THE ACADEMY OF INTERNATIONAL BUSINESS

Megatrends in International Business

Examining the Influence of Trends on Doing Business Internationally

Edited by
Spiros Batas · Olli Kuivalainen
Rudolf R. Sinkovics

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The Academy of International Business

Series Editors
The Academy of International Business
University of Glasgow
Glasgow, UK

Rudolf Sinkovics
Alliance Manchester Business School
University of Manchester
Manchester, UK

Olli Kuivalainen
Lappeenranta University of Technology
Lappeenranta, Finland

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Editors
Spiros Batas
Faculty of Business and Law
University of Northampton
Northampton, UK

Rudolf R. Sinkovics
Adam Smith Business School
University of Glasgow
Glasgow, UK

Olli Kuivalainen
School of Business and Management
LUT University
Lappeenranta, Finland

ISSN 2662-1223 ISSN 2662-1231 (electronic)
The Academy of International Business
ISBN 978-3-030-95526-7 ISBN 978-3-030-95527-4 (eBook)
https://doi.org/10.1007/978-3-030-95527-4

Cover illustration: EyeEm / Alamy Stock Photo

This Palgrave Macmillan imprint is published by the registered company Springer Nature Switzerland AG.
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Foreword 1

Davide Castellani
Chair, Academy of International Business UK and Ireland Chapter

The Academy of International Business UK & Ireland Chapter (AIB UK&I) is the leading association of scholars and specialists in the field of international business in the UK and Ireland. The mission of the AIB UK&I is to promote teaching and research in all areas of international business and to act as a forum for the development and exchange of views in international business. To fulfil this mission, the AIB UK&I promotes several initiatives. Please visit our website (http://www.aib-uki.org) or follow us on Facebook or LinkedIn to explore the work of the Chapter and to find out how to become involved. Among the key initiatives of the AIB UK&I are (1) an Annual Conference which provides a platform for scholars to enhance the quantity and quality of their research and foster a sense of community among academics and practitioners interested in international business, (2) a Doctoral Colloquium which allows doctoral researchers a unique opportunity to present and discuss their research with a panel of distinguished scholars, and (3) the Palgrave Macmillan book series dedicated to publishing cutting-edge research in international business that is of contemporary relevance and at the cusp of conceptual and empirical development.

This book is part of this series and contains a selection of papers presented at the 47th Annual Conference held online on 14–16 April 2021 and organised by the University of Greenwich. The book reflects the theme of the Annual Conference which was "International Business: Mega Trends and the Need of Rethinking Current Terminologies". The two opening chapters are based on two keynote presentations on Megatrends in international business and in international entrepreneurship research by Tamer Cavusgil and Nicole

Coviello, respectively. The book then features nine chapters based on a selection of papers touching upon trends in entrepreneurship, technology, corporate governance, culture, and divestments. The reader will appreciate the breadth of insights that these studies provide.

One last word to remember Professor Pavlos Dimitratos, Chair of the AIB UK&I and our dear friend and colleague, who untimely passed away on 6 January 2021 at the age of 53. We are indebted to Pavlos for his stewardship, initiatives, and leadership that strengthened and progressed the Chapter within the IB community. Pavlos was instrumental in bringing the Annual Conference to the University of Greenwich and in contributing to defining the theme of the Conference. He would have been extremely pleased with the large participation and overall quality of the Conference. A special session in memory of Pavlos was held at the Annual Conference and allowed all the participants to remember him as the rare scholar that he was and as a genuinely nice person who loved supporting and interacting with others.

Foreword 2

Sylvie Chetty
Uppsala University, Gothenburg University, University of Eastern Finland

The University of Greenwich, London, hosted the 47th Annual Conference of the Academy of International Business (AIB) UK and Ireland Chapter. This was the first online conference for the AIB UK&I Chapter, and it was held during 14–16 April 2021. The conference delegates were from more than 27 countries and presented 72 papers. The doctoral colloquium attracted 32 doctoral candidate presenters from 13 countries.

The conference theme was "International Business: Mega Trends and the Need of Rethinking Current Terminologies". This theme challenges globalisation because some countries are imposing higher tariffs and starting to look inwards to protect their domestic markets. The big question is: Will economies focus more on their domestic markets rather than opening them to foreign direct investment and international trade? This conference theme is timely as the tensions between the two largest economies, the USA and China, increase, and there is a growing trend towards forming regional trading blocs. While the conference theme assumes deglobalisation, we need to consider the small open economies who rely on globalisation to grow their economies. Furthermore, we cannot ignore the increasing globalisation of small and large companies from emerging markets. This is an exciting time for IB scholars as it offers many interesting research opportunities.

The main topics covered at this conference included the megatrends relating to emerging markets, international entrepreneurship, and social capital and effectuation. The themes in this conference book are first, entrepreneurship trends; second, selected trends in technology; third, innovation and emerging markets; and fourth, cultural strategic and performance

considerations. At a time of high uncertainty and volatility in the international business environment, the book presents papers that encourage IB scholars to reflect on diverse perspectives on the megatrends in IB. The conference offered a platform where scholars could challenge terminologies and debate issues such as institutional infrastructure to foster entrepreneurship, belt and road initiative, multicultural teams, artificial intelligence, emerging market multinationals, foreign divestment, and supply chain disruptions.

The four keynote speakers were Professor Garry Bruton, Neeley School of Business, Texas Christian University, USA—Plenary Session 4 (Rethinking terminologies); Professor Tamer Cavusgil, Fuller E. Callaway Professorial Chair and Executive Director of the Centre for International Business Education and Research (CIBER) at Georgia State University, USA—Plenary Session 1 (Mega Trends); Professor Sylvie Chetty, Department of Business Studies, Uppsala University, Sweden—Plenary Session 3 (Social Capital and Effectuation Trends); Professor Nicole Coviello, Lazaridis Chair in International Entrepreneurship & Innovation, Wilfrid Laurier University, Canada—Plenary Session 2 (IE Trends).

A special session was held in memory of our dear friend and colleague Professor Pavlos Dimitratos, the chair of the AIB UK&I executive board, who passed away in January 2021.

Praise for *Megatrends in International Business*

"This is the latest volume in the excellent series under the auspices of the UK and Ireland Chapter of the Academy of International Business. Like its predecessors, it tackles important issues in contemporary global business. The megatrends covered include the interrelated issues of international entrepreneurship, technology and its impact, innovation, the continued impact of emerging markets, particularly as source countries for dynamic multinationals, and the role of cultural differences in international business. The interrelationship of these rising megatrends in the global environment and the strategy of multinational enterprises is of profound importance for the political economy of the world as this volume shows."

—Peter J. Buckley, OBE, Professor of International Business,
University of Leeds, Leeds University Business School, UK

"The Megatrends in International Business AIB-UKI book advances our understanding of key topics and debates in a wide spectrum of areas such as Entrepreneurship, Technology, Innovation, Emerging Markets, Culture, Strategy and Performance. This book enriches the discussion in the IB field by putting in the forefront a term that has been neglected by IB scholars: Megatrends. The book will be a valuable reading supplement at Masters and undergraduate courses in IB."

—Emmanuella Plakoyiannaki, Chair of International Business,
University of Vienna, Austria

"At a time when geopolitical tensions and global challenges, like climate change, face the world, insightful and impactful research in the field of international business has never been more important. Megatrends in International Business is therefore timely, offering useful insight into a range of contemporary issues that include entrepreneurship, technology and emerging markets. With contributions from a combination of seasoned and ascendant scholars, this volume is well placed to stimulate vital research on important topics."

—Shameen Prashantham, Professor of International Business
& Strategy, Associate Dean (MBA), *China Europe International Business School (CEIBS), China*

"Increasing metrification and emphasis of REF outputs has reduced the space for books in UK higher education. Against this background the Palgrave Academy of International Business book series has been a welcome and impactful contribution over the past decades. With 'megatrends' in IB, the authors break new grounds in connecting bestseller titles with broad appeal to rigorously researched phenomena that are shaping our contemporary business environment."

—Zaheer Khan, FAcSS, Professor of Strategy & International Business,
University of Aberdeen, Scotland, UK

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Notes on Contributors

Ulf Andersson is Professor of Business Studies at Mälardalen University, Sweden, and an adjunct professor at BI Norwegian Business School, Norway. Ulf's research revolves around subsidiary evolution, HQ—subsidiary relationship, knowledge governance and transfer, network theory, and strategy & international management. He has published around 100 journal articles, books, and book sections on these areas in outlets such as *Strategic Management Journal*, *Journal of International Business Studies*, *Journal of World Business*, *Global Strategy Journal*, and other highly ranked journals. Ulf is Senior Editor of *Journal of World Business* and was Area Editor of *Journal of International Business Studies* for six years. He also serves on several editorial boards. Ulf is a Fellow of the Academy of International Business and of the European International Business Academy. Various reviews have listed him as one of the most influential scholars within MNE subsidiary research with 3000 Web of Science citations.

Spiros Batas is Senior Lecturer in International Business at University of Northampton and was a visiting lecturer at Lancaster University Management School. His expertise covers international entrepreneurship, the role of social capital in internationalisation of high technology firms, and family firm internationalisation. His academic work has been published in peer-reviewed books. He was the chair of the 47th AIB-UKI conference, and he is member of the AIB-UKI executive board.

Kristin Brandl is Associate Professor of International Business and Strategy at the Peter B. Gustavson School of Business, University of Victoria. Her research focuses on the impact of institutions (formal/informal, processes, change, supranational/national) on developing and emerging markets, intergovern-

mental organisations, international services, and innovation. Her academic work has been published in journals such as *Journal of International Business Studies*, *Journal of World Business*, *Global Strategy Journal*, *International Business Review*, and *International Journal of Operations and Production Management*.

Randolph Luca Bruno is Associate Professor of Economics at University College London and has held visiting positions at the London School of Economics and Political Science, Università della Svizzera Italiana, and University of Bari. His main research interests revolve around innovation, international business, applied microeconometrics, and institutional/comparative economics at the interplay of macro and micro. His academic work has been published in journals such as *Review of Economics and Statistics*, *Journal of International Business Studies*, *Journal of Institutional Economics, Economics Letters*.

S. Tamer Cavusgil is University System of Georgia Regents' Professor, Fuller E. Callaway Professorial Chair, and Executive Director, CIBER, all at Georgia State University's Robinson College of Business. Tamer has authored more than several dozen books and some 200 refereed journal articles. His work is among the most cited contributions in international business. Various reviews have listed him as one of the most influential and prolific authors in international management. Google Scholar indicates over 50,000 citations as of 2021 (h-index of 92). Google Scholar lists him among the top five scholars in the world in international business, international marketing, emerging markets, and export marketing.

Eve Man Hin Chan is an Associate Professor of Department of Fashion Design, The Technological and Higher Education Institute of Hong Kong (THEi). Prior to joining THEi, Dr. Chan had served as Global Business Controller and Manager of H&M. She possesses extensive industrial experience in buying, merchandising, marketing, and retailing. She manages research projects in international trade, location analysis of production in the belt and road initiative, as well as econometric modelling with impactful findings that are recognised by the academia and industry. Her research is published in *Journal of the Textile Institute*, *Sustainability*, among others. Dr. Chan is also the author and editor of the book, *Belt and Road Initiative—Collaboration for Success*. She is the recipient of various research awards, including the best research paper award in an international conference—the 14th Asian Textile Conference (ATC-14). She had been invited to be the keynote speaker, conference committee member, session chair, and reviewer of several international conferences.

Supun Chandrasena is Assistant Professor in Corporate Governance and Accounting at Queen's University Belfast. She has held academic appointments in Dublin, Ireland, and Sri Lanka and is an Associate Member of the Chartered Institute of Management Accountants (CIMA), UK. Supun's current research interest lies in the areas of cross-cultural management, corporate governance, corporate finance, and accounting. She has presented her research at a range of international accounting and finance conferences.

Nicole Coviello is the Lazaridis Chair of International Entrepreneurship and Innovation and Professor of Marketing at Wilfrid Laurier University, Canada. Her research is typically in the context of young technology firms where she studies topics at the intersection of marketing strategy, international business, and entrepreneurship. She is well-known for her work in international entrepreneurship and is an Associate Editor for this field at the *Journal of Business Venturing*. Various reviews have also listed Nicole as one of the most influential scholars in the world for international marketing and international business.

Luis Alfonso Dau is Associate Professor of International Business and Strategy and the Robert and Denise DiCenso Professor at Northeastern University. His research focuses on the effects of institutional processes and changes on the strategy and performance of emerging market firms. He is also a Dunning Visiting Fellow at the University of Reading and a Buckley Visiting Fellow at the University of Leeds.

Malahat Ghoreishi is a junior researcher in International Business and Entrepreneurship at LUT University of Business and Management. Her research is in the context of "Industry 4.0 and Circular Economy Ecosystem", where she studies the role of different digital technologies as enablers of circular business ecosystems and circular business model innovation, as well as entrepreneurial ecosystems. Her academic work has been published in different peer-reviewed conferences and books.

Edward Gillmore is Assistant Professor and Programme Director in Business Administration at Jönköping International Business School. He has been a visiting scholar at BI Norwegian Business School, Fox Business School (Temple University), Stanford University, and is a Strategic Management Society SRF Scholar. His expertise covers headquarters and subsidiary roles in MNEs, specifically subsidiary strategy, and the role of relational and resource dynamics in subsidiary evolution. His academic work has been published in peer-reviewed journals such as *Transnational Corporations Journal* and *Global*

Strategy Journal. He has also authored multiple book chapters within the field of subsidiary management.

Angappa Gunasekaran is the director of the School of Business Administration, Pennsylvania State University-Harrisburg, USA. Prior to joining Penn State, he served as the Dean and Professor at the School of Business & Public Administration, California State University in Bakersfield, USA. Previously, he served as the Dean of the Charlton College of Business from 2013 to 2017, Chairperson of the Department of Decision and Information Sciences from 2006 to 2012, and the Founding Director of the Business Innovation Research Center (BIRC) at the University of Massachusetts Dartmouth from 2006 to 2017. He has published over 400 journal articles and has 54,000 citations. He has served on the editorial board of over 30 peer-reviewed journals and has organised several international workshops and conferences in the emerging areas of operations management and information systems.

Walid Hejazi is Associate Professor of Economic Analysis and Policy & Fellow of the Michael Lee-Chin Family Institute for Corporate Citizenship at the Rotman School of Management, University of Toronto. His research is in the area of international trade and foreign investment. He has published his research in the *Journal of International Business Studies*, *Journal of International Business Policy*, *Management International Review*, *Review of Finance*, *Journal of Urban Economics*, *Canadian Journal of Economics*, among others. He has advised the Canadian and foreign governments extensively and has testified many times before parliamentary and senate committees on global competitiveness. He is working on a series of studies with the Canadian government which sheds light on the competitiveness and productivity of Canadian firms. He teaches Macroeconomics and Global Strategy in Rotman's MBA, EMBA, and custom executive programmes and has delivered lectures in over 30 countries.

Danny Chi Kuen Ho is an assistant professor of Department of Supply Chain and Information Management, The Hang Seng University of Hong Kong. He is a guest editor of a special issue on "Supply Chain Digitalization" for the *Journal of Theoretical and Applied Electronic Commerce Research* (*JTAER*) and serves on the editorial board of *JTAER*. He is a council member of the Institute for Supply Management, Hong Kong. His research has appeared in the *International Journal of Production Research*, *Corporate Social Responsibility and Environmental Management*, *Sustainability*, among others. His recent research has applied neural network to examine supply chain management and international trade.

Ranadeva Jayasekera is Associate Professor in Accounting and Finance at the Trinity Business School, University of Dublin. He has held academic appointments in the University of Southampton and the Cranfield University, UK. His research interests are in the areas of capital structure, real options, financial flexibility, market efficiency, and bankruptcy prediction. His articles have appeared in the *Journal of International Money and Finance*, *Review of Quantitative Finance and Accounting*, *International Journal of Finance & Economics*, *Journal of Empirical Finance*, *International Review of Financial Analysis*, and *Energy Economics*.

Olli Kuivalainen is Professor of International Marketing and Entrepreneurship at the LUT University School of Business and Management. His expertise covers broad areas of international business, marketing and entrepreneurship, and their interplay, as well as advancement of technologies. His academic work has been published in journals such as *Journal of International Business Studies*, *Journal of World Business*, *International Business Review*, *International Marketing Review*, *Journal of International Marketing*, *Industrial Marketing Management*, *Technovation*, and *International Small Business Journal*.

Jorma Larimo† (1954–2022) was Professor of International Business at the School of Marketing and Communication, University of Vaasa (UVA). For several years, he was the Head of the Doctoral Programme in Business Studies at UVA and in the Kataja Doctoral Programme in International Business in Finland. He was an EIBA Fellow. His areas of interest include SME internationalisation and foreign entry strategies of MNEs, especially FDI, M&A, IJV strategies and performance, as well as subsidiary survival. His research has been published in several journals including *International Business Review*, *Journal of International Business Studies*, *Journal of International Marketing*, *Management International Review*, *Journal of World Business*, *Journal of Global Marketing*, *European Journal of International Management*, *Baltic Journal of Management*, *Journal of East-West Business*, and *Asia Pacific Journal of Management*, as well as in several edited books. He was on the editorial board of five different international journals. He was leading a project focusing on divestment, relocation, and value creation funded by the Academy of Finland.

Liane Wai Ying Lee is an assistant professor of the School of Business, The Hang Seng University of Hong Kong. She has 15 years of senior management experience in product management and managing large-scale strategic projects. She had worked in HSBC and Standard Chartered Bank (HK) Limited in Personal, Small Medium Enterprise, and Private Banking segments. Dr. Lee represented HSBC during the launch of Renminbi and Deposit Protection

Scheme with Hong Kong Monetary Authority. Her last post was Chief Operating Officer of a mining company based in the Asia Pacific region. Dr. Lee had developed a strategic research agenda in four specific areas of guanxi (relationship marketing), stakeholder engagement, financial, and CSR communications using big data, statistical modelling, and qualitative methods. Her work has appeared in *Journal of Business Research* and *Public Relations Review*.

Nina Marien is a junior researcher pursuing her PhD at the University of Antwerp. Her research interests span broad areas of finance and international business and their interplay.

Noushan Memar is Lecturer in Marketing and Strategy and Programme Coordinator of an EFMD-accredited Master studies in Business Administration at Mälardalen University. Noushan's research focuses on the activities of subsidiary managers in internal and external MNE environments. She specifically focuses on managing the charter change caused by gaining an R&D mandate. Additionally, her pedagogical work revolves around learning through gamification of business concepts such as effectuation and causation. Her scientific work has appeared in peer-reviewed journals such as *Transnational Corporations Journal* and *Journal of Management Education*. She also has co-authored a peer-reviewed book chapter on subsidiary influence and digital transformation of MNEs.

Elizabeth M. Moore is Assistant Teaching Professor of International Business & Strategy at the D'Amore-McKim School of Business, Northeastern University. Further, she is the Associate Director of Strategic Education and Research Collaboration at the Global Resilience Institute also at Northeastern. Her research, which has won numerous awards at top management and business conferences, focuses on formal and informal entrepreneurship, corporate social responsibility, institutional changes, institutional disruptions, transnational institutions, pro-market reforms, firm performance, emerging market firms, global strategy, and international organisations.

Ha T. T. Nguyen is a doctoral candidate at the School of Marketing and Communication, University of Vaasa, Finland. Her research interests include MNEs' internationalisation, cross-national differences, subsidiary survival, and foreign entry and divestment. Her research has appeared in the *Journal of Business Research*.

Kirill Osaulenko is Research Associate at the University College London. His main research interests revolve around corporate governance, interna-

tional entrepreneurship, innovation, and strategic management. His academic work has appeared in the book *The Challenges of Technology and Economic Catch-up in Emerging Economies*.

Ine Paeleman is Assistant Research Professor in Entrepreneurial Finance at the University of Antwerp. Her research interests cross the traditional boundaries between entrepreneurship, management, and finance disciplines, with a focus on entrepreneurial finance, slack resources, and international entrepreneurship. Her academic work has appeared in journals such as *Journal of Management Studies*, *Journal of World Business*, *Small Business Economics*, *Sustainability*, the *Academy of Management Best Paper Proceedings*, and *Frontiers of Entrepreneurship Research*.

Rudolf R. Sinkovics is Professor of International Business at University of Glasgow, Adam Smith Business School, UK, and Visiting Professor at Lappeenranta/Lahti University of Technology, Finland. His research covers issues of inter-organisational governance and the role of ICT, with a current focus on responsible business. His work has appeared in journals such as *Journal of International Business Studies*, *Management International Review*, *Journal of World Business*, *International Business Review*, *Journal of International Management*, *Journal of Business Research*, *Journal of International Marketing*, and *International Marketing Review*. He is co-editor-in-chief for *Critical Perspectives on International Business*, Consulting editor for *Journal of World Business*, and Associate editor for *Transnational Corporations*. He also serves on a number of editorial boards.

Jianmin Tang is Senior Economist at Innovation, Science and Economic Development Canada (ISED). He conducts economic research and policy analysis in areas under the mandate of ISED. His research interest is in productivity, innovation, and foreign direct investment. His research has appeared in many scholarly journals including *Journal of International Business Studies*, *Research Policy*, and *Canadian Journal of Economics*.

Luke Treves is a researcher in International Business and Entrepreneurship at LUT University School of Business and Management. His research covers issues of Industry 4.0 and its facilitating smart digital technologies and their impacts on operational and business model innovation, consumer engagement, and sustainable performance. His academic work has been published in peer-reviewed books.

Weimin Wang is Principal Researcher at the Economic Analysis Division, Statistics Canada. His research areas include economic and productivity

growth, foreign direct investment, and multinationals. His research has appeared in the *Journal of Monetary Economics*, *Journal of International Business Studies* and *Canadian Journal of Economics*.

Tsz Leung Yip is an associate professor of Department of Logistics and Maritime Studies, The Hong Kong Polytechnic University. He is the Deputy Director, C. Y. Tung International Centre for Maritime Studies and the Programme Leader of BBA in International Shipping and Transport Logistics. His research interests include maritime economics, marine safety, marine environment, and autonomous ships. His research has appeared in *European Journal of Operational Research*, *Accident Analysis and Prevention*, *Annals of Operations Research*, *International Journal of Production Research*, *Transportation Research Part A, Part D and Part E*, and so on. He is an editor of *Maritime Business Review* and associate editor of *Asian Journal of Shipping and Logistics*. He has also edited special issues and serves on editorial boards of several journals.

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Part I

Introduction to Megatrends

Megatrends in International Business: An Introduction to the Theme

Spiros Batas, Olli Kuivalainen, and Rudolf R. Sinkovics

Megatrends in International Business and Management

Choosing the notion of "megatrends" for the title of a book carries significant risk. The term was originally coined by Naisbitt (1982) and used to address a range of ten shifts, which were ostensibly taking place in the US at that time. The megatrends book itself made it onto numerous "best-seller" lists, and the term has since been widely adopted in the repertoire of business executives and used to mean several things. Academics are frequently, perhaps rightfully, steering away from bestsellers with broad appeal and generous generalizations, and even self-respecting functional managers are not always enticed by captivating book titles, which sweep away the complexities of sector-specific contingencies. This may explain why international business (IB) research has not

S. Batas
University of Northampton, Northampton, UK
e-mail: Spiros.Batas@northampton.ac.uk

O. Kuivalainen
LUT University, Lappeenranta, Finland
e-mail: olli.kuivalainen@lut.fi

R. R. Sinkovics (✉)
University of Glasgow, Glasgow, UK
e-mail: Rudolf.Sinkovics@glasgow.ac.uk

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_1

picked up on the megatrend terminology. In fact, at the time of writing (end of September 2021), a Web of Science literature search of the term "megatrend" in the title of sixteen major international business (IB) journals (Tüselmann et al., 2016) returned no single academic journal article.

This is quite a compelling result for two reasons: *First*, the ten megatrends, addressed by Naisbitt (1982), cannot be fully dismissed.[1] The move from *industrial society to information society*, for instance, has, at least to some degree, proven to be a useful trajectory for explaining the development of developed country nations. Two further Naisbitt trends—the transformation *from national to global economy* and the move *from hierarchies to networking*—arguably, have been carefully scrutinized within IB research, under the themes of globalization, the federal multinational enterprise and knowledge creation and transfer (e.g., Buckley & Ghauri, 2004; Kogut & Zander, 1993; Yamin & Forsgren, 2006). *Second*, the IB field has itself shaped and significantly contributed to megatrends, despite carefully avoiding such a trendy label. Drawing on Buckley (2002), the major trends that IB research has captured are around foreign direct investment, the explanation of multinational enterprises (MNEs), their strategy and organization, internationalization, globalization and new forms of IB. Recent developments include emerging markets, the rise of the middle class and information and communication technologies (e.g., Cavusgil et al., 2018; Griffith et al., 2008; Jean et al., 2010; Ramamurti, 2012). Yet again, the megatrends label is avoided and primarily confined to book contributions (e.g., Biswas, 2016, 2018).

Against this background, this book adopts the title "Megatrends in International Business" and attempts to situate the megatrends narrative, which is now re-emerging in consulting white papers, policy documents and future reports (e.g., Ey, 2020; ODNI, 2021; Sneader & Singhal, 2021), cautiously in the academic IB space. The adoption of the megatrends terminology seems appropriate, as IB as a discipline is primarily concerned with transactions across borders and their uniqueness vis-à-vis domestic transactions in view of multiple institutional differences (c.f., Cantwell & Brannen, 2011). IB is thus not only very well positioned to capture and speak to these trends within its disciplinary tenets, but uniquely placed to inform and interact with disciplinary cohorts outside the business and management areas, such as political sciences, economic geography and sociology and development studies. The "institutional gearbox" metaphor outlined by Guillén and Ontiveros (2016), for instance, offers a fascinating web of dimensions, labelled "gearboxes", which shape and dynamically interact with state actors, the labour market and the political representation system. We draw on some of

the major economic aspects outlined (Guillén & Ontiveros, 2016, p. 193) through an IB lens and examine how these constitute to major trends.

Contributions to This Volume

The book starts with two keynote speeches, delivered by S. Tamer Cavusgil (Fuller E. Callaway Chair and Director, Institute of International Business at Georgia State University, US) and Nicole Coviello (Lazaridis Chair in International Entrepreneurship & Innovation at Wilfrid Laurier University, Canada) who bring their two respective perspectives on "megatrends" in IB to the fore. Both keynotes were delivered to audiences at the 47th Academy of International Business, UK and Ireland Chapter Annual (online) Conference at Greenwich University in April 2021. Prof. Cavusgil speaks of recent geopolitical, economic or natural events, which have lasting impact on the discipline. His chapter sets up the scene for the book by discussing how shifts in the environment can affect the way firms operate internationally and how they interact with their stakeholders, for example. Prof. Coviello addresses trends in International Entrepreneurship, which leads her to highlight an agenda for future research in this important domain of IB. Her chapter focus on what should be studied, and how this should happen in the future in the international entrepreneurship context, and hopefully, the readers can link Prof. Coviello's work to the trends in the environment shaping the future research agenda.

The rest of the book is comprised of a selection of nine papers presented in the Greenwich conference. The chapters are broad in their coverage, yet collectively demonstrate a certain intellectual connection to the "Megatrends in IB" conference theme. The book is parceled into four parts. Part II offers two chapters which contribute to the theme of "entrepreneurial trends". Part III offers four chapters which speak to the theme of "selected trends in technology, innovation & emerging markets", and Part IV contributes to "cultural strategic and performance considerations".

Entrepreneurship Trends

Part II begins with a conceptual paper by Elizabeth Moore, Luis A. Dau and Kristin Brandl, on the impact of intergovernmental organizations (IGOs) on formal and informal economic activity in developed countries. Their chapter, titled "*IGOs and Entrepreneurship: Understanding the Impact of Policy*

Compliance on Formal and Informal Entrepreneurial Activity", taps into policy literature and entrepreneurship thinking and develops a set of propositions regarding how higher levels of compliance with IGO regulations, together with higher levels of economic development, are likely to result in a dominance of formal business activities over informal activities and, conversely, lower levels of compliance with IGO regulations, together with lower levels of economic development, are likely to result in a dominance of informal over formal business activities. They draw on two sample IGOs—the OECD and the EU—and test this thinking in the context of Ireland and Latvia.

The second chapter by Nina Marien and Ine Paeleman is a literature review, titled "The Role of Equity Resources in Early Internationalizing Firms". It reviews two decades of work on the influence of equity resources on firms' early internationalization and integrates a total of forty-eight studies over that period. They develop a conceptual framework that includes equity resources in the form of venture capital, informal investors, family ownership, foreign equity and equity crowdfunding which impacts on two specific internationalization dimensions: the entry mode and scale/scope/revenue dimensions of performance. Given that most studies reviewed use venture capital and there is not a similarly high level of evidence regarding angel investors, equity from family members and other sources, the literature review helps in pointing at a fruitful direction for future entrepreneurship work. When considering the ideas presented in this chapter, we can also try to link the search and possible acquisition of the financial resources during the early internationalization to one of the megatrends shaping international business, that is, technological development, as new technologies such as blockchain can enable firms to use decentralized financing from several countries (Torres de Oliveira et al., 2020) even during the early stage of the firm and internationalization life cycle.

Selected Trends in Technology, Innovation and Emerging Markets

Part III begins with a chapter by Malahat Ghoreishi, Luke Treves and Olli Kuivalainen. Their contribution is titled "Artificial Intelligence of Things As an Accelerator of Circular Economy in International Busines" and thus situated nicely at the interface of scarce future economy resources, the climate crisis and artificial intelligence as one of the new advanced technologies that may facilitate how international business may redesign, reorganize and adjust their business models under continuously pressured development spaces. They introduce the complementary role of artificial intelligence and the

internet of things in transitioning towards a more efficient and responsible way to develop international business. Their chapter is of particular interest for IB audiences seeking to future-proof their operations in light of advanced technologies and for academic IB audiences to reconfigure conceptual underpinnings and theorizing efforts surrounding the impact of these technologies.

The second chapter from Eve Man Hin Chan, Danny Chi Kuen Ho, Liane Wai Ying Lee, Tsz Leung Yip and Angappa Gunasekaran is titled "A Big Data Analysis of Perceived Image of the Belt and Road Initiative". It highlights how economic power is shifting at a global scale, from the West to the East. This study analyses the importance of China's megaproject "Belt & Road Initiative" and its negative perception by media. The authors present, by using a big data approach analyzing 344,190 news articles, the major differences between the Chinese and the US reception of this megaproject. This chapter addresses a key point that international business practitioners and scholars should take into consideration: the public sentiment and how this could be influenced by megatrends.

The third contribution in Part III from Randolph Luca Bruno and Kirill Osaulenko is titled "Firm Internationalization and Corporate Governance: A Longitudinal study on the Russian Federation". The authors examine 300 Russian firms, which have faced global challenges in the last twenty years. This study highlights the positive aspects of IB and how setting up subsidiaries or acquiring foreign firms can trigger changes in corporate governance. This can be applied to technology-/digital-based firms that decide to enter foreign markets due to limited resources in their domestic markets.

The fourth chapter by Noushan Memar, Ulf Andersson and Edward Gillmore is an empirical study titled "What Happens When Subsidiaries go Through a Change? Impact of Gaining an R&D Mandate on Subsidiary Managers' Activities and Subsidiary Innovation". The authors examine ninety-eight Swedish MNE subsidiaries to understand how R&D mandate can influence innovation at subsidiary level. This study helps IB scholars to better comprehend the link between subsidiary managers and innovation. In the current volatile environment, this becomes a very crucial topic.

Trends Shaped by Cultural, Strategic and Performance Considerations

Part IV starts with the chapter titled "Incorporating Home and Host Country Economic Growth Rates in Predicting the Impact of MNEs' Strategic

Flexibility on Local Economies" by Walid Hejazi, Jianmin Tang and Weimin Wang. A total of 1761 Canadian MNEs were analysed over a period of fourteen years to examine their strategic flexibility. This study focuses on the impact of economic downturns and offers a topical context, as with the outbreak of Covid-19 many MNEs are affected. Therefore, IB scholars can apply the developed strategic flexibility framework in this chapter in future studies.

Supun Chandrasena and Ranadeva Jayasekera's chapter is titled "The clash of cultures and its effect on firm performance volatility". In this chapter, they study the role of foreign directors and board members and whether the interaction among a multiplicity of cultures affects the performance volatility firms. The longitudinal data used to test the hypotheses come from 1190 firms from 12 European countries. One of the interesting findings is that the higher the cultural difference between the CEO and the firm's stakeholders, the more there would be miscommunication and misunderstandings and a disarray of preferences that could lead to CEO making unpredictable decisions, exhibited by increased performance volatility. The chapter links to diversity trend and can also offer ideas to practicing IB managers. Findings also show that cultures matter still—when considering what to do in international top management recruitment and how to gain positive performance.

The final chapter of the book, "To Be Existed or to Exit? Dynamic Managerial Capability and Global Connectedness in Foreign Divestment", written by Ha T. T. Nguyen and Jorma Larimo, looks at the role of managerial capabilities. The changes in the global business environment mean that MNEs' managers need to develop their managerial capabilities to evaluate strategic opportunities found in the global business environment and learn how to improve organizational resilience. By studying Finnish MNEs and their foreign investments made between 2005 and 2015, and the situation of those investments at the end of 2018, Nguyen and Larimo show that managerial human and social capital decrease the likelihood for propensity of foreign divestment, whereas global connectedness differences would increase the propensity. All in all, the chapter shows us the importance of dynamic managerial capabilities when MNEs try to respond to the challenges in the global business environment. How could the MNEs become resilient and able to respond to the challenges in the global business environment so that they would not have to retreat from operating in a certain market?

All in all, the chapters in this book show how IB research can be linked to the megatrends literature and provide examples of internationally operating companies' strategies in relation to the several trends in the business environment. Further, we can also notice how IB research is shaping up based on several megatrends discussed in this contemporary collection.

Note

1. We acknowledge that Naisbitt himself, for example, updated the list of megatrends over the time. Some of the 'newer' megatrends could also fit into the IB context such as 'global lifestyles and cultural nationalism' and 'rise of the Pacific Rim'; see Naisbitt and Aburdene (1990).

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Megatrends and International Business

S. Tamer Cavusgil

Megatrends refer to watershed events in the macro environment that impact us globally. Triggers that give rise to such remarkable events may be geopolitical, economic, or natural causes. Megatrends are such extraordinary occurrences that they tend to have lasting and enduring effects. They impact business¸ economy, society, culture, our personal lives, research, and public policies, and define our future world. Their impact is persistent and far-reaching, defining the global order: relationships between nation-states, societies, and economies; firms and markets; and individuals.

Megatrends have in recent years been so impactful that they dominate the agenda and are becoming more frequent and more enduring. When examining their impact on international business and, in particular, internationalizing firms and multinational enterprises, it is worth reviewing whether these major events are opportunities or threats, and what they imply for the world of international business. Consulting companies such as McKinsey & Company and Boston Consulting Group, think tanks, and international organizations frequently review these megatrends, and their resources and publications are useful for an overview of megatrends. Thus, they address such watershed developments as demographic trends, climate change, technological breakthroughs, diversity in the workplace, resource scarcity, the rise of

S. T. Cavusgil (✉)
CIBER, Georgia State University, Atlanta, GA, USA

Leeds University Business School, Leeds, UK
e-mail: stcavusgil@gsu.edu

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_2

entrepreneurship, evolution of emerging markets, and the growing prominence of megacities. This is one reason it is useful to keep up with the work of management consulting companies, as they tend to lead academic literature in terms of calling attention to major events brewing in the global economy.

Consider the following example. More than a decade ago, McKinsey & Company concluded that 'inter-national' business is passé, redundant, and obsolete. Rather than focusing on an entire nation as a unit of analysis, McKinsey was advocating firms to adopt city- or region-based marketing and allocate resources on a region-by-region basis. McKinsey was essentially acknowledging heterogeneity within very large economies such as the US, China, and Indonesia. Indeed, given this heterogeneity from region to region and from city to city, a more focused and granular approach to cultivating national markets had become optimal. The availability of granular data makes such a disaggregated approach also more feasible for managers and assesses market potential within regions, cities, megacities, second-tier cities, and so on. McKinsey & Company anticipated this fundamental shift from nation as a unit of analysis to cities and regions as a unit of analysis well ahead of academics.

The impact of these megatrends on international business has been amplified uncertainty and disruption of 'business as we know.' For multinationals, it led to rebalancing of supply chains, a new wave of innovations, the need for re-skilling employees, new ways of connecting with customers, and stepped-up societal expectations, business and social responsibility, and accountability. These trends are now taking place in a fundamentally changed global order where inequities in income and opportunity are more intensified, emerging markets are struggling, and trade relationships are more polarized. These developments also have implications research.

Risk Management Jumps to Top of Corporate Agenda

In the contemporary business landscape, it is clear that volatile, uncertain environments are almost inescapable. With firms facing elevated levels of risk, we need to rethink our extant risk frameworks. Textbooks tend to be outdated in terms of what constitutes risk and how they influence international business. Typically, we talk about political, cultural, financial, and commercial risks. Yet, today, we face novel types of risk. We have seen technological developments and breakthroughs as the underlying causes of corporate risk.

Cybersecurity constitutes a new variant of risk in the digital economy. Ongoing automation operations is another, making some industries and companies, and even certain professions, totally obsolete. Other contemporary risks include trade conflicts and tensions, as in the example of ongoing US–China trade wars.

Frequent black swan events are also a contemporary reality, as in the case of Japanese earthquake of 2011, which caused major supply chain problems in terms of distribution of silicon wafer supplies worldwide. Some of these disruptions are predictable, to the extent they are slow and evolving. Examples include climate change or demographic shifts such as the aging population in Japan, China, and in some Western nations. Black swan events come out of nowhere and catch us unprepared. Certainly, the global health pandemic of 2020 is one of those, even though some would dispute this. Keep in mind that even disruptions create opportunities for some firms and industries. Their impact is not limited to threats and catastrophe. Yet, megatrends are so frequent and generally more disruptive and enduring as we now live in a connected global economy. As the world economy has become more connected, a more interdependent set of nations, we observe the impact of these disruptions to be more radical and enduring.

Risk frameworks certainly need to take black swan events into account, as well as the more recent global health disruptions, social tensions, and fiscally struggling or failing states. Another major development is the intense public scrutiny of multinational enterprises. As a consequence, risk management tasks have risen to the top of the corporate agenda and constitute the number one agenda item concerning corporate directors and top management. Multinational enterprises need to refine their risk-mitigation capabilities and learn to better track, anticipate, and respond to megatrends.

One constant theme during 2020–2021 has been 'organizational resilience.' At the same time, we now speak of resilience of industries, resilience of societies, as well as resilience at the personal level, referring to our ability to cope with adverse events. We know well how the global pandemic affected us individually, as families, as a community, and as a society. The young population, including our students, are much more vulnerable; facing uncertain employment prospects, not to mention financial difficulties.

Improving risk management capabilities remains a tall order for multinational enterprises that are, by definition, multi-country, multi-industry organizations bound by multiple sets of national and geopolitical environmental influences. One is reminded of the wise teachings of Bartlett and Ghoshal back in 1989. Bartlett and Ghoshal (1989) advocated three strategic objectives for multinational enterprises: to be efficient, to be flexible, and to exploit

learning on a worldwide basis. As long as multinational companies strive for these three strategic objectives, they will be able to build resilience, even in the presence of global disruptions.

Observers of international business have offered ample pessimistic predictions of repercussions for MNEs and globalization. Yet there are those who see a more optimistic future. Contractor (2021) characterizes multinational enterprises as bridging mechanisms that leverage differences between countries in terms of resources. In this view, multinationals are carriers or transmitters of internalized proprietary capabilities to foreign affiliates. They are diffusers of knowledge, spreaders of best-practice arbitrage, and transmitters of knowledge capital. As long as multinational enterprises continue to exploit such advantages, they will survive these challenging times. I tend to agree with Contractor that, while multinationals are naturally being tested like never before and are going through much soul-searching, they will emerge fairly successful from the current rough waters.

How can multinational firms go about building more robust, risk-resilient organizations? This topic makes an attractive research topic for scholars. One of the key research questions relates to how firms can systematically assess their vulnerabilities, something they haven't been disciplined about in the past. Risks that are considered excessive or imponderable are always there, but what is intolerable versus tolerable risk? How do firms adopt early warning systems? How can proactive planning reduce the likelihood of disruptive, adverse effects? How do you build agile, flexible, adaptive organizations of the nature Bartlett and Ghoshal suggested in 1989? And how do you foster a proactive and risk-mitigating culture? This is the idea of making an organization's entire workforce risk sensitive and risk proactive, rather than seeing risk as primarily a senior management function. When the entire organization rallies around and buys into a risk-mitigating culture, multinationals can become more successful.

Shifting Supply Chain Strategies

A disruptive environment has now forced multinationals to reconsider their supply chain systems. What we are seeing now is a rebalancing and reshoring of supply chains. The past model focused on global sourcing and supply chain optimization to minimize costs, reduce inventories, and boost asset utilization. All of these have delivered companies more success and profits. Now, in the era of disruptions, we have seen the limitations of this 'just-in-time' supply management system. Recently, we saw what happened in the Suez Canal

with the Evergreen megaship. These modern megaships are a technological breakthrough: they are huge, with the capacity to carry tens of thousands of containers. When they first appeared about five years ago, they made a huge impact on lowering the cost of ocean shipping. Yet, they have limitations when they go through a passage like the Suez Canal. Bottom line: long and complicated supply chains have now proven to be risky. Now, in a relatively decoupled global economy, COVID-19 has demonstrated the vulnerability of the just-in-time supply chain strategy. We have discovered many bottlenecks and choke points in the distribution system. We saw this early in the pandemic, when we observed the severe limitations of medical supplies, even fundamental items like face masks. What we are seeing now in the world of the global supply chain is that shift—rebalancing from just-in-time to 'just-in-case' supply chain management. This shift implies simplification of the supply chains—shortening of the supply chain so that we are less vulnerable. The narrowing cost differential between advanced and emerging markets is yet another rationale for adopting the just-in-case supply chain strategy.

Let us elaborate on the need for just-in-case supply chain strategy. Most of us recall the repercussions of a microchip shortage felt in 2021. Among others, Ford and General Motors were forced to shut down their entire assembly operations. The modern motor vehicle requires more than 100 chips, and the severe shortage of semiconductors meant that the production of automobiles had to come to a standstill. Some companies responded quickly by adopting simpler supply chains. An example is Harley Davidson, which recently announced a new strategy—lower production volumes and eliminate some models. Given the current environment, Harley Davidson opted to streamline its product line and to not focus on producing everything that it has produced in the past, but instead sharpen its focus on products that matter most to its clients. Hence, the goal is clear: simplify long supply chains.

The shift to just-in-case supply chains is facilitated by declining cost differences between advanced economies and emerging markets. Advances in manufacturing using Industry 4.0 principles, such as big data analytics, advanced robotics, 3D printing, and so on, now offset about half the labor cost of the differential between China and the US. This means there is not as much impetus to seek supplies from low labor-cost countries. In addition, managers are shifting from just-in-time to just-in-case supply chain management also because of 'visibility' challenges. By supply chain visibility, I refer to the ability of the manufacturer to see beyond its Tier 1 supplier, into its Tier 2, Tier 3 suppliers. Think of the automotive industry. There is not just one tier, but second- and third-tier suppliers—suppliers to suppliers—so it is very difficult for the manufacturers (that are essentially assemblers rather than

manufacturers these days) to have deeper visibility into supply chains. A good example of this is the F35, Joint Strike Fighter program, the Pentagon's biggest ever megaproject. The US government, for a variety of reasons, elected to have not just one contractor, Lockheed Martin, but many subcontractors around the world. About 10 major countries, mostly NATO countries, were participants in the design, development, and production of the F35, which is the most expensive defense project in history, with an estimated projected lifetime cost of US $1.7 trillion. That is more than Russia's GDP. The use of so many countries and subcontractors, about 4000 altogether, meant huge disruptions in the supply chain. Part of the problem was the lack of visibility and inability of the assembler, Lockheed Martin, to foresee technological problems, production delays, cultural conflicts, and bickering among the partners. This type of visibility challenges was also evident in the production of the McDonnell Douglas 787 Dreamliner aircraft.

Entrepreneurial Awakening

A major megatrend concerns the new wave of innovations and a rising generation of entrepreneurs. This is a very encouraging development. Not all megatrends are negative; there are technological breakthroughs and positive developments which make us optimistic as well. Disruptions, of course, create new space for entrepreneurs. As is commonly remarked, 'necessity is the mother of invention.' The numbers that call attention to entrepreneurial awakening are interesting. In 2020 alone, 1.5 million new business applications were received in the US. This is double the number of the year before. So many new enterprises have come on board in healthcare, financial services, real estate, education, remote learning technologies, online groceries, branchless banking, cybersecurity, and social online gaming. Many of these are obviously digital start-ups. This new wave of digital start-ups calls attention to a new breed of born globals—born digital enterprises. These are web-based, platform businesses, engaged in the creation, delivery, and capture of value to customers by creating user communities. They are viable to the extent that they can build large user communities. This is a global phenomenon, not just encountered in the US. We observe this explosion of the new entrepreneurial generation and of the new breed of digital enterprises in such countries like Brazil, China, and Turkey. They all have witnessed the rapid formation of digital entrepreneurial ventures and countless platform start-ups.

This trend gives rise to several research questions. What are the prospects and challenges of future long-term projections for these digital enterprises?

Some will fail very quickly, as they are low entry-barrier businesses, and the failure rates are very high. What happens to the ones that survive and prosper? What accounts for their survival? Is it just the investor interest? Is it the novel idea? Entrepreneurial prowess? Creativity and risk-mitigation capability? Organizational capabilities such as technical networking, securing capital, and so on? And what happens to those that are acquired by big-time players? We've seen a lot of this in the US and elsewhere. Some may transition to public stock companies.

How do born digitals overcome the liability of newness? How do they establish themselves as mature organizations? Do lower barriers to entry imply lower perceptions of risk? What are the risk perceptions of these new entrepreneurs? Many born-digital firms are obviously also born-global firms. What insights do we have from born-global research? What are the resources and capabilities strategies that contribute to performance of modern digital businesses? What about the role of the ecosystems—industrial clusters in nurturing born-digital enterprises and public policy?

Skills Gap

For some time now, business executives have been calling attention to what they perceive as the skills gap and skills mismatch. This is often raised with respect to business school graduates. Executives comment about lack of communication, teaming, and analytical skills. With contemporary enterprises, life-long employability is also a concern. Thus, there is a constant need to raise skilled workers and upskill workers. At the same time, employers need to respond to workers' self-realization and personal development needs. In addition, they need to recognize a diverse workforce. Today, we have workers representing different generations with very different expectations; Generation Z is very different from the older generations.

The global health pandemic has also accelerated the rapid automation and digitalization. Fewer qualified workers are available to join the complex organizations of today. The talent base for multinationals is a special concern. A recent global survey conducted by the Boston Consulting Group raised serious questions about the willingness of managers to relocate overseas for work. This is especially apparent among US employees. COVID concerns loom big in this situation. When the BCG carried out the survey in 2014, as many as three quarters of the respondents said that they were willing to relocate anywhere in the world as part of their multinational organizations. The 2021 study revealed that only about half the responding employees were willing to

move abroad—a major drop in the intention and willingness of workers to relocate overseas for work.

Declining willingness of employees to relocate abroad has certain implications for the multinational enterprise and raises some challenges. How do you go about relationship building as an international business when you are communicating with your foreign partners—licensees, franchisees, lawyers, and other partners such as banks—via electronic means? How can multinationals build meaningful and lasting relationships while working remotely? How can multinationals manage this fundamental relationship and trust-building function? If customers, network partners, or employees are hesitant, non-committed, or confrontational about working with you, then how can you win them over? If there is a conflict or dispute, how can you manage that situation? Will resolving conflicts with your partners be made more difficult over virtual connectivity? This, I think, is a real problem that we are facing right now.

Another problem also caused by lack of face-to-face interaction relates to knowledge transfer. We already recognize multinationals as major agents in transferring knowledge and in amplifying and transferring intangibles, especially tacit knowledge such as intellectual property, brand equity, and other economic assets. When you are working remotely, how can you facilitate this transfer? In addition to increasing trade costs, COVID-19 has actually amplified the cost of communicating tasks and tacit knowledge, so multinationals that have been very successful in transferring and exploiting existing observable repositories of knowledge around the world are now asking this question: How can we continue to do this and make it count for us?

Yet another complication with the lack of direct connectivity relates to the organizational structure. With remote working, the multinational organizational structure might possibly need to be rethought as a region-based organizational structure—with high intra-regional integration, but few interactions among units located in different regions. So if conventional multinational structures benefit from standardized routines and best practice that are shared across all units, with remote working, is this kind of organizational structure as a global, rather than regional- or nation-based, system still viable?

Rising Societal Expectations

One other important megatrend with implications for multinational business is the rising societal expectations from business and calls for social accountability and sustainability. Senior managements are now asking how to make

their businesses more responsive to multiple stakeholder groups, including customers and shareholders.

This shareholder capitalism is very much alive. And it's not new. It is not a fad either. It is a philosophy that dates back to as early as 1759 when Adam Smith wrote the book *The Theory of Moral Sentiments.* In it, Smith spoke of empathy and how, while we all have a natural tendency to look after ourselves as social human beings, we are also endowed with empathic powers, and we need to consider others as we need to be considered. This was Adam Smith talking about the corporate purpose, in 1759. Fast-forward to the 1940s, Milton Hershey, the chocolate manufacturer, gave a very elegant talk about business being a matter of human service.

More recently, the focus has been again on social accountability or the responsibility of the corporation: Neville Isdell, former CEO of The Coca Cola Corporation, spoke of 'connected capitalism' as a way for companies to better engage with their stakeholders wherever they do business. And even more recently, Paul Polman, former chief of Unilever, described what he referred to as 'conscious capitalism' as a more sustainable form of capitalism. Multinationals working around the world, especially in emerging markets, are especially under scrutiny and increased pressure to comply with these broader societal goals.

In response to this new imperative, multinational enterprises have introduced numerous new initiatives. They have adopted new scorecards and are now publishing sustainability scorecard to be socially accountable. If you examine their websites, you will see these scorecards. They talk about their social impact on mitigating climate impacts, externalities of business activity, Environmental, Social and Governance (ESG) priorities, the rising demand for 'good products that do good,' and corporate purpose. This is more than lip service.

There are also parallels to this trend at the societal level. There is new thinking about metrics, and examination of whether we have the right metrics that are sensitive to the needs of the public. Many questions are raised: Do shareholder values reflect what society values? Is gross domestic product (GDP) still a valid measure of well-being, if well-being is what we want? Can we really measure that with GDP? So as capitalism changes, and we buy into this conscious capitalism, connected capitalism philosophy, metrics must change as well. The argument is that what we measure no longer reflects what we value as a society. The metrics guiding national policies and corporate investments focus narrowly on short-term financial value. We now require a longer-term perspective, a deeper understanding of value, new metrics, and human social and mental well-being.

GDP is the most well-known measure of economic activity, but it captures the financial value of goods and services exchanged. It is like an income statement that considers the financial value. It neglects anything external to the market, including environmental costs and social costs. This is a fatal flaw as the cost of climate changes monthly. The GDP neglects income and wealth distribution, which contributes to rising income inequality. It boosts populist leaders and diminishes trust in political institutions. It does not take into account the free digital services such as Internet searching, mapping, and social media. Likewise, it does not consider intangibles such as knowledge and data, hours worked, and life expectancies.

An interesting recent study has shown that although the per capita GDP of the UK is about 75% of the US, the UK citizens live 2% longer than Americans and the UK residents enjoy a third more leisure time than those in the US. After reasonable adjustments for such differences, overall well-being in the UK is estimated to be about 97% of the US level. Thus, the GDP measure suggests that the UK is far behind from the US, but when you take into account these broader metrics, the UK is just as good in terms of societal well-being and as just as happy.

There are new developments in terms of more appropriate metrics. One is the Genuine Progress Index (GPI). Now used in several states in the US, and in Finland and Canada, the GPI takes broader measures of social well-being explicitly into account. For example, if poverty rises, the GPI is higher.

Future of Emerging Markets

As a final megatrend, we should cite the continuing rise (and fall) of emerging markets. The latest global health pandemic certainly has had an adverse impact on their development. Many questions with respect to their future arise, including sustainability of their market reforms. We have addressed these in a review article for the 30th anniversary issue of the *International Business Review* (Cavusgil, 2021). A key question relates to whether we have glorified emerging markets. As international business scholars, we have not examined the dark side of emerging markets. Plenty of adverse developments paralleled the rise of emerging markets. A notable one is the widening income gap between the ultra-rich and the poor, especially noticeable in autocratic, corrupt regimes. Human rights violations and the plight of refugees are other concerns. As an example, tens of thousands of refugees from El Salvador, Guatemala, and Honduras have been trying to get into the US through Mexico. In their native countries, they live below the poverty line and are

exposed to many atrocities. Repression of labor unions and workers is common, and curtailed freedom of expression, anti-competitive practices, and environmental degradation are rampant. Scholars ought to consider these broader repercussions of the development of emerging markets. Good things have happened, as we have studied in the case of the rising middle class and, very importantly, what that does to society, but it is also important to consider the dark side of the evolution of emerging markets.

To conclude, the study of megatrends ought to be an ongoing preoccupation for international business scholars. Planning for future is effective to the extent we are able to anticipate the watershed events down the road and comprehend their implications for business.

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Part II

Entrepreneurship Trends

Trends in International Entrepreneurship

Nicole Coviello

Thank you for being here today. I was asked to share my thoughts on trends in international entrepreneurship. This is a good opportunity for me to step back and think a little, and then look ahead in terms of research that might be interesting for the field as we move forward. In terms of an agenda, I want to remind us of what the IE domain is. I will then look back and look forward at what might be opportunities for research by considering the current state of IE and what we might learn from research in entrepreneurship in particular. I also have a few thoughts to share on the issues of process-related research, the terminology or language we use in IE, and the types of firms we study.

The Domain of IE

In terms of the domain of study, IE is the love child, shall we say, of international business (IB) and entrepreneurship. And that sounds like it might be a simple set of relationships, but it's absolutely not. IB is made up of so many different disciplines, and we come to it with different lenses. For example, I tend to wear a marketing and strategy lens, while others are more management-trained, or from finance, and so on—but we bring our 'other' disciplinary lens into the study of IB. We're bifocal. Entrepreneurship is the same. Some people

N. Coviello (✉)
Wilfrid Laurier University, Waterloo, ON, Canada
e-mail: ncoviello@wlu.ca

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_3

have come out of the SME literature into entrepreneurship, or from innovation, strategy, economics, tech management, and so on. Then, when IB and E come together to form IE, we have a pretty exciting and diverse area.

For me, that has always provided opportunities because I try to look at IE phenomena through my different lenses. That's not the easiest thing to do, and I often wish I was more of an expert in one discipline (e.g., IB). But if I were that person, I think I would miss the benefits of also having a foot in entrepreneurship, and another foot in marketing, and another foot in strategy. I think I have too many feet there! But that's the beauty of working in international entrepreneurship. There's a lot of scope for different types of researchers and their research.

Looking Back

I'm going to take a moment and look back to a paper that I did with Marion Jones and Yee Kwan Tang that was published in the *Journal of Business Venturing* (Jones et al., 2011). We reviewed over 600 articles and identified 323 that fit the domain in terms of how we defined IE. This was, I think, the first really big and encompassing review of the domain. That paper has been a game-changer for me in many ways, in the sense that, as an editor in this area, it's helped me develop a very good understanding of where the field was at that point in time. It has also provided a foundation as I moved forward.

At the time we finished the review (i.e., 2009), we had identified 222 papers about what we called 'entrepreneurial internationalization.' Another 78 studied entrepreneurship across different nations or different cultural contexts. We called that 'cross-cultural entrepreneurship.' And there were 23 papers that combined a cross-cultural interest with entrepreneurial internationalization. Then, and now, the dominant group of research in IE focuses on entrepreneurial internationalization.

If I focus on that area for a moment, at the time, there were 96 papers focused on internationalization, trying to understand the patterns or processes of internationalization for firms that went abroad very soon after founding. They also started to learn about what influenced early entry to foreign markets. Another group of papers began to tease out what an international new venture (INV) was, relative to a domestic new venture. Born globals (BGs) and micro multinational enterprises were also beginning to be understood, moving us away from just studying INVs at a general level. This led to a more refined understanding of the different types of organizational form that might be an INV. Related to that, we saw 34 studies about organizational

issues pertaining to early internationalization. Examples include research on the role of entrepreneurial orientation, market orientation, knowledge, and capabilities. And we started to assess the performance of INVs. One of the earliest, although smaller, areas pertained to networks (23 studies).

The smallest stream of research in 2009 (n = 15) was the one that actively integrated insights from entrepreneurship. It included studies on the entrepreneur, opportunity, and opportunity recognition. Of these, only nine (of 222) focused on 'the entrepreneur.'

That's my jumping-off point here because I wanted to acknowledge that, as of 2009, there *was* some nascent work on the international entrepreneur. That is, not the firm, not the INV, but the person. The emphasis in these studies was on demographics, what the entrepreneurs knew, and what they perceived about certain issues. One example uses the classic paper from Reuber and Fischer (1997) on international experience. Nordman and Melén (2008) look at combinations of technical and market knowledge, while Perks and Hughes (2008) and Ruzzier et al. (2007) start to integrate issues regarding risk tolerance and risk perception. To me, these are fairly 'tip-of-the-iceberg' assessments of the entrepreneur, but these authors recognized that entrepreneurs are actually the ones driving the firm and the firm's actions. The firm doesn't do that—people do. This is a message I have been trying to communicate (cf Coviello, 2015), but it wasn't a strong theme in IE for some time.

I also want to note another review paper that came out soon after ours. It was from De Clercq et al. (2012) and focused on knowledge and learning research in IE. One of the very interesting areas for research that they flagged as under-explored was the interplay between learning and emotion at the level of the individual entrepreneur. This takes us beyond, for example, what the individual might 'know' (e.g., market knowledge) to something deeper. De Clercq et al. (2012) asked some really interesting questions. For example, they wondered how social and emotional processes or the dimensions of those parts of the international entrepreneur might affect how they learn and what they learn. And maybe even when they learn. Also, they wondered how those dimensions might interact with different types of knowledge acquisition. They also asked another question: How does this fit with Cardon et al.'s (2009) work on entrepreneurial passion?

These types of questions are interesting to me because, again, they push us beyond a surface-level assessment of the entrepreneur to dig deeper into emotional characteristics and what that means in terms of an individual being an international entrepreneur. Quite frankly, I also wonder if at this level, an international entrepreneur is any different from a domestic entrepreneur. I

don't know. But my point here is that De Clercq et al. (2012) were encouraging us to dig much deeper into the entrepreneur as a person.

Moving ahead, since 2009, ie-scholars.net has identified and categorized another 753 IE publications; publications covering all the areas identified by Jones et al. (2011). This means that at the end of 2020, there were over 1000 papers published in the IE domain. I would also add that those are the papers that fit the Jones et al. (2011) definition of IE. This means that the numbers exclude papers focused on innovation management or tech management in the context of internationalization, and they exclude research pertaining to another entire domain: immigrant entrepreneurship. The numbers also exclude studies on SMEs that don't incorporate entrepreneurship theory nor assess, for example, entrepreneurial behaviors. That's because Jones et al. (2011) argue that if your research is positioned to IE, it should combine theory, insights, and foundations from both entrepreneurship and international business. Further, if you study, for example, SMEs or MNEs, that is simply a type of firm that provides the organizational context of the study. And the SME organizational context does not mean that the paper is about entrepreneurship.

Recent IE Research

According to the annual summary of IE research from ie-scholars.net, 82 papers were published in 2020. I want to quickly go through some of the topics that emerged last year because it might help us understand the current state or 'feel' of IE research. And we can see areas that are emerging.

Some topics are quite 'traditional' in that they are about networks, social capital, and knowledge. You might ask: Why do I consider these topics traditional? Well, research on networks has been around since the early days of IE in the early 1990s. And it's since been refined with a closer look at theory pertaining to social capital. IE research on knowledge was not far behind. Another somewhat 'traditional' topic is effectuation. Yes, this is a contemporary decision logic in entrepreneurship, but remember that it dates back to 2001 and has, over time, received quite a lot of traction in IE research.

We also saw in 2020, five new review papers. Five in one year! There are a lot of review papers in IE—and probably, too many in my opinion At this stage, unless it's a general review that updates Jones et al. (2011), I think it would be more useful to the field to have more topic-focused reviews. A good example is the work by Mainela et al. (2014) on opportunity, or by Kiss et al. (2012) on emerging economies.

Separate from review papers, there has been a call, for some time, in both the IB and entrepreneurship literatures for a better understanding of institutional influences and emerging economies. Based on the 2020 IE publications, we are beginning to see more of this (e.g., Pinho & de Lurdes Martins, 2020 or McCormick & Somaya, 2020). There is also an emerging theme on international social entrepreneurship that should be noted (e.g., Galkina & Yang, 2020; Eng et al., 2020).

Of particular interest to me are the efforts I see to go beyond the influence of an entrepreneur's basic demographic characteristics. On that topic, I see a clear difference from the types of research we reported in Jones et al. (2011). In 2020, there was research on emotional intelligence (Quintillán & Peña-Legazkue, 2020), behavioral competencies (Cortellazzo et al., 2020), personal goal orientations (Domurath et al., 2020), and socio-emotional goals (Basly & Saunier, 2020). Such studies are markedly different from the early examinations of demographics, types of knowledge, and risk perceptions. We also see a very nice body of work that's been led, in part, by Mikael Hilmersson and Martin Johanson (cf Hilmersson & Johanson, 2020). In the last few years, they have focused on unpacking post-entry patterns, processes, and the various dimensions of speed as they relate to internationalization. This is a topic that really needed clarification, so I'm pleased to see that happening.

Probably the biggest difference that I see in 2020 is recognition of the technological shifts in our world. There are two subthemes that appear. The first pertains to digitalization. We have IE research on, for example, the internationalization of apps (Shaheer & Li, 2020), international digital competence (Cahen & Borini, 2020), digital international entrepreneurial experience (Dillon et al., 2020), digital marketing capabilities for international performance (Wang, 2020), and management of digital platform risks for INVs (Jean et al., 2020). There is also the JIBS commentary paper I wrote with Sinead Monaghan and Esther Tippman (Monaghan et al., 2020); it builds a research agenda for studying the internationalization of 'born digital' firms. That's six papers alone in 2020 that recognize the importance of the digital context to IE. The second subtheme pertains to new research on additive manufacturing—a favorite area of Martin Hannibal that is finally coming to fruition (cf Hannibal, 2020).

So that's a quick summary of where we were in 2020. But I'd like to return briefly to the 'domain' of IE and in particular, one side of the parenting team in IE: entrepreneurship. What can we learn from new research in that discipline?

Insights from Entrepreneurship Research

Scholars in entrepreneurship continue to unpack the influences of not only the entrepreneur, but 'the team' of entrepreneurs that found and/or lead an organization. I want to highlight 'the team' because I don't think we pay a whole lot of attention to the 'team' in IE research. I find this interesting because, for the most part, when firms are getting off the ground, they do so because there's a team in play. Of course, there is IB research on the top management team and we incorporate those ideas into IE, but again, we tend to assess their demographic characteristics as a proxy for the nature of the team (following Hambrick & Mason's, 1994 upper echelons arguments). But just as we consider the entrepreneur as a person, we need to consider teams as people that are more than demographics.

Entrepreneurship scholars are also very good at developing scales. And over the years, they have developed some that might be relevant to us: (1) opportunity evaluation (Scheaf et al., 2020), (2) passion (Cardon et al., 2013), and (3) fear of failure (Cacciotti et al., 2020). I want to highlight the latter because that's not a topic we have considered much in IE despite knowing that failure is part of entrepreneurial internationalization. However, all three sets of measures could inform IE research.

Entrepreneurship researchers are also pushing forward regarding methods. I'll comment on this because IE methods haven't changed a whole lot in the many years since Coviello and Jones' (2004) review paper on the topic. Basically, we do surveys, we do case studies, we do depth interviews. But typically, these methods are used to capture a descriptive history of what's been going on in an organization or with the pattern of internationalization. And there's a common emphasis on stages of activities depicted in a life cycle model. Certainly, that's the easiest way to communicate what happened with a firm over time, but it doesn't capture much in the way of the messiness of internationalization.

I'll talk about two methods that are receiving attention in entrepreneurship. The first is not new but I think it's highly relevant: narrative analysis. The second is fuzzy set qualitative comparative analysis (fsQCA).

To start, what have we done with narrative analysis in IE research? Not a lot. I will go back to 2006 when Buttriss and Wilkinson (2006) wanted to understand how entrepreneurs interpreted internationalization as a form of innovation and entrepreneurship. They used narrative sequencing to do so. Also, Fillis (2007) studied creative entrepreneurs, arguing that because successful entrepreneurial practice is not linear, you need a nonlinear method,

that is, the study of narrative. More recently, Korhonen (2020) studied how founders constructed how they viewed and understood their experience as international entrepreneurs. And again, she used narrative analysis. We can also see arguments around narrative in the work of Jones and Casulli (2014).

Narrative analysis is a way of looking at the story of the entrepreneur: how they understand themselves and what they're doing, their firms and the markets that they're in. We haven't really paid enough attention to this in IE. In my opinion, that's because when we do case research or depth interviews, we get caught up in moving away from the richness and the messiness of the stories to try and tightly organize them into staged depictions of what a firm did. Personally, that's what I've always done. However, I'm realizing that although it was useful and informative, it is just one way to tackle the depth of inductively generated data and trying to understand that international entrepreneur as a person. So if you consider yourself to be a qualitative person, get a little more creative, move away from depth interviews, move away from case methods. Try something else. Narrative analysis could provide you with a nice methodological opportunity.

What about fsQCA? This technique is increasingly used in both entrepreneurship research and management research, and a little in marketing and strategy. To get up to date on it, there is a review paper by Kraus, Ribeiro-Soriano, and Schüssler (2008) and another from Douglas et al. (2020) showing how to use fsQCA to get a finer grained understanding of entrepreneurship. And what they do in this particular paper is they re-analyze an earlier study but with fsQCA—I think it's a really smart way to demonstrate how useful it can be. Where we *don't* see fsQCA so much is in classic IB research, although I might be wrong on that. But it's not as obvious to me.

What does fsQCA involve? As you will read in Kraus et al. (2018), fsQCA is a method developed to obtain linguistic summarizations from data that are associated with cases. It's good for small-n studies, that is, when you have too many cases for traditional qualitative analysis and too few (e.g., 10–50) for traditional statistical analysis. Douglas et al. (2020) present it as an inductive way to find the conditions common to cases with a particular configuration, and these conditions are distinct from those with other configurations or pathways to a given outcome. So how might this be helpful? Maybe you have a whole bunch of cases that warrant examination or even reexamination with fsQCA. Or if you have 40 or 50 depth interviews, you can do something with them other than basic content analysis—this is maybe where fsQCA can help. Let's say your outcome of interest is 'early internationalisation.' fsQCA will help identify the different antecedents or conditions that lead to different configurations of internationalization timing. It also offers a holistic

perspective of what types of firms fit in each of those configurations and how you might actually have an equifinal outcome. That is, lots of different 'types' of firms might all internationalize early.

I think many reviewers consider fsQCA as more robust and more clinical than a traditional qualitative analysis. Maybe it is, but to me, the real asset is that fsQCA provides another way of looking at the data. The more ways we look at the data, the better. I am a pluralist researcher, so I tend to look at data with multiple lenses, in the same way that I look at topics with multiple theories. So if I could put survey data together with case data together with fsQCA, that would be great. Or take out the cases and use the fuzzy set plus survey data to run structural equations, and then maybe do text analysis. Also great. In these examples, you'll get a triangulated approach where between the three different lenses, you'll get some version of the truth in the middle.

What do we see in terms of fsQCA in the IE literature? So far, I see three types of research using this technique. One appears to be led by Beynon et al. (2020 and earlier). I'm not familiar with these scholars, but they focus on country comparisons of entrepreneurship, that is, Type B in the ontological classification from Jones et al. (2011). Another type of research combines structural equation modeling with fsQCA (e.g., Hernández-Perlines et al., 2016; Skarmeas et al., 2016). A third use of fsQCA is to study, for example, global mindset and internationalization (Felício et al., 2016), attitudes and cognition as antecedents of early internationalization (Ciravegna et al., 2018), and different configurational recipes for international performance in born globals versus SMEs (Hughes et al., 2019).

In sum, fsQCA seems to be an interesting method that we should be paying more attention to and learning more about in international entrepreneurship. And this leads me to thoughts on process.

Thoughts on Process

When we work with any sort of data—and I see this a lot in IE—we tend to describe what happened or we try to capture some sort of process by virtue of depicting stages of activity, or stages of internationalization, or stages of development or growth. As soon as you get into describing history or looking at stages of activity, you are studying process.

But too often IE research on process is explained in a very simple way or it's not really even explained at all. The authors just say they're doing process research and that's it. And I think there's more that we can do there. So I want to go back to Andrew Van de Ven's thoughts on process theory, and his

fundamental 1992 paper (Van de Ven, 1992). There is also Van de Ven and Poole (1995). I encourage you to read both.

First of all, as a scholar, you need to define the meaning of process for your research. That is, ask yourself if you are using it as a logic to explain a causal relationship between x and y. An example is if you study the impact of entrepreneurial orientation on early internationalization. That's a type of variance-based process research. Or are you describing and analyzing the actions of individual or firms? Or are you trying to present and assess a sequence of events that describe how things change over time? Most of the IE research we see falls into either the first or third type of process research described by Van de Ven (1992). Regarding the latter, if you are studying change over time, it's really important to understand what theory or theories of process you're drawing on. That's because there are four process theories that could be at work.

Yes, life cycle theory is relevant. And that's what we see with, for example, early work from Johanson and Vahlne (1977) and their stages model of internationalization. That research and others that build on it are generally framed—intentionally or unintentionally—with life cycle process theory. But there are other theories too: the teleologic, dialectic, and evolutionary views of process. For example, teleology is where you have a starting point, and you kind of know where you're hoping to end up, but you really don't know how you're going to get there. And that's a true experience for international entrepreneurs. They don't necessarily think in stages, they tend to think teleologically. And along the way, they run into all sorts of crises. That's when the dialectic theory is relevant and emphasizes events or actions that collide or create a crisis. If you're looking back at what happened to a firm over a long period of time, through retrospective data, you might capture a tidy story of the so-called evolution. However, depending on how the research is done, you might only be skimming the surface of what was reported to you. That is, you might have missed evidence of teleology and/or dialectic interactions and their synthesis and resynthesis. You might even have presented it as a life cycle story because that's an easy way to communicate evolutionary development. But this is unlikely to be sufficient or tell the whole story. The same applies to a surface-level depiction of 'evolution.' It's not doing enough justice to international entrepreneurs and to IE research.

I'm making these comments based on my own experience but also some insight that came from writing a paper with Valtteri Kaartemo and Niina Nummela (Kaartemo et al., 2020). This was based on Valtteri's dissertation, and we present a 'kaleidoscope' view of process theory. Let me explain. If you think of process theories as four elements of glass in a kaleidoscope, every time you turn that kaleidoscope, you get a different view of process. It's very

illuminating in terms of what you see when you're looking at the phenomenon in question. So if you apply all four process theories to your phenomenon of interest, you will see different things than if you just use one, two, or three lenses. And depending on how you combine those lenses, yet other findings will emerge. As a result, I really encourage researchers to understand and work with the various theories when considering their process research.

Terminology

When it comes to the terms we use in IE, I think this field is still in a conceptual and empirical mess. As you may have heard me say or write before (e.g., Coviello, 2015), I believe that Knight and Cavusgil (1996) popularized the term 'born global' without considering the implications of using that term to describe the types of firms they were reporting on. As marketing professors, they knew they had a great name and ran with it. But today, so many of the so-called born-global (BG) studies ARE NOT. They are more typically studies of INVs that happened to internationalize early. What I'm trying to say is that not all INVs are BGs, and the BG is a type of INV. Also, referring to 'INV/BG' is misleading. Let me explain.

Cavusgil and Knight (2015) remind us that a BG is a young firm that is active internationally with early export sales. There are a number of important points in this definition to note. First, international is not the same as global. Second, such firms are active through early export sales. I make this point because the measurement of export sales is much narrower than Oviatt and McDougall's (1994) definition of an INV and their discussion of firms coordinating multiple value chain activities across borders. Further, Cavusgil and Knight (2015, pp. 4–5) note:

> *While 'born global' is more evocative, 'international new venture' is more accurate in some respects since few early internationalizing firms develop 'global' footprints; rather they limit their export activities to a limited geography.*

In my opinion, if a firm is 'born' 'global,' it should be founded (born) with the intent to sell globally, that is, not to regional or international markets, but to the global market. And it should do so from founding. As discussed in Coviello (2015), this is rare, and as such, the firms we study in IE are better referred to as INVs that may have been born international or born regional, or just be early internationalizers (etc.). Indeed, many INVs might be best referred to 'early internationalizers' if, for example, you don't know what the

founder's intent was but, for some reason, started to serve international markets soon after founding.

Please be careful when you're using these terms before you label a firm as a 'born global.' Try to understand the intent for expansion, the scope of expansion, entry timing, and whether or not you are assessing export sales or a wider range of value chain activities.

Firm Type

I wrote a paper in 2010 with Yanto Chandra (Chandra & Coviello, 2010). We presented the argument for understanding consumers as international entrepreneurs. These are people like you and me, who discover, enact, evaluate, and exploit international opportunities. Thus, we are international entrepreneurs, but we do so from the position of being consumers. Our framework depicts four different types of consumers as international entrepreneurs. As one example, I could be selling internationally through eBay or Etsy. Or I could set up a business through Shopify and sell, for example, art internationally. I could also outsource my skills. Let's say I wanted to become a copyeditor. I could sign up to freelancer.com and become an international entrepreneur using my editorial skills. I could also join Prosper or Lending Club and be a peer-to-peer lender, that is, an international financier. Or I could be an international innovator and producer by working with a company like Innocentive. I find this topic increasingly interesting as we get more and more digital. I'm surprised more people aren't studying the area—especially given many of you might be international entrepreneurs in this typology or know someone who is.

Considering technological advancements, I also encourage us to make further distinctions regarding firm type. Hennart (2014) starts to do this in his discussion of how firms with a certain type of business model are 'accidental internationalists.' Interestingly, he uses Atlassian as his primary example of this type of firm because their business model facilitated early and rapid internationalization to many markets. But using the term 'accidental' seems to imply there was no intent by founders to internationalize. And my understanding of Atlassian is that the co-founders built software to sell to the world. A better example might be Shopify because it *was* an accidental internationalist. Although the nature of their business model let them sell internationally from the outset, the management team did not think seriously or strategically about international strategy until nearly 14 years after founding (personal conversation with L. Padelford, VP Revenue at Shopify, 2018). Both Atlassian and Shopify are 'born digitals' (Monaghan et al., 2020). The fully digitalized

nature of their business changes internationalization. Some firms might be 'accidentally' international, while others are not. Certainly, many born digitals are founded with the intent to serve multiple foreign markets quickly because they need to, and they can (because of the digitalized nature of the business). One example is Duolingo, given their business model relies on user participation from the global market. There are two points I'd like to make here. First, we again need to be careful about how we label firms and so I use Hennart (2014) with caution. Second, I'm excited as a scholar of international entrepreneurship because of the opportunities we have to revisit extant theory and uncover new behaviors (and theory) in these new types of firms. Happily, I see that interest also reflected in some of the new IE research coming down the pipeline.

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IGOs and Entrepreneurship: Understanding the Impact of Policy Compliance on Formal and Informal Entrepreneurial Activity

Elizabeth M. Moore, Luis A. Dau, and Kristin Brandl

Introduction

Globalization, coupled with recent economic and health crises (e.g., the 2008 financial crises and the COVID-19 pandemic), has resulted in the rise of two concurrent yet opposing forces: (1) strengthened intergovernmental organizations (IGOs) and (2) protectionist and nationalist measures. Indeed, as seen particularly through the lens of the pandemic, governments, businesses, and individuals alike are all grappling with a new normal in light of these new megatrends such as waves of innovation, digital revolutions, changing migration patterns, and so on (EY, 2020; McKinsey, 2021). Although seemingly contradictory, an often-observed phenomenon is that during times of crises, protectionist (and nationalist) sentiments run high as do the opposing call for a global solution to challenges. For example, the recent surge in global problems has reinvigorated a discussion surrounding the efficacy and benefits of IGOs and the collective action of organizations that create supranational rules and regulations. In order to combat increasingly global problems, such as terrorist activities (Abrahms et al., 2019), health epidemics like the COVID-19

E. M. Moore • L. A. Dau
Northeastern University, Boston, MA, USA
e-mail: e.moore@northeastern.edu; L.Dau@northeastern.edu

K. Brandl (✉)
University of Victoria, Victoria, BC, Canada
e-mail: kbrandl@uvic.ca

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_4

pandemic (Dau & Moore, 2020a, b), and the economic collapse like the 2008 financial crisis (Dau et al., 2016), IGOs are once again becoming a point of conversation and interest among states grappling with problems that do not stop at national borders. While IGOs operate with the intention to interstate cooperation and collective action for solving global problems, they are unique in that they carry their own set of bylaws, rules, and regulations. As these organizations continue to permeate across the globe, countries willingly consent portions of their sovereignty to participate (Bohman, 1998; Cronin, 2002; Frenk, Gómez-Dantés, & Moon, 2014). In doing so, they commit to aligning their interests with the missions and objectives of the organizations (Finnemore & Barnett, 2004; Iriye, 2004), which aims to promote stability, development, and security for states in all sectors ranging from economic, political, to militaristic levels (Bearce & Bondanella, 2007; Boehmer et al., 2004). As a result, they impact both member states and the actors within them, such as businesses and entrepreneurs (Dau et al., 2018; Moore et al., 2019, 2021), by inciting and encouraging, and even mandating change and alignment. Thus, while there is a rich tradition of analyzing the impact of IGOs on state cooperation and behavior, there is a need to understand how IGOs impact the economic conditions of member countries given that the economy is a focal point of many IGOs.

Entrepreneurship and economic literature suggest that institutional and contextual environments impact new venture creation and activities (Dau & Cuervo-Cazurra, 2014; Dau, Moore, & Bradley, 2015; Dau, Moore, & Kostova, 2020; Moore et al., 2020, 2021). Scholars have long suggested that entrepreneurship is a vehicle of long-run economic growth and development and that in times of crises, entrepreneurship can be a critical facet of economic rebound. Traditionally, these studies have focused on formal entrepreneurship and business within the economy that are formally registered within the regulatory parameters of a country (Acs, Desai, & Klapper, 2008; Acs & Karlsson, 2002). Although there is an increase in interest in understanding what motivates informal economic and entrepreneurial activity, there is still a relatively limited understanding of how supranational forces influence the growth and relationship between the formal and informal business sector (c.f. Moore et al., 2021; Thai & Turkina, 2014). While extant literature suggests that economic and institutional environments, existing policies, and available resources impact levels of entrepreneurship (Bruton et al., 2010; Wiklund et al., 2011), there has been limited focus on how macro-level factors influence the relationship between new formal and informal entrepreneurial activities. We argue that because of the concurrent rise of both IGOs and the need for economic revitalization, it is essential to understand how IGOs, and their

regulations and policies, influence economic vitality and the interplay between formal and informal entrepreneurial activities. This is critically important as IGOs aim to facilitate international businesses by reducing transaction costs between member states (EY, 2020).

Thus, the purpose of this chapter is to examine the effects of IGOs, specifically the Organization for Economic Cooperation and Development (OECD) and the European Union (EU), on the development of the formal and informal entrepreneurial activities across European countries, with different levels of economic development. In particular, we examine Ireland and Latvia as examples on the two ends of the development spectrum among EU countries. We illustrate and conclude that IGOs and their related policies and programs have important influences on formal and informal economic activities within countries; the higher levels of compliance and economic development allow for the fuller benefits of IGOs to have a positive impact on the formal institutional supports in a country that promotes formal entrepreneurial activities. Conversely, when countries have lower levels of compliance with IGOs and have lower relative starting levels of economic development, informal entrepreneurship is more likely to flourish and the informal sector is more competitive. We highlight the different impacts that IGOs have on formal and informal entrepreneurial activities within countries with different levels of economic development and policy compliance. We draw these conclusions based on the understanding that compliance with IGOs, level of economic development of a country, and the transitive impacts of these factors on business activities are iterative and co-evolutionary processes. From this, we also create a foundation for understanding how IGOs, like the EU, can also facilitate the acceleration of international entrepreneurship across borders through the standardization of policies and regulations, and the reduction of transaction costs.

This study helps to bridge the conceptual and empirical gap between our current understanding of IGOs, policy compliance, and the relationship between the formal and informal economic activities within countries. Further, we tease out different institutional structures that shape and motivate different types of economic activity with respect to the economic development level of countries. These insights are not only important for academia, but they also offer important insights for policy makers that are facing increasingly difficult decisions regarding IGO membership and compliance and practitioners that are grappling with the challenges of formalizing or not.

Conceptual Underpinnings: IGOs, Policy Compliance, and the Formal Versus Informal Economy

Intergovernmental Organizations

The traditional concept of the independent state changed with globalization and the calls for a global community that collectively solves problems (Alesina et al., 2000; Bohman, 1998). However, the resulting interdependency also means that economic crashes, pollution, health epidemics, capital, goods, and people can, and do, cross borders quicker and easier than ever before (Christmann & Taylor, 2001; Stohl, 2004; Mahtaney, 2013), as also evidenced by the COVID-19 pandemic. To understand these connections, international relations scholars and practitioners have a rich history of examining and theorizing the possibility of a global community and cooperative actions between states (Keohane & Nye, 1997). This research suggests that when facing uncertainty and anarchy, states often forego portions of their sovereignty to combat collective problems. Although competing paradigms (e.g., realism, which is a paradigm built around the idea of 'real politik,' suggests that because states are unitary actors and exist in a competitive environment, they can only rely on themselves) in the international relation literature may see less cooperative engagement, the current global political landscape has been marked with a rise in IGOs and interdependencies between states and nonstate actors. As the world becomes more interconnected, markets and governments converge their interests toward a collective good and increased levels of standardization of rules and regulations (Fang & Stone, 2012; Merlingen, 2003; Snidal, 1992). The result is a larger global community with more actors. Thus, both the formation and functional range IGOs have continue to increase and result in increased supranational rules and regulations (Reimann, 2006; Sending & Neumann, 2006; Steinman et al., 2000). As a consequence, resources, knowledge, and structures provided by IGOs are seeping deeper into individual nation-states (Henisz et al., 2005). Especially for states with lower regulatory quality and capacity, these boundaries are even more penetrable (Reimann, 2006). These IGO policies can influence economic activity, such as innovation outputs (Brandl et al., 2019).

They facilitate cooperation between all member states (Ingram et al., 2005; Merlingen, 2003; Snidal, 1992) and function to create networks that improve transparency and lines of communication and information between actors

(Johnson, 2011; Machida, 2009). Theoretically, they minimize risk and create an environment of trust between member states (Boehmer & Nordstrom, 2008). IGOs deal with a variety of problem sets ranging from political to legal, to economic, to militaristic (Fausett & Volgy, 2010) and encounter each type of conflict with the intention of creating stability and security among involved nations by acting as a third-party facilitator (Alcacer & Ingram, 2013; Babbitt, 2012; McCormick, 1980). They are not unitary (Adler, 2008; Risse, 2004; Suchting, 1992), and when states join multiple IGOs, that is, the European Union (EU) and the OECD, they are expected to follow and uphold the rules of all IGOS before they can attain the benefits of membership.

Policy Compliance

As IGOs are formed with the intention of solving international problems that cross state boundaries (Fausett & Volgy, 2010; Volgy et al., 2008), member states deal with challenging supranational questions (Taninchev, 2015; Rey & Barkdull, 2005). They create frameworks for state behavior and set standards for member states to uphold (Boehmer & Nordstrom, 2008; Johnson, 2011; Machida, 2009). Thus, IGOs operate at the national level (Ingram et al., 2005; Merlingen, 2003) by offering programs and policy recommendations for states to follow, which ultimately encourage standardization of the domestic regulatory environments of IGO member states.

However, IGOs have also long been criticized, particularly by realist scholars (e.g., Morgenthau, 1948), for having a distinct lack of enforcement mechanisms. For example, although the WTO has clear and transparent charters, regulations, and structures in place, it can only suggest sanctions, rather than enforce them, which leaves obvious room for criticism. Thus, IGOs are critiqued for a lack of teeth and enforcement mechanisms of policies (Boehmer et al., 2004; Coicaud & Heiskanen, 2001; Donno, 2010); they shape states, and transitively individual behavior and economic activity. Thus, a critical mechanism through which IGOs influence economic activity within countries is through policy programming and the changing and shaping of domestic institutions.

Despite the reality that IGOs lack stringent enforcement mechanisms, however, there has been a marked rise of states joining IGOs in recent decades (Correlates of War, 2019). Scholars have examined a vast array of benefits of membership, including functional benefits like a large budget, training and education programs, cross-border flow of people and capital, and so on, and nonmaterial benefits like international cooperation, exchange of ideas and

cultures across borders, and the creation of new alliances and relationships. Moreover, scholars have focused similar attention on why states join IGOs. In addition to the material and nonmaterial benefits, research has indicated that states join IGOs to signal international compliance, as a result of pressure from regional and other allied countries, or to influence the supranational regulations and institutions themselves.

Despite this rich existing research stream, however, there has been surprisingly scant attention devoted to understanding the impacts of compliance or not, contingent on the level of economic development, on the business and economic environment of member countries. We argue that this compliance and acceptance of IGO policies and programming has important implications for the formal and informal business activities of individuals in member states.

Formal and Informal Economic Activity

Traditionally, entrepreneurship literature has focused on the creation of new formally registered businesses within a society (Wiklund et al., 2011; Gedeon, 2010). Simultaneously, the formal sector has received much more scholarly and practitioner-level attention, likely because studying it is more straightforward. Entrepreneurship is defined simply as the creation of new businesses and innovations (Lazear, 2005). Classically, entrepreneurship scholars suggest that entrepreneurs bring value to a society and propel economic growth and change (Schumpeter, 1946; Shockley & Frank, 2011). While the creation of formally registered businesses is undoubtedly an important facet of entrepreneurship, it is important to iterate that new businesses are also informally created and not registered (Fadahunsi, 2000). Indeed, this is an active choice that entrepreneurs must make. Although these decisions are influenced by the environment, they are not passive choices that happen to the entrepreneur. It can be influenced by the number of days required to start a business, the number of permits needed, the cost of starting a business, corporate tax rates, export and import times, the competition that exists within the home country, as well as other factors and barriers. Nevertheless, this primary decision an entrepreneur must make, the decision whether or not formalize, has lasting impacts on both his/her/their business and the economic environment.

Not surprisingly, there is a large body of literature that looks at the impact of formal and informal activities on the economic growth, vitality, and stability of a country. Many entrepreneurs, particularly in the developing world, see informal entrepreneurship as a way out of poverty. Because the process and

timing of formalizing is often a barrier, informal entrepreneurship presents itself as a valuable outlet for individual economic growth and prosperity without the institutional complexities and barriers. However, while individuals may benefit from operating informally, the results of informality on overall economic development and equality at the country level are less clear. Countless studies suggest that rises and surges of the informal sector relative to the formal sector can lead to economic stagnation, inequality, and lack of resources. Because informal economic actors do not replenish the resources they take out of the economy through taxes and legal registration, government and social services are often lacking in places where there is a strong ratio of informal to formal economic activity. Moreover, informal businesses and actors pose particular problems when it comes to competition because they do not have to comply with regulations regarding, patents, hiring, and so forth. Thus, understanding what shapes the balance of formal to informal economic activity within a country is essential to helping understand how to truly offer policy insights for economic growth and development. As such, further disentangling of the two types of economic activity is necessary to offer a holistic framework for understanding.

The Case of the OECD and the EU

Below we will illustrate the impact of IGO policy compliance (and noncompliance) on member states using two IGOs as examples, the EU and the OECD. We use two IGO member states that have different levels of development in order to outline the range of impact policy compliance/noncompliance has on different member states. We particularly focus on the resulting impacts on formal and informal economic activities. It is important to note that while we are focusing on the level of economic development and compliance with IGOs, there are certainly other factors that influence entrepreneurial decisions (e.g., regulatory quality, trade relationship, foreign aid, levels of taxation, etc.); however, we focus on these factors to highlight the connection between IGOs and entrepreneurship. Indeed, we further acknowledge that the relationships between IGOs and member countries, as well as those countries' levels of compliance and development, all co-evolve to influence entrepreneurship levels.

The EU is an economic union of 27 member states, predominantly located in the European area. It is an IGO with a series of policies and treaties, which member states have to abide by. These are power-giving policies and establish institutions with the necessary legal powers to implement them. These legal powers include the ability to enact legislation which can directly affect all

member states and their populations. However, national courts are required to enforce the ratified policies to align with the IGO (EU, 2021).

The EU has a variety of areas that are supported in member states, such as entrepreneurial activities. The EU's Entrepreneurship 2020 Action Plan was implemented in 2013 as a response to the world's economic transformations in previous years. Rapidly increasing demand and production in global markets has put pressure on resource and energy supplies, leading to changing cost structures for Europe's companies, many of which are dependent on trade. The aims are collective actions to initiate entrepreneurial activities and the removal of existing obstacles that revolutionize entrepreneurship in the EU. Investments into opportunities that enhance entrepreneurial activities change entrepreneurial opportunities, for example, via entrepreneurship education or support from groups that are underrepresented in entrepreneurship but are indispensable to create change. The Europe 2020 Strategy set out the foundations for future growth and competitiveness that will be smart, sustainable, and inclusive, and which would address our principal societal challenges. Correcting the problems of the past and putting the EU on a more sustainable development path for the future is a shared responsibility of all members. The Entrepreneurship 2020 Action Plan is built on three main pillars: (1) entrepreneurial education and training, (2) the creation of an environment where entrepreneurs can flourish and grow, and (3) the development of role models and the reaching out to specific groups whose entrepreneurial potential is not being fully tapped into (European Commission, 2013).

The OECD is an IGO with 38 member countries and was founded in 1961 to stimulate economic progress and world trade. It is a forum of countries describing themselves as committed to democracy and the market economy, providing a platform to compare policy experiences, seek answers to common problems, identify good practices, and coordinate domestic and international policies of its members. The OECD creates a variety of different policies that have to be followed, for example, the model tax convention that serves as a template for allocating taxation rights between countries. This model is accompanied by a set of commentaries that reflect OECD-level interpretation of the content of the model convention provisions. In general, this model allocates the primary right to tax to the country from which capital investment originates (i.e., the home or resident country) rather than the country in which the investment is made (the host or source country) (OECD, 2021).

Similar to the EU, the OECD has also unique entrepreneurship-focused policies. The Centre for Entrepreneurship, SMEs, Regions and Cities (CFE) helps local and national governments unleash the potential of entrepreneurs

and small and medium-sized enterprises (SMEs), promote inclusive and sustainable regions and cities, boost local job creation, and implement sound tourism policies. Entrepreneurs are drivers of inclusive growth, agents of economic stability and resilience, and engines of transformations and sustainable practices, and they contribute to the social fabric and individual well-being. Understanding these multifaceted contributions inspires innovative approaches to SME and entrepreneurship policy (OECD Entrepreneurship, 2021).

Ireland

Ireland is a founding member of the OECD (inception in 1961) and has been a solid member of the OECD budget for roughly 60 years. It is also an original member of the European Economic Community (EEC), established in 1957, and had ratified membership to the EU in 1992. Its participation in a variety of other IGOs, such as the World Trade Organization since 1995 and its preceding organization, the General Agreement on Tariffs and Trade, shows the high commitment of the country to supranational policies and to a global community.

Alongside the reality of Ireland's participation in the international community, particularly within Europe, it also has a rich history of compliance with IGOs. It shows high compliance with EU policies (EU Monitor, 2020) and has received high compliance marks for the past decade from the OECD, including also entrepreneurship programming and training initiatives. In addition, Ireland has experienced stable economic development and growth in the past two decades.

Relative to other OECD countries which have an average of 43,351-dollar gross domestic products per capita (GDPPC), Ireland boasts an average GDPPC of 75,648 despite its population being significantly less than the average of OECD states (OECD, 2020a; World Bank, 2020a). Further, while the average Human Development Index (HDI) of other OECD members is 0.904, Ireland has a ten-year average of 0.955 (OECD, 2020a). Moreover, it has democracy levels and economic freedom levels higher than both OECD and EU averages, with significantly lower corruption levels (Fraser Institute, 2020; World Bank, 2020b).

As a result of the high level of compliance and high levels of economic development, Ireland has lower levels of informal entrepreneurial activity and threat. Compared to the world average (50.3%) and the EU average (38.2%), Ireland experiences an average competitiveness percentage from informal firms of 33.8% (OECD, 2017a, 2018a, 2019a, 2020b). Moreover, when

asked if the informal sector poses a problem, Irish managers expressed only 7.3% fear compared to the world average of 28.6% and the EU average of 27.61% (OECD, 2017a, 2018a, 2019a, 2020b). This is further expressed by the levels of formal and informal entrepreneurship in Ireland. Since 2002, the level of informal entrepreneurship has dropped (on average) from 3.7–2.4, whereas the level of formal entrepreneurship has risen from 0.47–0.623 (OECD, 2017a, 2018a, 2019a, 2020b).

Although these metrics are only anecdotal and more evidence can help supplement our findings, our preliminary research indicates that there is a positive correlation between the high levels of compliance, economic development, and a strong formal economic sector. However, we hope other scholars also consider important issues like taxation levels, which are lower in Ireland, or language, which may make it a more desirable location for international entrepreneurs.

Latvia

Latvia is a relatively nascent member of the OECD since its accession in 2016 and has been a member of the EU since 2004, during the second full phase of accession. Although it is a relatively newer member, its increased membership in IGOs since the twenty-first century demonstrates the desire of Latvia to participate in the international community, also reflected in Latvia becoming a member of the World Trade Organization in 1995 without having been part of the General Agreement on Tariffs and Trade.

Alongside the reality of Latvia's participation in the international community, particularly within Europe, it also has a muddled history of compliance with IGOs. It has continually evidenced poor compliance with EU regulations (European Monitor, 2020) and has received medium/low marks for the past decade from the OECD's compliance standards, specifically with regard to the OECD's entrepreneurship programs and training initiatives.

Additionally, Latvia has experienced fluctuating levels of economic growth and development in the past two decades. Relative to other OECD countries, which have an average of 43,351-dollar gross domestic products per capita (GDPPC), Latvia experiences an average GDPPC of only 27,598 despite its population being significantly less than the average of OECD states (World Bank, 2020a; OECD, 2020a). Further, while the average HDI of other OECD members is 0.904, Latvia has a ten-year average of 0.86 (World Bank, 2020a). Moreover, the country reflects lower democracy and economic

freedom levels than both OECD and EU averages, with significantly higher corruption levels (Fraser Institute, 2020; World Bank, 2020b).

As a result of the low levels of compliance and economic development, Latvia also has higher levels of informal entrepreneurial activity and threat to the formal sector relative to other EU and OECD countries. Compared to the world average (50.3%) and the EU average (38.2%), Latvia experiences an average competitiveness of 50.3% from informal firms (OECD, 2017b, 2018b, 2019b, 2020c). Moreover, when asked if the informal sector poses a problem, Latvian managers expressed only 29.2% fear compared to the world average of 28.6% and the EU average of 27.61% (OECD, 2017b, 2018b, 2019b, 2020c). This is further expressed by the levels of formal and informal entrepreneurship in Latvia. Since 2002, the level of informal entrepreneurship has risen (on average) from 2.2–4.9, whereas the level of formal entrepreneurship has dropped from 1.18–0.466 (OECD, 2017b, 2018b, 2019b, 2020c).

Our preliminary research indicates that there is a positive correlation between the low levels of compliance, economic development, and a strong informal economic sector. However, we hope other scholars also consider important issues like taxation levels, which are higher in Latvia, or language, which may make it a less desirable location for international entrepreneurs.

Discussion

High Compliance and High Economic Development

The illustrative examples show that higher levels of compliance with IGOs indicate proportionally higher levels of formal economic activity relative to informal economic activity. When countries willingly comply with IGO regulations, institutions, and bylaws, they receive the benefits of IGO membership. This means that compliant countries receive benefits in the form of monetary assistance (help with budget), as well as training programs, instructional assistants, and policy aids. From a nonmaterial side, along with the education and training programs, states will be able to foster positive relations with other states; actively involve themselves in cross-cultural exchange; and share information, know-how, and policy advice among themselves and other member states. Moreover, compliant states typically also are more eligible for grants and other forms of monetary assistance as a result of adherence to regulations.

As it pertains to the OECD specifically, compliance means that entrepreneurs and economic actors within the country will experience the positive benefits of entrepreneurial programs, training efforts, and education objectives of the IGO. This will come in the form of interstate exchange, policy sharing, and summits. These programs are aimed at promoting inclusive entrepreneurial opportunities. However, we also recognize that the level of economic development matters. Because countries with higher levels of economic development are more likely to have formal economic activity than their less-developed counterparts coupled with high compliance, higher levels of formal to informal economic activity are evident.

The preceding logic leads to the following proposition:

Proposition 1: Higher levels of compliance with IGO regulations coupled with higher levels of economic development are likely to result in a dominance of formal over informal business activities.

Low Compliance and Low Economic Development

Conversely, the examples show that low levels of compliance have adverse effects on the formal economic sector of member countries. When countries fail to comply with IGO regulations, institutions, and bylaws, they forgo the positive benefits of membership. Moreover, it is important to note that noncompliance typically results in a lack of receiving both the material and nonmaterial benefits. From a material side, noncompliance implies that states do not receive training programs and education initiatives. Further, it likely means that they will not receive monetary forms of development assistance or budgetary aid that typically comes with compliance and adherence to the norms and rules created by the IGO.

Specifically, within the OECD, entrepreneurs and actors within the country do not experience the positive benefits of the entrepreneurial programs and initiatives offered by the OECD, such as entrepreneurship exchange programs, summits, help with navigating tax systems, and assistance with cross-border functions, if the state is not complacent. These programs and inclusive entrepreneurship initiatives are created with the intention of fostering holistic and inclusive entrepreneurial opportunities, particularly to marginalized communities, through the use of social ecosystems and networks. However, when countries do not comply with the laws and budgets of the IGOs, they do not receive the capacity, resources, or benefits of these programs. This results in a lack of knowledge about institutions and regulations and thus does not

motivate individuals and businesses to participate in the formal sector. As a result, when countries do not comply, we expect to see heightened levels of informal activity and competition. Moreover, we argue that when countries have lower starting levels of economic development, it is more likely that the informal sector activity will be higher as a result of the (1) individual desire to escape poverty or economic disenfranchisement and (2) the difficulties associated with formalizing in lesser-developed countries.

The preceding logic leads to the following proposition:

Proposition 2: Lower levels of compliance with IGO regulations, coupled with lower levels of economic development, are likely to result in a dominance of informal over formal business activities.

Conclusion

We set out to study the impact of IGOs on formal and informal economic activity in differently developed countries. We connected the differing levels of IGO compliance with the development level of the country, particularly focusing on policy-related stability of the country. Then, we considered how the compliance/noncompliance in these different environments impacts formal and informal entrepreneurial activities. We assert that IGOs have a positive relationship with formal entrepreneurship and formal economic activity in highly developed countries that also comply with IGO standards and a negative relationship with formal entrepreneurship and economic activity in least-developed countries with low levels of compliance with IGOs. These impacts are a result of the training and programs offered that support entrepreneurial activities, experienced as a result of compliance.

Considering that the world is facing increasing global problems stemming from global health epidemics, international terrorism, or global economic crises (Abrahms et al., 2019; Dau & Moore, 2020a, b), collective global problem-solving is currently of significant importance. Thus, IGOs are on the rise to combat these global challenges (Moore et al., 2019). This study sheds light on the impact of IGOs on the economic environment of countries. It particularly takes the country context into account and considers the stability of the country, its economy, and policy strength, a needed nuance that provides a novel perspective to the IB field. IB literature has only limited insight on the impact of IGOs on business environments, let alone in relation to the level of economic development. The gained benefits from this

perspective allow insights on the impact of IGOs on the business environment broadly, and formal and informal entrepreneurship specifically.

Although this study contributes to entrepreneurship and international relations literatures, there are several limitations that can be identified and built upon in future research. First, we use illustrative cases to support our arguments and evidence the impact of IGOs on countries with secondary data from the OECD, EU, and World Bank. These cases allow us to illustrate some impacts of IGOs on the countries, but we acknowledge that it is inherently difficult to measure precisely how states are impacted by IGOs. Future research could expand upon the measures of IGO involvement by attempting to measure the depth and weight of this involvement. Moreover, we chose two sample IGOs, due to their connection to the business environment and potential entrepreneurial activities within countries. We acknowledge that this selection is restricted and provides merely a limited insight into the impact of two IGOs on the business environment. Further evidence is needed to make a more thorough assessment of the impact of IGOs on the economic environment. For example, the EU and OECD do not have much of an impact on the defense industry, but this is a rather large economic sector for many countries. Thus, future scholars could expand the scope of assessed IGOs. Second, this research identifies patterns about IGO influences on entrepreneurship, while accounting for country and environmental contexts. We use country developments as a factor that influences the impact of IGOs on member states and entrepreneurship. Future scholarship could build upon this study by adding subsequent moderators that account for a country's institutional profiles that influence entrepreneurship. This conversation may be of particular utility to scholars who look at the differences between formal and informal entrepreneurs in connection with the motivations that lead to the two types (e.g., opportunity vs. necessity), since these differences can often be observed across countries of different development levels. Third, the purpose of this study is to understand the outcomes of IGOs. As a result, we were able to dissect the differences in the ways that formal and informal entrepreneurs respond to IGOs. Scholars could expand upon this research by examining alternative international organizations, such as international nongovernmental organizations, that also help frame supranational institutions. Moreover, as argued in our research, IGOs reduce transaction costs between actors within and across states. While we focus on impacts within countries, we also hope future scholars look at the role that IGOs play in facilitating international entrepreneurship through the standardization of policies and reduced transaction costs.

Global problems continue to plague countries all across the world (Cronin, 2002; Docquier & Rapoport, 2012). As new megatrends arise, businesses and

entrepreneurs will need to figure out how to adjust to the new norms, like increased digitization and technology and rising tensions between local communities, states, and the international community (UPS, 2020; US Intelligence Council, 2021). International organizations continue to increase in volume and scope (Goldstein & Pevehouse, 2014; Reimann, 2006). As such, scholars from a variety of disciplines are examining the impacts that these organizations have on both states and the actors that make up states. Many scholars suggest that international organizations impact states, but limited attention has been given to understanding how international organizations impact individuals. This study demonstrates how international governmental organizations are positive for entrepreneurship. Additionally, it examines the different impacts that intergovernmental organizations have on entrepreneurship in different market types. With international organizations continuing to carve out a space in the international community, it is crucial for scholars and practitioners to highlight the effects that they have on entrepreneurship in order to better promote it.

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Part III

Selected Trends in Technology, Innovation and Emerging Markets

The Role of Equity Resources in Early Internationalizing Firms: A Literature Review

Nina Marien and Ine Paeleman

Introduction

The internationalization of young entrepreneurial firms has attracted the attention of both academic scholars and practitioners. In all, 40 percent of all Belgian young, high-potential ventures go international within their first year after founding (Collewaert et al., 2018). Louis Jonckheere (co-founder Showpad) shares his thoughts about scaling up: "In my opinion, growth ambition and internationalization are closely connected. Entrepreneurs who want to become market leaders with their firm will need to think about internationalization from the start. It is a crucial strategy to increase economies of scale and, in particular for Belgian firms, to increase your market. In that respect, I am not surprised that many Belgian start-ups are international new ventures."

Scholars have explained a firm's internationalization process in different ways. A first research stream is derived from the incremental or stage model, which argues that a firms' internationalization process follows a gradual approach through a sequence of incremental stages. Many scholars in the international entrepreneurship (IE) field have embraced this approach to examine a firm's internationalization process (e.g., Bilkey & Tesar, 1977; Johanson & Wiedersheim-Paul, 1975; Johanson & Vahlne, 1977; Leonidou

N. Marien (✉) • I. Paeleman
University of Antwerp, Antwerp, Belgium
e-mail: nina.marien@uantwerpen.be; ine.paeleman@uantwerpen.be

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_5

& Katsikeas, 1996; Reid, 1981). However, since the early 1990s, a second research stream focusing on early internationalizing firms challenged the relevance of the traditional stage model (Knight & Cavusgil, 1996; McDougall et al., 1994; Oviatt & McDougall, 1994), as these firms engage in IE from their inception (McDougall, 1989). Although the IE literature is mainly fragmented with various labels of early internationalizing firms, including international new ventures (INVs) (Oviatt & McDougall, 1994), born globals (Rennie, 1993; Knight & Cavusgil, 1996), and global start-ups (Oviatt & McDougall, 1994), their fast pace of internationalization is what distinguishes early internationalizing firms from taking on a gradual approach.

Even within the group of early internationalizing firms, international business scholars need to follow megatrends. For instance, a recent wave of a new breed of born globals, namely born digital enterprises, arise (Cavusgil, 2021). These are web-based platform businesses engaged in the creation, delivery, and capture of value to customers by creating user communities (Cavusgil, 2021). This trend of a rising generation of entrepreneurs gives rise to several new and exciting research questions. How do they overcome the liability of newness? What are the resources and capabilities strategies that contribute to their internationalization? What accounts for their survival?

Despite the different types of early internationalizing firms, many of these firms need equity resources to be able to pursue internationalization activities. For example, the sales enablement platform Showpad expanded rapidly into the international market within two years of its inception. Founded in 2011 in Belgium, Showpad today is headquartered in Ghent and Chicago and has offices in London, Munich, San Francisco, and Wroclaw, serving customers in 50 countries. Their case shows that equity resources are important for stimulating early internationalizing firms' international expansion. They raised $2 million Series A in 2013 from Belgian venture capital (VC) firm Hummingbird and then $8.5 million Series B round in 2014 from UK VC fund Dawn Capital. They used part of this money to open its first US-based office in 2013 and a London-based office in 2015 (Cespedes, 2016). The CEO of Showpad shows that VC financiers stimulate international expansion, not only through providing financial resources but also through knowledge and network resources: "There was interest from various VC funds to invest. We chose Hummingbird partly because it has an extensive network and experience to launch European companies in the US" (Snoeck, 2013). In 2016, Showpad secured $50M Series C led by Insight Venture Partners, a VC firm from New York. "For every stage of a start-up, there is an investor that fits best," says co-founder of Showpad (Verrycken, 2016). "We definitely wanted an American investor for this step. Here in the US, we are growing the

fastest right now. Moreover, a partner like Insight brings experience and an enormous network." Since its inception, Showpad managed to raise approximately $188 million in four capital rounds, primarily from foreign VC financiers, to give its internationalization a boost (Sephiha, 2021). Tech start-ups such as Showpad succeed in convincing local investors at early capital rounds. But from a B round, firms must look beyond the borders in a country like Belgium. Not only are capital rounds of such magnitude still challenging to get with only Belgian investors, scaling internationally also demands credibility and connections from renowned venture capitalists (Sluismans and Mohout, 2019). Anyone who manages to attract an investor from Silicon Valley or London also gains a lot of know-how about how to develop a start-up internationally (Sephiha, 2016). Overall, going international is a resource-demanding process. Firms are confronted with entry costs such as gathering foreign market information, training and hiring additional staff, and developing new styles to satisfy foreign customers (e.g., Paeleman et al., 2017). Equity resources are a necessity to overcome these costs.

In this chapter, we place particular emphasis on the interaction between IE and equity resources to stimulate early internationalizing firms' international expansion. To explore this evolving research domain, we present a systematic review of 48 studies to address the research question: How do equity resources contribute to the early internationalization of firms?

By reviewing the literature, we aim to make three primary contributions. First, we provide a comprehensive overview of the role of equity resources in the internationalization process of early internationalizing firms. Second, we organize and synthesize the studies into a framework to better understand extant and future research. Finally, we offer a future research agenda as a collective starting point to discuss and explore opportunities relevant for future research on the topic. We identify opportunities and challenges for future research across theoretical perspectives and methodological gaps, as well as across context-specific elements such as international firm heterogeneity and country-specific factors.

Method

Based on the study by Denyer and Tranfield (2009), we conducted a systematic literature search approach.

As a first step, we defined a clear research question to orient the review (Simsek et al., 2021). We formulate the following research questions: What is the current status of the literature on the influence of equity resources on early

internationalizing firms' internationalization? What current theoretical frameworks and methodologies do scholars rely on? What are the suggestions for future research?

In the next step, we defined the inclusion and exclusion criteria, developed search strings, and systematically searched for articles in databases according to these criteria. The keywords used when searching the databases were divided into three groups: internationalization, equity resources, and early internationalizing firms. The first term, internationalization, includes multiple foreign entry modes such as exporting, importing, licensing of technology in foreign markets, strategic alliances, and joint ventures with foreign partners (following the definition of Oviatt & McDougall, 1994). The second term, equity resources, includes various forms of equity such as VC, angel investments, seed capital, equity capital through an initial public offering (IPO), and equity crowdfunding. The third term, early internationalizing firms, includes labels such as new ventures, small ventures, start-ups, born globals, and international new ventures. We used the following databases: Web of Science, EBSCO/Business Source Premier, Econlit, and ProQuest's ABI Inform/ProQuest. We performed the search without any time restrictions. In Web of Science, the results have been restricted to relevant disciplines: "Finance," "Business, Finance," "Economics," "Environmental studies," "Geography," "Management," "Regional Urban Planning," and "Urban Studies." The search has been restricted to only scholarly peer-reviewed academic studies in English (published up to and including 2020).

The systematic searches based on our search syntax in the electronic databases returned 6213 studies as potentially relevant. After removing duplicates (n = 996), we reduced the identified studies to 5217. Both authors independently screened the studies based on relevance to our research question. After screening the titles and abstract, we reduced the number to 331 studies. Many abstracts were excluded because they primarily focused on equity resources but not on IE, or they mainly focused on IE but not on equity resources. Studies were also excluded if they discuss equity and internationalization but discuss not specifically the link between the two. Studies on other firm types, such as the internationalization of VC firms, were also excluded. Afterward, both authors conducted a full-text review. A total of 283 studies were eliminated, leaving 48 studies for data extraction and synthesis (see Fig. 1 for the selection process).

Finally, we analyzed and synthesized the 48 selected studies, following Popay et al.'s (2006) narrative synthesis approach. We used an encoding scheme to map and analyze each study. We identified the context of early internationalizing firms (definition or criteria used and industry), theoretical

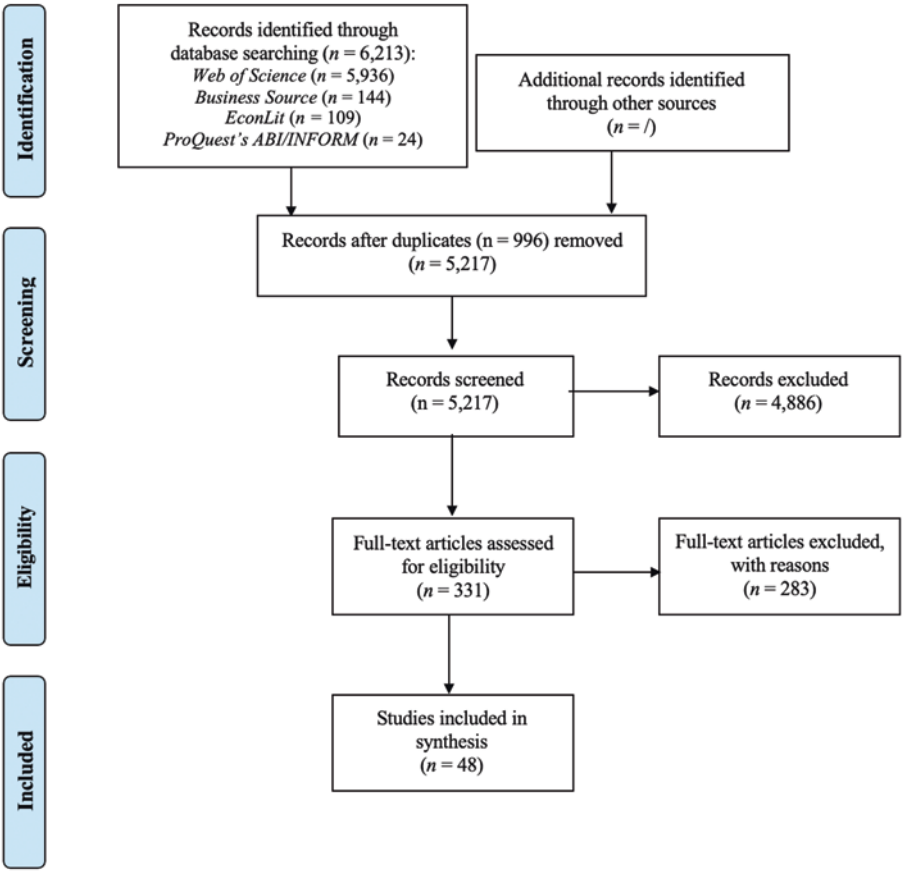

Fig. 1 Summary of the study selection and evaluation process

approach, focal topic area, main hypotheses and findings, methodology (study design, techniques, variables, country of research, timeframe, sample size, data collection), and journal (including publication year). Next, we clustered studies based on the same type of equity resource. We defined five major clusters: VC, informal investors, family ownership, foreign equity, and equity crowdfunding. Afterward, we examined emerging patterns in the data to identify any explanations for differences in direction or size of effects of equity resources on internationalization.

Results

Our selection process identified 48 studies exploring the relationship between equity resources and IE, published in 36 identified journal outlets, where the largest outlets are *Entrepreneurship Theory and Practice* (n = 3), *Small Business Economics* (n = 3), *International Business Review* (n = 3), *International Entrepreneurship and Management Journal* (n = 3), and *Journal of Small Business Management* (n = 3). Twenty-nine journals published only one study. The first study appeared in 2003 (i.e., Bell et al., 2003). The numbers of studies per publication year are presented in Table 1. We noticed a recent expansion, as 46 percent of studies in the sample were published between 2015 and 2020.

In our sample of 48 studies, most studies have focused on VC (n = 36). The number in brackets in Fig. 2 represents the number of occurrences in selected studies. Remarkably, studies on the link between other equity sources such as informal investors (n = 4), equity ownership by family members (n = 4), foreign equity (n = 3), and equity crowdfunding (n = 1) and IE are still rare. Studies that do not define equity resources (9) in detail are not included in the figure.

Although a substantial number of studies did not mention a theoretical framework (n = 22), we identified two common theoretical frameworks: resource-based view (n = 11) and agency theory (n = 6). Besides the two dominant theories, multiple other theoretical frameworks are applied, for instance, knowledge-based view (n = 5), pecking order theory (n = 2), institutional

Table 1 Number of studies per publication year

Publication year	Number of studies (n)	Percent of total (%)	Cumulative (%)
2003	1	2.08	2.08
2005	2	4.17	6.25
2006	2	4.17	10.42
2007	2	4.17	14.59
2008	3	6.25	20.84
2009	3	6.25	27.09
2010	1	2.08	29.17
2011	3	6.25	35.42
2012	4	8.33	43.75
2014	5	10.42	54.17
2015	3	6.25	60.42
2016	3	6.25	66.67
2017	3	6.25	72.92
2018	6	12.50	85.42
2019	3	6.25	91.67
2020	4	8.33	100

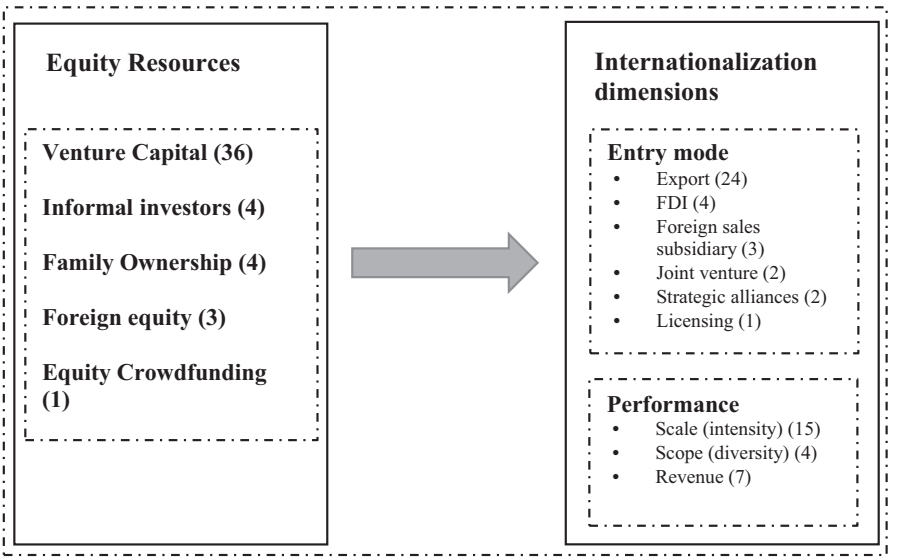

Fig. 2 The role of equity resources in early internationalizing firms: a conceptual framework

theory (n = 1), network theory (n = 1), random utility theory (n = 1), and effectuation theory (n = 1). A few scholars have applied multiple theoretical frameworks (n = 5).

Most of the studies used quantitative methodologies (n = 35). However, only 7 of them used longitudinal analyses. Most studies relied on cross-sectional research designs such as probit (n = 9), ordinary least squares (n = 6), and logit (n = 4) regression techniques. When running their analyses, most of the studies relied on secondary commercial databases (n = 30). Qualitative (n = 10) and review studies (n = 2) are rather rare.

In terms of geographic focus, most studies are based on European data (n = 29), followed by North America (n = 12) and Asia (n = 9). Most studies focused on a single country (n = 36). However, some studies examined multiple countries (n = 12). In terms of industry focus, the studies are skewed toward the manufacturing industry (n = 17) and the high-technology industry (n = 19). Another substantial number of studies reported on multiple industry studies (n = 12). There is a lack of studies in the services industry (n = 6).

A Framework to Understand the Role of Equity Resources in Early Internationalizing Firms

This section discusses studies on the influence of equity resources on early internationalizing firms' internationalization process in detail by categorizing them into five groups: VC, informal investors, family ownership, foreign equity, and equity crowdfunding. In Fig. 2, we provide a framework that structures the extant literature.

Venture Capital

When analyzing the literature on the role of equity resources in early internationalizing firms, most studies focused on private equity and VC. These financing sources may be more preferred than intuitively thought because of the nonfinancial support that such investors can bring to the early internationalizing firm, such as monitoring support and value-added activities (e.g., Fernhaber & McDougall-Covin, 2009; Lockett et al., 2008; Smolarski & Kut, 2011).

A number of studies have investigated the impact of intangible resources of VC such as knowledge, experience, and reputation (Fernhaber & McDougall-Covin, 2009; Fernhaber et al., 2009; Laanti et al., 2007; Park et al., 2015; Park & LiPuma, 2020; Zahra et al., 2007). VCs serve as a catalyst to new venture internationalization through providing not only financial resources but also the provision of intangible resources such as knowledge, experience, and reputation. Resource-constrained new ventures can use external resources such as knowledge and reputation to overcome the liability of newness (Fernhaber & McDougall-Covin, 2009). For instance, Fernhaber and McDougall-Covin (2009) found that reputable VCs can facilitate new venture's foreign expansion by enabling the venture to draw on VCs' reputations and provide legitimacy, which helps them overcome liabilities of newness and foreignness. Park and LiPuma (2020) further discussed the interplay between VC reputation and knowledge in new venture internationalization but differentiated between corporate and foreign VCs.

George et al. (2005) found that while internal ownership of entrepreneurial firms tends to be risk-averse toward internationalization, reducing the scale and scope of internationalization, external owners such as VCs or institutional investors might mitigate such risk aversion and encourage managers to internationalize and increase the scale of entrepreneurial firms' internationalization. Zahra et al. (2007) found a positive relationship between VC ownership

and the development of knowledge-based resources for internationalization. Lockett et al.'s (2008) study is the first systematic study on the relationship between export intensity and VC involvement in firms at different investment stages from a resource perspective (corporate governance). The investment stage is an important moderator between external VC governance resources and export intensity. External VC value-added resources have a greater impact on export intensity for early-stage ventures than for late-stage ventures. In contrast, monitoring resources are most effective in promoting export behavior for late-stage ventures and value-added resources in promoting export behavior in early-stage ventures. Smolarski and Kut (2011) investigated how VC as a financial risk management tool may reduce entrepreneurial firms' uncertainty related to internationalization. They found that incremental financing (i.e., firms receiving their VC financing into several tranches) positively impacts internationalization compared to firms financed through lump-sum financing where all funds are received at once. When the risk management tools incremental financing and syndication (i.e., when two or more external investors participate in a single financing round) are used separately, they increase the probability of internationalization. However, when these tools are combined, receiving incremental financing from a syndicate appears to harm exporting activity.

A few scholars discussed home- and host-country conditions. While Cannone and Ughetto (2014) and Ughetto (2016) discussed home country conditions, Cannone and Ughetto (2015) focused on host-country conditions. Cannone and Ughetto (2014) found that the availability of private equity finance in the home country does not impact the internationalization choice or the degree of born-globalness. However, Ughetto (2016) showed that the availability of VC in the home country positively and significantly affects the growth of born globals. With regard to the host-country conditions, the availability of VC financing is a major driver influencing the attractiveness of host-country conditions for high-tech start-ups (Cannone & Ughetto, 2015). Founders of start-ups that want to internationalize will consider moving into a country characterized by greater availability of VC financing (Cannone & Ughetto, 2015).

While most scholars confirmed that equity resources from VC enhance internationalization and provide additional support, which, in turn, support new ventures' positions in foreign markets, a few scholars found a negative effect of VC on internationalization (i.e., Lee et al., 2016; LiPuma, 2006). LiPuma (2006) found that the use of VC by firms less than ten years old decreases their chances of higher levels of international intensity. Also, Lee et al. (2016) found that the amount of finance from VC did exert a

statistically significant but negative impact on the export performance of Korean new ventures. Other studies found a negative impact of VC on the IPO performance of early internationalizing firms. LiPuma (2012) showed that new technology-based VC-backed firms with high levels of international intensity (i.e., high level of foreign sales) execute their IPOs later and derive less valuation than solely domestic ventures. The increased risks and agency costs of intense internationalization result in delayed IPOs of lower value (LiPuma, 2012). Overall, IPO performance of new VC-backed internationalized firms often lags that of their solely domestic counterparts (LiPuma, 2012), suggesting VCs' sensitivity toward internationalization (LiPuma & Park, 2014). Alvarez-Garrido and Guler (2018) found that the home-country status of a cross-border VC does not uniformly lead to increased performance (measured by the occurrence of an IPO or an acquisition anywhere in the world) of the ventures in which it invests.

Although most studies took the perspective of the early internationalizing firm (demand-side), a few studies focused on the perspective of VCs (supply-side) (e.g., Cumming et al., 2009; LiPuma & Park, 2014; Ribeiro & Meneses, 2020). Studies in this group mainly focused on VCs' risk perceptions in an international context. Cumming et al. (2009) discussed VCs' risk mitigation strategies of VCs. They found that international business activities of VCs are influenced by differences in legality and economic conditions. LiPuma and Park (2014) found that VCs' risk perceptions impact financing firm's internationalization. While low-intensity internationalizers (ratio of foreign sales to total sales less than 10 percent) receive less funding per round by smaller syndicates over longer intervals than domestic ventures, higher intensity internationalizers receive their funding in shorter intervals.

Informal Investors Including Angel Investors and Born-Global Investors

A few scholars discussed early-stage financing other than VC, such as informal investors, including angel investors and born-global investors. Overall, the literature on equity resources from informal investors is scarce and inconclusive on the effect of internationalization.

Angel investors (also known as private investors or seed investors) are informal investors who offer finance to entrepreneurial firms in exchange for an ownership equity stake in the venture. De Maeseneire and Claeys's (2012) explorative study showed that entrepreneurial firms are reluctant to attract angel investments for foreign direct investments (FDI) projects. Major

barriers to attract angel investments found in their study include entrepreneurs' lack of knowledge about angel financing, the perceived high levels of control and monitoring required, the cost of angel financing, and the fact that the requested amounts of finance are sometimes too large for business angels. Further, St-Pierre et al. (2018) found that informal investor financing does not influence SMEs' export intensity.

We also identified a conceptualization of born-global investors, referred to as investors with a track record of investments in born globals. One study in our sample was focused on born-global investors (i.e., Moen et al., 2008). Compared to other types of investors, those who have investment experience in born globals differ in terms of deal origin, investment size, and exit preferences. For resource-constrained born globals, born-global investors can be of vital importance, bringing relevant experience and extensive personal and business networks.

Family Ownership

Another stream of research focused on equity ownership by family members (i.e., Amornkitvikai & Harvie, 2018; Cerrato & Piva, 2012; Chen et al., 2014; Fernández & Nieto, 2006). While Fernández and Nieto (2006) could not find a significant relationship between family ownership and export propensity, they found a negative relationship between family ownership and export intensity. While Cerrato and Piva (2012) found that family involvement in management negatively affects SMEs' export propensity, it does not significantly affect the international scale, scope, and diversification in already-internationalized firms. For a sample of Taiwanese firms, Chen et al. (2014) found a positive relationship between family ownership and the degree of internationalization.

Foreign Equity

Kuemmerle (2005) found that, in several cases, foreign financial resources such as VC were instrumental to early internationalizing firms' domestic and international expansion. Laanti et al. (2007) further highlighted the importance of foreign VCs for born globals who could contribute valuable international knowledge and experience. In their sample, all the four case firms from the Finnish wireless technology sector were able to raise the necessary financing resources, which enabled their rapid globalization process. This finding is

somewhat contradictory to research according to which born globals lack adequate financing and resources and struggle to overcome the challenge of instant globalization (Knight & Cavusgil, 1996; Oviatt & McDougall, 1994). Lastly, Cerrato and Piva (2012) discussed equity from foreign shareholders and found that foreign ownership positively affects export probability, export intensity, and export diversity.

Equity Crowdfunding

Finally, only one study in our review sample discussed equity crowdfunding (i.e., Bembom & Schwens, 2018). As early internationalizing firms often have difficulties attracting financial capital from their domestic environments, they emphasized in their review study that network contacts via crowdfunding can enhance their access to financial capital and may subsequently increase a venture's access to a solid base of equity capital.

Agenda for Future Research

This section discusses inconsistencies, conflicting evidence, and deficiencies that emerged from the review above. We provide recommendations for future research across theoretical perspectives and methodological gaps, as well as across context-specific elements such as international firm heterogeneity and external contextual factors.

First, most studies in our review sample discussed VC. Only a minority of studies discussed other equity providers such as angel investors, equity from family members, equity from foreign sources, or equity crowdfunding. Hence, we encourage scholars to integrate alternative sources of financing in the traditional theoretical frameworks (for instance, agency theory and pecking order theory) to improve their explanatory power.

Scholars have employed various theoretical frameworks to gain better insights into the role of equity resources on internationalization. The dominant theoretical frameworks are resource-based view and agency theory. However, most studies are atheoretical. While a few attempts have been made to advance theoretical syntheses, future research should develop and extend them.

Furthermore, most studies do not distinguish between the demand and supply side of equity financing. For instance, if early internationalizing firms make less use of equity resources, it may be questioned whether this is because

of restricted access to equity resources (supply-side) or a lower willingness to attract equity resources (demand-side). Hence, we call for future research to separate demand-side from supply-side arguments in interpreting the relationship(s) between equity resources and internationalization.

Next, a main concern that emerged from our review is that most studies lack a clear early internationalizing firm definition or do not include the criteria to identify early internationalizing firms. The studies that used a definition do so in various manners, as there are no consistent definitions of early internationalizing firms in the literature. There are multiple labels of early internationalizing firms, including INVs (Oviatt & McDougall, 1994) and born globals (Knight & Cavusgil, 1996; Rennie, 1993). A born-global firm is defined as a young firm that is active through early export sales (Cavusgil & Knight, 2015). Their focus on export sales is important and much narrower than Oviatt and McDougall's (1994) definition of INVs, that is, firms that coordinate multiple value chain activities across borders. The born-global terminology is less accurate than INV (Cavusgil & Knight, 2015). Hence, using the terms born global and INV synonymously or interchangeably is inaccurate. Many studies adopt the notion of born global without considering the implications of born global to describe the firm in their study. Hence, many born-global studies are probably not (Kuivalainen et al., 2007, 2012; Lopez et al., 2009; Oviatt & McDougall, 1994). This may impede the accumulation of knowledge in the IE field. To facilitate cross-study comparison, scholars should thoroughly take into account the early internationalizing firm definition used in their sample.

Furthermore, most of the studies focused on export, typically the decision to export. Hence, several other dimensions have been relatively ignored, such as the internationalization scale and scope or the foreign entry mode. Yet, it may be worthwhile to examine differences in causal factors across the multiple foreign entry modes such as a foreign agent or distributor, licensing, foreign sales subsidiary (joint venture), foreign sales subsidiary (wholly owned), or FDI. Overall, we suggest future research to examine the different stages of internationalization (both in scope and scale).

We also call for future research to consider the contextual effects that consider structural changes in the global entrepreneurial ecosystem and how this could drive de-internationalization. Recent developments such as populism, nationalism, and regionalization are shifting globalization's tectonic plates (Ernst and Young, 2020). These developments have a tangible effect on the volume of international trade, cross-border capital flows, and global supply chains (Ernst and Young, 2020). The COVID-19 pandemic and its fallout on businesses could accelerate many of these trends (Ernst and Young, 2020).

Yet, a recent report by McKinsey & Company (2021) shows that, globally, private equity firms are sitting on almost $1.5 trillion of "dry powder"—unallocated capital that's ready to be invested. On the one hand, the COVID-19 crisis has hurt somehow, with global deal value down 12 percent compared with the first three quarters of 2019 and deal counts down 30 percent (Alex, 2020a). On the other hand, global fundraising has stayed strong—$348.5 billion through September 2020, on par with the previous five years (Alex, 2020b). The private equity industry has a reputation of zigging when others are zagging, making deals in difficult times (McKinsey & Company, 2021). Historically, returns on private equity investments made during global downturns tend to be higher than in the good times (McKinsey & Company, 2021). Overall, more efforts are needed to significantly increase our understanding of how an economic recession affects the availability of equity resources for early internationalizing firms.

Some final remarks are devoted to a number of methodological limitations. A main limitation in the literature is that most empirical studies in the sample are single-country studies. Cross-country quantitative research remains scant. However, countries may differ regarding their financial markets, legal frameworks, or investor protection (LiPuma et al., 2013). More investigation is needed into how these country-level factors can be differentiated from firm-level effects when examining the role of equity resources on international firms. Performing cross-country research may explain inconsistent results between countries and may allow comparison between countries. Besides, a disproportionate number of studies in the sample relied on European data. Future research may test the generalizability of current findings in new contexts.

Our review also reveals method bias in our sample studies. While most studies have adopted a quantitative research methodology that relies on cross-sectional data, only a small minority of the studies in the sample applied a longitudinal approach (i.e., Cowling et al., 2016; Fernández & Nieto, 2006; Lindstrand et al., 2011; LiPuma & Park, 2014; Miravitlles et al., 2018; Pinkwart & Proksch, 2014; Rossi et al., 2018). We call for more research adopting a longitudinal research design as it allows to investigate the dynamic nature of equity resources in early internationalizing firms, rather than merely providing a static description, and allows to examine how equity resources of firms develop over time.

Another concern is that most studies in the review rely on secondary data, which often do not account for firm heterogeneity. These databases may also lack control groups of firms that, for instance, did not seek equity or sought to acquire equity finance, but access to equity finance was denied. Qualitative

research methods or quantitative research grounded on detailed survey data could account for heterogeneity and ultimately enhance our understanding of the role of equity resources in early internationalizing firms.

Lastly, we encourage future researchers to encounter 'reversed causality' problems, especially when examining the relationship between equity resources and internationalization. For instance, when evidence shows that external equity is positively related to a firm's internationalization, this raises the question of whether equity resources contribute to internationalization or whether more foreign sales lead to better access to equity resources.

Limitations

This review is not free of limitations. First, only peer-reviewed studies have been included in the sample and searches of the gray literature were not carried out. Consequently, we excluded book chapters, conference papers, and dissertations. Although this could lead to publication bias, considering that peer-reviewed studies are checked through the academic process while gray literature is mostly unchecked (Podsakoff et al., 2005), our sample procedure is widely accepted in the literature and establishes high-quality input for the systematic review of prior studies. Another limitation relates to our search strategy. The number of studies identified through the databases posed interesting challenges. In the screening phase, 5217 studies have been screened solely on the level of title and abstract based on relevance to our research question. A potential limitation is that a relevant study did not make it due to an inadequately written abstract.

Conclusion

This systematic review seeks to address the question of how equity resources contribute to the early internationalization of firms. We develop an overarching framework to synthesize the current findings, aiming to stimulate the cross-pollination of future research ideas. As our review highlights, several inconsistencies, conflicting evidence, and deficiencies exist. It is our honest desire that this review will inspire scholars with research ideas to enhance the understanding of equity resources in early internationalizing firms.

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Artificial Intelligence of Things as an Accelerator of Circular Economy in International Business

Malahat Ghoreishi, Luke Treves, and Olli Kuivalainen

Introduction

The international business environment is being shaped and transformed by several trends and megatrends. The latter typically extend over generations and describe complex and systemic interactions, such as climate change (Miles et al., 2016). In this chapter, we focus on two megatrends: (1) the urgency of ecological reconstruction (especially development of circular economy, CE) and the integration of digital technologies, especially artificial intelligence of things (AIoT) into all areas of a business, and (2) how they affect and change business models and consequently international business operations—the so-called digital transformation. Although the role of Internet of things (IoT) and artificial intelligence (AI) has been separately researched and discussed in the context of CE and international business, how the integration of these two technologies can enable the transition toward a CE is an under-researched topic. Consequently, there is currently a gap in academic and practical knowledge on this prominent issue. This chapter defines the AIoT concept as an enabler of CE in an international business context, particularly from the perspective of global value chains and business ecosystems. In addition, this chapter aims to explain how businesses can adopt and integrate AIoT to help them achieve their CE goals as well as enhancing circularity in their business

M. Ghoreishi (✉) • L. Treves • O. Kuivalainen
LUT University, Lappeenranta, Finland
e-mail: Malahat.ghoreishi@lut.fi; Luke.Treves@lut.fi; Olli.kuivalainen@lut.fi

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_6

ecosystems. The chapter also provides examples of businesses which are successfully implementing AIoT in their businesses and the impact that it has had on their activities. Finally, we explore how international businesses are organizing their operations from the perspective of environmental conscience, the need for ecological reconstruction via business model innovation (BMI), and the role advancements in digital technologies play in achieving this. This chapter is structured as follows: first we discuss the significant role of BMI in CE and international business (IB), and then how the integration of disruptive digital technologies, including AI and IoT, is enabling businesses to redesign their existing business models (BMs), incrementally or radically, in transition toward a CE whilst advancing their international business activities.

Business Model Innovation and CE

The Emergent Role of Circular Business Innovation

The concept of a "business model (BM)" describes the design or architecture of a business's mechanisms to propose, create, deliver, and capture value (Teece, 2010) for itself and its stakeholders (e.g., partners, suppliers, and customers). The BM is often depicted as a value proposition offering product/service, value creation and delivery, and the mechanisms of how value is captured (Margaretta, 2002). In addition, BM extends the concept of the (global) value chain by (1) emphasizing value creation and delivery dynamics, (2) extending across business and industry boundaries, and (3) allowing for a nonlinear sequencing of independent activities (ibid.). In their "Megatrends 2020 and beyond" report, EY (2020) articulates that the biggest growth opportunities might go to those businesses that can create new business models, also referred to as BMI, based on their customers and supply chain behavioral data (behavioral economy). This is of significance as consumers are increasingly demonstrating a hunger for innovative and novel approaches to satisfy their individual needs and demands, which are built on foundations of empowerment and engagement rather than on exploitation and alienation (EY, 2020; p.42).

BMI typically can occur in two forms, designing an entire new BM or reconfiguring the elements of the existing BM which, as a result, increases the competitiveness of businesses (Massa & Tucci, 2014). BMI can be considered as a repetitive process such as ideation, implementation, and evaluation involving various levels of details (Wirtz et al., 2016). Geissdoerfer et al.

(2018) succinctly describe this process involving "*the development of entirely new business models, the diversification into additional business models, the acquisition of new business models, or the transformation from one business model to another. This transformation can affect the entire business model or individual or a combination of its value proposition, value creation, and value capture elements, the interrelations between elements, and the value network*" (p. 406). BMI is often represented as a transformational process (He & Ortiz, 2021) through which a business moves from one BM to an entirely new BM (Osterwalder & Pigneur, 2010), significantly more developed and advanced one (Chesbrough, 2007) or a different and integrated BM (Geissdoerfer et al., 2018). The motivation for BMI is twofold: (1) fulfilling a previously unmet needs of an existing customer base through value creation, or (2) a desire to develop a new customer base(s) through new value creation, and the capture of mechanisms and activities (Haaker et al., 2021). This highlights that the concept of value is the core in BMI.

CE business models have been identified in the literature as one type of SBM (de Pieroni et al., 2019). SBMs integrate three aspects of sustainability (economic, environmental, and social) to the value proposition goals of the businesses, both at the organizational level and at networking level. The process qualifies as a sustainable BMI, when it has the following aims: (1) sustainable development, relatively lower negative impacts or even positive impacts for the environment, society, and the long-term prosperity of the organization and its stakeholders or (2) adopting solutions or characteristics that foster sustainability in its value proposition, creation, and capture elements or its value-network (Geissdoerfer et al., 2018, p. 406). Since in CE the goal is to create various forms of value by achieving higher efficiency of resources and a well-organized economic system (EM Foundation, 2015), CE BMI includes CE principles and strategies as a guideline for BM design. The integration of CE principles into BMs happens at various levels, which depends on decision-maker's aspirations as well as selected approaches. BMI contributes to CE by moving toward businesses developing more sustainable-orientated business models (SBMs). Some authors address environmental, social, and economic challenges, which CE tries to theorize by integrating the economic activities with environmental and societal wellbeing. This has led to CE being considered as an important part of sustainable development, and as a concept that operationalizes or substitutes it (Bocken et al., 2014; Boldrini & Antheaume, 2021; Kirchherr et al., 2017; Merli et al., 2018). CE BMI can be an extension or subcategory of traditional BM and SBM definitions, with their specificities connected to the circularity approach (Boldrini & Antheaume, 2021).

In circularity, value creation is related to reverse logistics, which enables retaining value and restorative value proposition (Reike et al., 2018). Various processes of production, distribution, and consumption activities must be considered in loops (Lieder & Rashid, 2016). In addition, to make such supply chains viable, customer needs and demands should be strongly taken into account (Kirchherr et al., 2017). Return loops enable improvements in resource efficiency in two ways. Firstly, they support the return of valuable and functional components and materials to the manufacturing process that would previously been discarded, reducing the need for extraction of new natural resources. Secondly, they enable the prolonged maintenance and utility of valuable products, components, and materials which can increase value for companies and the economy more broadly. Additionally, businesses can implement strategies such as extending the useful life of products, intensifying the use of a given product (pooling, sharing, leasing), or dematerializing it (services, digitalization) (Geissdoerfer et al., 2020). This involves identifying cascading, meaning multiple cycles of value creation, thanks to consecutive use of resources. CBMs are also interconnected and require communication and coordination between multiple independent but interdependent stakeholders nested within complex business/value (Antikainen & Valkokari, 2018). While businesses are putting efforts to innovate CBMs, they need to consider how their business model will boost circularity, value creation, and value capture (Frishammar & Parida, 2018; de Pieroni et al., 2019).

Artificial Intelligence of Things and CE

According to Sitra (2021), the use of digital solutions to measure, store, and analyze data is a central element in CE solutions. Data-driven CE solutions not only boost and support business but can also help to generate completely new innovative solutions. Figure 1 shows the key role of data in CE and the technologies which can be utilized in different CE solutions.

Industry 4.0 solutions can help businesses in tracking their material flows, measuring circularity and its impact, and finding new business opportunities while optimizing resource usage, which leads to improving internal operations and profitability. Various businesses are focusing on solutions which are "all about the data"; therefore, their aim is to develop digital tools which support circularity. On the other hand, other businesses significantly focus on digital solutions to help the end consumers while collecting data for improved management and further development of their existing solutions. In addition, increasing accessibility and availability of data improves traceability of the

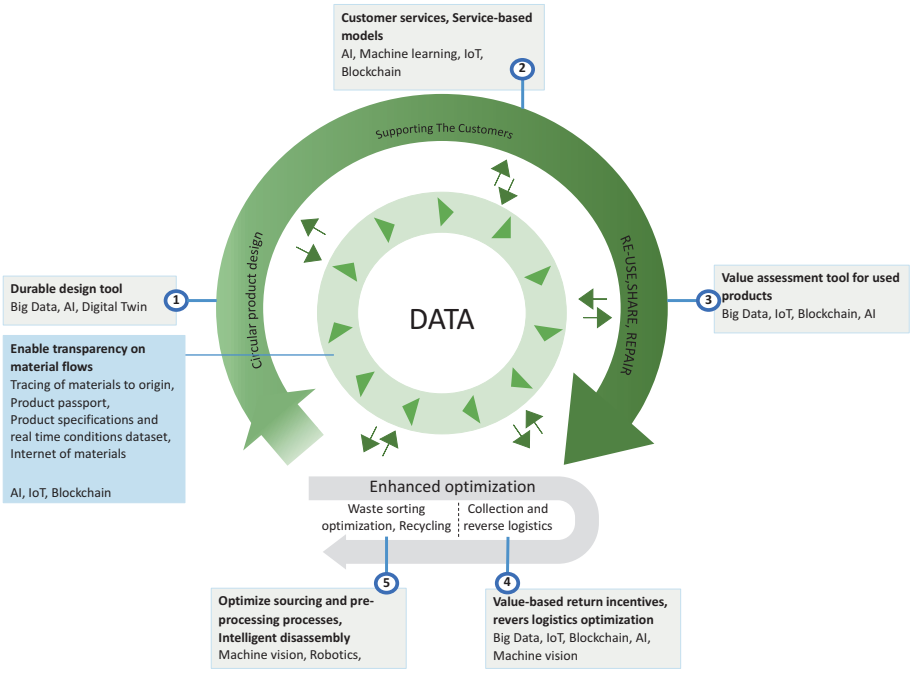

Fig. 1 The role of Industry 4.0 technologies in CE. (Based on World Economic Forum, 2019)

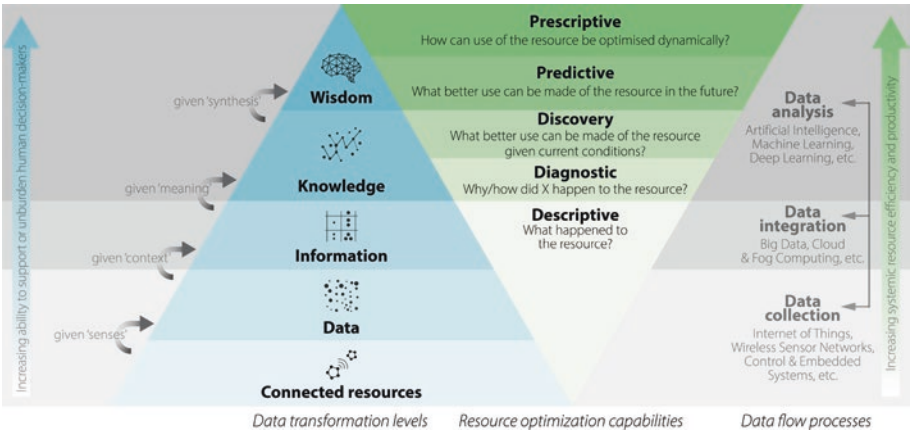

Fig. 2 The framework of smart CE. (Source: Kristoffersen et al., 2020)

network and business ecosystem and increases social impacts of different CE solutions. Figure 2 presents a framework of smart CE based on Kristoffersen et al. (2020). The framework presents five levels of data transformation as follows:

- Connected resources: It includes products, materials, and components which are connected for example.
- Raw data: It is based on the observations of objects, events, and/or their environment which require textualization to be valuable and usable data.
- Information: It is transformed from data, included in descriptions, and provides answers to *who*, *what*, *where*, and *when* questions.
- Knowledge: It represents the transformation of information into actionable instructions, know-how, and valuable insights, and answers questions such as *how* and *why*.
- Wisdom: It is the connection between actionable instructions of knowledge to independent decisions and actions. Wisdom is a combination of knowledge and interactive processes and adaptive judgment.

As illustrated in Fig. 2, data flow processes show the interconnection between different digital technologies. Data flow processes include three layers: data collection, data integration, and data analysis. In data collection layer, data are generated and gathered through devices and systems, enabled by technologies including IoT, wireless network sensors, and embedded systems. In the data integration layer, the data are processed, contextualized, and curated relying on context-awareness enabled by big data, cloud computing, and fog computing. The data analysis layer is the process of understanding the data to make decisions. This is enabled by techniques such as AI, machine learning, and deep learning to deploy data with meaningful insights and foresights.

Furthermore, the framework illustrates five layers of resource optimization capabilities: descriptive, diagnostic, discovery, predictive, and prescriptive analytics. Each of these levels are aligned with digital technologies that can be utilized at each specific level. For example, descriptive capabilities seek to answer questions on "what is happening" or "what happened," and adds context to the raw data from IoT devices, thereby transforming information. Leveraging data as well as intelligent and smart use of resources enables CE in achieving sustainability goals by reducing the pressure of extracting finite resources. Digital technologies can support CE by creating, extracting, processing, and sharing precise and real-time data. The efficient utilization of these technologies is essential for organizations in their transition toward CE. Supporting our observation, the EMF (2019) states that, "new technologies, including faster and more agile learning processes with iterative cycles of designing, prototyping, and gathering feedback, are needed for the complex task of redesigning key aspects of our economy."

AI and IoT have been identified as two high-potential technologies that can enable and fuel the transition toward CE due to their capability of collecting, processing, interpreting, and applying data in meaningful ways with minimal human engagement through accessibility to wide range of data anytime and anywhere. The combination of these two technologies, which we call "AIoT," will enable businesses to improve their product optimization, operations, as well as increasing financial benefits. In the following sections, we illustrate the role of each technology (AI and IoT) individually as an enabler of CE and how the conjunction (AIoT) can improve the transition by providing examples of case companies who are utilizing AIoT in their business internationally.

AI as an Enabler of CE

AI is the collection of digital techniques which deal with models and systems that perform human-like cognitive activities such as reasoning and learning (McCarthy, 2007). AI can boost and enable CE within various businesses by (1) designing circular products, components, and materials, (2) operating CBMs, and (3) optimizing circular infrastructure (Ellen MacArthur Foundation, 2019). AI can help in optimizing and developing products as well as enhancing circularity of the products via machine-learning techniques that can be utilized in design processes which learn by iteration. Such processes allow faster prototyping and testing, consequently reducing the waste in these processes (Ramadoss et al., 2018). Furthermore, AI enhances circularity in products and increases competitiveness of businesses through innovative BMs such as product-as-a-service. By combining real-time data from products, services, and consumers with historical data, AI can be used in predicting precise price and demand, predictive maintenance, and smart inventory management (Ghoreishi & Happonen, 2020). On the other hand, AI can help in developing and improving reverse logistics infrastructure, which is needed to close the product and material loop. In this regard, AI technologies can be utilized in improving the processes of sorting and disassembling of the products, remanufacturing components, and recycling materials.

According to Ghoreishi and Happonen (2020), "AI helps in producing lifecycle prolonging results through modernizations so that the products can be repaired just before the break time and/or they can be repurposed into less taxing environments to prolong the use time even more than by just maintaining it in original installation place." Different roles of AI in CE are presented in Table 1.

Table 1 Different roles of AI in CE

		Role of AI in CE		
Eco design	Maintenance	Customer support	Asset recovery	Infrastructure optimization
Circular product design	Smart maintenance	Customer services	Intelligent assets	Recycling
Modular design	Remote monitoring	Digital platform	Refurbishment	Precise waste sorting
Fast, smart, and precise prototyping	Product life cycle analysis by smart sensors	End-user need data analysis and prediction	Reuse	Add value to recycled and recovered materials
Failure and downtime reduction	Maintenance optimization	Product life cycle extension by shared platform	Remanufacturing	Secondary raw materials
Material toxicity prediction	Real-time data transformation	Dynamic pricing, matching algorithms	Repair	
Cost reduction in testing		Collaborative decision-making		
Real-time data analysis		Data-enabled prediction		
Reduce energy in designing products				
Warehouse management				

Source: Ghoreishi and Happonen (2020)

IoT as an Enabler of CE

The Internet of things (IoT) describes the network of physical objects—"things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet. Allowing for the continuous collection and exchange data "any-time," "any-where," and for "any-thing" (Whitmore et al., 2015). This is creating opportunities for direct integration between the physical world and computer/Internet-based systems, resulting in improved efficiency, accuracy, and economic benefits. The IoT has an important role to play in the CE, by enabling businesses to keep products in use in a way that makes money

and also enhances the customer experience. Particularly, it can help organizations to understand the following:

- How their product-service components are being designed and manufactured in line with more sustainable goals, including using more sustainable and reusable materials as part of the build process.
- The origin of the materials to ensure their sustainable credentials, as well as reducing the impact of counterfeit parts.
- How to design products with reuse and repair in mind.
- How to reduce waste by checking water wastage and other materials used in the process.
- How to assess and take preventative actions to extend its product-service components life cycle. (Porter, 2021)

Table 2 provides an overview of IoT's main capabilities, and how the data processes and sources they open to businesses can enable CE strategies.

Collecting data from use phase of the products helps companies to continuously improve product design such as enhancing durability of the products (Bressanelli et al., 2018). In addition, digital components in products make the upgradability of the products easier and adds more functionality to the product, which can extend the life cycle of the product (Pialot et al., 2017). Regarding the CE strategy to increase utilization, IoT enables monitoring of product condition, location, and status which supports product sharing between multiple users. In addition, data collected from in-use products can be used to improve strategies of recovery such as remanufacturing, reusing, and recycling (Alcayaga et al., 2019). Precise estimations of a product's useful life cycle support decisions on optimal remanufacturing time of a certain product and can improve the profitability of remanufacturing activities (Ingemarsdotter et al., 2020). Finally, regarding recycling, Radio Frequency Identification (RFID) tags in products can increase efficiency in recycling processes as well as improving information on material composition to create profitable processes of recovery (Denuwara et al., 2019).

As illustrated already, there is no doubt that IoT brings enormous benefits and values to businesses. However, understanding the rich data collected by IoT technologies relies significantly on utilizing AI. AI can close the loop in an IoT environment by capabilities of learning from the data collected by IoT and consequently automating important decisions and actions. Combining IoT data with external resources such as logistics and consumer insights or with the supply chain actors helps businesses in achieving next-level improvement in quality. Furthermore, applying AI to IoT data can effectively improve

Table 2 IoT capabilities and their role in circular strategies

		Circular strategies				
		Efficiency	Increased utilization	Product lifetime extension	Reuse	Remanu- facturing / Recycle
IoT capabilities	Tracking	Enables energy saving and optimization.	Services which allow tracking products.	Enables tracking products and parts installed at customer sites to enhance maintenance services.	Tracking used products, parts, and materials helps identifying products that can be reused, remanufactured.	
	Monitoring	Enables energy usage and performance (monitoring products' condition)	Enables utilization of facilities based on data from monitoring.	Enables condition-based and predictive maintenance and manage repairs. Enables storing data of installed products which facilitates maintenance.	Enables monitoring the condition and use of products to assess the reusability.	
	Control	Remote control enables saving energy and optimizing the system efficiency and comfort.	Enables remote controlling in sharing systems.	Enables remote maintenance, repair, and upgrades.	Enables take-back system more effective.	
	Optimization	Performance optimization by monitoring condition of the equipment and environmental parameters.		Enables monitoring the performance and faults to optimize repair and maintenance services.	Enables monitoring the use cycles of products and parts which in return can optimize the use times in multiple use cycles on the individual part level.	
	Design Evolution	Enables product redesign and improvement by collecting data about products' condition and reducing faults.	Enables improving service design by collecting data on usage of the services as well as reducing operational costs.	Enables durability of the products by providing data from products-in-use.	Enables supporting design of services related to recovery strategies for building business cases for looping.	

Adapted from Ingemarsdotter et al. (2020)

performance and insights. Consequently, AIoT can speed up operations as well as improve productivity while reducing costs. Utilizing AIoT can improve quality, maximizing equipment performance and improving efficiency. For example, managing fleet of power-generation assets is challenging and requires real-time insights from country to country. Many businesses are aiming to strongly operate, maintain, and manage assets at the central level. By leveraging AIoT, these businesses can solve such challenges while gaining benefits such as quick review of the performance of power generation units in detail, reducing the time of analyzing the wind power generation, recognition of where the assets are unperforming and applying a quick maintenance to country technology teams, and improving production efficiencies.

AIoT Case Examples

USG Corporation is a building material leader in the United States which optimizes productions by utilizing big data (collected by smart IoT devices and sensors) and predictive analytics (statistical algorithms and machine-learning techniques/AI techniques). Advanced data are essential in creating new products which keep the air clean and are eco-friendly as well as meeting the standards for coveted environmental ratings. Considering the high range of global competition, the business must produce high-quality products at an affordable price which requires confidently detecting, resolving, predicting, and preventing quality faults and reliability issues while minimizing costs. Utilizing AIoT techniques enables the optimal formulation in raw materials and adjusts the production process in real-time.

Volvo Trucks are using sensor data and AI solutions to minimize unplanned downtime. Unplanned downtimes can impose considerable damage and expenses on fleet operators and the customers where the delivery time is especially important. Unexpected breakdowns of the trucks can cause huge costs for the operators. Hence, Volvo has overcome this challenge by remote diagnostic and preventive maintenance services by utilizing IoT with AI. This solution can help Volvo Trucks customers to maximize a vehicle's time on the road while minimizing the costs of service disruptions by servicing connected vehicles more efficiently, accurately, and proactively. Thousands of IoT sensors on each truck enable collecting real-time data for remote monitoring services. Data include the location and conditions during the fault. Then the massive amount of data is processed and analyzed by analytical AI techniques to diagnose the fault quickly, and detailed information and recommended action plans are provided to the customers.

AIoT Enhancing CE in International Business

The rise of the Internet and connected devices allows people and businesses to operate 24/7 365-days a year, across oceans and continents. This has reshaped, upended, and given rise to new industries and changed how people interact with the world. Once barely more than a convenient, quick, and cheap way to send messages around the world, the Internet now touches nearly every aspect of our lives (Velocity Global, 2018). The shift to more Internet-enabled and intelligent products services has gained momentum in recent years as the decline in cost, increase in processing power, and a prevalence of sensors have made it possible to connect things, people, and devices across geographical boundaries. This is likely to have far-reaching implications for international business and commerce and is likely to drive generational shifts as industry lines are blurred and digitally inspired disruptors emerge (Evans, 2018). As an emerging megatrend, AIoT is forecasted to be a key driver in advancing this revolution by delivering intelligent and connected systems which can self-correct and self-heal themselves. AIoT creates a smart, connected network of devices that make faster, greater, and more efficient impact than ever, which in turn will give businesses and governments the ability to influence and shape not only domestic but also international business like never before (EY, 2020) through a heightened awareness of the world, and smart tools that monitor and react to changing conditions often without human input. For example, deep learning capabilities of AI enables businesses to efficiently derive process and simulate business-relevant insights and actions from the massive amounts of data captured from IoT systems through sensors, software, and other technologies embedded within objects, which allow for the exploration of the real and virtual world in ways that have not been previously possible. This is of critical importance to businesses due to their increasing reliance on data to drive their decision-making processes. AIoT will prove invaluable for international business headquartered in one country with remote operations across the globe. Knowledge and its transfer have been seen as the core of multinational companies in the past already (e.g., Kogut & Zander, 1993); AIoT provides more opportunities to use knowledge stemming from various parts of the world, however.

As has been described, the value of IoT data can be only realized when combining with analytics and AI–AIoT. AI brings significant value and success from IoT initiatives within a business which heavily utilizes AI. The rich and wide range of data coming from the IoT require understanding and ability of businesses to deliver value from data which can be interpreted by AI. In

an IoT environment where there is vast range of data, AI can learn from these data and eventually automate decision-making and close any loops. Integrating AI capabilities with IoT will increase reliability, efficiency, and productivity processes. AIoT can help in speeding up operations of improving employee productivity and decreasing costs by minimizing potential friction points in traditional (classical) operating models by reducing the number of actors needed in extended global supply chains. At the same time, associated technologies like blockchain and automated systems (e.g., smart contracts and smart meters) can increase trust in operations and transactions due to their ability to remove human error and enable users to have a better oversight of their extended supplier/partner chains as live status information accessible through platform systems becomes a prerequisite of international business.

Overall, smart contracts can lower transaction costs (cf. e.g., Hennart, 1989) among different parties. This empowers business leaders around the globe to improve quality, maximize equipment performance, improve production efficiencies, improve anomaly detection, increase forecasting accuracy, increase inventory control from sourcing to delivery through more frequent use of small-batch "just-in-time" manufacturing, ensure timely stock replenishment, balance energy, achieve operational efficiency, and improve health and medical outcomes (SAS, 2020). Further, AIoT data analytics enables businesses to learn more about audit and connect with their entire value chains, including their sub-tiers and sub-sub-tiers where most disruptions and non-CE activities are likely to originate (Sneader & Singhal, 2021). At the same time, the data collected through these processes can be used by international businesses to influence and shape consumer behavior in increasingly precise and sophisticated ways (EY, 2020). These outcomes will have a significant impact on economic performance and CE aspects in sustainability and international business.

An often-cited example of AIoT being used by industry is the international transport and logistics sector in which sensors are being applied for predictive maintenance in trucks. This allows for not only the automatic scheduling maintenance, but scheduling maintenance along the truck's route to keep it on track for its anticipated delivery date. If the truck requires a specific part, its system can alert an operator thousands of miles away, prompting him or her to order and ship the part to the desired service center—keeping the truck on schedule with minimal delay. This data can be managed anywhere in the world, making it an excellent way for businesses to keep operations running smoothly even in another country. The concept applies to any global business that needs to keep track of its shipping, sales, maintenance, or any other need that can be addressed remotely (Velocity Global, 2018). Another example of

AIoT CE application is in the international high-tech industry, which requires circular thinking to address issues like shorter shelf lives, planned obsolescence, and changing customer preference. This leads to tons of equipment to be discarded and replaced rather than repaired and reused. In the US alone, 400,000 mobile devices and 120,000 computers are discarded each day, leaving enormous value on the table, loss of infinite natural resources, and potential damage to the society and the environment due to the release of harmful substance or hazardous disposal methods. AIoT can be a used a tool to shift this current trend and improve international businesses circularity by enabling businesses and their extended supply chain partners to track and identify products from cradle to grave by efficiently managing products and components through secondary markets. This tracking also facilitates the development of new service-based sectors which can use data collected through AIoT to identify, extract, refurbish, and reuse components that still have a useful life cycle (SAS, 2019).

An Innovative Approach to International Business Driven by CE and AIoT

As international business and CE become increasingly influenced by digital technologies, the adoption of an (business) ecosystem perspective to deliver products and/or services, through which a set of global actors (producers, suppliers, service providers, complementors, end users or customers), regulators, and civil society organizations (Figs. 3 and 4) contribute to a collective outcome (Jacobides et al., 2018; Talmar et al., 2018) through strategic alliances based on a hierarchical (Adner, 2016) or decentralized bottom-up approach (Karakas, 2009), is emerging. This allows ecosystem members to receive advantages and support from other actors who have the resources they need, for example, product design and marketing expertise, supply route detail, production knowledge, and systems (Lewandowski, 2016). Further still, it allows members to focus on their core business and value creation competencies in a more sustainable way. This is breaking down traditional domestic and international boundaries by allowing internal (within business) and external (other stakeholders) ecosystem members to interact with each other anytime, anywhere, and on anything, across extended global ecosystems However, it is increasing the importance of awareness to geographical nuances such as domestic and international laws and regulations or to cultural differences, which often need human input and can be overlooked when businesses and/or ecosystem become overreliant on digital technologies.

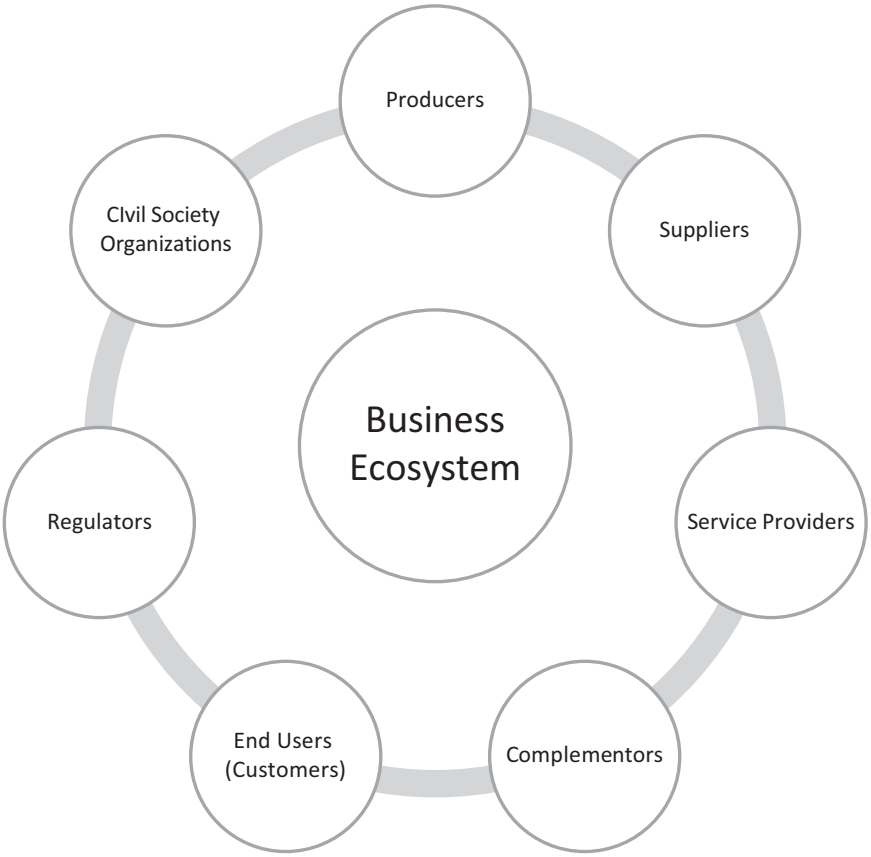

Fig. 3 High-level representation of a typical (business) ecosystem membership structure. (Adapted from: Jacobides et al., 2018; Talmar et al., 2018)

From a CE perspective, recent research defines these relationships as CE business ecosystems, which are broader than a pure business ecosystem. According to Aarikka-Stenroos et al. (2021), CE ecosystems are "*communities of hierarchically independent, yet interdependent heterogeneous set of actors who collectively generate a sustainable ecosystem outcome*." Konietzko et al. (2020) identify three main principles for CE ecosystem innovation as collaboration, experimentation, and platformization. Collaboration group refers to the way firms' organizations interact with each other in their ecosystem to innovate solutions for CE. The experimentation group refers to the way organizations establish processes of trial-and-error to achieve greater circularity, whereas platformization group refers to the way organizations manage social and economic interactions through online platforms to reach their circularity goals.

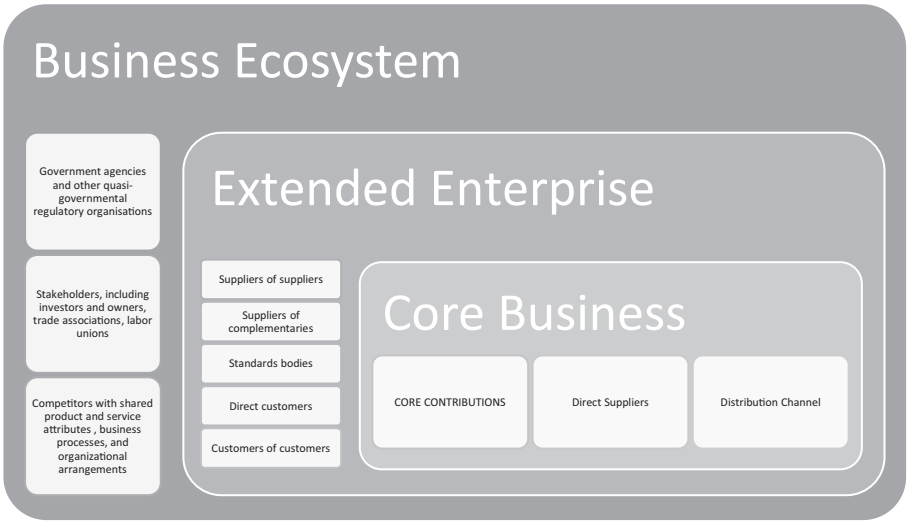

Fig. 4 Moore's business ecosystem layers the death of competition: leadership and strategy in the age of business ecosystems. (Adapted from: Moore, 1996)

Regarding CE, Konietzko et al. (2020) hypothesize that achieving circularity through an ecosystem approach, or so-called circular ecosystems, necessitates a systems perspective of circularity, rather than viewing it as the property of an individual product and/or service. Consequently, transitioning to a CE requires product, business model, and ecosystem innovation. In this situation, the difference between a BM and an ecosystem perspective is that the latter views BMs of other relevant actors to be as important as the one of a focal firm (Adner, 2016). In these scenarios, circularity is seen to be the property of a system of actors and different contributions. It is the interplay of different actors, ecosystem, and business model elements that together maximize resource efficiency and minimize resource use, emissions, waste, and pollution.

Geissdoerfer et al.'s (2018, p. 402) definition of BM and sustainable BMI captures the models as a value chain as follows: "as simplified representations of the value proposition, value creation and delivery, and value capture elements and the interactions between these elements within an organizational unit." If we consider this at the global value chain level, or at the ecosystem level, to better reflect the interconnected, inter-reliance, and global nature of modern business ecosystems, we need to consider several actors, some of which provide AIoT technology. Utilizing AIoT in the CE ecosystem helps manufacturers to improve quality of the product by applying analytics and combining with IoT data from external sources such as supplier data, logistics, and consumers. For example, one way to change the traditional value

chain is the AIoT-enabled leasing model where both manufacturing capacity and final products could be leased based on data on usage and forecasts. Data plays an important role in all these principles, highlighting the key role AIoT can play based on our earlier descriptions.

From an operational perspective, there are three distinct categories of CE ecosystems: the flow of material and energy, knowledge flow, and economic value flow, which would be like the flows in a networked multinational. Sitra (2021) mentions that successful organizations in CE establish and expand their circular business ecosystem from the very beginning to ensure their solutions respond to CE goals in the long term and suit customers' needs and satisfaction. Collaboration with larger groups of stakeholders and partners in an ecosystem therefore helps businesses in investing in more sustainable solutions and in developing CE solutions. In this regard, data play a vital role in the ecosystem for collaboration and sharing information, knowledge, or experiences that organizations face during their path toward CE. AIoT can also help organizations find new business opportunities within their ecosystem and optimization of resource usage. Hence, it can help them to improve their operations and profitability internally and externally. This has given rise to a growing interest in AIoT BMs, which focus on the business environments that exploit digital technologies capabilities and underscore the relevance of contextual issues, such as interdependencies, interactions, and partnerships that evolve in the same innovation ecosystem (Haaker et al., 2021; Metallo et al., 2018), which enables a business to see its products and/or service and wider ecosystem in greater detail.

Since data play the key role in CE ecosystems, digital technologies can enable ecosystem transition by including faster and more agile learning processes with iterative cycles of designing, prototyping, and gathering feedback, which are required for the complex task of redesigning key aspects of the economy. Increasing connectivity through IoT-enabled systems and smart devices can help firms to track and collect data in all the processes of supply chain. In addition to improving asset utilization, reliability, and productivity for businesses through real-time data transformation which leads to less risk, it improves operations of business as well as developing business. Remote monitoring and controlling capability of IoT help firms to stay competitive internationally. Finally, BMI that uses AIoT to support the design of value propositions for CE model should be identified and implemented by businesses. Furthermore, to achieve the goals of CE, organizations should build their business ecosystem and make partners based on circular economy principles. A CE ecosystem is broader than normal business ecosystem, since all actors should share information, data, and knowledge with partners and

stakeholders and collaborate with them to deliver value for the whole ecosystem. In this regard, building partnership with different international partners who can support the circularity transition of the firm can accelerate the shift and increase competitive advantage of the organization and factors in the increasing demand for more sustainable goods and services from industrialized countries.

Conclusions

In this chapter, we have highlighted the importance of BMI for international business to transition toward a more CE, and the AIoT as an enabler of this. Adopting a CE-based operating model requires that businesses initiate and develop disruptive technology and business models that are built on aspects such as longevity, renewability, reuse, repair, servitization, capacity sharing, and dematerialization (Batista et al., 2018). In recent years, global events, notably the COVID-19 crisis, have sped up the digital transformation of international business, making it imperative for businesses to reconfigure their operations to provide more digital and online capabilities (Sneader & Singhal, 2021). AIoT can provide technology which provides a platform for information sharing which can be a basis for many of these. For an internationally operating company, this could mean closer cooperation with partners, renting capacity from other manufacturers' machines, manufacturing, and recycling on the spot (versus outsourcing manufacturing into a large-scale supplier) and production closer to the home again (i.e., reshoring) as the supply chain's linearity would be reversed. Producers could partner with other businesses that can help maintain, redistribute, or refurbish products, and this could create new potential in the ecosystem and/or value chain (Wieland & Durach, 2021). AIoT technology is an enabler for BMI which can change how global value chains look like in the future. Global might become local—but connectivity and data sharing might happen on the global scale with CE goals guiding the behavior of all stakeholders. We have discussed many of the positive implications that AIoT can have on international business and CE, but at the same time it is important to develop awareness of emerging and potential negative consequences of the technology and the so-called techlash, which are driven by privacy and trust concerns (EY, 2020). Time will tell how rapid the change will be, but it is evident that the megatrends discussed in this chapter will shape international business operations of the tomorrow.

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A Big Data Analysis of Perceived Image of the Belt and Road Initiative

Eve Man Hin Chan, Danny Chi Kuen Ho, Liane Wai Ying Lee, Tsz Leung Yip, and Angappa Gunasekaran

Introduction

To grow through expanding into foreign markets and finding better sources of supply across geographic boundaries, businesses have to anticipate and address opportunities and threats brought by megatrends that affect their

E. M. H. Chan (✉)
Faculty of Design and Environment, Technological and Higher Education Institute of Hong Kong (THEi), Hong Kong, China
e-mail: evechan@thei.edu.hk

D. C. K. Ho
Department of Supply Chain and Information Management, The Hang Seng University of Hong Kong, Hong Kong, China
e-mail: dannyho@hsu.edu.hk

L. W. Y. Lee
Department of Management, The Hang Seng University of Hong Kong, Hong Kong, China
e-mail: lianelee@hsu.edu.hk

T. L. Yip
Department of Logistics and Maritime Studies, The Hong Kong Polytechnic University, Hong Kong, China
e-mail: t.l.yip@polyu.edu.hk

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_7

global operations. In addition to the COVID-19 pandemic and extreme weather events, international businesses cannot afford overlooking other megatrends that have long-lasting impacts on macroeconomic and geostrategic environments. Among them is a rebalancing of global economic power from the West to the East. Over the course of development against this backdrop, businesses have witnessed the intensified conflict and competition between two superpowers—the United States and China—in multiple arenas after the adoption of "America First" foreign policy under the Trump administration in 2017. And the adoption of "America is back" foreign policy by the Biden administration since 2021 aims to restore America's leadership in global affairs and approach China as a "strategic competitor."

The dramatic change in the United States foreign policy stems from the belief that China poses the biggest threat to America's economic and national security. The actions taken by the United States government, like elevation of tariffs on imports from China and restrictions on sensitive technology exports to China including Hong Kong, are expected to reduce its reliance on China for imports of essential commodities and slow China's economic growth. These actions have affected not only the United States–China trading relationship but also the countries and businesses connected to them. Besides being the world's second-largest economy behind the United States, China has been seen as a growing superpower through its extensive investments in countries along the Belt and Road (B&R) regions, expanding its geopolitical influence and challenging America's leadership on the world stage.

In 2013, Chinese President Xi Jinping advocated for a series of infrastructure development strategies which were packaged as the Belt & Road Initiative (BRI), or originally the One Belt and One Road (OBOR), with a focus on connectivity primarily between China and the rest of Eurasia. In 2021, eight years since its roll-out, the BRI attracted the participation of over 130 countries and international organizations and gained tremendous financial support from the Beijing-led Asian Infrastructure Investment Bank (AIIB), funding various massive trade-supporting infrastructure projects. Despite that the BRI has been officially framed as a broad array of mutually beneficial policies and programs that focus on development and connectivity, there is an alternative view framing the BRI as an enabler for Chinese government to gain potential

A. Gunasekaran
School of Business Administration, Pennsylvania State University,
University Park, PA, USA
e-mail: aqg6076@psu.edu

military and geostrategic advantages and generate influence over host country governments (e.g., Russel & Berger, 2020).

These different ways of framing are expected to create a very positive or a very negative perceived image of the BRI and affect public sentiment, which could help to generate the required support for or to erect barriers against the trading and investment between China and countries along the B&R regions. Although the perception of the BRI have potential effects on governments' policy-making and international businesses' investment decisions, empirical research surrounding this issue across time and space is inadequate. To address this gap, the current study aims to examine how the global view of the BRI, as reflected by the public sentiment (or tone) expressed in media sources, has been changing over time.

This study contributes to the empirical literature by harnessing the power of big data and demonstrating a method to measure and track the changes of perception of the BRI from the global viewpoint and the perspectives of China and the United States. This study provides insights and informs future research on assessing the impact of public sentiment toward a grand development strategy, like the BRI, on policy decisions, foreign direct investment, and market-entry decisions of international business (Buckley et al., 2020; Cavusgil, 2021).

To perform a quantitative assessment of the perceived image of the BRI across the globe, including countries along the B&R regions and beyond, this study draws and analyzes data of news articles from the Global Database of Events, Language, and Tone (GDELT). This is a large-scale database of international and local media that has covered print, online, and web news for 132 countries in over 100 languages since 1979. With such a database, this study can measure public sentiment toward the BRI at the global level as well as to contrast the tone of news articles from the viewpoints of China and the United States. It can also track the changes of public sentiment over time.

Past studies have examined the effect of public sentiment on various issues. For example, De Cadenas Santiago et al. (2015) applied the GDELT to analyze the relationship between social shock and response across regions and found that the data are consistent with uncertainty. Predictions of the future level of conflict in Afghanistan are highly accurate when using the monthly data at the district level (Yonamine, 2013). Besides, the connection between countries was also analyzed by applying the GDELT in Yuan (2017), who built an autoregressive integrated moving average (ARIMA) model with the GDELT to investigate inter-country relations and found that the pattern differs across countries and time. Yet, analysis of public sentiment on the BRI is inadequate. The perception or image toward BRI allows predictive analysis to

explain patterns in policy and investment decisions (Kauffmann et al., 2020; Kumar et al., 2020; Liu, 2020; Saboo et al., 2016). This method is particularly useful to analyze "black swan" events with extreme uncertainties (e.g., COVID-19) and to make atheoretical predictions from the dynamic macro environment (Sheng et al., 2020).

Divided Views on the BRI'S Impacts

The BRI's Positive Impacts

Some empirical studies have quantitatively evaluated the potential benefits for the B&R countries. For instance, Garcia-Herrero and Xu (2016) conducted an analysis that estimated how trade would be created in response to the enhanced transport infrastructure along the B&R regions. They found that the gains are 6% for Europe and 3% for Asia, while the rest of the world would suffer a 0.04% reduction in trade. In the same view, Casarini (2015) argued that most of the countries in Southeast Europe and the Mediterranean area would benefit from the Chinese infrastructure projects that link the port city of Piraeus with Central and Eastern Europe and become a hub for China's trade with Europe. Initially, this initiative caused tension with Russia because of its effect on the Trans-Siberian Railway. Nonetheless, two international transport corridors (Primorye-1 and Primorye-2) under the BRI have been subsequently developed that link Russia with the Asia-Pacific region and provide new development opportunities for Russia (Li, 2018). An infrastructure project that links Ethiopia, Kenya, and South Sudan has tremendously boosted the economy in those countries (Breuer, 2017). Infrastructure investment in Nepal also originates from China, with a specific aim to link the economic activities of China and India. This could create new momentum in the development of Nepal (Shrestha, 2017). Apart from these, there is the implementation of the China-Pakistan Economic Corridor (CPEC), a massive infrastructure development project intended to connect Asia with Europe, the Middle East, and Africa. Wolf (2020) studied the benefits of economic corridors and estimated the anticipated economic and geopolitical impacts on the region. Wolf (2020) predicted that the CPEC would serve as a pioneering project for future regional cooperation between subnational regions and their integration, such as Balochistan, Khyber Pakhtunkhwa, the Federally Administered Tribal Area, and Gilgit-Baltistan in Pakistan. Ho et al. (2020) found a positive effect of the BRI on the clothing exports of some Asian developing countries along the B&R regions to the United States.

The BRI's Negative Impacts

On the other hand, global concerns over the negative impacts of B&R projects have also increased over the years. For most international critics, the BRI lacks market coordination and regulation. Hallgren and Ghiasy (2017) stated that the risks of Chinese investment in Myanmar were brought to light due to the lack of transparency. Without market principles, recipient countries are at risk of engaging in projects that might not be profitable in the long run. Given that the majority of China's financial support has to be repaid, debt sustainability in the host countries has become a key concern. According to Sheng (2018), China's investment transactions in Uzbekistan and Bangladesh have exceeded 20% of their gross domestic product (GDP). In the same vein, academics have also questioned whether China has adequate economic power to sustain these "unprofitable" overseas projects if they are not fully driven by commercial interests. Central Asian countries have declared that more local labor should be trained and involved in the Chinese projects, because overreliance on China poses a risk to them (Laln, 2018). Beyond the legal and economic aspects, India is also aware of being isolated as China gradually gains more power from the BRI (Banerjee, 2016).

Approach to Gauge Perceived Public Image of the BRI

This study applies big data analysis to gauge the public image of the BRI from various media sources of the GDELT. The GDELT is an open-source repository of news articles, which uses the CAMEO-coded data set (Schrodt, 2012). It is a universal platform that consists of over a quarter of a billion news event records that cover print, online, and broadcast news in over 100 languages across 132 countries/regions and translates 98.4% of daily non-English news from 65 different languages into English and allows real-time measurement of 2300 emotions and themes (Cartledge, 2020). As the metadata is updated every 15 minutes, the database can cover news from every corner of the earth in real time. The GDELT has two powerful features: the intensity of coverage at any point in time (count) and the tone (sentiment) of the topics covered in the news.

Kwak and An (2016) called the GDELT "a tale of the world." The database collects a massive volume of data of persons, organizations, locations, and events across the globe. Additionally, the GDELT captures worldwide news,

which is a valuable resource for modeling societal-scale behavior, beliefs, and sentiments at the global level (Leetaru & Schrodt, 2013). The data include the source, actors, time, and approximate location of recorded events. The average "tone" of an event is also gauged by including all documents that allude once or more to the event. For instance, a news event that "African people welcome investment under the BRI" indicates a positive tone, whereas a news report about border conflict may receive a negative tone score. The score ranges from −100 (extremely negative) to +100 (extremely positive) based on the tonal algorithm of Shook et al. (2012).

The GDELT offers two main products. The first is the frequency that a certain topic is raised in the news (i.e., intensity), and the second is the sentiment or image of a certain topic covered in the media (i.e., tone). The GDELT can be applied in two different ways. The simplest way, based on the API, only covers from 2017 to date but has the advantage of allowing searches for any subject of interest, even if it is not included in the library developed by the GDELT to locate institutions or events. The second method, which relies on the Google BigQuery service for the searches, has the advantage of offering details that go back much earlier than 1979 but requires a certain concept or institution to be in the GDELT library. Unfortunately, the BRI has not yet been included nor has its previous moniker, namely the One Belt One Road, and hence the second method is not viable. Fortunately, the BRI is a relatively young concept and mostly covered in the smaller sample.

Regarding the geographical coverage, the GDELT contains online media articles in 132 countries and regions and covers the period from 1 January 2017 onward. To accurately capture the concept that we would like to investigate, we conduct searches for the BRI as well as "Belt and Road Initiative," or "Belt and Road," or "One Belt One Road" as the keywords. A caveat for the use of the GDLET is its exclusion of social media. Admittedly, the widespread use of social media with the growing prevalence of fake news might make it less relevant for our study. In any event, the GDELT only covers mainstream media, which is what we will use in our study. Our study collects data from the countries/regions covered by the GDELT database.

Research Methodology

In order to quantitatively evaluate the perceived image of the BRI, we calculate the tone of the BRI in a specific article published in the country and then aggregate it with a simple average of the sentiments at the global level to reflect the perceived image of the BRI. The daily news data are collected

between 1st January 2017 and 31st January 2021. We filter the news articles that refer to business events involving firms that are operating in each country, and record the countries involved.

Following the GDELT, we measure the average tone by a numerical score that indicates the degree of positivity/negativity delivered by each piece of news. The score is calculated by the GDELT's built-in text mining technique.

The calculation of the tone of the BRI is as follows,

$$T_{j,c} = \frac{W_{j,p,c} - W_{j,n,c}}{W_{j,c}} \in (-100, +100) \quad \text{(Eq. 1)}$$

$$T = \frac{1}{N_c} \sum_j T_{j,c} \in (-100, +100) \quad \text{(Eq. 2)}$$

where $W_{j,p,c}$ refers to the number of words with positive sentiment in article j of country c, $W_{j,n,c}$ is the number of words with negative sentiment in article j of country c, and $W_{j,c}$ is the total number of words in article j of country c. $T_{j,c}$ is the tone for article j of country c. T is the average tone for all selected articles of country c. The range of the tone lies between -100 (the most negative) and +100 (the most positive). In our study, a positive tone reflects that the public media in the country favors the BRI, whereas a negative tone points to negative sentiment. The sentiment scores of all countries examined in this study are averaged with the same weight to obtain the global view on the BRI. For comparison of China's and the United States' perceptions of the BRI, news articles published by outlets in the respective countries are collected. Difference between their scores is calculated to show the degree of polarization of their sentiments toward the BRI.

Results

Global Perceptions of the BRI

As shown in Fig. 1, there are 344,190 BRI-relevant news articles, which are drawn from over a total of 739,762,228 monitored articles around the world in the study period. Figure 2 shows the distribution of sentiment scores toward the BRI at the global level, with mean = 0.17 and standard deviation = 0.97. Figure 3 shows the change of average tone of BRI articles in the study period. Overall, the findings show that the BRI has been, on average, perceived positively globally.

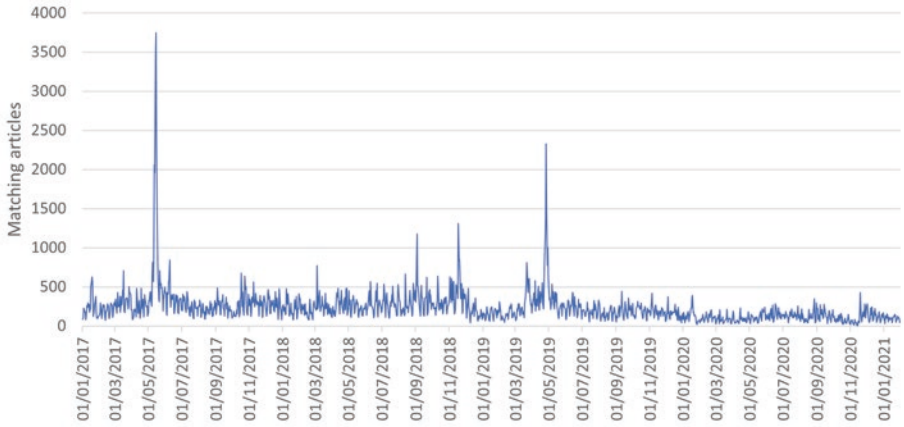

Fig. 1 Number of articles of the BRI monitored by GDELT in the sample period

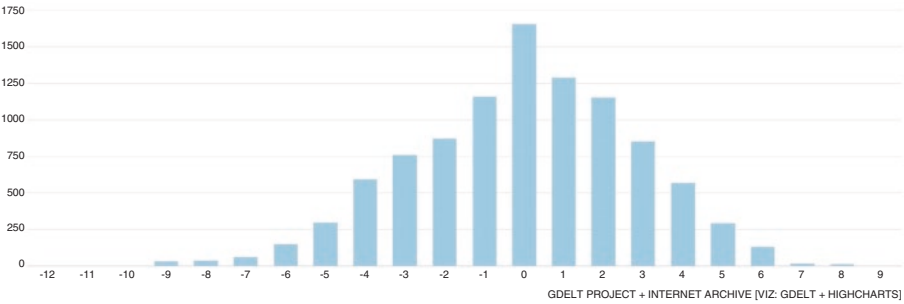

Fig. 2 Distribution of sentiment scores toward the BRI (global level)

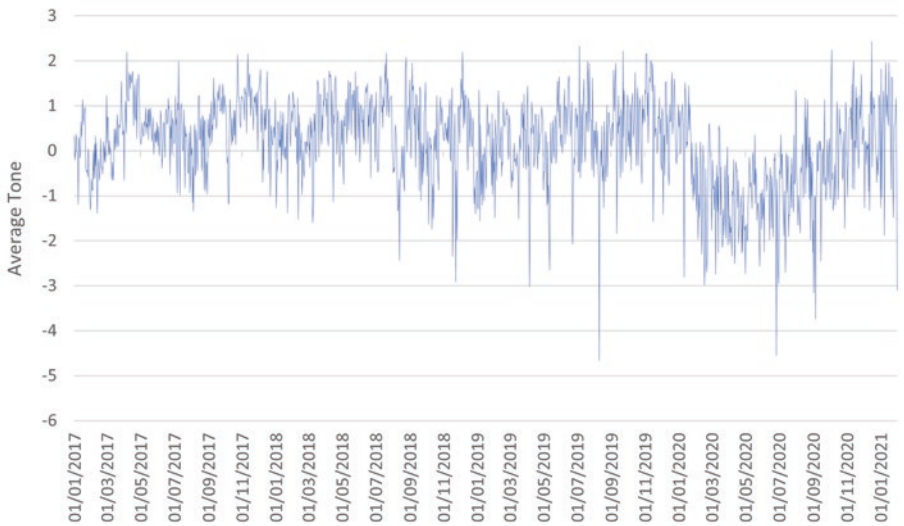

Fig. 3 Average tone of BRI articles (global level)

China's Perception of the BRI

Figure 4 shows the distribution of sentiment scores toward the BRI from China's perspective, with mean = 1.52 and standard deviation = 1.12. Figure 5 shows the change of average tone of BRI articles in the study period. The findings show that the BRI has been, on average, perceived positively from China's viewpoint.

The United States' Perception of the BRI

Figure 6 shows the distribution of sentiment scores toward the BRI from the United States' perspective, with mean = -0.64 and standard deviation = 1.24. Figure 7 shows the change of average tone of BRI articles in the study period.

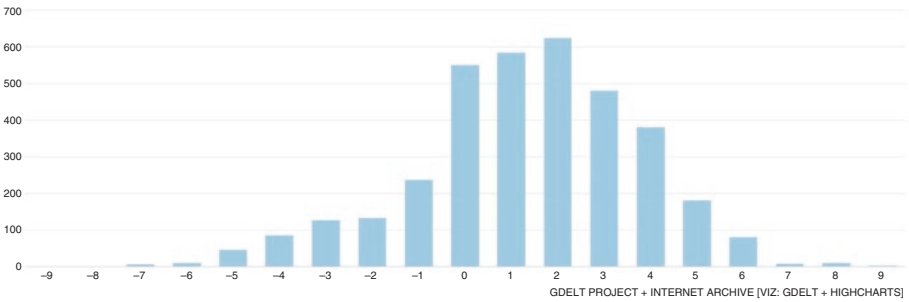

Fig. 4 Distribution of sentiment scores toward the BRI (China)

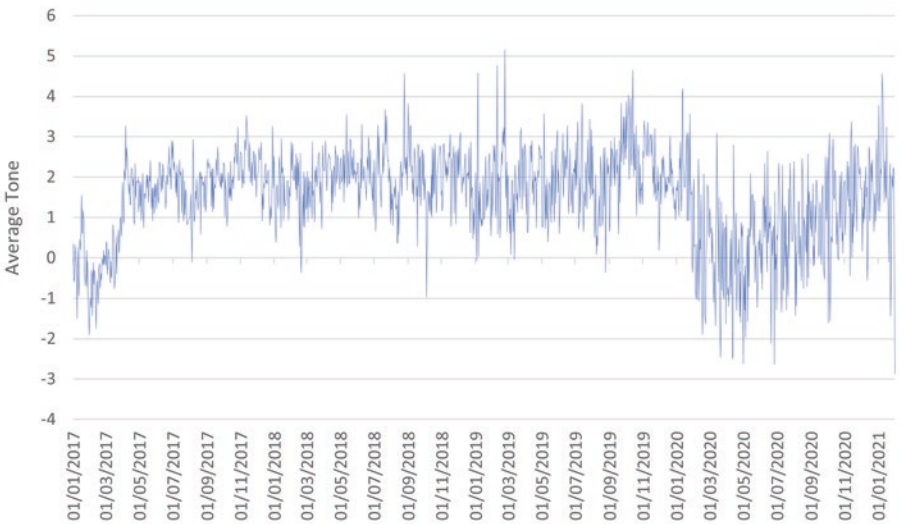

Fig. 5 Average tone of BRI articles (China)

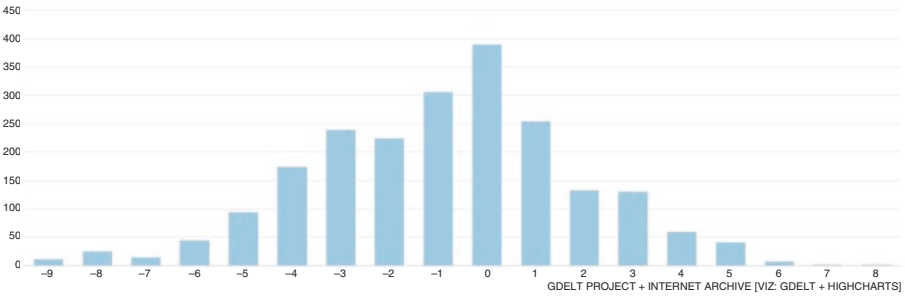

Fig. 6 Distribution of sentiment scores toward the BRI (the United States)

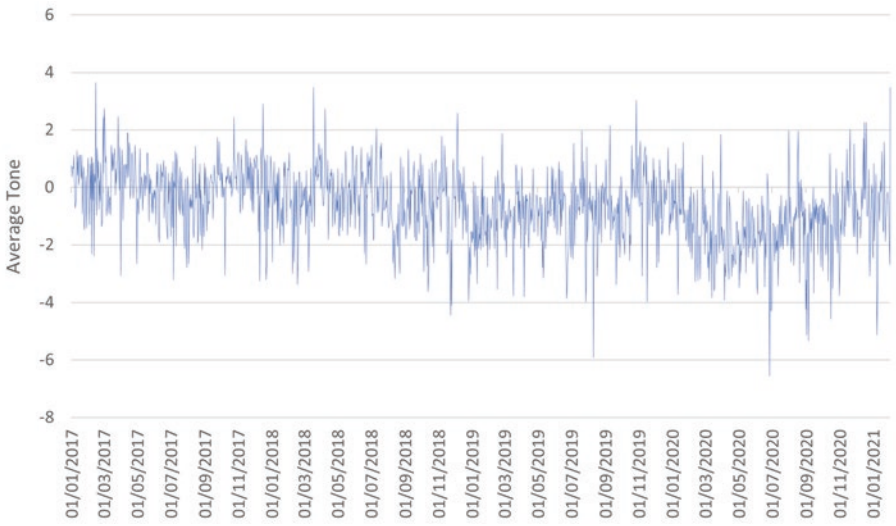

Fig. 7 Average tone of BRI articles (the United States)

The findings show that the BRI has been, on average, perceived negatively from the United States' viewpoint.

Comparison of China's and the United States' Perceptions of the BRI

Figure 8 shows that China's tone on the BRI is more positive than that of the United States. As shown in Fig. 9, the difference between China's and the United States' sentiment scores (i.e., difference = China's score – United States' score) is positive, with mean = 2.16 and standard deviation = 1.46.

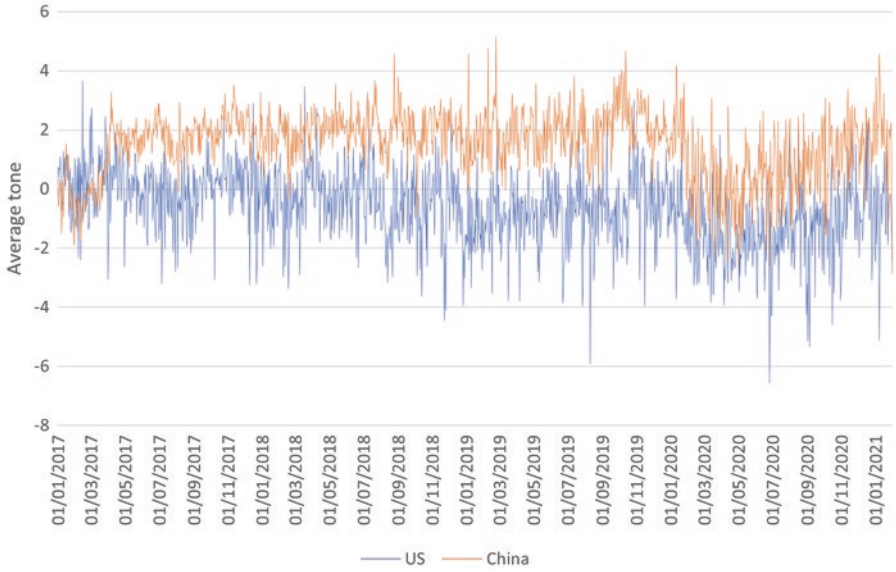

Fig. 8 Average tone of BRI articles (China vs. the United States)

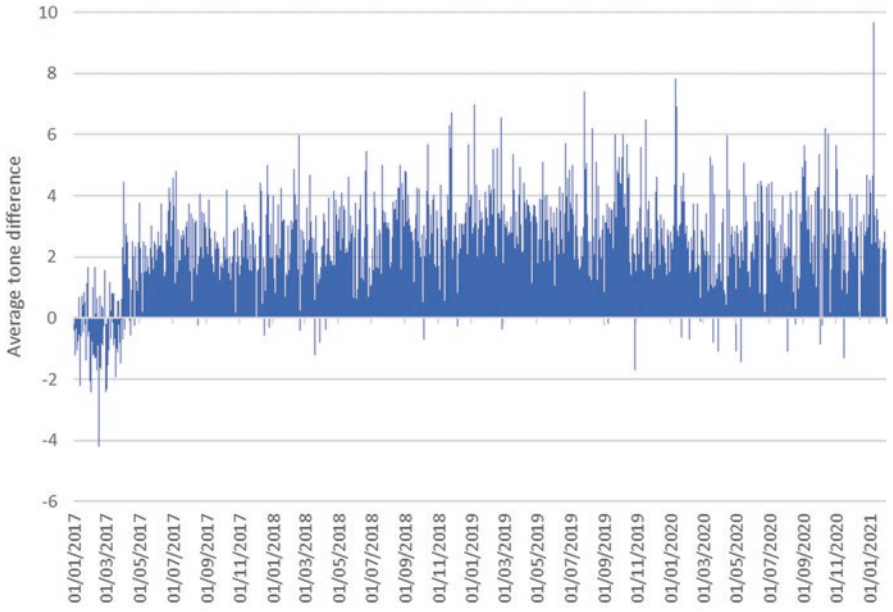

Fig. 9 Difference between China's and the United States' average tone of BRI articles

Conclusion

This study has examined the image of the BRI in the world by analyzing data collected from an open access big data set, namely GDELT. The key finding is that China's BRI has been perceived positively at the global level, as reflected by the average public sentiment scores of 132 counties/regions between 1st January 2017 and 31st January 2021. Besides, as expected, the views on the BRI are polarized, with a very positive sentiment found in China and a negative sentiment found in the United States. The results reflect the conflict and competition between the United States and China in their restructuring of the global economic order.

The implication for international business is that tracking and predicting changes of perceived BRI image from the global and individual country's perspectives is important, as it could offer opportunities and threats to companies with operations along the B&R regions and beyond. One way to assess the changes of public sentiment is to use the big data approach demonstrated in this study. And to plan for the worst, international businesses need to collect streaming data and feed the data into their risk management information system for scenarios analysis and contingency planning. International businesses need to be better prepared to navigate their way through the challenges brought by the rebalancing global economic power and other megatrends. The global environment will become more turbulent and complex than before, and constant change is the new normal.

Acknowledgments All data and visual outputs are obtained from the GDELT Project https://www.gdeltproject.org/

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Firm Internationalisation and Corporate Governance: A Longitudinal Study on the Russian Federation

Randolph Luca Bruno and Kirill Osaulenko

Introduction

Emerging markets multinationals (EMNEs) are bound to seek "efficiency, flexibility and exploit learning of worldwide basis" (Bartlett & Ghoshal, 1989) to survive powerful megatrends emerging in the last two/three decades, such as shifting supply chain strategies, skills gaps, and rising societal expectations (Cavusgil, 2021). The stream of the literature on firm's internationalisation (Johanson & Vahlne, 1977; Malhotra & Hinings, 2010; Oviatt & McDougall, 1994) and the stream on corporate governance (Berle & Means, 1932; Donaldson & Davis, 1991; Fama & Jensen, 1983; Freeman, 1984) have developed somehow parallel research agenda without noticing a latent convergence. The former stream focuses on firms' internationalisation process via initial firm's entry modes into foreign markets (Ripollés & Blesa, 2017), operational strategies (Bell et al., 2004; Crick & Spence, 2005; Martin & Javalgi,

R. L. Bruno
University College London, London, UK

IZA Institute of Labor, Bonn, Germany

Rodolfo DeBenedetti Foundation, Milan, Italy
e-mail: randolph.bruno@ucl.ac.uk

K. Osaulenko (✉)
University College London, London, UK
e-mail: kirill.osaulenko.14@ucl.ac.uk

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_8

2016), and growth and performance beyond the inception stage (Ghannda & Ljungquist, 2005). The latter stream primarily investigates the structure of the board of directors (Oxelheim et al., 2013; Rivas, 2012), transparency and disclosure measurement (Oxelheim & Randøy, 2004), and shareholder protection mechanisms (Jiraporn et al., 2006) that would *eventually* assist with the successful internationalisation process. Scholars studied the relationship between corporate governance and internationalisation (Chen, 2014; Jiraporn et al., 2006; Luo & Tung, 2007; Oxelheim et al., 2013; Oxelheim & Randøy, 2004; Sanders & Carpenter, 1998), primarily looking into the channels through which sound corporate governance mechanisms would enhance the speed and success of firm's internationalisation.

Nonetheless, the internationalisation of new ventures (INV) like digital start-ups (Cavusgil, 2021) may leapfrog the stages of "standard" internationalisation (Oviatt & McDougall, 1994), shortcutting key strategic decisions faced within such delicate processes. If a firm comes from the country of origin plagued by weak corporate governance regulatory framework, potential corporate governance mechanisms applicable from the inception stage would be compromised. SMEs that do not separate ownership and control could expand within a weak corporate governance environment, but they might then face structural problems of unchanged/rigid corporate structure hindering the next steps of firms' internationalisation. Hence, the so-called entrepreneurial awakening (Cavusgil, 2021) could be jeopardised and derailed, especially if the state "influence" is not fostering a level playing field.

This chapter presents empirical evidence from a proprietorial longitudinal database of 300 Russian firms that draws on data collected over 19 years, 2000–2018. Russia is characterised by relatively weak corporate governance.[1] We examine the internationalisation of the firm through geographical diversification, foreign mergers and acquisitions, and expansion of subsidiaries outside the domestic market (Garanina & Muravyev, 2018; Grosman et al., 2017).

The chapter is structured as follows. Section "Development of Corporate Governance Practices in Russia" investigates the development of corporate governance practices in Russia after the collapse of the Soviet Union. Section "Theoretical Underpinnings on the Link between Internationalisation and Corporate Governance" reflects on the theoretical underpinnings for the impact of internationalisation on corporate governance. Section "Data and Methodology" describes the dataset, and Section "Regression Analysis" delves into a regression analysis. The last section concludes the chapter.

Development of Corporate Governance Practices in Russia

The "notion" of corporate governance appeared in Russia only in the last couple of decades. During the Communism Era, companies were state-owned, which limited the agency problem of separation between ownership and control (or created other types of agency problems absent in market economies). A turning point in the modern Russian history is the collapse of the Soviet Union, where most companies owned by the government progressively "transitioned" into private hands. In the early 90s, Russia initiated mass privatisation through voucher schemes (Filatotchev et al., 1995). At the same time, privatisation occurred in Central and Eastern Europe (CEE) and other Commonwealth Independent States (CIS), although its effects varied across regions (Estrin et al., 2009). Redistribution of property, privatisation, expropriation of minority shareholders, and hostile bankruptcies in Russia (Sprenger, 2002) have partially reduced the presence of state-owned companies. However, it created concentrated ownership of unskilled and unaccountable management and general lack of competence (Boycko et al., 1997).

During the early privatisation period, the federal government had locked-in substantial shares in certain industries, such as gas, electric energy, oil, and telecommunications. Consequently, their shares were transferred to specially created state-controlled holdings (Chernykh, 2008), examples being Gazprom and Rosneft (energy), Sberbank (banking), and Aeroflot (transport). To control strategically important firms, the state issued a golden share, which grants large control rights, including veto power on certain important issues, without any cash flow rights (Frye & Iwasaki, 2011). Due to the pyramidal structure of ownership, a vast number of companies were also controlled by the government (Lazareva et al., 2007; Okhmatovskiy et al., 2020).

Russian state has means of control of state-owned enterprises that goes beyond sheer ownership (Grosman et al., 2017). One way in which Russian state maintains control over firms without direct ownership is the appointment of Russian state active officials as top executives of companies. There are cases when the government appoints former government officials as top executives which may also be counted toward the government control.[2] Furthermore, the Russian state maintains the control of firms through the "captive" provision of government resources (subsidy, grants, refinancing) during critical conditions. This mechanism provides state agencies with significant leverage over private companies. "Ad hoc" regulatory frameworks can be seen as another control tool that allows the state to create conditions in

favour of specific firms (or detrimental to others) by changing and adjusting the law.

Another large group of owners that emerged during the privatisation stage is the so-called group of "Russian oligarchs", who control around 40% of Russian industry (Guriev & Rachinsky, 2004; Okhmatovskiy et al., 2020; Okhmatovskiy & David, 2012). The relationship between the state and some oligarchs is quite tight. The unofficial support from the state allowed some large tycoons to grow and thrive. In return, they were inclined to cooperate politically (Mear, 2012). These oligarchic–state network structures filled the institutional vacuum left by the collapsed communist economy, ensuring "selective" access to the key resources for investments (Grosman & Leiponen, 2018).

In summary, the Russian corporate governance model has high ownership concentration mostly in the hands of large stakeholders (state/oligarchs) and weak legal protection of minority shareholders, which leads to high private benefit of control, poor accounting practices with a lack of disclosed accounting information, and no strict compulsory laws for firms' corporate governance structure. Within this context, we build our theoretical framework.

Theoretical Underpinnings on the Link between Internationalisation and Corporate Governance

Most academic articles in the field of internationalisation and corporate governance have focused on the causal nexus corporate governance (RHS) impact on internationalisation (LHS) (and not the other way round). For example, having on the BoD (board of directors) an international director with experience and knowledge of foreign markets will ease the process of entering foreign markets (Chen, 2014; Lu et al., 2009; Oxelheim et al., 2013; Rivas, 2012). Good protection of minority shareholders could attract the attention of foreign investors, therefore increasing the capital of the firm and providing financial opportunity to start operating outside its market of origin (Jiraporn et al., 2006). Monitoring mechanisms of corporate governance, such as BoD, transparency and disclosure mechanisms, and protection of minority shareholders, are required only when there is a separation of ownership and control (Berle & Means, 1932).

However, it is possible that a newly established firm seeks to start operations in the foreign market from inception (e.g., international new ventures (INV) theory, Oviatt & McDougall, 1994). Such strategic decision will

depend on several factors, such as competition intensity in the home market in comparison to the foreign market, demand for a product/service in the home market vis-à-vis the foreign market, whether an actual physical presence in the foreign market is required, and so on.

The bulk of the literature has looked into "success" case studies, but another stream of INV research has focused on unsuccessful cases, where the international expansion or further survival on the foreign markets was jeopardised: the literature identified managerial incompetence leading to falling profits, liquidity difficulties, and, eventually, to bankruptcy (Hayward et al., 2006; Ooghe & De Prijcker, 2008), and entrepreneurial strategic failures (Van Gelder et al., 2007); and external factors beyond the control of the entrepreneur (Carter & Wilton, 2006).

Nummela et al. (2016) focused on these three main causes of failure in INVs—managerial incompetence, entrepreneurial strategic failures, and external factors—and presented a holistic framework analysing failures of firms while also identifying critical incidents, as well as internal and external factors. This framework summarises the key elements of failure in rapid internationalisation, consisting of the antecedents (managerial incompetence, strategic decisions, external triggers), processes (partial or complete withdrawal from international markets), and consequences of failure (decreased profitability of business, restructuring of business, business closure). The model looks at the internationalisation as a dynamic process stating that the company that has initially failed its internationalising may eventually successfully re-internationalise. The failure of internationalisation can be trigged by a single factor (e.g., management incompetence) or a combination of antecedents (i.e., management incompetence together with incorrect strategic decisions and external factors).

However, this useful framework seems to overlook the link between management incompetence and strategic failures. In small and medium-sized firms, owner and manager are usually the same person, which means that the wrong strategic decision can be made because of scarce management experience. In owner-managed enterprises, the decision maker underestimates the complexity of firm's growth process via internationalisation. When a firm expands outside its country of origin, it will lead to higher complexity and increase information asymmetry (Lee et al., 2008; Michael & Pearce, 2004; Sanders & Carpenter, 1998), making it more difficult and costly to monitor top management teams' performance (Zajac & Westphal, 1994), and therefore leading to a typical agency problem. International firm will have to adopt additional or new corporate governance mechanisms, increasing the minimum level of corporate governance "sophistication".

While entering a foreign market, a firm may face external factors which push for corporate governance changes. As different countries have different rules and regulations, the structure of corporate governance mechanisms and their application will differ. Typical examples include accounting standards across different markets (IFRS standard or GAAP standard), board structure (one- or two-tier board), rules and regulations about minority shareholder protection (e.g., voting rights), or the type and amount of disclosed information required by law. If those regulations are different between the home market of the firm and the international market, an MNE (and especially an EMNE) firm will be obliged to adopt new practices. If the firm emerges from a market where the general standards of corporate governance are poor in comparison to the market of entry, it will be forced to introduce and develop new or additional corporate governance mechanisms.

As soon as such a firm starts its operation in the foreign market and adopts the corporate governance mechanisms which are required within that market, it engages with market actors (i.e., suppliers, distributors, customers, stakeholders, etc.) and starts building new relationships within the industry production network, hence, in turn, absorbing new practices. Based on such experiential learning (Kolb, 1984) within the network, an international company may implement best practices, among which possibly corporate governance mechanisms, thus establishing an additional channel through which its overall corporate strategy can be improved.

In the context of a firm internationalisation from a market with a poor corporate governance framework compared to the market of entry (e.g., Russia into the United States), we formalise the development path of corporate governance mechanisms in Fig. 1.

This graph represents the change in the number and quality of corporate governance mechanisms (y-axis) with respect to time (x-axis). The period from t to t+1 represents the establishment of the company in the home market. Based on the laws and corporate governance framework in the domestic market, a company might be obligated to introduce certain corporate governance mechanisms. Given the existence of information asymmetry between ownership and control, the company would require control mechanisms from inception regardless of internationalisation. Therefore, some corporate governance mechanisms may exist in any company pre-internationalisation phase.

Starting from t+1, the firm will enter a new international market. There are three factors that would lead to an increase in the number of corporate governance mechanisms due to the internationalisation process. Area “A1” represents a fixed increase in the number of corporate governance mechanisms due to the laws and regulations of the new market. Area “B1” shows exponential growth of

corporate governance mechanisms through time due to experiential learning. Area "C1" illustrates an increase through time due to the growth of the company (further increase in information asymmetry within the company due to the further separation of ownership and control). For example, a company can open an additional branch in a new geographical region of the same foreign market. The overall level of corporate governance mechanisms will increase by "ΔCG1" when a company enters its first international market. On the one hand, starting from the period t+2, a firm may enter another international market where the firm can still absorb and implement new corporate governance mechanisms (Areas A2, B2, C2). If the first and second international markets are similar in their corporate governance laws or business environments (e.g., Germany and Austria, on one hand; the United Kingdom and the United States, on the other), then internationalisation into the second market can yield some "reduced" increase of corporate governance (if any); in other words, it will be in smaller proportions in comparison to the first international market (ΔCG1 > ΔCG2). Thus, when the company enters "n" markets in the period t+n, it will mean that possibly ΔCGn = 0. At this point, the firm may not introduce any additional corporate governance mechanisms, but it may restructure or fine-tune the existing ones, depending on the strategic decisions.

If the firm's first market of entry has the same corporate governance framework as the firm's domestic market, the change to the corporate governance mechanisms can be minimal. For example, if the corporate governance code in the foreign market is just a set of guidelines rather than a set of rules (e.g., the Russian code of corporate governance and the CIS regions), this will imply that the increase in firm's corporate governance (area A1 on Fig. 1) would be equal to 0. Adoption of corporate governance mechanisms, which comes from experiential learning in the foreign market (Area B1), can also be equal to 0. A firm that already operates in the foreign market with a low level of corporate governance has no incentive to introduce any corporate governance mechanisms. Thus, the only effect of internationalisation on corporate governance will occur due to the increase in firm's overall complexity (C1), which increases information asymmetry.

The following hypothesis can be drawn from the above discussion: internationalisation of a firm from a country with a low level of corporate governance into a country with a high level of corporate governance will be correlated with the restructuring of corporate governance mechanisms:

Hypothesis 1

Firm's internationalisation, which occurs through opening or acquiring a subsidiary in the foreign market, will be an antecedent of improvement in the breadth (quantity) of corporate governance mechanisms.

Hypothesis 2

Firm's internationalisation, which occurs through opening or acquiring a subsidiary in the foreign market, will be an antecedent of improvement in the depth (quality) of corporate governance mechanisms.

Hypothesis 3

If the internationalisation of the firm occurs from a country with low level of corporate governance to a country with high level of corporate governance, the firm will have more incentive to further improve its breadth and depth of corporate governance implementation.

Data and Methodology

Interfax Spark database (https://www.spark-interfax.ru/) allowed us to obtain the crucial variables related to firm's corporate governance, and its quality has been testified via its use by seminal renowned Russian academic researchers (Berezinets et al., 2012; Kogdenko, 2021; Maltsev & Maltseva, 2018). The sample of the analysis has been selected based on three main thresholds for the base year 2016; hence, firms established after 2016 are not included in the sample: operating revenue greater than €350 million; total assets above €200 million; fixed assets above €150 million. These thresholds have a clear rationale: they identify companies that are established as big (e.g., excluding SMEs and including most of MNEs) at the end of the database. In this manner, we are capturing companies that are at the pinnacle or have exhausted their internationalisation expansion by 2018, hence providing relevant information on their post-internationalisation performance. By applying these thresholds, the Spark database provided data on the 300 largest companies in Russia. Of course, these criteria are applied towards the end of the database[3] to capture the growth of the firms, their internationalisation process, and, in turn, its role as antecedent for breadth and depth of corporate governance.[4]

Merging information from four different databases (BvD Amadeus, Interfax Spark, BvD Zephyr, BvD Orbis) also allowed for a considerable time span to be covered in the empirical analysis. Even if the earliest observations in the Interfax Spark and Historical BvD Orbis databases are 1995 and 1997, respectively, significant number of missing observations between 1995 and 2000 made these years unreliable for the analysis. Therefore, the time span of the empirical analysis covers 19 years from 2000 to 2018.

Sectoral Distribution

Looking at the breakdown of the sample by sector of economic activity, the largest portion of the sample is represented by either manufacturing firms (33%) or firms operating in the wholesale and retail trade sector (27.27%). The dominant groups are followed by firms in the mining and quarrying sector (8.42%); transportation and storage (7.42%); electricity, gas, steam, and air conditioning supply (7.41%); and information and communication (4.71%).

Looking at the yearly breakdown (Fig. 2), it is possible to conclude that during the last 19 years, there was an increase in the share of the largest 297 firms in the wholesale and retail trade sector from 20% to 27%; the share of electricity, gas, steam, and air conditioning supply sector rose from 2.72% to 7.41%; and the financial sector from 0.54% to 1.35%. For the same period, the share of the manufacturing firms in the sample decreased, which means that new firms that were established during the last 19 years operated primarily in the least dominant sector of economic activity. The other sectors, such as construction and information and communication, did not experience significant changes in terms of major players in these sectors. Even if the sample concentrates on the largest firms in the Russian economy, their contribution to the overall GDP of the country is substantial. Figure 3 represents the share of Russian GDP by sector of economic activity.

Based on the Federal State Statistic Service, the largest contributor to the overall economy is the manufacturing sector (14.3%), followed by wholesale and retail trade (13.9%) and mining and quarrying (13.2%). This figure clearly shows that the contribution of the top three sectors to the overall GDP is proportional to the sector of economic activities of the firms that are presented in the sample.

Sectoral and Regional Concentration

Geographical and regional distribution of the data show that the Russian economy is highly concentrated. The bulk of large Russian firms operate in either manufacturing or the wholesale and retail sectors and are based in the western part of Russia, Moscow Oblast and St. Petersburg Oblast. Such sectoral and regional patterns is well documented in the academic literature (Rastvortseva, 2018; Rastvortseva & Chentsova, 2015).

The economic development model of some Russian regions has been based on the natural resources available "on the ground" (Rastvortseva & Chentsova, 2015). Russia has an (oil) export-oriented economy, which means that the largest Russian companies, such as Gaszprom, Lukoil, and Bashneft, operate primarily in certain western regions which are rich in natural resources. Such concentration of natural resources in certain geographical areas creates an agglomeration effect, which contributes to the concentration of manufacturing enterprises, service providers, and skilled workers (Rastvortseva, 2018).

Summing up, the dataset represents the largest 297 Russian companies, mainly in the manufacturing and wholesale and retail trade sectors, with 26% of them listed on either domestic or foreign exchanges.

Empirical Model

To test the formulated hypotheses, we use a panel longitudinal regression model, which accounts for unobserved heterogeneity. In such context, unobservable time-invariant variables are potentially correlated with other regressors:

$$Y_{it} = \beta_1 X_{1,it} + \cdots + \beta_k X_{k,it} + \alpha_i + d_t + u_{it}$$

Where Y_{it} is the dependent variable, $\beta_1 up - to \beta_k$ are coefficients, $X_{k,\,it}$ represents the time-varying independent variables, α_i represents constant unobserved variables (also called "fixed effect"), d_t are time dummies, and u_{it} is an idiosyncratic error term. All RHS and LHS variables are in natural logarithms. A log-log model allows for an interpretation of the effect of independent variables on the dependent variable in terms of elasticity.

The Dependent Variables

The dependent variable(s) measures the corporate governance board characteristic(s). The literature specifies three main aspects of corporate governance: board of directors, transparency and disclosure, and minority shareholder protection. The strategic decision on internationalisation is taken by the owners/entrepreneurs in SMEs or by directors on the boards of multinational companies (Neubert & Krogt, 2017; Nielsen, 2010; Perks & Hughes, 2008). The internationalisation may trigger vital changes to the existing board of directors too (e.g., hiring of non-executive international directors). For example, listing on a foreign exchange may require the expansion of the board,

or an increase in the number of non-executive directors on the board, while the international operation in certain sectors of economic activities (such as manufacturing) might require the firm to change from a one-tier board system to a two-tier board system.

To analyse the changes in the structure of the board of directors, it is important to consider the composition of the board. The following characteristics are measured: the size of the board, number of executives versus non-executive directors, and share of foreigners versus domestic members. To construct these variables, we investigate three main sources. The first source is the database provided by Interfax Spark, which has firm-level data for all Russian firms, including the name of the director, age, current position, position previously held, and the history of change in the board of directors. Second, the Spark database is combined with publicly available information derived from the annual report as a complimentary source for data accuracy and completeness. Third, as some of the firms in the sample are listed on the Moscow stock exchange, the available information on the directors of listed firms is also used as an additional source for cross-checks. The data is collected and codified for each firm individually by cleaning and merging the information for each current director on the board and all the previous members.

Figure 4 represents the share of the firms with a board of directors against those firms that do not have a board and that are either managed by a single owner or owned by other corporations who nominated the managing director, or a firm limited by shares, and which has several owners/partners. To construct this variable, two sources are merged. The original data is gathered from the Interfax Spark database, which has detailed firm-level data on current and past board members of Russian firms. If this information was absent, then the BvD Amadeus database was checked for the same companies, and in all cases, the companies that did not have any information from Spark about the board of directors had a single owner/manager (if they were controlled by other firms). The graph clearly shows that by 2007, at least one-third of the firms had established a board of directors, and after that period the number of firms which had a board of directors remained constant.

Independent Variables

The definition of an international firm in our work stems from the idea that an "international" company must have a physical presence in a foreign market through either subsidiary or joint ventures with another foreign company. For that reason, two primary sources of data were used to construct such a variable: the cumulative number of foreign and domestic subsidiaries in each year

(using the BvD Amadeus database), and the cumulative number of foreign and domestic mergers and acquisitions in each year (using BvD Zephyr data). Both databases (Amadeus and Zephyr) covered the entire period of the study, thus creating time-variant variables for the analysis. This chapter defines internationalisation as the operations of the foreign markets through subsidiaries and acquisitions. The export-oriented proxies, such as the number of foreign sales of the total value of exports, are not included in the dataset. Interfax Spark and BvD Amadeus provide information about the total number of foreign sales; however, the number of missing observations for that variable is above 85%, which makes it unreliable.

Foreign and Domestic Subsidiaries

The number of foreign and domestic subsidiaries variables are constructed using BvD Amadeus database based on the direct and indirect subsidiaries of a given company, together with their percentage of ownership. This relationship between the parent firm and all its direct and indirect subsidiaries was disentangled to the maximum number of levels, which is 10 levels in the company's report file. This means that the firm-level data will show that parent firm A owns 100% of company B (level one), and company B, in turn, owns 60% of company C (level two); thus, company A directly owns company B and indirectly owns company C, which shows as a level two relationship.

Based on the subsidiary information, including the country of the subsidiary, subsidiary name, direct and indirect ownership percentage, and the level of the relationship to the parent company (from one to ten), we can construct the full and complete picture of the subsidiaries. We then assume that not all parents company will have the influence on the strategic management decisions of the subsidiary and therefore introduce the ownership threshold of the parent company that should be at least 50.01%. In this case, the parent company can participate in decision-making processes and change the corporate structure. To distinguish between domestic and foreign subsidiaries was justified based on country of the subsidiary in relation to the parent company.

The data have some limitations. At the time of the collection of this data, the BvD Amadeus database provided information only up to the year 2016. The following years had either a large amount of missing ownership information or duplicated values from the last available year of the information. For that reason, the number of subsidiaries (either foreign or domestic) stayed constant after 2016. Another limitation of the Amadeus database is that it covers only European companies, thus the subsidiaries which are located beyond Europe were not fully recorded.

Foreign and Domestic Merges and Acquisitions

To construct the full picture of a firm's internationalisation, it is also important to look not only at the subsidiaries, which are established by the parent firm itself, but at the firms that were created as a joint venture with the foreign firm or through mergers and acquisitions (M&As), after which the parent company gains control over the foreign firm. In both cases, the parent firm would be able to take part in the managerial decision-making processes or change the corporate structure of the newly created or acquired firm. For this purpose, we use the BvD Zephyr database, which contains information on M&A, IPO, private equity, and venture capital deals and rumours globally, to construct the number of foreign M&As, number of domestic M&As, and the total number of M&As for each firm in the sample. The Zephyr database provides the information about the acquirer firm (which is the parent firm from the 297 companies) and the complete information about the target firm (the firm that was acquired by the parent firm). This database also covers the period up to the year 2018, which, to some extent, compensates for the limitation of the subsidiaries variables which do not vary after 2016.

The methodology of constructing the M&A variables is similar to the construction of the subsidiaries variables. We were looking at the deals in which the acquirer firm would own more than 50.01% of the target firm. Under these criteria, the following deal types were included: acquisition deals with 50.01%+; acquisition increase deals that led to the acquirer firm owning more than 50.01% of the target firm; capital increase deals by more than 50.01%; joint venture deals in which the acquirer owns more than 50%; mergers deal in which the acquirer owns more than 50%; and minority stake increase deals in which the acquirer ended up with more than 50.01% of the stake. Only deals with the completed status were counted. The separation between the foreign and domestic M&As was based on the target firm country of origin.

Geographical Diversification

Another key aspect of internationalisation in relation to corporate governance is the geographical diversification of the internationalisation process; in other words, the number of foreign markets in which the firm is operating. This may have a significant effect on the corporate governance structure and, at the same time, will justify if any corporate governance restructuring is necessary. For example, a firm from Russia that is operating purely in the CIS (Commonwealth of Independent States) region may require minimal adjustment to its corporate

governance structure, in comparison to a Russian firm that is operating in the United Kingdom or Germany. For that reason, the dataset contains the variable that shows the number of foreign markets in which the parent firm from the sample is operating. This variable was constructed using the combined data from the number of subsidiaries and mergers and acquisitions. The variable uniquely identifies each new foreign market on a yearly basis.

Geographical Efficiency of the Board

To test the third hypothesis—the internationalisation of a firm from a country with a low level of corporate governance to a country with a high level of corporate governance will be positively associated (as antecedent) with corporate governance change—it is important to compute a variable that would represent the level of corporate governance at country level vis-à-vis corporate governance abroad. For this purpose, the World Economic Forum data are adopted. The variable that is selected as a proxy is "efficiency of the corporate board" (World Economic Forum Indicator, scaled between one and seven). This data is collected on a yearly basis.

It is important to construct the index of the board efficiency based on the number of foreign markets and weighted by the number of foreign subsidiaries and foreign acquisitions (separately) in that market. For that purpose, we identified the total number of subsidiaries/acquisitions in each market. After that, the weight of each market was calculated based on the ratio between the number of the subsidiaries/acquisitions in the specific country and year and the total number of foreign subsidiaries/acquisitions in a certain year. This weight was multiplied by the country-level board efficiency index and summed up to receive a single weighted index on a firm level.

Control Variables

The control variables that are used in the sample can be divided into two groups. The first group is related to the size and age of the firm, and the second group concerns the corporate structure of the firm. The first group includes the total number of employees, total assets, total revenue, total fixed assets, and total intangible assets (all variables in thousands of Rubles). The second group of variables is composed by dummy variables that may have a relationship with the corporate governance structure of the firm (state-owned enterprise, board existence, and publicly quoted firm).

Regression Analysis

Table 1 reports summary stats for all variables. Table 2 reports the Hausman tests (RE vs. FE) which favours the latter. The correlation matrix among independent variables presented in Table 3 advises against the use of internationalisation variables (proxies) within the same specification. The high correlation between internationalisation variables does not suggest the specification of the so-called horse race as appropriate due to multicollinearity.[5] Hence, we will investigate the regression results for each dependent variable and each internationalisation variable in turn.

The Determinants of Number of Directors on the Board

As can be seen from the FE regression in Table 4, the number of foreign subsidiaries has the greatest effect on the size of the board. An increase of 10% in the number of subsidiaries leads to a 0.7% increase in the size of the board. The second largest effect on board size is determined by the number of domestic mergers and acquisitions, which indicates that a 10% increase in the number of foreign mergers and acquisitions leads to a 0.56% increase in the size of the board. Controlling for listed and non-listed firms suggests that the former have a greater board of directors, as we would expect. The "state variable" on the board size is positive and significant. By examining the first two independent variables, which represent the weighted index of the board efficiency at firm level (weighted by the number of foreign subsidiaries and foreign mergers and acquisitions), it can be concluded that they both have a significant and positive effect on board size. A 10% increase in the index of board efficiency, weighted by the number of subsidiaries, leads to a 0.28% increase in the number of directors on the board, while a 10% increase in the index of board efficiency, weighted by the number of mergers and acquisitions, leads to a 0.14% increase in board size. Overall, it can be concluded that expansion of the firm in domestic and foreign markets leads to an increase in the number of board members, even if the impact is not high in magnitude.

The Determinants of Number of Executive Directors

Regression results in Table 5 turn to the analysis of the number of executive directors on the board. The variables index of board efficiency weighted by foreign subsidiaries and foreign mergers and acquisitions, the number of

foreign markets, the number of foreign subsidiaries, and the number of foreign mergers and acquisitions are not significant. This might indicate that internationalisation does not influence the number of executive directors on the board. On the other hand, domestic expansion, measured by the number of domestic subsidiaries and domestic mergers and acquisitions, has a positive and significant effect on the number of executive directors.

The coefficients for state-owned enterprises are barely significant, although positive in some cases. The publicly quoted variable shows that there is no statistical difference between listed and non-listed firms.

The Determinants of Number of Non-executive Directors

In the case of non-executive directors in Table 6, internationalisation variables are both positive and significant. The greatest effect on the number of non-executive directors on the board is that of foreign subsidiaries, where a rise of 10% increases the number of non-executive directors by 2.88%. This is followed by the number of foreign markets in which the firm is operating (2.41%), showing that geographical diversification is positive and significant. The third greatest effect on the number of non-executive directors on the board is that of the number of foreign mergers and acquisitions: a 10% increase leads to a 1.9% increase in the number of non-executive directors. This shows that after merger and acquisition deals, Russian firms possibly leave directors of an acquired international firm in the foreign market as strategists without an executive role. This is sign of improved corporate governance anyway. State-owned enterprises and listed firms have a higher number of non-executive directors on the board to start with.

The Determinants of Number of Russian Directors on the Board

The internationalisation variables have a positive and significant impact on the number of Russian directors on the board (Table 7), except the board efficiency index, based on the number of foreign mergers and acquisitions. This result reflects the fact that internationalisation into foreign markets, whose corporate governance levels are higher in comparison to Russian markets, is not statistically significant for the number of Russian directors on the board. The number of foreign subsidiaries indicates that a 10% increase in the number of foreign subsidiaries leads to a 0.751% increase in the number of

Russian directors on the board. This factor could be linked to the overall growth of the company strategy; whereby Russian firms favour most Russian directors on the board. State-owned enterprises have a higher number of Russian directors on the board in comparison to other firms. Listed firms have more Russian directors on the board in comparison with non-listed firms.

The Determinants of Number of Foreigners on the Board

In Table 8, most of the variables linked to internationalisation have a positive and significant effect on the number of foreign directors on the board. On one hand, the dependent variable is most influenced by the number of foreign subsidiaries, where a 10% increase in the number of foreign subsidiaries leads to a 1% increase in the number of foreign directors. On the other hand, the board efficiency index, weighted by the number of foreign subsidiaries, has a positive but not significant coefficient. These results can be explained by the fact that most of the subsidiaries were established in countries with similar levels of corporate governance to Russia (such as CIS or Eastern Europe). As a result, even if Russian firms add foreign directors to their boards from these countries, the index that represents board efficiency, weighted by the number of subsidiaries, does not change dramatically.

Another interesting result is that the coefficient of the number of domestic mergers and acquisitions is positive and significant. This is possible if a Russian firm acquires another Russian firm which has a better international connection, in other words, if it is a strategic decision for future internationalisation. Finally, companies owned by the state have a lower number of foreign directors on the board. This can be explained by the fact that state-owned enterprises dominate the main strategic sectors of the Russian economy (such as oil and gas) and, as a result, they favour a concentration of Russian directors on the board.

Conclusions

In the last two decades, Russian MNEs' board structure has been changing at a fast pace. In this chapter, we show how this change is also *channelled* through their internationalisation process, for example, by increasing the board size (a positive outcome) or by increasing the concentration of Russian executive directors (a less positive outcome). High concentration of Russian executive

directors has its roots in path-dependent outcomes from the legacies of the transition period, which has jeopardised major structural reforms over the past 15 years, though. However, Russian MNEs appear to have broadly embraced a strategy to become more "efficient, flexible and to exploit learning on a worldwide basis" (Bartlett & Ghoshal, 1989) within a global context characterised by accentuated megatrends, such as higher need of sound "risk management" strategies, better understanding of "shifting supply chains", and better mapping of skills' shortage and gaps (Cavusgil, 2021). For example, Russia is a country experiencing "awakening entrepreneurial" spirits of born global/digital companies (Cavusgil, 2021) faced with particularly strong state influence, though.

The chapter highlights how variables measuring internationalisation—total number of foreign markets, opening of subsidiary or mergers, and acquisition in the foreign market—have a positive and significant association with the extent and intensity of "corporate governance back home", and specifically on the "mechanism of implementation of such corporate governance": the size of the board, the number of non-executive directors, and the number of foreign directors on the board. In other words, the three internationalisation measures (total number of foreign markets, number of subsidiaries, or mergers and acquisition in the foreign market) represent the geographical diversification of the firm. The empirical analysis shows that these independent variables are positively and significantly correlated with corporate governance. This means that when Russian firms have subsidiaries or make acquisitions in foreign markets with a higher level of corporate governance in relation to their domestic market, this will have a positive effect on the number of corporate mechanisms that should be implemented on the board of directors back at home. The restructuring of mechanisms could be enhanced by either external factors (e.g., the rules and regulation of the foreign country) or internal factors (e.g., expanding the board with new directors from the acquired firm due to increased complexity). Furthermore, expansion outside the market of origin of Russian firms owned by the government has a positive and significant effect on most corporate governance mechanisms.

Appendix

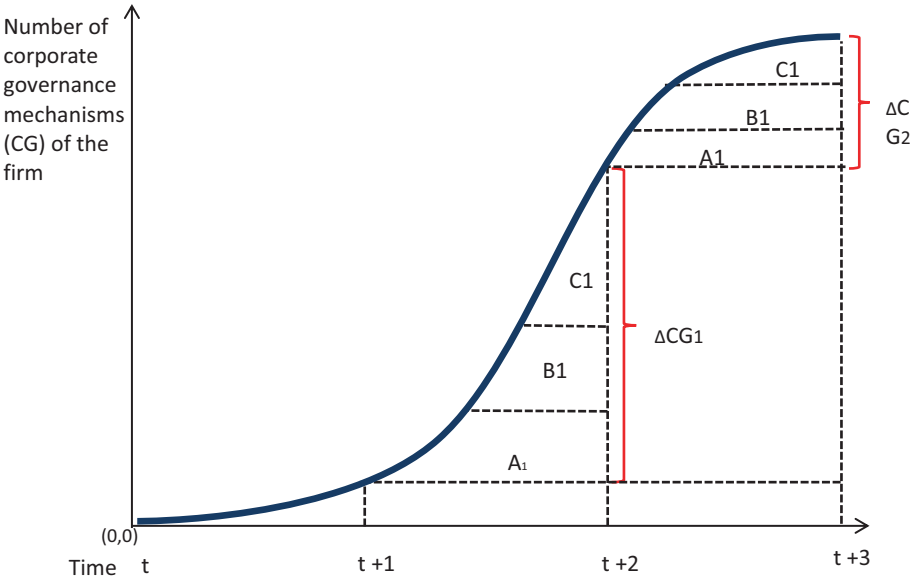

Fig. 1 Internationalisation and corporate governance

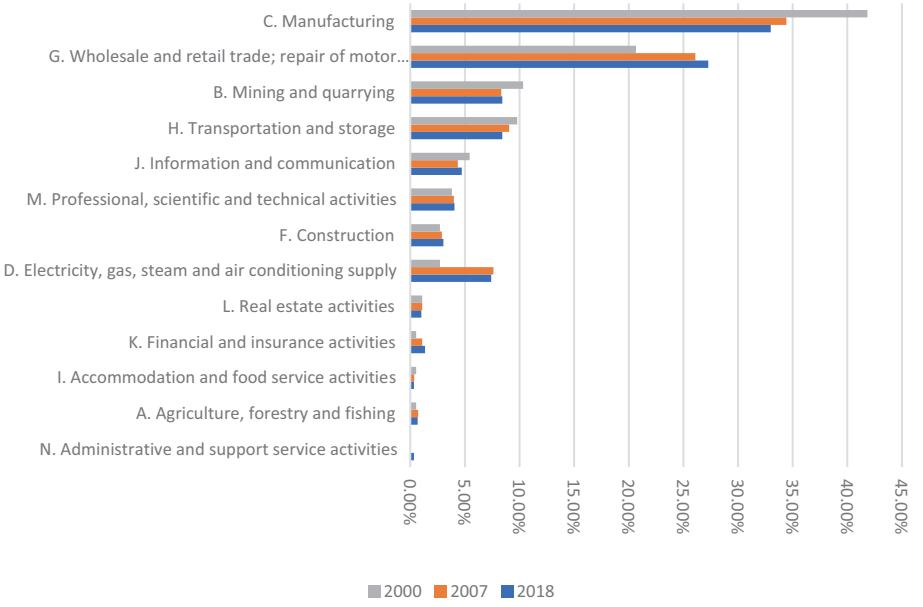

Fig. 2 Percentage share of the sample by the sector of economic activity

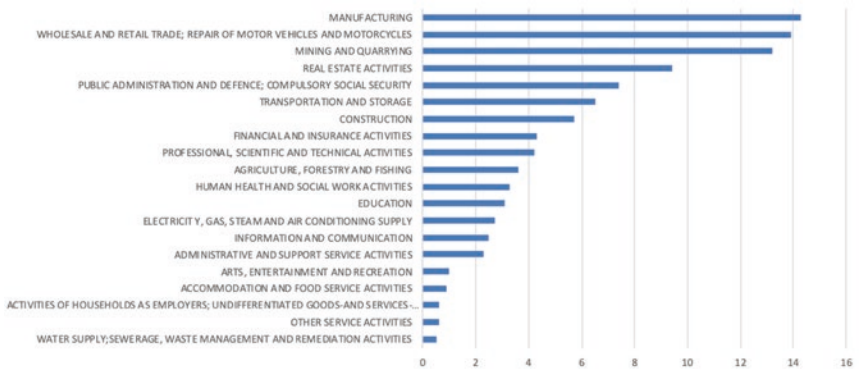

Fig. 3 Share of GDP in Russia by sector of economic activity (2018). source: Federal State Statistic Service (https://www.gks.ru/accounts)

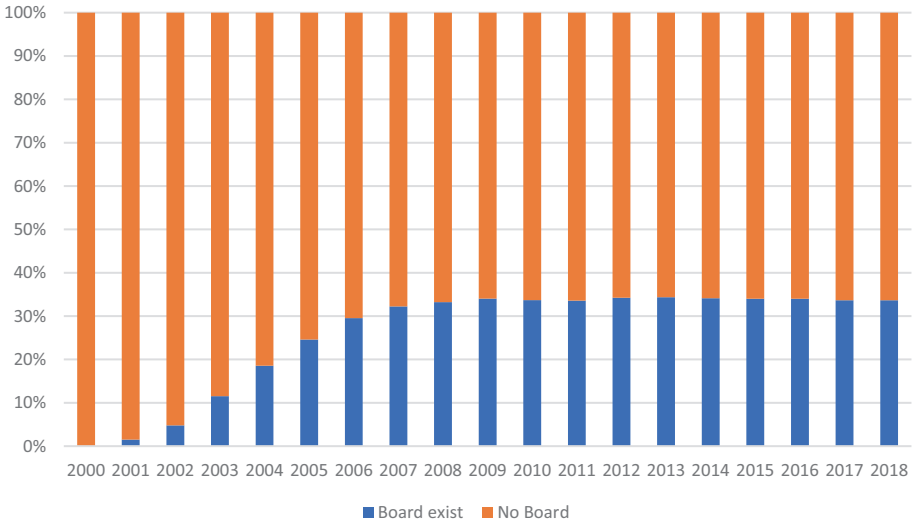

Fig. 4 Share of the firms in the sample with the board of directors

Table 1 Descriptive statistics

	Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent variable	Board size	5058	2.322262	3.953074	0	16
	Number of executive directors on the board	5058	1.950376	3.348121	0	16
	Number of non-executive directors on the board	5058	0.3718861	0.9871111	0	7
	Number of Russian directors on the board	5058	2.071965	3.608698	0	16
	Number of foreign directors on the board	5058	0.2502966	0.8963623	0	8
Independent variable	Number of foreign markets	5643	1.09215	3.596201	0	27
	Number of foreign subsidiaries	5058	2.715105	13.61873	0	232
	Number of domestic subsidiaries	5058	14.66805	41.22495	0	395
	Total number of subsidiaries	5058	17.38316	49.89575	0	444
	Index of board efficiency weighted by foreign subsidiaries	5643	0.7753555	1.791814	0	6.138008
	Number of foreign M&as	5058	0.3513246	1.526815	0	17
	Number of domestic M&as	5058	2.426255	7.171712	0	83
	Total number of M&as	5058	2.77758	8.332553	0	93
	Index of board efficiency weighted by foreign M&as	5643	0.4307222	1.347181	0	6.124218
Control variables	Number of employees	4293	7211.882	40626.09	1	969,662
	Age of the firm squared	5058	1635.756	7426.517	1	99,225
	Operating revenue in Th. Rubles	4958	6.01E+07	1.30E+08	12	2.07E+09
	Total assets in Th. Rubles	4934	8.16E+07	2.77E+08	104	6.26E+09
	Fixed assets in Th. Rubles	4933	5.42E+07	2.42E+08	1	5.90E+09
	Intangible assets in Th. Rubles	4388	320,919	1,803,487	1	3.54E+07
	State-owned enterprise (dummy)	5643	0.2195641	0.413988	0	1
	Board existence (dummy)	5643	0.2502215	0.4331789	0	1
	Publicly quoted (dummy)	5058	0.2360617	0.4247025	0	1

Table 2 Hausman Test for fixed effects and random effects models

	Size of the board of directors	Number of executive directors on the board	Number of non-executive directors on the board	Number of Russian directors on the board	Number of foreign directors on the board
chi2(36)	223.21	4139.69	86.09	56.69	68.79
Prob>chi2	0.0000	0.0000	0.0000	0.0078	0.0008

Table 3 Correlation matrix of independent variables

Variables	Log: number of foreign markets	Log: number of foreign subsidiaries	Log: number of domestic subsidiaries	Log: total number of subsidiaries	Log: total number of acquisitions	Log: number of foreign acquisitions	Log: number of domestic acquisitions
Log: Number of foreign markets	1						
Log: Number of foreign subsidiaries	0.9474	1					
Log: Number of domestic subsidiaries	0.6471	0.6302	1				
Log: Total number of subsidiaries	0.7015	0.6922	0.9913	1			
Log: Total number of acquisitions	0.5991	0.5104	0.5804	0.6018	1		
Log: Number of foreign acquisitions	0.6786	0.5623	0.3664	0.4123	0.7035	1	
Log: Number of domestic acquisitions	0.5691	0.4938	0.5851	0.6023	0.9921	0.641	1

Table 4 Fixed Effects Regression results, dependent variable "size of the board of directors"

	1	2	3	4	5	6	7	8	9
Variables	Log: Total number of directors on the board								
Board efficiency (foreign subsidiary)	0.0283*** (0.00620)								
Board efficiency (foreign M&A)		0.0141** (0.00565)							
Log: Number of foreign markets			0.0566*** (0.00888)						
Log: Number of foreign subsidiaries				0.0763*** (0.00904)					
Log: Number of domestic subsidiaries					0.0430*** (0.00573)				
Log: Total number of subsidiaries						0.0461*** (0.00567)			
Log: Number of foreign M&A							0.0540*** (0.00862)		
Log: Number of domestic M&A								0.0560*** (0.00381)	
Log: Total number of M&A									0.0519*** (0.00372)
Log: Number of employees	0.00418* (0.00217)	0.00348 (0.00220)	0.00377* (0.00217)	0.00532** (0.00216)	0.00435** (0.00216)	0.00435** (0.00216)	0.00353 (0.00217)	0.00329 (0.00212)	0.00288 (0.00213)
Log of operating revenue 1000' Rubles	-0.000111 (0.00211)	0.000192 (0.00212)	0.000424 (0.00211)	-6.19e-06 (0.00210)	-0.000771 (0.00210)	-0.000790 (0.00210)	0.000440 (0.00211)	0.00153 (0.00206)	0.00157 (0.00207)

Log of age of the firm squared	-0.0173***	-0.0168***	-0.0167***	-0.0188***	-0.0185***	-0.0188***	-0.0161***	-0.0174***	-0.0167***
	(0.00301)	(0.00302)	(0.00300)	(0.00299)	(0.00299)	(0.00299)	(0.00300)	(0.00293)	(0.00293)
Log of total assets 1000' Rubles	-0.00393	-0.00338	-0.00509	-0.00474	-0.00588	-0.00606	-0.00507	-0.00849**	-0.00808**
	(0.00388)	(0.00389)	(0.00388)	(0.00385)	(0.00387)	(0.00387)	(0.00388)	(0.00379)	(0.00380)
Log of fixed assets 1000' Rubles	-0.00224	-0.00301	-0.00219	-0.00196	-0.00216	-0.00214	-0.00286	-0.000890	-0.00138
	(0.00280)	(0.00280)	(0.00279)	(0.00277)	(0.00278)	(0.00278)	(0.00278)	(0.00272)	(0.00273)
Log of intangible assets 1000' Rubles	0.000290	0.000270	0.000382	0.000410	-0.000148	-0.000136	0.000313	-0.000645	-0.000604
	(0.000698)	(0.000699)	(0.000696)	(0.000693)	(0.000697)	(0.000695)	(0.000696)	(0.000682)	(0.000684)
1 if state owned, 0 otherwise	0.0193***	0.0199***	0.0200***	0.0171**	0.0161**	0.0161**	0.0219***	0.00997	0.0120*
	(0.00671)	(0.00673)	(0.00669)	(0.00667)	(0.00669)	(0.00668)	(0.00671)	(0.00656)	(0.00657)
1 if board exists, 0 otherwise	2.095***	2.095***	2.093***	2.093***	2.085***	2.084***	2.092***	2.072***	2.073***
	(0.00763)	(0.00767)	(0.00763)	(0.00758)	(0.00775)	(0.00774)	(0.00765)	(0.00760)	(0.00763)
1 if listed, 0 otherwise	0.0724***	0.0730***	0.0688***	0.0642***	0.0775***	0.0786***	0.0675***	0.0549***	0.0543***
	(0.0104)	(0.0104)	(0.0104)	(0.0104)	(0.0103)	(0.0103)	(0.0104)	(0.0102)	(0.0102)
Year dummies	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***
Constant	0.126***	0.132***	0.129***	0.118***	0.135***	0.133***	0.147***	0.167***	0.167***
	(0.0306)	(0.0307)	(0.0305)	(0.0304)	(0.0305)	(0.0304)	(0.0307)	(0.0299)	(0.0300)
Observations	3841	3841	3841	3841	3841	3841	3841	3841	3841
R-squared	0.976	0.976	0.976	0.977	0.977	0.977	0.976	0.978	0.977
Number of ID	277	277	277	277	277	277	277	277	277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 Fixed Effects Regression results, dependent variable "number of executive directors on the board"

	10	11	12	13	14	15	16	17	18
Variables	Log: Number of executive directors on the board								
Board efficiency (foreign subsidiary)	-0.0103 (0.00710)								
Board efficiency (foreign M&A)		-0.00801 (0.00645)							
Log: Number of foreign markets			-0.0164 (0.0102)						
Log: Number of foreign subsidiaries				-0.0108 (0.0104)					
Log: Number of domestic subsidiaries					0.0363*** (0.00656)				
Log: Total number of subsidiaries						0.0363*** (0.00650)			
Log: Number of foreign M&A							0.00549 (0.00989)		
Log: Number of domestic M&A								0.0256*** (0.00446)	
Log: Total number of M&A									0.0238*** (0.00435)
Log: Number of employees	-0.00281 (0.00249)	-0.00242 (0.00251)	-0.00269 (0.00249)	-0.00297 (0.00249)	-0.00264 (0.00248)	-0.00265 (0.00248)	-0.00287 (0.00249)	-0.00320 (0.00248)	-0.00339 (0.00248)

Log of operating revenue 1000' Rubles	0.00120 (0.00241)	0.00103 (0.00242)	0.00104 (0.00242)	0.00118 (0.00242)	0.000635 (0.00241)	0.000656 (0.00241)	0.00125 (0.00242)	0.00194 (0.00241)	0.00197 (0.00241)
Log of age of the firm squared	-0.0123*** (0.00344)	-0.0126*** (0.00345)	-0.0125*** (0.00344)	-0.0121*** (0.00344)	-0.0132*** (0.00343)	-0.0134*** (0.00343)	-0.0122*** (0.00345)	-0.0123*** (0.00342)	-0.0120*** (0.00342)
Log of total assets 1000' Rubles	-0.0201*** (0.00444)	-0.0202*** (0.00444)	-0.0199*** (0.00445)	-0.0202*** (0.00444)	-0.0230*** (0.00444)	-0.0230*** (0.00443)	-0.0207*** (0.00445)	-0.0231*** (0.00443)	-0.0229*** (0.00443)
Log of fixed assets 1000' Rubles	0.00349 (0.00320)	0.00377 (0.00319)	0.00354 (0.00320)	0.00363 (0.00320)	0.00453 (0.00318)	0.00449 (0.00318)	0.00380 (0.00319)	0.00477 (0.00318)	0.00455 (0.00318)
Log of intangible assets 1000' Rubles	0.00186** (0.000798)	0.00188** (0.000798)	0.00184** (0.000798)	0.00184** (0.000798)	0.00148* (0.000798)	0.00152* (0.000797)	0.00186** (0.000798)	0.00143* (0.000798)	0.00144* (0.000798)
1 if state owned, 0 otherwise	0.0129* (0.00768)	0.0125 (0.00768)	0.0127* (0.00768)	0.0132* (0.00768)	0.0102 (0.00766)	0.0104 (0.00766)	0.0131* (0.00769)	0.00863 (0.00768)	0.00952 (0.00767)
1 if board exists, 0 otherwise	1.971*** (0.00872)	1.972*** (0.00876)	1.972*** (0.00875)	1.971*** (0.00874)	1.961*** (0.00887)	1.961*** (0.00887)	1.970*** (0.00877)	1.960*** (0.00889)	1.960*** (0.00890)
1 if listed, 0 otherwise	-0.00137 (0.0119)	-0.00125 (0.0119)	-0.000492 (0.0119)	-0.000703 (0.0119)	0.000277 (0.0118)	0.000975 (0.0118)	-0.00289 (0.0119)	-0.0112 (0.0119)	-0.0115 (0.0119)
Year dummies	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***
Constant	0.297*** (0.0350)	0.294*** (0.0351)	0.296*** (0.0350)	0.298*** (0.0350)	0.303*** (0.0349)	0.301*** (0.0349)	0.298*** (0.0352)	0.314*** (0.0350)	0.314*** (0.0350)
Observations	3841	3841	3841	3841	3841	3841	3841	3841	3841
R-squared	0.964	0.964	0.964	0.964	0.965	0.965	0.964	0.965	0.965
Number of ID	277	277	277	277	277	277	277	277	277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 Fixed Effects Regression results, dependent variable "number of non-executive directors on the board"

	19	20	21	22	23	24	25	26	27
Variables	Log: Number of non-executive directors on the board								
Board efficiency (foreign subsidiary)	0.121***								
	(0.0142)								
Board efficiency (foreign M&A)		0.0642***							
		(0.0130)							
Log: Number of foreign markets			0.241***						
			(0.0203)						
Log: Number of foreign subsidiaries				0.288***					
				(0.0205)					
Log: Number of domestic subsidiaries					0.0613***				
					(0.0133)				
Log: Total number of subsidiaries						0.0690***			
						(0.0132)			
Log: Number of foreign M&A							0.190***		
							(0.0198)		
Log: Number of domestic M&A								0.131***	
								(0.00880)	

Log: Total number of M&A									0.119*** (0.00862)
Log: Number of employees	0.0214*** (0.00499)	0.0182*** (0.00507)	0.0196*** (0.00495)	0.0257*** (0.00492)	0.0216*** (0.00503)	0.0216*** (0.00503)	0.0191*** (0.00499)	0.0193*** (0.00489)	0.0184*** (0.00492)
Log of operating revenue 1000' Rubles	-0.00291 (0.00485)	-0.00153 (0.00489)	-0.000629 (0.00481)	-0.00251 (0.00477)	-0.00383 (0.00489)	-0.00391 (0.00488)	-0.000963 (0.00484)	0.000956 (0.00476)	0.000974 (0.00478)
Log of age of the firm squared	-0.0281*** (0.00690)	-0.0255*** (0.00697)	-0.0256*** (0.00684)	-0.0338*** (0.00680)	-0.0297*** (0.00696)	-0.0303*** (0.00696)	-0.0237*** (0.00690)	-0.0284*** (0.00676)	-0.0267*** (0.00679)
Log of total assets 1000' Rubles	0.0407*** (0.00891)	0.0429*** (0.00897)	0.0357*** (0.00885)	0.0381*** (0.00876)	0.0408*** (0.00901)	0.0404*** (0.00900)	0.0374*** (0.00891)	0.0320*** (0.00876)	0.0332*** (0.00879)
Log of fixed assets 1000' Rubles	-0.0163** (0.00642)	-0.0196*** (0.00645)	-0.0161** (0.00636)	-0.0156** (0.00631)	-0.0184*** (0.00646)	-0.0184*** (0.00646)	-0.0191*** (0.00639)	-0.0147** (0.00629)	-0.0159** (0.00631)
Log of intangible assets 1000' Rubles	-0.00483*** (0.00160)	-0.00492*** (0.00161)	-0.00443*** (0.00159)	-0.00436*** (0.00158)	-0.00542*** (0.00162)	-0.00543*** (0.00162)	-0.00473*** (0.00160)	-0.00700*** (0.00158)	-0.00686*** (0.00158)
1 if state owned, 0 otherwise	0.0346** (0.0154)	0.0373** (0.0155)	0.0373** (0.0153)	0.0261* (0.0152)	0.0299* (0.0156)	0.0297* (0.0155)	0.0437*** (0.0154)	0.0126 (0.0152)	0.0176 (0.0152)
1 if board exists, 0 otherwise	0.446*** (0.0175)	0.442*** (0.0177)	0.434*** (0.0174)	0.436*** (0.0172)	0.434*** (0.0180)	0.431*** (0.0180)	0.433*** (0.0176)	0.394*** (0.0176)	0.397*** (0.0176)

(*continued*)

Table 6 (continued)

	19	20	21	22	23	24	25	26	27
Variables	Log: Number of non-executive directors on the board								
1 if listed, 0 otherwise	0.327*** (0.0238)	0.329*** (0.0240)	0.312*** (0.0237)	0.297*** (0.0236)	0.340*** (0.0240)	0.342*** (0.0240)	0.311*** (0.0239)	0.290*** (0.0235)	0.290*** (0.0237)
Year dummies	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***
Constant	-0.378*** (0.0703)	-0.349*** (0.0709)	-0.364*** (0.0696)	-0.409*** (0.0691)	-0.360*** (0.0708)	-0.363*** (0.0707)	-0.303*** (0.0704)	-0.278*** (0.0691)	-0.281*** (0.0694)
Observations	3841	3841	3841	3841	3841	3841	3841	3841	3841
R-squared	0.430	0.422	0.441	0.449	0.422	0.423	0.433	0.453	0.448
Number of ID	277	277	277	277	277	277	277	277	277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 Fixed Effects Regression results, dependent variable "number of Russian directors on the board"

	28	29	30	31	32	33	34	35	36
Variables	Log: Number of Russian directors on the board								
Board efficiency (foreign subsidiary)	0.0368*** (0.00934)								
Board efficiency (foreign M&A)		0.00962 (0.00851)							
Log: Number of foreign markets			0.0600*** (0.0134)						
Log: Number of foreign subsidiaries				0.0751*** (0.0137)					
Log: Number of domestic subsidiaries					0.0574*** (0.00864)				
Log: Total number of subsidiaries						0.0576*** (0.00856)			
Log: Number of foreign M&A							0.0581*** (0.0130)		
Log: Number of domestic M&A								0.0417*** (0.00586)	
Log: Total number of M&A									0.0418*** (0.00571)
Log: Number of employees	0.00593* (0.00327)	0.00545* (0.00331)	0.00549* (0.00327)	0.00706** (0.00327)	0.00617* (0.00326)	0.00615* (0.00326)	0.00524 (0.00328)	0.00526 (0.00326)	0.00488 (0.00326)
Log of operating revenue 1000' Rubles	-0.000772 (0.00318)	-0.000561 (0.00319)	-0.000203 (0.00318)	-0.000667 (0.00317)	-0.00165 (0.00317)	-0.00162 (0.00317)	-0.000177 (0.00318)	0.000453 (0.00317)	0.000586 (0.00317)

(*continued*)

Table 7 (continued)

	28	29	30	31	32	33	34	35	36
Variables	Log: Number of Russian directors on the board								
Log of age of the firm squared	-0.0130***	-0.0127***	-0.0124***	-0.0145***	-0.0146***	-0.0148***	-0.0117***	-0.0131***	-0.0126***
	(0.00453)	(0.00455)	(0.00452)	(0.00452)	(0.00451)	(0.00451)	(0.00453)	(0.00450)	(0.00450)
Log of total assets 1000′ Rubles	0.00288	0.00390	0.00189	0.00241	0.000250	0.000275	0.00189	6.24e-05	5.42e-05
	(0.00584)	(0.00585)	(0.00585)	(0.00583)	(0.00584)	(0.00584)	(0.00585)	(0.00583)	(0.00583)
Log of fixed assets 1000′ Rubles	-0.0107**	-0.0117***	-0.0108**	-0.0106**	-0.0105**	-0.0106**	-0.0115***	-0.0101**	-0.0104**
	(0.00421)	(0.00421)	(0.00421)	(0.00420)	(0.00419)	(0.00419)	(0.00420)	(0.00419)	(0.00419)
Log of intangible assets 1000′ Rubles	0.00225**	0.00224**	0.00235**	0.00237**	0.00166	0.00171	0.00227**	0.00156	0.00153
	(0.00105)	(0.00105)	(0.00105)	(0.00105)	(0.00105)	(0.00105)	(0.00105)	(0.00105)	(0.00105)
1 if state owned, 0 otherwise	0.0461***	0.0465***	0.0468***	0.0439***	0.0418***	0.0421***	0.0489***	0.0392***	0.0402***
	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)
1 if board exists, 0 otherwise	1.965***	1.965***	1.962***	1.963***	1.951***	1.951***	1.961***	1.949***	1.948***
	(0.0115)	(0.0116)	(0.0115)	(0.0115)	(0.0117)	(0.0117)	(0.0115)	(0.0117)	(0.0117)
1 if listed, 0 otherwise	0.104***	0.106***	0.101***	0.0971***	0.111***	0.112***	0.0997***	0.0927***	0.0910***
	(0.0156)	(0.0157)	(0.0157)	(0.0157)	(0.0156)	(0.0156)	(0.0157)	(0.0157)	(0.0157)
Year dummies	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***
Constant	0.0995**	0.105**	0.103**	0.0919**	0.112**	0.109**	0.123***	0.131***	0.133***
	(0.0461)	(0.0463)	(0.0461)	(0.0460)	(0.0459)	(0.0459)	(0.0463)	(0.0460)	(0.0460)
Observations	3841	3841	3841	3841	3841	3841	3841	3841	3841
R-squared	0.942	0.942	0.942	0.942	0.942	0.942	0.942	0.943	0.943
Number of ID	277	277	277	277	277	277	277	277	277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8 Regression results, dependent variable "number of foreign directors on the board"

	37	38	39	40	41	42	43	44	45
Variables	Log: Number of foreign directors on the board								
Board efficiency (foreign subsidiary)	0.00424 (0.0129)								
Board efficiency (foreign M&A)		0.0319*** (0.0117)							
Log: Number of foreign markets			0.0631*** (0.0184)						
Log: Number of foreign subsidiaries				0.0951*** (0.0188)					
Log: Number of domestic subsidiaries					0.0137 (0.0120)				
Log: Total number of subsidiaries						0.0202* (0.0118)			
Log: Number of foreign M&A							0.0399** (0.0179)		
Log: Number of domestic M&A								0.0877*** (0.00798)	
Log: Total number of M&A									0.0714*** (0.00782)
Log: Number of employees	0.00149 (0.00451)	-4.83e-05 (0.00454)	0.00106 (0.00451)	0.00295 (0.00450)	0.00155 (0.00451)	0.00158 (0.00451)	0.00103 (0.00451)	0.000135 (0.00444)	-0.000263 (0.00446)
Log of operating revenue 1000' Rubles	0.00212 (0.00438)	0.00279 (0.00438)	0.00271 (0.00438)	0.00224 (0.00436)	0.00191 (0.00438)	0.00182 (0.00438)	0.00253 (0.00438)	0.00468 (0.00431)	0.00443 (0.00434)

(*continued*)

Table 8 (continued)

	37	38	39	40	41	42	43	44	45
Variables	Log: Number of foreign directors on the board								
Log of age of the firm squared	-0.0236*** (0.00623)	-0.0223*** (0.00625)	-0.0230*** (0.00623)	-0.0255*** (0.00622)	-0.0240*** (0.00624)	-0.0243*** (0.00624)	-0.0227*** (0.00624)	-0.0238*** (0.00613)	-0.0228*** (0.00616)
Log of total assets 1000' Rubles	0.000473 (0.00805)	-0.000459 (0.00804)	-0.00182 (0.00805)	-0.00167 (0.00802)	-0.000318 (0.00808)	-0.000759 (0.00807)	-0.000976 (0.00806)	-0.00812 (0.00794)	-0.00650 (0.00798)
Log of fixed assets 1000' Rubles	0.00511 (0.00580)	0.00505 (0.00578)	0.00594 (0.00579)	0.00634 (0.00578)	0.00527 (0.00579)	0.00538 (0.00579)	0.00512 (0.00579)	0.00836 (0.00570)	0.00728 (0.00573)
Log of intangeble assets 1000' Rubles	-0.000668 (0.00145)	-0.000736 (0.00145)	-0.000575 (0.00144)	-0.000529 (0.00144)	-0.000809 (0.00145)	-0.000858 (0.00145)	-0.000657 (0.00145)	-0.00215 (0.00143)	-0.00191 (0.00144)
1 if state owned, 0 otherwise	-0.0453*** (0.0139)	-0.0439*** (0.0139)	-0.0446*** (0.0139)	-0.0481*** (0.0139)	-0.0463*** (0.0139)	-0.0467*** (0.0139)	-0.0434*** (0.0139)	-0.0599*** (0.0138)	-0.0554*** (0.0138)
1 if board exists, 0 otherwise	0.296*** (0.0158)	0.292*** (0.0159)	0.292*** (0.0158)	0.291*** (0.0158)	0.292*** (0.0161)	0.290*** (0.0161)	0.292*** (0.0159)	0.258*** (0.0159)	0.264*** (0.0160)
1 if listed, 0 otherwise	-0.00431 (0.0215)	-0.00765 (0.0215)	-0.0105 (0.0215)	-0.0169 (0.0216)	-0.00306 (0.0215)	-0.00222 (0.0215)	-0.00921 (0.0216)	-0.0348 (0.0213)	-0.0318 (0.0215)
Year dummies	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***	Y***
Constant	-0.00259 (0.0635)	0.00841 (0.0635)	-0.000559 (0.0634)	-0.0148 (0.0633)	1.00e-05 (0.0635)	0.000121 (0.0635)	0.0120 (0.0638)	0.0593 (0.0627)	0.0514 (0.0630)
Observations	3841	3841	3841	3841	3841	3841	3841	3841	3841
R-squared	0.187	0.189	0.190	0.193	0.188	0.188	0.189	0.214	0.206
Number of ID	277	277	277	277	277	277	277	277	277

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Notes

1. Between 2007 and 2017 Russian score on efficiency of corporate boards is mostly below the World Median value, source World Economic Forum.
2. There are no systematic studies to show how such appointment influences the strategic decision of the firm.
3. That means they were much smaller at the start of our timespan.
4. Of these selected 300 companies, 3 were liquidated during the process of data collection, so the final number is 297.
5. The full correlation table of all variables is presented in Appendix.

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Part IV

Cultural, Strategic and Performance Considerations

What Happens when Subsidiaries Go through a Change? Impact of Gaining an R&D Mandate on Subsidiary Managers' Activities and Subsidiary Innovation

Noushan Memar, Ulf Andersson, and Edward Gillmore

Introduction

Multinational enterprises (MNEs) preeminence depends on exploiting innovations and new developments created in their network of globally dispersed subsidiaries (Bartlett & Ghoshal, 1989; Cantwell & Mudambi, 2005; Kogut & Zander, 1993). Thus, MNEs are bound to innovate to withstand increasing global competition (Ernst, 2006; Rugman et al., 2011). To accomplish increased innovation, MNEs fine-slice their value-adding activities, as

N. Memar (✉)
School of Business, Society and Engineering, Mälardalen University, Västerås, Sweden
e-mail: noushan.memar@mdu.se

U. Andersson
School of Business, Society and Engineering, Mälardalen University, Västerås, Sweden

Department of Strategy and Entrepreneurship, BI Norwegian Business School, Oslo, Norway
e-mail: ulf.r.andersson@mdu.se

E. Gillmore
Jönköping International Business School, Jönköping, Sweden
e-mail: edward.gillmore@ju.se

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_9

exemplified by the disaggregation and offshoring of the R&D function to subsidiaries in optimal locations to exploit local advantages and resources (Cantwell & Mudambi, 2005; Contractor et al., 2019; Demirbag & Glaister, 2010) and to compete for core technological elements and gain supremacy. As a result, the core of innovation in the MNE thrives at the subsidiary levels (Andrews et al., 2021), and the headquarters (HQ) have become an orchestrating actor ensuring coherent knowledge flows within the innovation network of the MNE (Foss & Pedersen, 2004; Ghoshal et al., 1995). Additionally, the increasing uncertainty in the world challenges the MNE interdependencies and the success of its innovation network. These challenges increase the headquarters' (HQ) dependency on the subsidiaries' ability and knowledge, that is, the ability to sense the emerging opportunities in their environments and communicate that to the HQ. Such knowledge allows the MNE to better plan and respond to future technology shifts and uncertainties in increasingly contested environments (Cavusgil, 2022).

Scholars argue that when a subsidiary is gaining a value-adding activity and responsibility such as an R&D mandate, the likelihood of generating more innovation in that subsidiary increases due to the positive shift in the knowledge portfolio of that subsidiary (Cantwell, 1989, 1995; Cantwell & Janne, 1999; Cantwell & Mudambi, 2005; Papanastassiou & Pearce, 1997; Pearce, 1999; Zander, 1999). This line of research further indicates that for the occurrence of innovation performance, the subsidiary is required to align its existing activities with the gained R&D mandate to develop synergies among its portfolio of activities and thus produce new knowledge that can contribute to the overall development of MNEs (Birkinshaw & Pedersen, 2008; Delany, 2000). In doing so, the subsidiary exploits the assigned R&D mandate by utilising the resources attached to the R&D mandate to realise the potential usage of that R&D mandate in synergy with the existing portfolio of activities in the subsidiary, to increase the likelihood of innovation development (Gilmore et al., 2018).

Despite the importance of subsidiary management (Birkinshaw et al., 1998; Meyer et al., 2020) and the increasing attention on key individuals' contributions (Felin et al., 2015; Felin & Foss, 2005; Felin & Hesterly, 2007; Kano & Verbeke, 2019), studies of subsidiary innovation performance are mainly at an aggregated organisational level (Meyer et al., 2020). The international business literature acknowledges that the innovation development of a subsidiary is dependent on internal relationships with sister subsidiaries, HQ (O'Donnell, 2000; Schotter & Beamish, 2011; Williams & Lee, 2011), and the external environment (Andersson et al., 2002; Andersson & Forsgren, 1996; Birkinshaw & Lingblad, 2005; Marx & Lechner, 2005). As a result, the

relevance of subsidiary managers' day-to-day interactions in these relationships is largely crowded out (Schmid et al., 2014; Strutzenberger & Ambos, 2014), favouring explanations of innovation development at an aggregated level.

Only a limited number of studies consider a microfoundation logic (Felin et al., 2015) and look for the causal mechanism of subsidiary innovation by exploring the subsidiary managers' activities. In the complex setting of the global trade where constant technological development is occurring in areas such as artificial intelligence, big data analytics, and automation, subsidiaries require agile, efficient, and visionary managers to face challenges and perform while adapting to the changes in their environment (Cavusgil, 2022).

Studies that consider the influence of individuals' activities advise that the subsidiary top manager, for example, the CEO or GD, is fundamental to subsidiary-level results. Subsidiary managers are crucial connectors through relationships with the environment (Gillmore et al., 2021) and external business partners (Cano-Kollmann et al., 2016; Lorenzen & Mudambi, 2013; Schmid & Schurig, 2003). In addition, they have an important role in conflict resolution (Schotter & Beamish, 2011) and politics (Dörrenbächer & Geppert, 2009) and assessing market potential within regions and overall global operation (Cavusgil, 2022).

Particularly, the experience of subsidiary managers in internal and external boundary spanning and the top management's characteristics are considered to influence subsidiary innovation development (Felin et al., 2012; Nuruzzaman et al., 2019). This study sides with this line of research and further argues that, although the experience and characteristics of the top managers are identified and suggested as suitable lenses for studying innovation development (Felin et al., 2015; Nuruzzaman et al., 2019) in terms of subsidiary innovation, we need to pay closer attention to the everyday activities of subsidiary managers. Doubtlessly, the experience of the subsidiary managers and their prior knowledge beyond the boundary of the subsidiary is beneficial in feeding the stimuli that trigger managers' actions (Simon, 1947). However, in a world of increasing threats to interdependencies and global connectedness, such as the Covid-19 pandemic, financial crises, and political conflicts, having the knowledge and experience beyond the boundaries of the subsidiary is not enough to affect innovation development. Thus, subsidiary managers must rely on their connectivity and experiences in developing and managing fundamental relationships and interpreting knowledge within and across the MNE to identify potential opportunities (Au & Fukuda, 2002; Cavusgil, 2022; Scott, 1995). They then steer the direction and intensity of the subsidiary's resources (Michailova & Mustaffa, 2012) by pursuing

different activities in different dimensions, towards both the internal MNE environment and the external MNE environment, to manipulate and manage the knowledge activities and consequently realise innovation for their subsidiary (O'Brien et al., 2019).

To examine the relationships between the subsidiary managers' activities and innovation performance of the subsidiary, we consider the situation where the subsidiary experienced a change of gaining an R&D mandate and ask: "How does gaining an R&D mandate affect the subsidiary's innovation development via the activities pursued by subsidiary managers?". This setting allows us to understand the impact of the activities on the innovation performance while addressing an additional recent call on the investigation of subsidiary response to a technological shift (Meyer et al., 2020) and shed light on the resilience of the organisations in times of change (Fisher et al., 2019).

Particularly, "organisational resilience" has been a relentless theme during last years' pandemic, a "watershed event" impacting us all on a global scale (Cavusgil, 2022). Resilience refers to our ability to cope with adverse events (Ibid.). This study aids in understanding how individuals, that is, general directors of subsidiaries, react and alter the focus of their activities when facing change by facilitating the incessant development of their subsidiaries and preserving their resilience and effectiveness (Golgeci et al., 2020; Ryan et al., 2020).

To answer our question, we first review the innovation-enhancing activities pursued by subsidiary managers considering the magnitude of change in the subsidiary portfolio due to gaining an R&D mandate. We then test the magnitude of change regarding managers' activities and analyse their effect on innovation post gaining an R&D mandate on a sample of 98 subsidiaries in eight large Swedish engineering MNEs situated in 17 countries.

Theoretical Background

Subsidiary Managers and Innovation

The international business field extensively investigated the position and the role of the subsidiary manager within an MNE (e.g., Boyett & Currie, 2004; Delany, 2000; Dutton et al., 1997; Dutton et al., 2001; Dutton & Ashford, 1993; Meyer et al., 2011; Meyer et al., 2020; Nuruzzaman et al., 2019; O'Brien, 2014; O'Brien et al., 2019).

The dual embeddedness of subsidiaries and the amidst position of the subsidiary manager between host and home environments enables the subsidiary

manager to bridge and connect knowledge between the local external environment and the corporate internal network (Forsgren et al., 2005; Giroud & Scott-Kennel, 2009). Furthermore, this embeddedness empowers the subsidiary manager to strategise around the level of knowledge sharing in inter and intra-MNE environments (Bartlett & Ghoshal, 1989; Porter, 1990), resulting in the development of knowledge and creation of capabilities (Achcaoucaou et al., 2014; Andersson et al., 2001, 2002; Andersson et al., 2005; Andersson & Forsgren, 2000; Michailova & Mustaffa, 2012; O'Brien et al., 2019). Recent studies highlight how subsidiary managers affect the subsidiary's behaviour and knowledge creation performance (Nuruzzaman et al., 2019; O'Brien et al., 2019). However, the activities of the subsidiary managers contributing to innovation performance are under-investigated. Further, research shows the influence and relevance of the subsidiary's environment on subsidiary performance, but the subsidiary's responses to technological change have received limited attention (Meyer et al., 2020). Acknowledging the importance of subsidiary manager activities, we first review the activities of subsidiary managers for innovation enhancement of subsidiary and then develop hypotheses on the impact of those activities on innovation after the technological shift in the subsidiary.

Activities of Subsidiary Managers for Innovation Enhancement

Activities of managers are a synthesis of cognition and action (Floyd & Wooldridge, 1997), induced from previous experiences of continuous processes of interactive learning (Bower, 1970; Burgelman, 1988; Mintzberg, 1990) with inter and intra-MNE environments. The position of subsidiary managers indicates that the subsidiary managers' activities occur between headquarters and the subsidiary, among subsidiaries, that is, internal MNE environment, and with external counterparts beyond the boundary of MNE and subsidiary's environment (Newburry, 2001; O'Brien, 2014). Previous research identifies specific activities beyond the subsidiary's boundaries to significantly influence the innovation performance of the subsidiary (Ahearne et al., 2014; O'Brien et al., 2019; Pappas & Wooldridge, 2007).

In the internal environment of the MNE, subsidiary managers engage with the headquarters in lobbying for new activities and mandates (Birkinshaw & Hood, 1998) by vocalising the subsidiary's current success (Bouquet & Birkinshaw, 2008) and persuade headquarters to allocate crucial recourses towards the subsidiary (O'Brien, 2014). Such activities are identified as

innovation-enhancing activities. These activities increase the value-adding resources within the subsidiary's portfolio and thus increase the likelihood of innovation. Furthermore, in the interactions with the internal environment of the MNE, subsidiary managers' activities in engaging with sister subsidiaries to gain access to critical resources and to build linking economies with innovative subsidiaries are perceived as innovation-enhancing activities. These activities magnify the efficiency of the knowledge operation of the MNE and thus increase the likelihood of innovation performance of the subsidiary (Birkinshaw et al., 2005; Garcia-Pont et al., 2009).

In the interactions towards the external environment of the MNE, subsidiary managers' activities in dealing with external local counterparts and engaging in external activities to share knowledge and innovations (see, e.g., Andersson et al., 2005; Asmussen et al., 2009; Giroud & Scott-Kennel, 2009; Nell & Ambos, 2013) are recognised as innovation-enhancing activities. Such activities increase the local embeddedness of the subsidiary. Greater local embeddedness presents the subsidiary with a more inclusive set of unique, local-specific opportunities and resources for developing novel knowledge, innovation, and competitive advantages (Andersson et al., 2002; Andersson & Forsgren, 1996; Forsgren et al., 2000; Ghoshal & Bartlett, 1990; Malnight, 1996; Nohria & Ghoshal, 1997).

Hypotheses Development

Innovation-Enhancing Activities of Subsidiary Managers on Subsidiary Innovation

Subsidiary managers are responsible for gathering and summarising information on the resources and capabilities beyond the boundary of the subsidiary to identify different new opportunities and potentials for their subsidiary. Much research has established that knowledge gathered from the external environment is an essential contributor to innovation (Cohen & Levinthal, 1990; Hansen, 1999; Tsai, 2001). The gathered knowledge stimulates the subsidiary to engage in an environment with important resources and knowledge embedded in them to exploit the R&D mandate. The internal MNE environment, that is, headquarters and sister subsidiaries, provides the subsidiary with the opportunities to affect the innovation performance and influence of the subsidiary in the MNE. In a way that subsidiary managers champion initiatives (Bower, 1970; Burgelman, 1983; Dutton et al., 1997; O'Brien et al., 2019), elaborate on the subsidiary's projects (Ling et al., 2005) to attract headquarters

attention to request more resources (Ambos et al., 2010; Birkinshaw, 1997; Birkinshaw, 1999; Birkinshaw et al., 2005). Additionally, subsidiary managers engage with sister subsidiaries and build internal collaborations to increase the firm's efficiency and improve the overall operation of the MNE (Birkinshaw et al., 2005; Garcia-Pont et al., 2009). These collaborations between subsidiaries enable the subsidiary managers to scout for opportunities among sister subsidiaries (Ciabuschi et al., 2011), and it furthers the subsidiary's access to essential resources in the MNE (Garcia-Pont et al., 2009). Previous studies have shown that these activities pursued by the subsidiary managers beyond the boundary of the subsidiary in the internal MNE environment have a positive impact on the subsidiary's performance. Hence, we hypothesise:

Hypothesis 1

The increase in subsidiary managers' innovation-enhancing activities with internal MNE actors that comes with gaining an R&D mandate positively affects subsidiary innovation.

Subsidiary managers deal with external customers, suppliers, local governmental bodies, and research institutes in the external MNE environment. Within this environment, subsidiary managers are responsible for developing strategies to deal with local competitors and developing local collaborations in different local networks (Forsgren et al., 2000; Ghoshal & Bartlett, 1990; Nohria & Ghoshal, 1997). Developing local collaborations offers significant advantages for the subsidiaries (Andersson & Forsgren, 1996), such as creating knowledge, capabilities, and enhancing the performance of the subsidiary (Andersson et al., 2002), and consequently, it benefits the MNE in terms of sharing outside knowledge and innovations (see, e.g., Andersson et al., 2005; Asmussen et al., 2009; Giroud & Scott-Kennel, 2009; Nell & Ambos, 2013). During this process, the subsidiary managers use social interactions and relationships with external actors to develop capabilities and align resources towards the outside MNE opportunities. Such relationships create a foundation for knowledge transfer and innovation across boundaries (O'Brien, 2014). Therefore, we hypothesise that:

Hypothesis 2

The increase in subsidiary managers' innovation-enhancing activities with external counterparts that comes with gaining an R&D mandate positively affects subsidiary innovation.

The Role of the Newness of R&D Mandate on Subsidiary Innovation

To evaluate the outcome of each innovation-enhancing activity of subsidiary managers on the subsidiary's innovation performance, we consider the micro-mechanism that affects the subsidiary managers' activities post gaining an R&D mandate.

Formally gaining a mandate is an exogenous change for a subsidiary. Subsidiary evolution literature shows that, although sometimes subsidiaries' successful initiatives drive mandate gains, the actual assignment of the mandates is always done by the headquarters when a scope of responsibility is assigned to an existing or new activity in the subsidiary. Thus, the mandate is only considered "gained" when headquarters assign the scope of responsibility and resources to the subsidiary (Birkinshaw & Hood, 1998; Dörrenbächer & Gammelgaard, 2006; Dörrenbächer & Geppert, 2009).

As a result, when a subsidiary gains a new activity and/or a new responsibility, its official charter changes and, therefore, its capabilities need to be developed and directed accordingly. In other words, the exogenous change of gaining an R&D mandate creates a degree of mismatch between the subsidiary's official charter and its existing capabilities (Birkinshaw & Hood, 1998).

Gaining an R&D mandate is a focal point for the subsidiary's innovation development since the MNE officially delegates the responsibility of developing and maintaining the technological competitive advantage for the overall MNE to that subsidiary. Thus, one can argue that, when the subsidiary gains an R&D mandate, the subsidiary is gaining a responsibility from the headquarters domain to control and integrate knowledge activities beyond its local borders (Gilmore et al., 2018). This important and burdening characteristic of the R&D mandate requires the subsidiary managers to pursue the "right" activities to effectively overcome the degree of a mismatch between the subsidiary's official charter and its existing capabilities.

To understand the degree of mismatch, subsidiary managers determine the degree of newness of the R&D mandate. Commonly, mandates can be categorised into two types, a new mandate and the extension of an existing mandate. With a new mandate, the subsidiary gains an activity and a scope of responsibility that previously did not exist in its charter (Birkinshaw, 1996). Gaining a new mandate indicates that the change in the charter *ceteris paribus* is relatively significant. However, when the subsidiary gains an extension of an existing mandate, a related activity and/or an extended scope of responsibility to the existing charter is assigned to that subsidiary. In this type of mandate, the change in the charter *ceteris paribus* is reasonably small, that is, upgrade in the scope of responsibility and/or extended activity.

Thus, we can conclude that depending on the degree of the newness of the mandate, the magnitude of change in the subsidiary managers' activities varies. Therefore, we hypothesise:

Hypothesis 3

The degree of newness of a gained R&D mandate is positively related to the degree of change in subsidiary managers' innovation-enhancing activities.

Method

Sample

Our study draws on 98 surveys gathered from subsidiaries with a portfolio of Production and R&D of eight sizeable Swedish engineering multinational enterprises located globally. The 17 countries included in this survey are Australia, Belgium, Brazil, Canada, China, Germany, Finland, France, Greece, India, Italy, Myanmar, the Netherlands, Norway, Sweden, the United Kingdom, and the United States. Such coverage helps us to avoid issues concerning location-specific characteristics.

The survey aims to gather data regarding the change in the activities of subsidiary managers post gaining an R&D mandate beyond the boundary of the subsidiary. At the time of data collection, among the considered MNEs, only 98 subsidiaries had R&D portfolios, and we managed to interview all of their CEOs/directors. In this study, we consider the activities of the subsidiary CEO/director as the fundamental mechanism of subsidiary behaviour, an approach that has been implemented by O'Brien et al. (2019) and recommended by Devinney et al. (2000).

Measures

The dependent variable of this study is an increase in subsidiary innovation, which is operationalised by the count of product or process innovations reported by the subsidiary managers as the result of the gained R&D mandate 3–5 years earlier. We asked the subsidiary managers to name the innovations that their subsidiary developed either in the form of a new product/process or a significant modification of an existing product/process, eligible for patenting separately. This construct is driven by Booz and Hamilton's (1982) definition of innovation and is in line with Un's (2010, 2016) operationalisation of the construct.

This study adopts the measures of the subsidiary managers' activities established in previous research by Floyd and Wooldridge (1992, 1997), O'Brien (2014), and O'Brien et al. (2019). Likert-type scales were used, with respondents, that is, subsidiary managers, rating from −3 to 3 on how much change accrued in their pursued activities post R&D mandate gain (−3 as decreased significantly to 3 increased significantly). Going through the responses, we detect that none of the pursued activities post R&D mandate gain was decreased; hence, our scale was adjusted to four-point scales from 0 as no change to 3 increased significantly.

Each question started with the phrase, "Please indicate how your subsidiary's managers changed their behaviour pursuing the following activities, after gaining this specific R&D mandate. In terms of interacting with the HQ/Sister subsidiaries/External counterparts, the subsidiary managers when". The survey was intended to capture the extent of change in the managers' activities rather than identifying the extent of the tasks or the frequency of the activity performed, as done by Floyd and Wooldridge (1992, 1997), O'Brien (2014), and O'Brien et al. (2019).

The two independent variables reflect the magnitude of changes in innovation-enhancing activities of subsidiary managers post R&D mandate gain. These variables are the magnitude of change in the innovation-enhancing activities of subsidiary managers towards the internal MNE environment, that is, HQ and sister subsidiaries, and the external counterparts beyond the boundaries of MNE.

The construct regarding the magnitude of change in the activities of subsidiary managers towards the internal environment of MNE was measured with six items: "proposing subsidiary projects to the HQ; conveying the merits of new proposals within the portfolio activities of the subsidiary; gathering information from the Headquarter on the feasibility of new projects within the portfolio activities of the subsidiary; communicating the implication of new information regarding the subsidiary within the portfolio activities of subsidiary; aligning with sister subsidiaries who have access to important resources; building linkages with sister subsidiaries having complementary resources have changed".

Furthermore, the construct regarding the magnitude of change in activities of subsidiary managers towards the external environment of MNE was measured with three items: "building linkage with the external counterpart having complementary resources; coordinating portfolio activities of the subsidiary with external counterpart; encouraging new subsidiary projects in portfolio activities of the subsidiary in conjunction with the external counterpart have changed".

Finally, we construct a binary variable for the degree of the newness of a gained mandate, where 1 is a new R&D mandate, and 2 is an extension of an existing R&D mandate.

Analysis

The analysis for testing the proposed hypotheses was carried out in three stages. First, the reliability and validity of the latent constructs were evaluated with confirmatory factor analysis (CFA). Later on, we moved to test the hypotheses using SPSS28 and AMOS28 by utilising items as indicators for the constructs. In testing hypotheses, the Structural Equation Modeling (SEM) analysis was performed to determine the effect of the magnitude of change in the innovation-enhancing activities of subsidiary managers towards internal and external counterparts on increased subsidiary innovation. Then, the independent T-test was conducted to determine the effect of the newness of the gained R&D mandate on the magnitude of change in innovation-enhancing activities of subsidiary managers.

Measurement Model

The CFA showed positive, significant, and above the suggested values factor loadings (see Hair et al., 2014; Pallant, 2013) for all the nine indicators of the two hypothesised latent variables. The CFA showed non-significant chi-square (0.075) estimates, suggesting a satisfactory goodness-of-fit. The root mean square error of approximation (RMSEA) was 0.063. The comparative fit index (CFI) was 0.825, and the goodness-of-fit index (GFI) was 0.911. Thus, all goodness-of-fit measures suggested an acceptable fit (see Browne & Cudeck, 1993). Furthermore, considering the sample size, all factors exceeded the suggested cutoff value for factor loadings (n = 98, Cutoff = 0.55), mostly higher than 0.6, indicating acceptable loadings (Hair et al., 2014). Composite reliability for all constructs was above 0.7, suggesting the reliability of the scales (Nunnally, 1978). Finally, the average variance extracted (AVE) for each construct was higher than the suggested 0.5 cutoff value (Fornell & Larcker, 1981; Hair et al., 2014). Thus, all constructs exhibited convergent validity. Furthermore, all constructs were evaluated by Fornell and Larcker's (1981) criterion for discriminant validity (Table 1). As shown in Table 2, the levels of square root of the AVE for each construct are greater than the correlation involving the constructs. Therefore, all constructs have discriminant validity.

Table 1 Independent variables factor loadings, construct reliability, and convergent validity

	Factor loadings		*Composite reliability*	*Average variance extracted*
Indicators	*1*	*2*		
The magnitude of change in innovation-enhancing activities of subsidiary managers towards internal MNE actors *after gaining this specific R&D mandate, in terms of interacting with the HQ and sister subsidiaries inside the MNE, the subsidiary managers' behaviour when:*			0.901	0.605
- proposing subsidiary projects to the HQ have changed	0.833			
- conveying the merits of new proposals within the portfolio activities of subsidiary have changed	0.864			
- gathering information from the headquarter on the feasibility of new projects within the portfolio activities of subsidiary have changed	0.750			
- communicating the implication of new information regarding the subsidiary within the portfolio activities of subsidiary have changed	0.754			
- aligning with sister subsidiaries who have access to important resources have changed	0.742			
- building linkages with sister subsidiaries having complementary resources have changed	0.711			
The magnitude of change in innovation-enhancing activities of subsidiary managers towards external MNE environment *after gaining this specific R&D mandate, in terms of interacting with the external counterparts outside the MNE, the subsidiary managers' behaviour when:*			0.749	0.500
- building linkage with the external counterpart having complementary resources have changed		0.681		
- coordinating portfolio activities of subsidiary with external counterpart have changed		0.755		
- encouraging new subsidiary projects in portfolio activities of subsidiary in conjunction with the external counterpart have changed		0.682		

Table 2 Correlation among latent variables with discriminant validity

Latent variable	Increased subsidiary innovation	The magnitude of change in innovation-enhancing activities of subsidiary managers towards internal MNE actors	The magnitude of change in innovation-enhancing activities of subsidiary managers towards external MNE environment
Increased subsidiary innovation	1		
The magnitude of change in innovation-enhancing activities of subsidiary managers towards internal MNE actors	−0.207	0.778 (square root of AVE)	
The magnitude of change in innovation-enhancing activities of subsidiary managers towards external MNE environment	0.067	0.323	0.707 (square root of AVE)

Results

To test the hypotheses 1 and 2, we conducted SEM analysis.

Structural Models

A summary of paths and hypotheses tests are provided in Table 3. The hypothesised direct path between the magnitude of change in the innovation-enhancing activities of subsidiary managers towards the internal environment has an unexpected negative and significant relationship with increased subsidiary innovation (t = −2.085, β = −0.468). Hence, *the hypothesised relationship in Hypothesis 1 exists, however, in a different direction.* The path between the magnitude of change in the innovation-enhancing activities of subsidiary managers towards external counterparts has a positive and insignificant relationship with increased subsidiary innovation (t = 1.095), thus *rejecting Hypothesis 2*. Fit indices for this model suggested that acceptable fit with $\chi^2_{(31)}$ of 42.963 (p = 0.075), (RMSEA) = 0.063, CFI = 0 0.825, and GFI = 0.911 (Fig. 1).

Table 3 Summary of Hypotheses

Analysis	Hypothesis	Coefficient	Results
Structural model	(1) the magnitude of change in innovation-enhancing activities of subsidiary managers towards internal MNE actors -> increased subsidiary innovation	Significant at t = −2.085, β = −0.468	Supported in the opposite direction than hypothesised
Structural model	(2) the magnitude of change in innovation-enhancing activities of subsidiary managers towards external counterparts -> increased subsidiary innovation	Non-significant at t = 1.095	Not supported
T-test	(3) the degree of newness of a gained R&D mandate -> subsidiary managers' innovation-enhancing activities	No statistical differences between groups regarding the latent variables	Not supported

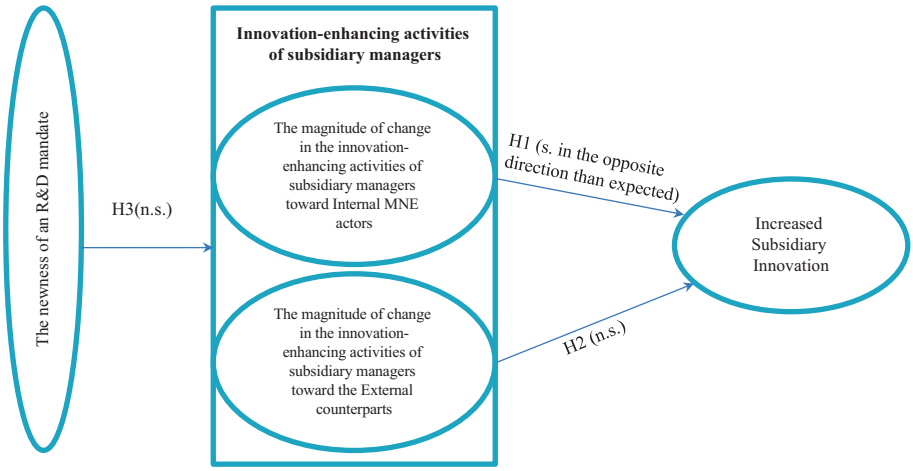

Fig. 1 Visualisation of Hypotheses

For testing Hypothesis 3, we conducted an independent T-test to compare the score for new R&D mandate gain (group A) and extension of existing R&D mandate gain (group B).

Regarding the "Magnitude of change in innovation-enhancing activities towards internal MNE actors", there was no significant difference in scores for group A (M = 0.909, SD = 0.273) and for group B (M = 0.971, SD = 0.253;

t (96) = −0.837 p = 0.41, two-tailed). The magnitude of the difference in the means (mean differences = −0.061, 95% CI: −0.21 to 0.08) was very small (eta squared =0.007).

Regarding the "Magnitude of change in innovation-enhancing activities towards external counterparts", there was no significant difference in scores for group A (M = 0.820, SD = 0.263) and for group B (M = 0.851, SD = 0.241; t (96) = −0.437, p = 0.66, two-tailed). The magnitude of the difference in the means (mean differences = −0.031, 95% CI: −0.17 to 0.10) was very small (eta squared = 0.001). These results did not pass the test at the normal confidence level, indicating no statistical difference between the groups and, thus, *rejecting* Hypothesis 3.

Discussion and Conclusion

Subsidiary managers act on the stimuli that build on different knowledge and opportunities in their surrounding environments (Ocasio, 1997). Thus, in a post-technological portfolio shift, that is, post gaining an R&D mandate, subsidiary managers respond with different innovation-enhancing activities. We showed that the changes in innovation-enhancing activities of the subsidiary managers after gaining an R&D mandate have different weights and effects on the innovation of the subsidiary. Changes in the innovation-enhancing activities of subsidiary managers towards internal actors interestingly tend to hinder innovation. This result is in line with O'Brien et al. (2019), who showed that the activities of subsidiary managers towards the HQ are negatively affecting the initiative realisation of the subsidiary. Moreover, changes in the innovation-enhancing activities of subsidiary managers towards external counterparts reinforce innovation but not significantly. This result is against the existing literature that shows the engagement with the external counterpart is beneficial for the innovation performance of the subsidiary. Considering that subsidiary managers are rationality bounded and have a limited attentional capacity to attend to their surroundings stimuli (Ocasio, 1997; Simon, 1947), it is only natural that the innovation-enhancing activities of subsidiaries towards external counterparts are limited when the subsidiary undergoes a technological shift of gaining an R&D mandate. Furthermore, vast literature in international business shows that subsidiaries tend to experiment and take initiatives with external counterparts outside the subsidiary portfolio prior to communicating the success of those initiatives to the HQ and lobbying for the mandate of the developed capabilities.

Additionally, the outcome of this study can offer an explanation for paradoxical results in the two streams of existing literature concerning the success of boundary-spanning activities regarding innovation. One stream of research highlights that organisations that conduct activities to absorb and gather knowledge from their external environment are more productive (Ancona & Caldwell, 1992; Hansen, 1999; Tushman & Katz, 1980). The other stream of the research suggests that activities that are conducted to gather knowledge externally are having an adverse influence on the knowledge transfer within the organisation (Cross et al., 2002; Gould & Fernandez, 1989) and, consequently, has a negative effect on the performance (Khan et al., 2015). By considering the result of this study, the nature of the activities beyond the boundary of the subsidiary is not the reason that the innovation performance of the subsidiary is hindered. However, it is the direction of the activities that cause the interruption in innovation. Therefore, the result of this study makes us suggest that the MNE and its subsidiaries should focus on different activities post R&D mandate gain by considering the short-term or long-term performance strategy, especially in the time of uncertainty when the global operation needs to focus on the "just in case" strategy and simplify the value chain to be less vulnerable (Cavusgil, 2022).

Furthermore, such an insight into the outcome of the subsidiary managers' activities sheds light on the individual contribution of subsidiary managers to MNE resilience (Cavusgil, 2022; Schotter, 2021), and it enables the subsidiary managers to increase the innovation performance of the subsidiary while adapting to the changes imposed from the MNE HQ. Finally, our study contributes to the existing claim in the subsidiary management literature that emphasises the subsidiary managers' role in subsidiary innovation and MNE performance (O'Brien, 2014; Pappas & Wooldridge, 2007; Wooldridge & Floyd, 1990) by investigating the micro-mechanism of the subsidiary innovation and showing the weight of the causal link between subsidiary managers' activities and subsidiary innovation. Furthermore, we show that the mechanism that prompts the subsidiary managers' activities post gaining an R&D mandate is not positively related to the degree of the newness of the technological shift, that is, gaining a new or an extension to the R&D mandate.

Finally, we believe the next step for future research is to consider which internal activities of subsidiary managers hinder innovation. Understanding the impacts of each internal activity of the subsidiary managers will guide the MNEs out of the rough waters during the challenging time of an uncertain world (Cavusgil, 2022). Another interesting aspect is the relational aspect of subsidiary managers' activities in the post-technological shift, that is, the R&D mandate gain phase. Future research can address the impact of

subsidiary managers' activities on embeddedness since research showed that different levels of embeddedness result in a different levels of innovative performance. By such research, we can understand more in-depth how the resilience of the MNEs can be increased during global crises (Cavusgil, 2022).

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Incorporating Home and Host Country Economic Growth Rates in Predicting the Impact of MNEs' Strategic Flexibility on Local Economies

Walid Hejazi, Jianmin Tang, and Weimin Wang

Introduction

Mega trends have been defined as "watershed events in the macro environment that impact us globally" (Cavusgil, 2021). These occurrences are distinctive in that they "tend to have lasting and enduring effects." Two such watershed events are the 2008 global financial crisis and the 2020 Covid-19 pandemic. The 2008 global financial crisis demonstrated clearly how a financial crisis originating in one country, the United States, could quickly spread around the world (Kamin & DeMarco, 2012; Lane, 2012). Similarly, the 2020 pandemic demonstrated how the outbreak of a highly contagious virus can quickly spread around the world, resulting in the 2020 "Great Lockdown"

W. Hejazi (✉)
Rotman School of Management, University of Toronto, Toronto, ON, Canada
e-mail: walid.hejazi@rotman.utoronto.ca

J. Tang
Innovation, Science, and Economic Development Canada, Government of Canada, Ottawa, ON, Canada
e-mail: jianmin.tang@ised-isde.gc.ca

W. Wang
Statistics Canada, Government of Canada, Ottawa, ON, Canada
e-mail: weimin.wang@canada.ca

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_10

(Van Assche & Lundan, 2020). Together, these two experiences, and many others, highlight the extent to which countries of the world are connected. These two events may also highlight how such events are becoming "more frequent," and that the origins of such events can be endogenous with economic or financial roots centred within an economy, or exogenous with roots independent of the economy such as in the case of Covid-19. While these two crises have very different origins, they were both characterized by sharp reductions in economic activity across the world's economies.

More generally, as the world has become more integrated over the past several decades, there has been increased co-movements in real GDP growth rates across countries (Kose et al., 2009; Bems et al., 2010). Financial or economic crises in general, but economic downturns more generally, in any one country can have ripple effects across international borders. International trade linkages can be seen as a key channel by which these effects are disseminated across markets (Dornbusch et al., 2000). In the Canadian case, its exports are largely for the U.S. market, and it is widely acknowledged that as the U.S. economy recovers, Canada's economy will be pulled along with it, driven by an increased demand for Canadian exports (Bank of Canada, 2021). The converse is, therefore, true as well, namely, that when the U.S. economy goes into a downturn, demand for Canadian exports decline, thus disseminating the U.S. economic downturn into the Canadian economy, and beyond.

Multinational enterprises (MNEs) are also key drivers of these international linkages, not only in terms of locating production facilities across borders but also given that MNEs control a significant share of global trade. The OECD estimates that MNEs intermediate over half of world exports and approximately half of world imports (OECD, 2018). This is especially true for a small and open economy like Canada (Rao & Zhang, 2019; Hejazi et al., 2021a). To the extent MNEs respond to an economic downturn in any particular market, they too can serve as a channel by which these effects are disseminated across markets. As a result, understanding how movements in GDP across all markets an MNE operates in is essential in understanding how MNEs react to an economic downturn within any given market, and how this impacts the MNE's operations in the markets it has a presence in.

Since MNEs are firms which operate across borders, they are well placed to adjust their operations in the face of an economic downturn in ways that non-MNEs are unable to. For example, in the face of an economic downturn in an MNE's home market, the MNE is able to "scan the global landscape" and deploy strategies internationally to mitigate the negative effects of the home market downturn on the firm (Kogut & Kulatilaka, 1994; Lee & Makhija, 2009). These strategies can include redirecting sales in the home economy to

customers outside that market, or moving home-country production to a location abroad. These strategies can also involve MNEs moving production or sales from one host country to another, rather than to or from the home country itself.

The value of such strategic flexibility, however, depends directly upon the extent to which economic downturns in the markets an MNE operates in are correlated. If all markets are negatively impacted to the same degree, the benefits to adjusting operations internationally are mitigated. For example, during the 2020 pandemic, all markets were quite negatively impacted. In general, however, the extent of economic downturns will vary across countries. If an MNE's home market is impacted to a greater degree than other markets the MNE operates in, the MNE may opt to move production away from its home market and into other less effected foreign markets. On the other hand, if the home market is impacted less than the other markets the MNE operates in, the MNE may move some of its foreign production into the home market from abroad.

This chapter therefore extends the literature by modelling an MNE's strategic flexibility directly as a function of the relative GDP performance of the home country to that of the weighted average of all of the foreign markets the MNE operates in globally. This extension demonstrates that considering the economic performance of the home country alone provides an incomplete picture of the MNE's decision-making process. Such a limited view therefore limits our understanding of the impact the exercising of strategic flexibility in the face of an economic downturn will have on home market operations. On the other hand, considering the economic performance of all markets that MNEs operate in provides a holistic view. With such a comprehensive view, we are able to demonstrate that the predicted impact of a home country downturn on the MNE's home country operations is directly related to the economic performance in the home country relative to that of all foreign markets the MNE operates in. This chapter therefore fills this important void in the literature. In order to have a better understanding of MNEs' decision-making process vis-à-vis the exercising of strategic flexibility, it is important to understand not only the economic conditions in the home market itself but also the economic conditions in all of the markets that MNEs operate in.

More fundamentally, however, we go further to underscore how an extension in this regard also develops more resilience among MNEs, and hence in international business. This research underscores the need for more "resilience and adaptability" in the face of an increasingly interdependent world facing "more intense and cascading global challenges ranging from disease to climate change to the disruptions from new technologies and financial crises"

(National Intelligence Council, 2021, p. 1). MNEs can indeed be a source of such resilience, but requires that MNEs deal with challenges across all regions within which they operate. MNEs must also incorporate connections among markets in the development of their resilience strategies. As such, exercising strategic flexibility in the face of an economic downturn is important for the performance of MNEs' themselves, but is also important for building resilience within the global economy.

These results are also important in exiting periods of significant economic downturns, such as that experienced during the 2020 pandemic. In their analysis of a post-Covid-19 world, McKinsey and Company (2021) highlight that the speed of recovery will vary not only by industry but also by country. For example, in their October 2020 survey, they "found that countries with older demographics, such as France, Italy, and Japan, are less optimistic than are those with younger populations, such as India and Indonesia" (McKinsey & Company, 2021, p. 2). These results underscore the importance of the research undertaken here, namely that growth rates across economies both in periods of economic contraction and in the recovery phase will vary. MNEs that have operations which span several countries would need to factor in such heterogeneity in designing how they exercise strategic flexibility.

The structure of this chapter is as follows. The next section provides theoretical background and develops hypotheses. This is followed by a data description. Empirical tests are considered next. Conclusions are provided in the final section.

Background and Theory Development

This chapter relates to the implications of exercising strategic flexibility on the operations of MNEs themselves, as well as the implications for the markets within which they operate. Given that MNE operations span many markets, and encompass production within home and host countries, as well as the intermediation of a significant amount of the world's trade, the research also relates to the how an economic downturn in any one market is disseminated across markets.

While acknowledging the academic and policy consensus that countries which are more open to trade tend to grow faster than countries that are less open, there is also a consensus that more open economies have increased "vulnerability to external shocks" (Kose et al., 2009). An economic or financial shock in any particular country can have implications for other countries with which it does business. The importance of trade and investment has been

acknowledged in the literature as important conduits for the transmission of economic or financial disruption across markets.

> Open economies are vulnerable to the influence of such instability generated by other markets, and the international transactions involving investment and trade act as conduits that transmit the shocks from one country to another. (Dunning & Lundan, 2008, p. 498)

The importance of such global linkages in the aftermath of the 2008 global financial crisis which quickly spread across the world led Reinhart and Rogoff (2009, p. 472) to write that "The global nature of the crisis will make it far more difficult for many countries to grow their way out through higher exports, or to smooth the consumption effects through foreign borrowing.". Hence, not only do international linkages disseminate economic and financial shocks across borders but such linkages also limit the recovery of economies from such negative shocks in the absence of a broader economic recovery.

One of the benefits that come with having production locations across markets is enabling MNEs to diversify risk (Ghoshal, 1987; Dunning & Lundan, 2008). By having operations spread across economies globally, any negative impact in one market may be offset by operations in other markets that may be experiencing better outcomes. Despite these diversification benefits, MNEs may still benefit from adjusting their activities across the markets they operate in. There are several papers which develop theory and document evidence of how changes in the macroeconomic environment cause MNEs to reconfigure their global activities (Lee & Chung, 2007; Allen & Pantzalis, 1996; Kogut & Kulatilaka, 1994; Tang & Tikoo, 1999).

The ability of an MNE to adjust its production across the various markets it operates in has been modelled in a real options framework by Kogut and Kulatilaka (1994). In the face of adverse economic or financial conditions within any one market the MNE operates in, it has the ability to exercise such real options and adjust its production footprint globally. Using data for Korea, Lee and Makhija (2009) demonstrate that MNEs operating in Korea were able to adjust their global operations in ways that mitigated the impact of the 1998 Korean economic crisis on the MNEs themselves. Athukorala (2003) extends such analysis to assessing the impact of strategic flexibility on Thailand, Malaysia, Indonesia, Korea, and the Philippines during the 1997–1998 crisis within Asia. In the process of using cross-border flexibility, MNEs were able to mitigate the negative economic impacts that came along with the crisis.

Varum and Rocha (2011) analyse the impact of strategic flexibility within the context of Portugal. Using data over the period 1998 to 2007, they demonstrate how employment losses among MNEs mirrored those of non-MNEs. The analysis of the Portuguese case is extended to the analysis of survival rates in Varum et al. (2014).

Given that MNEs have operations in two or more countries, they therefore have opportunities that are not available to purely local firms. Along with the traditional benefits (i.e. motivations) associated with undertaking outward FDI, including market-seeking, efficiency-seeking, and resource-seeking (Dunning & Lundan, 2008; Hejazi & Pauly, 2003), the presence of established operations abroad enables the MNE to adjust production across borders in the presence of a change in the economic performance in any one of the markets the MNE operates in (Kogut & Kulatilaka, 1994; Lee & Makhija, 2009).

The strategic flexibility available to MNEs is displayed in Fig. 1. Let's consider the home market context. When the economic performance of the home market deteriorates during a recession, home-country non-MNEs are constrained to containing their operations within their home market, as they do not have established operations abroad. In that sense, their operations would experience the full brunt of an economic downturn.

In contrast, home-country MNEs have the ability to exercise strategic flexibility and adjust their operations across borders. If MNEs have operations in other markets that are not experiencing a downturn, as is the case in the home country, they may find it beneficial to adjust production away from its negatively impacted home market to these unaffected foreign markets. Exercising their ability to take advantage of such strategic flexibility allows domestic MNEs to mitigate the negative impact the home-country recession would have on their overall operations.

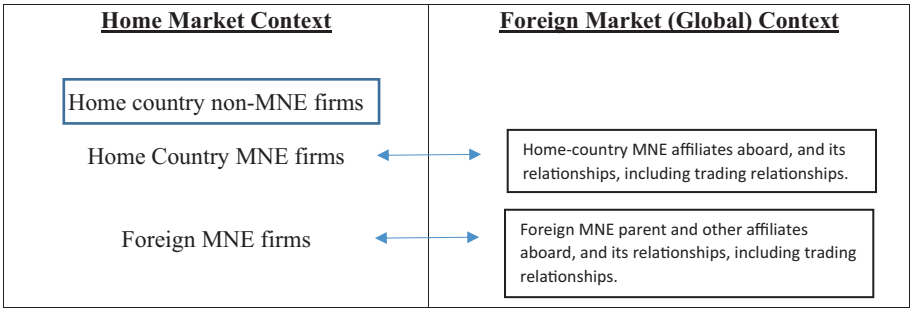

Fig. 1 Strategic flexibility

In the discussion above, it is the home country that experiences a recession, whereas the foreign markets where home-country MNEs have affiliates do not. If the reverse is true, namely, the foreign markets experience a recession, but the home country does not, then MNEs could adjust their global operations and move production to the home country.

These two possibilities are reflected in Fig. 1 and are captured by the arrows going in both directions, to and from the home country. The direction that the production adjustments would take would depend directly on the relative economic performance of the home market and the foreign host markets where MNEs operate. If we are to understand the impact of an economic downturn on the home-country operations of home-country MNEs, it is therefore necessary to have an understanding of the relative performance of the home country's economy relative to the performance of the foreign markets where the home-country MNEs operate in.

This discussion leads to our first two hypotheses.

Hypothesis 1: When the home market economy is *less* negatively impacted during an economic downturn than are the foreign host markets where home-country affiliates are located, then exercising strategic flexibility by home-market MNEs will mitigate the impact of the economic downturn in the home country.

Hypothesis 2: When the home market economy is *more* negatively impacted during an economic downturn than are the foreign host markets where home-country MNE affiliates are located, then exercising strategic flexibility by home-country MNEs will magnify the impact of the economic downturn in the home country.

The discussion above has focussed on the strategic flexibility exercised by home-country MNEs. Strategic flexibility would also enable foreign MNEs operating in the home country in Fig. 1 to adjust their operations across international borders, and analogous hypotheses would hold for foreign firms as well. We focus our discussion and analysis in this chapter on the home-country MNEs only.

Not all industries are the same, however. While some industries such as manufacturing are amenable to the movement of production from the home country to foreign markets in the face of an economic downturn, production in other industries may not be easily adjustable in this way. For example, mining is an industry where production is tied to the physical locations of

deposits themselves. In the face of an economic downturn in the home market, it is unlikely that production at the mine of an MNE would fall as a result of the MNE's relocation of production. This is not to say that production at a home-country mine is insensitive to the economic downturn. To the contrary, we argue that output and production within the mining sector, like other industries, does react to economic downturns. However, unlike manufacturing, for example, there would be no additional knock-on effects which result from the MNE exercising strategic flexibility and moving its production to other markets. Similar arguments would apply to oil and gas extraction. This discussion leads to our third hypothesis.

Hypothesis 3: MNEs within industries whose production depends on local inputs (i.e. mining and oil and gas extraction) will have less of an ability to exercise strategic flexibility relative to other industries (i.e, manufacturing), thus limiting the ability to exercise strategic flexibility.

These hypotheses are tested below using data on Canadian MNEs.

Data Description

In order to test the hypotheses discussed above, data were required on the location of MNE operation globally. To this end, confidential Statistics Canada data were used for domestic MNEs operating in Canada.[1] The data obtained for each Canadian MNE in the sample includes real gross output,[2] employment, age, and industry. In addition, the dataset includes information on the FDI position for each Canadian MNE by host country, for each year over the sample period, 2000 to 2014. While we do have information on the Canadian operations of foreign MNEs operating in Canada, we do not have information relating to the global operations of these foreign MNEs, and, therefore, the focus of the analysis in this chapter relates only to Canadian MNEs.

In order to account for the performance of the home country (i.e. Canada) and the foreign markets that each Canadian MNE operates in, real GDP growth is needed for each host market in the sample, which were obtained from the World Bank database. For each Canadian MNE in the sample, and for each year, the relative GDP performance is calculated, as the real GDP growth of the home market (i.e. Canada) less the average of the real GDP growth across every host market the MNE operates in, weighted by the firm's FDI share in each of the host markets. Given the heterogeneity in the markets that each MNE operates in, this relative GDP performance measure itself will vary by MNE, and over time.

Table 1 provides descriptive statistics on the Canadian MNEs in our dataset. The table provides the share of the Canadian MNEs operating within the United States only, the percentage of Canadian MNEs which operate in only one foreign market, two to four foreign markets, and five or more foreign markets. Finally, the table provides, for each year of the sample, the percentage of MNEs with positive/negative Canada-host GDP growth difference.

Over the sample period, the share of Canadian MNEs which have invested in the United States only has dropped by more than half, from 42 percent in 2000 to 19 percent in 2014. This is also reflected in the percentage of Canadian MNEs that have only invested in one foreign host, dropping form 54 percent in 2000 to 22 percent in 2014. The share of Canadian MNEs investing in five or more foreign host markets has increased dramatically from 14 percent in 2000 to 47 percent in 2014. This may suggest that Canadian MNEs have improved their ability over time to set up production facilities in multiple countries and ensure that their production is more diversified.

Table 1 The location description of foreign affiliates of Canadian MNEs

	Percentage of Canadian MNEs with:				Percentage of Canadian MNEs associated with positive/negative Canada-host real GDP growth differences	
		Affiliates in the given number of host countries				
Year	All Canadian MNEs (%)	Affiliates only in the United States (%)	1 host (%)	2–4 hosts (%)	5 or more hosts (%)	Positive (%)	Negative (%)
2000	100	42	54	32	14	92	8
2001	100	43	53	33	13	77	23
2002	100	43	53	33	14	87	13
2003	100	42	54	30	16	12	88
2004	100	39	51	31	17	17	83
2005	100	37	49	34	17	25	75
2006	100	39	49	35	15	9	91
2007	100	33	41	40	19	60	40
2008	100	33	42	39	19	79	21
2009	100	30	38	39	23	32	68
2010	100	23	28	37	35	76	24
2011	100	20	24	41	35	84	16
2012	100	17	17	36	47	36	64
2013	100	21	24	33	43	85	15
2014	100	19	22	32	47	66	34
Total	100	35	44	35	21	52	48

Note: In 2014, there were 1761 Canadian MNEs in our sample, and this number varies over the sample period

Finally, we consider the economic performance of the Canadian market relative to the FDI-weighted average of the performances of all the foreign host markets each Canadian MNE invests in. In the year 2000, only 8 percent of Canadian MNEs invested in host markets that outperformed the Canadian economy. In contrast, in 2006, 91 percent of Canadian MNEs invested in foreign host markets that outperformed the Canadian market. Clearly, there is significant variation not only across years but also across Canadian MNEs within any particular year.

Empirical Methodology

Dependent Variable

To operationalize the dependent variable in this analysis, namely measures of the operations of Canadian MNEs, we use the log growth rate in real gross output or employment of Canadian MNEs at the firm level.[3]

Independent Variables

There are three key independent variables of interest. The first two capture economic downturns during the sample period. Over the sample 2000 to 2014, there were two economic downturns, the first occurring in the aftermath of the September 2001 attacks in the United States, and the second occurred as a result of the 2008 global financial crisis. We hypothesize that economic activity of Canadian MNEs contracts as a result of both economic downturns. A dummy variable is created for each of these downturns, the first taking on values of 1 during 2001–2002, and 0 otherwise, and the second taking on values of 1 during the 2008–2009 period, and 0 otherwise.

The second key independent variable is the impact of these downturns in Canada relative to the FDI-weighted average of the impacts across all host markets that Canadian MNEs operate in. Given that we are focusing on the impact of strategic flexibility during economic downturns, we interact this relative GDP growth variable with the economic downturn dummies above.

The analysis below measures the direct impact of each economic downturn on the operations of Canadian MNEs. The analysis will also measure how the relative GDP growth rates in Canada to that of the host markets Canadian MNEs operate in impacts the Canadian operations of Canadian MNEs, above and beyond the direct impacts of economic downturns.

Control Variables

In order to precisely isolate the impact of an economic downturn on the operations of MNEs, it is important to take into account other factors that can also influence the impact of economic downturns on MNE operations. To that end, we also include firm size and firm age. We also create a dummy variable to capture those Canadian MNEs that invest in the United States only, the number of host locations the Canadian MNE has operations in, and the FDI-weighted GDP growth rate of the host countries the MNEs are operating in. Given that industry-specific factors can also influence the degree to which MNEs are affected during an economic downturn, industry dummies are also included. A more detailed discussion on each of the control variables is provided in the next sub-section.

Estimating Equation

To test the hypotheses developed above, we specify the following estimating equation.

$$\begin{aligned}\mathrm{Ln}\left(Y_{it}\right)-\ln\left(Y_{it-1}\right)&=\beta_0+\beta_1 Size_{it}+\beta_2 Age_{it}\\&\quad+\beta_3 HGDPG_{it}+\beta_4\mathrm{USONLY_{it}}+\beta_5\mathrm{NHC_{it}}\\&\quad+\delta_1\mathrm{D0809}_t+\delta_2 Size_{it}*\mathrm{D0809}_t+\delta_3 Age_{it}*\mathrm{D0809}_t\\&\quad+\delta_4\mathrm{CHGDPGDIF}_{it}*\mathrm{D0809}_t+\delta_5\mathrm{USONLY}_{it}*\mathrm{D0809}_t\\&\quad+\delta_6\,\mathrm{NHC}_{it}*\mathrm{D0809}_t\\&\quad+\mathrm{Y}_1\mathrm{D0102}_t+\mathrm{Y}_2 Size_{it}*\mathrm{D0102}_t+\mathrm{Y}_3 Age_{it}*\mathrm{D0102_t}\\&\quad+\mathrm{Y}_4\mathrm{CHGDPGDIF}_{it}*\mathrm{D0102_t}+\mathrm{Y}_5\,\mathrm{USONLY}_{it}*\mathrm{D0102}_t\\&\quad+\mathrm{Y}_6\,\mathrm{NHC}_{it}*\mathrm{D0102}_t\\&\quad+\sum_{i=2}^{n}\mu_j IND_{it}^{j}+\varepsilon_{it}\end{aligned}\tag{1}$$

Where i denotes firm, and t denotes year. $Y_{i,\,t}$ captures firm-level operations, which includes real gross output (G_{it}) or employment (E_{it}). The dependent variable is the log growth rate in these indicators of firm operations. We include variables to capture the size ($Size_{it}$) and the age of the firm (Age_{it}). The size variable is a dummy for large-sized firms (250 employees or more) and takes on a value of 1 for all firms with more than 250 employees, and 0

otherwise. The age variable is a dummy with a value of 1 for firms that are not more than 5 years in operation, and 0 otherwise, and is based on the study by Liu and Tang (2017).

We also control for the host-country GDP growth for those markets where foreign affiliates of Canadian MNEs are located in ($HGDPG_{it}$). We include a dummy variable to capture those MNEs that only have affiliates in the United States ($USONLY_{it}$). A variable is added to capture the number of host countries where a Canadian MNE has affiliates (NHC_{it}). Industry dummies are captured by IND_{it}^{j}. The economic downturn dummy variables capture the periods of significant economic downturns in our sample, namely in 2001–2002, and again in 2008–2009, which take on values of 1 during the years 2001–2002 and 2008–2009, respectively, and 0 otherwise ($D0102_t$, and $D0809_t$). Finally, e_{it} is the error term. We highlight here that, other than the economic downturn variables, these variables vary across MNEs and over time, as reflected in the subscripts i and t.

We now provide the rationale for considering firm size and firm maturity (i.e. age) as factors which affect growth in MNE operations (Doucouré & Diagne, 2020). Start-ups or young firms, if they survive, should grow faster than older and more established firms. However, this may not be valid in a strict sense as Evans (1987) finds that firm growth decreases with age in only 76% of industries. By Gibrat's Law (1931), growth is independent of size, although growth is often expected to be slower as firms grow larger. Empirical evidence is generally mixed on the traditional wisdom, as shown in a survey of the literature by Santarelli et al. (2006).

The operations of MNEs in their home country may also be related to the nature of their global footprint. Here, we consider three such factors: the economic performance of markets foreign affiliates are located in; identifying Canadian MNEs that have foreign affiliates only in the U.S. market; and the number of host countries each Canadian MNE has affiliates operating in. Foreign affiliates located in markets which have higher economic growth are likely performing much better, and this will positively impact the parent's performance. The Canadian economy is highly integrated with the U.S. economy, and the threshold productivity levels required for Canadian firms to go beyond the United States are higher than going to the United States alone (Hejazi et al., 2021b). Thus, Canadian MNEs with affiliates in non-U.S. locations are also expected to have better economic performance. Similarly, a Canadian MNE with affiliates in more than one country should in general perform better as this shows the MNE's ability to

overcome the "foreignness" simultaneously in multiple countries (Zaheer, 1995).

In the context of this chapter, strategic flexibility measures the ability of MNEs in shifting economic activities across countries, which is often expected to be exercised when economic conditions in the home country changes relative to host countries. To capture this effect, we introduce interaction terms between the economic downturn variables and the difference in real GDP growth between Canada and host countries ($CHGDPGDIF_{it}$). As a Canadian MNE may have affiliates in multiple host countries, the real GDP growth rate of host countries in this case is measured as the average of real GDP growth rates of the host countries where the MNE has affiliates, weighted by host country's FDI shares, measured at the firm level. As indicated by Hypothesis 1, when the Canadian economy performs better than host countries, Canadian MNEs are expected to undertake more economic activities at home. On the other hand, as indicated by Hypothesis 2, when the Canadian economy underperforms host countries, Canadian MNEs are expected to reduce economic activities at home when exercising strategic flexibility.

Finally, we have included interaction terms between the economic downturn variables and firm size, firm age, and affiliate-associated variables. The interaction of the economic downturn variables with firm size and firm age dummies and affiliates' factors captures the ability of MNEs to react to economic shocks. It is expected that large-sized or established firms are more capable of dealing with economic downturns than small-sized or young firms (Price et al., 2013). Compared to large-sized or established firms, small-sized or young firms are less diversified in their economic activities; they have a weaker financial structure (i.e. lower capitalization); they have a lower or no credit rating; they are heavily dependent on credit; and they have fewer financing options (OECD, 2009). These factors make them especially vulnerable during economic downturns which are often accompanied by tightening credit markets and reduced demand for goods and services. The interactions of the economic downturn variables with affiliates' factors (i.e. affiliates in United States only and the number of host countries) may also affect Canadian MNEs' ability to shift economic activities across countries in the presence of economic shocks. We single out United States only as the two countries are highly integrated. The shift may not be the same as with other foreign countries given that Canada and the United States are both within a highly integrated regional economy.

Empirical Results

The results in Table 2 provide estimates of Eq. (1), for gross output and employment. As noted above, the sample used includes only Canadian MNEs, as we have information on their operations in Canada as well as information on all affiliates, by host country, for each of the years 2000 to 2014. The sample has 11,126 firm-year observations.

Large Canadian MNEs have growth rates in gross output over the sample that are 3.39 percent higher than small Canadian MNEs, and employment growth which is 6.78 percent higher. While young Canadian MNEs have growth rates in gross output that are 13.39 percent higher than older MNEs, they do not experience any differences in growth rates in employment.

We next consider the extent to which the growth in gross output and employment by Canadian MNEs is linked to the economic performance of the markets they operate in. Recall that the host-country GDP growth ($HGDPG_{it}$) is the weighted average growth of all the markets where the Canadian MNE has an affiliate, weighted by the dollar value of the Canadian MNEs investment in each market. The coefficients on the variable for both gross output and employment are positive and significant, which suggests that the higher these host market growth rates are, the higher is the growth in gross output and employment of Canadian MNEs in Canada. Those Canadian MNEs that have invested in the United States only do not experience growth rates in gross output or employment that are different than those that go beyond the U.S. market. Also, the growth rates in gross output or employment are unrelated to the number of markets that Canadian MNEs have invested in.

We next consider the impact of the two economic downturns in the sample period considered, namely 2001–2002 and 2008–2009. For both of these downturns, there was a significant reduction in the growth in gross output for Canadian MNEs. During 2001–2002, the growth in gross output fell by 4.69 percent, and 7.31 percent during 2008–2009. While there was 5.1 percent reduction in employment growth during 2008–2009, there was no impact during the 2001–2002 economic downturn. These effects are unrelated to whether a Canadian MNE is large or young, notwithstanding some statistical significance at the 10 percent level for large firms during 2001–2002.

While the number of host markets a Canadian MNE operates in was statistically insignificant in explaining changes in the growth rates in gross output during both 2008–2009 and 2001–2002, this was not the case for the

Table 2 Firm characteristics, host factor, and the economic performance of Canadian MNEs in the 2001–2002 and the 2008–2009 economic downturns

	All industries'	
	Growth in gross output	Growth in employment
Large firm dummy ($LARGE_{it}$) [β_1]	0.0339*** (0.001)	0.0678*** (0.000)
Young firm dummy ($YOUNG_{it}$) [β_2]	0.1339* (0.081)	0.0543 (0.503)
Host-country GDP growth ($HGDPG_{it}$) [β_3]	0.0074** (0.027)	0.0085*** (0.006)
Foreign affiliates only in the U.S. ($USONLY_{it}$) [β_4]	-0.0102 (0.398)	-0.0051 (0.721)
Number of host countries (NHC_{it}) [β_5]	-0.0004 (0.635)	-0.0002 (0.819)
Dummy for 2008–2009 ($D0809_t$) [δ_1]	-0.0731*** (0.008)	-0.0510* (0.052)
$LARGE_{it}$ * $D0809_t$ [δ_2]	-0.0126 (0.622)	-0.0292 (0.238)
$YOUNG_{it}$ * $D0809_t$ [δ_3]	0.0051 (0.957)	0.1176 (0.395)
$CHGDPGDIF_{it}$ * $D0809_t$ [δ_4]	0.0069** (0.039)	0.0083*** (0.007)
$USONLY_{it}$ * $D0809_t$ [δ_5]	0.0274 (0.347)	0.0561* (0.072)
NHC_{it} * $D0809_t$ [δ_6]	0.0020 (0.384)	0.0055*** (0.009)
Dummy for 2001–02 ($D0102_t$) [Υ_1]	-0.0469** (0.033)	-0.0151 (0.597)
$LARGE_{it}$ * $D0102_t$ [Υ_2]	0.0390* (0.087)	0.0509* (0.098)
$YOUNG_{it}$ * $D0102_t$ [Υ_3]	-0.1355 (0.108)	-0.0468 (0.639)
$CHGDPGDIF_{it}$ * $D0102_t$ [Υ_4]	0.0132*** (0.005)	0.0122*** (0.003)
$USONLY_{it}$ * $D0102_t$ [Υ_5]	0.0048 (0.849)	0.0233 (0.475)
NHC_{it}* $D0102_t$ [Υ_6]	-0.0007 (0.727)	-0.0040 (0.454)
Industries dummies	Yes	Yes
Number of observations	11,126	11,126
R square	0.0108	0.0111

Notes: $HGDPG_{it}$ for a Canadian MNE in Canada is the average of the real GDP growth rates of the host countries of the foreign affiliates of the Canadian MNE, weighted by host country's shares in total outward FDI of the Canadian MNE. $CHGDPGDIF_{it}$ for a Canadian MNE in Canada equals real GDP growth rate in Canada minus the $HGDPG_{it}$ of the Canadian MNE. Dependent variable: $\log(Y_{it}) - \log(Y_{it-1})$. P-values are in parentheses

growth in employment. During 2008–2009, the number of foreign locations a Canadian MNE operates in is associated with increased employment growth.

The most relevant results for this current analysis, however, considers the relative performance of the Canadian home market and foreign host markets on the operations of Canadian MNEs. $CHGDPGDIF_{it}$ captures the differences in these growth rates in percentage points and are statistically significant in both economic downturns, and again for growth in both gross output and employment. While both of these measures of the operations of Canadian MNEs fall during both economic downturns, the extent of the reductions in these measures of Canadian MNEs' operations are mitigated when the Canadian economy performs better than the foreign host markets where these MNEs are operating in.

Notably, the effect was much smaller in the 2008–2009 downturn than in the 2001–2002 downturn. This might be due to the fact that the 2008–2009 downturn was more widespread globally than the 2001–2002 downturn. Indeed, for the 2001–2002 economic downturn, unlike the U.S. economy, the Canadian economy did not go into recession. The different results support our claim that the ability and the effect of exercising strategic flexibility by MNEs during an economic downturn depends on how widespread it is globally.

To provide some perspective on the effect of a Canada-host GDP growth difference on the performance of MNEs, we illustrate the outcomes by assuming a 2 percentage point (-2 percentage point) Canada-host GDP growth difference in Figs. 2 and 3. As the results show, MNEs with a positive Canada-host GDP growth difference of 2 percentage points in the 2008–2009

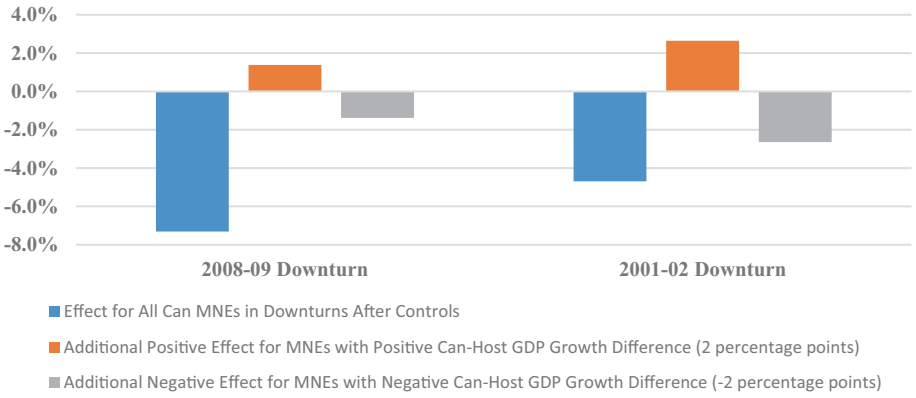

Fig. 2 The mitigating/amplifying effect of strategic flexibility of MNEs on their growth in gross output in economic downturns

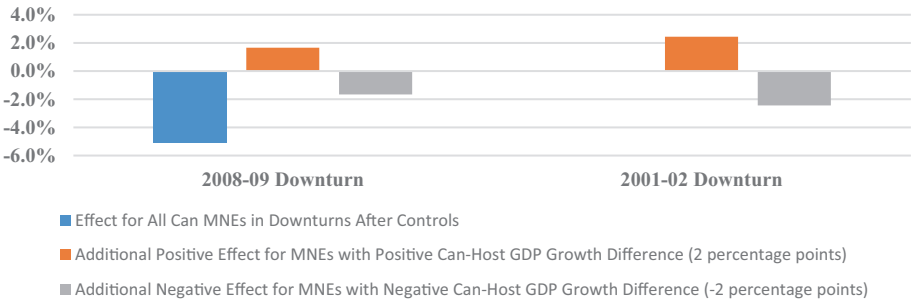

Fig. 3 The mitigating/amplifying effect of strategic flexibility of MNEs on their growth in employment in economic downturns

economic downturn saw their growth in gross output mitigated by 1.38 percentage points (Fig. 2). The opposite is also true, that is, MNEs with a negative Canada-host GDP growth difference of 2 percentage points saw their growth in gross output amplified by 1.38 percentage points.

The effect is much larger in the 2001–2002 economic downturn than in the 2008–2009 economic downturn. MNEs with a positive (negative) Canada-host GDP growth difference of 2 percentage points in the 2001–2002 economic downturn saw their growth in gross output mitigated (amplified) by 2.64 percentage points. Similarly, MNEs with a positive (negative) Canada-host GDP growth difference of 2 percentage points in the 2008–2009 economic downturn saw their growth in employment mitigated (amplified) by 1.66 percentage points (Fig. 3). Again, the effect was larger for the 2001–2002 economic downturn, MNEs with a positive (negative) Canada-host GDP growth difference of 2 percentage points in the 2001–2002 economic downturn saw that their growth in employment was mitigated (amplified) by 2.44 percentage points.

This evidence in this section supports Hypotheses 1 and 2. In the presence of an economic downturn, to get a more precise estimate of its impact on the performance of domestic MNEs, one must take into account the relative performance of the home market to the performance of all the foreign host markets where these MNEs are operating in.

Sectoral Considerations

The ability to exercise strategic flexibility on the part of MNEs may differ across industries. While the ability to exercise strategic flexibility is well established in manufacturing, it is less clear the extent to which MNEs can exercise

strategic flexibility within industries whose production depends on local inputs, such as mining and oil and gas extraction. Since the production itself depends on local inputs, it would limit the ability of the MNE to exercise strategic flexibility, as the inputs are not available or as easily accessed by the MNE in other locations.

To test this hypothesis, we re-estimate the model above, but rather than assuming the coefficient on the interaction terms between the difference in GDP growth between Canada and host market variables with each of the two economic downturn variables are the same across industries, we now allow the effect to vary by industry group. We do this for four broad industry classifications: Mining, Manufacturing, Other Goods Producing industries, and Services.

These results are provided in Table 3. While we only report coefficients on the interaction terms, it is important to note that coefficients on the other variables in the regression in Table 3 are qualitatively the same as those reported in Table 2. The results show that there is significant heterogeneity across industries. In the case of Mining, the coefficients on the interaction terms are statistically insignificant, for gross output in both economic downturns, and only marginally significant for employment, and only for the 2008–2009 downturn. Similarly, for Other Goods Producing industries (namely agriculture, utilities and construction), the coefficient is only marginally significant for gross output, and only for the 2008–2009 downturn. In contrast, the coefficients for manufacturing are positive and significant for both gross output and employment in both economic downturns. This confirms Hypothesis 3, namely that mining and other goods producing industries, which proxy for industries for which production depends on local inputs, are not sectors that would respond to an economic downturn by exercising strategic flexibility.

In the case of Services, the results differ between the two economic downturns. It is only during the 2008–2009 economic downturn that the impact of strategic flexibility on both the growth in gross output and the growth in employment mirror those at the aggregate level. In contrast, during the 2001–2002 economic downturn, the results for Services are statistically insignificant, for both the growth in gross output and the growth in employment. This may reflect the fact that the service sector is a complex mix of industries. MNEs in some industries such as professional services are able to exercise strategic flexibility while in others such as retail trade are unable to do so. Unfortunately, due to limited observations, we could not further single out those industries without compromising the confidentiality guidance for using micro data at Statistics Canada.

Table 3 Industries differ in the ability in exercising strategic flexibility of MNEs

	Growth in gross output				Growth in employment			
	Mining	Manufacturing	Other goods producing	Services	Mining	Manufacturing	Other goods producing	Services
Interactions between the Canada-host GDP growth difference and the 2008–2009 global financial crisis dummy ($CHGDPGDIF_{it}$ * $D0809_t$)	-0.0029 (0.887)	0.0067** (0.045)	0.0163* (0.078)	0.0068** (0.042)	0.0353* (0.071)	0.0085*** (0.006)	0.0044 (0.559)	0.0081*** (0.008)
Interactions between the Canada-host GDP growth difference and the 2001–2002 downturn dummy ($CHGDPGDIF_{it}$ * $D0102_t$)	0.0271 (0.302)	0.0122*** (0.003)	0.0059 (0.447)	0.0143 (0.159)	0.0124 (0.443)	0.0123*** (0.001)	-0.0002 (0.990)	0.0140 (0.154)

Note: The regression reported here are the same as that for Table 2, except that the regression here allows the coefficient on $CHGDPGDIF_{it}$ * $D0809_t$ or $CHGDPGDIF_{it}$ * $D0102_t$ to be flexible across mining (including oil and gas extraction), manufacturing, other goods producing industries, and service industries. The table reports only the coefficient estimates associated with those flexible coefficients. P-values are in parentheses

Conclusions

The ability of an MNE to exercise strategic flexibility is an additional benefit to the firm which allows it to mitigate the negative impacts to its operations in any given market it operates in. If the MNE's home market experiences a significant economic downturn, the MNE may opt to divert some of its activities to a host market abroad where the economic environment has not deteriorated, or not deteriorated as much. Similarly, if the operations of the MNE in one of its host markets abroad is negatively impacted as a result of an economic downturn, the MNE may opt to move some of its operations into the home country.

There have been many studies that have considered the impact of strategic flexibility on the operations of MNEs, but these analyses have not formally accounted for the economic environment both in the home market and across all of the host markets each MNE operates in. This chapter has extended the literature by formally modelling the impact of strategic flexibility on MNE operations as a function of the economic environment in the home country as well as across all of the markets the MNE operates in. It is in this sense that the approach taken here provides a holistic view of the MNEs' global footprint.

Our approach allows us to formally hypothesize the conditions under which the exercise of strategic flexibility in response to an economic contraction within the home market would result in an increase in the MNE's operations in its home market, or a reduction in such activities. The clear implication is that even though a given market where an MNE operates experiences an economic downturn does not necessary mean that the MNE will reduce its operations as a result of strategic flexibility. The influence of strategic flexibility cannot be measured accurately without understanding the economic conditions in all markets the MNE operates in.

There are two limitations to the current analysis that should be addressed in future research. First, we have considered the relative economic performance of the home country to the average of all of the host markets the MNE operates in, weighted by the FDI share each MNE has in each of the respective host markets. The calculus that we are considering, therefore, is the home country relative to the average across host countries. It is, of course, possible that an MNE can exercise strategic flexibility by adjusting operations across host markets. The current analysis has not considered these possibilities. Second, we have used real GDP growth within each country an MNE operates in to gauge its performance. Utilizing data on actual gross output or employment by affiliates within each host market would provide a cleaner assessment of the performance of the affiliates of the MNE. We leave these extensions to future research.

Notes

1. Our sample of Canadian MNEs is based on the micro dataset on Canadian Direct Investment Abroad (CDIA), which is an annual survey by Statistics Canada. Questionnaires are sent to Canadian enterprises known to have or believed to have significant amount of international assets or liabilities.
2. Data on real gross output are derived by deflating the nominal gross output data at the firm level using industry level gross output deflators. The industry deflator for gross output is obtained from the Canadian KLEMS database at the 3-digit NAICS level for goods producing industries and 2-digit NAICS level for service producing industries. See Statistics Canada Table: 36-10-0217-01.
3. We exclude investment growth because investment is too volatile, especially during economic downturns when many firms substantially reduce or even completely stop investments.

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The Clash of Cultures and Its Effect on Firm Performance Volatility

Supun Chandrasena and Ranadeva Jayasekera

Introduction

The world has become more connected through communications technology, globalization and global migration, which have transformed modern-day workplaces to become more diverse. Workplace diversity and inclusion has attracted profound attention of practitioner circles, pressure groups, and academic community. The European Commission (2005) identifies workplace diversity as "policies promoting non-discrimination on grounds of ethnic or racial origin, disability, religion or belief, age and sexual orientation in the workplace" (para 1). However, racial and ethnic diversity on its own has remained a hot topic in corporates over several years. In fact, a follow-up report of Parker Review[1] 2017 indicates that out of the total 1048 director positions available in the FTSE 100 companies in 2018, *only* 84 positions (a mere 8%) were filled by individuals representing BAME (Black, Asian and Minority Ethnic) backgrounds (Inman, 2019).

Workplace diversity is a megatrend that reshapes business and policy environments. Moreover, the diversity in the workforce, especially in terms of

S. Chandrasena (✉)
Queen's University Belfast, Belfast, UK
e-mail: s.chandrasena@qub.ac.uk

R. Jayasekera
Trinity College Dublin, Dublin, Ireland
e-mail: jayasekr@tcd.ie

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_11

ethnicity, nationality or culture may also imply that employees foster different values, beliefs and attitudes. This is further elaborated below.

A large body of research investigates on ethnic/racial diversity in the boardroom and its impact on corporate outcomes. However, diversity and cultural distances (hereafter referred to as CD) are distinct from each other as the former would only consider the representation of minority executives in a firm, while CD, a relatively broader concept, examines how different they can be from each other based on their values, beliefs, attitudes and perceptions. Figure 1 indicates how an American individual differs from a Chinese and a Spanish based on Hofstede's (2001) cultural dimensions.

Hiring a Spanish director (Hispanic ethnicity) would contribute towards improving racial/ethnic diversity in a US company, but when considering cultural differences, they can be relatively closer to each other in their values and cultural upbringing. On the other hand, the appointment of a Chinese director to a US company would also flag as improving diversity, but this would involve very different implications, as the United States and China foster diverse values, belief systems, attitudes and perceptions. The above figure indicates that Americans and Chinese are vastly different from each other in terms of power distance, individualism, long-term versus short-term orientation and indulgence versus restraint values (Hofstede, 2001). This phenomenon is not considered when taking only diversity into account and thus

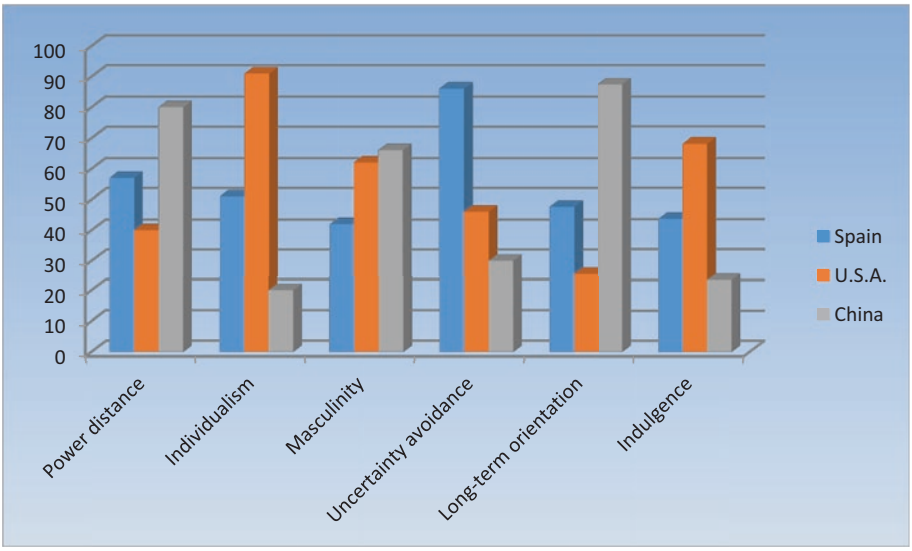

Fig. 1 An illustration of the differences in cultural values (e.g. among Spain, the United States and China)

motivates the present study. Thus, this chapter emphasizes on a different facet of workplace diversity.

Differences in values, opinions and perceptions can sometimes be valuable to a firm as they introduce varied perspectives to a problem, as per the resource dependence view and learning theory. In contrast, agency and transaction cost theories posit that difference in opinions and views can lead to lack of trust, miscommunications, misunderstandings and conflicts. *How would this phenomenon affect the firm performance volatility?* This problem has not been researched before and is the focus of the present study. Although the association between board characteristics and firm performance remains a fundamental issue in corporate governance literature, performance volatility is little researched and thus is the focus of this chapter.

In essence, the present study brings the differences in values, beliefs, attitudes and perceptions of key players (e.g. the CEO, board and stakeholders) in a firm to the fore and emphasizes on its impact on firm idiosyncratic risk. To operationalize the relative difference in culture among the key players, Kogut and Singh (1988) index, a variant of the Euclidean distance index, is employed with Hofstede's cultural dimensions (1980). To operationalize the firm idiosyncratic risk, performance volatility, calculated in terms of stock performance (volatility of monthly/quarterly stock returns), accounting performance (variability in annual accounting return on assets) and corporate value (variability in annual Tobin's Q ratio), is employed. The econometric model controls for CEO characteristics, board attributes and firm characteristics that are well known to affect firm idiosyncratic risk, whilst recognizing industry heterogeneity via indicator variables for each industry.

Based on prior literature on board dynamics, we develop contesting hypotheses for the impact of above three cultural spheres and volatility. By scrutinizing a sample of 1190 firms from 12 European countries, over 14 years from 2005 to 2018, the study finds that the CEO-board CD lowers firm performance volatility, assessed in terms of stock, accounting and market value measures. This implies that a greater distance between the CEO and the board of directors is beneficial to a company as the board will play a more independent and active role in preventing the management from involving in value destroying risky ventures and making strategic decisions single-handedly. Conversely, a greater distance between the CEO and stakeholders augments firm performance volatility, inferring that the greater CD and the resulting disarray of preferences of CEOs and stakeholder groups may result in CEOs making unpredictable decisions, ultimately increasing performance volatility. Stakeholders seem to prefer leaders with greater cultural affinity (Ferris et al., 2017). McPherson et al. (2001) support this in their study on the homophily

principle, where they posit that homophily in race and ethnicity creates the strongest divide among individuals. Our results remain robust to alternative specifications, endogeneity concerns and a battery of robustness tests conducted.

Furthermore, considering the possible heterogeneous nature in the in-sample volatility levels, the study categorizes firms as least volatile, most volatile and moderately volatile. *How would the CD between the CEO, board and stakeholders affect the performance variability in each of these three groups?* To address this problem, the study employs quantile panel regressions. Whilst the first two cultural spheres reinforce the previous findings among all three groups, within-board CD appear to reduce stock performance volatility, *only* in firms with moderate idiosyncratic risks, where the same is amplified in least volatile and most volatile firms. This implies that the extra social and human capital that would be brought in to the firm by culturally diverse directors (as per the resource dependence view) would help to position the firm better in terms of managing risks, *only* in moderately uncertain environments. Such benefits appear to add little value, and the costs of CD seem to outperform the benefits in the least and most volatile firms. Moreover, the empirical analysis indicates that degree of existing performance volatility of a firm significantly matters when examining the association between CD and firm performance variability. As this study models directional heterogeneous effect across firms over the entire distribution of the performance volatility spectrum, this chapter appears to be the first to propose a complete characterization of tail behaviour of CD attributes across the entire performance volatility spectrum.

Scholars have previously established that cultural values have an impact on firm outcomes. In addition, cultural differences among regions/countries are also shown to affect the relationship among cross-border firms. However, the emphasis of such research was on the national culture of either the CEO, firm, or country. Put differently, the existing literature only explores the effect of a "single" culture associated with either the decision-maker or the firm/country. Whilst this study directly contributes to the growing literature on cultural effects on corporate outcomes, it adopts a novel approach and underlines the existence of a multiplicity of cultures within a single firm. This phenomenon has been hardly researched. Furthermore, the chapter investigates the effect of having a multiplicity of culture on firm idiosyncratic risk, which, to the best of our knowledge, has not been researched before. Academically, the findings of this chapter open up new paradigms that need to be considered in corporate recruitment and risk management policies.

Overview of Literature and Hypothesis Development

Whilst some researchers treat cultural diversity as an issue (the "problem-focused approach" by Stevens et al., 2008, p. 117), some others view the same as an opportunity. The former is grounded on agency and transaction cost theories, whilst the latter promotes resource dependence and learning perspectives.

As Shenkar (2001, p. 519) describes, "few constructs have gained broader acceptance in the international business literature than CD." Yet, the construct has been the subject of severe criticism, mainly due to its conceptual and methodological properties (see Shenkar, 2001 for a detailed discussion). Similarly, the KSI, the most widely adopted approach to measure CD to this day (Beugelsdijk et al., 2018; Cuypers et al., 2018; Konara & Mohr, 2019), has also been under immense scrutiny (see Berry et al., 2010; Konara & Mohr, 2019 for a detailed discussion).

CD construct has been widely used in the domains of management (human resource management, strategy, organization behaviour, etc.), marketing, finance and accounting (Shenkar, 2001). CD plays a primary role in the discipline of international business over the years, but according to Karolyi and Andrew (2016) (p. 612) "finance has recently picked up on the concept of CD (…) to explain patterns in other forms of cross-border financial flows."

However, mostly prior research in international business and management has measured distances between countries. However, a multiplicity of cultures can exist within a firm, and not many prior scholars have pursued this issue. A similar argument is presented by Shenkar (2001) under the assumption of corporate homogeneity. The work of Cao et al. (2018) and the working paper by Ferris et al. (2017) attempt to address certain aspects of this issue. Nevertheless, the focus of the present study remains distinct from the above studies as it investigates how a multiplicity of cultures within a firm may contribute to or reduce firm risk and comprehensively operationalize the CD within a firm.

In an organization, if the CEO, board of directors and the majority of the stakeholders are from varying cultural backgrounds, they may be different from each other in terms of their values, attitudes or beliefs. This would lead to differences in position or opinion among members regarding firm policies, which would mostly result in disagreement and opposition. However, this may also introduce different perspectives to an issue that would moderate the decisions so that the final decision is a compromise. Harrison and Klein (2007) refer to this facet of diversity as separation.

To operationalize the separation among the aforementioned cultures, CD among the key players are calculated. As the CEO is considered to be the most powerful actor in an organization (Malmendier et al., 2011; Malmendier & Tate, 2007; Nguyen et al., 2018), with the ultimate authority of decision-making, the distances of national cultures are calculated as follows:

1. CD between the CEO and the dominant culture of the board
2. CD between the CEO and stakeholders

Finally, as board of directors play an important role in an organization in terms of monitoring, advising, resource provision, and so on, it is reasonable to assume that the cultural values and diversities of board of directors alone can make an impact on firm performance volatility. Therefore, another measure is added as follows.

3. CD within the board (among different members)

Based on prior literature, the following hypotheses for the aforementioned three spheres are developed. In Figs. 2, 3 and 4, the conceptual foundation with regard to the three cultural spheres and performance volatility are presented.

Sphere 1: CD Between the CEO and Board of Directors

Fracassi and Tate (2012) affirm that close CEO–director ties encourage managers to engage in value destroying acquisitions, leading to volatile outcomes. Conversely, a culturally distant CEO and board of directors rarely belong to the same network. Thus, from an agency theory perspective, this would imply that the board members are more "unfriendly" (Adams & Ferreira, 2007). Furthermore, the CEO and the board are less likely to suffer from groupthink (Ferreira, 2010), and consequently, the board would be more independent than a homogeneous board. Independent directors, in general, would not collude with the CEO/top management or the inside directors and are more likely to raise questions and be vigilant about the behaviour of the management (Carter et al., 2003). Therefore, the management is unable to involve in value destroying risky ventures, subsequently resulting in less volatile performance.

Nonetheless, this would also infer that a culturally distant board would be less captive to the CEO, and will play an active role in monitoring CEO's

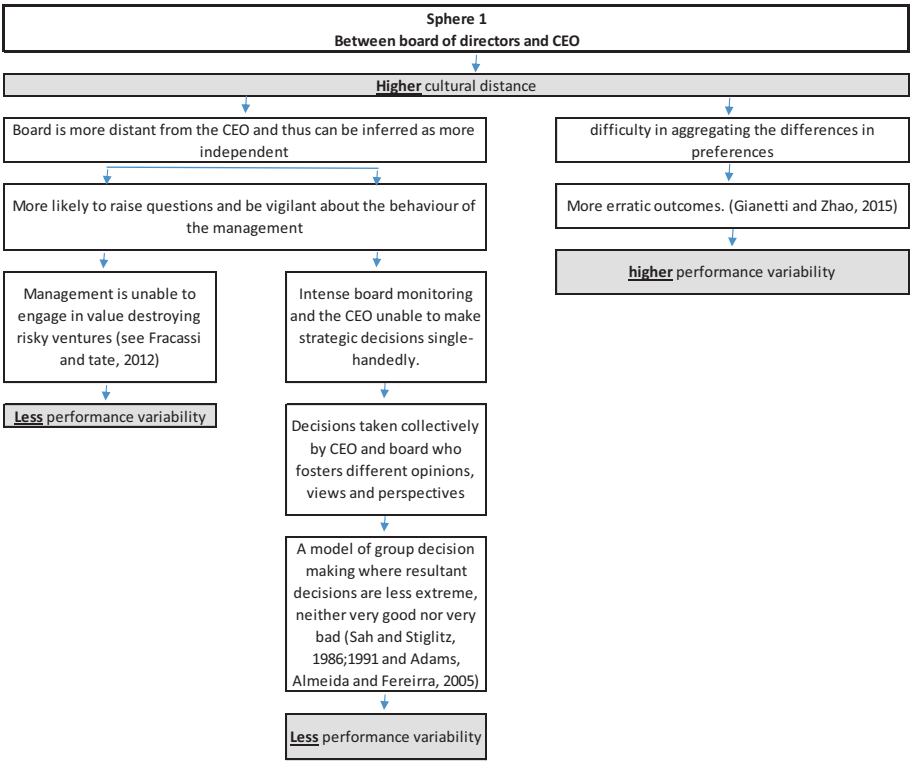

Fig. 2 Conceptual foundation: CD between the CEO and board of directors and its association with firm performance volatility—channels of influence

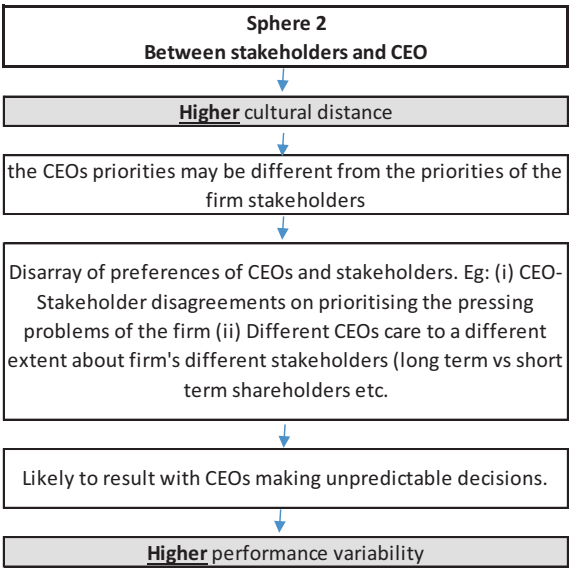

Fig. 3 Conceptual foundation: CD between the CEO and firm stakeholders and its association with firm performance volatility—channels of influence

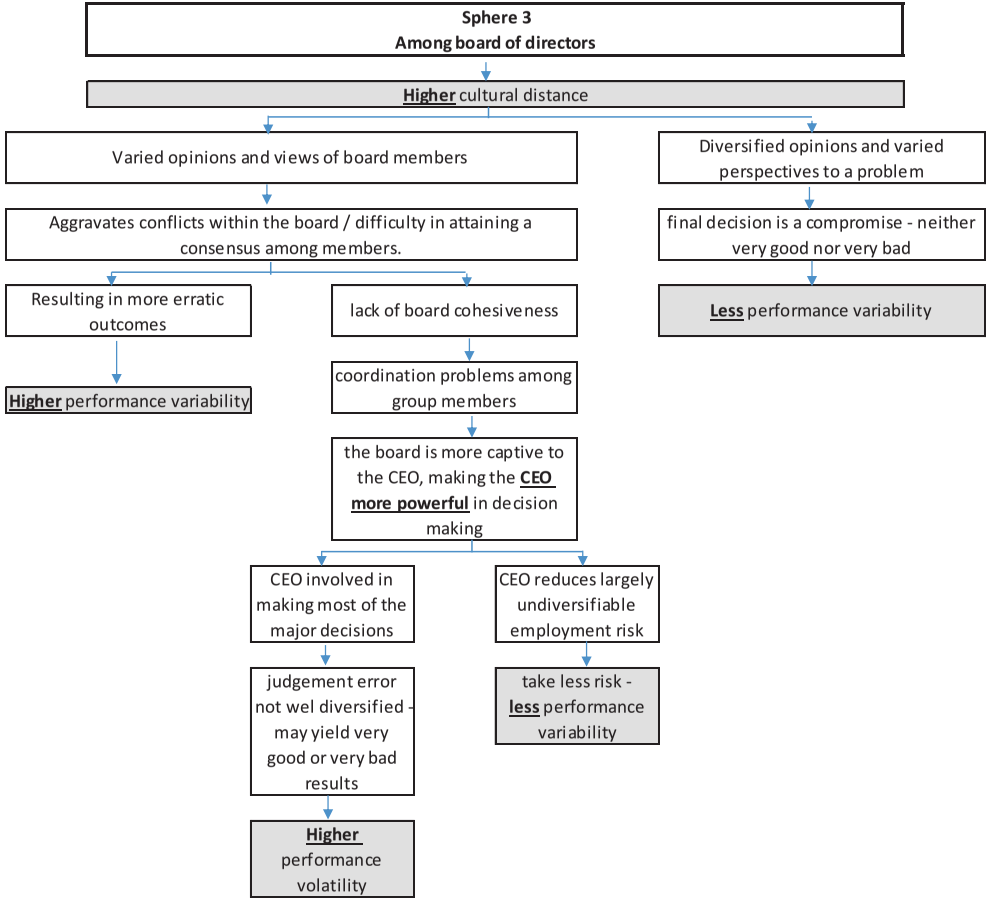

Fig. 4 Conceptual foundation: CD among the board of directors and its association with firm performance volatility—channels of influence

decisions, implying that CEOs are unlikely to make strategic decisions single-handedly. The decisions made by the CEO and top management team will be reviewed intensely by the culturally distant board members, resulting in greater differences in opinions, views and perspectives regarding a given strategic choice. This would entail mixed opinions and disagreements and finally a "diversification of opinions effect" (Adams et al., 2005, p. 1406) when approving management proposals. This resembles a model of group decision-making presented by Sah and Stiglitz (1986, 1991) and empirically tested on boards by Adams et al. (2005). The resultant decisions, made by a group, as opposed to an individual, will be less extreme; neither very good nor very bad, and hence, associated with less variable performance, as the project has to be endorsed as acceptable by several group members before it can finally be accepted (Cheng, 2008).

Therefore, by looking at the above arguments, it can be postulated that:

H_1 Higher CD between CEO and Board of Directors decrease the performance variability

However, on the other hand, when greater cultural differences exist between the CEO and the board, it can lead to difficulty in aggregating the differences in preferences, resulting in more erratic outcomes (Giannetti & Zhao, 2015). These authors affirm that in such a backdrop corporate strategy is rarely persistent.

Thus, the following can be hypothesized:

H_2 Higher CD between CEO and Board of Directors increase the performance variability

Thus, ultimate direction remains an empirical question. The above possible channels of influence are summarized in Fig. 2:

Sphere 2: CD Between the CEO and Stakeholders

Stakeholders of a firm may include but not restricted to its managers, employees, investors, suppliers, customers and general public. For instance, in his pioneering work, Beckerman (1956) exemplified that an Italian entrepreneur would prefer to purchase raw materials from a Swiss supplier than from a Turkish supplier (provided that transport costs and all other factors remain same) because the Italian entrepreneur would have more contact with the

Swiss supplier and will perceive him as "nearer" in a psychic evaluation (e.g. fewer language difficulties, etc.).

In a similar vein, Ferris et al. (2017) state that greater cultural affinity among the CEO and stakeholders would not only foster greater communication among both parties but would also result in increased trust. Furthermore, greater cultural affinity among the CEO and the stakeholders would result in higher acceptance of CEO's decisions (Ferris et al., 2017).

However, if the CEO and stakeholders are culturally very distant, miscommunication and misunderstandings are quite common (Ferris et al., 2017). CEOs may have their own views, perceptions, values and priorities that are different from stakeholders. Culturally distant CEOs might not only face difficulties in communicating his/her decisions to the firm's stakeholders but they may also disagree on what the pressing problems of the firm are (Giannetti & Zhao, 2015). For instance, even if the CEO aims to maximize the firm's long-term value, he or she may have different preferences over corporate policies to implement in order to achieve this objective.

Furthermore, different CEOs may care to a different extent about firms' different stakeholders (e.g. long-term shareholders, short-term shareholders, debt-holders, the environment, the local community, the workers, etc.) (Giannetti & Zhao, 2015). Therefore the disarray of preferences of CEOs and stakeholder groups may result in CEOs making unpredictable decisions (refer Fig. 3).

Thus, in light of the above, it can be hypothesized that:

H_3 Higher CD between CEO and stakeholders increase corporate performance volatility

Sphere 3: CD Among Board of Directors

When board members are culturally different from each other, their varied opinions and views may aggravate conflicts among board members that would disrupt the board's internal decision-making process. Internal conflicts would make it hard to attain a consensus among members, resulting in more erratic outcomes, ultimately increasing firm risk and outcome volatility (Bernile et al., 2018; Giannetti & Zhao, 2015).

Moreover, in-group conflicts and the absence of consensus would result in lack of group cohesiveness. This would, in turn, trigger coordination problems among board members. According to Jensen (1993), when there exists

coordination problems, "board members are less likely to function effectively and are easier for the CEO to control" (p. 865), making CEOs powerful. The evidence on CEO power and firm performance volatility is mixed. Adams et al. (2005) argue that CEOs with more power lead to more variable performance. This is because, if the CEO of the firm is involved in making most of the relevant decisions (implying high CEO power), the risk arising from the judgement error may not be well diversified, and the likelihood of either a very good or a very bad decision being taken is quite high.

Therefore, this study postulates that:

H_4 Higher CD among board of directors increase the performance variability.

On the other hand, some other authors affirm that high CEO power would entail low firm risk. Amihud and Lev (1981) affirm that CEOs with high power tend to engage in conglomerate mergers to lower their largely undiversifiable "employment risk" (Amihud & Lev, 1981). Bertrand and Mullainathan (2003) contend that CEOs who enjoy high power as a result of being insulated by anti-takeover laws engage in less destruction of old plants and also less creation of new plants, implying low risk-taking.

Moreover, large boards foster diversified opinions and bring in varied perspectives to a problem (Sah & Stiglitz, 1986, 1991). Consequently, Sah and Stiglitz (1991) affirm that decisions of a larger group entail less variability. As per the resource dependence perspective, this line of argument can equally be applied to culturally diverse groups. Thus, the final decision made by a culturally diverse group is a compromise that demonstrates the different opinions and varied perspectives. Such decisions are neither very good nor bad, thus are less extreme. Risky projects are likely to get rejected as the project has to be endorsed as acceptable by several group members before it can finally be accepted (Cheng, 2008), inferring low volatility in outcomes.

Therefore, in light of all the above, it can be postulated that:

H_5 Higher CD among board of directors decrease the performance variability.

Therefore the ultimate direction between CD among board of directors and performance variability is an empirical question. The above channels of association are summarized in Fig. 4.

Data and Variable Construction

Sample Overview

A European sample is chosen for the purpose of this study.[2] Out of the twenty-eight countries in the European Union (EU), as of 2018, the first fifteen countries, with the highest gross domestic product (GDP) at market prices, calculated based on purchasing power standards, are initially identified for the sample. However, due to data limitations, firms from Romania, Czechia and Italy are eliminated. All companies listed in the principal stock exchange (excluding cross-listings) of a particular country is chosen for the sample.

To be consistent with previous studies, regulated industries, such as utility companies (ICB code 65) and financial firms (ICB code 30), as per the FTSE Russell Industry Classification Benchmark (ICB), are excluded from the sample. Required data are sourced mainly from two databases, Worldscope and Boardex,[3] where all financial data are retrieved from the former, and the CEO and director-level data (e.g. nationality, gender, age, education, etc.) are collected from the latter. Companies with too many missing values have been dropped. Final sample includes 1190 firms from 12 European countries over 14 years from 2005 to 2018. The sample constituents are illustrated in Table 1.

Table 1 Sample constituents

Country	No. of firms
Austria	12
Belgium	83
Denmark	41
France	262
United Kingdom	338
Germany	78
Ireland	30
Netherlands	76
Poland	26
Portugal	25
Spain	87
Sweden	132
Total	1190

Construction of Key Variables

Dependent Variable(s): Measures of Performance Volatility

The empirical analysis focuses on the within-firm, over-time variability of corporate performance. This is proxied by the volatility in stock performance, and to measure this, the annualized standard deviation of monthly stock returns over a period of 12 months (Cheng, 2008; Giannetti & Zhao, 2015; Sila et al., 2016; Wang, 2012) is calculated. To improve robustness, the study also uses the annualized standard deviation of quarterly stock returns over a period of 12 months (Cheng, 2008; Giannetti & Zhao, 2015; Sila et al., 2016; Wang, 2012).

Furthermore, in addition to stock performance, similar to Cheng (2008), within-firm, over-time variability in accounting performance and market value are also considered. The former is defined as the standard deviation of the firm's annual return on assets (ROA), and the latter as the standard deviation of the firm's annual return on corporate value, measured by Tobin's Q ratio. A definition of all variables is included in Appendix 1.

Main Independent Variable(s): Measures of CD Spheres

This study develops three spheres of CD:

1. CD between CEO and the board of directors
2. CD between the CEO and stakeholders
3. CD among board of directors

First, the nationalities of the CEO and all board of directors in each firm are collated from the Boardex database. The nationality of firm's stakeholders is proxied by the country in which the head-office of the firm is located.[4] The country where the head-office is located is also sourced from the Boardex database.

The study employs the KSI developed by Kogut and Singh (1988) over two other alternative measures, viz. Euclidean index and the Mahalanobis index, to calculate the distances between the key players. However, to overcome the several weaknesses of the KSI measure and to increase robustness, the standardized Euclidean Index, recommended by Konara and Mohr (2019), is employed in Sect. 6.3.

Next, to operationalize CD, the study adopts Hofstede's (1980) cultural dimensions. Two other well-known cultural frameworks, viz. Schwartz (1994, 1999, 2006) and GLOBE (House et al., 2004) frameworks, are also used in Sect. 6.2 to improve robustness. Beugelsdijk et al. (2018) contend that these three frameworks, that is, Hofstede, Schwartz and GLOBE, capture very different facets of culture and institutions.[5]

The initial four dimensions of Hofstede's cultural dimensions, viz. power distance, collectivism versus individualism, uncertainty avoidance and femininity versus masculinity are used in the empirical analysis. Beugelsdijk et al. (2018) recommend the use of Hofstede's six-dimensional cultural framework (see Beugelsdijk et al., 2018 for a full discussion). However, because the study in hand uses "the framework in its totality" (p. 1122), as opposed to focusing on an individual distance dimension, and because the additional two dimensions, viz. "long-term orientation" and "indulgence vs restrain," result in a lot of missing values for the countries in the sample in hand, the focus only remains on the original four Hofstede dimensions. Furthermore, the analysis uses the variance of a dimension that is relevant within a dataset that consists of only a sub-sample of countries (i.e. the sample variance), as suggested by Beugelsdijk et al. (2018).

Finally, one could question the suitability of substituting macro-level cultural variables to individuals. However, Dow et al. (2014) advocate that a researcher can still capture approximately 80% of the explained variance of CD, even by using a comprehensive set of macro-level variables, such as cultural dimensions, in the absence of information on perceptions of individual directors.

Appendix 2 provides details on the formulae for calculating these measures.

Control Variables

The study controls for **CEO-level** [*CEO risk aversion proxied by tenure, CEO age, education, gender, network size, CEO power proxied by duality and managerial ability proxied by profitability (ROA)*] **board-level** (*board size and independence*) and **firm-level** variables (*firm size proxied by number of employees, financial leverage, growth proxied by market to book ratio and investment in capex*). A definition of all variables is included in Appendix 1.

Methodology

Model Specification

$$\begin{aligned}\text{Volatility in Corporate Performance}_{it} &= \beta_0 + \text{CEO\_board CD}_{it} \\ &+ \text{CEO\_stakeholder CD}_{it} + \text{Within} - \text{board CD}_{it} \\ &+ \text{CEO controls}_{it} + \text{Board controls}_{it} + \text{Firm controls}_{it} + \text{Industry} \\ &\quad \text{fe} + \text{Country fe} + \text{Year fe}\end{aligned} \tag{1}$$

where i = firm and t = year.

Within a firm, CD can vary with the time t, as CEOs and directors may change. However, this is sporadic. Wooldridge (2002) states that for the fixed effects to capture the time-invariant feature for the same individual, the independent variable should be different across time. However, if the independent variable is constant across time, the effect of this variable cannot be distinguished from the fixed effect. According to Hermalin and Weisbach (1998), board structure is relatively persistent. Thus, only industry, country and time-fixed effects are included but not firm-fixed effects (see Hermalin & Weisbach, 1991; Coles et al., 2008; Wang, 2012; Giannetti & Zhao, 2015 for similar arguments).

Preliminary Tests

In unreported analysis, we conduct pairwise correlations and Variance Inflation Factors (VIF), panel unit root tests,[6] Pesaran's (2004) cross-sectional dependence test, modified Wald test and Wooldrige's (2002) test. The modified Wald test implies the presence of group-wise heteroscedasticity terms in our fixed-effect regression model, and Wooldrige's (2002) test denotes the presence of first-order serial correlation in the error term. Thus, to overcome these issues, generalized least squares (GLS) regression is employed to estimate the above models.

Findings

Preliminary Findings

Summary statistics in Table 2 reveal insightful information about sample firms. Among others, it uncovers that sample firms consist of large boards and a high number of employees, which taken together may imply that the sample is biased towards larger firms. This issue is taken into account in Sect. 6.4—Addressing Sample Selection Bias.

Table 2 Summary statistics

	N	Mean	SD	p25	p50	p75
Dependent variable						
Stk. Perf. Volatility						
Monthly	11,900	0.309	0.194	0.197	0.268	0.378
Quarterly	11,900	0.492	0.380	0.252	0.413	0.635
Distance measures						
CEO_bod_Hof	5681	0.674	1.414	0.050	0.170	0.468
CEO_stk_Hof	9959	0.131	0.581	0.061	0.122	0.334
Within_Hof	5431	0.218	0.642	0.100	0.167	0.292
CEO characteristics						
ROA	4399	0.057	0.191	0.031	0.070	0.111
surp_cash	10,536	0.035	0.170	0.008	0.039	0.077
ceo_tenure	9904	6.355	6.694	1.800	4.300	8.400
ceo_age	9482	53.601	7.410	49	53	58
no_quals	9905	1.708	1.155	1	2	2
ceo_networks	9959	723.498	1189.289	83	288	843
Board of director characteristics						
tot_directors	11,900	9.694	4.111	7	9	11
board_indep	11,900	0.476	0.223	0.333	0.500	0.625
Firm characteristics						
no_emp	10,199	23592.18	58350.56	847	3997	16,297
firm_growth	10,482	0.146	9.323	0.014	0.053	0.091
firm_lev	10,734	0.247	0.217	0.100	0.227	0.352
Firm_inv	10,638	0.046	0.056	0.014	0.032	0.059

Note: This table reports the summary statistics for alternative dependent variables, distance measures and a range of variables relating to CEOs, board of directors and firms. The sample covers 1190 firms from 12 different European countries for 14 years from 2005 to 2018, representing all industries but excluding ICB code 65 (utility companies) and 30 (financial companies) as per the FTSE Russell Industry Classification Benchmark. All variables are defined in Appendix 1

Appendix 3 depicts a breakdown of the nationalities of sample CEOs, directors and firms' registered head-offices. This table indicates an interesting insight into the binding quotas of female participation (about 40%) that prevails in a lot of European countries.

Feasible Generalized Least Squares (FGLS) Regressions

Table 3 depicts the results from FGLS regression.

Table 3 CD measures and monthly return volatility of stocks

Feasible generalized least squares regressions	
Dependent variable = annualized standard deviation of monthly stock returns over a period of 12 months (SD_Mnthly)	
CEO_bod_Hof	-0.0143**
	(0.0056)
CEO-stk_Hof	0.0522***
	(0.0102)
Within_Hof	0.0028
	(0.0256)
Constant	0.3340***
	(0.0661)
CEO characteristics	
ceo_dual	0.0058
	(0.0188)
roa	-0.2140***
	(0.0431)
ceo_tenure	-0.0024**
	(0.0011)
ceo_age	0.0003
	(0.0008)
gen_dum_1	(Omitted)
gen_dum_2	0.0431
	(0.0389)
no_quals	0.0081
	(0.0058)
ceo_networks	0.0000
	(0.0000)
Board of director characteristics	
tot_directors	-0.0005
	(0.0019)
board_indep	-0.0876***
	(0.0300)
Firm characteristics	
no_emp	-0.0000
	(0.0000)
firm_growth	-0.0339***
	(0.0102)
firm_lev	0.0202
	(0.0316)
firm_inv	0.2610***
	(0.0971)
Industry FE	Yes
Country FE	Yes
Time FE	Yes
Observations	731

Note: This table reports specification (1). The dependent variable is the within-firm over-time variability in stock performance calculated as annualized standard deviation of monthly stock returns over 12 months. The coefficients are estimated based on feasible generalized least squares (FGLS) regression. Industry, country and time-fixed effects are included in the model. Standard errors are shown in parentheses. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively. All variables are defined in Appendix 1

Sphere 1: CD Between Board of Directors and the CEO

Table 3 depicts the results of the generalized least squares regression method for panel data for specification (1) above. The results portray that the CD between the CEO and the board of directors (CEO_bod) is statistically significant in driving the within-firm over-time volatility in corporate performance.

The negative relationship between CEO-board CD and stock performance volatility advocates that higher CD between CEO and board of directors decreases the performance variability. In fact, when CD increases by one unit, the standard deviation of stock performance volatility would decrease on average by 1.4%, and this relationship is statistically significant at 5% level. This can be due to couple of reasons. First, based on studies of board diversity, it can be assumed that increased levels of heterogeneity (among the CEO and directors) result in less groupthink. Also, when the boards of directors are culturally distant and different from the CEO, they do not belong to "the old boys club" (Adams & Ferreira, 2007). Therefore, extending this line of thought, it could be assumed that culturally distant boards of directors would not collude with the management and that they are more independent. Therefore, these directors are likely to raise more questions and to be more vigilant about the behaviour of the management, relative to a board that is culturally homogeneous to the CEO. This finding is further reinforced by Fracassi and Tate (2012) as they affirm that close CEO-director ties encourage managers to engage in value destroying acquisitions, leading to volatile outcomes.

Adams et al. (2005) posit that if the CEO in a firm makes most of the major decisions by herself, the risk arising from the judgement errors is not well diversified, resulting with either very good or very bad decisions that can be highly volatile. However, as culturally distant board of directors play an active role, the CEO is unable to make decisions single-handedly. The decisions taken by the management will be vigorously reviewed by the board. On the other hand, culturally distant board members and the CEO will bring different perspectives and opinions to a strategic issue. Thus, the resulting decision is a compromise, neither very good nor bad, which reflects the different opinions of both parties (Giannetti & Zhao, 2015) and is less extreme.[7]

Sphere 2: CD Between the Stakeholders and the CEO

Table 3 indicates that the distance between the CEO and stakeholders (CEO_Stk) is positively associated with the firm's stock performance volatility. In other words, when the CD between the CEO and stakeholders increase by one unit, on average, the annualized standard deviation of firm's monthly stock return increases by 5.2%, when all other variables are held constant. This relationship is statistically significant at 1%.

This validates our claim that a higher CD between the CEO and stakeholder groups would result in miscommunication and misunderstandings and a disarray of preferences between the CEO and stakeholder groups that may eventually result with CEOs making unpredictable decisions. Also, greater CD would induce stakeholders to perceive the CEO as distant in a psychic evaluation and would foster mistrust.

Put differently, the results suggest that stakeholders prefer leaders with greater cultural affinity (Ferris et al., 2017). Besides, McPherson et al. (2001), in their study on homophily principle, posit that homophily in race and ethnicity creates the strongest divide among individuals. This is further reinforced by several prior research, such as Kumar et al. (2015), as they reveal that in US mutual funds, the annual flows to funds managed by individuals with foreign-sounding names are 10% lower than funds managed by typical American names.

The reason for this behaviour can also be attributed to "intergroup bias" explained by Hewstone et al. (2002) as "the systematic tendency to evaluate one's own membership group (the in-group) or its members more favourably than a nonmembership group (the out-group) or its members" (p. 576). As a consequence, out-group individuals may be trusted less, could undergo intense scrutiny and even experience discrimination (Kumar et al., 2015). In the context of a firm, Park and Westphal (2013) apply this argument to the corner office and suggest that if a particular firm is led by a minority CEO, white male executives in that firm or white male CEOs of other firms are highly likely to attribute any low performance to internal factors, such as mistakes in strategic decisions or poor leadership, rather than to external factors such as unfavourable conditions in the industry environment.

A greater CD between the CEO and stakeholders in this study infers that the CEO is unarguably a foreign national, as stakeholders' culture is proxied by the country in which the head-office of the firm is located. Thus, it could be assumed, as previously stated, that prominent national cultural characteristics of the country where the head-office is situated are likely to be

embedded to the value system prevailing in the organization and that owing to "home-biasness," a large number of firm's investors will share the culture of the country where the head-office is located (Ferris et al., 2017). Thus, the results suggest that the aforementioned racial divide and intergroup bias lead stakeholders to perceive as CEOs making unpredictable decisions.

Sphere 3: CD Among Board of Directors

Table 3 indicates that the coefficient of within-board distances is positive, inferring that within-board CD among directors would result in increased within-firm over-time variability in performance. However, the association is statistically non-significant. The positive relationship advocates the agency-based hypothesis discussed in Sect. 2.3. For instance, this study hypothesizes that varied opinions and views garnered as a result of within-board cultural differences would lead to conflicts and eventually more erratic outcomes (Bernile et al., 2018; Giannetti & Zhao, 2015) and higher performance volatility. On the other hand, within-board conflicts would result in a lack of cohesiveness which would make boards more captive to the CEO. As a result, the CEO becomes powerful and CEO power on performance volatility yields conflicting results. Adams et al. (2005), in particular, affirm that when CEO power increases, most of the major decisions would be taken by the CEO, and as risk arising from the judgement error may not be well diversified, the likelihood of either a very good or a very bad decision being taken is quite high, resulting in higher firm performance volatility. However, CEO power is controlled for in the analysis and could be the reason behind the statistical non-significance of the relationship. Alternatively, it could also be that cultural diversities among board of directors are not material enough to drive firm performance volatility.

Alternative Dependent Variables

In unreported analysis, alternative dependent variables are employed to specification (1) above to increase robustness. First, stock performance volatility is recalculated using the annualized standard deviation of quarterly stock returns over a period of 12 months (Cheng, 2008; Giannetti & Zhao, 2015; Sila et al., 2016; Wang, 2012). The directions of the association remain the same while only the CD between the CEO and stakeholders evince statistical significance at just over 5% level.

Second, the left-hand side of the econometric specification (1) above is replaced with the volatility in accounting performance (proxied by standard deviation of the firm's annual ROA over the sample period) and corporate value (proxied by the standard deviation of the firm's annual Tobin's Q over the sample period).[8] The association between CEO-board CD and the volatility in accounting measures and corporate value remain significantly negative, possibly owing to the reasons mentioned above. The CD between the CEO and stakeholders and its association with the volatility in accounting measures and corporate value remain positive, yet barely significant with volatility in accounting performance. However, within-board CD yield mixed results, that is, positively significant with the volatility in accounting performance and negatively significant with the volatility in corporate value. This makes it difficult to gauge the true channel of influence exerted by within-board CD on the performance volatility, be it stock, accounting or corporate value.

Employing Quantile Panel Regression

The findings of the previous section portrayed how CD among various key players affect the performance volatility of a firm. However, it does not provide any information about whether the effect of CD would remain the same among all firms in the sample, that is, highly volatile firms, moderately volatile firms and comparably stable firms. As the sample firms represent varying industries and varying European markets, at various stages of the business cycle, it is highly likely for the in-sample volatility distribution to be heterogeneous. Thus, we investigate the effect of CD on performance volatility by categorizing the firms by their existing volatility levels and examining three groups, viz. firms that are least volatile, most volatile and moderately volatile. *How would the CD between the CEO, the board and the stakeholders affect the performance variability in each of these three groups?*

To investigate this research question, the study employs quantile panel regression method (QR), which was introduced by Koenker and Bassett (1978), and estimates parameters that describe the 25%, median (50%) and 75% of the conditional distribution. This also aids in overcoming the illusion of linearity, as explained by Shenkar (2001).

Table 4 depicts the results of the quantile regression method for panel data, for specification (1) above, and reveals that the degree of current performance volatility significantly matters when examining the association between CD and performance volatility.

Table 4 CD measures and monthly return volatility of stocks using quantile panel regression

Quantile panel regression method			
Dependent variable = annualized standard deviation of monthly stock returns over a period of 12 months (SD_Mnthly)			
	(1)	(2)	(3)
	q = 0.25	q = 0.5	q = 0.75
CEO_bod_Hof	-0.0056***	-0.0144***	-0.0136***
	(0.0001)	(0.0009)	(0.0006)
CEO-stk_Hof	0.0317***	0.0600***	0.0581***
	(0.0002)	(0.0003)	(0.0004)
Within_Hof	0.0294***	-0.0017*	0.0157***
	(0.0003)	(0.0009)	(0.0030)
CEO characteristics			
ceo_dual	0.0074***	0.0056***	0.0361***
	(0.0002)	(0.0012)	(0.0006)
Roa	-0.2230***	-0.2000***	-0.5020***
	(0.0015)	(0.0035)	(0.0027)
surp_cash	0.2150***	0.0250***	-0.0313***
	(0.0015)	(0.0025)	(0.0044)
ceo_tenure	0.0036***	0.0003***	-0.0010***
	(0.0001)	(0.0000)	(0.0001)
ceo_age	-0.0008***	-0.0006***	0.0008***
	(0.0000)	(0.0000)	(0.0000)
no_quals	0.0020***	0.0029***	0.0026***
	(0.0001)	(0.0002)	(0.0003)
ceo_networks	0.0000***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)
Board characteristics			
tot_directors	-0.0045***	-0.0049***	-0.0092***
	(0.0000)	(0.0002)	(0.0001)
board_indep	-0.1250***	-0.0894***	-0.1620***
	(0.0004)	(0.0025)	(0.0026)
Firm characteristics			
no_emp	-0.0000***	-0.0000***	-0.0000***
	(0.0000)	(0.0000)	(0.0000)
firm_growth	-0.0417***	-0.0338***	-0.0779***
	(0.0001)	(0.0002)	(0.0002)
firm_lev	0.0218***	-0.0051**	-0.0409***
	(0.0005)	(0.0026)	(0.0016)
firm_inv	0.1490***	0.1510***	0.5770***
	(0.0025)	(0.0087)	(0.0077)
Observations	746	746	746
Number of groups	135	135	135

Note: This table reports specification (1). The dependent variable is the within-firm over-time variability in stock performance calculated as annualized standard deviation of monthly stock return over 12 months. The coefficients are estimated based on quantile panel regression, for quantiles 0.25, 0.50 and 0.75 in columns (1), (2) and (3), respectively. Standard errors are shown in parentheses. *,**,*** indicate significance at the 10%, 5% and 1% level, respectively. All variables are defined in Appendix 1

Table 4 unveils interesting results. Based on quantile panel regressions, all three CD spheres seem to statistically significantly affect the firm performance volatility at all quantiles (0.25, 0.5 and 0.75). The CD between the CEO and the board of directors evince to have a negative association with firm performance variability at all quantiles, reinforcing our previous findings. Moreover, the association between CEO-stakeholders sphere and performance volatility remains positive, implying that a greater distance between the CEO and stakeholders, in terms of their cultural backgrounds, generates volatility in firm stock performance, irrespective of the current variability in performance. The remarkable finding is associated with the last sphere, that is, CD within-board of directors. Interestingly, the results suggest that CD within-board contributes towards increased within-firm over-time variability, only in highly volatile firms (q = 0.75) and in comparably stable firms (q = 0.25). Conversely, in moderately volatile firms (q = 0.5), within-board cultural differences help to lower firm performance variability.

Stahl and Tung (2015) stress that CD has been overly emphasized as a negative factor that associates with concepts such as "foreignness," "unfamiliarity costs," "institutional gaps," "culture novelty," "cross-cultural miscommunications" and so on (p. 392) in the context of multinational organizations. However, based on resource dependence view and learning theories, cultural differences can be viewed as an opportunity rather than a threat, as it introduces adaptability, increased creativity, problem-solving skills (Adler, 2003); builds on employees' strengths; and may generate a competitive advantage through nurturing feelings of inclusion, of both minority and non-minority employees (Stevens et al., 2008). Thus, based on empirical evidence, it can be implied that cultural differences would foster increased creativity and problem-solving skills to generate a competitive advantage in moderately volatile firms (represented by the median of the performance volatility distribution).

On the other hand, low volatile firms have stronger operating performance (Dutt & Humphery-Jenner, 2013). Thus, the benefits of CD among board of directors appear to be trivial and play a peripheral role in these firms. Instead, in such firms, director CD may work in the opposite direction. CD may aggravate conflicts among the directors that would result in more erratic decisions in the firm, ultimately increasing the performance volatility. Within-board CD apparently play a similar role in highly volatile firms. In highly volatile firms, directors' conflicts and miscommunications may have an amplified effect on the volatility.

Thus, the empirical evidence suggests that the benefits of within-board CD, as proposed by the resource dependence perspective, can only be reaped by firms with moderate performance volatility levels, as the extra social and

human capital that would be brought in to the firm by culturally diverse directors would help to position the firm better in terms of managing risks in moderately uncertain environments. In low and highly volatile firms, the costs outperform the benefits.

Robustness Tests

Addressing Possible Endogeneity Issues

Board characteristics are not exogenous variables (Hermalin & Weisbach, 2003), instead they are selected by firms "to suit their operating and information environments and the bargaining power of various stakeholders in the firm" (Hermalin & Weisbach, 1998; Sila et al., 2016, p. 29). On the other hand, neither do CEOs and firms match randomly, but firms may select CEOs to match the values of the existing leadership (Pan et al., 2017).

CD can only be operationalized if one of the three parties in this study (viz. the CEO, board of directors and stakeholders) or more represent a foreign cultural background. Owing to the rise in international migration, economic globalization and the intense public pressure to increase workplace diversity, the likelihood of the sample firms having a foreign CEO or board member(s) is very high. Therefore, when estimating the association between CD and performance volatility, it is imperative to consider the fact that the appointment of a foreign CEO or a director is a choice made by the firm and therefore endogenous. Therefore, to accurately estimate the relationship, at least two alternative explanations need to be considered, that is, the association is driven by omitted variables or by reverse causality. Wintoki et al. (2012) posit that reverse causality issues in governance research tend to be of a dynamic nature, that is, the current foreign appointments are influenced by past realization of firm risk. This is known as dynamic endogeneity. This is because the appointment decision is made before the next realization of firm risk. Past risk measures will be incorporated in the information set deliberated by the incumbent board when making appointment decisions.

In order to account for the unobserved heterogeneity and reverse causality in a dynamic nature, the following dynamic empirical model is developed.

$$\begin{aligned}&\text{Performance Volatility}_{i,t} = \alpha + \beta\,\text{Distance measures}\\&\left(\text{arising from foreign appointments}\right) + X_{it}\,\gamma \sum_{s=1}^{p}\\&\left(\delta_s \textit{Performance Volatility}_{it-s}\right) + \left\{\mu_{i,+}\,\varepsilon_{it}\right\}\end{aligned} \tag{2}$$

See Appendix 4 for further detail.

A dynamic panel system generalized method of momentum (DPS-GMM) is used to estimate the relationship between CD arising from foreign appointments of directors or CEO and firm performance volatility.

The empirical model includes dummies for year, industry and country-fixed effects. All time-varying independent variables are treated as endogenous except for industry, year and country dummy variables. Endogenous variables are instrumented by three and four of their past values. A higher lag length is chosen because, according to Sila et al. (2016, p. 37), the number of lags "must be high enough to ensure that the model is dynamically complete such that further information in the past is not related to the expectational error in the data." The results using DPS-GMM are illustrated in Table 5.

Table 5 Robustness tests—dynamic panel system GMM regressions

Dynamic panel system GMM regression		
Dependent variable = annualized standard deviation of monthly stock returns over a period of 12 months (SD_Mnthly)		
	(1)	(2)
CEO_bod_Hof	-0.0077	-0.0059
	(0.0091)	(0.0096)
CEO-stk_Hof	0.0303**	0.0285**
	(0.0133)	(0.0142)
Within_Hof	-0.0520	-0.0489
	(0.0503)	(0.0535)
L. sd_mnth	0.4463***	0.5064***
	(0.0410)	(0.0460)
CEO characteristics		
ceo_dual	-0.0021	-0.0038
	(0.0244)	(0.0253)
Roa	-0.1520***	-0.1380**
	(0.0498)	(0.0557)
ceo_tenure	-0.0017	-0.0013
	(0.0019)	(0.0020)
ceo_age	0.0008	0.0004
	(0.0011)	(0.0011)
gen_dum_1	omitted	omitted
gen_dum_2	0.0408	0.0400
	(0.0544)	(0.0564)
no_quals	0.0146	0.0070
	(0.0089)	(0.0094)
ceo_networks	0.0000	0.0000
	(0.0000)	(0.0000)
Board characteristics		
tot_directors	-0.0025	-0.0023

(*continued*)

Table 5 (continued)

Dynamic panel system GMM regression		
Dependent variable = annualized standard deviation of monthly stock returns over a period of 12 months (SD_Mnthly)		
	(1)	(2)
	(0.0028)	(0.0029)
board_indep	-0.1360***	-0.1020*
	(0.0497)	(0.0530)
Firm characteristics		
no_emp	-0.0000	-0.0000
	(0.0000)	(0.0000)
firm_growth	-0.0311***	-0.0323***
	(0.0081)	(0.0091)
firm_lev	0.0108	0.0116
	(0.0418)	(0.0445)
firm_inv	0.1720	0.1460
	(0.1630)	(0.1840)
Industry FE	Yes	Yes
Country FE	Yes	Yes
Time FE	Yes	Yes
Observations	667	667
AR(1)	-6.88***	-8.32***
AR(2)	-0.96	-0.87
Sargan Test	344.61	283.98

Note: This table reports specification (2). The dependent variable is the within-firm over-time variability in stock performance calculated as annualized standard deviation of monthly stock return over 12 months. The coefficients are estimated based on DPS-GMM regression. The model includes year, industry and country-fixed effects. All time-varying independent variables are treated as endogenous. Endogenous variables are instrumented by three and four of their past values in columns (1) and (2), respectively. Standard errors are shown in parentheses. *, **, *** indicate significance at the 10%, 5% and 1% level, respectively. All variables are defined in Appendix 1

The results reveal that, when endogeneity is taken into account, the previously identified correlation between CEO-board CD and performance volatility disappears. Endogeneity corrected association, although still negative, is, in fact, not statistically significant. On the other hand, within-board CD denote a negative association, but remain statistically non-significant. However, the CD between the CEO and firm's stakeholders appear to have a strong positive association with performance volatility that is statistically significant at 5% level, even after correcting for endogeneity.

Other Robustness Tests

In addition to the above, the following robustness tests are done. First, alternative cultural frameworks (Schwartz and GLOBE) are used to measure CD, in addition to Hofstede's dimensions, as, arguably, the selection of and restricting to a single cultural framework remains arbitrary to some extent. Second, to overcome the previously discussed weaknesses of the KSI measure and to increase robustness, the standardized Euclidean Index, recommended by Konara and Mohr (2019), is employed to measure CD. Furthermore, the standardized Euclidean Index is substituted with all three aforementioned cultural frameworks. The dynamic econometric specification, presented in specification (2), is employed and DPS-GMM is used, with three lags of all time-varying independent variables as instruments and the signs of the association are in line with the previous results generated based on specification (2).

Finally, the study addresses the possible sample selection bias. Firm's Tobin's Q is employed, as the exclusion restriction, inspired by the study of Cheng (2008). As Table 2 summary statistics hint that the sample is somewhat biased towards large firms and because the sample in this study is restricted to companies that are listed in the principal stock exchange of a particular country, the study tests the possibility that only successful (i.e. more valuable) firms are selected into the sample. The results confirm that Tobin's Q is statistically significant, at 1% significance level, implying that the likelihood of a firm to be selected to the sample appears to be a function of Tobin's Q. However, the negative association is noteworthy and contradicts with the assumption that only successful (i.e. more valuable) firms are selected into the sample, but falls beyond the scope of this research. The results from above robustness tests are unreported but available upon request.

Implications and Conclusion

Prior scholars have established that cultural values have an impact on firm outcomes. Moreover, cultural differences among regions/countries affect the relationship among cross-border firms. However, the emphasis of such research was on the national culture of either the CEO, firm or country. Put differently, the existing literature only explores the effect of a *single* culture attached to either the decision-maker or the firm/country. Whilst this study directly contributes to the growing literature on cultural effects on corporate outcomes, it

adopts a novel approach and underlines the existence of a multiplicity of cultures within a single firm. This phenomenon has been hardly researched. Furthermore, the chapter investigates the effect of having a multiplicity of cultures on firm idiosyncratic risk, which has not been researched before.

In essence, the focus of this chapter is on the "CD within a firm," which is very different to the well-known topic *workplace diversity*; a megatrend in international business. Academically, the findings of this chapter open up new paradigms that need to be considered in corporate recruitment and risk management policies.

As per our findings, hiring a foreign CEO who is culturally very distant from the board would be beneficial for a company and would eventually lower performance volatility based on agency, resource-based and group decision-making perspectives. However, the disarray of preferences between the foreign CEO and stakeholders may cause the stakeholder groups to be cynical about CEO's decisions, resulting in increased performance volatility.

Therefore, to reap the above benefits, the firm can hire foreign directors, instead of hiring a foreign CEO. However, it is also important to note that within the board, if the directors are culturally very distant to each other, the differences in opinion would result in conflicts and would eventually make the CEO more powerful, aggravating agency problems.

Finally, when making hiring decisions, an informed estimation of the differences in cultural values (e.g. American vs. Chinese) and the existing levels of firm risk prove to be crucial factors.

Appendices

Appendix 1: Variable Definition

Variable	Definition	Source
SD_Mnthly	Annualized standard deviation of monthly stock returns over a period of 12 months	Thomson Reuters Datastream RI (frequency – monthly)
SD_Qtrly	Annualized standard deviation of quarterly stock returns over a period of 12 months	Thomson Reuters Datastream RI (frequency – quarterly)

(*continued*)

(continued)

Variable	Definition	Source
SD_ROA	Volatility in Accounting Performance SD of annual ROA	Worldscope WC01401/WC02999
SD_Q	Volatility in Corporate Value SD of annual Tobin's Q Tobin's Q = Market value of assets[a] divided by the replacement costs of assets* *Book value of assets are used as a proxy for the replacement costs of assets (Cheng, 2008)	Worldscope WC 02999 – {WC 02999-WC 03101-[WC 05503 X (WC 08001 / P)] – WC 03451-WC 02649} +WC 08001 / WC 02999

Factors

Variable	Definition	Expected relationship with debt	Source
CEO nationality	CEO's passport nationality		BoardEx
Board of director nationalities	Director's passport nationality		BoardEx
Nationality of the registered head-office of each firm	Country in which the head-office of the firm is located		BoardEx
tot_directors	*Board size* (Cheng, 2008; Sila et al., 2016; Wang, 2012) Total directors on the board at the selected annual report date	(-)/(+) The direction is an empirical question	BoardEx
board_indep	Board independence (Cheng, 2008; Sila et al., 2016; Wang, 2012) Number of independent directors divided by number of directors (both at the selected annual report date)	(-)/(+) The direction is an empirical question	BoardEx

(*continued*)

(continued)

Variable	Definition	Source	
ceo_tenure	CEO Tenure to proxy for CEO risk aversion (Berger et al., 1997; Sila et al., 2016) Time in role for CEO at a selected annual report date	(-)	BoardEx
ceo_age	CEO's current age at the selected annual report date (Carlsson & Karlsson, 1970; Child, 1974; Chown, 1960; Hambrick & Mason, 1984)	(-)	BoardEx
no_quals	CEO Education (Bertrand & Schoar, 2003; Dollinger, 1984; Hambrick & Mason, 1984; Orens & Reheul, 2013) Total number of educational qualifications (undergraduate and above) at the selected annual report date	(-)/(+) The direction is an empirical question	BoardEx
ceo_networks	The number of individuals with whom the selected individual overlaps while in employment, other activities or education roles at the same company, organization or institution (Burt, 1995; Singh & Singh, 2007)	(-)	BoardEx
ceo_gender	CEO Gender (Adams & Funk, 2012; Bernasek & Shwiff, 2001; Fehr-Duda et al., 2006; Sila et al., 2016) (Male = 1 Female = 0)	The direction is an empirical question	BoardEx

(*continued*)

(continued)

Variable	Definition	Source	
ceo_dual	CEO duality to proxy for CEO power Executive chairman present on board or combined role of CEO and Chairman is present (1—yes, 0—No)	(-)/(+) The direction is an empirical question	BoardEx
ROA	Return on Assets to proxy for managerial ability (Sila et al., 2016) Income before tax divided by book value of total assets	(-)	Worldscope WC01401/WC02999
emp_log	Ln (number of employees) to proxy for Firm size Number of both full time and part time employees of the company excluding seasonal employees and emergency employees	(-)/(+) The direction is an empirical question	Worldscope WC07011
firm_growth	Market to Book Ratio Market Value of Assets/Total Assets	(+)	Worldscope WC 02999 - {WC 02999-WC 03101-[WC 05503 X (WC 08001 / P)] - WC 03451-WC 02649} +WC 08001 / WC 02999
firm_lev	Firm leverage Total Debt/Total Assets at Book Vale	(-)/(+) The direction is an empirical question	Worldscope WC03255/WC02999
firm_inv	Firm investment capital expenditure divided by total assets	(+)	Worldscope WC04601 / WC02999
Industry FE	Dummy variables for ICB codes for each industry		ICB codes from Worldscope WC07040
Databases to retrieve cultural scores			
Hofstede's cultural dimensions			https://geerthofstede.com/research-and-vsm/dimension-data-matrix/

(*continued*)

(continued)

Variable	Definition	Source	
Schwartz's cultural value orientation scores			https://www.researchgate.net/publication/304715744_The_7_Schwartz_cultural_value_orientation_scores_for_80_countries
GLOBE cultural dimensions			https://globeproject.com/study_2004_2007?page_id=data#data

[a] MV of assets = total assets - book value of equity (BVE)* + market capitalization
BVE = total assets – current liabilities – [long-term liabilities per share × (market capitalization/price)] – preferred stock – total intangibles other assets

Appendix 2: Formulae for Main Independent Variable(s)—Measures of CD Spheres

Sphere 1: CD Between the CEO and Board of Directors

CD between the CEO and board of directors is calculated as below:

$$\mathrm{CD}_{\mathrm{CEO-DIR}} = \sum_{i=1}^{n} \left\{ \left(I_{CEOixt} - I_{DIRixt} \right)^2 / V_{ixt} \right\} / \mathrm{N} \tag{4}$$

where $\mathrm{CD}_{\mathrm{CEO\text{-}DIR}}$ is the CD between the CEO and board of directors. I_{CEOixt} is the Hofstede's score for ith cultural dimension, attached to the CEO's country in firm x and time t. I_{DIRixt} is the mean score of Hofstede's ith cultural dimension, attached to all directors' respective countries in firm x at time t. V_{ixt} is the in-sample variance for the ith cultural dimension for firm x and time t. N is equal to 4.

Sphere 2: CD Between the Stakeholders and the CEO

CD between the CEO and stakeholders is calculated as below:

$$\mathrm{CD}_{\mathrm{CEO-STK}} = \sum_{i=1}^{n} \left\{ \left(I_{CEOit} - I_{Firmi} \right)^2 / V_{it} \right\} / \mathrm{N} \tag{5}$$

where $CD_{CEO\text{-}STK}$ is the CD between the CEO and stakeholders. I_{CEOit} is the Hofstede's score for ith cultural dimension, attached to the CEO's country of the respective firm in time t. I_{FIRMi} is the Hofstede's score for ith cultural dimension, attached to the country in which the head-office of the firm is located. V_{it} is the in-sample variance for the ith cultural dimension for time t. N is equal to 4.

Sphere 3: CD among Board of Directors

CD among the board of directors is calculated as below:

$$CD_{BOD} = \sum_{i=1}^{n} \left\{ \left(I_{DIRixt} - I_{MAJixt} \right)^2 / V_{ixt} \right\} / N \tag{6}$$

Where CD_{BOD} is the CD among board of directors. I_{DIRixt} is the mean score of Hofstede's ith cultural dimension, attached to all directors' respective countries in firm x and time t. I_{MAJixt} is the Hofstede's score for ith cultural dimension, attached to the nationality held by the majority of board of directors, in firm x and time t. V_{ixt} is the in-sample variance for the ith cultural dimension for firm x and time t. N is equal to 4.

Appendix 3: Sample Breakdown of Nationalities and Gender

Country	No. of directors	No. of CEOs	Registered head-office
Algeria	2		
America	751	68	
Angola	2		
Argentina	6	2	
Armenia	1		
Australia	54	16	
Austria	159	22	14
Barbados	1		
Belarus	1	1	
Belgium	487	70	72
Belize	1		
Brazil	35	2	
United Kingdom	3581	543	290
Bulgaria	1		
Cameroon	1		
Canada	94	7	1
Chile	13	1	

(*continued*)

(continued)

Country	No. of directors	No. of CEOs	Registered head-office
China	33		
Colombia	5		
Costa Rica	1		
Cyprus	6		1
Czechia	4		
Denmark	353	48	28
Netherland	628	105	70
Egypt	5	1	
United Arab Emirates	10		1
Ethiopia	1		
Faroe Islands	3		
Philippines	2		
Finland	61	4	2
France	2111	276	241
Gabon	1		
Georgia	1	1	
Germany	1394	107	75
Ghana	1		
Greece	21	3	
Hungary	1	1	
Iceland	4	3	
India	39	4	
Indonesia	2		
Iraq	1		
Republic of Ireland	297	50	37
Israel	31	7	1
Italy	124	14	
Japan	23		
Jordan	6	3	
Kazakhstan	4	1	
Kenya	1		
Kuwait	1		
Latvia	1		
Luxembourg	30	2	8
Malaysia	15	1	1
Mali	1		
Mexico	22	3	1
Monaco	2		
Morocco	4		
Mozambique	1		
Netherlands Antilles	4	1	
New Zealand	10	2	
Nigeria	2		
North Korea	1		
Norway	55	2	
Pakistan	4	1	
Paraguay	1		
Peru	5	3	

(*continued*)

(continued)

Country	No. of directors	No. of CEOs	Registered head-office
Poland	64	4	15
Portugal	159	25	21
Puerto Rico	1		
Qatar	4		
Romania	3		
Russia	17	5	
Saudi Arabia	1		
Senegal	2		
Singapore	26	1	1
Slovenia	11	1	1
South Africa	52	7	
South Korea	3	1	
Spain	510	71	74
Sweden	821	66	70
Switzerland	78	6	5
Syria	1	1	
Taiwan	1		
Tanzania	1		
Trinidad and Tobago	1		
Turkey	10	1	
Ukraine	4	1	1
Uruguay	1		
Venezuela	1		
Vietnam	1		
Zimbabwe	2		
Croatia		1	
Gibraltar			1
Jersey			4
Isle Of Man			2
Bermuda			1
Guernsey			4
Total	**12,298**	**1566**	**1043**
Male	**10,110**	**1528**	
Female	**2188**	**38**	

Appendix 4: Addressing Possible Endogeneity Issues

As already established, foreign appointment as a CEO or a director is a choice variable that can be determined by board characteristics, firm characteristics, other unobserved and therefore omitted variables from the model and past realizations of firm performance volatility levels. This can be formally written as:

$$\text{Foreign appointment}_{it} = f(X_{it}, \text{Performance Volatility}_{i\,t-1}, \text{Performance Volatility}_{i\,t-2}, \text{Performance Volatility}_{i\,t-p}, \mu_{i,}) \quad (1A)$$

The matrix X_{it} indicates other factors that determine the appointment of a foreign CEO (board member). Performance Volatility$_{i\ t\text{-}1}$, Performance Volatility$_{i\ t\text{-}2}$, Performance Volatility$_{i\ t\text{-}p}$ represent the past performance volatility levels at lag 1, 2 and p. μ_i are time invariant unobserved heterogeneity.

These variables can also be correlated with the current level of performance volatility (Frucot & Shearon, 1991; Wintoki et al., 2012; Brown et al., 2009). Thus, to accurately assess the relationship between CD and firm performance volatility, all these variables need to be included in the model and should be written as follows:

$$\text{Performance Volatility}_{i,t} = \alpha + \beta\,\text{Distance measures}\left(\text{arising from foreign appointments}\right) + X_{it}\,\gamma \sum_{s=1}^{p} \left(\delta_s \textit{Performance Volatility}_{i\,t-s}\right) + \left\{\mu_{i,+}\,\varepsilon_{it}\right\} \quad (2A)$$

This dynamic empirical model with fixed effects infer that current firm performance volatility is affected by distance measures arising from foreign appointments, all aforementioned control variables indicated by Xit both unobserved heterogeneity (through μi,) and by past realizations of performance volatility (through Performance Volatility i t-1, Performance Volatility i t-2, …, Performance Volatility i t-p). In the context of this study, the interest is on estimating β. However, the Ordinary Least Squares (OLS) estimator operates with few assumptions, which specifies that the residual term should not be correlated with the proportion of foreign appointments in the board or corner office. However, this assumption is unrealistic in the above model, because as already established, the appointment of foreign directors or a CEO can depend on unobservable factors, implying that the residual term (μi,) is correlated with the foreign appointments in the firm and thus OLS estimates of β may be inconsistent. On the other hand, a fixed effects estimator assumes that all explanatory variables are uncorrelated with contemporaneous past and future residual terms, which is also known as the strict exogeneity assumption. However due to the dynamic nature of the relationship, performance volatility is highly correlated across time.

In light of these limitations, as per Sila et al. (2016), the identification strategy relies on the assumption that firms choose a certain proportion of

foreign directors, based on unobserved heterogeneities in the board/firm and past volatility levels, to target a certain level of volatility. Put differently, when making an appointment decision on a new CEO or a director, the incumbent board or the CEO may consider a set of information that is available to them at the time of appointment, which includes past risk measures and existing board and firm characteristics, and would target an expected level of future firm risk. Thus, they argue that when the actual firm risk has materialized, the residual term can be assumed to be uncorrelated to the current information set that determines foreign appointments. As past realizations of variables that are included in the information determining appointment decisions are not correlated with the current residual terms, these variables can be employed as instrumental variables for foreign appointments of directors and CEO.

Notes

1. Parker review is an independent review prepared by Sir John Parker that investigates the level of ethnic and cultural diversity of UK boards.
2. The main motivation for a European sample is the economic liberalization operating in the European region that causes more foreign CEOs and directors to be employed in these firms, relative to other countries. Most of the stakeholders of a particular firm (e.g. employees, subordinate managers) would generally belong to the same culture as the firm's country of domicile. Yet, owing to globalization pressures, and the free mobility of labour in the EU, the board of directors and the CEO might be foreign nationals. Interestingly, Trompenaars (1993) posits that "nowhere do cultures differ so much as inside Europe." In fact, the founder of the European Community, Jean Monnet, has once declared, "if I were again facing the challenge to integrate Europe, I would probably start with culture" (quoted from Trompenaars, 1993, p. 8). Furthermore, Jenkinson et al. (2006) assert that European countries give more prominence to custom and prior practice than formal regulation. Therefore, as the emphasis on tradition happen to be significant in European firms, CD between the key constituents of the firm, such as the CEO, board of directors, stakeholders, are likely to be crucial.
3. Most of the European countries have a dual board system as highlighted by Adams and Ferreira (2007), except for the United Kingdom and Sweden (that have sole boards) and France (that has a mixed board structure). However, in this study, the data retrieved from the Boardex database consist of total data, that is, the total number of directors in the firm, including the number of supervisory directors, executive directors and independent non-executive directors involved in performing both monitoring and advisory roles.

4. The choice of this proxy can be justified due to following reasons. Head-office is usually the main office of the firm or the place where the business first started or where the administrative and other functions are located. Thus, the prominent national cultural characteristics of the country where the head-office is situated are likely to be embedded to the value system prevailing in the organization. Also, given the well-known home bias present in the portfolio holdings of investors, it is probable that a large number of firm's investors will share the culture of the country where the head-office is located (Ferris et al., 2017).
5. However, in unreported analysis, a pairwise correlation is conducted between the distances calculated for the three spheres based on all Hofstede, Schwartz and GLOBE frameworks, which portray that some of the distances are highly correlated.
6. For this purpose, a Levin-Lin-Chu (LLC) test is applied, including a trend, assuming a linear time trend in the model that describes the process by which the series is generated. The bias-adjusted t statistics for the LLC test are very large and is significant at all the usual testing levels. Unit root tests are also done for alternative corporate performance volatility measures, all independent and control variables. We reject the null of unit roots for all debt ratios and control variables at 1% level. LLC test requires the ratio of the number of panels to time periods to tend to zero asymptotically. Therefore, one can argue that it is not suitable for large datasets with a greater number of panels and relatively less time periods (Stata, n.d.). Therefore, in unreported analysis, a Harris-Tzavalis (HT) test is also carried out in addition to LLC tests for all aforementioned variables. HT test assumes the number of panels tends to infinity while the number of time periods is fixed (Stata, n.d.). The point estimates of ρ and the z statistics for each test are indicated, which are significant at 1% level in almost all instances. In very few cases, the statistic is significant at either 5% (indicated as **) or 10% (indicated as *) levels, inferring that the null hypothesis which suggests that "panels contain unit roots" can be rejected. Put differently, the results suggest that the series is stationary.
7. From an alternative perspective, Cook and Glass (2014), suggest that firms hire minority leaders in a symbolic effort (tokenism), when they are generally underrepresented in the firm. Cook and Glass also affirm that such tokens are under immense performance pressures and intense scrutiny. Finally, by examining Fortune 500 companies in the United States during 1996–2010, they posit that when the performance declines in a firm that is led by a minority CEO, the minority leader is replaced by a traditional "white" leader, to whom they refer to as "corporate saviours." In the context of the study in hand, CEO being culturally different from the board of directors imply several things, that is, either the CEO is a minority leader or the board of directors represent a minority culture. It could also be the result of both CEO and the board representing different minority cultures. Therefore, it could be assumed that either

the CEO or the board who belongs to the minority, or even both parties, are under immense performance pressures from the shareholders. Thus, the minority party would be biased against projects with a high variance, even if the net present value of the project is positive. As they are under immense scrutiny, they would be highly concerned about their reputation and would pick safe projects with stable returns, resulting with less variability in performance. This situation will be aggravated if the board represents the minority culture. This is because the outside directors in the board, generally own negligible shareholding in a firm and even if the project succeeds, their share of the gain would be limited (Eisenberg et al., 1998). Thus, outside directors would be generally biased against risk taking, which may be exacerbated due to intense performance pressures.

8. To run regressions, an approach similar to that of Cheng (2008) is followed, where all independent variables are averaged over the sample period, so that every sample firm has one observation.

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To Exist or to Exit? Dynamic Managerial Capabilities and Global Connectedness in Foreign Divestment

Ha T. T. Nguyen and Jorma Larimo†

Introduction

Foreign direct investment (FDI) is among the most important strategies of multinational enterprises (MNEs) to increase their competitiveness on a global scale, to seize and sense opportunities and threats in international markets, and to explore resources that are not available in domestic markets (Hennart, 2007; Kang et al., 2017; Tasheva & Nielsen, 2020). However, a significant amount of FDI is divested (UNCTAD, 2018), referring to deliberate and voluntary liquidation or sale of all or a major part of an active foreign operation from local countries (Boddewyn, 1979).

Recent reports show rapid changes in global economy that significantly challenge managerial capabilities to manage business activities. For instance, The Economist (2019) reports a "slowbalisation", referring to a sluggishness of globalization. The slowbalisation creates new difficulties for managers to operate business successfully across different markets. Sneader and Singhal (2021) similarly highlight a need for developing managerial abilities that help firms seek for more opportunities and enhance value creation. Cavusgil (2021) further discusses firm resilience, referring to firm ability to cope with adverse events. While MNEs may suffer similar disadvantages or risks of megatrends, different managerial capabilities potentially lead to different organizational

†Deceased. Ha T. T. Nguyen (✉) • J. Larimo
School of Marketing and Communication, University of Vaasa, Vaasa, Finland
e-mail: ha.nguyen@uwasa.fi; jorma.larimo@uwasa.fi

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4_12

resilience. Hence, MNEs need to refine their risk mitigation capabilities and learn how to better track, anticipate, and respond to megatrends, and top managers play a key role (Cavusgil, 2021). These changes urge MNEs' managers to develop their managerial capabilities to evaluate strategic opportunities and improve organizational resilience, and particularly, in making foreign divestment decisions.

Extant studies propose that there are cases when MNEs actively decide to exit their foreign subsidiaries (i.e., Sun et al., 2018), though MNEs generally avoid to exit from local countries due to several reasons. First, when divesting a foreign subsidiary, benefits received at the foreign market may be lost, while profit-shifting channels, which are significantly critical to MNEs' performance success, may be harmful; thus, divestment is always an "extreme" case (Farah et al., 2021; Song & Lee, 2017). Second, prior research proposes that MNEs divest their foreign subsidiaries mainly because of poor financial performance. Hence, there is a significant connection between MNEs' and managers' reputation and foreign divestment (Boddewyn, 1983; Ghertman, 1988; Resmini & Marzetti, 2020). Stated differently, foreign divestment may harm the MNEs' and the managers' reputations.

In addition, Fiss and Zajac (2006) argue that when a subsidiary performs poorly in a foreign country, divestment is not a favorable option because local stakeholders, that is, local authorities, have a normative expectation that MNEs would develop local economies. Accordingly, divestment may destroy the MNEs' symbolic management toward local stakeholders, which would place the MNEs and their subsequent investments in local countries in disadvantageous positions. Hawn (2021) further proposes that due to upfront financial costs, termination fees, firm reputation, and credibility, MNEs tend to avoid ending previous investments. Recently, scholars also argue that foreign divestment is an ultimately irrational objective because the divestment would stifle innovation, increase costs, and close off profitable opportunities (Williamson, 2021; Witt et al., 2021). Collectively, we propose that, in general, MNEs and their managers tend to avoid foreign divestment (Benito, 2005; Dhanaraj & Beamish, 2009; Peng & Beamish, 2019; Tan & Sousa, 2019).

Extant research explored various antecedents of foreign divestment (see Arte & Larimo, 2019; Coudounaris et al., 2020; Schmid & Morschett, 2020, for a more detail). The reviews have pointed out a missing link between foreign divestment and roles of powerful actors, that is, top management teams (TMTs), who are fully in charge of making divestment decisions (Arte & Larimo, 2019; Tan & Sousa, 2019). This is an omission, given that although external uncertainties or internal constraints may influence foreign divestment, divestment decision is actually justified and made by top executives,

who are geographically and emotionally remote from targeted subsidiaries (Benito, 1997; Ghertman, 1988; Tan & Sousa, 2019; Wright & Thompson, 1987). In essence, managers are not always making rational decisions, instead the decision-making process is likely influenced by managerial capabilities (Aharoni et al., 2011; Fredrickson & Carpenter, 2001; Hambrick & Mason, 1984; Weber et al., 2020), managerial characteristics (i.e., Adner & Helfat, 2003), or managerial perspectives toward the gains—losses of current issues and future prospect (Weber et al., 2020; Witt & Lewin, 2007). Taken together, we argue that exploring how managerial capabilities influence foreign divestment is fruitful.

Our research explores influences of managerial capabilities and constitutes foreign divestment literature in two ways. First, we extend the dynamic managerial capabilities (DMC) perspective to examine how managerial capabilities, that is, human, social, and cognitive capabilities, influence foreign divestment probability. DMC refers to the capabilities that managers pose to build, integrate, and reconfigure organizational resources and competences (Adner & Helfat, 2003). While DMC is widely discussed in organizational strategies and performance studies (Adner & Helfat, 2003; Helfat & Martin, 2015; Kor & Mesko, 2013), this perspective is neglected in foreign divestment literature. Second, we consider influences of global connectedness differences, referring to interaction levels between individuals and groups around the world to obtain information or to diffuse their own activities on modifying the effects of managerial capabilities. When technology is developing rapidly, especially with the exponential growth of Internet of Things (UPS, 2020), the influences of global connectedness differences should be emphasized. Our tenet is global connectedness differences may generate higher levels of liability of foreignness (Berry et al., 2010; Pattnaik & Lee, 2014) and reduce managerial capabilities to support firms achieve legitimacy, and thus, increasing propensity of divestment (Kostova & Zaheer, 1999).

Theory and Hypothesis Development

Prior literature in DMC has confirmed a significant influence of managerial capabilities on firm ability to cope with changes of external environment and to survive longer (Teece, 2007). As noted, although there are studies discussing how DMC influences strategic choices and organizational performance (i.e., Tasheva & Nielsen, 2020), to our best knowledge, there are no studies unveiling the influences of DMC on foreign divestments. Aiming at investigating managerial roles in foreign divestment, we follow Tasheva and Nielsen

(2020) and emphasize on the global aspects of the DMC when theorizing our hypotheses.

Dynamic Managerial Capabilities (DMC)

Adner and Helfat (2003) introduce the concept of DMC to underpin the heterogeneity in managerial decisions and firm's subsequent performance. DMC reflects three underlying factors, namely managerial human capital, managerial social capital, and managerial cognition, which represent different aspects of managerial capabilities (Adner & Helfat, 2003; Tasheva & Nielsen, 2020).

First, managerial human capital refers to learned skills and experiences that managers develop via general education, training, or learning (Adner & Helfat, 2003; Helfat & Martin, 2015). Achieved knowledge and experience enrich managerial capabilities to accurately evaluate current situations, to quickly acquire new knowledge, to appropriately align organizational resources, and to generate strategic alternatives, choices, and competences to cope with rapid changes in the external environment.

Second, managerial social capital relates to social relationships, developed through regular contacts and interactions, that confer influence, control, and power (Adner & Helfat, 2003; Helfat & Martin, 2015). Social relationships are useful for managers to access diverse information from various sources, improve their information processing ability, and thus, modify their evaluation and expectation of organizational achievements (Kor & Mesko, 2013). In the era of information, which is occupied with inaccurate news and wrong knowledge, developing strong ties with key members of the information sources helps managers focus on right things, collect additional information, and process data in an efficient and coherent manner (Mintzberg, 1979).

Third, Adner and Helfat (2003) have contributed managerial cognition, relating to managerial beliefs and mental models, to managerial capabilities (Adner & Helfat, 2003; Helfat & Martin, 2015). Executives develop their cognition lens from previous experiments, work experiences, accomplishments, personal background, and failures, which shape how they perceive future situations, alternatives, and consequences (Hambrick & Mason, 1984; Helfat & Martin, 2015; Kor & Mesko, 2013). The three aforementioned factors offer a rationale for observing differences in managerial assessments and decisions under similar circumstances (Adner & Helfat, 2003; Helfat & Martin, 2015; Tasheva & Nielsen, 2020).

Managerial Human Capital and Foreign Divestment Decisions

Previous literature proposes that managerial human capital is useful for managers and their MNEs' internationalization in several ways. First, managerial human capital enhances firms' ability to overcome liability of foreignness, to deal with "psychic distance" of subsequent investments, to develop innovative performance, and to access local resources and other opportunities (Nielsen & Nielsen, 2011, 2013; Tan & Sousa, 2019; Tasheva & Nielsen, 2020). Second, Zeng et al. (2013) conclude that managerial human capital helps firms identify fundamental differences among prior experience; thus, avoiding making susceptible errors to FDIs' decisions (Athanassiou & Nigh, 2002; Herrmann & Datta, 2005).

Third, international experiences help managers integrate effectively different cultural systems (Nielsen, 2010; Nielsen & Nielsen, 2011, 2013). These managers could also improve their information processing capabilities and widen their attitudes toward opportunities and threats (Fredrickson & Carpenter, 2001; Tushman & Nadler, 1978). Collectively, we argue that managers who have higher levels of international human capital are positively associated with better strategic decisions; thus, reducing divestment propensities. In addition, when subsidiaries face difficult situations, these managers could propose more strategic alternatives, rather than divestment (Arte & Larimo, 2019; Song & Lee, 2017; Tan & Sousa, 2019).

Hypothesis 1: Managerial human capital decreases the propensity of foreign divestments.

Managerial Social Capital and Foreign Divestment Decisions

Social relationships with internal and external partners, that is, international assignees, boundary spanners, or international contacts, facilitate managerial access to external resources and internal information; thus, developing DMC (Adner & Helfat, 2003; Helfat & Martin, 2015; Mintzberg, 1979; Tasheva & Nielsen, 2020). When MNEs' managers are overwhelmed by complex information about local institutional environments, social ties help managers access accurate information and avoid taking managerial risks due to inappropriate knowledge or fake news (Tasheva & Nielsen, 2020).

Strong networks with local partners and agencies are also helpful for managers to quickly acquire knowledge and tactics; thus, coping better with the

host institutional environments and being able to predict future changes in the host countries (Kostova et al., 2008; Roth & Kostova, 2003). Nielsen (2010) further adds that social ties provide managers with international opportunities that increase subsidiary survival chances. Collectively, we argue that managerial social capital reduces the foreign divestment probability.

Hypothesis 2: Managerial social capital decreases the propensity of foreign divestment.

Managerial Cognition and Foreign Divestment Decisions

Managerial cognition refers to beliefs and mental models that shape managerial perspective and influence managerial decisions (Adner & Helfat, 2003). Managerial cognition is an important source of DMC as it reflects managerial perception and prediction toward current and future events, and managerial capabilities to generate strategic alternatives, especially when managers do not have full information to make decisions because of bounded rationality (Adner & Helfat, 2003; Hambrick & Mason, 1984).

National culture has a profound effect on individual values, beliefs, and cognitive structures (Hofstede, 1980). Nielsen and Nielsen (2011, 2013) propose that national origin influences how managers perceive and interpret internal and external environments; thus, shaping managers' reactions and strategic choices. Tasheva and Nielsen (2020) similarly argue that foreign-born managers, positioned as business leaders, could provide superior performance under pressures of rapid changes in external environments because of their open attitudes and flexible mindset. Furthermore, understanding institutional differences is important for making better international strategies. Hence, heterogeneous cultural management groups, rather than homogeneous ones, are better in overcoming cognitive bias, in interpreting accurately formal and informal institutional differences, and in making better decisions relating to global asset orchestration (Nielsen & Nielsen, 2011, 2013; Tasheva & Nielsen, 2020). Collectively, we argue that managerial cognition is useful for interpreting institutional differences, leading to lower propensity of divestments.

Hypothesis 3: Managerial cognition decreases the propensity of foreign divestment.

Global Connectedness Differences, DMC, and Foreign Divestment

Extant research proposes that due to institutional differences, MNEs and their foreign subsidiaries have difficulties in understanding local requirements for achieving legitimacy, leading to higher foreign divestment probability (Kang et al., 2017; Pattnaik & Lee, 2014; Peng & Beamish, 2019; Sartor & Beamish, 2020). Prior scholars have focused on specific institutions, that is, cultural, economic, political, or geographic institutions (Gaur & Lu, 2007; Kang et al., 2017; Sartor & Beamish, 2020; Tsang & Yip, 2007). However, while these studies provide MNEs with guidance on how to deal with the institutional differences, they do not go far enough to provide a comprehensive knowledge about influences of institutional differences.

In today's knowledge economy, firms' ability to capture quickly knowledge development and to stay connected with other units in the global arena is more important. Companies need to take proactive plans to deal with rapid changes in external environment, especially with changes in technological development, to prevent failure (UPS, 2020). Berry et al. (2010) introduce global connectedness, referring to interaction levels between resident individuals and companies around the world, which influences firm abilities to obtain information and to diffuse their own activities. This institution captures the differences in connectedness between countries via physical travel (i.e., tourism) and Internet use. However, this institution has received scant attention in extant literature (Kang et al., 2017; Pattnaik & Lee, 2014).

Our research focuses on global connectedness differences because of two critical reasons. First, because of development in technological sectors, differences in global connectedness influence firm's abilities to tap into distant knowledge sources, to quickly provide guidance and support to their subsidiaries to deal with sudden changes in local countries. Second, as our research objective is to explore managerial roles in making divestment decisions, delving into influences of connectedness is crucial to understand how managers could access subsidiary's situations at local countries.

In line with previous studies (i.e., Kang et al., 2017; Pattnaik & Lee, 2014), we argue that global connectedness differences increase foreign divestment probability because the differences hamper the information and knowledge diffusion, which influence managerial capabilities to make strategic decisions in good time manner. In addition, higher levels of global connectedness differences decrease subsidiaries' connectedness with headquarters, and thus, the

subsidiaries may receive less attention, managerial guidance, and resource inputs from headquarters.

Hypothesis 4: Global connectedness differences increase the propensity of foreign divestment.

We develop further our arguments relating to moderating effects of global connectedness differences on the DMC—foreign divestment relationship. Specifically, we argue that, when an MNE enters a foreign country, which has higher levels of global connectedness differences from the MNE's home country, the differences bring more challenges for MNEs' managers to access information sources or knowledge hubs at local countries, and thus, hampering managerial capabilities to take advantages of their human, social capital and managerial cognition to achieve the legitimacy. Managers are also difficult, that is, to connect with their local social ties established from their past years, to apply their accumulated experiences to subsequent investments, or to take advantage of their heterogeneous cultural origins when dealing with host legitimacy's requirements. In addition, managers need to rely more heavily on external ties to access local knowledge, which are more difficult to judge the accuracy of the received information. Therefore, we propose the following:

Hypothesis 5: When the level of global connectedness differences increases, it decreases negative effects of dynamic managerial human capital (H_{5a}), of dynamic managerial social capital (H_{5b}), and of dynamic managerial cognition (H_{5c}) on the propensity of foreign divestment.

Research Method

Sample

We test our hypotheses in the context of Finnish MNEs and their foreign investments made between 2005 and 2015, and the situation of those investments at the end of 2018. Despite its small scale in the global arena, Finnish economy is the eleventh most competitive nation out of 140 ranked countries in 2018 (Global Competitiveness Report, 2018). Koch et al. (2016) further argue that although most leadership and organizational theories emerge from the Western context, this regional cultural context has not been investigated widely in IB fields and, particularly, in foreign divestment literature. Therefore, we selected the Finnish MNEs to intensify our knowledge about how Western MNEs develop their international strategies. We choose the timeframe 2005–2015 to check the divestment rate during the financial crisis, which make the foreign investments and divestments to be more sensitive. We focus

only on the manufacturing sector to avoid potential confounders (Tihanyi et al., 2000). Our homogeneous sample also eliminates opportunity costs because of differences in human capital across industries (Elfenbein & Knott, 2015).

We collected the Finnish MNEs' information from Thompson and ORBIS databases, systematic analysis of the annual reports, press releases of the investing firms, data gathered in FDI surveys, and direct contact with investing companies. For information about DMC, we collect executive information through ORBIS, firm annual reports, company's websites, LinkedIn, and Digital Institute Finland. We have also contacted TMT members to have their updated CVs. If there is a contradictory information between two different sources, we will follow the official company's website. Our retrieval provided us 721 subsidiaries, in which, we deleted 45 cases because of missing values and another 19 cases because the cases were later divested as consequences of corporate divestment. Hence, our final sample data consists of 657 investment cases made by 241 firms in 36 foreign countries, from which 131 cases (20%) are divested at the observing time.

Variables

The dependent variable in this study is the probability of foreign divestment, and it is operationalized as 1 for divestment, otherwise 0 (Getachew & Beamish, 2017; Kang et al., 2017; Peng & Beamish, 2019).

Individuals belonging to top management teams are executives at the very highest level of management, that is, chairmen, chief executive officers, presidents, and chief operating officers, and the next highest ties, that is, executives at their vice president positions, regardless of their potential different titles, depending on their organizations (Wiersema & Bantel, 1992). Data on executive characteristics were collected at the individual level and then aggregated to the team level by using different measures. Following Tasheva and Nielsen (2020), we collect global managerial human capital as 1 for executives with experiences working or schooling abroad, otherwise 0. To access global managerial social capital, we coded 1 for executives who used to hold foreign membership abroad, otherwise 0. Furthermore, we measure global managerial cognitive via their national diversity, a heterogeneous operationalization based on the Blau index (i.e., Nielsen & Nielsen, 2011; Tasheva & Nielsen, 2020):

$$B = \left[1 - \Sigma\left(p_i\right)^2\right]$$

Where p is the percentage of members in the i^{th} group. We refer to Berry et al. (2010) to measure the global connectedness score of each country. Global connectedness differences refer to differences in the score of this indicator between countries calculated using Mahalanobis distance (Berry et al., 2010).

Elaborating on extant literature on TMTs and foreign divestment, we control several variables belonging to TMTs, subsidiary, parent, and country levels. At TMT level, we control TMT size and age, which were measured by the total number of TMT members and the average age of TMT members, respectively. At the subsidiary level, we control age (years from establishment), equity ownership level (wholly owned subsidiaries WOS vs. joint ventures IJV), entry mode (greenfield vs. acquisition), and the relatedness of the unit. We also control for parents' size (total sales), R&D intensity, and degree of diversification. At the country level, we control for host country economic development (GDP growth), risk in the investment year (ECR country scores), change in political risk (differences in ECR country scores), host country income level (GDP), cultural distance (GLOBE), and geographic distance (great circle distance between countries).

Analytical Strategy

Prior scholars (i.e., Arregle et al., 2006; Nielsen & Nielsen, 2011) argued that FDI strategies, including foreign divestment, are influenced by various variables belonging to FDI-, firm-, country-levels and the interactions among them (Berry, 2013; Kang et al., 2017; Song, 2015). The non-independence of observations may lead to bias in interpreting statistical results. Ignoring the nested structure of the data would potentially increase methodological errors (Arregle et al., 2006). Nested models also incorporate random effects to account for cluster-specific homogeneities of the outcome (Lee et al., 2019; Osborne, 2000). Taken together, we applied the hierarchical logistic regression model (HLM) to examine foreign divestment probability.

Findings

In order to test the validity for the multilevel hierarchical model analysis, we examined potential problems related to variables' distribution and checked if the assumptions for running these analyses are violated. To avoid potential significant level of skewness of total sales, we computed a logarithmic

transformation for this variable to measure firm size. We keep original operationalization of others because they were distributed normally. We also checked the outlier's problems among variables using Mahalanobis' distance and Cook's distance measure. The results showed that there are no outliers in our sample. The results confirmed the validity for running the hierarchical linear analyses. Table 1 provides descriptive statistics.

The research design resulted in a hierarchical structure with three levels of variables: TMT-, firm- and country-level variables. The results are reported in Table 2. Model 1 includes only control variables, while Models 2 to 6 test our hypotheses. In general, our control variables significantly influence foreign divestment, except for geographic distance. Precisely, we found that TMT size, product diversification, acquisition, risk in investment year, increase in host country risk, and cultural distance increase foreign divestment, while TMT age, firm size, R&D intensity, subsidiary age, WOS, relatedness, GDP growth, and host country economic development decrease propensity of foreign divestment.

To test hypotheses 1 to 3, we included managerial human capital, social capital, and cognition in Model 2. Precisely, we found that managerial human and social capital decrease foreign divestment probability ($\beta_{\text{human capital}} = -0.410$; $\beta_{\text{social capital}} = -0.259$) at the 0.001 level. However, managerial cognition does not change significantly divestment probability, even though the coefficient is negative ($\beta_{\text{cognition}} = -0.042$). Thus, hypotheses 1 and 2 are supported, while hypothesis 3 is not supported.

We proposed in hypothesis 4 that global connectedness differences bring more difficulties that hamper long-term performance; thus, leading to higher rates of foreign divestment. In Model 3, global connectedness differences are significant and positive ($\beta = 0.023$, p-value < 0.001). Hence, hypothesis 4 is supported. We further argue that global connectedness differences escalate challenges for TMTs to take advantage of their DMC and thus, modifying the negative influence of DMC on foreign divestment. We test these hypotheses in Model 4 by adding interaction terms of DMC and global connectedness differences. In general, our results show that the interaction terms are significant and negative, except for the effect of managerial cognition. Hence, hypotheses 5a and 5b are supported, while hypothesis 5c is not supported. Collectively, we conclude that global connectedness differences decrease the negative effects of dynamic managerial human and social capital on foreign divestment probability.

Table 1 Descriptive Statistics and Pearson Correlations (n = 657)

Variables	Mean	S.D	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Subsidiary divestment	0.20	0.11	1.00						
2. TMT age	51.64	2.45	0.35	1.00					
3. TMT size	9.33	2.35	0.05	0.05	1.00				
4. Firm size	8.77	2.03	0.50	0.05	0.24	1.00			
5. Product diversification	9.33	2.35	0.04	0.07	0.16	-0.03	1.00		
6. R&D intensity	2.13	1.03	0.23	0.17	0.11	-0.02	0.08	1.00	
7. Subsidiary age	8.84	3.45	-0.01	-0.10	-0.03	-0.01	0.08	0.01	1.00
8. Acquisition	0.61	0.16	0.01	0.01	0.15	0.08	0.05	-0.28	0.05
9. WOS	0.51	0.29	-0.00	-0.04	0.06	0.05	0.07	-0.01	-0.01
10. Relatedness	0.95	0.22	-0.01	-0.24	-0.03	0.10	-0.08	0.03	0.09
11. GDP growth	2.16	2.03	0.07	-0.00	-0.12	-0.00	0.10	-0.10	0.33
12. Host country economic development	2.18	1.56	-0.015	-0.24	-0.03	-0.11	-0.12	0.04	0.15
13. Risk in investment year	84.35	14.21	-0.30	-0.01	-0.00	-0.05	0.03	-0.00	0.11
14. Increase in host country risk	-7.46	8.57	0.02	-0.22	0. 14	-0.02	-0.18	0.03	-0.03
15. Cultural distance	2.68	0.54	0.49	0.11	0.12	0.14	0.23	0.00	0.01
16. Geographic distance	3.76	3.14	-0.01	-0.06	0.04	-0.00	0.13	-0.06	-0.00
17. Managerial human capital	0.69	0.46	0.02	0.00	0.06	-0.10	-0.00	0.07	-0.04
18. Managerial social capital	0.62	0.86	0.00	-0.03	0.16	-0.01	-0.01	0.17	-0.04
19. Managerial cognition	0.59	0.30	0.33	0.06	0.03	0.11	0.02	0.48	1.00
20. Global connectedness differences	1.16	1.46	-0.19	-0.23	-0.12	-0.12	0.07	-0.04	0.39

Robustness Check

We run several post hoc tests to consolidate our results. First, previous scholars (i.e., GLOBE (House et al., 2004); Hofstede, 1980; Schwartz, 1994) confirm that national culture is not different from countries belonging to the same cultural cluster, for instance, the United States and England; China and Singapore, and so on. Because our sample includes executives sharing similar cultural norms, that is, Swedish and Finnish, we follow recommendations from previous scholars (i.e., Arregle et al., 2013; Demirbag et al., 2020) to

(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
1.00												
−0.01	1.00											
0.08	0.06	1.00										
−0.11	−0.14	0.08	1.00									
0.01	0.10	−0.06	−0.23	1.00								
−0.04	0.01	−0.01	−0.12	−0.12	1.00							
0.48	0.08	0.08	0.48	0.01	−0.04	1.00						
−0.15	0.08	0.02	0.02	0.01	0.06	0.01	1.00					
−0.39	0.14	0.01	−0.01	−0.01	0.03	0.03	−0.19	1.00				
0.08	0.44	0.14	−0.07	0.22	0.15	−0.01	0.23	0.35	1.00			
−0.04	0.05	0.22	−0.01	−0.05	0.39	0.53	−0.32	−0.01	0.33	1.00		
−0.58	0.23	0.54	0.74	0.15	−0.07	−0.13	−0.12	0.02	0.06	0.37	1.00	
0.33	0.53	0.61	−0.20	0.18	−0.23	0.22	0.23	0.53	−0.18	0.22	0.31	1.00

recode our managerial cognition as cultural cluster level, instead of national level. Then, we rerun Models 2 and 4 to check the hypotheses 3 and 5c regarding to the effect of managerial cognition on foreign divestment and the moderating effect of global connectedness differences on this relationship. Interestingly, our results show that considering managerial cognition at cluster level, managerial cognition decreases foreign divestment probability ($\beta_{cognition}$ = −0.154, p-value < 0.01), while global connectedness differences significantly moderate the negative effect. We presented the results of Models 5 and 6 in Table 2.

Table 2 Results of hierarchical logistic regression: the effects of DMC on the foreign divestment probability

Variables	Model 1	Model 2	Model 3	Model 4	Model 5*	Model 6*
1. TMT age	-0.194***	-0.196***	-0.196**	-0.196***	-0.197***	-0.196***
	(0.005)	(0.007)	(0.005)	(0.006)	(0.005)	(0.006)
2. TMT size	0.090***	0.092***	0.092***	0.092***	0.094***	0.091***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
3.Firm size	-0.324***	-0.318***	-0.320***	-0.258***	-0.314***	-0.308***
	(0.014)	(0.014)	(0.015)	(0.016)	(0.014)	(0.015)
4. Product diversification	0.130***	0.124***	0.126***	0.126***	0.128***	0.126***
	(0.013)	(0.012)	(0.012)	(0.013)	(0.013)	(0.013)
5. R&D intensity	-0.477***	-0.429***	-0.434***	-0.442***	-0.481***	-0.442***
	(0.074)	(0.075)	(0.075)	(0.075)	(0.074)	(0.075)
6. Subsidiary age	-0.012***	-0.008**	-0.009**	-0.030***	-0.020***	-0.009**
	(0.071)	(0.021)	(0.021)	(0.069)	(0.079)	(0.090)
7. Acquisition	0.060*	0.125*	0.123*	0.216	0.017	0.119*
	(0.901)	(0.891)	(0.891)	(0.904)	(0.982)	(0.886)
8. WOS	-0.016**	-0.005**	0.002	0.000	0.002	-0.001*
	(0.099)	(0.102)	(0.101)	(0.101)	(0.102)	(0.102)
9. Relatedness	-0.225+	-0.222+	-0.225+	-0.225+	-0.225+	-0.225+
	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)	(0.127)
10. GDP growth	-0.006*	-0.007*	-0.005*	-0.003	-0.006*	-0.006*
	(0.991)	(0.995)	(0.947)	(0.996)	(0.993)	(0.992)
11. Host country economic development	-0.006***	-0.003**	-0.002**	-0.001*	-0.002	-0.002**
	(0.991)	(0.992)	(0.997)	(0.998)	(0.997)	(0.997)
12. Risk in investment year	0.064**	0.040**	0.034**	0.042*	0.039**	0.039**
	(0.107)	(0.103)	(0.112)	(0.466)	(0.478)	(0.477)
13. Increase in host country risk	0.361**	0.420**	0.432**	0.415**	0.426**	0.431**
	(0.157)	(0.160)	(0.155)	(0.156)	(0.158)	(0.159)
14. Cultural distance	0.237**	0.219**	0.236**	0.212**	0.232**	0.235**
	(0.137)	(0.138)	(0.136)	(0.137)	(0.139)	(0.133)
15. Geographic distance	0.031	0.042	0.021	0.012	0.016	0.019
	(0.049)	(0.059)	(0.050)	(0.050)	(0.050)	(0.049)
16. Managerial human capital		-0.410***	-0.412***	-0.400***	-0.404***	-0.400***
		(0.036)	(0.037)	(0.036)	(0.037)	(0.036)
17. Managerial social capital		-0.259***	-0.261***	-0.261***	-0.262***	-0.261***
		(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
18. Managerial cognition		-0.042	-0.045	-0.047	-0.154**	-0.150**
		(0.042)	(0.042)	(0.042)	(0.014)	(0.014)
19. Global connectedness differences			0.023***	0.021***		0.022***
			(0.001)	(0.001)		(0.001)
20. Managerial human capital x global connectedness differences				0.035***		0.035***
				(0.005)		(0.005)

(*continued*)

Table 2 (continued)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5*	Model 6*
21. Managerial social capital x global connectedness differences				0.025*** (0.004)		0.026*** (0.004)
22. Managerial cognition x global connectedness differences				0.047 (0.042)		0.026** (0.004)
R^2	0.47	0.62	0.64	0.68	0.63	0.70
Change in R^2		0.15	0.17	0.21	0.16	0.23
Number of cases	657	657	657	657	657	657
Number of divestments	131	131	131	131	131	131

Robust standard errors shown in parentheses, *** p-value < 0.001; ** p-value < 0.01; * p-value < 0.05; + p-value < 0.1. All models include dummies for parent firms, years and industry

*Models 5 and 6, managerial cognition is measured at cluster-cultural base, instead of country-based

Second, because of the popularity of survival analysis in foreign divestment literature, we replace our hierarchical logistic regression by survival analysis (Kang et al., 2017; Pattnaik & Lee, 2014; Song & Lee, 2017) and rerun all models in Table 2 for consolidating our findings. Nevertheless, instead of using the basic Cox model, which assumes no unobserved heterogeneity or event dependence, we apply a frailty Cox proportional hazard model to test the likelihood of foreign divestment (Berry, 2013; Lee et al., 2019). This frailty model accounts for cluster-specific homogeneities, the inherent nature that the subsidiary is nested in its parents (Austin, 2017; Lee et al., 2019). The frailty models also consider if the same firm may suffer the hazard more than once as a result of unmeasured causes (Berry, 2013). In general, the results are largely consistent with our main findings. The results could be found upon author contact.

Finally, because our sample includes investments from 2005 to 2015 and check divestment situation of those investment until 2018, the sample may be biased because the financial crisis in 2008 could increase foreign divestment probability. Hence, we divide our sample into 2005–2010 and 2011–2015 and compare the results. We found that although the number of divestment cases in the first period is higher, the general results are largely identical. We do not report the results for brevity.

Discussion and Conclusions

Elaborating on the DMC perspective, our research examines how managerial human, social capital, and cognition influence foreign divestment and investigates how global connectedness differences modify these influences. In doing so, we contribute to foreign divestment literature in several ways.

Theoretical Contribution

First, we extend and provide validity of the DMC concept to foreign divestment literature (Adner & Helfat, 2003; Helfat & Martin, 2015; Tasheva & Nielsen, 2020). While extant foreign divestment studies focus on the effects of external and internal antecedents, we explore active roles of top managers who are fully in charge of making divestment decisions. Our tenet is that DMC enhances managerial capabilities, that is, information processing, resource exploitation and exploration, or applying accumulated experience, to manage foreign subsidiaries efficiently and thus reducing the likelihood of foreign divestment.

Second, while previous management studies tend to focus only on one or two dimensions of the DMC, which is an exceptional study of Tasheva and Nielsen (2020), our study is among the first studies exploring simultaneously the effects of three dimensions of the DMC and provides a comprehensive knowledge on how DMC influences foreign divestment probability. More precisely, our study shows that managerial human and social capital are negatively associated with the divestment probability. Previous scholars have confirmed that human and social capital bolster managerial network and enhance their global perspective (Fredrickson & Carpenter, 2001; Herrmann & Datta, 2005; Li, 2018). Those managers are also efficient in generating and integrating novel ideas and in allocating resources (Nielsen & Nielsen, 2011, 2013). Consequently, managerial human and social capital help managers develop better strategies, leading to lower propensity of divestment.

Third, we emphasize how cultural cluster provides significant knowledge on influences of managerial cognition compared to national culture. Precisely, when we took national origin as the core element to assess the managerial cognition, our empirical findings do not support the hypothesis. However, our post hoc results show that managerial cognition significantly decreases foreign divestment probability when generated at cluster level. This interesting result shows that citizens from the same cultural cluster may share similar cultural norms and beliefs, leading to homogeneity in mindset and

perception. Hence, we conclude that managerial cognition, generated from heterogeneous cultural clusters, helps managers make better organizational decisions and thus leading to lower propensity of divestment.

Furthermore, our research confirms that differences in global connectedness hamper the knowledge and information diffusion between head offices and foreign subsidiaries as well as between countries, leading to higher levels of foreign divestment. The differences also bring more challenges to top managers in taking advantage of their DMC. Hence, global connectedness differences decrease the negative effect of DMC on foreign divestment probability.

Managerial Implication

Our managerial implications are straightforward. Our study provides several proposals for MNEs to design their human resources. First, we show that dynamic human and social capital could reduce foreign divestment probability; thus, MNEs and their head offices (HO) should pay more attention to the decision-makers' DMC to assign appropriately human recourses for making specific strategic decisions. Second, because we found a notable finding that managerial cognition generated at cultural cluster level, instead of national level, significantly decreases foreign divestment probability, we encourage MNEs and their HO to diversify dynamic managerial cognition at cultural cluster level, instead of focusing only on national origins of the executives. Furthermore, we urge MNEs and their HO to alleviate positive effects of global connectedness differences on foreign divestment by providing support and increasing connection between HO and foreign subsidiaries to strengthen knowledge and information diffusion.

Future Directions

Our research opens up several existing rooms for future studies. First, we discuss influences of managerial human, social capital, and cognition on foreign divestment probability. Management scholars highlight significant effects of several upper-echelons characteristics, which our study does not capture. This limitation could be addressed by investigating how TMT gender, tenure, and functional experience, among others, constitute DMC.

We also measured DMC by taking the average scores, except for the managerial cognition. Future studies could replicate our models with heterogeneous characteristics. In addition, due to a lack of financial information at subsidiary level, we could not control these variables (Makino et al., 2007;

Tan & Sousa, 2019). Hence, we encourage future research to consider these variables to develop our nuanced knowledge about how subsidiary characteristics modify managerial involvement.

Moreover, our hierarchical analysis strategy is also worth to re-examine in different contexts, that is, top executives of the U.S., Japanese, and Western European MNEs, as well as from emerging markets, that is, Indian, Korean, Chinese, Brazilian MNEs, to generalize our findings. In closing, we encourage future research to focus on regional borders, that is, MNEs exit all of their foreign subsidiaries from a region or a sub-region because MNEs make decisions at cluster level (i.e., Arregle et al., 2013; Demirbag et al., 2020).

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[1] Note: Page numbers followed by 'n' refer to notes.

S. Batas et al. (eds.), *Megatrends in International Business*, The Academy of International Business, https://doi.org/10.1007/978-3-030-95527-4