 2017). To realize these potential benefits, it is imperative to enact policy measures that facilitate, support or promote OFDI. Although India's OFDI policy has become quite liberal since 2000, it falls short of providing direct or explicit support to outward-investing Indian firms.

The study provides evidence that the initial step in this direction could include plugging the informational voids, i.e. developing robust institutional mechanisms and market intermediaries, at both national and subnational level, that could disseminate reliable, accurate and quality information about opportunities in the foreign markets and provide market assistance by carrying out country-specific as well as sector relevant research and risk assessment. Such home country measures would be beneficial for local firms, especially small and medium enterprises and firms without prior international experience and linkages to foreign firms in the home country. Furthermore, strengthening of legal institutions that guarantees effective (speedy, fair, and affordable) contract enforcement and protection of property rights is imperative. Specific steps in this area could include (1) expediting the integration of Supreme Court's case management system with all the high courts and subordinate courts across the country, and (2) setting up separate commercial courts or specialized chambers within the existing high courts (World Bank, 2009).

This is required to overcome resource and legitimacy challenges which in turn support firms' overseas ventures. While some Indian MNEs engage in institutional borrowing by cross-listing on developed markets stock exchange, this does not come without cost, such as those relating to listing expenses, administrative processes and legal compliance costs (Peng and Su, 2014), and is therefore not a strategic option accessible to all firms.

Steps also need to be taken for increasing the availability of credit and deepening of capital markets, especially debt market. To this end, policy measures such as consolidation of public-sector banks, privatization could boost the banking sector's ability to generate credit, and liberalizing the regulations for domestic institutional investors could contribute towards deepening of debt market by making available long-term finance.

7. Limitations and future research directions

Lastly, while the present study fills an important research gap it suffers from some limitations which provide scope for future research work. The research setting of this study was purposefully limited to one emerging market. Given that the nature and quantum of institutional voids differ remarkably across EMs, studies from other relatively underexamined EMs, especially from Africa and Latin America, would be valuable. Another natural extension of the study would be to examine the role of institutional strategies in OFDI location choice decisions, particularly regarding bridging the institutional distances. Future studies could also extend the examination of foreign shareholding as a mechanism of information substitution to consider the differential effect of different types of foreign investors- promoters, institutional investors, venture capitalists etc., as they differ with respect to risk appetite, investment horizon and motivation, among other factors. Consistent with our objective, we examine the role of foreign equity shareholding as providers of information about foreign market opportunities and knowledge. Foreign investors are a source of more than just information. While we control for other effects- that foreign investor may have on firm's marketing and technological resources, in our empirical model, we maintain that a survey-based study could isolate the information provision (substitution-strategy) effect more clearly.

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Appendix 1. Details of control variables

Variable	Measure	Source
Firm size	Natural log of total assets	Prowess database, Center of Monitoring Indian Economy
Firm age	Number of years since incorporation	
Marketing intensity	Ratio of expenditure on marketing activities to sales	
Technological intensity	Ratio of expenditure on research and development activities to sales	
Prior international experience	Ratio of export sales to total sales	
Profitability	Ratio of profit before tax and extraordinary items to sales	
Financial leverage	Debt-to-equity ratio	
Sector dummy	1 = Manufacturing; 0 = Services	
Foreign participation in industry	Amount of annual FDI equity inflows in each 2-digit industry, according to National Industrial Classification (NIC) 2008 classification		Department for Industrial Policy and Promotion, Ministry of Commerce and Industry, annual statistics, available on Open Government Data Platform India
Subnational economic development	Natural log of state domestic product per capita	RBI Handbook of Statistics for Indian states

World Investment Forum 2021: insights from the Academic Track and a future research agenda

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1. The setting of policy research and deliberation

UNCTAD has contributed during the last three decades to research and policy analysis on foreign direct investment (FDI), activities of multinational enterprises (MNEs), international production and the development impact of all three. In 2020 UNCTAD's *World Investment Report (WIR)* marked its 30th year. The report features the latest global investment trends and prospects, highlights the key emerging policy issues and dives deep into the fundamental themes of FDI and development. Through its policy analysis and recommendations over the past three decades, the *WIR* has helped define and redefine mainstream investment policymaking at national, regional and global levels (Zhan, 2020a). The *World Investment Report 2020* presents an overview of three decades of international production. It coincided with the beginning of a new era for the global economy marked by COVID-19. The analysis describes how the pandemic accelerated pre-existing trends by affecting international production systems. Tougher competition for FDI – especially in manufacturing, growing economic nationalism and the new industrial revolution make it more challenging for developing economies to participate in global value chains (GVCs) and thus require a new investment for development path.

The *WIR* and our wide-ranging research programme benefit from plentiful interaction with academia. Some of our long-standing contributors were instrumental to the report's success in its early years. Every year, we try to maintain this synergy through inputs from scholars, peer reviews and feedback sessions. Over the years the report has been cited extensively in academic research.

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The report usually contains sought-after data, and it also contributes ahead-of-the-curve analyses. It has been recognized by the Academy of International Business (AIB) for its significant contributions in the field of international business (Clegg, 2020).

We are constantly looking to improve on the synergy with academia – including through our academic journal *Transnational Corporations*. Our team of editors is working on the journal's standing – and as a result, citations are increasing. We endeavour to ensure that the research published in it is policy-relevant and feeds into the *WIR*.

Another reflection of this synergy with academia is UNCTAD's World Investment Forum (WIF). The Forum was established in 2008 on the basis of a profound thought: to fill a systemic gap in global economic governance. At the international level, economic governance has several pillars, including a multilateral monetary system embodied by the International Monetary Fund and a multilateral trading system in the World Trade Organization. But there is no equivalent for international investment policy. The current *de facto* regime is governed by thousands of bilateral and regional agreements. In the absence of a multilateral system for cross-border investment, the Forum could provide a global platform to gather policymakers, the private sector, academia and other key stakeholders for high-level discussion and action to shape international investment policy (Zhan, 2020b). Over the past 13 years, WIF has made a tremendous impact in the field of investment for development.

The 7th edition of the Forum in October 2021, with more than 90 sessions on an eclectic range of topics, also provided an opportunity to instil new thinking on research themes for our agenda. It featured for the first time a full and prolific Academic Track, organized in collaboration with leading academic institutions and associations in disciplines related to investment and development. It consisted of dedicated academic sessions and innovative structured mechanisms to capture key insights relevant for future academic research from other substantive and policy-oriented tracks on topics such as project finance and infrastructure, special economic zones, MNEs and women's empowerment, internationalization of small and medium-sized enterprises (SMEs), investment for the Sustainable Development Goals (SDGs), sustainable finance, international investment agreements, and the impact of international taxation on FDI, among other issues related to foreign investment, MNEs and development in a global context.

A highlight of WIF2021 was an extensive set of hybrid sessions, including high-level panels, bringing together scholars, policymakers, civil society and business leaders, providing a platform to discuss key issues related to investment for sustainable recovery and a forward-looking policy-oriented research agenda. The forum also featured daily roundups led by academics, covering the main topics discussed by our diverse stakeholder community and participants.

With help from our academic partners, we have distilled the key elements of the discussions, with a view to highlighting the key elements of a forward-looking research agenda. Those discussions appear in this special section, consisting of four perspectives and a multidisciplinary academic paper, covering core issues in international investment for economic development.

2. The Academic Track of the WIF and a forward-looking research agenda

Mega-trends, together with the impact of the COVID-19 pandemic on investment flows in general and on investment in the SDGs in particular, were at the centre of WIF2021. With the overarching theme of Investing in Sustainable Recovery, the Forum discussed the immediate challenges and opportunities in investment and interrelated trade, technology and sustainability issues, and longer-term development priorities for countries and companies alike.

The key and emerging topics that underpinned many of our discussions in the Academic Track reflected the realities and needs of our stakeholder community, from governments to business leaders. The programme and broad range of stakeholders represented enabled us to register the concerns of policymakers and their policy priorities, as well as the concerns and expectations of the business community. The aim of the Academic Track was to translate those concerns into policy-relevant research directions (figure 1).

Some of the major policy concerns that guided us in our thinking – and are reflected variously in the research directions we developed – include the following (see also Zhan, 2021):

1. The implications for industrial policy and development strategies of GVCs and the evolution of international production.
2. The implications for investment policymakers, investment authorities, investment promotion agencies, special economic zones and other special industrial arrangements of the shift from industry investment to infrastructure investment, and the growing importance of project finance – fundamentally different from traditional MNE FDI.
3. How to boost investment in the SDGs and what policy mechanisms could effectively contribute to bolstering SDG investment.
4. Reflecting the interdisciplinary nature of the WIF fields such as international economic law and taxation, the importance of the continued need to reform international governance of investment and what can be learned from parallel efforts in international taxation.

The beginnings of a framework for future research

Key themes in investment and development	WIF discussions – new and improved research agenda
1. Global economic governance realignment	<ul style="list-style-type: none"> • Reform of international taxation and investment policy • Regional integration and investment promotion • Reform of the IIA regime
2. The transformation of GVCs and international production and industrial policies	<ul style="list-style-type: none"> • Leaders Summit: International Production and Productive Capacity • SME internationalization
3. The implications of the New Industrial Revolution for development strategy	<ul style="list-style-type: none"> • Investing in Industry 4.0 • Growing digital FDI • Science parks
4. The impact of the sustainability imperative on international production	<ul style="list-style-type: none"> • SDG model zones • Future-proofing sustainable GVCs
5. The shift from industry to infrastructure investment	<ul style="list-style-type: none"> • International project finance • G20 infrastructure investment plans
6. The drive for increased corporate accountability	<ul style="list-style-type: none"> • Sustainable stock exchanges • ISAR sustainability reporting • MNEs and gender equality

Source: UNCTAD.

Through the various sessions of WIF2021, scholars and our broad stakeholder community discussed and addressed the questions highlighted at the onset, for example:

- Virtually all sessions addressed the issue of investing in the SDGs, including the financing requirements to achieve the goals in the next “decade of action”.
- Likewise, most sessions discussed the implications for development of the changing international investment and trade landscape, including regional integration, new investment promotion strategies, new technologies, new industrial policies, evolving international taxation and the impact of the pandemic across the international production and investment system.
- The need to reform the international governance of investment at both national and international levels.
- We exchanged views and ideas on how to partner with the private sector – family businesses, institutional investors and MNEs, also including SMEs – to achieve a more inclusive and gender-balanced economy through their activities in developing countries.

3. The articles in this special section

The articles in this special section – three brief perspective pieces and a longer contextual paper – cover five global themes: GVCs and sustainable development, investment in infrastructure, optimal policymaking in the context of crises, investment for inclusive development, and better interaction between academia and policymakers – including international organizations.

The prominence of GVCs, as a key vehicle for market access and as a means through which MNEs can help address major global socioeconomic challenges, is assessed by *Ari Van Assche* and *Kristin Brandl*. The role of GVCs is appraised through the lens of corporate behaviour, stressing the need for a change in MNEs' business model to effectively promote social and environmental standards along GVCs. The authors discuss the opportunities and limitations of various policy options (including due diligence principles) that governments have adopted to help the lead firms adjust their business model. They argue that academics and policymakers can benefit in their development of actionable policies by combining insights from these two themes. The authors capture the discussion at WIF2021 on these issues and argue that further research can help to validate the applicability of due diligence policies for sustainable development within GVCs. Another relevant question for future research raised in the article is the compatibility of due diligence policies with frameworks of multilateral trade authority, specifically, the World Trade Organization, beyond MNEs' own governance.

Another theme of WIF2021 was boosting investment in infrastructure and the SDGs. In this context, international project finance is regarded as a key mechanism to channel funds towards investment in infrastructure and other key sectors relevant for sustainable development, including renewable energy, water and sanitation, and hospitals. The growing use of such finance presents an opportunity to draw in private sector capital but also poses a set of new challenges for sustainability financing. *Sarianna Lundan* and *Gunnar Leymann* delve into this issue while proposing new directions for future international business research. They argue that in the energy sector, the pressure to rapidly increase the proportion of renewable capacity, primarily wind and solar, has created unprecedented opportunities for investment. However, it also raises concerns about the availability of project finance investors to execute all of these projects, particularly in developing countries. The article puts forward three areas of future research that address the causes and remedies for such capacity constraints: the structuring of project finance investment, demonstration effects, and the role of technological complementarities and leapfrogging in developing countries.

Lorraine Eden, *Charles F. Hermann* and *Stewart R. Miller* reflect on the impact of the COVID-19 pandemic and the recent shocks to global economy, a cross-cutting issue addressed in multiple sessions of WIF2021. The paper focuses on

how policymakers and executives of MNEs can render sound policy decisions in the current challenging global environment – i.e. volatile, uncertain, complex, and ambiguous. On the basis of the Forum's week-long events and deliberations, the authors call for closer collaboration between academia and decision makers (both public and private) for an effective evidence-based policymaking process. For this, researchers must adopt empirical research techniques appropriate for studying the backgrounds and consequences of global shocks based on a sound theoretical framework. The issues elucidated in the paper range from the challenges posed by global pandemics to the SDGs.

The international activities of MNEs, from investment to trade, were also at the centre of the WIF2021 discussions. *Robert Grosse's* commentary reports on international business activities, ranging from exports to FDI to other contractual arrangements such as licensing and franchising, and the different types of ownership governing such activities. He discusses the perspective of policymakers on each of these international business activities and foreign investments. The paper draws conclusions for companies and governments, and notes areas of possible collaboration.

Some of the key elements of discussion at the Forum, drawn together in the papers in this special section, underscore the need for enhanced frameworks for investment policies and investment promotion strategies apt for this new era of more flexibility and resilience. Global trends in both investing in and financing the SDGs, including the myriad financing instruments launched to respond to the pandemic and climate change, were also at the high-level exchanges (see also Zhan et al., 2020). The Forum also highlighted the main challenges for mobilizing funds, channeling investment into SDG sectors and maximizing positive impact, as well as regulatory dilemmas in promoting SDG investment. Thus, the emerging research agenda should reflect core principles for guiding private sector investment, mainstreaming the SDGs into national and international investment policies and promotion strategies, harnessing financial instruments for sustainable development, building special SDGs model zones and promoting better environmental, social and governance standards, compliance and reporting (see also Zhan and Santos-Paulino, 2021).

We hope the reflections and topics here will ignite a refreshed multidisciplinary research agenda on investment for sustainable development. We thank our partners and the academic institutions that contributed an outstanding set of events at WIF2021, including the Academy for International Business and New York University (Abu Dhabi). We also thank the members of our editorial board and contributors to the journal for their continued commitment and support.

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Harnessing power within global value chains for sustainable development*

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Abstract

Global value chains (GVCs) are a powerful vehicle through which multinational enterprises (MNEs) can help address the grand challenges that humanity faces. But optimally utilizing GVCs for sustainability requires fundamental changes in corporate behaviour. In this paper we expound the concept of MNE economic power within GVCs and discuss needed changes for MNE business models to fill governance gaps. We debate the renewed role of public governance to promote social and environmental standards along GVCs and outline policies that governments should adopt to help MNEs and lead firms alter their business model.

Keywords: global value chains, private governance, sustainable development, due diligence

JEL classification codes: F23, F68, L21

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1. Introduction

How can global investment be mobilized to build a more resilient, sustainable and inclusive post-pandemic world? Leading members of the global investment-development community gathered at the 7th UNCTAD World Investment Forum to discuss this grand societal challenge.

Two underlying themes relating to the multinational enterprise (MNE) permeated conference discussions. First, speakers repeatedly called on MNEs to act with renewed urgency to intensify their contribution to a sustainable future by providing innovative solutions that avoid further harm and actively do good. Beyond simply asking for deeper corporate engagement, speakers emphasized the need for real corporate change. UNCTAD Secretary-General Rebeca Grynspan, for example, suggested in her opening remarks to the Global Investment Game Changers Summit that making investment work for sustainable development requires “game-changing” enterprises that integrate social, environmental and health objectives into their business models. Abdulla Shahid, president of the 76th Session of the UN General Assembly, complemented these thoughts by saying that “[s]ustainability and resilience must be fully ingrained into countries’ policies and companies’ corporate culture.” Speakers urged policymakers to develop new policy instruments that can foster responsible corporate change for sustainable development.

Second, participants recurrently called on MNEs to reconfigure their global value chains (GVCs) to help transform the global economy towards a resilient, sustainable and inclusive future. MNEs were asked to embrace “diversification, replication, reshoring and regionalization” to make their supply chains more resilient against increased volatility, uncertainty, complexity and ambiguity in the global business environment (see also Zhan et al. (2020) and Zhan (2021)). They were solicited to work only with suppliers that adhere to social and environmental standards. And they were pushed to pay attention to the environmental footprint when building complex international value chains. Here again, speakers urged policymakers to develop more potent policies that increase MNEs’ accountability for social and environmental standards throughout their GVCs.

In this commentary, we argue that academics and policymakers can get significant mileage in their development of actionable policies by combining insights from these two themes. We will point out that GVCs are a potent vehicle through which MNEs can promote real change towards sustainable development across firm and country boundaries, and it is therefore imperative to identify how GVCs can be best configured to foster sustainable development. Yet we will also suggest that MNEs need to make real corporate changes to their business models to develop the dynamic orchestration capabilities that are required to utilize their power in GVCs for sustainability.

We conclude by discussing the renewed role of public governance in promoting social and environmental standards along GVCs (including due diligence policies) and by examining the policies governments should adopt to help MNEs and lead firms alter their business models.

2. MNEs' economic power in GVCs

Large corporations have enormous power in GVCs (Gereffi, Humphrey and Sturgeon, 2005; Dallas, Ponte and Sturgeon, 2019). Sitting at the top of a hierarchical chain, they have the muscle to select which firms are included or excluded in GVCs, to determine the terms of supply-chain membership and to allocate where, when and by whom value is added. It is this power that has allowed MNEs to create GVCs and to use them to enhance productivity and efficiency.

MNEs can leverage this economic power not only to strengthen economic performance but also to promote social standards and environmental stewardship along the chain (Pietrobelli, Rabelotti and Van Assche, 2021). They can remediate poor labour and environmental conditions in global supply chain factories, for example, by pledging to work only with first-tier suppliers that adhere to strict social and environmental codes of conduct (Locke, Amengual and Mangla, 2009). This promotion of social and environmental standards can cascade down the chain if MNEs make a first-tier supplier's GVC participation not only conditional on their own compliance with sustainability standards, but also on the compliance of their suppliers, and so on (Narula, 2019).

In both academic and policy circles, the recognition that MNEs can use their economic power to dictate the social and environmental terms along the value chain which stretches beyond firm and country boundaries has generated considerable enthusiasm for the idea that MNEs can create private governance to fill important gaps in global regulation (Scherer and Palazzo, 2011). A common frustration for many policymakers is that regulatory efforts to enable and promote responsible business behaviour are habitually restricted by national boundaries and that there is little appetite for international collaboration. The sprouting of private regulation that aims to independently regulate social and environmental issues along GVCs in recent decades was, in this sense, a welcome trend. On the environmental side, there has been a proliferation of sustainable production initiatives, ranging from the Forest Stewardship Council to the Marine Stewardship Council to the Roundtable on Sustainable Palm Oil (Ponte, 2014). On the social side, labour-focused initiatives have mushroomed, ranging from the Fair Labor Association to numerous brand-specific ethical sourcing projects (Barrientos 2019). In all instances, MNEs have de facto become new regulatory actors beyond the State that can support sustainable development.

This same enthusiasm has also provided the impetus for the United Nations to call for stronger business involvement in the Global Compact and Sustainable Development Goals (Van Zanten and Van Tulder, 2018). Since MNEs are among the only actors that can effectively influence social and environmental conditions across the globe through their economic power, it is important to engage them further in sustainable development efforts.

3. Private governance gaps

Nonetheless, the modest and uneven improvements in social and environmental conditions in many GVCs have tempered the enthusiasm about private governance in recent years (Voss, 2020; Zagelmeyer and Sinkovics, 2019). Even the best-intentioned MNEs often appear to lack the capability to improve their suppliers' social and environmental standards. For example, media headlines have feasted on the allegations that Uniqlo, Skechers and Zara have profited from exploiting forced labour in the Chinese Uyghur community. For many, this suggests that there is something missing in the business models of MNEs – showing governance gaps – that prevent them from using their economic power to address societal challenges (Scherer and Voegtlin, 2020; Schrage and Gilbert, 2021).

A common explanation for weak improvements to social justice and environmental stewardship in GVCs is that many MNEs are not motivated to use their power within GVCs for sustainable development. They either cajole with too small a carrot to incentivize compliance among their suppliers or use too small a stick when there is non-compliance, or a combination of both. Indeed, several scholars have blamed MNEs for heaping the costs of compliance upon suppliers without installing effective cost-sharing, monitoring or penalty systems (Bird and Soundararajan, 2020; Locke, Amengual and Mangla, 2009). MNEs are alleged to go ahead with such ineffective governance schemes since they care more about “looking good” rather than “doing good” (Lund-Thomsen, 2020).

Other studies recognize the real engagement of many MNEs in supporting sustainable development, but they question the efficacy of current business models to promote social standards and environmental stewardship along GVCs. Several scholars argue that the cascading compliance model, which heavily relies on MNE-engineered codes of conduct and third-party auditing, cannot work without trust-inducing mechanisms that engage suppliers in joint problem solving and information sharing that are in the mutual self-interest of suppliers and lead firms (Bird and Soundararajan, 2020; Locke, Amengual and Mangla, 2009; Lund-Thomsen and Lindgreen, 2014). Other scholars point out that MNEs' engagements need to be particularly enhanced with the lower-tier suppliers to which the firms are not directly connected (Alexander, 2020).

A central insight from these studies is the importance for MNEs to develop a better understanding of who their GVC partners are (first-tier and beyond) and how they should interact with them.

Fiske, Goerzen and Van Assche (2021) go a step farther by suggesting that most MNEs need a change of their business model to overcome these private governance gaps. They identify three distinct clusters of dynamic capabilities that MNEs need to develop to successfully promote sustainability along a value chain. As an *internal prioritizer*, they need to continuously sense new opportunities and challenges related to the sustainability of their operations, on the basis of shifting internal and external stakeholder concerns; as an *external developer*, they need to constantly appraise what mix of supplier capability-building, compliance systems and alliances enables them to best address newly emerging compliance bottlenecks in their GVCs; and as a *network transformer*, they need to set up a system that enables them to promulgate new lessons learned about sustainability promotion practices across the GVC. These dynamic orchestration capabilities are not innate to MNEs and need to be purposefully fostered. They require firms to develop governance mechanisms that enable them to detect potential problems related to GVCs more rapidly and enact instruments that can address them.

Taken together, recent studies suggest that systemic governance gaps prevent MNEs from effectively using their economic power for sustainable development. To fortify this power within GVCs, there is a need for MNEs to develop new business models that enable them to improve transparency and traceability at every level of production and in all aspects of value chains. Without a keen awareness of who is involved in GVCs, where compliance bottlenecks are most likely to sprout and how these hold-ups can be remediated, it is hard for MNEs to utilize their power within GVCs to achieve sustainable development.

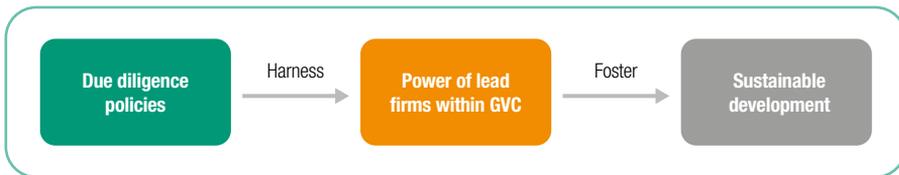
4. A renewed role for public governance

With the recognition that MNEs face private governance gaps in the implementation of self-selected pressures along GVCs, new public policies are called for that can pressure lead firms to promote sustainability extraterritorially more effectively while recognizing that such policies can be implemented and enforced only within national borders. In other words, there is a need for national regulations and/or other policy instruments that can harness the MNEs' power within GVCs in a way that fosters social standards and environmental stewardship of partner firms within the value chain (Voss, 2020).

Corporate due diligence obligations have in this respect emerged as an interesting policy option (see figure 1). Such policies require firms that operate in a national territory to identify, prevent, mitigate and account for violations that occur to

legislatively defined sustainability standards all along their GVC (Buhmann, 2018). In line with the need for more traceability and transparency in GVCs, firms would be required to develop orchestration capabilities and business practices that enable them to identify and address the potential and actual adverse social and environmental impacts linked to their products or services and within their value chains and business relationships (EC, 2021).

Figure 1. Due diligence for sustainability framework



Source: Authors' elaboration.

Recent years have seen several promising steps towards the development of corporate due diligence principles for sustainability. Following Special Representative of the UN Secretary General John Ruggie's "conceptual and policy framework" to address the relationship between business and human rights, the United Nations in 2011 developed the United Nations' Guiding Principles on Business and Human Rights (UNGPs) (UNHR, 2011). This framework comprises a set of guidelines for States and companies to prevent, address and remedy human rights abuses committed in business operations along the GVC. Several other intergovernmental organizations followed suit by developing their own guiding due diligence frameworks, including the Organisation for Economic Co-operation and Development's (OECD) Guidelines for Multinational Enterprises (OECD, 2011), the OECD's Due Diligence Guidance for Responsible Business Conduct (OECD, 2016) and the International Labour Organization's (ILO) Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (ILO, 2017).

So far, these supranational guidelines have been voluntary and have thus arguably lacked teeth to pressure lead firms to make significant changes within their GVCs, as a study by the European Commission on its own due diligence guidelines shows (EC 2020 and 2021; see also Lupu, 2016). Thus, the implementation of stricter due diligence policies by intergovernmental organizations is successful only if governments support the application of such policies and ensure their implementation with national policies. Using these supranational policies as a guide,

many governments have started to implement such stricter due diligence policies and imposed administrative fines in case of compliance failure and violations (Bueno and Bright, 2020). For example, the French government implemented the Duty of Vigilance Law to impose a legal duty to exercise human rights due diligence in 2017 (Crossart, Chaplier and Beau de Lomenie, 2017), and the Dutch government adopted the Child Labour Due Diligence Act in 2019 (Littenberg and Binder, 2019).

Some governments have also started to implement due diligence policies for their own public procurement activities (OECD, 2020; Martin-Ortega, 2018; Corvaglia and Li, 2018). With average global governmental spending on public procurement of between 13 to 20 percent of GDP (World Bank, 2020), governments are significant actors within the national business environment and in GVCs. The sustainable adaptation of public procurement policies and practices has been shown to be highly effective in implementing sustainability standards in countries. That is, previous policy changes reduced the global production of greenhouse gas emissions, the use of clean water and the disposal of a variety of waste/hazardous materials, and improved the participation of a variety of underprivileged groups in economic activities (Stritch et al., 2020). Due diligence policies thus are an opportunity for governments to influence social and environmental standards within GVCs (Martin-Ortega, 2018; Martin-Ortega and O'Brien, 2017); besides being GVC actors with significant power, by implementing due diligence in their own procurement activities they also indirectly affect MNEs as role models (Appolloni et al., 2014; Cravero, 2017).

5. Questions for future research

More research is needed to validate the applicability of due diligence policies for sustainable development within GVCs. Questions remain on the stringency of the due diligence policies necessary to overcome MNEs' private governance gaps. Bueno and Bright (2020) highlight that due diligence requirements can take different forms: (1) firms need to disclose information on their own activities related to human rights and environmental impacts; (2) firms need to disclose substantive due diligence exercises without clarifying liability conditions in case harm does occur; and (3) firms are liable in case of evidenced harm by the firm or its GVC partners. To our knowledge, very few studies to date have linked the scope of due diligence obligations to sustainability outcomes, as many mandatory due diligence initiatives are too recent to permit full evaluation of their influence on sustainability standards throughout GVCs.

Further questions remain on the need for alterations of MNE business models to comply with due diligence obligations. What operating routines are needed to identify, prevent, mitigate and account for sustainability violations within GVCs?

The development of coherent routines might be challenged by the heterogeneity of MNEs and their partner firms within GVCs, as well as often altered business models in continuously changing global environments.

Last, questions remain about the compatibility of due diligence policies with frameworks of multilateral trade governance, specifically by the World Trade Organization (WTO). Some scholars have raised the concern that the regulatory use of due diligence obligations to achieve sustainability objectives extraterritorially may violate the principle of non-discrimination in trade based on the origin of the products and services (Corvaglia and Li, 2018). This lack of consideration is reflected also in the absence of any sustainability related due diligence discussion at the WTO. Thus, how far can due diligence principles really go without compatibility with trade governance?

6. Conclusion

We argue that GVCs are a potent vehicle through which MNEs can promote real change towards sustainable development across firm and country boundaries. MNEs are important actors that can effectively influence social and environmental conditions across the globe through their economic power within GVCs. Yet, MNEs need to make real corporate changes to their business models to develop the dynamic orchestration capabilities that are required to utilize this power in GVCs for sustainable development. This recognition of private governance gaps by MNEs in implementing self-selected pressures and the acknowledgement that entire GVCs need to be reconfigured to be more sustainable results in the call for policies that move along them, go beyond national boundaries and harness the power of lead firms to foster sustainable development within value chains. Corporate due diligence policies are a step in the right direction since they require firms and the public sector to assess and monitor their own and their relations' and networks' operations and report violations to the authorities. These policies help MNEs and lead firms alter their business model and allow governments to directly and indirectly influence social and environmental standards within GVCs.

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Investing in sustainable infrastructure: new directions for international business research*

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Abstract

In the global economy today, there is both a supply-side push of large amounts of stimulus funding being directed at infrastructure investment and a corresponding demand-pull, with nearly all of the countries in the world committing themselves to the Sustainable Development Goals and to the transition to a net zero economy. In the energy sector, the pressure to rapidly increase the proportion of renewable capacity, primarily wind and solar, has created unprecedented opportunities for investment, but it also raises concerns about the availability of project finance investors to execute all of these projects, particularly in developing countries. We discuss three areas of future research that address the causes and remedies for such capacity constraints, namely, the structuring of project finance investment, demonstration effects, and the role of technological complementarities and leapfrogging in developing countries.

Keywords: infrastructure investment; international project finance; renewable energy; capacity constraints; leapfrogging

JEL classification codes: F23, H54, Q42, Q48

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1. Introduction

In August 2021 the G20 countries had committed a reported \$3.2 trillion of stimulus funding, amounting to 3.2 per cent of their GDP, to infrastructure investment.¹ Of this amount, 90 per cent is due to be spent in the next two years, which would result in the largest push for infrastructure investment in many decades, and imply a 45 per cent increase in annual infrastructure investment.

At UNCTAD's World Investment Forum this year, infrastructure investment was tackled both from the perspective of the investing firms in sessions focused on international project finance and from the side of the lenders in sessions focused on sustainability bonds, as well as in sessions examining the role of financial institutions in channelling funds and developing the required measurement and reporting tools.

In addition to the supply-side push of public financing for infrastructure being made available on a large scale, there is a corresponding demand-pull, with nearly all countries in the world committing themselves to transitioning to a net zero economy. At the UNFCCC Glasgow Climate Conference (COP26), the target dates for reaching net zero ranged from 2035 for small developed countries such as Finland to 2060 and 2070 for large developing economies such as China and India, respectively.

While this push for infrastructure investment is impressive, a combination of public and private financing will be needed to achieve these goals, and there is reason to suspect that much less investment than the amounts needed to reach net zero will be directed at developing countries (IRENA and CPI, 2020). This outcome would put the success of the global commitments in jeopardy, particularly in terms of the goal of achieving a just transition.

There is therefore an urgent need to gain a better understanding of what is needed to mobilize the necessary private investment, particularly in developing countries. Transnational corporations (TNCs) will play an important role as investors and transferers of technology in this transition (UNCTAD, 2021), and until the start of the COVID-19 pandemic, renewable energy investment was one of the largest sectors of greenfield investment (Bloomberg NEF, 2020; Patala et al., 2021).

We have identified three areas of future research in international business and finance that can inform discussions on the policy measures needed to attract investment. The first of these involves a better understanding of project finance

¹ Global Infrastructure Hub, "With USD3.2 trillion in investments announced, G20 governments are leveraging infrastructure's transformative potential to achieve greater social, environmental, and economic outcomes", 4 November 2021, www.gihub.org.

as a cross-border business modality and how some of the risks in these projects can be mitigated. Second is an examination of the role of positive and negative demonstration effects in foreign direct investment (FDI) and how these can affect new projects. Third is the need to examine global complementarities in green innovation and the possibilities of leapfrogging for developing countries during the energy transition. We discuss each of these in turn.

2. Project financing as a cross-border modality

Since the mid-1980s a large part of the research in the international business field has focused on international production by TNCs, and specifically production in developing countries that is part of the global division of labour that is increasingly referred to as global value chains (GVCs) in the literature (Gereffi, 2019; Gereffi, Frederick and Bamber, 2019; Zhan, 2021). GVC participation continues to be important for many developing countries (including the least developed countries). Yet since the 2000s increasing attention has also been paid to the growing share of services in the value-adding activities that cross borders, whether through trade, licenses and royalty payments, or contractual services (Buckley, Strange, Timmer and de Vries, 2020). Parallel to the changes in the productive networks of TNCs, there has also been growing interest in the literature in the increasing internationalization of the research and development activities of TNCs, which now extend to emerging markets such as China and India (Lundan and Cantwell, 2020).

But while the research focuses in the literature have shifted as the global economy has evolved, the area of infrastructure investment has received very little attention to date. When it comes to transportation and communication infrastructure, economic and business historians have explained how successive rounds of technology development have fostered new possibilities for business expansion, from the building of the railroads to air travel and container shipping, and from the telegraph and telephone to the internet (Jones, 2004). However, even in these cases, most of the attention has been on the possibilities created by the improved speed and reliability of transportation and communication, rather than on the physical infrastructure that has made this possible. Similarly, while many studies have focused on the global oil industry, these mainly examine oligopolistic rivalry between firms, and not the energy infrastructure that these firms helped to create.

Today, we are living at the dawn of a new era of infrastructure investment which is not driven in the first instance by the possibilities created by new technologies, but rather by the collective decision-making of countries trying to forestall the worst consequences of climate change. This era of investment is likely to involve cross-border activities of TNCs to a substantial extent, but there is little in the existing literature that could serve as a foundation for examining this phenomenon.

Most of the international business literature has concentrated on FDI as the primary modality for technology transfer. With the rise of services, the literature has also taken on board various contractual forms of cross-border engagement, in the end depicting the TNC as a network or a global factory that is a combination of foreign investment and nonequity modalities (Buckley, 2011; UNCTAD, 2011). What is notable is that while these modalities control the exposure and risk of the TNC by limiting the equity commitment, they are all modalities that can be engaged by the firm itself and require merely the agreement of the foreign counterparty buying the license or entering into a contractual agreement.

This is different from the way in which most infrastructure investment projects are structured. While textbooks mention turnkey and build-operate-transfer agreements, there has been very little empirical research into the strategies of firms that participate in such projects, and do so across borders (for a notable exception, see Uner, E. Çavuşgil and S. T. Çavuşgil (2018)). Infrastructure is a diverse field that covers transportation infrastructure such as roads, railways and bridges; social infrastructure such as hospitals; and energy and sanitation infrastructure. Although all of these sectors are increasingly open to foreign investment, our focus is specifically on energy infrastructure and the investments that are needed to meet the commitments outlined at COP26.

Since electrification is seen as the key to reaching a net zero economy, the wind and solar energy sectors play central roles, because the efficiency improvements and cost reductions achieved with these technologies make them competitive with other forms of energy for the building of new generating capacity. The balance between wind and solar depends largely on natural conditions in each country. These technologies, which benefited from early policies by countries such as Germany that employed feed-in tariffs to encourage renewable energy production, will form the cornerstone of electrifying the energy systems of developed and developing countries alike (IRENA, 2020).

The knowledge that is required to develop and run a modern wind or solar park typically involves multiple partners in the site selection, construction and operating phases. At the same time, the equity participation of the investing firm is not sufficient to fully finance the project, which will always involve outside lenders that set their own constraints. Although such constraints may in fact be beneficial in ensuring the financial viability and increasingly, the sustainability of the project, in contrast to other types of FDI projects, the TNC is unable to solely control many of the important aspects of the project.

In an emerging market, the building of a wind or solar park typically involves lenders such as a regional development bank providing green loans, the government as a counterparty and the TNC as a private investor. Since such projects generate income for investors over a considerably long period of time, there is a notable

counterparty risk. Although all FDI is risky in that it is often costly to reverse – which is reflected in the fact that FDI tends to be more stable than portfolio investment over time – the risks related to project finance are somewhat different from those faced by greenfield equity investors. Project finance can be characterized as a cooperative modality involving multiple partners and jointly owned assets. In contrast to equity joint ventures, where the underlying assets are typically knowledge intensive and difficult to measure, in project finance, the assets are physical and carry multiple location-specific risks (Müllner, 2016).

To build capacity for wind or solar energy on a scale that enables the transition at the required pace involves substantial amounts of investment, including foreign investment. In August 2021 India reached 100 GW of installed renewable capacity (excluding large hydropower), putting it fourth in the world in terms of installed capacity.² The government has set an ambitious goal of 450 GW of installed renewable capacity by 2030 (about 60 per cent of installed total capacity), indicating a quadrupling of the amount of investment. Even in a country such as India that has developed a competitive wind energy industry, the proportion of foreign investment would probably need to quadruple as well. To know whether this is feasible, or what would make it feasible, we need considerably more research at the industry and firm levels on the factors that make projects viable and attractive for foreign investors. Several of these issues are policy-related, as both the counterparty risks and exchange-related risks are dependent on government actions, either as participants and regulators in the energy markets or in terms of the development of the local financial market.

3. Demonstration effects in FDI

We have argued that there is a need to study project finance as a distinct form of cross-border business activity and to analyse the risks and opportunities attached to it in the same way that other modalities have been analysed. There is also a need to move beyond the TNC, to consider the role of the other essential actors in project finance and to examine what impact both positive and negative demonstration effects have on investment.

We know from previous research that an initial investment by a large multinational has a strong positive signalling value and tends to attract other investment into the same area. We also know that investment by one large player, particularly in an oligopoly, often invites a matching move by another large player, a so-called

² India, Ministry of New and Renewable Energy, “India achieves 100 GW milestone of installed renewable energy capacity”, 12 August 2021, <https://pib.gov.in>.

follow-my-leader strategy (Dunning and Lundan, 2008). Both of these factors contribute to the observed bunching of investment in both space and time. We also know that in connection with currency crises and other kinds of economic and political instability, there are negative contagion effects on nearby markets which may or may not have been directly affected.

All of these effects seem to be present in the infrastructure market, which at the moment is characterized by ample availability of financing to facilitate the energy transition, but difficulty finding bankable projects. This can be because of negative demonstration effects, caused by projects that fail because they take too long to come to fruition or because of difficulties in recovering payment during an earlier project. Both instances send a strong negative signal to the investor community. That said, one successful project can have a very positive effect in demonstrating the viability of the investment location.³

Suitable conditions do not arise on their own. They require deliberate policy reform on the part of the government and capacity-building efforts by lenders and multilateral institutions such as UNCTAD and the IFC in training government officials and structuring contracts. Successful management of projects also requires a willingness on the part of governments to be treated as business partners with the scrutiny that is attached to that, rather than as sovereigns whose actions and commitments can scarcely be questioned.

Aside from anecdotal evidence on the factors leading to success and failure, there is considerably more room for international business scholars to examine what actions create credible counterparties with governments at different levels of development, and what can be done in the structuring of project finance deals that would mitigate the risks for private investors (for earlier studies, see Sawant (2010) and Vaaler, James and Aguilera (2008)). There is also an urgent need to address other finance-related topics such as the handling of currency risks by e.g. promoting local currency lending (which will not be feasible in all markets), or even relying on some emerging fintech solutions for risk mitigation.

Finally, while it is certainly important to get the policy environment right, international business research should also engage with the question of how the process of policymaking affects TNCs. The introduction of new policies requires careful consideration of the divergent time horizons of policymakers and investors, which is especially relevant in long-term infrastructure projects (see e.g. Fay et al. (2015)). Dynamic policy reforms are a double-edged sword in the sense that they have the potential to send a strong positive signal to investors, while also being able to

³ The examples in this section draw in part on a very informative panel discussion on International Project Finance at the UNCTAD World Investment Forum on 20 October 2021.

cause negative consequences due to transition costs and uncertainty (Cuervo-Cazurra, Gaur and Singh, 2019; Fay et al., 2015). In addition to focusing on the content of policies, we clearly require more research on policy dynamics and how their effects can be mediated by the actions of TNCs and governments.

4. Global complementarities in innovation and leapfrogging during the energy transition

In addition to choosing to focus on infrastructure investment and examining the specificities of this form of investment, the third area of promising new research lies in examining the potential and limits of realizing global complementarities that enable leapfrogging in energy systems across the globe.

The mobile revolution in Asia and Africa has demonstrated how communication technology can bring efficiency gains and essential services to people without requiring large infrastructure investment as in the age of fixed-line telephony. Although the production of electricity does require the building of physical infrastructure, the cost competitiveness of solar and wind means there is potential for developing countries to leapfrog again if they can move directly into renewable sources of energy without committing to further decades of fossil-fuel-based energy production to cover their growing energy demand (Carbon Tracker Initiative, 2021).

Such leapfrogging is supported by the geography of renewable energy resources, but it will require a large amount of investment that is not likely to be available from purely domestic sources. Countries that put in place policies to promote green infrastructure investment and that come across as credible counterparties with successful demonstration projects are the ones likely to experience the gains from cost competitive and sustainable energy infrastructure. However, in the latest Climatescope survey, although three quarters of the countries had renewable energy targets in place, less than half of the countries had put in place policies to explicitly encourage investment in renewables (Bloomberg NEF, 2020).

If and when this transition is successful, and countries advance beyond the point where their immediate energy needs can be met by renewable sources, new possibilities will open up. One is the possibility to build additional capacity for green electricity generation that could be used in so-called power-to-X applications, where the electricity could be used to produce green hydrogen, biofuels or synthetic fuels for use in difficult-to-electrify sectors such as ocean shipping, heavy road or rail transport, and air travel (IRENA, 2020).

The second possibility is the emergence of multinational energy value chains (MEVCs). For example, a recent study by the World Energy Council estimated that 50 per cent of the green hydrogen demand in the European Union (EU) will

have to be imported (WEC, 2021). The new EU budget for external cooperation has increased the support for climate change projects to 30 per cent,⁴ specifically targeting North Africa (Van Wijk and Wouters, 2021). Morocco is a prime example of laying the groundwork for the emergence of new MEVCs on the back of infrastructure investment and policy reform that has already attracted foreign co-funding. For example, the giant solar plant Noor received over a third of its financing from the German development bank (KfW). Private projects are bound to follow in the wake of a 2020 bilateral agreement, all with an aim to meet Germany's green hydrogen demand.⁵

The success of these MEVCs depends critically on complementarities in the form of common technological standards and regulations, specifically in power-to-X applications. However, current efforts are still driven by national pilot projects with little cross-border engagement. Multiple projects are being undertaken in developed countries such as Denmark, Germany, Sweden and the United Kingdom. In something of a landmark, in October 2021, the Swedish company SSAB delivered its first batch of green steel to a customer.⁶ China and Japan have also been at the forefront of patent applications in this area over the past few years (IEA, 2021).

Especially for TNCs, innovation requires cross-border knowledge exchange, but this will become increasingly difficult where regional technology standards and regulations proliferate. A lack of co-innovation, arguably driven by the strategic importance and public funding of large-scale hydrogen projects, could seriously hamper MEVC opportunities. We think that exploring the potential and limits of MEVCs is a promising area of future research. It will require a better understanding of how TNCs can enable leapfrogging in developing countries through the transfer of technology and institutions, and an appreciation of how locational and technological complementarities will drive or limit MEVCs as well as TNCs' access to renewable energy worldwide. From a policy perspective, as national and regional energy systems are being redesigned, there is an increased need for collaboration between the public and private sectors, and there is an urgent need to examine the structures and modalities available for cross-border collaboration that would allow for common technological standards to be developed.

⁴ European Commission, "European Commission welcomes the endorsement of the new €79.5 billion NDICI-Global Europe instrument to support EU's external action", press release, 29 March 2021, <https://ec.europa.eu>.

⁵ Bauke Baumann, "Green hydrogen from Morocco – no magic bullet for Europe's climate neutrality", 9 February 2021, Heinrich-Böll-Stiftung, <https://eu.boell.org>.

⁶ SAAB, "The world's first fossil-free steel ready for delivery ", 18 August 2021, www.ssab.com.

5. Conclusions

The World Investment Forum provided a unique platform for discussions that included all of the main actors involved in infrastructure investment, namely investing firms (specifically TNCs), lenders and governments. Informed by these discussions, we argued that there are three streams of research that should receive high priority on the research agenda of international business scholars, namely, project risks, demonstration effects and complementarities in innovation.

We believe that these three research streams are important for understanding where the bottlenecks are likely to arise in the transition to sustainable energy systems. Money alone does not build wind parks, and capacity constraints make themselves known in different ways. One scenario is simply that projects remain undone, because all the resources required for execution are employed elsewhere. This is a difficult situation to remedy, because it is caused by the unprecedented simultaneous supply of funding and demand for projects around the world. The second kind of bottleneck situation is the one that can be remedied by public policy, which is that projects that are viable should not go undone because of obstacles that turn investors away and lead them to look for easier projects. For developing countries, examining the sources of counterparty risk and effective ways of mitigating it is essential for being able to compete for the limited supply of project-executing firms.

As in any market, it is to be expected that the supply of investing firms in the energy market is somewhat elastic, so that more firms will come into the market over time. However, in order to fuel the growth of emerging economies in a sustainable manner, and to enable the (double) leapfrogging scenario, it will be essential for developing countries to be able to attract a large share of new energy projects. But as long as plenty of other viable projects are available in developed countries, it is difficult for projects in developing countries to get executed, unless the obstacles can be cleared out of the way of the investors. This is a technical issue in terms of how deals can be financed and structured better, but it is also a question of collecting and analysing best practices, so that more information is available on policies that work. This is in part achieved by the capacity-building efforts of international organizations and development banks, in part by contributions made by academic researchers and in part by events such as the World Investment Forum, which offers an opportunity for information exchange across a wide range of governments and private sector actors.

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Evidence-based policymaking in a VUCA world*

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Abstract

In a volatile, uncertain, complex and ambiguous (VUCA) world, responses by governments to global shocks will vary in substance and rate of success. We argue that policymakers can make better decisions when high-quality evidence is incorporated into an evidence-based policymaking (EBP) process. To generate high-quality evidence for analysing shock events, researchers should use event analysis, a methodological approach for exploring research questions such as the timing, frequency and patterns of events and their antecedents and consequences. We discuss four types of research methods used in event analysis and their relative appropriateness for analysing different categories of events. In particular, we argue that one method – the event study – is well suited for analysing crises, i.e. shock events that involve high threat, short decision-making time and surprise. We conclude that understanding and using the tools of event analysis is key to successful EBP in a VUCA world.

Keywords: shock, crisis, VUCA, event analysis, evidence-based policymaking, research methods, case study, event study

JEL classification codes: C18, C54, D7, G14, H12, H43, O2

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1. Introduction

Within 20 days of the World Health Organization declaring a global pandemic on 11 March 2020, almost 60 countries had instituted quarantines, closed public buildings and shut down cross-border travel (Sim et al., 2021). Government policymakers were forced to make decisions in the face of disparate evidence and conjectures about the cause, nature and impact of the virus. Both the pandemic and the changes in government policies that followed caused huge demand and supply shocks to the global economy. Massive disruptions in international trade and investment flows and in international production and global value chains (GVCs) followed (Elia et al., 2021; UNCTAD, 2020 and 2021; Zhan, 2021) and, as of late November 2021, more than five million people have died (<https://covid19.who.int>).

The COVID-19 pandemic clearly satisfies the definition of a *global shock*; i.e. “a rapid onset event with severely disruptive consequences covering at least two continents” (OECD, 2011, p. 12). The pandemic is, however, only one example of a stream of disruptive occurrences that have erupted in the 21st century. Other examples include the 11 September 2001 terrorist attack on the World Trade Center, the collapse of Lehman Brothers on 15 September 2008 and the 23 June 2016 decision by the United Kingdom electorate to leave the European Union (Brexit). In addition, there have been natural disasters (e.g. the 2010 Icelandic volcanic disruption (OECD, 2011)) that meet the Organisation for Economic Co-operation and Development (OECD) definition of a global shock. While most of these occurrences were tied to specific dates, others have been more gradual, such as Industry 4.0, the long-run technological shift from a brick-and-mortar world to a digitalized global economy (Schwab, 2016; Eden, 2019; Srinivasan and Eden, 2021). As a result, international business (IB) scholars have begun to refer to the 21st century as a VUCA (volatile, uncertain, complex and ambiguous) world (Buckley, 2020; Van Tulder, Verbeke and Jankowska, 2019).

The World Investment Forum on October 18–22, 2021 (WIF2021) focused on global shocks, in particular, the COVID-19 pandemic and Industry 4.0, and their impacts on international trade, investment and GVCs. A core theme of WIF2021 was how government policymakers could revitalize the 2030 UN Agenda for the Sustainable Development Goals (SDGs) given the negative impacts of global shocks on the 2030 Agenda. This core theme was evidenced by the frequency of the words “COVID” (56 times), “pandemic” (72), “crisis(es)” (31) and “change” (85) on the WIF programme.¹

¹ The word frequencies reflect the importance that policymakers and researchers now place on understanding global shocks and how to design appropriate policy responses. The general public is also paying far more attention to global shocks. For example, a search on 16 November 2021 for the word “crisis” generated more than 952 million results in less than one second using the Google search engine. The words “pandemic” and “Brexit” generated 726 million and 144 million results, respectively. Even the relatively new acronym “VUCA” generated an astonishing 4.28 million results.

The themes of WIF2021 draw our attention to a critically important question: *How can government policymakers make more effective decisions in a VUCA world?* Our answer to this question is that policymakers make better decisions when high-quality evidence is generated and used in evidence-based policymaking (EBP). EBP puts “the best available evidence from research at the heart of policy development and implementation” (Davies, 2004, p. 3).

To assist policymakers in using EBP in a VUCA world, we argue that researchers need to provide insights and evidence from *event analysis*, which is a broad theoretical framework for analysing research questions such as the timing, frequency and patterns of events, and their antecedents and consequences. Researchers must also use empirical techniques appropriate for studying events. In this paper, we outline four research methods for analysing event-centred questions: qualitative methods (in particular, longitudinal case studies), regression analysis, time-to-event (TTE) and rare event methods, and the event study method (ESM). We discuss each method’s strengths and weaknesses and argue that the best evidence requires a sophisticated understanding of the category of event together with the application of the most appropriate research method. In particular, we argue that the ESM is well suited for analysing *crises*, i.e. shocks that decision makers perceive as involving high impact, short time and surprise. Our paper draws on insights from the literatures on EBP (Davies, 2004; Eden and Wagstaff, 2021), events (Hermann, 2012a and 2012b) and crises (Hermann, 1963, 1969, 1971 and 1972; Morgenson, Mitchell and Liu, 2015). We conclude that understanding and using the tools of event analysis is key to successful EBP in a VUCA world.

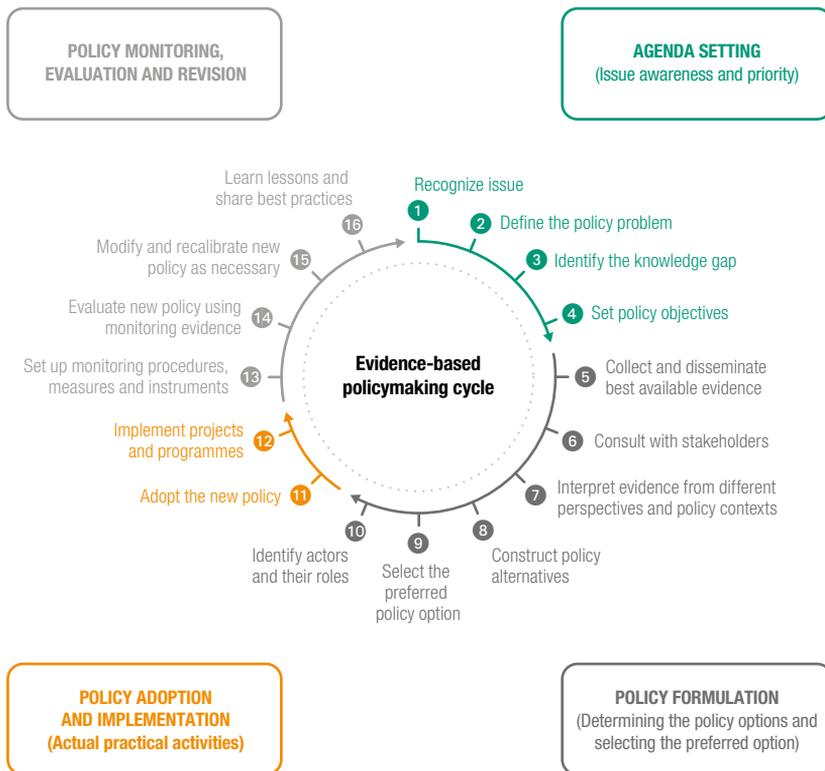
2. Evidence-based policymaking

Conducting high-quality research based on the best available research methods and practices is critical for the integrity and success of both academic research and policymaking (Eden, Nielsen and Verbeke, 2020). EBP embodies the idea that policy decisions lead to better outcomes when the decisions are informed by good evidence (Hewlett Foundation, 2018; Scott, 2006; Sutcliffe and Court, 2005 and 2006).²

² See Eden and Wagstaff (2021, p. 28) for a review of EBP, where the authors argue that EBP is useful even when policymakers are faced with wicked problems, i.e. problems that are “systemic, ambiguous, complex, and conflictual”. High-quality evidence and EBP can help policymakers manage or cope with wicked problems, even though they cannot be permanently solved. In a case study of SDG 5, Gender Equality, the authors argue that good evidence is necessary but not sufficient for forward progress on SDG 5 and outline several additional recommendations for governments and MNEs including public-private partnerships.

The four stages in EBP are agenda setting; policy formulation; policy adoption and implementation; and policy monitoring, evaluation and revision. Good evidence matters at several steps in the EBP process (figure 1), in particular collection and dissemination of best available evidence (#5); interpretation of evidence from different perspectives and policy contexts (#7); monitoring procedures, measures and instruments (#13); and policy evaluation using monitoring evidence (#14).

Figure 1. The evidence-based policymaking process



Source: Adapted from Eden and Wagstaff (2021, p. 40).

To understand how EBP can be used successfully by government policymakers in response to global shocks such as the COVID-19 pandemic, we start by exploring event analysis and then turn to the empirical methods researchers can use to study the antecedents and consequences of global shocks.

3. Event analysis: the study of events

The study of events has a long history in the social sciences (Morgenson et al., 2015, pp. 518–519), especially in political science (Hermann, 1971, 2012a and 2012b). Researchers in a wide variety of disciplines currently engage in event-centered research, which we refer to as *event analysis*. Scholars in different disciplines use varying terms³ for the study of events and slightly different definitions; our terms and definitions draw on well-established ones and are designed to be cross-disciplinary.

3.1 What is an event?

We define an *event* as a bounded, observable action in a definable system. A system consists of a set of actors or members that are connected to one another through rules, shared practices or similar means of engagement; examples include a market, industry or political jurisdiction. Within that system, we define an *action* as an occurrence that affects, directly or indirectly, one or more members in the system. The action can be a human initiative (e.g. a new policy) or natural event (e.g. a hurricane). When an action is bounded (occurs at a point in time) and observable (visible to some or all members), the action becomes an event. An action may be initiated by a member of the system or from outside the system, creating cross-system actions. When cross-border actions are bounded and observable, we define them as inter-system events. The announcement of an action also constitutes an action, which if it is bounded and observable is also an event.

Event analysis is a methodological approach or framework for the study of event-centered research questions. Time matters in event analysis (Hedaa and Törnroos, 2008; Reimann, 2009). In most systems, events occur in patterns that are routinely assumed by the members of the system to have specific properties and consequences. Recurrent events that share similar properties across time create a pattern with common properties. Event analysis can examine event-oriented patterns or disruptive events that occur across time.

In event analysis the unit of analysis is an event rather than a feature or variable (Reimann, 2009). Whereas in feature- or variable-centred research, researchers study routine patterns with common properties that are “relatively salient, enduring,

³ For example, event-centred research is referred to as *event studies* or *crisis studies* in political science (Hermann, 1971; Stern, 2003), the *event-based approach* in network theory and marketing (Halinen, Törnroos and Elo, 2013; Hedaa and Törnroos, 2008), *event systems theory* in organizational theory (Morgenson et al. 2015), the *process approach* in entrepreneurship (Van de Ven and Engleman, 2004) and *event-centred analysis* in communication studies (Reimann, 2009).

and stable representative” aspects of a system, in event-centred research, the focus on time and change can generate “unique insights and forces scholars to theorize across space and time” (Morgenson et al., 2015, pp. 515–516). Event-centred research, however, necessitates “extensive use of event descriptions” that involve “defining, identifying, distinguishing events and event sequences as well as providing qualitative, narrative accounts of events and sequences” (Reimann, 2009, p. 253).

3.2 Shocks and crises

The characteristics of events in a system may be markedly different. Perhaps the most interesting events are nonroutine, disruptive events (Hermann, 1971; Morgeson, Mitchell and Lee, 2015; Reimann, 2009; Van de Ven and Engleman, 2004). When a nonroutine event occurs in the system that interrupts or transforms an established event pattern, the event is referred to as a *shock event*. The shock may be either anticipated or unanticipated by some or all actors in the system. We follow OECD (2011, p. 12) and define a *global shock* as a rapid-onset event with high-impact consequences that affects at least two continents, i.e. as a nonroutine, disruptive event with global consequences.

Event analysis has been used primarily for studying nonroutine and disruptive events or shocks (Hermann, 1971; Morgeson et al., 2015; Reimann, 2009; Van de Ven and Engleman, 2004). In event analysis, shock events create *situations or occasions for decision-making*. When an event is “sufficiently jarring” (Lee and Mitchell, 1994, p.60), the shock disturbs the system and may generate a wave of responses, much like a rock falling into a pond creates ripples in the water. Behaviours of system members (e.g. individuals (Crawford, Thompson and Ashforth, 2019) or firms (Atanasov and Black, 2016; Bloom, 2009)) may change as they respond to the system disturbance. Non-members outside the system may also respond if they are affected by disruptive events.

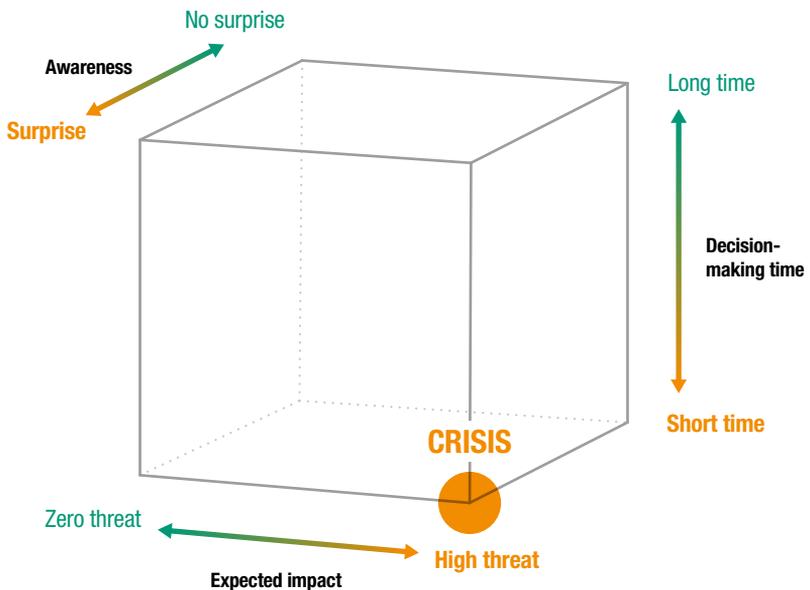
How decision makers observe and respond to a shock event depends on how they perceive it. Three key situational characteristics are (i) *impact*: the perceived impact (high or low) of the shock on the decision makers’ goals and outcomes, (ii) *time*: the amount of time the affected member has available for decision-making (short or long), and (iii) *surprise*: the extent to which the event is anticipated or unanticipated (Hermann, 1969 and 1971). Actor responses are also likely to vary depending on whether they view the occasion for decision-making as having a negative (threat) or positive (opportunity) impact.

One of the most studied combinations of situational characteristics has been crisis (Boinet al., 2017; Hermann, 1963 and 1969; Stern, 2003). An event is defined as a *crisis* when it creates an occasion for decision-making where actors

perceive the event as affecting them very negatively (high threat), they have little time for decision-making (short time) and the event was not anticipated (surprise). When the occasion for decision-making is a surprise with short decision-making time but presents a high opportunity to advance the actors' goals, we call the event a *breakthrough*.

Figure 2 illustrates how different combinations of the three situational characteristics – impact on goals, decision-making time and degree of anticipation – represent different types of events. Depicted as a cube, each corner represents a strikingly different type of occasion that policymakers may address. Crises, for example, are represented by the high threat, short time and surprise corner of the cube (Hermann, 1971).⁴

Figure 2. The crisis cube



Source: Adapted from Hermann (1969, p. 415).

⁴ Dai, Eden and Beamish (2017) find that high threat (measured by exposure and at-risk resources), short time and surprise are key factors affecting MNE subsidiaries' response to the outbreak of war, providing cross-disciplinary empirical support for Hermann (1971).

In examining the policy decisions associated with events, the perceptions of the relevant policymakers are critical for their policy responses. We provide two examples.⁵ First, consider the COVID-19 pandemic. The World Health Organization announced on 30 January 2020 that COVID-19 was a public health emergency of international concern and recommended testing, tracing and social distancing. However, few governments appear to have recognized the coronavirus as a national threat until six to eight weeks later when the number of cases had increased substantially, the virus had spread to several countries and the World Health Organization declared a global pandemic (on 11 March 2020). Most governments also did not recognize that they had a short decision time for policy action (e.g. close borders, quick isolation of detected cases). Thus, the combination of high surprise, failure to recognize the threat and short decision-making time led to slow and piecemeal responses that failed to curb the spread of the virus within their countries.

As a second example, consider the announcement by the United States Environmental Protection Agency (EPA) on 18 September 2015 that Volkswagen diesel automobiles had been designed to mask the environmental impact of their exhaust, in violation of required EPA standards. The announcement was immediately recognized as a huge threat for Volkswagen, with a short window for decision-making time, and a surprise to the firm's executives (except perhaps the innermost circle) and the German government. Despite the quick resignation of several key executives, Volkswagen suffered a significant negative reaction in the stock market (Wood et al., 2018) with negative reputation spillovers that also adversely affected the market valuation of other German manufacturers (Bachmann et al., 2021).

Event analysis databases and research methods

In the preceding section we have explored some key concepts in event analysis and argued that understanding event characteristics can provide insights into the way policymakers perceive and respond to events. Other insights and guidance to policymakers depend on the collection of event data and various research methods for their analysis. We now turn to these necessary steps.

4.1 Databases

The multilayered, complex nature of the global economy (Eden and Nielsen, 2020) makes any efforts to disentangle driving forces and their effects particularly

⁵ See also Hermann (1969), which provides historical examples of foreign policy events for various locations in the crisis cube.

difficult and often impossible in “large n ” cross-section, time-series data sets. To researchers seeking to establish causality, shocks serve as natural experiments (sometimes called quasi-experiments). Shocks can facilitate controlling for some factors, allowing examination of variables of interest. Researchers may also be interested in understanding events themselves (or patterns of events), rather than their effects.

Creating event data sets provides researchers with the opportunity to explore event-centred research questions and develop hypotheses that can be tested using these data. Event data sets that include the number, timing and sequence of actions have enabled researchers to explore the antecedents and consequences of nonroutine, disruptive events (shocks). The time dimension is also central to questions of when and how events start and end, as well as causes and moderators.

Some systems have events that are regularly transmitted in quantitative form and are accessible in that manner to researchers (e.g. stock market data). Examples of event analysis data sets used in IB research include data from the Center for Research in Securities Prices on United States stock market prices and volume; Datastream, the World Bank’s database on business startups; Thompson Financial SDC Platinum’s databases on mergers and acquisitions, joint ventures and alliances; and the United States Patent and Trade Office’s database of registered patents and trademarks.

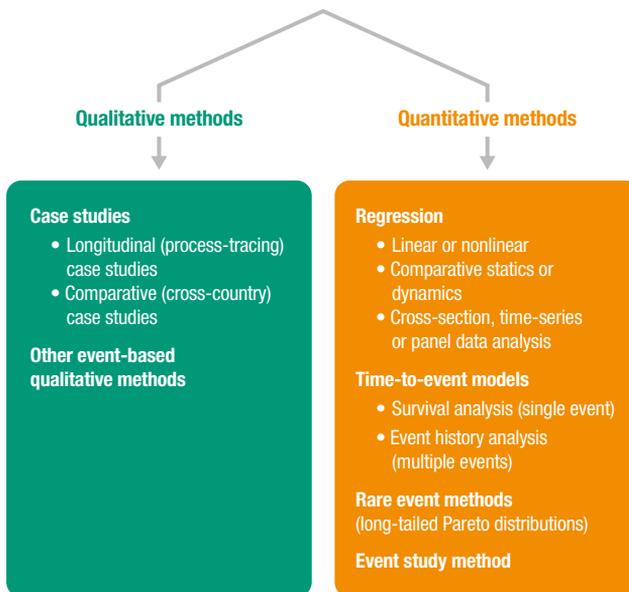
In other systems, although recognizable events may happen continuously, they are not recorded in a quantifiable manner (e.g. political events). In these cases, researchers must devise a means of stipulating such events in reliable quantitative form, using established rules for defining and coding events, such as the actor, action, one or more direct targets, and one or more indirect targets (see, for example, Hermann (1971 and 1972) and Hermann et al. (1973)). By building these event databases, political scientists have broadened notions of conflict and crises to include initiators and targets (Hermann, 1971) and coding for severity from highly cooperative to hostile (Goldstein, 1992). Text analysis has been employed to automate data collection, making possible real-time availability (Bondet al., 2003). Practitioners use coded events for forecasting, and scholars use them to examine topics such as diplomatic risk (Desbordes, 2010) and the effects of military conflict (Li et al., 2020).

4.2 Research methods

Scholars in many disciplines have now developed sophisticated methods for studying events (e.g. Hermann, 1972; Kauffman, Techatassanasoontorn and Wang, 2012; Van de Ven and Engleman, 2004). We have grouped the various empirical methods for analysing event-centred research questions into four broad

categories, which we explore below. The four methods have different strengths and weaknesses, and they are more or less appropriate for addressing different research questions. In each case, we provide examples of how social scientists, including IB researchers, have used these methods to study events. Figure 3 summarizes these methods.

Figure 3. Research methods suitable for event analysis



Source: Authors' elaboration.

4.2.1 Longitudinal case studies (qualitative methods)

Because event analysis involves “when” questions such as patterns and sequencing, it is appropriate to use qualitative research methods in which events are either the dependent or independent variable. If researchers want to theorize about what happened and how things evolved, longitudinal case studies are particularly useful (Halinen, Törnroos and Elo, 2013). Researchers can either start with events and “build forward” to study outcomes, or start from observed outcomes and “build backward” using prior causally significant events as explanatory variables (Aldrich, 2001; Van de Ven and Engelman, 2004).

For example, in political science, event-centred research has mostly studied political conflicts and crises (Auer, 2016; Roux-Dufort, 2016; Seeger, Sellnow and Ulmer, 1998) using comparative and/or longitudinal case studies to study the responses of political actors (see, for example, Boin et al. (2017) and Bolton (2001)). Qualitative methods have also been employed in IB research to study events but much less frequently. A recent longitudinal case study is Haley and Boje's (2014) study of storytelling the internationalization experience of McDonald's Corporation (see also the articles on qualitative methods in IB research in Eden, Nielsen and Verbeke (2020)).

4.2.2 Regression analysis

Perhaps the most common empirical technique in the social sciences is regression analysis, which encompasses both linear (single and multiple) and nonlinear (e.g. probit, tobit, logistic) regression techniques. Regressions can be conducted on cross-sectional, time-series or panel data sets. The two basic approaches used in regression analysis to test how events affect actors within a system are comparative statics and dynamics. The comparative statics technique examines the situation before and after an event, attributing the change to the event, all else being held equal (Kehoe, 1989). Dynamic models study movements in the system over time in response to events, modeling uncertainty, business cycles, feedback loops, hysteresis and other interactions (Tsfatsion, 2017). Both approaches test hypotheses that were developed typically through either mathematical modeling, verbal deductive theory or game theory.

Regression analysis can be used to analyse the consequences of events where events are used as explanatory variables, with the proviso that careful delineation of the event, together with the exclusion of possibility confounding events, is required (Rawlings, Pantula and Dickey, 1998).⁶ Regression methods can also be used to explore the antecedents of events.⁷ Events used as dependent variables have also been studied by IB scholars using regression methods. For example, the decision to enter a new country has long been of great interest to IB researchers and illustrates that event analysis can deal with "where" questions (surveyed by Kim and Aguilera, 2016), as well as "when" questions (surveyed by Zachary et al., 2015).

Studying shock events can also enable researchers to address empirical challenges that often face quantitative research methods, such as reverse causality, selection bias and omitted-variable bias (Atanasov and Black, 2016). When a shock affects

⁶ Recent examples are Jo, Karnizova and Reza (2019) and Christiano, Eichenbaum and Trabandt (2018) in economics and Lin et al. (2019), Clougherty and Zhang (2021) and Li et al. (2020) in IB research.

⁷ See, for example, Guriev, Kolotilin and Sonin (2011), Mahdavi (2014) and Dau et al. (2021).

some firms (treatment group) but not others (control group), its effects can be estimated by the difference in outcomes between the two groups, analogous to experimental trials of drug effectiveness, referred to as “difference-in-differences” (Reeb, Sakikabara and Mahmood, 2012).⁸

4.2.3 Time-to-event and rare event models

Evolutionary biologists believe that shocks can explain discrete breaks in the fossil record. The history of life on earth is best explained not by slow gradual change but rather by rapid bursts of events (*punctuated equilibria*) when new species arise very quickly following long periods of relative stability, triggered by the accumulation of stressors and random events (Eldredge and Gould, 1972; Gould and Eldredge, 1977). Organization theorists in sociology and management have adopted the punctuated-equilibrium model to analyse policy shocks that were treated as regulatory punctuations (Haveman, Russo and Meyer, 2001, p. 254).

In punctuated equilibria research, a core topic is the duration and timing of events. Research methods for analysing punctuated equilibria include *time-to-event (TTE) models* such as hazard or survival models, which are used where the outcome variable predicts the likelihood of a particular event happening or not happening (Vermunt and Moors, 2005). Whereas survival analysis focuses on the likelihood of a single event, event history analysis has the ability to analyse events that occur multiple times (and may be possibly overlapping) and events with multiple outcomes. Event history analysis has been used in many social science disciplines, including IB research, to analyse punctuated equilibria; see, for example, Box-Steffensmeier and Jones (1997), Haveman et al. (2001) and Perez-Batres and Eden (2008).

Geographers have used punctuated equilibria models to examine the impact of natural disasters on communities and businesses (Adger, 2006; Aubrecht et al., 2013; Gallopín, 2006), treating natural disasters as rare events. Rare events need modeling with Pareto-based statistics (i.e. data points are independent-multiplicative, and distributions are asymmetric with long tails) rather than Gaussian-based statistics (data points are independent-additive, with normal distributions), according to Andriani and McKelvey (2007 and 2009). Specialized methods such as catastrophe, input-output and computable general equilibrium modeling can be used to analyse rare or long-tailed shocks (Atanasov and Black, 2016; Botzen, Deschenes and Sanders, 2019). Rare events also occur in IB research.

⁸ For examples using difference-in-difference treatment, see Kanagaretnam, Kong and Tsang (2020) and Bachmann et al. (2021).

Andriani and McKelvey (2007, p. 1211) argue “there is a far higher probability of fractals, Pareto distributions and power laws in IB than in domestic settings”, and IB scholars are starting to adopt rare event techniques.⁹

4.2.4 Event study method

The *event study method (ESM)* is an analytical technique designed to capture the impact on market value of an announcement relevant to the future earnings of a firm or firms, by examining the behaviour of the stock price around the announcement, i.e. investors’ short-term reaction to an event.¹⁰

In ESM, the researcher looks for evidence of an abnormal return on the day of the event announcement. The abnormal return provides a measure of the unanticipated effect of the event on the firm’s value. Whether the stock market response is normal or abnormal is determined by comparing expected returns (which are estimated based on modeling and data for an estimation window) and then comparing them with actual returns during the “event window”, typically a three-day window around the event (McWilliams and Siegel, 1997). For time periods longer than one day, the daily abnormal returns are added and referred to as the cumulated abnormal returns (Brown and Warner, 1980 and 1985).

The ESM can also analyse event patterns. Because the ESM can be used to identify stock market reaction to an event, the accumulation of daily reactions over time or at different points in time makes it possible for scholars to study not only the immediate impact of a policy shock but also the temporal patterns of those impacts. ESM is also useful for studying events that affect many firms and potentially identifying systematic patterns of firm behaviours and market features. For example, the method can be used to examine linkages between an MNE’s home and host markets or understand how MNEs respond to sudden policy changes in a host country. Another use of the ESM is to examine shocks such as foreign exchange crises or natural disasters; e.g. King (2015) used the ESM to study bank bailouts during the global financial crisis.

⁹ For example, Dai, Eden and Beamish (2013 and 2017) use rare event, nonparametric, Cox proportional hazard modeling with multiple onsets of risk to explore MNE responses to wars. Liu and Li (2020) use generalized estimating equations that accommodate non-independent observations to explore MNE responses to terrorist attacks.

¹⁰ For literature reviews of ESM, see Fama et al. (1969); Campbell, Lo and MacKinlay (1997), McWilliams and Siegel (1997) and Eden et al. (2021).

4.3 Which method is appropriate for which events?

Although it is useful to explore four types of research methods for studying events, the relevant question for researchers is which method or methods are most appropriate for understanding the antecedents and consequences of specific types of events, such as global shocks or crises. We believe that the range of possible research questions suitable for event analysis methods is quite broad, given that the inherent complexity of the global economy lends itself to interesting and important research involving dynamics (Buckley, 2020; Eden and Nielsen, 2020). For instance, the process of deglobalization and reshoring discussed in UNCTAD (2020 and 2021) is due in part to policy shocks such as the introduction of import and FDI barriers, pathogen diffusion, trade and travel restrictions, and intercountry tensions (Evenett, 2019 and 2020).

The first three methods outlined for analysing events – longitudinal case studies, regression analysis, and time-to-event and rare event methods – have all been used frequently by researchers to analyse global shocks. The ESM, in contrast, has been used almost wholly in accounting and finance to analyse stock market reactions to events.

An advantage of case studies, regression analysis, and the TTE and rare-event methods is that they are most useful when the researcher has multiple years of historical data available for analysis. Longitudinal case studies, for example, are well suited for tracing over time (often years or decades) the antecedents and consequences of events. Tracing is easier if the event affects fewer actors or there are multiple sequential events and the researcher is looking for event patterns. Regression analysis, both comparative statics and dynamics, typically requires large panel data sets, as do TTE and rare event methods.

For policymakers to use any of the four research methods successfully, it is important that they understand the difficulties of using evidence in EBP (Eden and Wagstaff, 2021). As Eden and Wagstaff explain, multiple problems can derail the role of evidence in EBP. First, good evidence is necessary but may not be sufficient for EBP because the definition of good evidence often varies among stakeholders, leading to frequent disputes. The bias towards quantitative (“hard”) evidence also disadvantages qualitative (“soft”) evidence. Second, good evidence may be misunderstood or misused by policymakers, especially if they do not have the staff or expertise to understand the research findings or cherry-pick the results they favor. Moreover, researchers often do not explain their results in a policy-friendly manner. A third problem is that empirical evidence collected in one country may not be applicable in another.

Our answer to the question about which method works best for which events is therefore “it depends” – the same conclusion reached by Eden and Wagstaff (2021). What is clear, however, is that the first three methods – case studies,

regression techniques, and TTE and rare event studies -- by their very nature must be historical since they rely on the creation of multiple-year data sets. Their usefulness in analysing global shocks therefore depends on how similar the current event is to events that happened in the past.

By contrast, the ESM has the advantage of timeliness, as event data can be analysed in real time. Therefore, the ESM lends itself well to one particular type of event – crisis – because it shares the three characteristics of crisis events: high impact, short decision-making time and surprise:

- *High impact:* The ESM by construction is most effective at capturing high-impact events that affect a firm's market valuation, either positively or negatively. Crisis events are defined similarly as high-impact (usually threat) events.
- *Short time:* The ESM by construction also involves a short time horizon. An announcement is made and investors must react in a timely fashion by buying or selling shares of the stock if they are to profit from the new information. The cumulated abnormal returns provide an ex-ante measure of the unanticipated effect of an event on the firm's market capitalization at a point in time, typically measured as a three-day window around the event. Crisis events are also characterized by short time to decision-making, i.e. a short window before the situation is expected to change again.
- *Surprise:* In the ESM, the abnormal return associated with an anticipated event should be zero because a critical assumption underpinning the ESM is market efficiency; i.e. new information is fully reflected in stock prices soon after the announcement (Fama et al., 1969). When there is no surprise, the ESM should normally not be used.¹¹ Surprise is also a key characteristic of crisis (and breakthrough) events.

Key to using the ESM to analyse global shocks is therefore the requirement that the shocks must also be crises or breakthroughs; i.e. they must involve high impact, short time and surprise for the decision-making actors. Events that are low impact, long time or not a surprise are not suitable research questions to address using the ESM. In such situations other research methods (e.g. multiple regression, cases studies) present better alternatives.

¹¹ The ESM can be used to capture the impacts of disappearing surprise over time; see Eden, Juarez Valdez and Li's (2005) study of United States tax penalties on Japanese automotive and electronics MNEs. Lack of stock market reaction to an announcement can also provide indirect evidence of information leakages; see Miller et al. (2008).

We therefore propose that event analysis researchers consider reframing the ESM more broadly than the traditional definition used by accounting and finance researchers:

- *Traditional definition: The ESM is an empirical method used to capture investors' reactions on a stock market to an announcement that may affect the future earnings of one or more firms.*
- *Event analysis definition: The ESM is an empirical method used to capture stakeholders' reactions on a high-frequency market to an event that is observed and perceived as high impact by one or more actors.*

Our new event-centred definition of the ESM broadens the traditional definition in three ways: from investors to stakeholders, from the stock market to high-frequency markets, and from publicly traded firms to organizational actors. The definition more clearly centres the ESM as an appropriate method for analysing events characterized by high impact, short decision-making time and surprise.

In addition to broadening the definition of the ESM, we also support broadening the types of databases that can be used with ESM. A key advantage of ESM is that it uses high-frequency (typically, daily) stock market data so events can be analysed almost in real time. In contrast, most data sets are annual, so that analysis of interesting and important phenomena must wait for years. For example, the impacts of the COVID-19 pandemic on Chinese firms (He et al., 2020) and United States firms (Albuquerque et al., 2020) have already been studied using the ESM. Thus, policymakers can use it to acquire timely evidence on global shocks by examining the impacts of shocks on one or more stock markets. It is important to note also that new databases using big data are now being developed that are often collected in real time (Delias, Zoumpoulidis and Kazanidis, 2019). Since the ESM is a forward-looking method that focuses on expectations, the potential usages of it in policymaking should grow as new forms of high-frequency big data become available (e.g. Internet tweets and clicks, and geotracing using mobile phones). When these data are correlated with organizational goals and outcomes, the ESM can be used on other high-frequency markets or to supplement stock market data. Big data can also supplement monthly data in regression analysis; e.g. Bachmann et al. (2021) use Twitter data together with monthly automotive sales to estimate the reputation impacts of the Volkswagen emissions scandal.

We are therefore supportive of recent proposals that unofficial data and statistics, both national and international, be certified for use in EBP processes (MacFeely, 2019; MacFeely and Nastav, 2019). Expanding the range of acceptable data sources for government policymaking would be particularly helpful for developing countries, where limited policy capacity and resources restrict the provision of official data sources. MacFeely (2019), for example, argues that big data may be

more cost effective, efficient, and finer grained than official sources and of better quality than survey data. Scholars are already studying the use of big data in EBP (Giest, 2017; Poel, Meyer and Schroeder, 2018).

5. Discussion and conclusions

Event analysis recognizes that events differ in their characteristics and patterns. Global shocks are events that happen rapidly and have large, typically negative impacts on at least two continents. Other events such as technological change can also have global impacts but unfold over decades. Some events are predictable; others are not. The time available for decision-making can also vary from short to unlimited. In sum, events differ in their impact (sign, size and duration), predictability and time for decision-making. Policymakers need to distinguish between long-term global shocks such as Industry 4.0 and global crises such as the pandemic, recognizing that they may require different EPB processes.

The nature of the event and how it is perceived by actors within the system are important for understanding the antecedents and consequences of the event. Policymakers are likely to react differently depending on the characteristics of the event, especially where the event is unexpected and disruptive. As such, we believe that exploring how the various corners of the crisis cube in figure 2 affect the EBP process would be a useful extension to this paper. We expect that varying any of the situational characteristics (impact, decision time, surprise) is likely to affect the EBP process.

When the global shock is a decision-making situation that involves high threat, short time and surprise (a crisis event), the ESM is an appropriate research method. Whether an event is perceived by decision makers as a breakthrough (opportunity) or crisis (threat) can significantly alter the occasion for decision and the likely response. For example, decision making in crisis (to avoid a loss) may result in substantially greater risk taking than reacting to a breakthrough event that provides an unexpected change to advance goals (Kahneman, 2011). In addition, both crises and breakthrough events involve turning points when significant change is expected and tough decisions must be made. Both also involve costs and resources in making and implementing decisions – change is not cost free – even if crises involve primarily big downside risks while breakthroughs involve big upside risks. Recognizing the characteristics of the situation faced by policymakers affords them an opportunity to improve the quality of their response and to avoid pitfalls frequently initiated by less careful responders.

A natural extension to our study would therefore be for researchers to examine how the nature of the event affects the EBP process. Are policymakers likely to engage in the same EBP process when faced with a high-threat event that is a

surprise versus one that is anticipated? How does the length of the decision-making process affect the EBP process? Some insights can be found in Hermann (1969), who argues that in crises, decision-making is made quickly at the highest level by a small number of officials using information available to the group, i.e. the EBP process is short and truncated. In contrast, a high-threat surprise situation with extended time provides policy room for search and opportunities for innovative options, i.e. a more full-fledged EBP process. Monitoring a stream of events and noting their variation on these dimensions may help policymakers confronting a particular type of event to improve their decision making. It also enables other members of the system – who are alert to different event characteristics – to anticipate the more likely responses of those facing a given type of event.

In conclusion, WIF2021 was focused on the key question facing policymakers in the decade ahead: How can policymakers make better decisions in a VUCA world? Our answer has been that better decisions are made when high-quality evidence is generated and used in EBP. To assist policymakers in using EBP in a VUCA world, we argue that researchers need to provide insights and good evidence drawn from event analysis. Key to the creation and dissemination of good evidence is (i) understanding the nature of the global shock and situating it within event analysis and (ii) choosing the appropriate event-analysis research method or methods for analysing the shock's antecedents and consequences. We hope that our paper will encourage researchers and policymakers to apply the insights of event analysis and EBP to their policy responses.

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Who owns international business?*

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Abstract

International business in the past century has largely been the domain of large multinational enterprises and banks, as well as small exporting and importing companies. The scope of international business activity has grown in recent years, and today there are many State-owned companies involved in international business activities, as well as financial investors rather than only industrial or commercial companies undertaking foreign direct investment (FDI). Government policy toward international business has largely been supportive since the 1990s, while concerns have arisen particularly in regard to the activities of State-owned enterprises and also the activities of non-traditional investors such as investment funds. To achieve the greatest benefits from FDI and trade, governments need to understand which companies are making the key decisions in global value chains and to collaborate in rule-setting and in guiding companies to pursue desirable activities and to limit non-business goal-seeking.

Keywords: foreign direct investment, cross-border M&A, multinational enterprises, global value chains, state-owned enterprises

JEL classification codes: F21, F23, F42, G34

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1. Introduction

At the 2021 World Investment Forum sponsored by UNCTAD (<https://worldinvestmentforum.unctad.org/7th-world-investment-forum/>), in sessions co-sponsored by the Academy of International Business, the issue of non-traditional ownership of international business activities such as foreign direct investment (FDI) was raised and discussed. The fact that much of international business today is involved in global value chains (GVCs) led to additional discussion of that phenomenon as well. The present paper focuses on the ownership of international business activities and on its implications for government policy.

The answer to the question of who owns international business is not any single country. If we look at international business activities such as exports, imports and FDI, they are undertaken by companies rather than countries. The countries of origin of the international business activities are important to policymakers and competitors, so countries are relevant in this way. Also, State-owned enterprises (SOEs) are important in a number of industries around the world, such as oil and banking, so many countries do participate in owning part of international business through these companies. In addition, sovereign wealth funds (SWFs) are increasingly important investors in global firms, adding to the relevance of State involvement.

Another feature of international business that is now more difficult to interpret is the private sector ownership of companies that operate abroad. When one looks at FDI activity through mergers and acquisitions (M&As), it turns out that since 2000 a lot of that activity has been taking place through acquisitions by financial entities such as investment funds or private equity groups rather than through traditional investment overseas by industrial or commercial companies. The implications of this kind of ownership remain to be explored, and this is a key theme of the present article.

The analysis proceeds as follows. First, the various owners of international business activities are discussed, and some measures of their size are presented. These activities include exports, FDI, international lending and contractual arrangements such as licensing and franchising. Second, one specific kind of activity, FDI through M&As, is considered in some detail as far as ownership in the 21st century is concerned. Third, the paper discusses the perspective of government policymakers on each of the international business activities and on the new element of financial entities being key foreign direct investors. Finally, some conclusions are drawn for companies and governments, and areas of possible collaboration between them are noted.

2. The owners of international business

Ownership of international business looks at who owns the companies that carry out international business activities. In the case of small and medium-sized companies, which are often involved in exporting and importing, the owners are generally individuals or families. In the case of large multinational enterprises (MNEs), especially those traded on stock exchanges, the owners tend to be numerous people, financial institutions, investment funds and others, sometimes including government investors. The paper does not pursue the ultimate ownership of the financial institutions and funds that are involved in international business. Four major categories of international business activity are discussed here:

- Exports and imports
- Foreign direct investment (wholly and partially owned)
- International bank lending and borrowing
- Licensing, franchising and other contracting

These activities are carried out by a wide variety of institutions such as MNEs, small and medium-sized enterprises and financial entities. FDI in particular is now carried out not only by traditional MNEs but also by private investors, hedge funds, SOEs and even sovereign wealth funds.

Owners of exports and imports

The owners of exports and imports range from tiny microenterprises to giant multinationals. In the United States alone in 2019, there were approximately 300,000 companies that exported, of which 98 per cent were small and medium-sized.¹ This feature has not changed much in the past half-century, except through the development of GVCs. That is, small companies still participate in exporting and importing, but much more often today they are linked into a global supply chain, such as for production of automobiles or t-shirts or even hotel or restaurant services. Thus, the small companies continue to dominate the numbers of enterprises involved in exports and imports, but they are increasingly part of production processes orchestrated by MNEs. These processes go from farming (e.g. cotton) to producing fibre, to designing and manufacturing t-shirts, to shipping them to customers around the world, or from producing some service such as local sales of cell phone service or just retail sales of products in small communities, that links to production of the cell phone or the plastic item, which may be

¹ United States Chamber of Commerce, "The benefits of international trade", 15 January 2021, www.uschamber.com.

carried out in another country or other countries.² Even so, while small and medium-sized companies from emerging markets may become involved in GVCs, they more often than not are challenged by these sources of competition, and they do not readily fit into such GVCs.

For many years it has been estimated that in about two-thirds of international trade multinational companies are involved as either the exporter or the importer or both (De Backer et al., 2019, figure 1). A multinational company would be involved on both sides of an export-import transaction when the shipment goes from one affiliate of the company to another in a different country.

Owners of FDI

FDI implies that a company from one country establishes an owned affiliate in another country. Given this fact, it is certain that FDI is more often the domain of large MNEs rather than microenterprises. While the size of the company involved in a direct investment may be relatively small compared with an MNE such as Apple or Exxon, still the companies tend to be large. The largest 100 direct investment projects in 2021 included investments by oil companies, banks, and producers of high-tech software and hardware, as well as many other kinds of products and services.³ The smallest deal among these major investments was for \$1 billion, and the largest for \$44 billion.

As far as geographic distribution of ownership of FDI is concerned, the largest single source country of FDI flows in 2019 was China, followed by Japan and Germany, and then the United States (UNCTAD, 2021). The United States has usually been the largest source of FDI in the period since World War II, so the shift to other countries is noteworthy, and especially important when China is the leader. FDI is largely owned by MNEs based in the source country, although affiliates of MNEs from other countries also invest overseas in third countries.

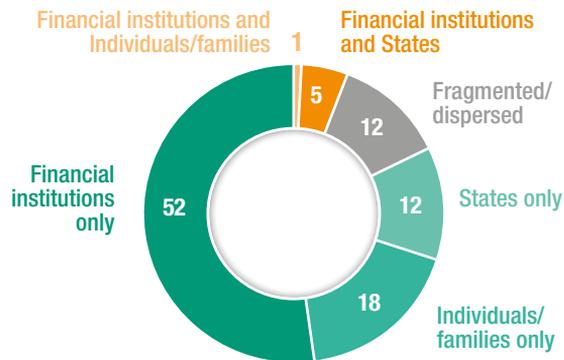
Looking at the multinational companies that carry out FDI, UNCTAD measured the *ultimate ownership* of these firms in 2015, as shown in figure 1.

It is truly striking to see that the majority (52 per cent) of MNEs are ultimately owned by financial investors rather than being widely held and traded on stock exchanges (12 per cent) or family owned (18 per cent). But this fact does not change our understanding that MNEs are the main drivers of FDI and also exports and imports, and that they are managed by experts in the business, regardless of the companies' ultimate ownership.

² On the issue of GVCs, and the fit of emerging markets into them, see UNCTAD (2013).

³ See "Largest merger and acquisition deals", 20 November 2021, www.Intelligence.com.

Figure 1. Predominant ultimate beneficial owners in UNCTAD's Top 100 MNEs
(Per cent)



Source: UNCTAD (2016, p. 131).

UNCTAD has also looked at the issue of corporate ownership of FDI and value chain activities in international business, aiming to identify the companies that are at the base of value chains and direct investment activities. That is, the focus is not on understanding which financial investors or families own shares of a company traded on a stock exchange, but rather on understanding which industrial or commercial companies are behind the international business activities. For example, Casella (2019) looks specifically at “conduit FDI”, in which a multinational firm invests overseas in one country (frequently a tax haven), and then uses that base to invest in business activities in another country. His analysis points out that for policymaking, governments want to know which company and country of origin is ultimately driving flows of exports, flows of funds and transfer of technology. This thinking was extended in Alabrese and Casella (2020), in which the authors investigated foreign affiliates of multinational firms and found that several types of multiple-country ownership chains exist, from conduit FDI to round-tripping from home to host country and back, to using home or host country as a base for multinational expansion. Each of these analyses focused on the ultimate ownership of foreign affiliates, so that government policymakers in these affiliate countries could understand where the decision-making buck stops in those affiliates.

Owners of international bank lending and borrowing

As with FDI, international bank lending and borrowing tend to be the domain of large multinational firms, in this case financial institutions. These banks tend to do the bulk of their international transactions (by value) in international financial centres, principally London and New York. With the greater participation of Chinese firms in international business in recent years, the largest Chinese State-owned banks, including ICBC and China Construction Bank, have joined JPMorgan Chase, Bank of America and HSBC among the leaders in this activity. The point is less to identify specific banks than to note that the main lenders are almost all large commercial banks headquartered in the Triad countries (in North America and Europe, as well as Japan) plus China, with international banking activity centred in London and New York. The value of this cross-border lending was approximately \$30 trillion at the end of 2019, according to the Bank for International Settlements – almost identical to the global stock of FDI at that time.

Owners of international franchising, licensing and contracting

In this final category of international business activities, the bulk of business is done by major *franchisors* such as hotels (Marriott, Hyatt, Intercontinental) and restaurants (McDonalds, KFC, Burger King); major *licensors* of media (Walt Disney, Warner, NBCUniversal), consumer goods (Mattel, Phillips-Van Heusen, Hasbro) and software (Microsoft, SAP, Oracle); and major construction *contracting* companies (China State Construction Engineering, Bouygues, Bechtel) management *consulting* companies (McKinsey, BCG, Bain) and IT consulting companies (Accenture, Deloitte, IBM). In some instances of the hotel and restaurant chains, the parent company owns and manages foreign locations. But more commonly they are franchised: McDonald's franchises 93 per cent of its restaurants and Marriott franchises 99 per cent of its hotel rooms.⁴

This category of companies is fairly restricted by the fact that in order to convince potential buyers to contract with the company, it has to be publicly known in the first place. The time and expense needed to build an international brand name exclude all but the already-successful companies in these industries, or acquirors of such companies. Possession of the brand is key, even though the brand could in principle be purchased in the market from the original owner.

⁴ Based on information on each company's website.

3. FDI through M&As

FDI is undertaken by investors of various sorts, with the only key criterion being that the investor is a company that invests in a company overseas. So, for example, an investment company such as Kohlberg Kravis & Roberts can buy a manufacturing company such as RJR Nabisco (in 1989), even though KKR has no knowledge of or experience in that industry. If KKR buys a company overseas, for example Alliance Boots in the United Kingdom (2007) or Axel Springer in Germany (2019), it is likewise considered FDI, even though the acquiring company does not come from the same industry as the acquiree.

Perhaps parenthetically, the way that FDI is *financed* does not require funds to come from the acquiring company's country. It is very common for a company to make a cross-border acquisition and to fund it by issuing equity or debt in the two main financial centres, London or New York – regardless of the company's origin. So, when we talk about FDI, we are talking about the acquisition of controlling ownership of a company in another country carried out by a company in the initiating country. The industry of either acquiror or acquiree does not matter; public or private ownership of either company does not matter; and the source of funds to pay for the investment does not matter.

Existing MNEs

With these statements as preamble, the bulk of FDI still takes place when a large company buys another company or creates a new company in its own or a related industry in another country. The main source of FDI is investment by existing large companies, most often from China, the United States, Germany or Japan, in another country (often one of these same countries). Since the global financial crisis, much greater FDI is taking place from emerging markets, particularly the largest ones such as India and China. As can be seen in the appendix, in 2015, the 75 largest cross-border M&As were undertaken by companies such as Merck, General Electric and Bank of Montreal. Even so, there are several cases in the list in which the acquiring company was “investors”, meaning an incorporated private equity group or fund that purchased the other company.

Private investors

Increasingly in a “financialized” world, we are seeing financial entities getting involved in company ownership. In the list of the largest 75 cross-border M&A deals shown in the appendix, 10 were undertaken by investor groups, which can probably be interpreted as private equity. Private equity is a somewhat amorphous term, meaning that a group of investors has formed an unlisted legal entity to carry out investment, in this case in owning companies.

This is a fascinating type of direct investor, as the company does not necessarily have any experience at all in the industry of investment. Just as with Warren Buffett selecting companies for Berkshire Hathaway to acquire, the knowledge held by the investor groups is presumably mostly financial and broadly strategic, along with the ability to hire industry experts to run the acquired business (or keep the existing management team).

SOEs

These companies may be long-lived and very large, just like the private sector companies that are the “traditional” MNEs. State-owned MNEs are prevalent in some industries, especially petroleum and banking. In the case of Chinese SOEs, they exist in a wide range of industries. The 50 largest multinational SOEs are almost exclusively in the two main industries, and many are based in China, although the analysis on SOEs in UNCTAD's *World Investment Report 2017* shows that SOE-MNEs are common in Europe and other countries. Given the central importance of extractives and banking to the global economy, and the significance of Chinese FDI today, SOEs are a major factor in the FDI that takes place and in government policy to regulate that FDI.

SWFs

These government-owned organizations may be incorporated or may be structured in some other manner, but they tend to be portfolio investors rather than taking control of companies they invest in as direct investors. There are some exceptions in which SWFs do take controlling ownership, such as in the case of Temasek from Singapore, which owns DBS Group, several telecommunication and media companies, several energy companies and other businesses. As in many cases SWFs are not required to divulge their controlling ownership, there are surely some that control commercial and industrial companies that we do not know about.

Hedge funds, pension funds

These funds, like SWFs, generally invest as portfolio investors, without the aim of controlling companies whose shares or bonds they buy. Nevertheless, as shown with the growth of special purpose acquisition companies (SPACs) in recent years, investors can pool funds in SWFs and similar legal entities to buy out a company or take public a private company.

4. Government policy related to owners of international business

Government policymakers use a wide array of regulations and subsidies in relation to the international business activities discussed here. With respect to imports, governments use tariffs, import quotas, subsidy of domestic producers and other non-tariff barriers to restrict some imports. Since most countries are members of the World Trade Organization, they have reduced tariffs over the years to low levels today (with a trade-weighted average tariff of less than 3 per cent ad valorem in 2020, according to the World Bank.⁵ Most of the tariff reductions since 2000 have been through preferential regional trade agreements such as the North American Free Trade Agreement (now the United States–Canada–Mexico Agreement), the Comprehensive and Progressive Trans-Pacific Partnership, and the African Continental Free Trade Area.

Governmental restrictions on imports tend to be limited to specific products (such as steel and autos) and to specific countries where some disagreement may exist. With respect to FDI, many governments restrict foreign ownership in industries such as media, national defence and domestic transportation, but they largely remain open to incoming FDI in most industries and they even subsidize it in many instances to attract money, knowledge and jobs. Typically, cross-border bank lending and contracting arrangements such as licensing and franchising are not restricted.

The fairly new use of financial entities to carry out FDI poses new challenges for policymakers, along with the FDI carried out by SOEs. It is not obvious that new rules are needed to either regulate or incentivize FDI that is owned by financial entities. But it is certain that SOEs and SWFs that undertake FDI will have national government non-business interests to take into account, beyond purely business goals of earning income and building market share. It is not as clear that the financial entities such as pension funds and SPACs will have any different goals than a traditional MNE, although these financial entities may pay more attention to investment returns alone.

Regulation of foreign State-owned businesses is a huge issue that has been explored by the Organisation for Economic Co-operation and Development (OECD) (2016) and by UNCTAD (2014). The OECD established guidelines for SOEs in its 2015 publication, *OECD Guidelines on Corporate Governance of State-Owned Enterprises*, and pursued further action on competitive neutrality. Specific jurisdictions, such as the United States and the European Union, have adopted policies on FDI by SOEs and SWFs, seeking to ensure such companies act as private sector entities rather than extensions of the State. There is, of course, no easy solution to this challenge.

⁵ World Bank, “Tariff rate, applied, weighted mean, all products”, DataBank, <https://data.worldbank.org/indicator/TM.TAX.MRCH.WM.AR.ZS>.

A desirable direction for exploration of government and company interests and concerns in the various types of ownership of international business is to widen the scope of such exploration. Discussions on ownership so far have focused narrowly on State ownership, so it would be useful to expand the discussion to cover other types of ownership. Expanding the discussion would help to explore the implications of new types of owners and of increasingly concentrated ownership.

5. Conclusions

International business is largely owned by large corporations that trade internationally and invest abroad. Even the small and medium-sized enterprises that are involved in exports and imports in many cases have become incorporated into GVCs led by MNEs, so policymakers need to understand both the direct activities of MNEs and their spillover impacts on smaller companies around the world. The challenge to incorporate small and medium-sized companies from emerging markets into GVCs remains a difficult one, and it requires much additional exploration.

State-owned companies have become more noticeably active in FDI and other international business activities in recent years, and the SOEs present a challenge to government regulators who want to establish a reasonably level playing field for domestic and foreign companies. Because governments and companies already have to juggle the multiple interests of their constituents and stakeholders, SOEs are just one more element that needs to be dealt with in the ongoing government-business relationship.

Financial investment has become much more important as a base for FDI as well as for trade and contracting. Since global markets have become more open to financial activities, this has led to many innovations such as cross-border M&As and SWFs, as well as vehicles such as SPACs and private equity investment to pursue FDI. While financial investors such as banks, pension funds and mutual funds have long been ultimate owners of large corporations, the direct entry of these investors into taking controlling ownership in companies is new. Policymakers will need to decide whether this kind of investment is problematic or just another wrinkle in the financial landscape.

International organizations have been pursuing efforts to deal with some of these challenges through the discussions on updates of the benchmark definition of FDI (led by the OECD, with the International Monetary Fund and UNCTAD) to capture the implications for FDI statistics of new types of ownership and new types of transactions and financial restructuring, which deal with many of the new ownership phenomena discussed. Even with these efforts, there is a lot of room for future work on understanding the beneficial ownership of companies involved in international business. If it turns out that a large percentage of ownership in

many companies that invest abroad is held by financial institutions and funds, then regulators and policymakers need to consider appropriate rules specifically related to this kind of investor.

To conclude on a very positive note, because of the opening of financial markets in most of the world, it is possible today for investors from almost any country to be owners of any company whose shares are publicly traded. A further avenue for future research would be to explore the degree to which this can make the global system of international business more “democratic”.

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Appendix table 1. Largest cross-border M&A deals in 2015

Rank	Value (\$ billion)	Acquired company	Host economy*	Industry of the acquired company	Acquiring company	Home economy*	Industry of the acquiring company	Shares acquired (%)
1	68.4	Allergan Inc	United States	Pharmaceutical preparations	Actavis PLC	Ireland	Pharmaceutical preparations	100
2	42.7	Covidien PLC	Ireland	Surgical and medical instruments and apparatus	Medtronic Inc	United States	Electromedical and electrotherapeutic apparatus	100
3	20.6	Lafarge SA	France	Cement, hydraulic	Holcim Ltd	Switzerland	Cement, hydraulic	96
4	20.4	Stenhoff International Holdings Ltd	South Africa	Metal household furniture	Genesis International Holdings NV	Netherlands	Metal household furniture	100
5	16.9	Sigma-Aldrich Corp	United States	Chemicals and chemical preparations, nec	Merck KGaA	Germany	Pharmaceutical preparations	100
6	16.0	GlaxoSmithKline PLC	United Kingdom	Pharmaceutical preparations	Novartis AG	Switzerland	Pharmaceutical preparations	100
7	14.0	Ondreel Ltd, Best-Growth Resources Ltd, Havensbrook Investments Ltd, China Resources	Hong Kong, China	Grocery stores	China Resources (Holdings) Co Ltd	Hong Kong, China	Investors, nec	100
8	12.5	TRW Automotive Holdings Corp	United States	Motor vehicle parts and accessories	ZF Friedrichshafen AG	Germany	Motor vehicle parts and accessories	100
9	12.0	GE Antares Capital	United States	Misc business credit	CPPIB Credit Investments Inc	Canada	Investment advice	100
10	10.7	Alstom SA-Energy Businesses	France	Turbines and turbine generator sets	General Electric Co	United States	Power, distribution, and specialty transformers	100
11	10.4	Gegfah SA	Luxembourg	Operators of apartment buildings	Deutsche Annington Immobilien SE	Germany	Real estate investment trusts	94
12	9.9	China United Network Communications Corp Ltd	China	Telephone communications, except radiotelephone	China Tower Corp Ltd	China	Telephone communications, except radiotelephone	100

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Appendix table 1. Largest cross-border M&A deals in 2015 (Continued)

Rank	Value (\$ billion)	Acquired company	Host economy ^a	Industry of the acquired company	Acquiring company	Home economy ^a	Industry of the acquiring company	Shares acquired (%)
13	9.8	GVT Participacoes SA	Brazil	Telephone communications, except radiotelephone	Telefonica Brasil SA	Brazil	Telephone communications, except radiotelephone	100
14	8.9	General Electric Capital Corp	United States	Personal credit institutions	Bank of Montreal, Ontario, Canada	Canada	Banks	100
15	8.7	Friends Life Group Ltd	Guernsey	Life insurance	Aviva PLC	United Kingdom	Life insurance	100
16	8.4	PetSmart Inc	United States	Retail stores, nec	PetSmart Inc SPV	United States	Investment offices, nec	100
17	8.3	Talisman Energy Inc	Canada	Crude petroleum and natural gas	Repsol SA	Spain	Petroleum refining	100
18	8.1	IndCor Properties Inc	United States	Real estate investment trusts	Investor Group	Singapore	Investors, nec	100
19	7.5	HCC Insurance Holdings Inc	United States	Life insurance	Tokio Marine & Nichido Fire Insurance Co Ltd	Japan	Fire, marine and casualty insurance	100
20	7.4	TransGrid Ltd	Australia	Electric services	Investor Group	Canada	Investors, nec	100
21	7.4	Lafarge SA & Holcim Ltd	France	Cement, hydraulic	CRH PLC	Ireland	Cement, hydraulic	100
22	7.2	GE Capital Fleet Services	United States	Passenger car leasing	Element Financial Corp	Canada	Personal credit institutions	100
23	7.2	O1 SA-PT Portugal Assets	Portugal	Telephone communications, except radiotelephone	Alice Portugal SA	Portugal	Cable and other pay television services	100
24	7.1	Novartis AG-Vaccines Business	Switzerland	Biological products, except diagnostic substances	GlaxoSmithKline PLC	United Kingdom	Pharmaceutical preparations	100
25	7.1	RWE Dea AG	Germany	Crude petroleum and natural gas	L1 Energy Ltd	United Kingdom	Investment offices, nec	100
26	7.1	Reynolds American Inc	United States	Cigarettes	Imperial Tobacco Group PLC	United Kingdom	Cigarettes	100

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Appendix table 1. Largest cross-border M&A deals in 2015 (Continued)

Rank	Value (\$ billion)	Acquired company	Host economy*	Industry of the acquired company	Acquiring company	Home economy*	Industry of the acquiring company	Shares acquired (%)
27	7.0	Fortum Distribution AB	Sweden	Electric services	Investor Group	Canada	Investors, nec	100
28	6.7	Dresser-Rand Group Inc	United States	Turbines and turbine generator sets	Siemens AG	Germany	Radio and TV broadcasting and communications equipment	100
29	6.6	Elster Group GmbH	Germany	Totalizing fluid meters and counting devices	Honeywell International Inc	United States	Motor vehicle parts and accessories	100
30	6.4	Tesco PLC-Homeplus Group	Korea, Republic of	Grocery stores	Investor Group	Korea, Republic of	Investors, nec	100
31	6.2	International Game Technology	United States	Manufacturing industries, nec	GTECH SpA	Italy	Amusement and recreation svcs	100
32	5.9	CITIC Ltd	Hong Kong, China	Security and commodity services, nec	Chia Tai Bright Investment Co Ltd	Hong Kong, China	Investors, nec	12
33	5.7	Abbott Laboratories	Netherlands	Pharmaceutical preparations	Mylan Inc	United States	Pharmaceutical preparations	100
34	5.7	ITR Concession Co LLC	United States	Inspection and fixed facilities for motor vehicles	Industry Funds Management Pty Ltd	Australia	Investment advice	100
35	5.7	Protective Life Corp	United States	Life insurance	The Dai-ichi Life Insurance Co Ltd	Japan	Insurance agents, brokers and service	100
36	5.5	China Overseas Land & Investment Ltd	Hong Kong, China	Land subdividers and developers, except cemeteries	China Overseas Holdings Ltd	Hong Kong, China	Residential construction, nec	17
37	5.5	Oytec Industries Inc	United States	Chemicals and chemical preparations, nec	Solvay SA	Belgium	Plastics materials and synthetic resins	100
38	5.5	Corio NV	Netherlands	Real estate investment trusts	Kiepert SA	France	Real estate investment trusts	100

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Appendix table 1. Largest cross-border M&A deals in 2015 (Continued)

Rank	Value (\$ billion)	Acquired company	Host economy ^a	Industry of the acquired company	Acquiring company	Home economy ^a	Industry of the acquiring company	Shares acquired (%)
39	5.5	Celestial Domain Investments Ltd	China	Land subdividers and developers, except cemeteries	Alpha Progress Global Ltd	Hong Kong, China	Investors, nec	100
40	5.4	Novartis AG	Switzerland	Pharmaceutical preparations	Eli Lilly & Co	United States	Pharmaceutical preparations	100
41	5.4	City National Corp	United States	National commercial banks	Royal Bank of Canada	Canada	Banks	100
42	5.4	Polyus Gold International Ltd	United Kingdom	Gold ores	Sacturino Ltd	Russian Federation	Gold ores	60
43	5.2	Informatica Corp	United States	Prepackaged software	Informatica Corp SPV	Canada	Investment offices, nec	100
44	5.1	NPS Pharmaceuticals Inc	United States	Biological products, except diagnostic substances	Shire PLC	Ireland	Pharmaceutical preparations	100
45	5.1	Toll Holdings Ltd	Australia	Arrangement of transportation of freight and cargo	Japan Post Co Ltd	Japan	Courier services, except by air	100
46	5.0	Komi Oil OOO	Russian Federation	Crude petroleum and natural gas	Gaetano Holdings Ltd	United Kingdom	Investors, nec	100
47	4.7	Reynolds American Inc	United States	Cigarettes	British American Tobacco PLC	United Kingdom	Cigarettes	-
48	4.7	SIG Combibloc Group AG	Switzerland	Packaging machinery	Investor Group	Canada	Investors, nec	100
49	4.6	OCLING Pipeline Pty Ltd	Australia	Crude petroleum and natural gas	APA Group	Australia	Natural gas transmission	100
50	4.6	Industrial Income Trust Inc	United States	General warehousing and storage	Global Logistic Properties Ltd	Singapore	General warehousing and storage	100
51	4.5	Omega Pharma Invest NV	Belgium	Pharmaceutical preparations	Perrigo Co PLC	Ireland	Pharmaceutical preparations	96

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Appendix table 1. Largest cross-border M&A deals in 2015 (Continued)

Rank	Value (\$ billion)	Acquired company	Host economy*	Industry of the acquired company	Acquiring company	Home economy*	Industry of the acquiring company	Shares acquired (%)
52	4.5	TDF SA-Assets	France	Television broadcasting stations	Investor Group	Canada	Investors, nec	100
53	4.4	CITIC Ltd	Hong Kong, China	Security and commodity services, nec	Chia Tai Bright Investment Co Ltd	Hong Kong, China	Investors, nec	10
54	4.4	China Merchants Property Development Co Ltd	China	Land subdividers and developers, except cemeteries	China Merchants Industrial Zone Holding Co Ltd	China	Land subdividers and developers, except cemeteries	40
55	4.3	Jazztel PLC	Spain	Radiotelephone communications	Orange SA	France	Telephone communications, except radiotelephone	100
56	4.2	Mondelez International Inc	Netherlands	Roasted coffee	DE Master Blenders	Netherlands	Roasted coffee	100
57	4.1	Songbird Estates PLC	United Kingdom	Land subdividers and developers, except cemeteries	Stork Holdco LP	Bermuda	Investors, nec	100
58	3.9	iGATE Corp	United States	Computer programming services	Cap Gemini SA	France	Computer facilities management services	100
59	3.8	Catlin Group Ltd	Bermuda	Insurance agents, brokers and service	XL Group PLC	Ireland	Life insurance	100
60	3.7	Sapient Corp	United States	Computer integrated systems design	Publicis Groupe SA	France	Advertising, nec	100
61	3.7	Standard Life Financial Inc	Canada	Insurance agents, brokers and service	Manufacturers Life Insurance Co	Canada	Insurance agents, brokers and service	100
62	3.5	Amdipharm Mercury Co Ltd	United Kingdom	Pharmaceutical preparations	Concordia Healthcare Corp	Canada	Pharmaceutical preparations	100
63	3.5	Halla Viteon Climate Control Corp	Korea, Republic of	Refrigeration and heating equipment	Investor Group	Korea, Republic of	Investors, nec	70
64	3.5	Arysta Lifescience Ltd	Ireland	Pesticides and agricultural chemicals, nec	Platform Specialty Products Corp	United States	Industrial organic chemicals, nec	100

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Appendix table 1. Largest cross-border M&A deals in 2015 (Concluded)

Rank	Value (\$ billion)	Acquired company	Host economy ^a	Industry of acquired company	Acquiring company	Home economy ^a	Industry of the acquiring company	Shares acquired (%)
65	3.4	Avanir Pharmaceuticals Inc	United States	Pharmaceutical preparations	Otsuka America Inc	United States	Pharmaceutical preparations	100
66	3.4	Auspex Pharmaceuticals Inc	United States	Pharmaceutical preparations	Teva Pharmaceutical Industries Ltd	Israel	Pharmaceutical preparations	100
67	3.2	Ranbaxy Laboratories Ltd	India	Pharmaceutical preparations	Sun Pharmaceutical Industries Ltd	India	Pharmaceutical preparations	100
68	3.2	Verallia SA	France	Glass containers	Investor Group	United States	Investors, nec	100
69	3.2	GALLERIA Kaufhof GmbH	Germany	Department stores	Hudson's Bay Co	Canada	Department stores	100
70	3.2	Exeter Property Group LLC	United States	Operators of nonresidential buildings	Henley Holding Co	United Arab Emirates	Real estate investment trusts	100
71	3.1	Douglas Holding AG	Germany	Department stores	CVC Capital Partners Ltd	United Kingdom	Investors, nec	100
72	3.1	E ON Espana SL	Spain	Electric services	Investor Group	United Kingdom	Investors, nec	100
73	3.1	Columbus International Inc	Bahamas	Telephone communications, except radiotelephone	Cable & Wireless Communications PLC	United Kingdom	Telephone communications, except radiotelephone	100
74	3.1	Nokia Oyj-HERE Business	Germany	Communications services, nec	Investor Group	Germany	Investors, nec	100
75	3.1	TE Connectivity Ltd	Switzerland	Electronic components, nec	CommScope Holding Co Inc	United States	Radio and TV broadcasting and communications equipment	100

Source: UNCTAD (2016, pp. 208–209).

Note: As long as the ultimate host economy is different from the ultimate home economy, M&A deals that were undertaken within the same economy are still considered cross-border M&As.

^a Immediate economy.

A reassessment of UNCTAD's transnationality indices in the digital economy*

Claudia Trentini^a

Abstract

This research note reassesses UNCTAD's transnationality indices in light of recent economic trends that are quickly changing the international investment landscape: the digital economy, the new industrial revolution and the resulting asset-light international business models. The recent international "Agreement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy" through the Base Erosion Profit Shifting project emphasizes the importance of fully understanding and correctly interpreting the implications of digitalization for investment and development policy. The analysis shows that UNCTAD's internationalization indices are still able to capture relevant structural changes but could benefit from several fine-tuning options to allow a clearer interpretation and consequently a better elaboration of policy advice. Relevant policy areas include international taxation, as suggested by the analysis of the FDI lightness index, but also employment and more generally development strategies of host economies.

Keywords: digital economy; technology multinationals; Transnationality Index (TNI), FDI lightness index, Geographical Spread Index (GSI), Base Erosion and Profit Shifting (BEPS)

JEL classification codes: C43, F23, H25, L86

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1. Introduction

Since the early 1990s UNCTAD has been analysing the activities of MNEs and their presence abroad using a series of indices. For non-financial companies, UNCTAD computes the Transnationality Index (TNI), a composite of three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment. Its purpose is to identify and rank the behaviour of those MNEs that have the biggest presence and operations abroad and that, as a consequence, are indicative of trends in international production. They are ranked by the size of their foreign assets, which are taken as a proxy for their transnationalization, or the intensity of foreign activities in relation to domestic activities.

The evolution of this index over the years – together with the sub-indices that compose it – show the impact of major structural changes over time. The servicification of the economy, the adoption of new business models that externalize some of their operations, combined with digitalization and the rise of intangibles, have brought about greater representation of services, tech and pharmaceuticals in the ranking. At the same time, the average TNI of the top 100 – the relative shares of their foreign assets and employees and to a lesser extent also of foreign sales – has stagnated in the last decade, in line with a global loss of momentum for FDI (UNCTAD, 2020).

Industry 4.0 is particularly disruptive as it accelerates all these trends, radically transforming established business models and pushing towards a reconfiguration of international production networks. Digitalization allows MNEs to penetrate foreign markets without establishing a large physical presence there, changing the defining characteristic of a transnational/multinational enterprise. UNCTAD's *World Investment Report 2017* developed the FDI lightness index, which captures the light investment footprint of digital MNEs and the impact of digitalization on all industries (UNCTAD, 2017; Casella and Formenti, 2018).

These new asset-light business models have a number of implications for investment and international production networks as well as for development strategies, employment and fiscal outcomes in host economies. In particular, digital companies break the relation between revenues gained abroad and the physical presence in the host economy, facilitating their ability to minimize tax payments and depriving many host economies of important fiscal revenues. In addition, the reliance of these MNEs on intellectual property has made it easier to shift profits to low-tax jurisdictions, further reducing their effective tax rates (called Base Erosion and Profit Shifting – BEPS).

The recent international “Agreement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy” further emphasizes the importance and relevance for policymakers of these new structural trends.

Pillar One aims to ensure a fairer distribution of profits and taxing rights among countries with respect to the largest MNEs, which are the winners of globalization. Pillar Two puts a floor on competition on corporate income tax through the introduction of a global minimum corporate tax at a rate of 15 per cent, which countries can use to protect their tax bases (OECD, 2021).

This research note reassesses UNCTAD's internationalization indices in this new investment landscape and suggests ways forward to maintain research and policy relevance. Further, it tests the relevance of the FDI lightness index as a tool to assess the impact of BEPS Pillar One for digital MNEs as well as for the broader economy. UNCTAD's FDI lightness index can be interpreted as a proxy for the broken nexus between physical presence and market penetration and could thus be helpful to guide policymakers in assessing the scope of BEPS Pillar One; in particular, it helps find those MNEs that because of the nature of their activities and market presence in host economies are included in the scope of the new taxing rights.

The note is structured as follows: the next section reviews UNCTAD's TNI and Geographical Spread Index (GSI); discusses the main trends, drawbacks and advantages; and suggests how to improve on the analysis. Section 3 applies the FDI lightness index to a set of the top 100 MNEs to assess the spread of digital technologies across sectors and the applicability of BEPS Pillar One beyond the digital and tech group of companies. Section 4 concludes.

2. Indicators of MNE internationalization

The digital economy – the application of internet-based digital technologies to the production and trade of goods and services – is becoming an increasingly pervasive part of the economy. Digitalization is not only important for the tech MNEs at the forefront of the New Industrial Revolution, but is affecting all sectors of the economy, redefining governance modalities in global production networks and disrupting traditional patterns of job creation and of asset structure.

Since 1990 UNCTAD has developed a number of transnationality indices, including the TNI, the Internationalization Index (II), the GSI and recently the FDI lightness index, which measures the intensity of foreign operations in relation to domestic or global activities (UNCTAD, 2001, 2007 and 2017). For non-financial companies the annual *World Investment Report* (WIR) publishes the TNI, an average of the following three ratios: foreign assets to total assets (FA/TA), foreign sales to total sales (FS/TS) and foreign employment to total employment (FE/TE). The index has the advantage of relying on mostly available information of comparable quality across countries and companies – especially for publicly listed ones – and of combining all operative areas of a company. Public companies are obliged to report

in the notes of their financial accounts the business and geographic segmentation of their operations and assets. The only variable that is less often reported – despite growing pressure to improve on environment, social and governance reporting (ESG, for short) – is foreign employment. A reason could be that MNEs wish to avoid scrutiny of the employment created at home versus that created overseas. Given the importance of this information to allowing an evaluation of MNEs' impact on host countries, concerted international action should push for improving the reporting of the workforce's geographical breakdown (UNCTAD, 2019a).

The TNI is computed for the top 100 MNEs ranked by foreign assets. The aggregated average TNI for the top 100 is then analysed. Over the years the TNI has captured some of the structural changes that have affected the global economy, the most relevant being the widespread application of non-equity modes (NEMs) (UNCTAD, 2011) and the digitalization of the economy. These two trends have in common the type of impact they have on international production: by making the direct physical presence of MNEs in host countries less relevant for market penetration both slow the growth of the TNI average, and in particular the pattern of the share of foreign assets and foreign employees. The outsourcing of functions and operations using NEMs are considered the primary factor behind the slowing share of foreign employees. Digitalization is helping and facilitating the use of outsourced contracts, accelerating this trend.¹

The impact of these two major factors has become evident in two ways: (i) the evolution of the average TNI and its subindexes (figures 1 and 2) and (ii) the changing sectoral and geographical composition of the top 100. The two are clearly interrelated and affected by the selection method of the top 100 MNEs, which in turn affects the average indices.

The ranking composition

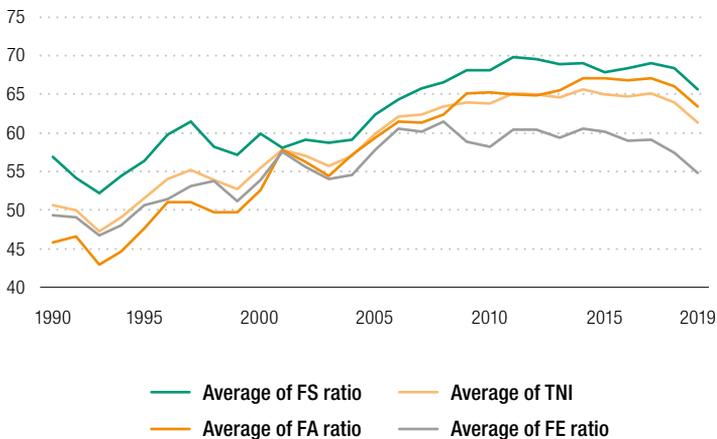
Tech and digital companies have gained growing relevance in the top 100 MNEs ranking by foreign assets since 2010. Their number increased from 4 to 15 in 2017 and then fell again to 13 and has remained constant since then. In 2020, during the pandemic, their share of foreign sales in the total ranking jumped 5 percentage points to 22 per cent; this was achieved without a corresponding increase in the share of foreign assets, highlighting their ability to reach foreign markets without the underpinning productive investment. At the same time, the composition of the ranking changed also with respect to the other industries, suggesting a broader impact of digitalization on internationalization patterns of top MNEs.

¹ See, for example, the legal dispute about the status of drivers (independent contractors versus dependent workers) for ride-hailing companies; *The Financial Times*, "Gig workers should get pension rights now, says regulator", 19 May 2021.

In particular, the share of heavy industry and extractive companies fell by almost a third in the last decade (UNCTAD, 2021).

Figure 1 shows the pattern of average TNI for the top 100 MNEs over time. Most importantly it shows the different components: the share of foreign sales has been consistently higher than the share of foreign assets and employees.² After 2010 the TNI stagnated, with the share of foreign assets experiencing a last growth spurt in 2014 and 2015, pushed by a number of tax inversion deals (UNCTAD, 2016) and an exceptional number of megadeals. Following tax inversion deals a number of American MNEs³ – especially in the pharmaceutical industry – changed their headquarters to Ireland, experiencing a jump in their internationalization rates.⁴ In contrast, the share of foreign employees has been decreasing, especially after the 2008 financial crisis.

Figure 1. Top 100 MNEs average Transnationality Index (TNI) and relative components: shares of foreign assets, foreign sales and foreign employees



Source: UNCTAD.

Note: Non-weighted averages.

² The average is non-weighted to avoid having large extractive companies drive the TNI, especially the share of foreign assets.

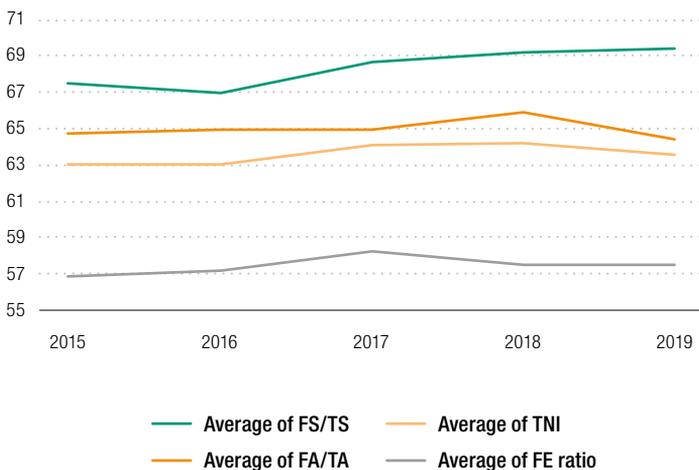
³ In those years, several companies joined the top 100 ranking after tax inversion deals into Ireland; the biggest of these deals included Allergan and Medtronic from the health industry and Johnson Control, a producer of electric wares (all from the United States).

⁴ Bloomberg News, "Tracking tax runaways", Bloomberg Special Reports: Corporate Tax Inversions, 1 March 2017, www.bloomberg.com/graphics/tax-inversion-tracker.

In the last 10 years the trend has changed significantly, flattening out, mostly because of compositional effects induced by the decreasing relevance of extractives and heavy industry MNEs, consolidation trends in key industries (media, telecommunication, pharmaceuticals) and, importantly, the greater internationalization of companies from emerging markets. Since 2015 new MNEs with a particularly low TNI have joined the ranking, including the electricity provider State Grid of China with a TNI of less than 5 per cent, the integrated oil producer Saudi Aramco (Saudi Arabia) with a TNI of 15 per cent and the media company Comcast (United States) with a TNI of 19 per cent, significantly pushing down the aggregate indices (UNCTAD, 2021).

To disentangle the impact of compositional effect from the economic and structural changes in the economy it is worth considering the trends net of the natural churn happening at the bottom of the ranking. Figure 2 shows the sub-indices for the period 2015–2019 for the top 100 MNEs that were in the ranking for at least three years, resulting in a total of 93 companies. It excludes 2020 because of the disruptive impact the COVID-19 crisis had on companies across sectors. Figure 2 shows much stabler indices, with an aggregate TNI growing slightly – in contrast to figure 1, and an increasing divergence between foreign sales and the other components of the TNI.

Figure 2. TNI subcomponents ratios: FA/TA, FS/TS and FE/TE, averages 2015–2019



Source: UNCTAD.

Note: Non-weighted averages. The companies were selected on the basis of their presence in the top 100 ranking for three or more years within the period 2015–2019 and for which there were data for other years. The resulting number of companies is 93.

The importance of the compositional effects suggests that in a very dynamic economic environment these can hide the true trends, especially in a very small sample like the top 100, and that all efforts should be made to reduce sample attrition across the years. This can be particularly difficult in years when there are many cross-border megadeals like in 2016 and, surprisingly, also in 2020–21, which can easily determine up to 7–10 per cent of the sample. Moreover, experience shows that the megacorporations emerging from these deals could easily fall out of the ranking again after a few years as – typically under the pressure of activist investors – they tend to restructure and split again.⁵

A related point concerning the compositional effects in the top 100 is the importance of the selection method and the shortcomings of selecting on the basis of foreign assets, as it increases the churn in the ranking following large deals. At the same time, it gives too much weight to traditional industries and business models that rely on FDI to serve a market, underrepresenting many companies in the services sector with global brands, such as Facebook (United States) and Netflix (United States), as well as McDonald's (United States) in previous years.⁶ This suggests that the size of foreign assets might not fully capture the wider transformation of the economy. In this context it is useful to recall that for almost all MNEs the geographical segmentation of assets refers to tangible long-term assets and usually is limited to property, plant and equipment. Therefore, for digital and tech companies and also pharmaceuticals – which derive much of their value from intangible assets – this measure of foreign assets might be not fully accurate.

A possible solution could be to select companies by foreign sales. The measure, which is readily available for most companies, would include companies that have an international presence while extending the number of digital and tech companies included in the analysis. In table 1 the two selection methods are compared for 2019.

In table 1 the two sets of columns give dimensional indices for the top 100 MNEs selected on the basis of foreign assets and foreign sales for 2019. The breakdown of the 100 MNEs by sector varies (columns 2 and 6). When selecting by foreign sales (compared with selection by foreign assets), the number of MNEs in the following industries increases: tech, trade and – to a lesser extent – extractives. The main industries that record a decline from the foreign sales selection are pharmaceuticals and utilities. With a selection based on foreign sales compared

⁵ See for example DowDuPont, Johnson Controls and Raytheon Technologies (all from United States) (UNCTAD, 2019b).

⁶ Despite its nearly global presence, the restaurant chain McDonald's fell out of the top ranking back in 2007 following the extensive use of franchise contracting and the related steep reduction in assets. See also UNCTAD (2011).

Table 1. Transnationality indices, top 100 MNEs selected by foreign assets and by foreign sales, industry breakdown, 2019 (Percentage)

Industry	Selected by foreign assets					Selected by foreign sales				
	MNEs (number)	FA/TA average	FS/TS average	FE/TE average	TNI average	MNEs (number)	FA/TA average	FS/TS average	FE/TE average	TNI average
Extractives	17	63.8	59.9	45.6	56.4	19	49.8	61.6	38.7	49.6
Automotives	12	54.2	69.9	53.5	59.2	13	55.2	80.5	55.6	63.8
Pharmaceuticals	9	73.5	84.2	64.2	73.9	5	68.0	90.5	58.5	72.3
Heavy industry	11	71.4	70.7	59.7	67.3	12	58.3	73.8	55.9	62.8
Light industry	10	80.1	84.3	80.0	81.5	7	76.1	84.9	76.7	79.2
Tech	10	51.0	69.5	49.9	56.8	19	46.0	68.2	50.1	55.0
Tech – digital	3	40.8	29.5	36.6	35.7	4	41.4	61.6	46.9	53.3
Telecom	8	61.6	55.5	56.0	57.7	5	71.3	73.6	68.7	71.2
Trade	4	58.7	50.7	48.1	52.5	8	59.3	50.2	44.1	51.9
Utilities	11	61.9	59.7	48.3	56.6	4	59.4	64.2	50.4	58.0
Other services	3	70.6	46.7	48.0	55.1	2	59.5	84.2	62.5	70.6
Other	2	55.3	49.0	55.0	53.1	2	63.6	75.4	60.5	66.5
Total	100	65.2	67.5	56.9	61.3	100	56.1	70.7	52.4	59.9

Source: UNCTAD.

Note: FA/TA = foreign assets/total assets; FS/TS = foreign sales/total sales; FE/TE = foreign employment/total employment, TNI = Transnationality Index. The distinction between light and heavy industries follows traditional demarcations based on the fixed assets necessary for production. Light industries include food and beverages, textiles, instruments, tobacco and electric equipment companies; heavy industries include metal products, aircraft and other transportation vehicles, chemicals and rubber, and building materials companies. Other services includes health care, transport, logistics. Other includes agriculture and construction. In the selection by foreign assets, digital includes Alphabet, Amazon.com and Tencent; in the selection by foreign sales, digital includes Alphabet, Amazon.com, Accenture and Facebook.

with a selection based on foreign assets, the foreign sales index for the total 100 MNEs increases from 67.5 to 70.7 (columns 4 and 8) while the foreign assets index declines from 65.2 to 56.1 (columns 3 and 7).

In the digital industry there are two new companies: Facebook (now Meta – United States) and Accenture (Ireland) but one loss – Tencent (China), which has a foreign sales ratio of about 4 per cent. Most of the new tech MNEs are producers of semiconductors and other components from emerging economies. They include TSCM from Taiwan Province of China and SK Hynix and Samsung from the Republic of Korea, and producers of other electronic components such as displays and other appliances (LG Display and LG Electronics, Republic of Korea)

that serve foreign markets largely through exports. The global value chains associated with tech components secure large amounts of trade.⁷ This points to the drawback of using this selection method – the fact that foreign sales often, especially for companies from emerging economies, include home-market exports – and raises the question of how to define transnationality: is physical presence in another economy key to the definition of MNEs? The discussion of this theoretical question is beyond the scope of this note.⁸

One pragmatic solution could be to look at “global players”, combining the two selection methods; thus to continue collecting data for MNEs selected by foreign assets for the purpose of maintaining the historical series and to add a selection of the top 100 by foreign sales – producing two rankings. The number of additional companies would be relatively contained, as top corporations tend to engage in both trade and FDI. In 2019 it concerned about 20 companies, most of which were already in UNCTAD's database.

The home-country bias and the GSI

There is another factor related to compositional effects that influences the trends of the aggregated TNI and its sub-indices over time: the home-country bias. Companies from small home economies are more likely to have high internationalization rates, as they are forced to penetrate foreign markets to reach significant scale. In contrast, MNEs from the United States rarely have TNIs above 65 per cent. The composition of the ranking among countries clearly affects the trend over time, with a heavier representation of larger economies leading to a slowing aggregate TNI.

This is due to the design of the TNI, which “does not take into account the size of the home country, nor does it distinguish between companies whose activities are concentrated in a few foreign countries and companies whose activities are spread across numerous host countries”⁹ (UNCTAD, 2007, p. 13). As a consequence, a high TNI value can reflect a home country's locational advantages (a small market, for example) rather than indicate strong international competitiveness on the part of the home country firms.

⁷ TSMC, the world's largest contract chipmaker, has almost all of its capacity in its home economy, Taiwan Province of China. That scale has made the company highly profitable; this in turn allowed it to invest in the most advanced facilities and become the world leader in nano chips. Only recent political pressures are convincing the company to invest more abroad. See *The Financial Times*, “Spreading chip plants around the world will add to costs”, 27 July 2021.

⁸ For a more theoretical discussion of transnationality indices, see Ietto-Gillies (2021).

⁹ This is only the case for two or three MNEs in the ranking: some North American companies have operations only in the neighboring country, thus having a presence in only two markets. Similarly, there are some United Kingdom–United States companies that divide their operations almost equally across the Atlantic.

One solution to the home-country bias is the use of the GSI, which is the square root of the share of foreign affiliates times the number of host economies. UNCTAD computes and ranks financial companies by this index because the nature of financial companies' assets – highly liquid and thus easily transferred across borders – differs from that of non-financial MNEs, making the interpretation of the foreign assets index less meaningful. This relates to the issue of the appropriateness of the foreign asset index for digital companies, which typically report only a very limited amount of fixed tangible assets, and could provide a valid alternative for measuring their internationalization. The attachment of weights to the locations of different affiliates – in particular offshore centres – could probably also help assess the risk of BEPS practices and thus help in the economic assessment of Pillar Two.

The availability of new databases could facilitate the collection of the necessary information. Unfortunately, the index cannot be computed back in time, as UNCTAD has access only to the most recent ownership information, and thus the index cannot be used in a trends analysis. It can nevertheless provide some useful insights in the cross-sectoral analysis. Table 2 shows an example of the GSI and its subcomponents for the top MNEs in 2018.

Table 2. The Geographical Spread Index and its components, top 100 MNEs, 2020

Industry	MNEs (number)	TNI average	Affiliates (number)	Foreign affiliates (number)	I.I.	Host countries (number)	GSI average
Extractives	17	57.9	712.4	470.0	63.2	46.4	53.2
Automotives	11	60.8	746.1	560.5	74.2	51.5	60.8
Pharmaceuticals	11	68.1	705.1	579.1	85.0	71.1	77.0
Heavy industry	13	69.3	920.5	653.7	72.5	69.8	65.0
Light industry	9	85.8	661.1	587.8	77.6	69.8	72.1
Tech	10	58.2	592.3	464.0	73.7	58.5	64.4
Tech – digital	3	35.5	453.3	171.0	52.7	33.3	38.1
Telecommunication	7	67.0	804.0	682.4	84.2	48.4	61.8
Trade	5	55.2	856.8	719.8	84.2	49.8	64.7
Utilities	9	63.4	798.9	537.1	65.1	31.0	42.4
Other services	4	57.2	678.5	480.0	67.0	29.8	43.7
Other	1	47.8	260.0	188.0	72.3	19.0	37.1
Total	100	63.6	731.6	546.8	73.0	53.5	60.2

Source: UNCTAD, on the basis of BvD Orbis data.

Note: Only majority-owned affiliates. I.I. = Internationalization Index (the number of foreign affiliates divided by the total number of affiliates), GSI = Geographical Spread Index (square root of the share of foreign affiliates times the share of host economies). The data on the subsidiaries were collected in 2020 and refer to the end of fiscal year 2019. The sample of top 100 parents was the ranking of 2018 MNEs.

The correspondence between the TNI and the GSI is striking. Pharmaceuticals, light and heavy industry, and tech hardware industries are the most internationalized and geographically spread. The biggest difference between the TNI and the GSI is for utilities and other services, as the number of host countries seem indeed quite low. Digital companies – in the sample, these are Amazon, Alphabet and Tencent – have low internationalization, using both indices.

3. The FDI lightness index and relevance for BEPS

The ratio between two components of the TNI indicator, the share of sales generated by foreign affiliates and the corresponding share of foreign assets, is the FDI lightness index. This indicator was developed in UNCTAD's *WIR17* for the analysis of the international footprint of digital MNEs. It reveals the extent to which a company is able to generate sales abroad given its stock of foreign assets. As a ratio of two sub-indices it also has the advantage of mitigating the effect of the home-market bias.

A very light investment footprint is typical of digital and tech companies and indicates that the operational nexus between foreign sales and foreign assets is weakening, undermining taxing rights in host economies. In particular, BEPS Pillar One “recognizes that in an increasingly digital age, taxing rights can no longer be exclusively determined by reference to physical presence” (OECD, 2020a) and provides new nexus rules based on indicators of a significant and sustained engagement with market jurisdictions. Pillar One aims to ensure a fairer distribution of profits and taxing rights among countries with respect to the largest MNEs, which are the winners of globalization.

To identify the in-scope MNEs (those subject to new taxing rules) there are three requirements:

- A profitability threshold. This corresponds to a global turnover above €20 billion and profitability above 10 per cent (i.e. profit before tax divided by revenue) (OECD/G20 (2021)).
- The activity allows for an extended foreign market presence without a corresponding investment and consequently is in the automated digital services (ADS) or consumer-facing business (CFB) industries.
- The market presence: the entity should derive at least €1 million in revenue from host jurisdictions (this is lower for smaller jurisdictions).

The FDI lightness index and its sub-indices can help assess the scope of BEPS Pillar One; in particular, provided most top MNEs satisfy the profitability threshold, it helps find those MNEs or entities in a group that because of the nature of their activities and their market presence in host economies are included in the scope of the new taxing right.

The FS/TS index can provide only a first approximation of the foreign market presence of a company. Detailed information on revenues by market would be required to fully assess BEPS Pillar One. However, few companies report that information, typically grouping foreign markets under the single heading “International”. Still, this is a good – and readily computable – approximation of the relevance of BEPS Pillar One to MNEs.¹⁰ For example, many digital MNEs from China tend to serve primarily national customers, making BEPS less relevant to them.

The FS/TS index thus addresses the third requirement of market presence in terms of revenues. The FA/TA index, which relies on information on property, plant and equipment, refers to the physical presence of an MNE in an economy. The FDI lightness indicator (the ratio of the first index to the second) gives an indication of the Internet intensity or of the ability of certain MNEs to serve customers remotely. It is thus a very helpful indicator to define in-scope MNEs.

The divergence between foreign sales and foreign assets in figure 2 implies increasing FDI lightness, from 1.03 to 1.08 on average, and a lighter footprint for these core MNEs. It might seem a small change, but it could be a first signal of a trend, as it is measured across 93 MNEs over a very short time span, net of compositional effects. The process is driven not only by tech and digital MNEs, but also by companies in other sectors that have become lighter; this is in contrast to the findings in the *WIR17*, where there was no evidence on the digitalization of the rest of the economy as the FDI lightness indicator of the top 100 non-tech companies remained constant at about 1 over the period 2010–2015.

Table 3 decomposes the FDI lightness index across the sub-indices and across industries to assess the scope of BEPS Pillar One across the economy. It shows that other industries are also becoming asset light, including pharmaceuticals, manufacturing in general (both light and heavy), trade (although starting from a lower base) and even extractives.

The counterintuitive pattern for digital companies is driven by Tencent and Amazon. The first is fully concentrated on the domestic market in terms of sales while increasing investments in foreign Asian start-ups are growing its stock of foreign assets. The second is fast transforming into a diversified conglomerate; its investments in many disparate sectors are consistently gaining weight in its balance sheet.

¹⁰ Once the group or MNE is included in the scope, OECD (2020a) has developed a number of rules to determine the correct revenues source, including using the geolocation of the customer’s device, his IP address and his billing address. That clearly requires company by company, customer by customer data collection.

This suggests several methodological points: (i) the selection by foreign sales could trim from the onset companies that, like Tencent, are transforming into tech venture capitalists, leaving the initial activity (digital gaming) as a stronghold only in the home market; (ii) the selection of “pure digital” MNEs is more and more difficult, not only because there is no such industry in standard statistical classifications and each MNE needs to be checked on its activity and the characteristics of its production process, but also because this classification is still changing. An update of the top 100 digital MNEs developed in *WIR17* could be required, to create a wider sample from which to select the set of digital MNEs.

Many digital start-ups diversify into contiguous industries as soon as they reach a certain scale. In fact, Asian tech start-ups are typically born offering multiple services on their platforms, from ride-hailing to video-sharing, e-commerce and e-payments. At the same time, hardware producers and old-industry champions are also becoming more hybrid, adding digital services to their offerings.¹¹ COVID-19 only accelerated this trend, pushing most retailers to open e-commerce services.

Table 3. Shares of foreign assets and sales and FDI lightness index by industry, top 100 MNEs (constant sample of 93 companies), 2015 and 2019

Industry	MNEs (number)	FA/TA 2015	FS/TS 2015	FA/TA 2019	FS/TS 2019	Lightness 2015	Lightness 2019
Extractives	16	66.5	63.8	65.1	67.3	0.96	1.03
Automotives	12	54.0	73.5	53.6	69.3	1.36	1.29
Pharmaceuticals	10	66.7	74.1	64.8	77.2	1.11	1.19
Heavy industry	9	73.7	73.7	73.2	78.1	1.00	1.07
Light industry	11	79.6	77.9	78.8	85.2	0.98	1.08
Tech	9	50.9	71.8	50.1	69.8	1.41	1.39
Tech – digital	3	27.4	31.4	40.8	29.5	1.14	0.72
Telecommunication	7	69.6	62.8	67.9	60.5	0.90	0.89
Trade	5	70.3	48.4	59.9	52.7	0.69	0.88
Utilities	8	58.9	59.8	65.7	64.5	1.02	0.98
Other services	3	79.8	71.3	77.8	65.7	0.89	0.84
Total	93	65.2	67.5	56.9	61.3	1.03	1.08

Source: UNCTAD.

Note: FDI lightness index = FS/TS divided by FA/TA.

¹¹ See *The Economist*, “The new rules of competition in the technology industry”, 27 February 2021, and “The IT establishment is dressing in new clothes”, 4 November 2021.

The boundaries of the digital industry are thus changing quickly, as more and more sectors of the economy digitalize. As an example, in November 2021, the S&P Dow Jones Indices and MSCI launched a consultation on a potential revamp of the widely followed Global Industry Classification Standards, proposing that transaction and payment processing companies be switched from the information technology industry to the financial one.¹² Ietto-Gillies and Trentini (2021) contend that the allocation of firms and products to the digital industry needs to take into consideration different developments in the economy such as digitalization, specialization, diversification and innovations in organization (i.e. externalization versus internalization of operations).

For these reasons, it is useful to extend the analysis to the whole economy and not to limit it a priori to digital services and consumer-facing businesses as defined in BEPS Pillar One. For example, light industries display a high (and increasing) FDI lightness index. Light industries broadly match the definition of consumer-facing businesses as included in the in-scope activities for BEPS Pillar One. In this case, an increasing FDI lightness index not only reflects a growing intensity of Internet use but also a possible greater resort to licensing, franchising and contract manufacturing for more asset- and labor-intensive operations.

The FDI lightness index can be a useful approximation tool to identify potential in-scope MNEs for BEPS Pillar One, beyond digital and tech companies, especially in a highly dynamic environment where most MNEs are adopting digital solutions and new business models. Starting from the sample of top 100 digital MNEs compiled by UNCTAD (2017), the OECD estimated that Pillar One could in fact affect fewer than 100 MNEs, mostly in digitalized and intangible-intensive sectors, with, consequently, only limited impact on their investment abroad. Even considering the joint impact of Pillars One and Two (minimum taxation), the change would lead to a relatively small increase in the average (post-tax) investment costs of MNEs, possibly offset by the expected increased efficiency of capital allocation that would give more importance to non-tax factors (e.g. infrastructure, education levels or labour costs) rather than to taxing motivations in investment decisions (OECD, 2020b).

¹² *The Financial Times*, "Major sector ETFs face risk of large tech companies being reclassified", 16 November 2021.

4. Conclusions

This research note has provided a brief reassessment of UNCTAD's transnationality indices in light of recent economic trends: the digital economy and the new industrial revolution, and the resulting asset-light business models. The most recent index – specifically designed to capture the increased digitalization of the economy – the FDI lightness index, has been tested for relevance to the assessment of the impact of BEPS tax reforms, showing its validity to select and detect potentially in-scope MNEs beyond the digital industry.

Overall, the analysis revealed that the TNI, GSI and FDI lightness index are still able to capture relevant structural changes but could benefit from some fine-tuning to allow a clearer interpretation and consequently a better elaboration of policy advice. This is relevant for several areas of policy, including international taxation as well as employment policies and, more in general, development strategies of host economies.

First, UNCTAD may need to adapt the sample of companies on which the indices are computed to the new business models. The sample selection could be adjusted to add more relevance to the dimension of foreign sales. Because new business models tend to have a very low share of foreign assets in relation to their foreign sales, the top 100 MNEs ranking is missing some of the most dynamic MNEs. Adding a second ranking by foreign sales could mitigate the risk of focusing too much on a 20th-century group of MNEs and ensure a more forward-looking approach. Enlarging the sample of companies under study could also help alleviate the compositional effects on the aggregated TNI, which over the last decade have occasionally led to potentially misleading internationalization trend lines. It would also allow for a better analysis of trends by industry. Partly related to this, the ranking of the top digital MNEs created for UNCTAD (2017) could be updated every two to three years to detect emerging trends in this highly dynamic group of companies.¹³

Second, as the analysis of the FDI lightness index (a ratio of the TNI's two sub-indexes) showed, it is important to detail the analysis to the different sub-indices as these can provide insights on the business and organizational models adopted by MNEs. Tracking diverging trends between the shares of foreign sales and foreign assets and employees – as pointed out in several editions of the *WIR* – can enable policymakers to address the economic impact of FDI in host economies.

Third, the GSI could be reintroduced for non-financial MNEs (jointly with the TNI) to provide a more complete picture of MNE groups and to address the home-market bias and the inadequacy of the foreign assets measure for companies relying on intangibles. The attachment of weights to the different affiliates' locations could also strengthen the economic assessment of Pillar Two.

¹³ Probably a focus on the top 50 digital companies would suffice.

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Key Success Factors of SME Internationalisation: A Cross-Country Perspective

Noémie Dominguez and Ulrike Mayrhofer (editors)
(Emerald 2018, ISBN-13: 978-1787542785), 250 pages

This book is a valuable reference document for the study of the evolution of contemporary socioeconomic life, marked by radical changes in structures, behaviours, methods of production and consumption, and rules of the social game. The current changes are of a “revolutionary” nature and thus make possible the vision of the future, which is necessary to decide on investments (material or immaterial). The uncertain dominates. Optimistic thinkers or actors believe that insofar as nothing is safe, everything is possible. But we still have to understand what is desirable, necessary or possible, because opportunities and risks are linked. The analysis of key success factors that are, or have been, actually operational is therefore of the highest interest.

This book is dedicated to understanding the dynamics of small and medium-sized enterprises (SMEs), which since the beginning of the industrial revolution have played a fundamental role in the evolution of our societies: they invent, innovate, adapt, create strong links in the regions, transmit knowledge, and distribute wealth and change. They defend human relations and are at the heart of democratic models. They have also managed to expand their business horizons. They have often become “international”. How? Why? Many answers can be found in this book, which offers a cross-country perspective. In each country there are variants, rooted in local or national cultures. SMEs are not the only ones to act, create, adapt and anticipate; other companies or organizations are doing that as well. But it seems that all the countries of the world, from the most powerful such as the United States and China, to the smallest ones, find the development of SMEs in their territory very desirable. That is to say, they are interesting.

SMEs, however, are not easy to define rigorously. Sometimes they are defined by their size, in this case the number of employees, or the importance of social capital, sometimes by the holding of social capital (family, rather than controlled by the financial markets), sometimes by the reduced number of hierarchical levels of decision-making, or control procedures. This book is not intended to create a statistical reference document delineating what does or does not exist in the SME sphere, but rather to discover how SMEs, in their current meaning, behave in order to ensure an efficient, responsive organizational system in the shortest possible time. They contribute, in their own way, to invent the future. These are lessons to ponder.

The first part of the book focuses on major drivers of SME internationalization. Lasse Torkkeli, Niina Nummela and Sami Saarenketo (Finland) show that a global mindset fosters the international expansion of and improves the international performance of SMEs. Birgit Hagen and Antonella Zucchella (Italy) highlight that entrepreneurial marketing has a positive impact on early and accelerated internationalization of young small firms. Pervez N. Ghauri (United Kingdom) and Ulf Elg (Sweden) emphasize that marketing collaborations with other companies can help SMEs to overcome their lack of resources and improve their international performance. Maria Cristina Sestu, Antonio Majocchi and Alfredo D'Angelo (Italy) compare market entry strategies followed by SMEs and large firms, and find that SMEs make different choices, namely when they face an economic crisis and diversify into other business activities. Cristina Villar García and José Pla-Barber (Spain) indicate that high-performing SMEs in traditional manufacturing sectors are more likely to use advanced operation modes that allow them to access to knowledge in host countries and to develop innovations based on organizational changes that help to create new business models.

The second part of the book deals with key success factors of SME internationalization in mature markets. Olli Kuivalainen, Jani Lindqvist, Mika Ruokonen and Sami Saarenketo (Finland) illustrate the role of support services during the different stages of internationalization followed by software companies. Noémie Dominguez and Ulrike Mayrhofer (France) describe how successful support services can help industrial SMEs to expand abroad and to establish affiliates. Stefan Schmid (Germany) examines the characteristics of internationalization strategies and processes of the German "Mittelstand". Katharina Maria Hofer and Alexandra Baba (Austria) investigate the influence of different market entry strategies on innovation and the performance of SMEs in the services sector.

The third part of the book is dedicated to key success factors of SME internationalization in emerging markets. Josée St-Pierre, Richard Lacoursière and Sophie Veilleux (Canada) demonstrate that a positive attitude towards risk-taking and the implementation of risk management mechanisms can help SMEs to export to higher-risk countries such as Asia. Noémie Dominguez and Ulrike Mayrhofer explain how industrial SMEs can successfully implement production and sales subsidiaries in China. Christiane Prange and Youzhen Zhao highlight the challenges that Chinese SMEs face when expanding into foreign markets, notably in terms of distance and entry speed. Finally, Luisa Campos, Catherine Axinn, Susan Freeman and Gabriele Suder (Australia and United States) show how the motivations of Brazilian companies from traditional manufacturing industries can influence their success in foreign markets.

The cross-country perspective offered by this book illustrates the diversity of internationalization paths followed by SMEs. Their approach to enter foreign markets presents important differences in terms of entry modes, allocation of resources and

strategies – even if they share the same need for control. The case studies and surveys show how SMEs attempt to participate in the “global game”. Their agility and their global and entrepreneurial mindsets appear to be important competitive advantages, since they can more easily adapt to new situations and changing market conditions. To face global competition, SMEs need to carefully choose their entry mode strategies, but they also have to dedicate specific attention to managerial issues that determine, to a large extent, their international performance. The support and advice provided by public institutions and the development of interfirm collaboration appear to be useful when SMEs decide to develop in new markets. It clearly appears that SMEs should build strong networks with actors across the world, especially if they invest abroad by establishing joint ventures and wholly owned affiliates. In this case, they need to adapt managerial practices to take into consideration the cultural, economic and institutional characteristics of the host countries. The authors of this book have analysed the concepts and tools which can help SMEs to better succeed in their expansion into foreign markets.

In this book, the reader will have the opportunity to take a look at a significant part of the recent international socio-economic reality. It is actually a discovery process in many countries, very informative and welcome; it illuminates the past in its diversity, while challenging the future.

Questions concerning the future arise, first of all as the international framework is changing. The major European nations (France, the Netherlands, Portugal, Spain, the United Kingdom) have demonstrated their will to power from the end of the fifteenth century; they go on to conquer the world (America, Africa, Far East), enlarge their power and enrich themselves while imposing their business game rules, for a relatively long time. But this time is over: the “internationalized” world has become “global” everywhere. Adaptation to change in a fully interconnected globalized economy has become extremely complex to assess and to manage. SMEs and large companies must review their development strategies and their operational decisions, their organization and their *modus operandi* in all areas: knowledge creation, communication, learning, production, geographical locations, markets, creation of cooperation networks and so forth. The requirements for competitiveness are evolving to the point of having to be reinvented in depth. Are SMEs favoured or penalized in this new “game”? The answer to this crucial question requires in-depth and new research. Does the economic policy of states, supranational organizations (such as the European Union), influential institutions such as the BIS (Bank for International Settlements), based in Basel, pay attention to the future of SMEs, or would it rather serve powerful lobbies of other interests? What can be the sources of competitive differentiation of SMEs in the new political and technological context? Innovation, responsiveness and entrepreneurial dynamics will probably continue to be the pillars of the economic success of SMEs, but they must be supported in this way.

Another line of research is attracting increasing interest as it goes beyond the ever-dominant questioning of techno-economic and financial rationality in business management. This classic conception of competitiveness is based on the comparison of figures and quantitative measures (we compare prices, monetary gains, production volumes and employment rates); but until recently, human development, which is essentially qualitative, has been neglected. Fortunately, things have started to change, and even to impose themselves: corporate social responsibility – a concept rather born in SMEs – now takes shape in large companies; they want to develop “in society” (“a company for society”) that is to say, by respecting the requirements of human dignity and by sharing innovative initiatives aimed at conquering a desirable future. The cooperation between start-ups and companies producing goods and services is often an illustration of this trend. Will big industrial groups and SMEs finally combine their vision and impose it on everyone? How?

A third problem for the future is that of mastering new technologies. It may be thought that large companies are better able than small companies to provide the necessary financial and human resources, but this needs to be verified. National governments have a role to play in this matter, for example through the taxation of productive family-owned capital, the transmission of family-owned businesses, apprenticeship and training provisions, the simplification of procedures applicable to SMEs (time is money), attentive listening to the specific and even structural needs of SMEs, while large companies obviously have a clear advantage of bargaining power and influence. The two groups of companies are characterized by unequal forces, but it is desirable that the two groups can develop in respect of their particular interests, which together become common interests and thus sources of competitive advantages for the “Nation” in the context of social peace. Finland, to name just one country, is a convincing example of this state of mind.

These are not the only paths to explore in order to achieve a desirable and sustainable future, on the global scale that governs the world today. There are many others that the imagination of the attentive readers of this rich book will be able to propose and study.

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GUIDELINES FOR CONTRIBUTORS

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Style guide

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Cantwell, John (1991). “A survey of theories of international production”, in Christos N. Pitelis and Roger Sugden, eds., *The Nature of the Transnational Firm* (London: Routledge), pp. 16–63.

Dunning, John H. (1979). “Explaining changing patterns of international production: in defence of the eclectic theory”, *Oxford Bulletin of Economics and Statistics*, 41 (4), pp. 269–295.

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All manuscripts accepted for publication will be edited to ensure conformity with United Nations practice.

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Target

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